MITSUBISHI MATERIALS

IR Day 2021（Part1）

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Agenda

Part	No	Time	Contents	Speakers
1	①	13:00～13:03	Opening remarks	Naoki Ono, Chief Executive Officer
	②	13:03～13:20	Progress of Management Strategy	Nobuhiro Takayanagi, Chief Financial Officer
	③	13:20～13:50	Advanced Products Company	Yasunobu Suzuki, President, Advanced Products Company
	④	13:50～14:20	Metalworking Solutions Company	Tetsuya Tanaka, President, Metalworking Solutions Company
	⑤	14:20～14:50	Metals Company	Tetsuro Sakai, President, Metals Company
	⑥	14:50～15:20	Cement Company	Kazuto Hirano, President, Cement Company
	⑦	15:20～15:50	Environment & Energy Business Company	Shogo Yamaguchi, President, Environment & Energy Business Company
Interval				
2	⑧	16:00～16:20	Digital Transformation Strategy	Makoto Shibata, Managing Executive Officer
	⑨	16:20～16:40	Safety, Quality and Manufacturing	Shinichi Nakamura, Managing Executive Officer
	⑩	16:40～17:00	Governance / Human Capital	Jun Nagano, Managing Executive Officer

Progress of Management Strategy

IR Day

November 30, 2021

Managing Executive Officer,
Nobuhiro Takayanagi

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Contents

1. Progress of Group-wide Policies

2. Summary of Business Results

3. Sustainability Initiatives

Mission（Corporate Philosophy System）

Optimization of Business Portfolio

For People, Society and the Earth

We will become the leading business group committed to creating a sustainable society through materials innovation, with use of our unique and distinctive technologies, for People, Society and the Earth

Create both social and economic values

Contribute to build a prosperous society by providing nonferrous metal materials, predominantly copper, and high value-added functional materials and products.

Contribute to build a recycling-oriented society by providing recyclable products and advanced technology-based waste recycling.

Contribute to build a decarbonized society by developing and promoting the use of renewable energies such as geothermal energy, and ensuring to consider the reduction of environmental impact in manufacturing.

<Group-wide Policy>

◆Optimization of business portfolio
◆Comprehensive efforts to increase business competitiveness
-> Manufacturing excellence, quality management, and digital transformation strategies
◆Creation of new products and businesses
-> R&D and marketing strategy

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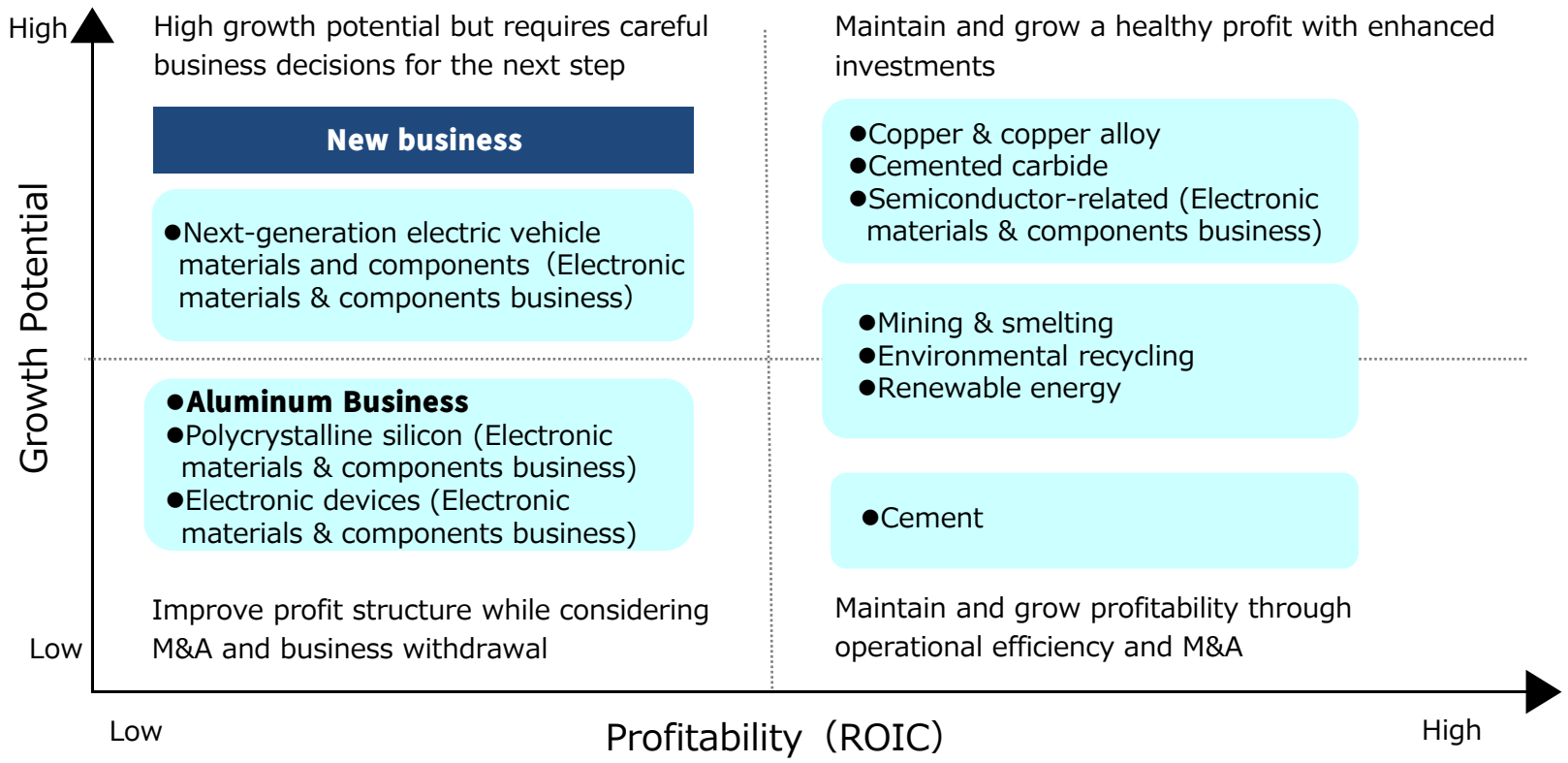
Optimization of Business Portfolio (1)

Optimization of Business Portfolio



【Focusing on the businesses that the company should take ownership of】

- Businesses that are consistent with the Group's vision and mission
- Businesses that are governable by the Group
- Businesses that are capable of earning a leadership role in a specific region or the world
- Businesses that can deliver stable returns over capital costs on a medium- to long-term basis

【Building business portfolio】

- Profitability and growth potential determine the business direction
- Profitability is measured by ROIC (spread)
- Growth potential is measured by EBITDA growth rate, etc.

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Optimization of Business Portfolio (2)

Business Restructuring Activities

Legend
C : Company
: Long-term business goals

Advanced Products C	Metalworking Solutions C	Metals C	Cement C	Environment & Energy Business C	Structural Improvements
● Acquisition of Luvata ● Absorption-type merger of Mitsubishi Shindoh	● Establishment of technical center ● Making Mitsubishi Hitachi Tools as a wholly owned subsidiary ● Invest in Masan High-Tech Materials (December 2020)	● Establishment of E-scrap Sampling Center in the Netherlands ● Stake acquisition in Mantoverde copper mine ● Establishment of Mining & Metallurgy Laboratories		● Joint development of LiB recycling technology	● Started operations of Wasabizawa Geothermal Power Plant ● Started construction of geothermal and hydroelectric power plants ● Establishment of biogas business company
Global First Supplier	Top 3 supplier in strategic markets	Leader in environmentally-friendly smelting business	Leader in the domestic and international cement industry with advanced environmental technologies	● Driver of resource-recycling systems ● Leading company in geothermal development	● Business structure reform ● Thoroughly improve profitability ● Accelerate overseas expansion
1 Copper & copper alloy 2 Electronic materials & components (xEV materials / components & semiconductors related)	3 Cemented carbide	4 Mining & smelting	5 Cement	6 Environmental recycling 7 Renewable energy	8 Sintered parts 9 Aluminum Electronic materials & components (Polycrystalline silicon and electronic devices)

1
- April 2022(Scheduled): Merger of three consolidated subsidiaries to form MM Copper Products, Inc.

2
- December 2021 (Scheduled): Transfer of shares in Mitsubishi Cable's subsidiary, Ryosei Systems, Ltd.

3
- December 2020: Investment in Masan High-Tech Materials Corporation

4
- February 2021: Invested 30% in a Mantoverde copper mine
- January 2023(Scheduled): Convert PT. Smelting in Indonesia ("PTS") to contract smelting
- First half in 2024(Scheduled): Convert PTS from a consolidated subsidiary to an equity method affiliate

5
- September 2020: Signed an agreement with Ube Industries, Ltd. to integrate the cement business.
- April 2022(Scheduled): Inauguration of UBE Mitsubishi Cement Corporation

6
- July 2021: Transfer of shares of Dia Consultants Co., Ltd.

7
- September 2020: Start operation of New Energy Fujimino Co., Ltd. (Biogasification of food waste)

8
- December 2020: Transfer of shares in Diamet Corporation

9
- January 2021: Transfer of shares in Chinese subsidiary of Mitsubishi Aluminum Co., Ltd.
- April 2021: Transfer of shares of Tachibana Metal Co., Ltd.
- March 2022(Scheduled): Transfer shares of Universal Can Corporation and conclude an agreement on the separation and reorganization of the rolled and extruded products businesses of Mitsubishi Aluminum Co., Ltd.

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Creation of new products and businesses (1)

Investment Results of “MMC Innovation Investment Business Limited Liability Partnership”

Through the MMC Innovation Investment Business Limited Liability Partnership, our corporate venture capital (CVC), the Company support technology start-up companies that have synergies with our company and accelerate collaboration.

FY2020

Elephantech

Started **development of copper nano-ink** with Elephantech as an evaluation partner, the Company aims to develop new copper products for circuit substrates and capture material supply opportunities

FY2021

ENECOAT

Collaborate with Enecoat on the development of peripheral materials, etc., needed to improve the performance of perovskite solar cells and to make them lead-free, **aiming for opportunities to supply materials when perovskite solar cells become widely used**

CONNEXX SYSTEMS

Currently developing technology to reuse and recycle used in-vehicle LIBs. Promote the reuse business by exploring **reuse of used in-vehicle LIBs into stationary storage batteries** with Connexx.

NATURE ARCHITECTS

By combining the Company's knowledge of the properties of non-ferrous metals and other materials with N's design technology, we will **develop unique products with new added value through additive manufacturing using our materials**

FY2022

IMMUNOSENS

Find synergy effects with Immunosens's life and healthcare related technologies and knowledge, and **apply the Company's knowledge of non-ferrous metals and other materials to the life and healthcare field**.

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Creation of new products and businesses (2)

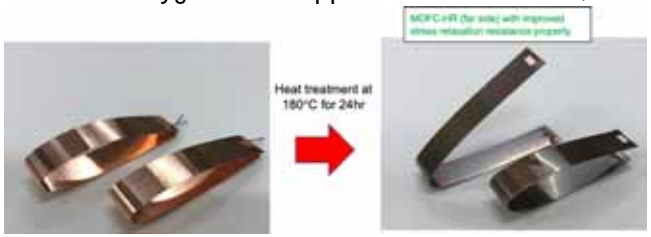
Creation of new products and businesses

Development of new lightning protection components for xEV quick chargers

Appearance of DA53 series - lightning protection components for xEV quick chargers

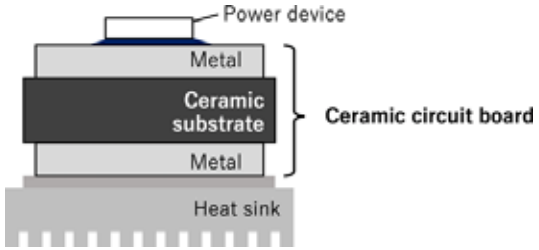
Developed "MOFC-HR" (*), oxygen-free copper with the world highest level of strength and heat-resistance.

* (Mitsubishi Oxygen Free Copper - Heat Resistance)



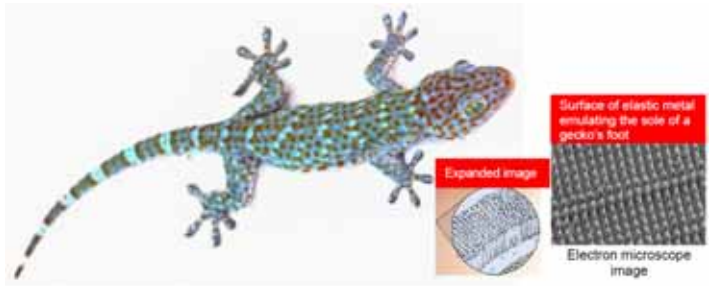
Newly developed MOFC-HR, ideal for high current busbar and terminals, etc., for xEVs appliances

Started joint development of new ceramic circuit board with U-MAP, a venture company from Nagoya University

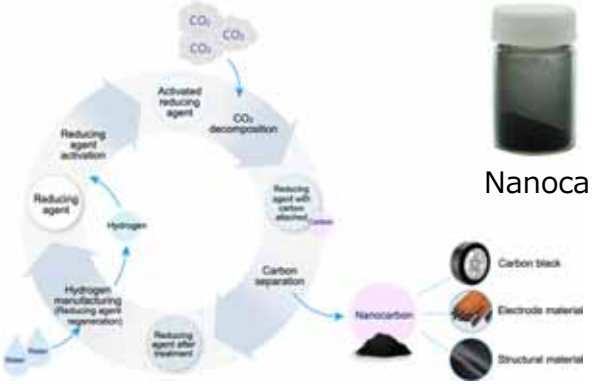


Announcement of creation of new products and businesses in FY2022

Developed "Elastic Metal," an innovative new material with the flexibility of rubber



Selected for NEDO project as one of the carbon recycling technologies



Nanocarbon

Image of the carbon recycling process

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(Consolidated) Financial Goals

Summary of business results

(Unit: million yen)

		FY2022 Forecast (Announced on November 9,2021)	FY2023 Target (*1) (Announced on May 14, 2021)
ROIC (%)		5.2	4.0
ROA (ordinary income to total assets) (%)		2.9	2.0
ROE (%)		6.7	6.0
PL	Net sales	17,600	14,100
	Net sales (excluding metal)	—	6,000
	Operating profit	420	290
	Ordinary income	590	380
BS	Total assets	20,000	18,200
	Net interest-bearing debt	4,800	3,600
	Shareholders' equity	5,500	5,600
Net D/E ratio (times)		0.9	1.0以下
Assumptions	Exchange rate (yen/$)	110	110
	Exchange rate (yen/€)	130	130
	Copper price (¢/lb)	426	330

ROIC = NOPAT/ invested capital

NOPAT : (Ordinary profit + interest on funds) x (1-effective tax rate)
Profit before tax includes share of profit/loss of investments accounted for using equity method and dividend income

Invested capital : Excludes amount equivalent to inventories that are risk-free because of price hedging

*1 Assuming transition to equity method in cement business

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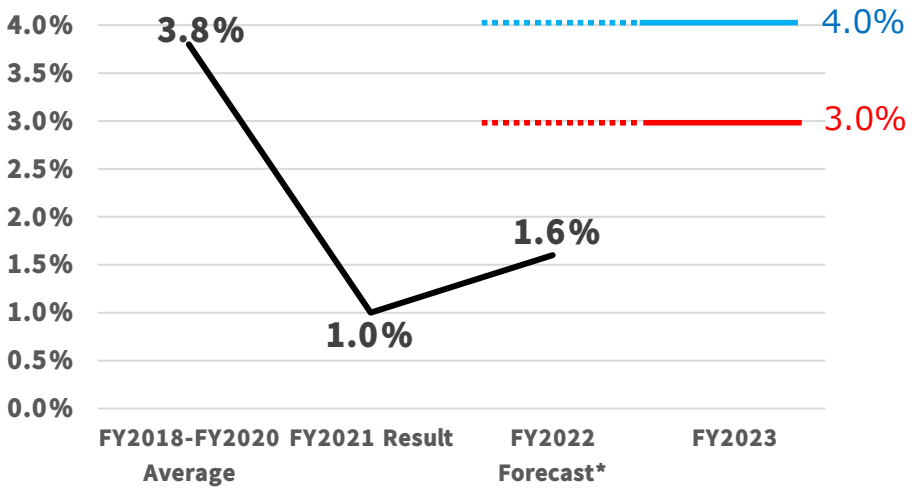
Trends in ROIC in our businesses

FY2023 Forecast (Announced on November 9,2021)

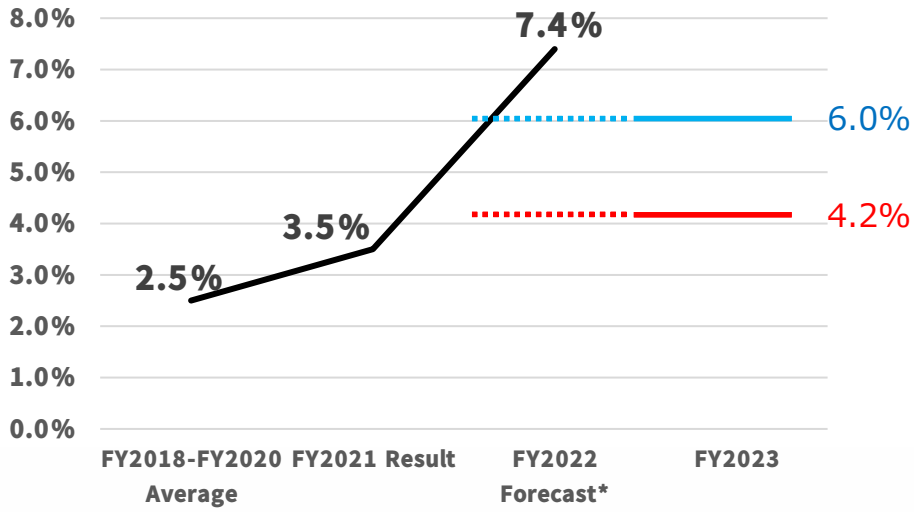
FY2023 Initial Forecast (Announced on March 25, 2020)

Advanced Products

Copper and copper alloy products

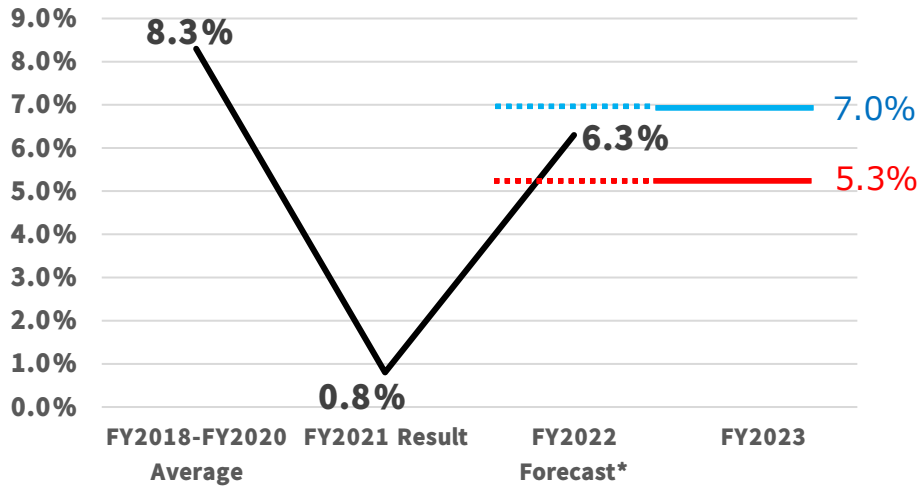


Electronic materials & components

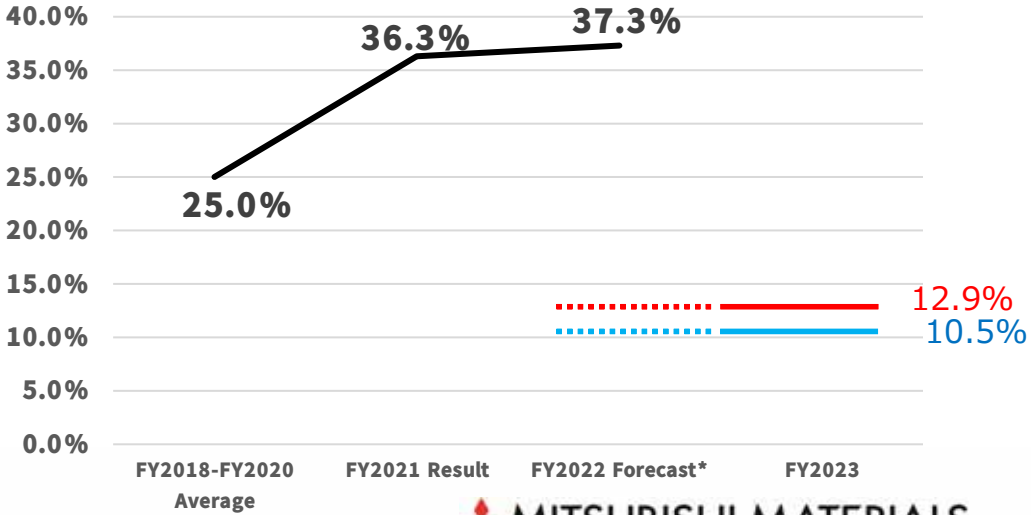


∗(Based on Announcement on Nov.9, 2021)

Metalworking Solutions



Metals



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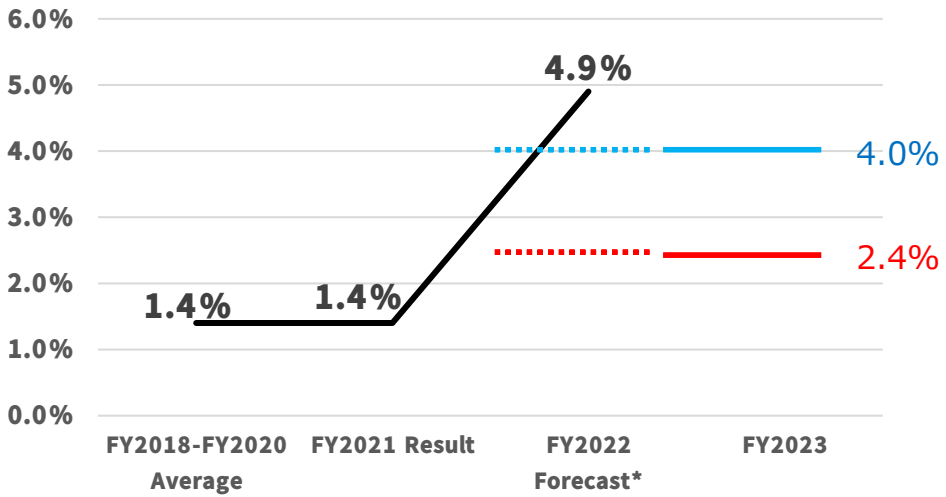
Trends in ROIC in our businesses

FY2023 Forecast (Announced on November 9,2021)

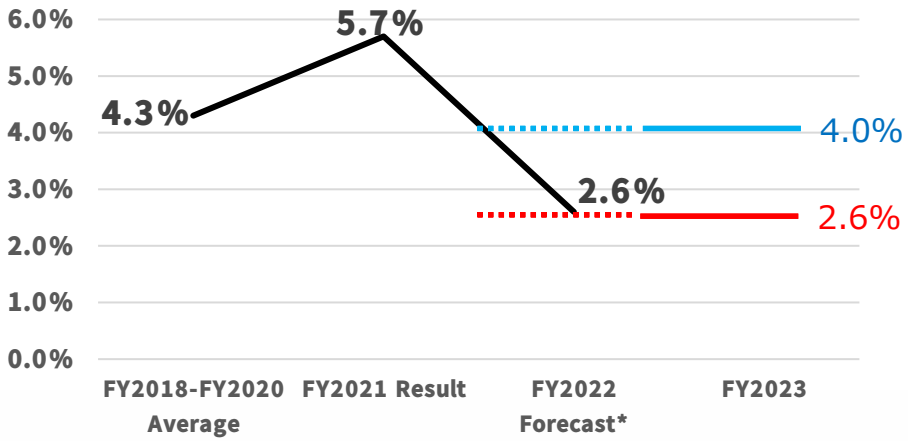
FY2023 Initial Forecast (Announced on March 25, 2020)

Environment & Energy

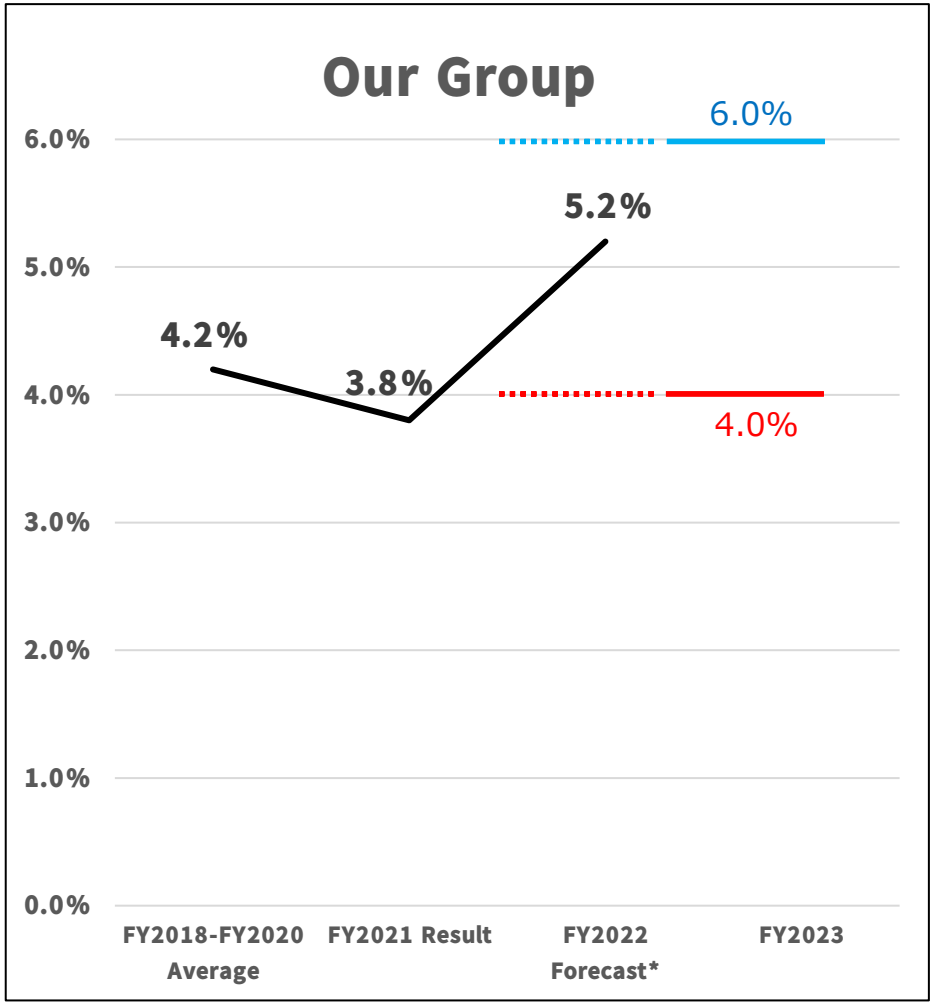
Environmental recycling



Renewable energy



Our Group



∗(Based on Announcement on Nov.9, 2021)

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Global Sustainability Trends

- Global sustainability trends change dramatically in a short time period
- Understanding these changes will allow the Group to develop new initiatives

E Environment

Circular Economy, Climate Change Response, Biodiversity

- In January 2021, the Ministry of the Economy, Trade and Industry and the Ministry of the Environment published the Disclosure and Engagement Guidance to Accelerate Sustainable Finance for a Circular Economy
- In August 2021, the Intergovernmental Panel on Climate Change (IPCC) strongly cautioned that the global temperature had already risen 1.2 degrees in the Sixth Assessment Report
- In November 2021, the Glasgow Climate Pact, which was the result of COP26, was adopted. This detailed efforts to limit the rise in the average global temperature to 1.5°C, etc.

S Social

Human Capital, Human Rights, Diversity and Inclusion

- In August 2020, the US Securities and Exchange Commission mandated that listed companies disclose human capital information
- In October 2020, the Ministry of Foreign Affairs established a plan of action for Business and Human Rights
- In 2021, the 2020 Tokyo Olympic and Paralympic Games were held, reaffirming the importance of diversity and harmony

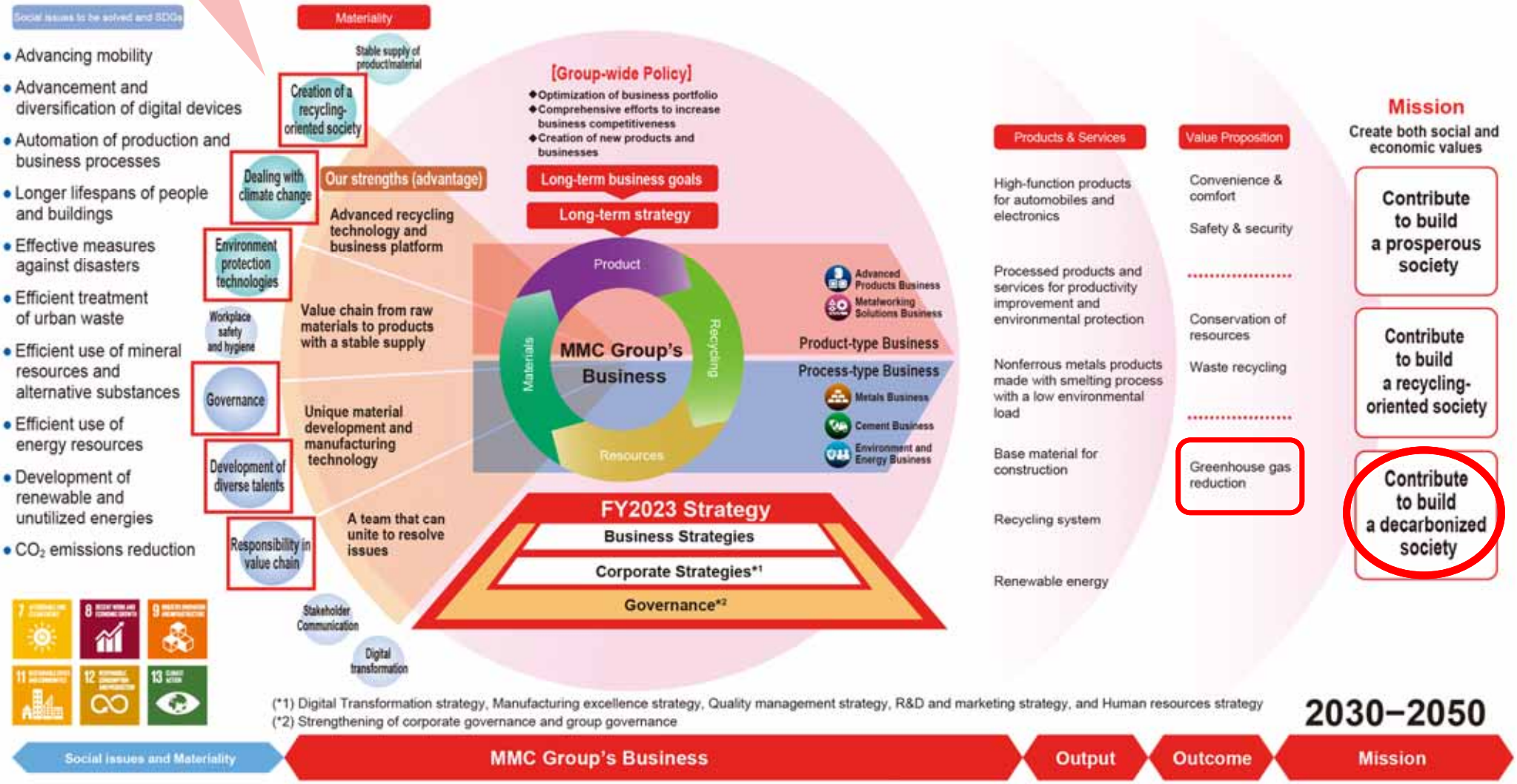
G Governance

Corporate Governance

- In June 2021, the Corporate Governance Code was revised to require disclosure of a broader range of information on sustainability and governance systems

Value Creation Process

Global sustainability trends' influence on our materiality



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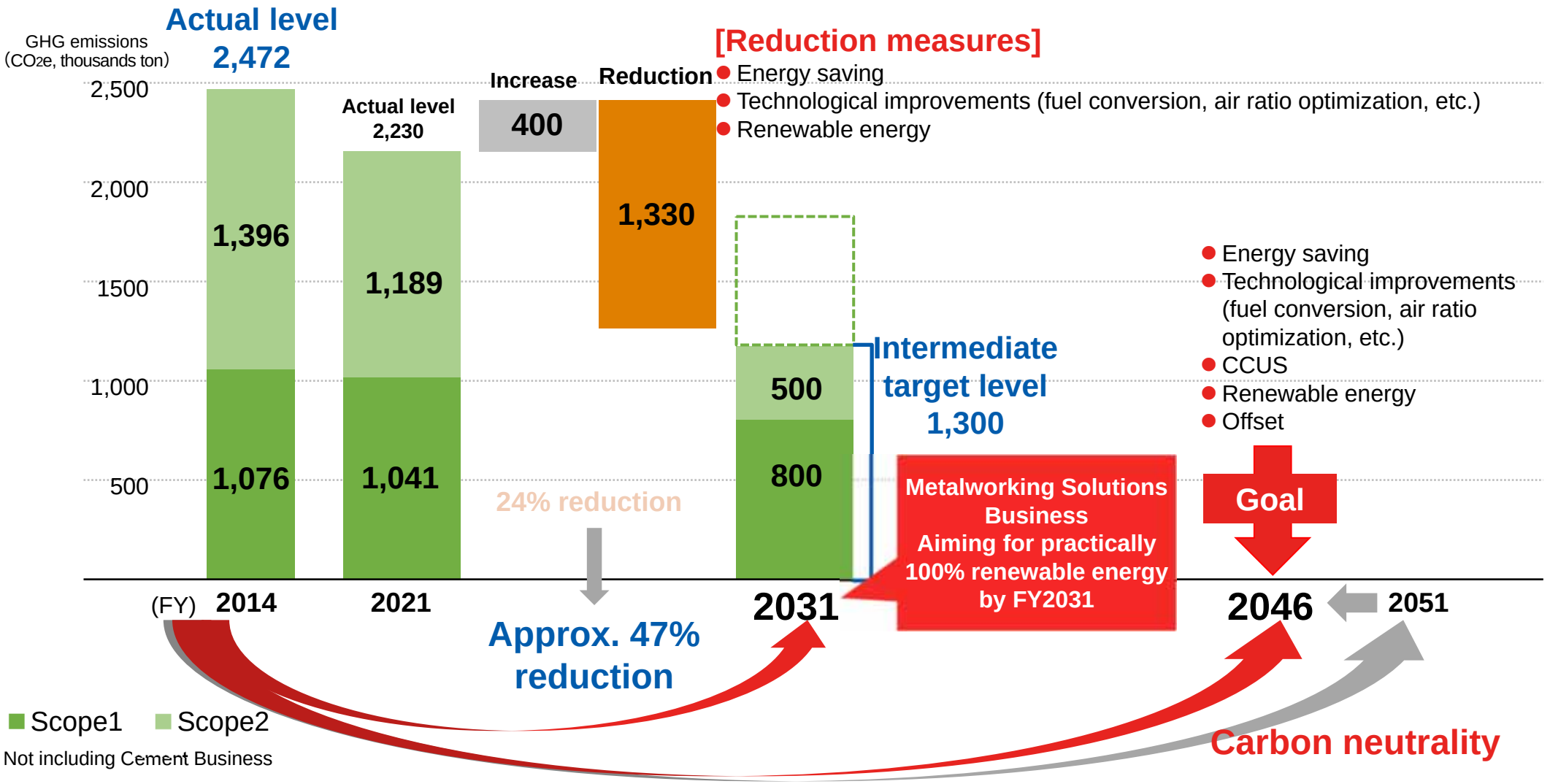
Climate Change Initiatives

Setting of new greenhouse gas emission reduction targets



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Advanced Products Company

IR Day

November 30, 2021
Executive Vice President and Executive Officer,
Yasunobu Suzuki

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Contents

1. Key Products and Target Markets
2. Market Outlook
3. Growth Strategies and Focus Markets
4. Business portfolio optimization
5. Thorough pursuit of business competitiveness
6. Creation of new products and businesses
7. Earnings Forecast
8. Business Direction and Challenges

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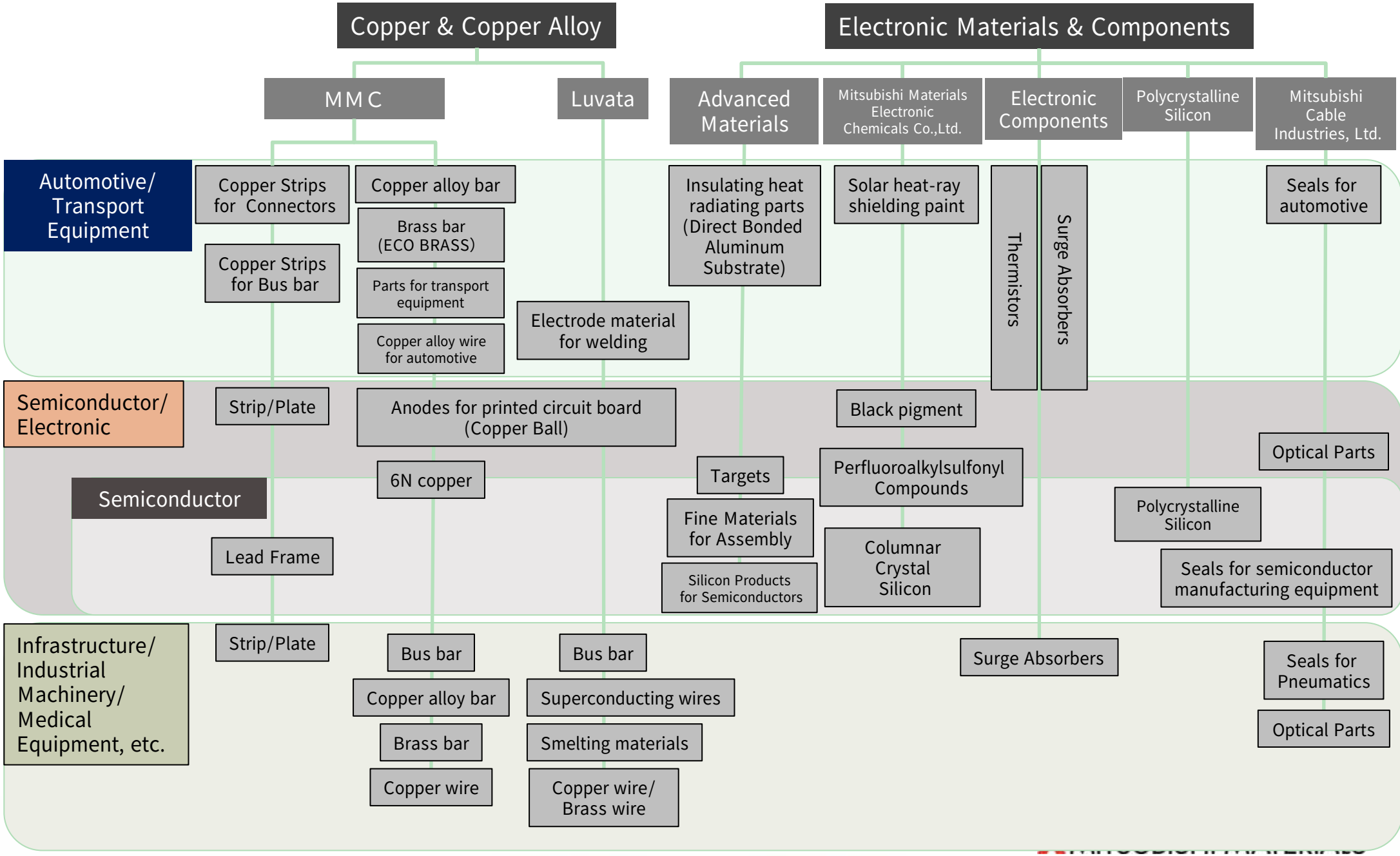
1-1. Major Products and Target Markets



1-2. Major Products

Automotive (incl. Transport Equipment)

Inverter

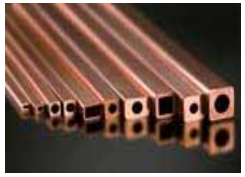
Solar Heat-ray Shielding Products

Terminal /Connector
*Customer's product

Copper rod/ Bus bar

Heat radiating parts

Copper Hollow Conductors



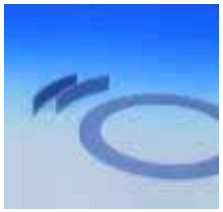
Electrode material for welding

Semiconductor/ Electronic

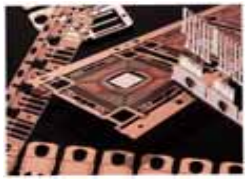
Columnar Crystal Silicon

Polycrystalline Silicon

Silicon Products

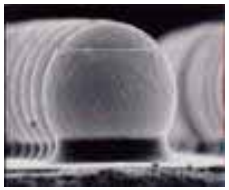


Lead Frame



Surge Absorber

Low α Solder



Infrastructure/ industrial machinery/ medical equipment, etc.

Trolley Wire

Superconducting wires

ECO BRASS

Copper Balls

Customised Profiles

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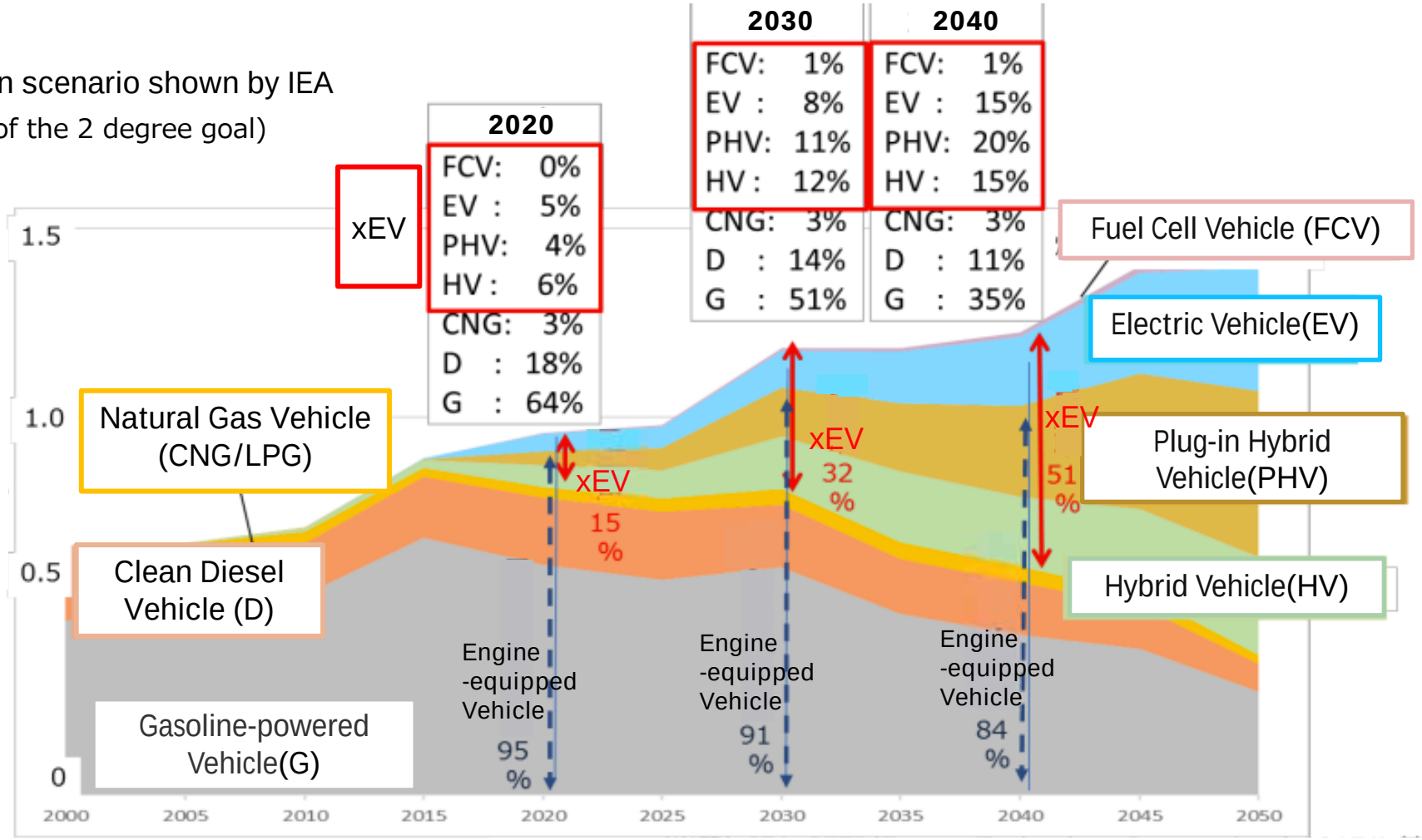
2-1. Market outlook（xEV） ～After 2030, the shift to xEV will accelerate～

Technology diffusion scenario shown by IEA
（Achievement case of the 2 degree goal）



Source: The figure created by METI based on IEA "ETP (Energy Technology Perspectives) 2017"

Source: The Company translated the figure into English based on Ministry of Economy, Trade and Industry website
Study Group on Structural Changes in Mobility and Future Directions of Automobile Policies Beyond 2030
（https://www.meti.go.jp/shingikai/mono_info_service/mobility_kozo_henka/pdf/002_03_00.pdf）P34

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2-2. Market outlook（xEV） ～ to be high currents and high voltages trend～

Changes in technical specifications of EV quick chargers in Japan and overseas

Name		Region	By 2016	2018	From 2020
CHAdeMO		World Wide	50kW (125A×500V)	100-200kW (350A×500V) Specification 1.2（Dec. 2017）	350-400kW (350-400A×1kV) Specification 2.0（May 2018） Co-developed with China 900kW (600A×1.5kV) Specification 3.0（Undecided）
GB		China		185kW (250A×750V)	
CCS 1		North America	80kW CCS 1.0	200kW (400A×600V) CCS2.0 (2015)	Developing chargers for trucks and buses 1MW or more (Max 3kA×1.5kV) (From 2019)
CCS 2		Europe	80kW CCS 1.0	350kW (400A×900V) CCS2.0 (2015)	

Source: :CHAdeMO Association - Joint development of next-generation ultra-fast charging standards(2018), Coordination Office Charging Interface, c/o Carmeq GmbH -Combined Charging System 1.0 Specification – CCS 1.0 ,etc.

Source: : The Company partially changed and translated the figure into English based on Ministry of Economy, Trade and Industry website (https://www.meti.go.jp/shingikai/energy_environment/denryoku_platform/pdf/008_01_00.pdf) P12

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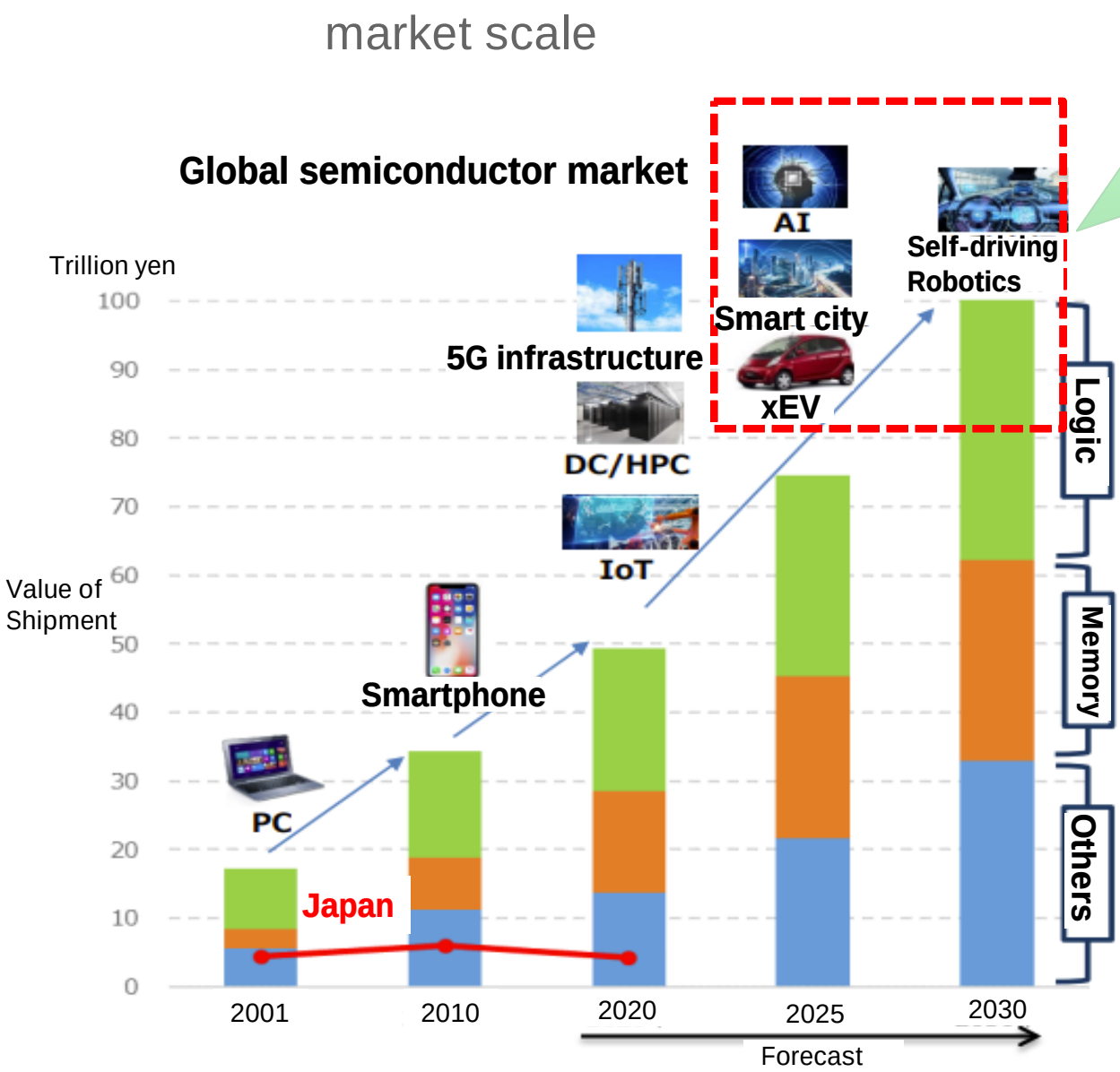
2-3. Market outlook（Semiconductor） ～ Expected to increase mainly on logic ～



The semiconductor market will expand further due to the fusion of mobility and infrastructure

	Market Scale (2018)	Products	Major Company
Logic (for control)	21 trillion yen	Processor	intel, tsmc
		GPU	
		SoC	QUALCOMM, NVIDIA
Memory (for data storage)	18 trillion yen	DRAM	SAMSUNG, SK hynix
		NAND	Micron, KIOXIA
Others	15 trillion yen	Analog LSI	Infineon, SONY
		Power semiconductor	ON Semiconductor, MITSUBISHI ELECTRIC
		Image sensor	

Source: Created by METI based on Omdia's data
(The Company translated into English)

Source: : The Company translated the figure into English based on Ministry of Economy, Trade and Industry website
（https://www.meti.go.jp/press/2021/06/20210604008/20210603008-4.pdf）P54

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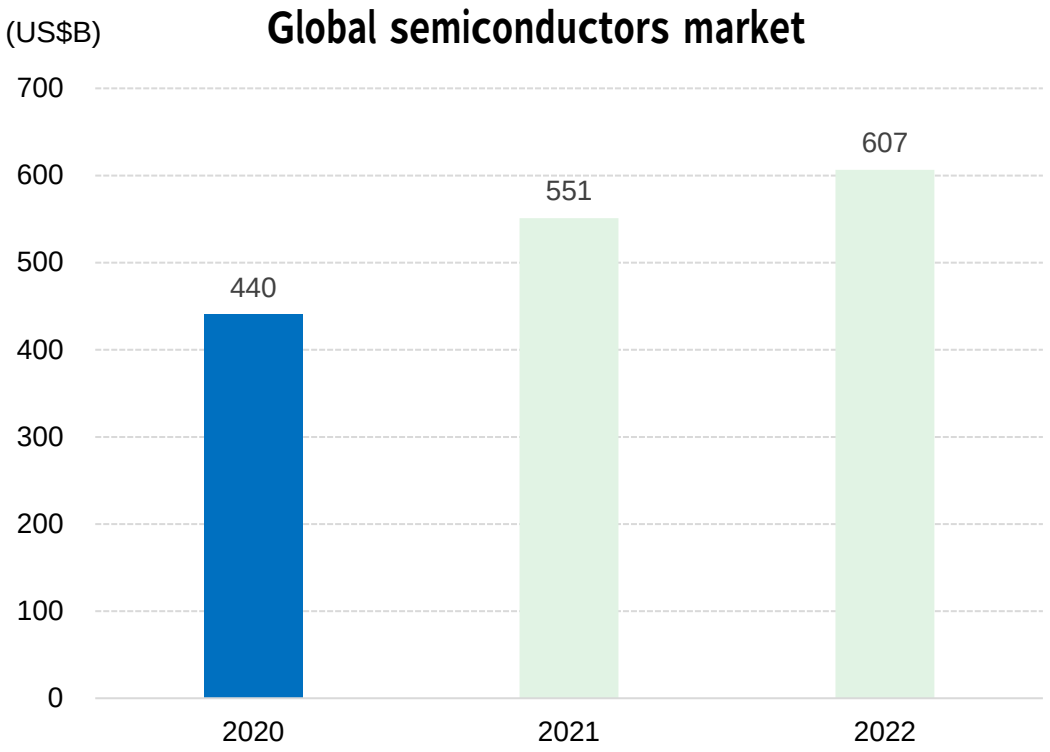
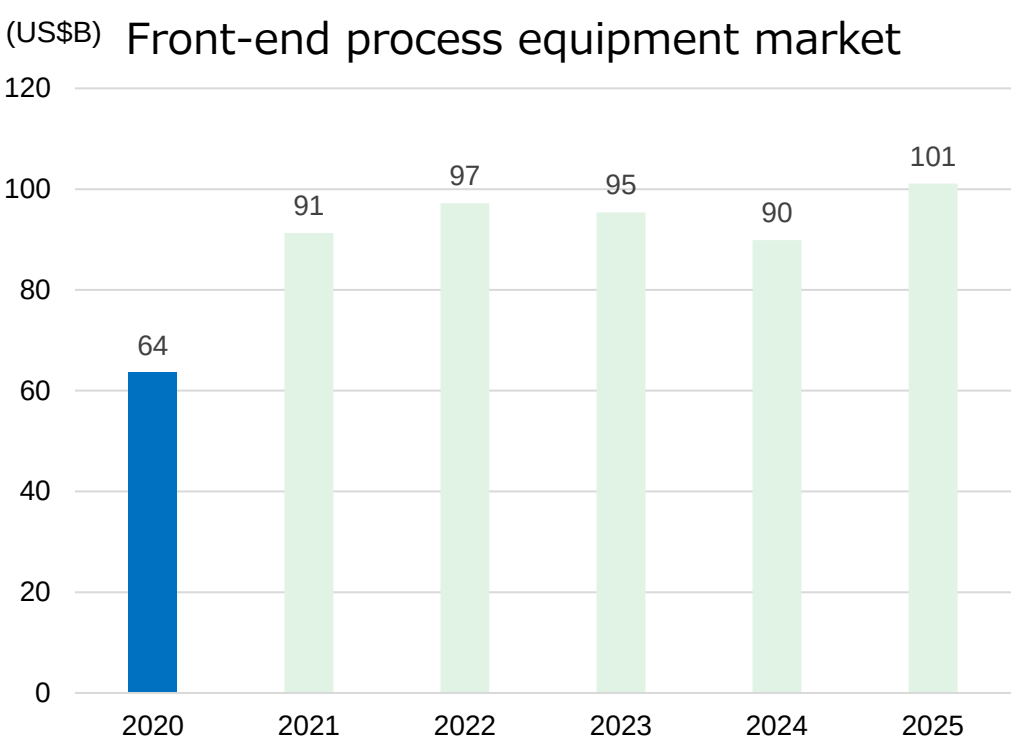
2-4. Market Outlook (semiconductors) ~Strong Demand in the Short to Medium Term~



(source：WSTS)



(source：VLSI Research)

【Market Outlook】

- The semiconductor market is expected to grow steadily due to the global shortage of semiconductors, with 25% growth in 2021 and 10% growth in 2022.
- Vigorous investment to both Logic & Foundry and Memory in the front-end process equipment market. Forecasted to grow 44% in 2021, 6% in 2022, and to surpass $100 billion in 2025.

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3-1. Growth Strategies for the Advanced Products Company

Contribute to a sustainable and prosperous society by providing customers with indispensable Advanced Products as a Global First Supplier by refining and combining the Company's core competencies.

Business criteria	Value proposition	Products & services	Social value	Mission
Next-generation vehicle (Including other transportation equipment)	• Energy saving • Safety & Security • Convenience & comfort • Environmental load reduction • Reduce Carbon dioxide, decarbonization • Quietness	• **Copper strips for automotive terminals** • Plating • **Copper bars and busbars** • **EcoBrass/GloBrass** • Thermistor sensor • Insulated heat dissipation components • Interlayer films for heat shielding	• Requests for Advanced Mobility • Efficient use of energy resources • Request to reduce CO2 emissions	Contribute to build a prosperous society Contribute to the establishment of a recycling-oriented society
Semiconductors Semiconductor manufacturing equipment electronics	• Energy saving • High efficiency and high performance • Safety & Security • Reduce Carbon dioxide • Convenience & comfort	• **Lead frame** • **Copper strips for heat spreaders** • **Copper bars and busbars** • **Silicon Processed Goods** • **Columnar crystal silicon** • Thermistor sensor • **Seals**	• Efficient use of energy resources • Request to reduce CO2 emissions	Contribute to the establishment a decarbonized society
Infrastructure Industrial Machinery Medical equipment, etc.	• Convenience & comfort • High efficiency and high performance • Energy saving • Clean • Reduce Carbon dioxide, decarbonization	• **EcoBrass / GloBrass** • Pneumatic seals • **Superconducting wire**	• Production and business processes Request for Automation • Efficient use of energy resources • Request to reduce CO2 emissions	

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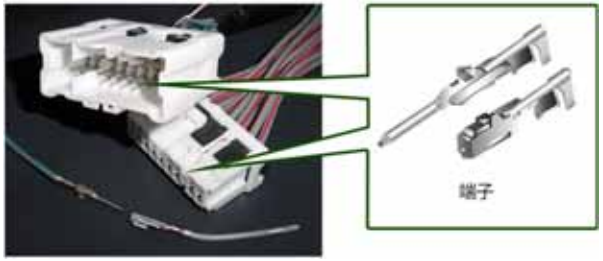
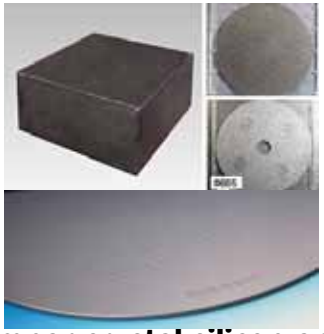
3-2. Focus areas of Advanced Products Company

Data communication	Next-generation vehicle	Semiconductor
5G mobile communication system	Autonomous driving	xEV / Ecologically friendly car
Communication / Infrastructure	Server	
CPU・GPU・FPGA	High voltage connectors	IC（QFP/QFN）
Semiconductor material / Semiconductor manufacturing equipment	Battery / Busbar	IGBT / IPM / Swaging
Parts for 5G base station	Sensor / Radar	Powertrain / Heat sink

Seal Products for vacuum and semiconductor equipment
(Mitsubishi Cable Industries)



MSP5 for automotive connector terminals
(Mitsubishi Materials)



Columnar crystal silicon and silicon products for semiconductor equipment
（Mitsubishi Materials / Mitsubishi Materials Electronic Chemicals）

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4. Optimization of Business Portfolio

Promote Selection and Concentration while evaluating the balance of growth potential, the Company's market share, etc.

In progress

-Review of Luvata Photovoltaic ribbon business

-Share transfer of Ryosei Systems, Ltd.

Continue to respond - improve profit structure, execute M&A, withdraw from business)

-Electronic materials & components (polycrystalline silicon, electronic devices)

-Kobelco & Materials Copper Tube, Ltd.

5-1. Thorough pursuit of business competitiveness

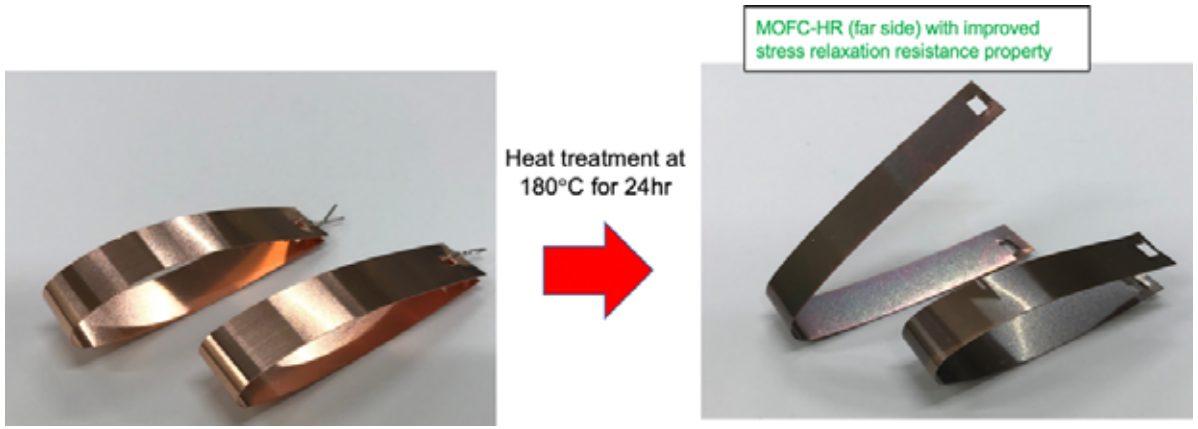
~ Respond to the expanding market by increasing production~

The Copper & copper alloy

- Increase production at Sakai plant
- Wakamatsu Plant/Increase rolling production
  - Sales expansion of MSP Series (MSP1, MSP5, MSP8)
- Sanbo Plant/Increase rolling production, strengthen extrusion business
  - Sales expansion of GloBrass, MOFC-HR, etc.

The Electronic materials & components

- Increase production capacity and improve productivity of silicon processed goods and columnar crystal silicon
- Strengthen the supply chain for the silicon processed goods
- Increase production of materials / components for xEV
  - Materials / components for batteries, etc.



(*) Newly developed MOFC-HR: Ideal for high current busbars and terminals for xEV applications

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5-2. Thorough pursuit of business competitiveness
~Themes for DX promotion initiatives

Strengthen customer contact:
Accumulate customer market information in an efficient and timely manner

Supply chain integration:
Optimize production and inventory, and respond quickly to changes

Linkage of development and production data:
Accumulation and unified management of production information, KPI (production know-how)/development information

Manage profitability platform:
Real-time visualization of product profit and loss to enhance ROIC management

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6-1. Creation of new products and businesses

The Copper & copper alloy

- Full-scale production of MSP®5, a copper alloy for small terminals used in automobiles
  ⇒ World's smallest, meeting the need for miniaturization
- Development of oxygen-free copper “MOFC-HR” (HR: Heat Resistance) with the world's highest level of strength and heat resistance
  ⇒Ideal for high current busbars and terminals, etc.
- Working on the development of next-generation plating processing technology
  ⇒Aiming to improve product capability to handle high current and small terminals in the xEV market
- Development of next-Generation lead-free free-cutting brass “GloBrass”
  ⇒Achieved electrical conductivity of 16%, about twice that of conventional products, and improved hot workability
  This product is suitable for a wide range of markets and applications, including electrical and electronic components

Development product example of “GloBrass”

The Electronic materials & components

- Adoption of thermistors in the automotive field
- Developed a high-speed response, high precision, and thin flexible thermistor sensor.
- Development of new lightning protection components for xEV quick chargers

Series of “DA53”, lightning protection components for xEV quick chargers

MITSUBISHI MATERIALS

6-2. Creation of new products and businesses ～Our products for motors～

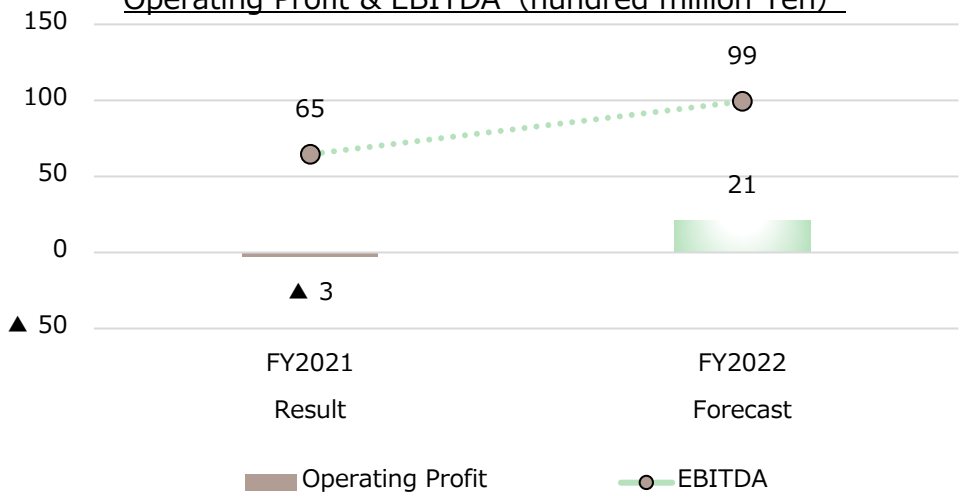
This page is a video, but it has been omitted.

MITSUBISHI MATERIALS

7. Performance outlook of the Advanced Products Company

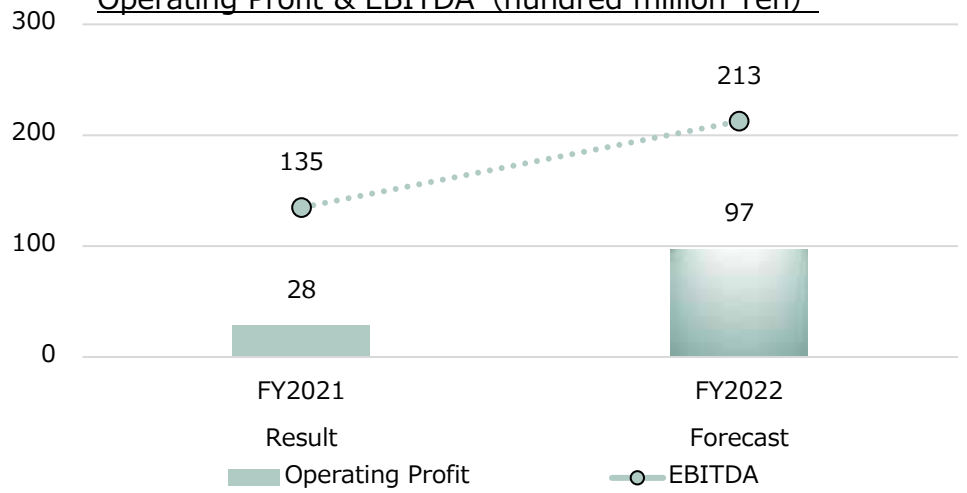
The Copper & copper alloy

Operating Profit & EBITDA (hundred million Yen)



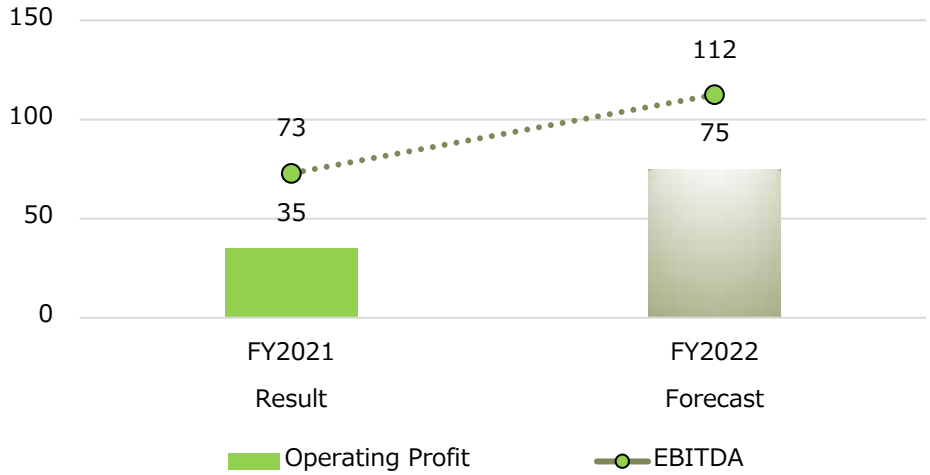
Advanced Products Company

Operating Profit & EBITDA (hundred million Yen)



The Electronic materials & components

Operating Profit & EBITDA (hundred million Yen)



【The Copper & copper alloy】

Advance investments totaling 30 billion yen for growth and DX promotion. Aims to expand business from a medium- to long-term perspective by increasing production and sales of strategic products.

Achieve increased production and sales by controlling the fixed costs except amortization not to increase through the effect of DX.

【The Electronic materials & components】

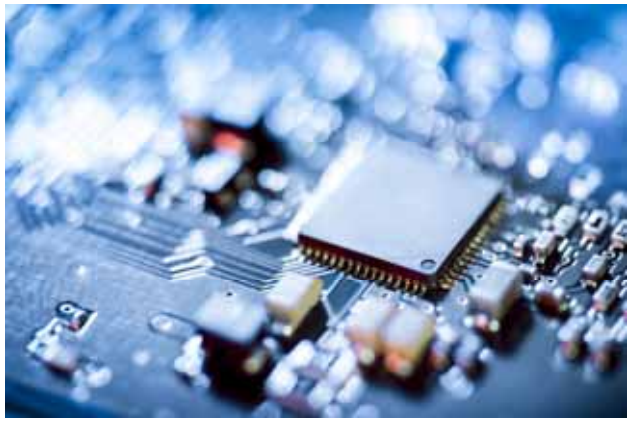
The Company aims to expand its business with a focus on the semiconductor market and xEV market by investing in production capacity to increase and strengthening the supply chain to meet growing demands for semiconductor-related products (materials and consumable parts for equipment).

MITSUBISHI MATERIALS

8. Business direction and challenges at the Advanced Products Company

Semiconductor market

- Increase sales of copper & copper alloy components for lead frames and heatsink related
- Business expansion of silicon processed goods



xEV market

- Sales expansion of conductive materials suitable for high current and high voltage, centered on oxygen-free copper
- Expansion of thermistor and absorber product lineup for automobiles

Environmentally friendly products

- Global expansion of GloBrass in anticipation of the lead regulations in Europe

Strengthen supply chain/Review of business portfolio

- Improve the value chain, including materials procurement and sales channels etc.
- Specific consideration of withdrawal and restructuring of products and businesses with low growth potential

MITSUBISHI MATERIALS

Metalworking Solutions Company

IR Day

November 30, 2021

Managing Executive Officer,
Tetsuya Tanaka

MITSUBISHI MATERIALS

Contents

1. Management Policy of Metalworking Solutions Company

2. Overview of Cemented Carbide Business
   - Business Areas
   - Cutting Tools Market

3. Sales Plans and Initiatives by Industry
   - Target Industries
   - Areas of Focus

4. Reinforcing Our Business Foundation
   - High-efficiency Products and Solution Proposals
   - Enhancing Customer Experience and Promoting Smart Factories through DX
   - Promote Clean Manufacturing

Management Policy of Metalworking Solutions Company

Corporate Philosophy

For People, Society and the Earth

Business Policy (Vision)

YOUR GLOBAL CRAFTSMAN STUDIO

We aspire to become an energetic company with a "Waku Waku (Exciting) " feeling as well as a "trusted genuine partner" of our customers through a relentless pursuit of "speed" and "innovation" from our customers' perspective, consistently making things happen.

Brand

DIA EDGE

DIA (High Quality) +EDGE (Cutting Edge)

Overview of the Cemented Carbide Business

- **Net Sales 133.7 billion yen, operating profit 12.8 billion yen** (full year forecast for the fiscal year ending March 2022, announced on November 9, 2021)
- **80% of net sales is from cemented carbide cutting tools**

Cutting Tools

Mitsubishi Materials (MMC)

MOLDINO

(Mainly tools for molding)

Rock tools, Wear-Resistant Tools, Carbide Materials

MMC Ryotec

- In 2000 : Acquired Shinko Kobelco Tool Co., Ltd. (currently Akashi Plant) from Kobe Steel, Ltd.
- In 2015: Acquired Hitachi Tool Engineering, Ltd. (currently MOLDINO Tool Engineering, Ltd.) from Hitachi Metals, Ltd.

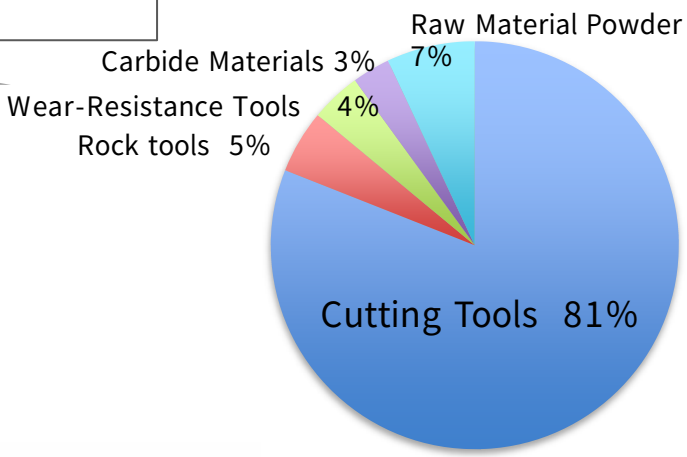
Raw Material Powder

Japan New Metals Co., Ltd.

Tungsten powder, advanced metal powder, etc.

- Other cemented carbide tools manufacturers
- Reduce dependence on China through recycling
- Demand from new markets such as LIBs and memory area

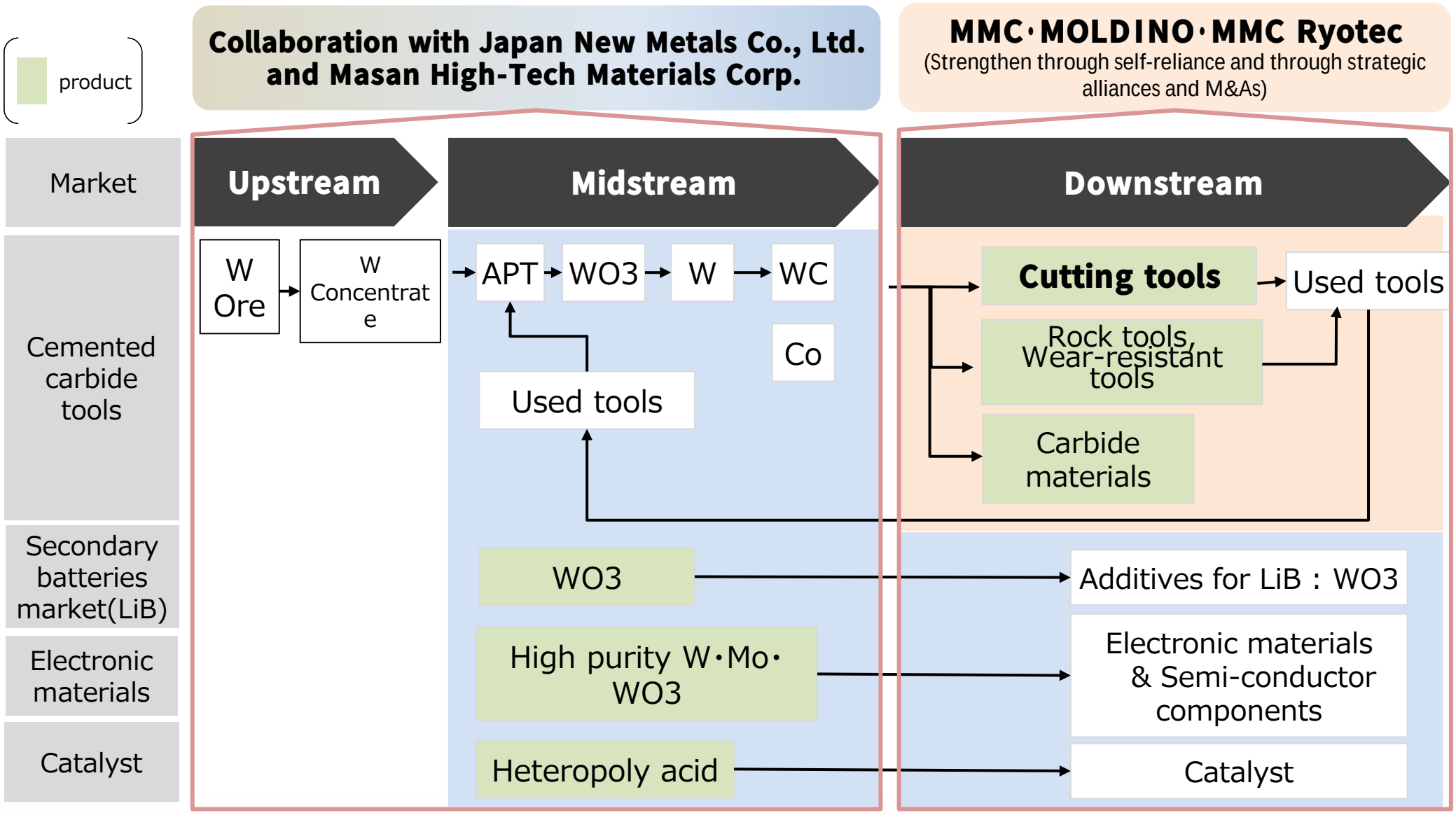
Net sales composition ratio (FY2021)



MITSUBISHI MATERIALS

Business Areas of Cemented Carbide Business (From Upstream to Downstream)

■ Operate business from upstream to downstream areas, with the focus on downstream areas



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Cemented Carbide Cutting Tools Market

- **The market size of cemented carbide cutting tools is forecasted to expand to approx. 2.06 trillion yen per year in 2030**
- **Aim for a global market share of 10% or more**

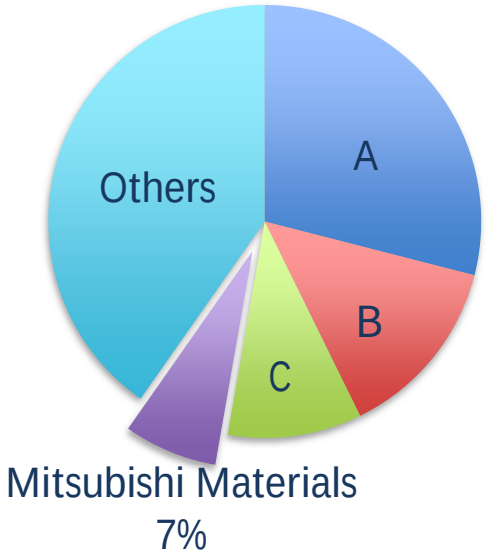
Demand for cemented carbide cutting tools by area in 2030

(unit : billion yen) ※According to the Company's estimation

Japan	Europe	North America	China	Others
160	400	490	550	460
8%	19%	24%	27%	22%

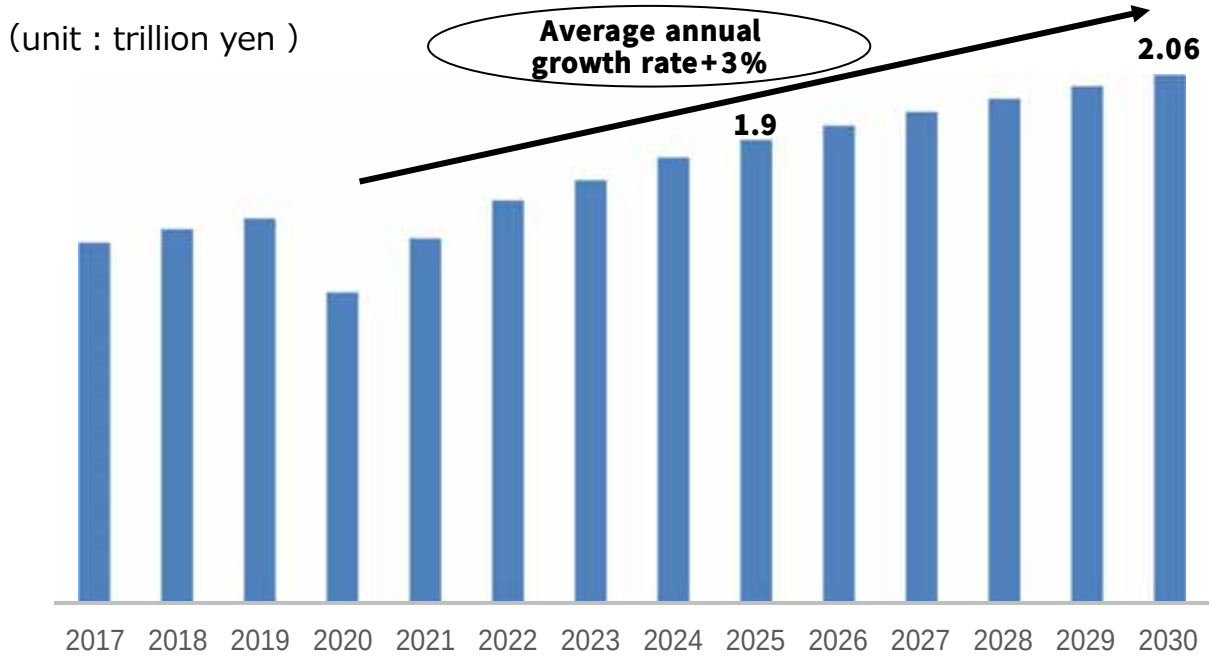
Market share: 4th in the world, 1st in Japan

Global market share (2020)



※According to the Company's estimation

Forecast of the market scale of cemented carbide cutting tools



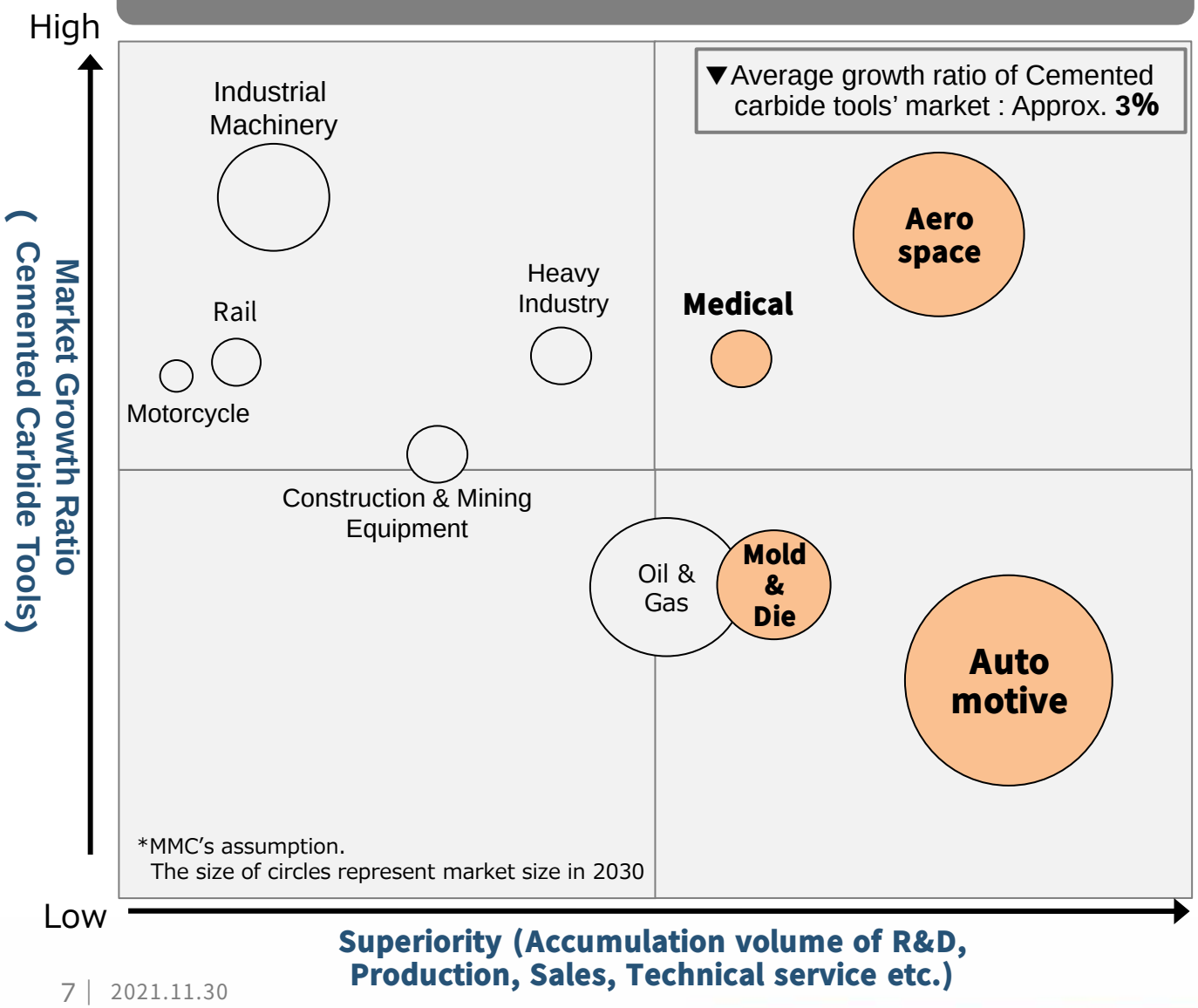
※According to the Company's estimation

MITSUBISHI MATERIALS

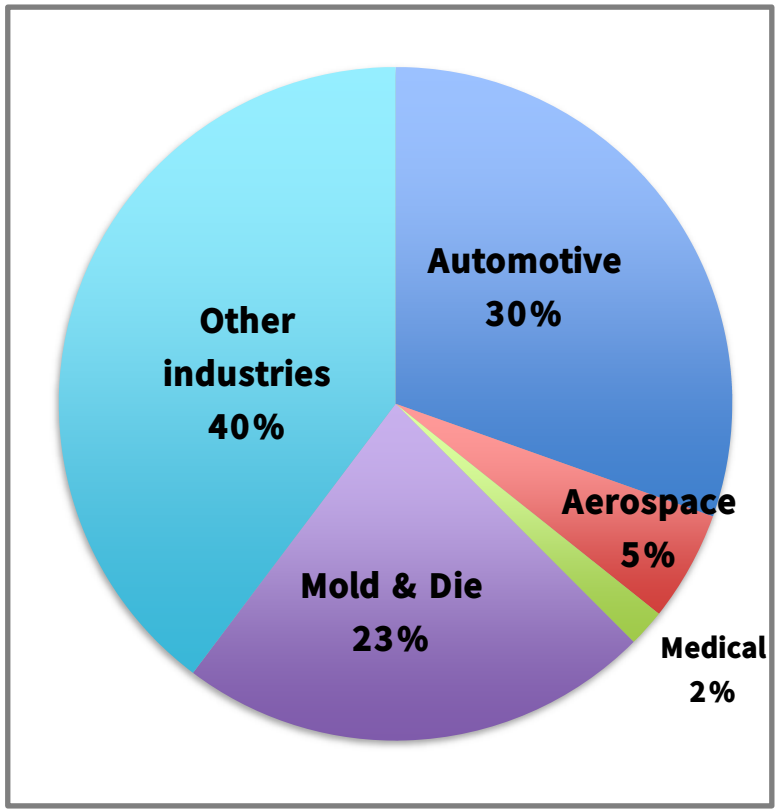
Cemented Carbide Cutting Tools Market

■ **Focus on "Automotive" , "Aerospace", "Medical", and "Mold & Die" markets based on the market sizes and growth potential**

Analysis of the attractiveness of each industry



MMC's sales ratio by industry (FY2021)



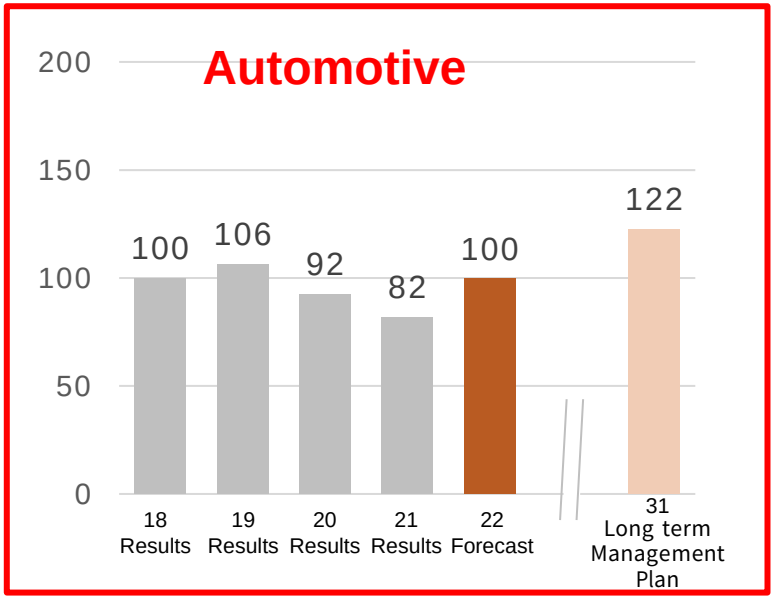
MITSUBISHI MATERIALS

Sales Plans and Initiatives by Industry

Target Industries

Automotive

Sales plan



Market trend

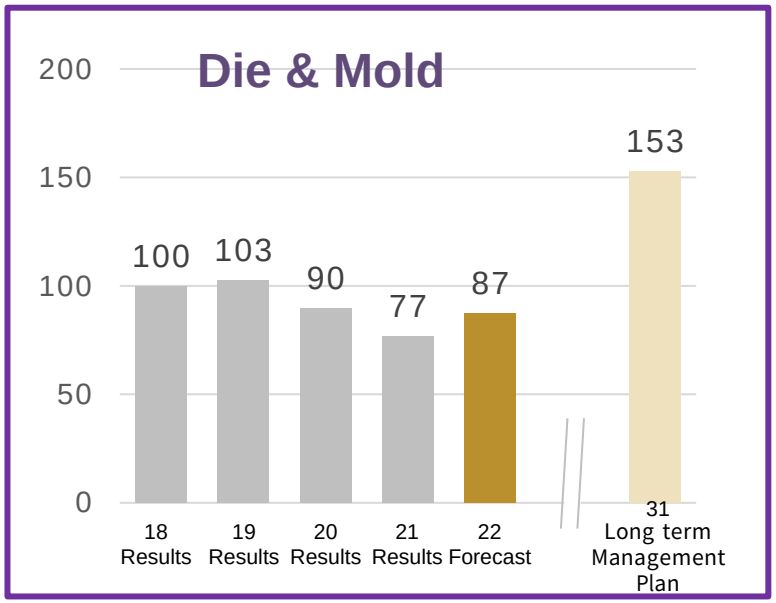
- Production volume is expected to continue to grow toward 2031
- Demand for cemented carbide tools will gradually decline after peaking around 2025 due to a decrease in the machining of engine parts as a result of accelerated electrification.

Major Initiatives

- Strengthen solution proposals for undercarriage steering system parts (common to both engine and EV vehicles), for which demand is expected to be the highest
- Expand the lineup of tools for machining EV components (motors, reduction gears, etc.), which are expected to grow.
- Promote local production for local consumption by utilizing overseas factories

Die & Mold

Sales plan



Market trend

- Demand expansion due to continuous growth in automobile production
- New mold demand created for various sensors and control devices resulting from progress in IT and automotive CASE

Major Initiatives

- New product development specializing in mold machining based on the MOLDINO brand
- Propose total machining solutions for each type of mold (press/plastic/forging, etc.)

*Index based on FY2018 results as 100

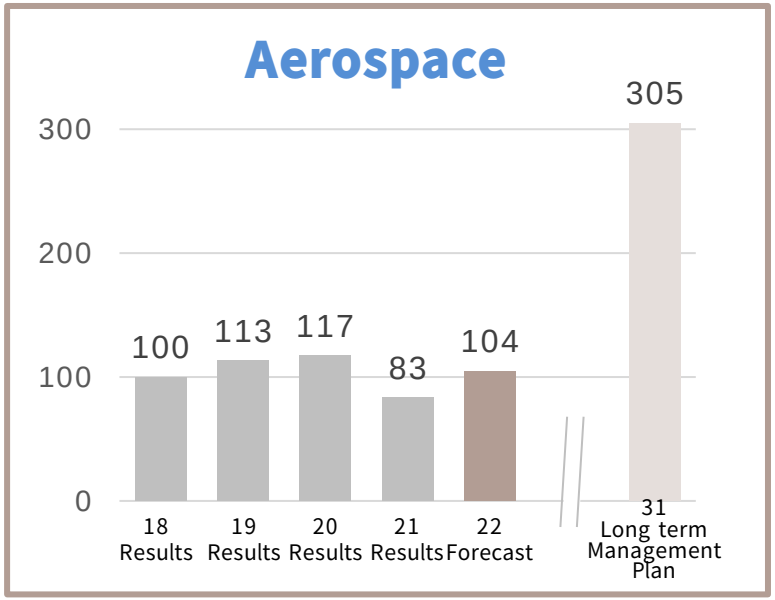
MITSUBISHI MATERIALS

Sales Plans and Initiatives by Industry

Target Industries

Aerospace

Sales plan



Market trend

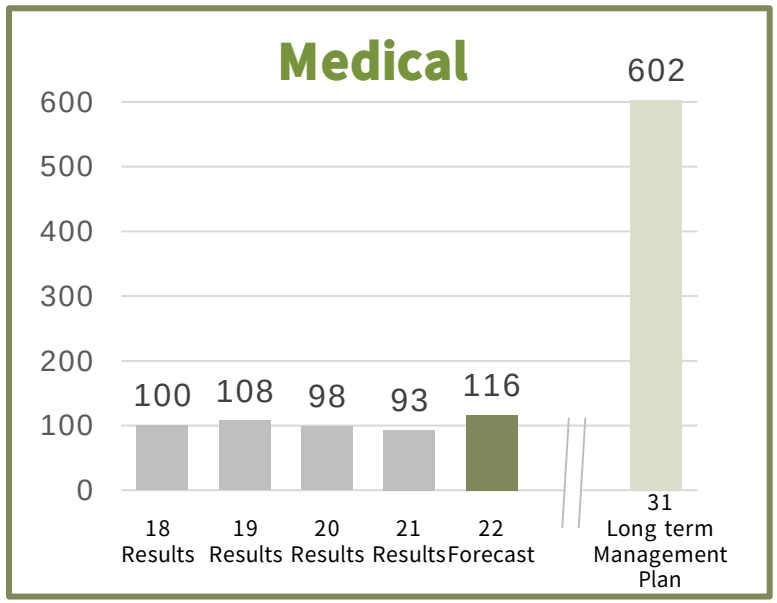
- Demand fell sharply due to the impact of COVID 19, but is expected to recover rapidly from 2024 toward 2031.

Major Initiatives

- Differentiate from competitors in the machining of difficult-to-cut materials such as super heat-resistant alloys and titanium alloys used in jet engine parts and airframe parts.
- Accelerate R&D by promoting open innovation through industry-academia collaboration

Medical

Sales plan



*Index based on FY2018 results as 100

Market trend

- Healthcare demand grows steadily due to global population growth and aging
- North America (and Europe) will be the main markets in both 2020 and 2031, but the Chinese market will also grow rapidly by 2031.

Major Initiatives

- Expand tools for machining of alternative regenerative treatment devices (artificial joints, dental implant screws, etc.), which often require machining of difficult-to-cut materials such as titanium alloys and stainless steel alloys.
- Established a dedicated medical team in North America, the largest market, to strengthen marketing, solutions, and sales activities.

MITSUBISHI MATERIALS

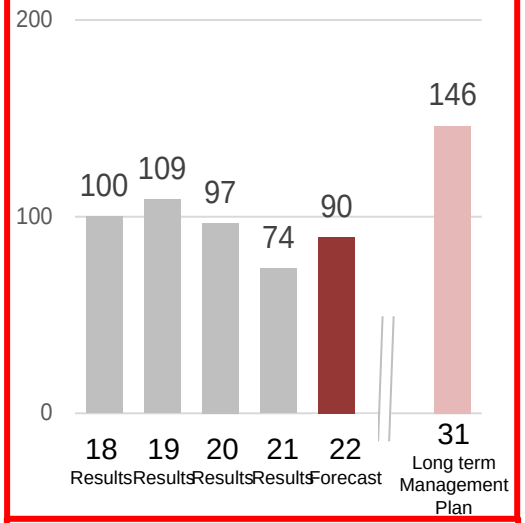
Sales Plans and Initiatives by Area

Areas of focus

➢ Provide optimal products, services, and solutions based on key account strategies as a main axis

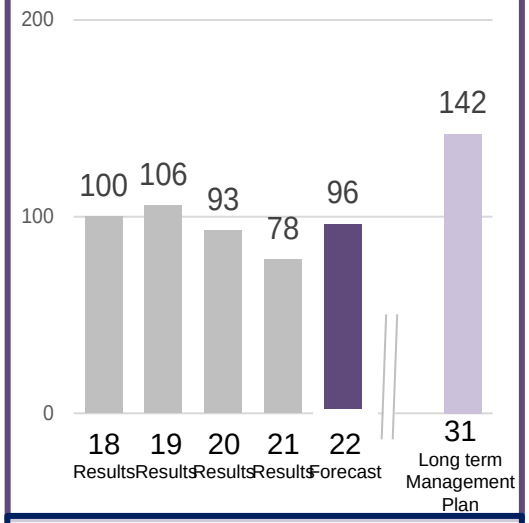
*Index based on FY2018 results as 100

Japan



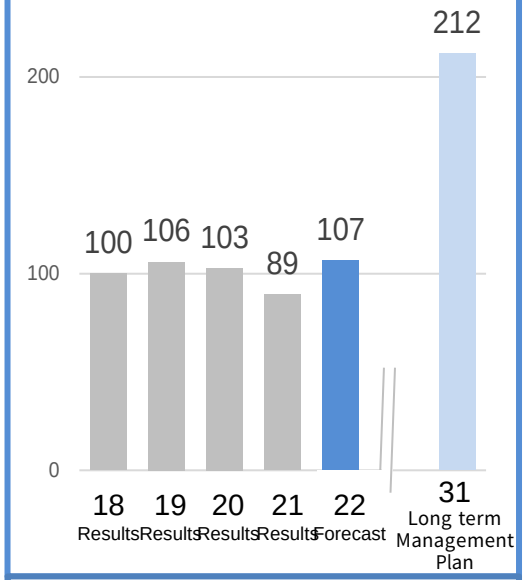
<Focused industries>
Automobile/ Molding/ Robot

Europe



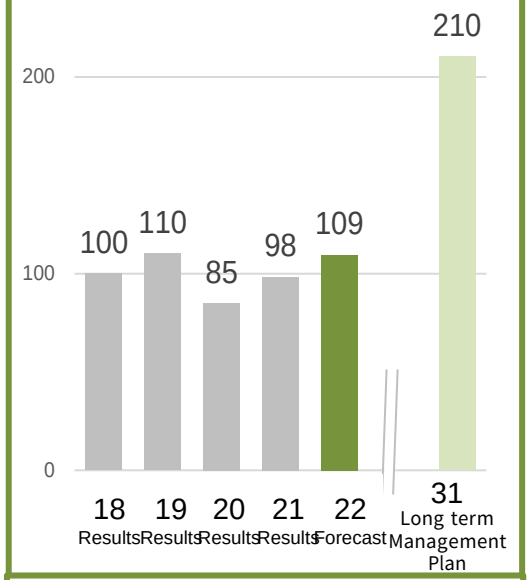
<Focused industries>
Automobile/ Aircraft/ Molding

North America



<Focused industries>
Automobile/ Aircraft/ Medical

China



<Focused industries>
Automobile/ Molding

Major Initiatives

- Strengthen sales capabilities by improving the efficiency and sophistication of sales activities through the use of digital technology
- Expansion of solution proposal menu by utilizing the Technical Center (MTEC)
- Strengthen local services such as regrinding and recoating of solid tools
- Market development in new fields such as robots, semiconductors, and sensor components

MITSUBISHI MATERIALS

Provide Value through High-efficiency Products and Solution Proposals

➢ Develop high-efficiency products

Product development with unparalleled performance based on core competencies in materials and coating technologies.

- Tools with the world's No. 1 performance that employ new materials and elemental technologies, not improvements to conventional products

* High Efficiency
High speed, high feed rate (N times), long life (N times), Cutting resistance (1/N), Productivity (1/N)

- Development of high quality, high performance, highly efficient tools that excite customers
- Consider high productivity, energy saving, and labor saving

FY2022 Technical Achievement Award by Japan Cutting & Wear-resistant Tool Association

MC6115, CVD-coated cemented carbide grade for steel turning.

FY2022 Manufacturing Parts Award

新モノづくり部品大賞

・Coated cemented carbide grade (MV9005) for turning Super heat-resistant alloy.
・Coated cemented carbide grade (MV1020) for milling.

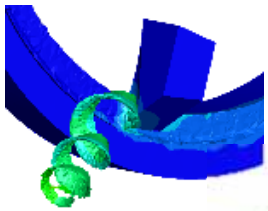
➢ Propose solutions using Technical Centers

Provide solutions that solve customers' problems and improve their productivity

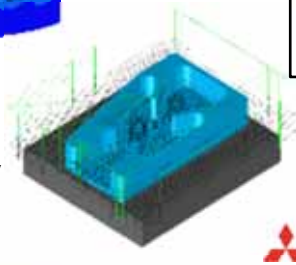
- Deliver from the Company's global technical centers to customers around the world
- Optimal recommended conditions including tool paths
- Proposals backed up by CAE, etc.
- Joint development with customers (Joint proposal with machine/arbor manufacturers, etc.)

- Analysis and evaluation such as cutting tests and CAE analysis
- Tool life prediction by cutting monitoring
- Technical training sessions for various levels

Chip analysis by CAE



Tool path simulation by CAM



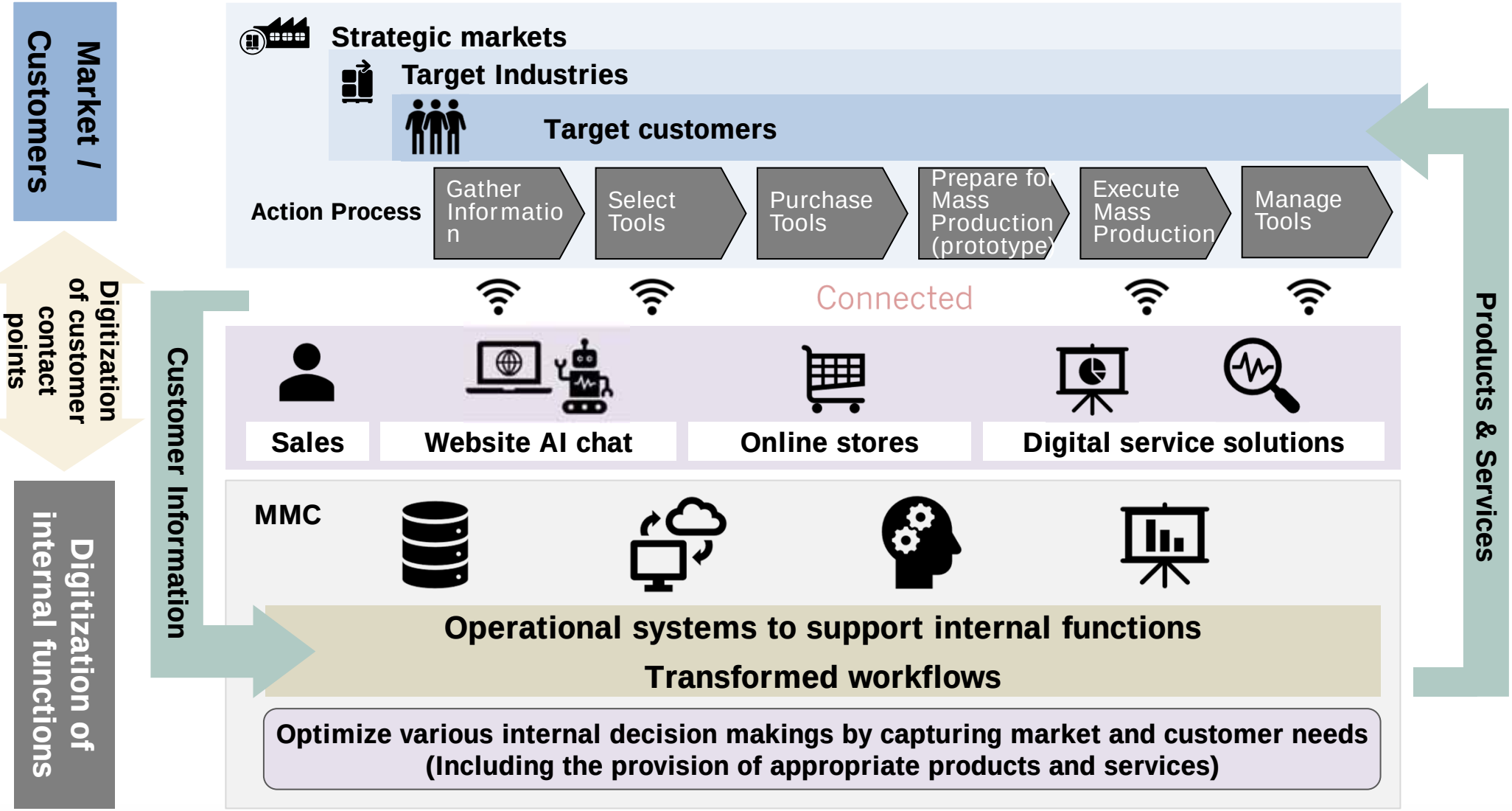
Cutting Monitoring System
*Observe changes in main shaft load on a machine and predict tool life.

MITSUBISHI MATERIALS

Improving Customer Experience Value through DX

Digital

➢ **Enhance digitalization of contact points and internal functions in all customer activities to provide required information, products, services, and solutions in a more real-time manner.**



MITSUBISHI MATERIALS

Promote Smart Factories through DX

➢ **Promote efficient and high-quality smart factories with high productivity using digital technology**

Realize through smart factories

Quality improvement　Cost reduction　Improve productivity　Shorten lead time

Elemental technology for automating production process

Digitalization through software including AI and IoT/Automation through robotics and AI

Measurement Technology

Elimination of measurement data transcription errors by manual work and inspection judgment that rely on individual skills, and labor saving

Configuration technology and points

“Image processing”　“Sensing”　“AI”

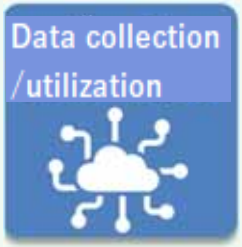
Equipment Technology

Highly efficient production line by automation of "concentration," "transfer," and "setup" in the production process

Configuration technology and points

“Automatic changeover”　"Workpiece transfer"　"Equipment Development"

Information Technology



Applications for "visualization," "data analysis," and "predictive maintenance" through data collection infrastructure

Configuration technology and points

“5G Technology”　“IoT”　“Cloud”　“Data processing”

MITSUBISHI MATERIALS

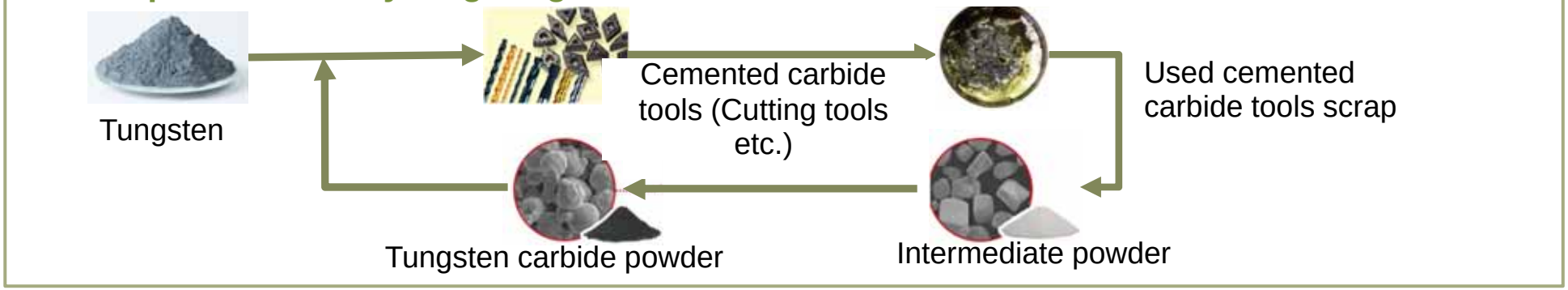
Promote Clean Manufacturing

➢ Aim to achieve a recycling rate of 80% or higher by expanding the process of recovery to recycling of cemented carbide scrap globally

Initiative

- Actual recycling rate in the first half of FY2022: 39% (vs. FY2023 Target: 35%)
- Investing in Masan High-Tech Materials (Vietnam) and considering recycling collaboration

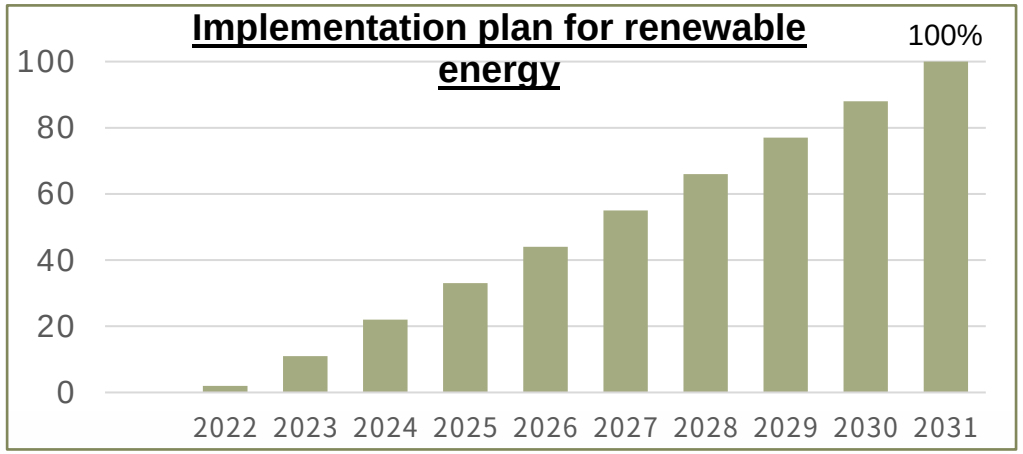
<The process of recycling tungsten into raw materials>



➢ Target 100% of electricity from virtually all renewable energy sources by FY2031.

Initiative

- Survey of energy usage at manufacturing locations, including overseas
- Establish an action plan for energy saving activities/introduction of renewable energy
- Establish a plan for energy saving improvement activities at domestic and overseas sales offices
- Promote switching to renewable energy (2023-)



MITSUBISHI MATERIALS

DIA EDGE

Together with our customers, creating a better future

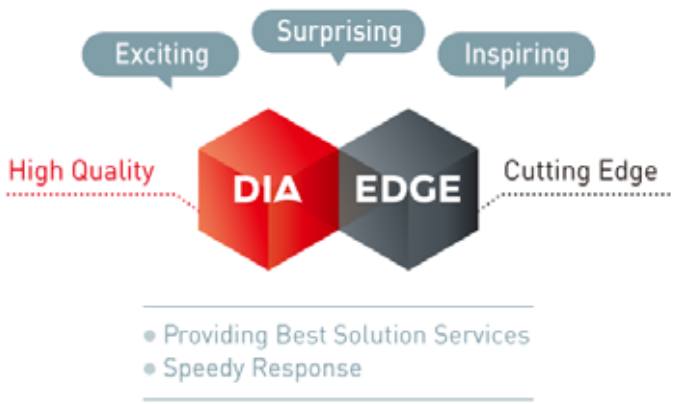
Announcing DIAEDGE, our new brand of tools

that brings together our cutting-edge technologies, exciting all who use them.

Our aim is not only to offer value with our tools,

but to think together with our customers, share inspiration with them,

and continue to take on new challenges.



Metals Company

IR Day

November 30, 2021

Managing Executive Officer,
Tetsuro Sakai

MITSUBISHI MATERIALS

Contents

1. Outline of Metals Business

2. Long-term business goals and strategy

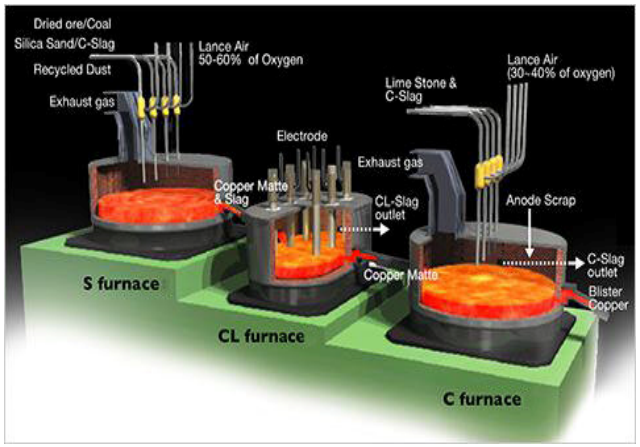
3. Topics

4. Message

Outline of Metals Company

Mining

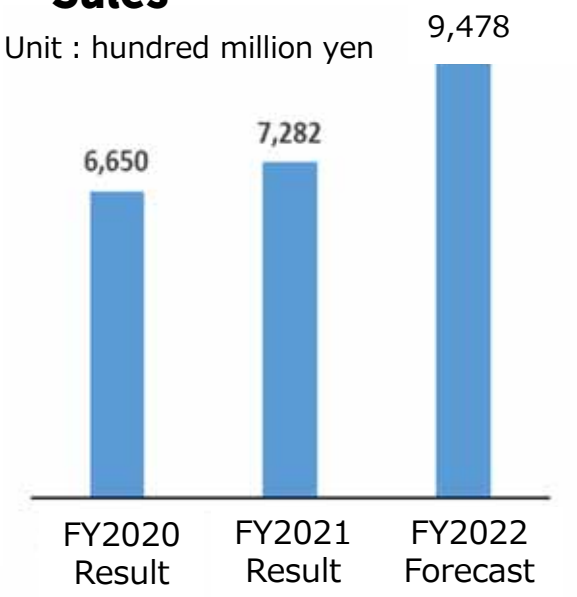
Smelting and Refining



Precious Metals

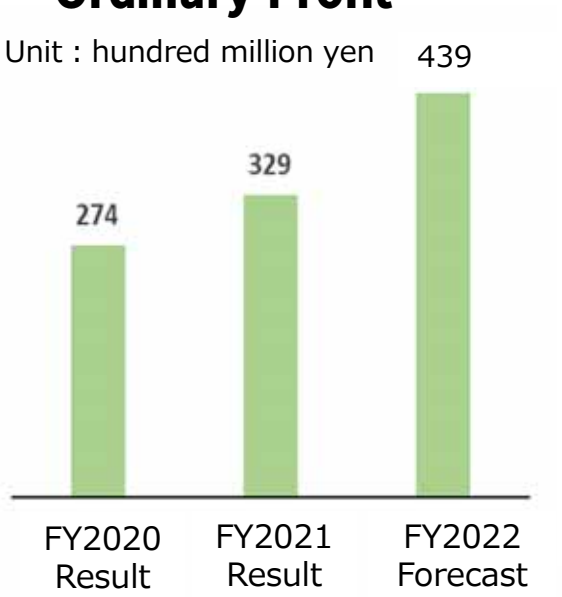
Sales

Unit : hundred million yen



Ordinary Profit

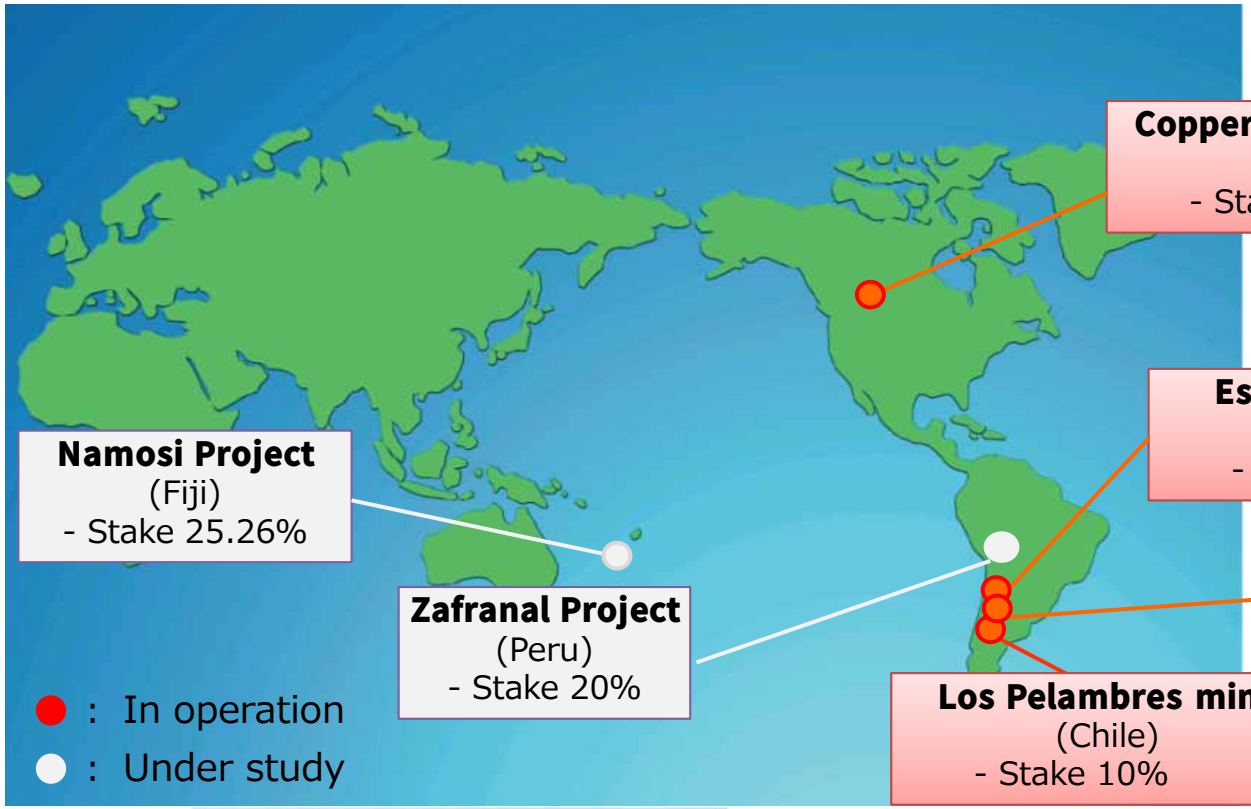
Unit : hundred million yen



MITSUBISHI MATERIALS

Outline of Mining Business

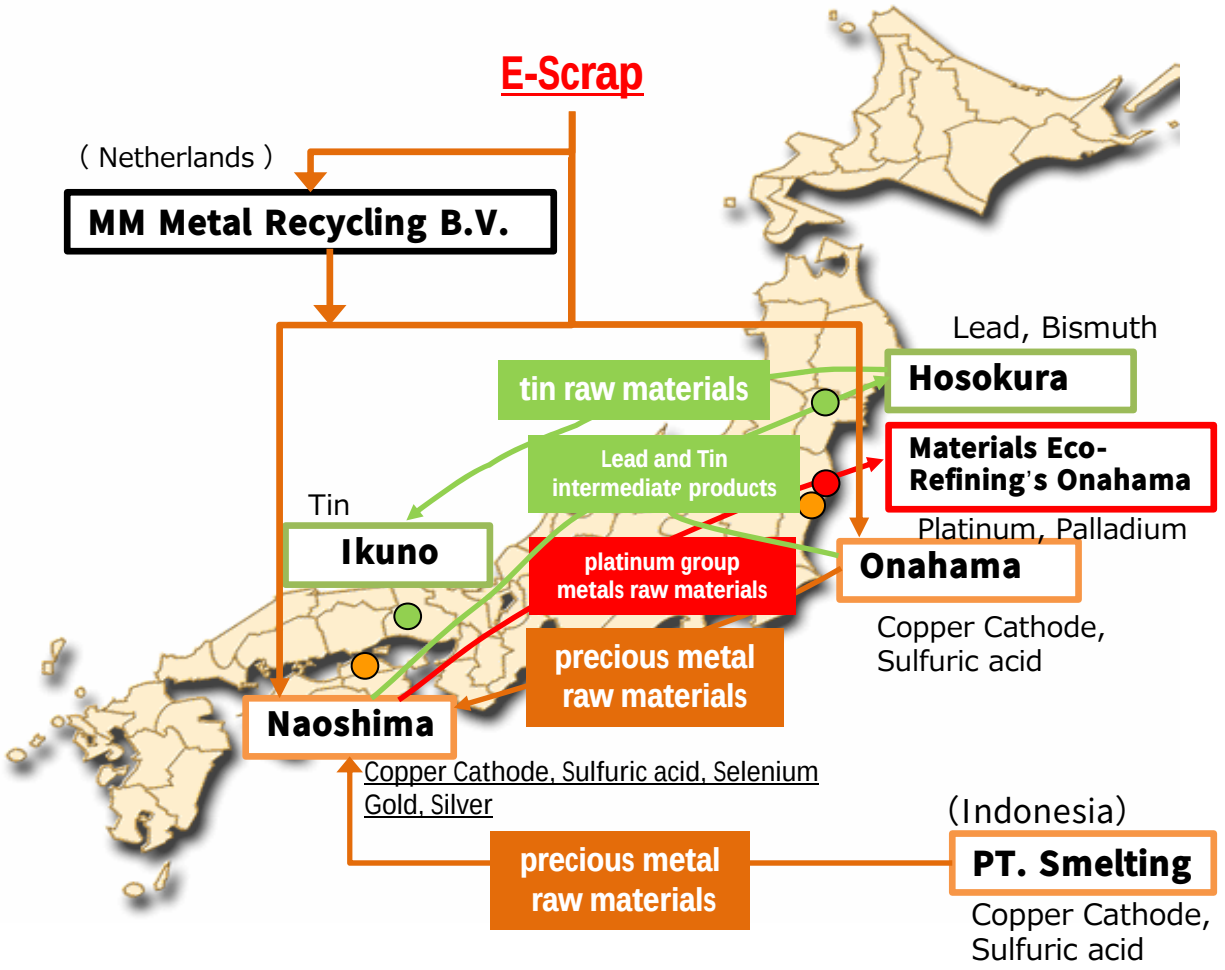
Our mining stakes / Exploration project



MITSUBISHI MATERIALS

Outline of Smelting and Refining Business

Business Location	Processing Raw materials	Major Products
Naoshima Smelter & Refinery	・Copper concentrates ・E-Scrap ・Copper scrap ・Other Scrap ・slime	・Copper Cathode ・Sulfuric acid ・Selenium ・Gold ・Silver
Onahama Smelter and Refinery (Onahama Smelting & Refining Co., Ltd.)	・Copper concentrates ・E-Scrap ・Copper scrap ・Other Scrap	・Copper Cathode ・Sulfuric acid
PT. Smelting (Indonesia)	・Copper concentrates ・Copper scrap	・Copper Cathode ・Sulfuric acid
Hosokura Metal Mining Co., Ltd.	・Lead battery	・Lead ・Bismuth
Ikuno Plant	・Tin Scrap	・Tin
Onahama establishment (Materials Eco-Refining Co., Ltd.,)	(in-house raw materials)	・Platinum ・Palladium
MM Metal Recycling B.V. (Netherlands)	・E-Scrap	(in-house raw materials)



MITSUBISHI MATERIALS

Long-term business goals and strategy

Leader in environmentally-friendly mining & smelting business

Long-term Strategy

Stable supply and recycling of nonferrous metal materials, predominantly copper

- Creation of a sustainable raw material portfolio consisting of clean copper concentrate and E-Scrap
- Promotion of recycling
- Response to climate change

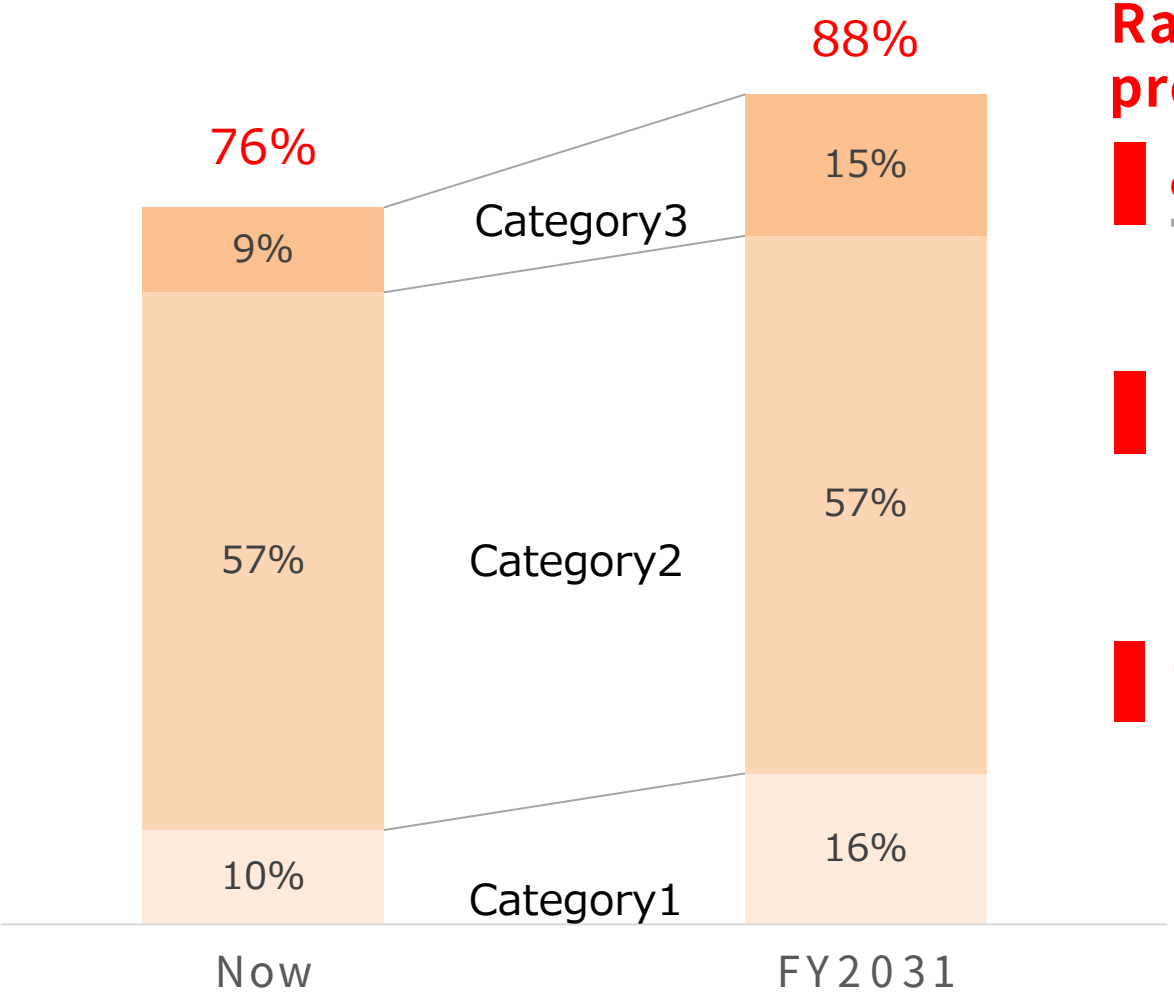
Specific Measures of the FY2023 Strategy

- Secure clean copper concentrate by investing in new mines
- Develop impurity removal technology in copper concentrate
- Optimize valuable metal material flow
- Reduce fossil fuels

Projected Achievement at the End of FY2023

- Optimization of valuable metal material flow derived from E-Scrap
- Reduction of smelter CO_2 emissions by 5%

Long-term Strategy : Improve the ratio[*1] of stable raw-material procurement



Ratio of Stable raw-material procurement Total +12%

Category1 copper concentrate under off-take[*2] +6%

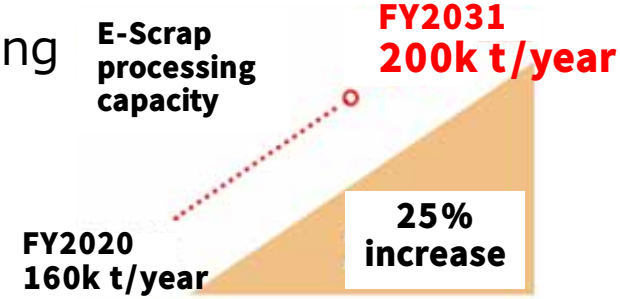
Will be in operation : Mantoverde、Zafranal

Category2 copper concentrate long-term contract ±0%

Maintaining good relationships with mining companies

Category3 E-Scrap +6%

Increase Processing E-Scrap



- Independent of external environment
- Sustainable

Creation of a raw material portfolio

*1 Amount of copper contained with stable raw-material procurement divided by amount of total copper production
*2 Long-term takeover rights linked to mine investment interests

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Specific measures: Mantoverde sulfide ore project

Overview

- Location: Atacama region, northern Chile
- Shareholder composition :
  - ・Mantos Copper 69.99%
  - ・MMC 30%
  - ・Minority individual shareholders 0.01%
- Life of mine : until 2041 (18 years)
- Ore reserve: 5.7 million tons
  (minable ore amount of 2.1 million tons) * Metal content

Attractiveness

1. High quality copper concentrate with few impurities, abundant reserve volume
2. It has SX-EW experience and has acquired licenses and permits. Shortening of time to start operation of sulfide ore is possible
3. Reduced CAPEX by utilizing existing infrastructure
4. Management team with extensive experience from major resource companies
5. Good relationship with local community

History / Schedule

1. February 2020 Signed the share subscription agreement
2. February 2021 Formal participation upon signing of PF contract
3. 2023～2024 and thereafter Start of production

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Specific Measures ：Mining & Metallurgy Laboratories

Creation of a sustainable raw material portfolio

- Strengthening and advance resource technology for expand opportunities to participate in blue-chip projects
- Impurity removal in copper concentrate and recovery of trace components by fusing resource technology and smelting technology
- Develop/train resource engineers for stable operation of our own mines and rapid mine evaluation

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Specific Measures: Optimization of material flow

Material grid

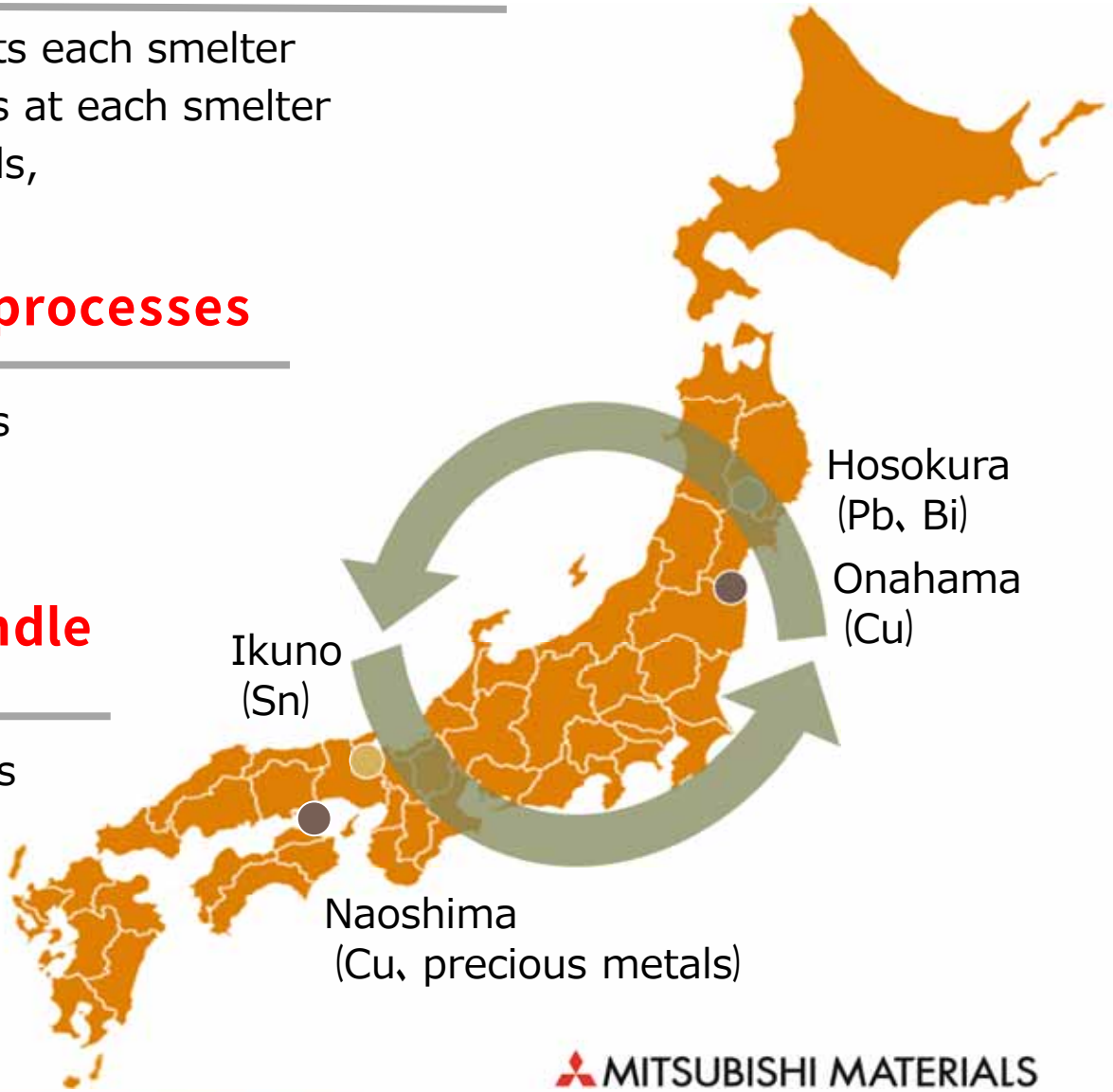
- Optimization of material flow that connects each smelter
- Strengthening recovery of valuable metals at each smelter
  →Effective recycling of Cu, precious metals,
  and trace components in E-Scrap

Improvement of precious metal processes

- Improvement of precious metal processes
  →Improvement of yield of Au and Ag

E-Scrap infrastructure which handle increased processing volume

- Understand the E-Scrap Input Constraints
- Optimizing the Processing Process



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TOPICS : E-Scrap enhancement

1 Acceptance enhancement

- Increase acceptance capacity of MM Metal Recycling B.V. to **48,000 tons/year**
- Securely capture **the growth of the E-Scrap market** in the European region

2 Process enhancement

- **Optimize material flow** between smelters
- **Efficiently recover metals** from E-Scrap (copper, gold, silver, lead, tin, PGM, etc.)

3 Collection enhancement

- Introduce **a new platform** to **Improve customer satisfaction**

In December 2021, we will provide a new e-scrap trading platform.
MEX : Mitsubishi Materials E-Scrap EXchange

As face-to-face meetings decrease due to corona disasters, it is increasingly important to always have contact with customers.
There is an urgent need to create a new system that does not make us feel the physical distance.

MEX connects our customers with us and makes us a closer partner.

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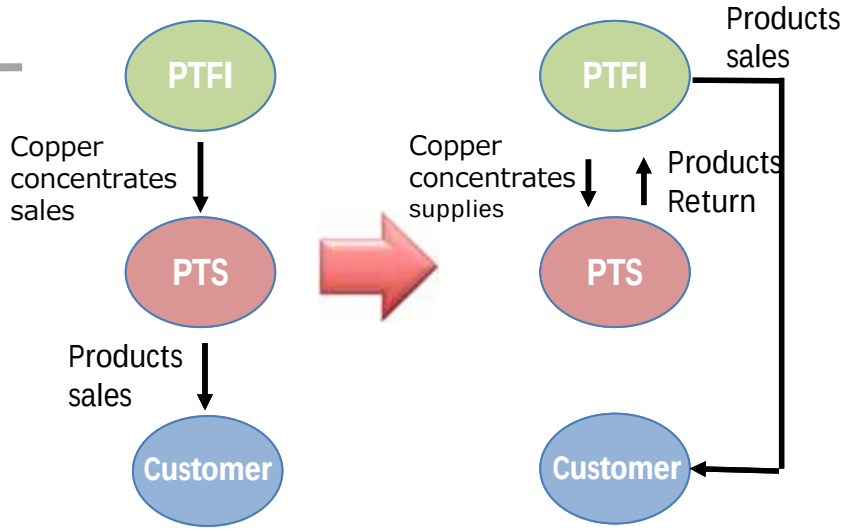
TOPICS : Optimization of PT. Smelting

1 Expansion work

- 30% increase in copper concentrates smelting capacity
- Expansion construction work was financed by PT. Freeport Indonesia (“PTFI”)
  →After work completion, the loan will be converted to new stocks of PT. Smelting (“PTS”) in Indonesia
- After conversion, PTFI will be the major shareholder and PTS in Indonesia will change from a consolidated subsidiary to an equity method affiliate

2 Change in operation method

- From trading to contract smelting scheme
- Ownership of copper, gold and silver will belong to PTFI
- The Company will continue to be involved in PTS operations even after the transition to contract smelting



3 Impact on business performance

- Current fiscal year: No impact on business performance
- In or after 2023, net sales will decrease, but the impact on operating profit (loss) and ordinary profit (loss) will be minimal.

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Philosophy of the Metals Company

As the importance of non-ferrous metals increases, the Company will contribute to the development of the society and to the construction of sustainable society by taking responsibility of supplying non-ferrous metals while minding the environment **as a leader in environmentally-friendly mining & smelting business**.

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Cement Company

IR Day

November 30, 2021

Managing Executive Officer,
Kazuto Hirano

MITSUBISHI MATERIALS

Contents

1. Long-term Business Goals
2. Domestic Business
3. Domestic Demand and Sales
4. Strengthen Revenue Base
5. Carbon Neutral
6. U.S. Business
7. Integration of Cement Business with Ube Industries, Ltd.

1. Long-term Business Goals

Long-term Business Goals and Missions

Long-term business goals

- **<u>Leader in the domestic and international cement industry with advanced environmental technologies</u>**

Improve comprehensive environmental technology level through various measures to enhance cost-competitiveness.

- Sophistication of waste disposal such as increasing the amount of waste as thermal energy alternatives source in the cement manufacturing process
- Dealing with climate change through the development of technologies to reduce CO2 emissions and recover and reuse resources
- Achieve higher efficiency through active use of IoT and AI
  ⇒ Aiming to become the most efficient cement company in the industry, contributing to build decarbonized society

Missions

(ESG/SDGs)

- Stable supply of basic building materials for the development of social infrastructure and disaster prevention infrastructure
- Advanced waste disposal management
- Dealing with climate change by reducing CO2
- Building a resilient domestic business foundation through business restructuring and business growth in overseas markets

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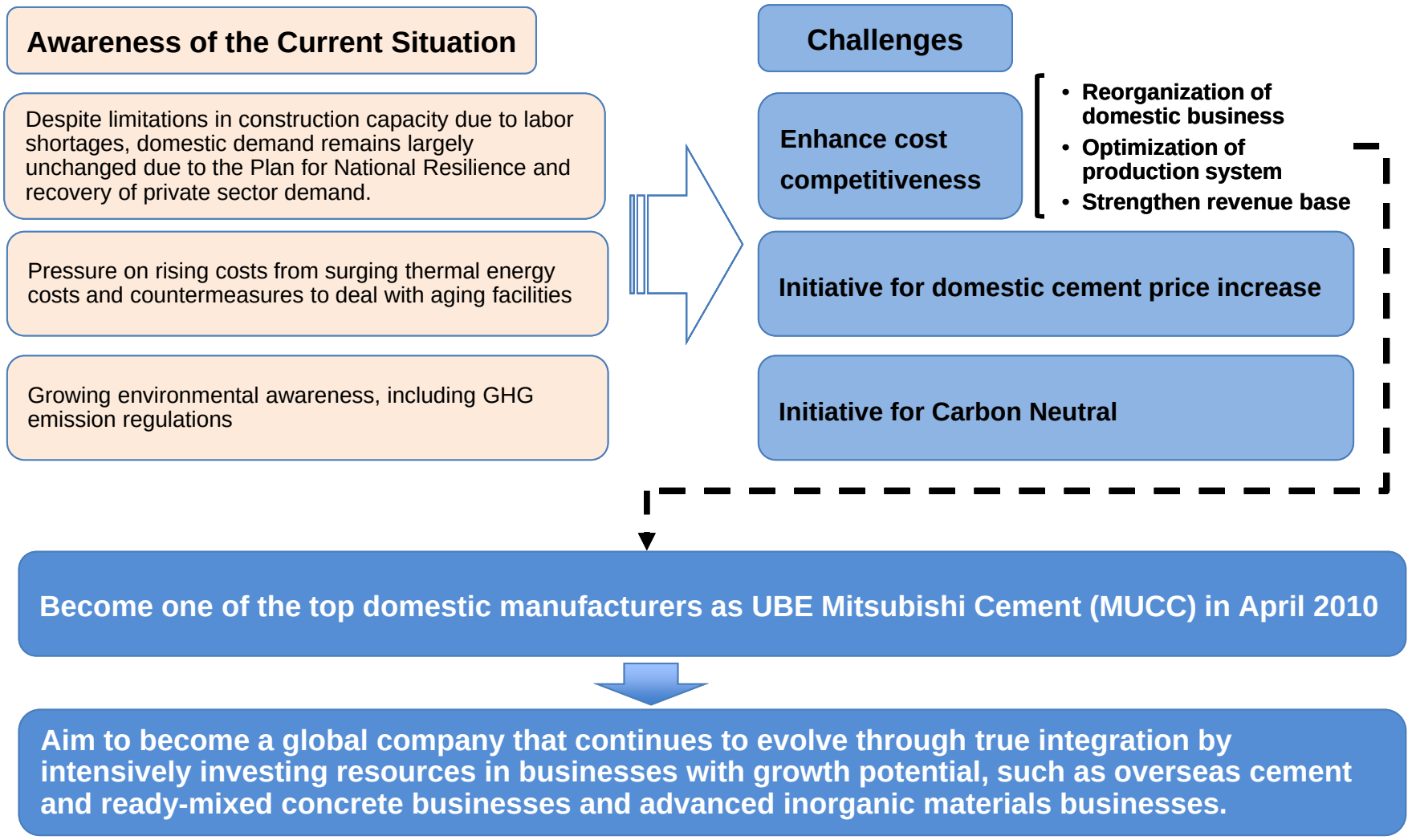
2. Domestic Business

Current Awareness and Challenges in the Domestic Business Environment



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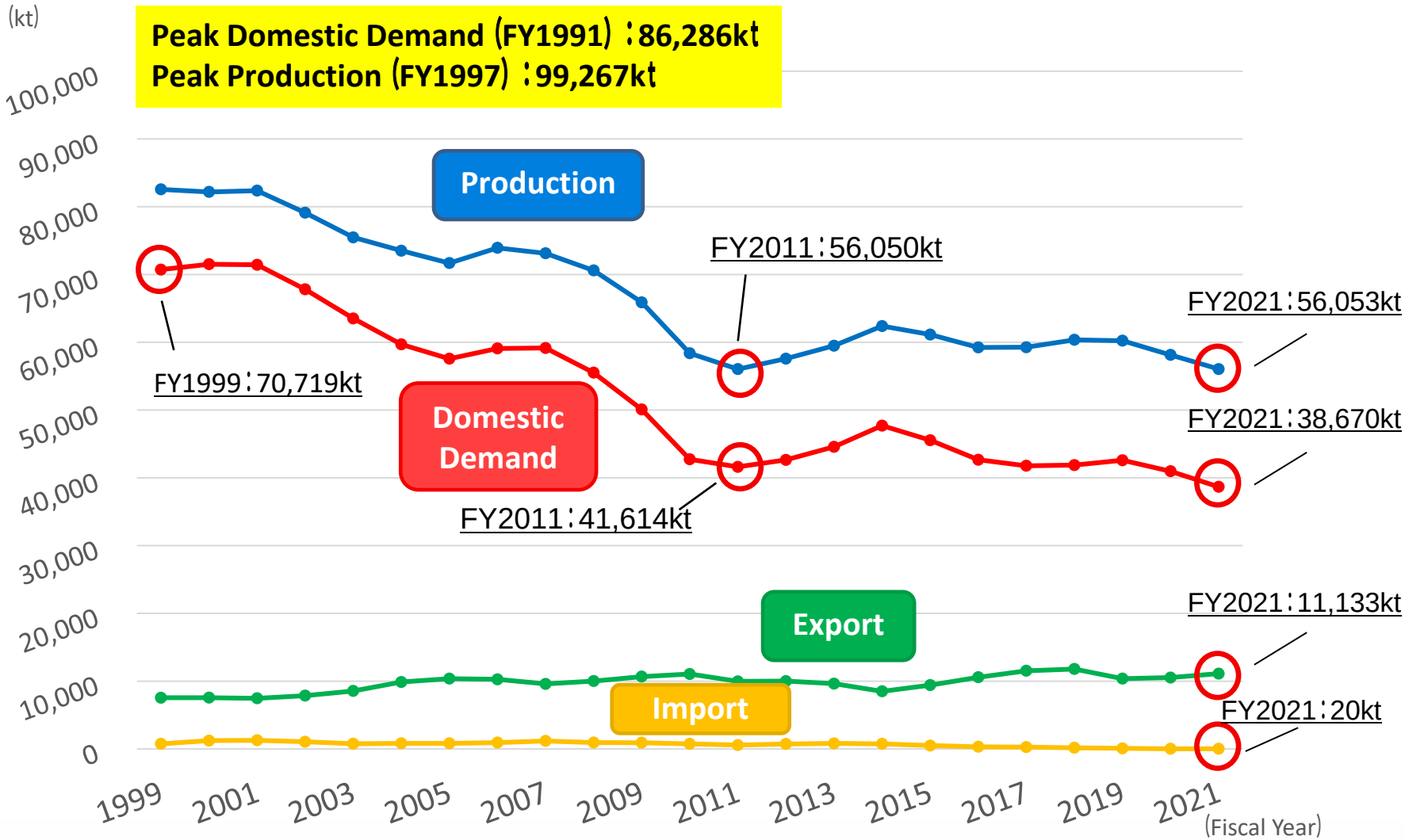
3. Domestic Demand and Sales

Changes in Domestic Demand of Cement（Incl. amount of production, export and Import）



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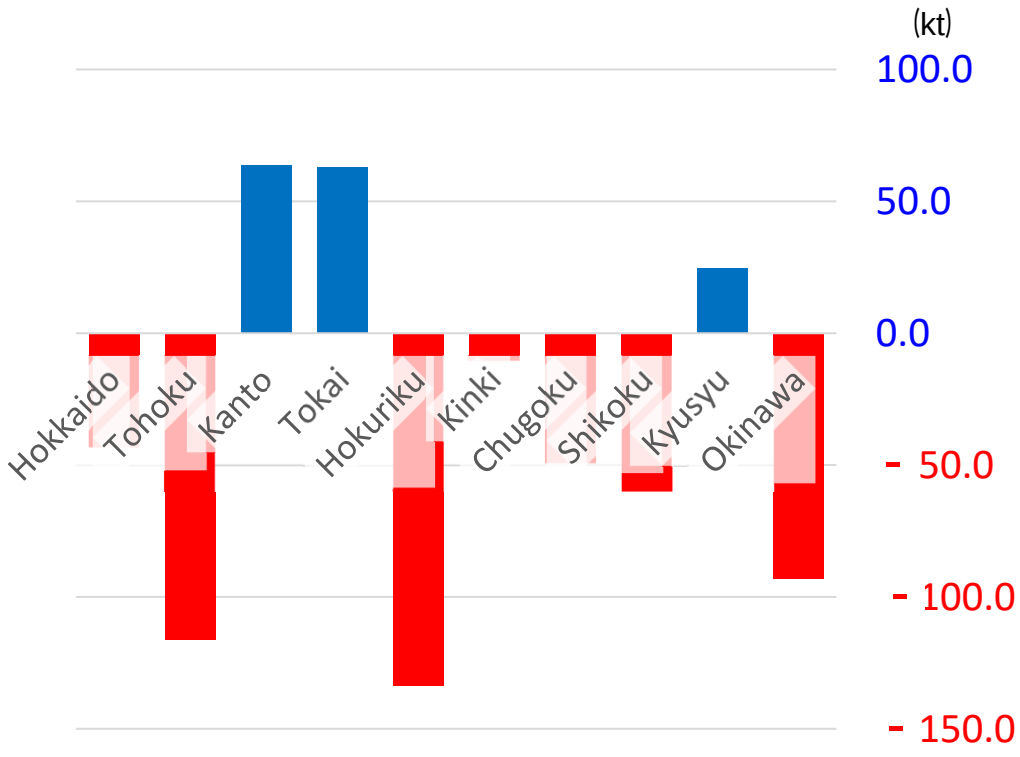
Result and Forecast of Domestic Demand in FY2022

Result of Domestic Demand in 1st Half of FY2022 (Excl.import)

Region	Amount (kt)	Year-on-Year (%)	Year-on-Year (kt)
Hokkaido	**1,025**	96.0%	- 43.3
Tohoku	**1,965**	94.4%	- 116.2
Kanto	**6,120**	101.1%	+63.7
Tokai	**2,168**	103.0%	+62.9
Hokuriku	**548**	80.4%	- 133.6
Kinki	**2,599**	99.6%	- 10.8
Chugoku	**1,114**	95.8%	- 49.3
Shikoku	**633**	91.4%	- 59.8
Kyusyu	**2,160**	101.1%	+24.5
Okinawa	**358**	79.4%	- 93.0
Total	**18,690**	98.1%	- 354.9

Domestic demand by region compared to the previous year



Forecast of Domestic Demand in FY2022

	1st Half (Result)		2nd Half		Total	
	Amount(kt)	*Y o Y*	Amount(kt)	*Y o Y*	Amount(kt)	*Y o Y*
Domestic Demand	**18,690**	***98.1%***	**19,810**	***101.0%***	**38,500**	***99.6%***

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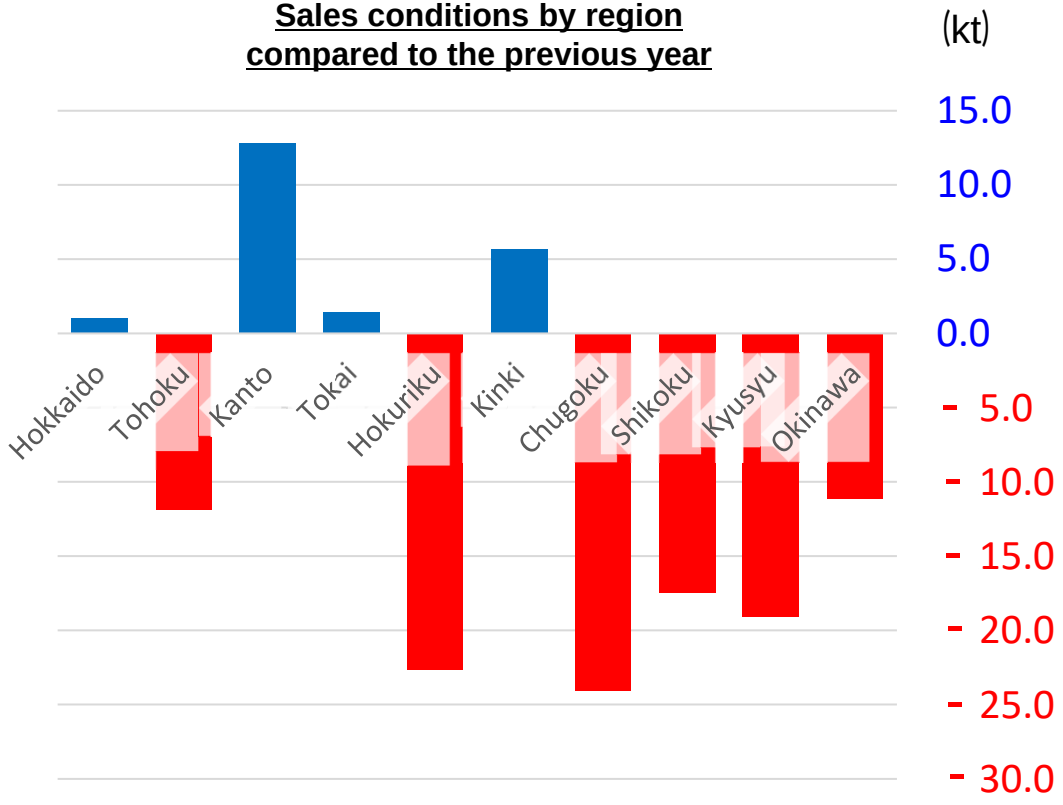
The company's (Ube-Mitsubishi) Sales by region in FY2022

Sales conditions by region in 1st Half of FY2022

Region	Sals amount (kt)	Year-on-Year The Company (%)	(kt)
Hokkaido	169	100.6%	+1.0
Tohoku	596	98.0%	- 11.9
Kanto	1,373	100.9%	+12.9
Tokai	497	100.3%	+1.4
Hokuriku	136	85.7%	- 22.7
Kinki	712	100.8%	+5.7
Chugoku	291	92.3%	- 24.1
Shikoku	125	87.7%	- 17.5
Kyusyu	539	96.6%	- 19.1
Okinawa	77	87.4%	- 11.1
Total	4,514	98.1%	- 85.4

Sales conditions by region compared to the previous year



Domestic demand and district factors that cause sales conditions to differ significantly at Ube Mitsubishi

- Kinki region : acquisition of large projects in Hyogo and favorable sales of ready-mixed concrete / Acquisition of large projects in Kyoto and new customers
- Shikoku region: Demand for reconstruction from the torrential rains in Ehime peaked out/recoil from large-scale projects in Kagawa
- Kyusyu region : Recoil of large projects in Kagoshima prefecture/Sluggish ready-mixed concrete and construction work in Oita and Saga

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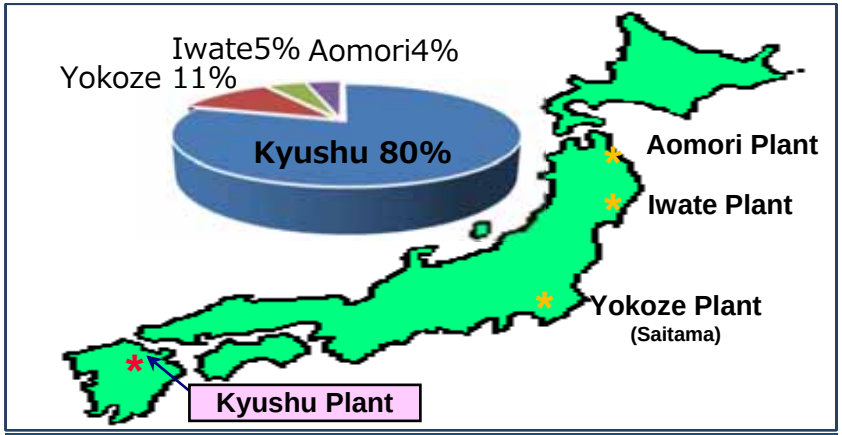
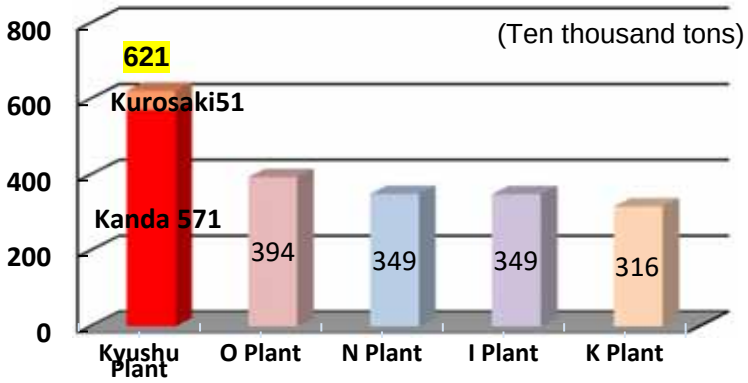
4. Strengthen Revenue Base

Domestic Production Sites

Domestic production sites (4 plants) and production ratio

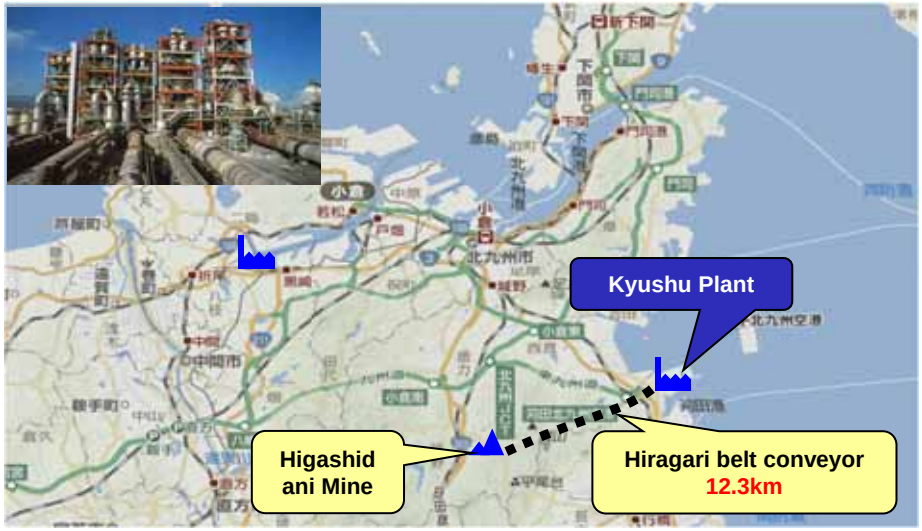


Comparison of the largest clinker production plants of each company in FY2021



Features and location of Kyushu Plant

I. Direct connection to the Higashidani Mine by conveyor belt
II. Located on the waterfront and capable of marine transportation
III. High cost competitiveness due to the combined features of the mountain-foot and seaside plants.
IV. Mass production plant with the largest domestic production capacity
V. Enables massive waste disposal



Positioning Kyushu Plant, with its high cost competitiveness, as the Company's most important base

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Strengthen Revenue Base - Initiatives for stable plant operations

In order to establish a stable revenue base to support the "reorganization of domestic business" and "optimization of production system," the Company will work to strengthen the cost competitiveness of the Kyushu Plant.

During the FY2023 Strategy term, the focus will be on “Initiatives for stable plant operations (elimination of equipment trouble)” and “increase in the use of waste as thermal energy alternatives source”

◆Initiatives for stable plant operations (elimination of equipment trouble)

Strategic items/measures	2020	2021	2022	Remarks
1. Utilization of digitalization and IoT	Select equipment Trial operation		Introduction of equipment Start	• Utilize highly reliable measurement technology based on the advanced functionality of sensors and advances in communication technology • Obtain and analyze information from equipment to identify signs of failure and predict equipment life • Automating and advancing inspection work
2. Prevention of recurrence of similar failures by reviewing past failures and verifying their effectiveness	Countermeasures against past failures Re-examination of effectiveness		Continue measures	• Advancement of failure prevention measures • Strengthen education for younger staff
3. Further use of skilled technology and facilitation of the transfer of technology	Review inspection system	Expand and implement education		• Strengthen sustained inspection skills and eliminate breakdowns

Strengthen revenue base - Promote the use of alternative thermal energy wastes (1)

♦Materials and alternatives necessary for cement production

Limestone

Clay
- Coal ash
- Soil generated from construction
- Urban waste Incinerated ash

Silica rock
- Casting sand

Iron raw material
- Copper slag
- Byproduct ash from blast furnaces

Additives
- Gypsum
- Slag powder
- JIS ash

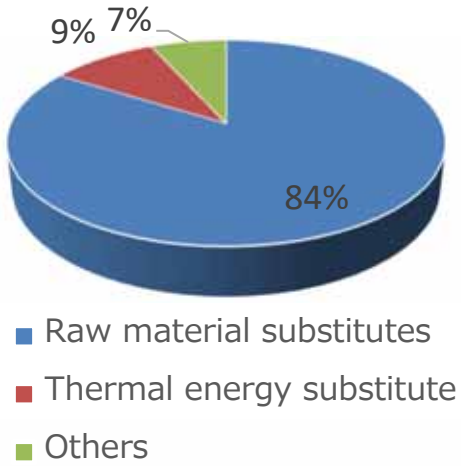
Thermal energy
- Waste plastics
- Waste oil
- ASR/SR

Raw material substitutes
Substitution rate excluding limestone
(80%)

Use
by product

Thermal energy substitute
Substitution rate
(19%)

♦Acceptance status of waste (volume comparison)



- ✓ **In order to expand the recycling business, it is urgently necessary to increase the acceptance of thermal energy alternatives, which currently have a substitution rate of 19% and accept only 9% of the total**
- ✓ **The substitution rate of thermal energy substitutes is lower than that of raw materials, and it has a large room for expansion**

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Strengthen revenue base - Promote the use of waste as thermal energy alternatives source (2)

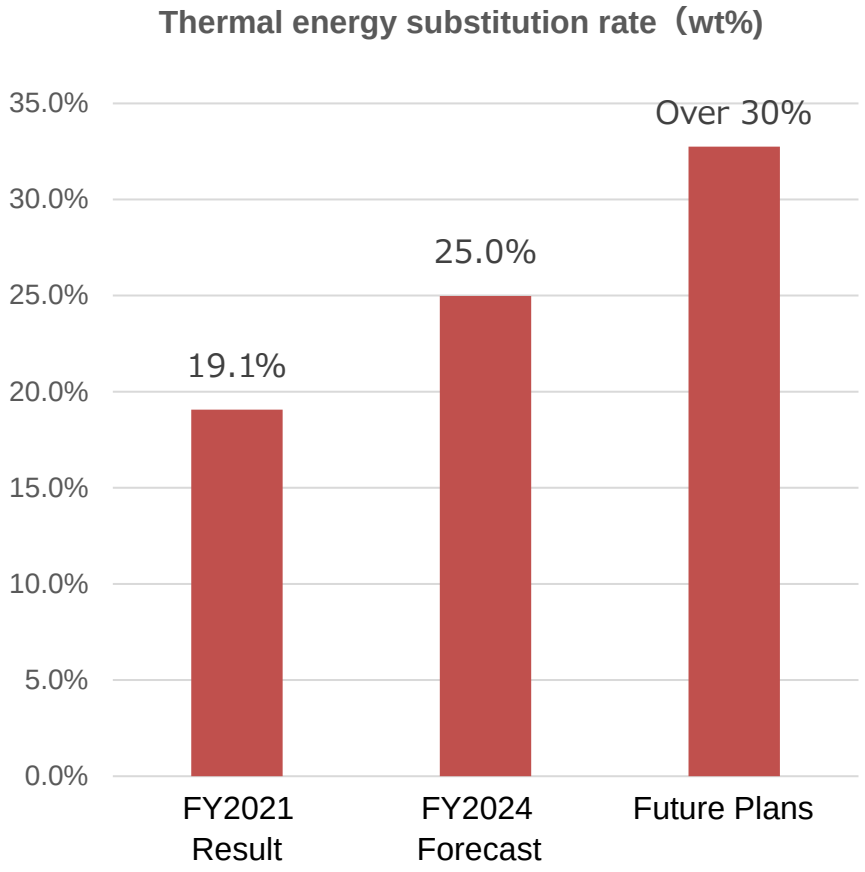
While raw material wastes have been largely replaced, the Company aims to reduce the cost of thermal energy, reduce CO2 emissions from fossil thermal energy, and prevent the depletion of natural resources by further expanding the use of thermal energy wastes that still have some capacity.

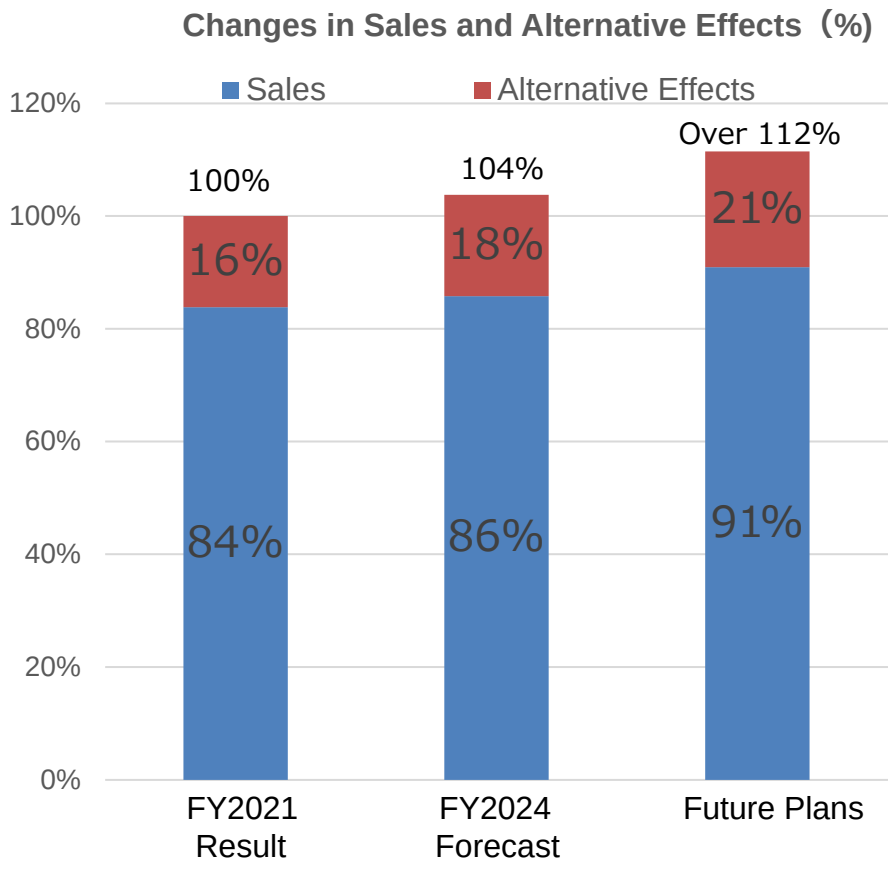
- ✓ **Strengthen processing capacity**
- ✓ **Enforce collection and transport**

	Item	FY2022	FY2023	FY2024	FY2025	FY2026
Processing capability	①Installation of equipment which accepts and pumps recycled oil (construction work in progress)		Scheduled to start operation in December 2021			
	②Enhancement of waste plastic processing equipment capability			Scheduled to start operation in March 2023		
	③Greater enhancement of waste plastic acceptance & processing equipment capability				Under discussion	
Collection and delivery	①Discuss optimization of accepting items depending on the characteristics of each plant					
	②Streamline logistics which connect multiple plants					
	③Consider designation of temporary storing space depending on the location of a plant					

Start a new company

Strengthen revenue base - Promote the use of waste as thermal energy alternatives source (3)





＊Calculated as an estimate when the substitution rate of 25% and over 30% can be achieved with the actual results in FY2021 as 100%.

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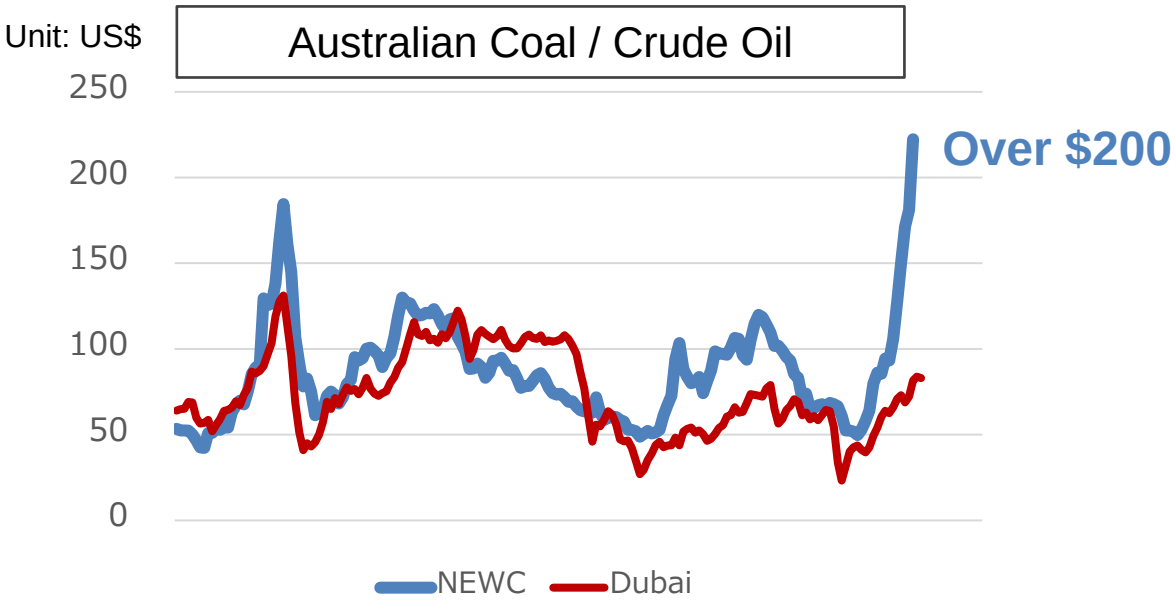
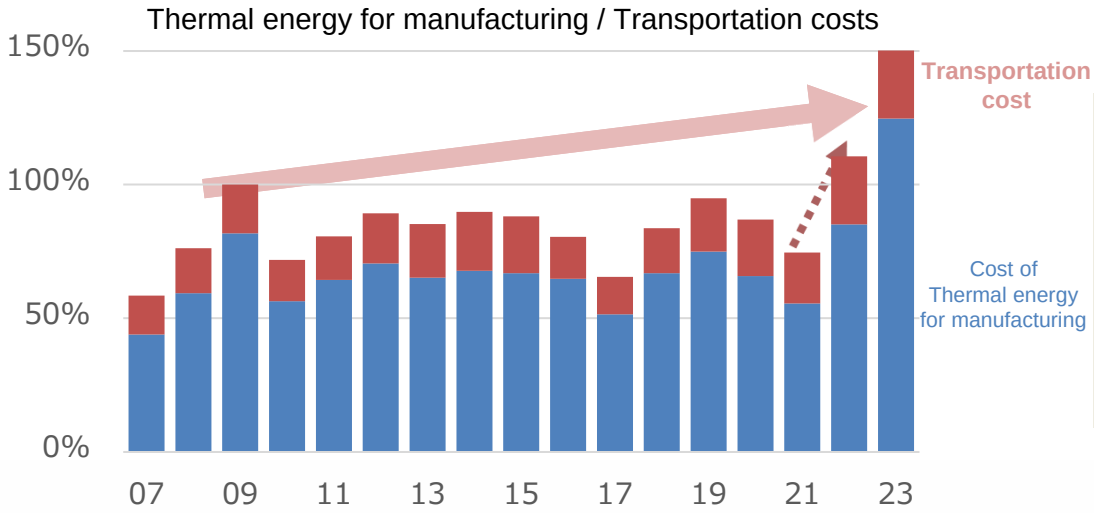
Changes in thermal energy prices and costs



(2021)

Coal：**Soaring**

Crude Oil：**High**



Cost (2021 to 2022)

1.5 times compared to 2008

2.0 times year-on-year

*Indexed with the results of FY2009 as 100%

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Status of cement sales price increase at Ube-Mitsubishi Cement Corporation

10/20	Announced price increase for cement and solidified materials **by current price + 2,200 yen/t or more from shipments on January 1, 2022**

Current	Explanations and price negotiations are underway with each user to ensure that they understand the necessity of the price increase.

Reason for change

I. Increase in manufacturing cost due to abnormal rise in coal prices, etc.
II. Increase in maintenance and renewal costs due to aging facilities
III. Increase in distribution cost mainly due to labor shortages, fuel price hikes, etc.
IV. Cost incurred for environmental measures

5. Carbon Neutral

Major Initiatives to reduce GHG emissions by 2030 and 2050

Initiatives for 2030

■ Promote energy-saving

- Introduce energy-saving equipment
- Utilize IoT, AI, etc.

Energy-saving equipment (highly efficient clinker cooler)

■ Low-temperature burning technology

■ Expand use of low-carbon raw materials

- Utilization of waste and by-products containing decarboxylated calcium sources (Blast furnace slag, coal ash, incinerator ash, etc.)

Kurosaki area of Kyushu Plant
Municipal Solid Waste Incinerator Ash Recycling Plant

■ Use low-carbon energy

- Reduce fossil-derived thermal energy through the use of biomass (wood waste) and natural gas
- Use electricity from renewable sources

Waste plastic and biomass processing facilities

Initiatives for 2050

Red font: Items introducing today

*Develop CO2 capture and utilization (CCU) technology

・Separation and recovery・Methanation
・Mineralization of waste concrete, etc.

Initiative(1)

■ Promote energy conversion and technology development

Utilization of carbon neutral methane, hydrogen and ammonia

Initiative(2)

Carbon neutral

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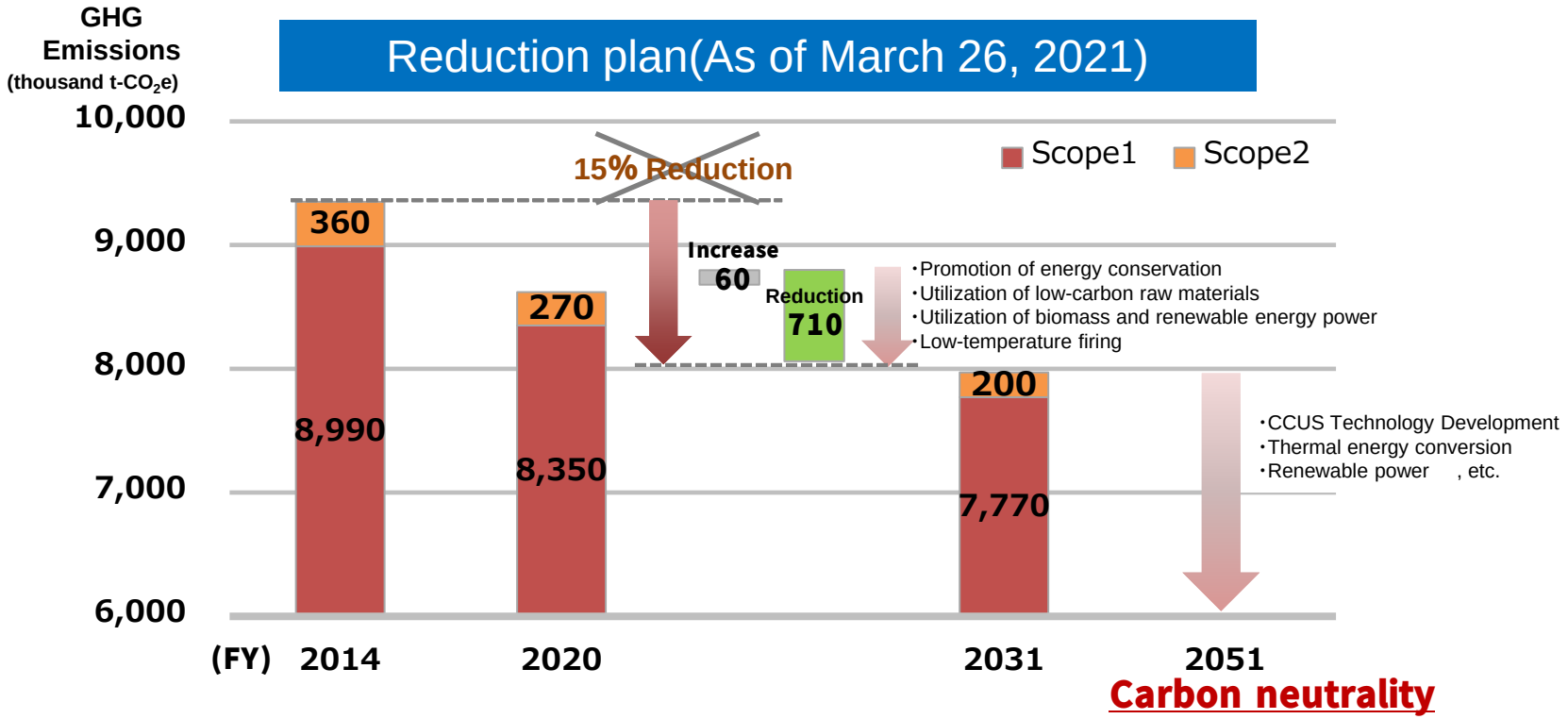
Setting of new greenhouse gas emission reduction targets for Cement Business



・Scope1: Direct GHG emissions by business operators
・Scope2: Indirect emissions resulting from the use of electricity, heat, and steam supplied by other companies

Additional measures for 2030

The government's CO2 reduction target for 2030 has been changed from 26% to 46%. UBE Mitsubishi Cement Co., Ltd. will formulate new CO2 reduction targets that contribute to a 46% reduction, including the implementation of the following measures.

- ☐ Biomass conversion and energy conversion of coal-fired power and cement kilns (LNG conversion)
- ☐ Switching scope 2 (purchased power) to renewable energy
- ☐ Reduction of CO2 emissions by recycling waste concrete and mineralizing* it

* Technology for immobilizing CO2 for calcium contained in recycled aggregates and fine powders produced in the process of recycling

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Initiative for Carbon Neutral in 2050 (1)

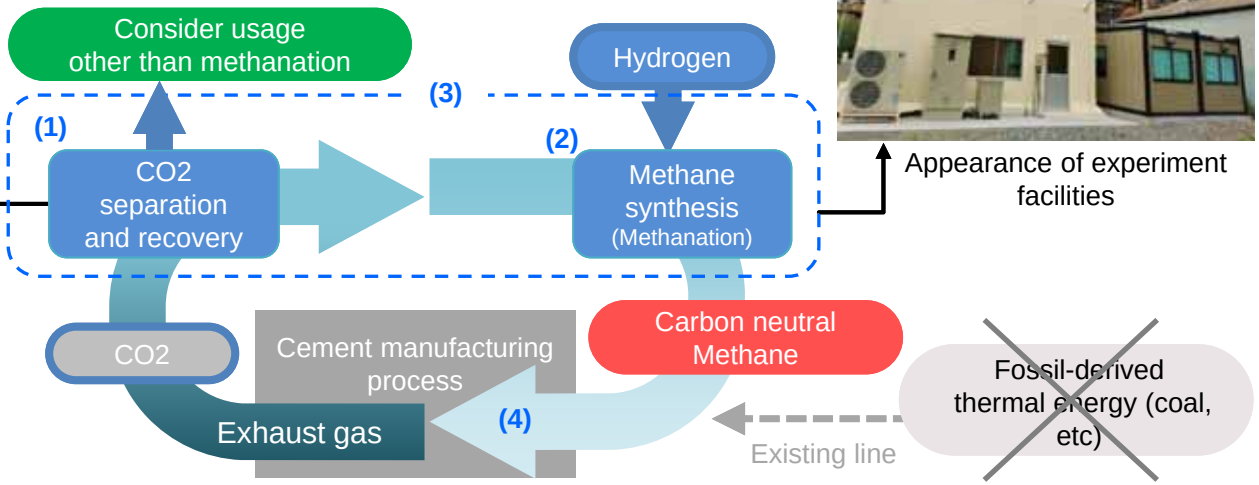
Carbon dioxide capture and utilization (CCU) technology development

- Development of carbon neutralization thermal energy utilization system by CO2 separation and recovery from cement flue gas and methanation

【Development Goal】

I. Establish CO2 Separation and Recovery Technology Suitable for Cement Exhaust Gas
II. Methane synthesis from recovered CO2 and hydrogen
III. Improve the efficiency of the system by using waste heat, etc.
IV. Develop and utilize kiln combustion technology for carbon-neutral methane

Separation and recovery test equipment



Appearance of experiment facilities

【Other initiatives for development of CCU technology】

- Participated in Methanation Promotion Public-Private Council
  Address issues such as practical application of methanation technology and system design for utilization of carbon neutral methane.
- Participated in Kitakyushu Green Growth Strategy Advisory Board
  The Company proposed to become a development base for industry-government-academia collaboration to develop technologies related to GHG reduction in Kitakyushu City.

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Initiative for Carbon Neutral in 2050 (2)

Develop innovative technology to produce methane from lignite

<Overview of Technology>

- Technology to generate and recover methane gas from underground lignite using methanogen. Combined with CO2 capture and geological storage (CCS), realize carbon neutral energy in the future.

<Features>

- Reduce environmental impact by recovering lignite methane from the ground without mining it
- Inject CO2 into lignite seam after methanation to solidify it, which may enable to produce carbon neutral energy

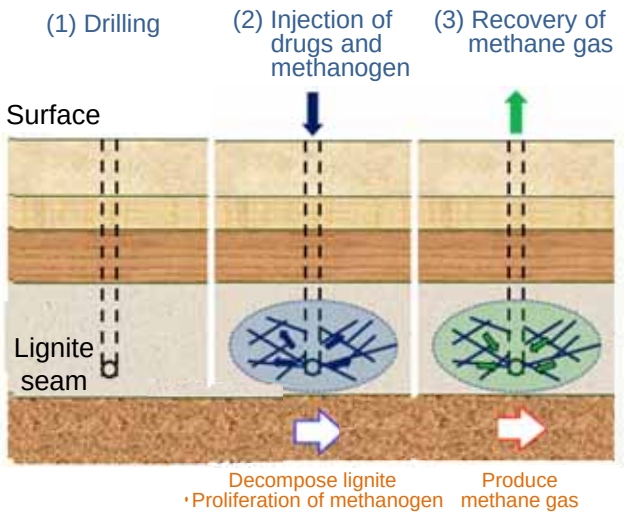
<Targeted business development>

- Local consumption and production of energy and overseas expansion
- Future carbon-neutral energy supply

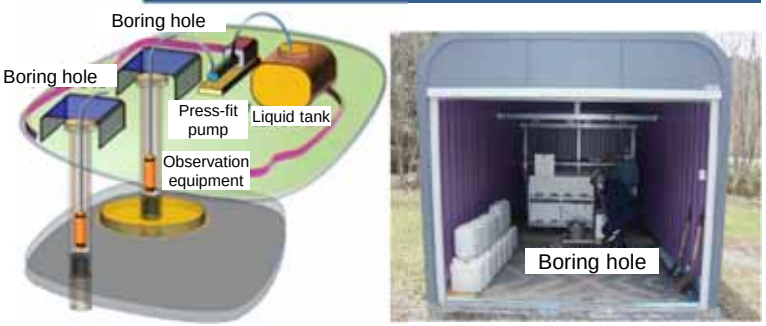
<Major achievements and plans beyond FY2023>

- Laboratory test confirmed production of methane In-situ test showed data indicating the reaction equivalent to the laboratory test
- Identify issues for practical application through laboratory and in-situ tests and work on achieving early practical application

Conceptual diagram of methane



In-situ testing site



Perform various tests using boreholes

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6. U.S. Business

Supply Chain in Southern California

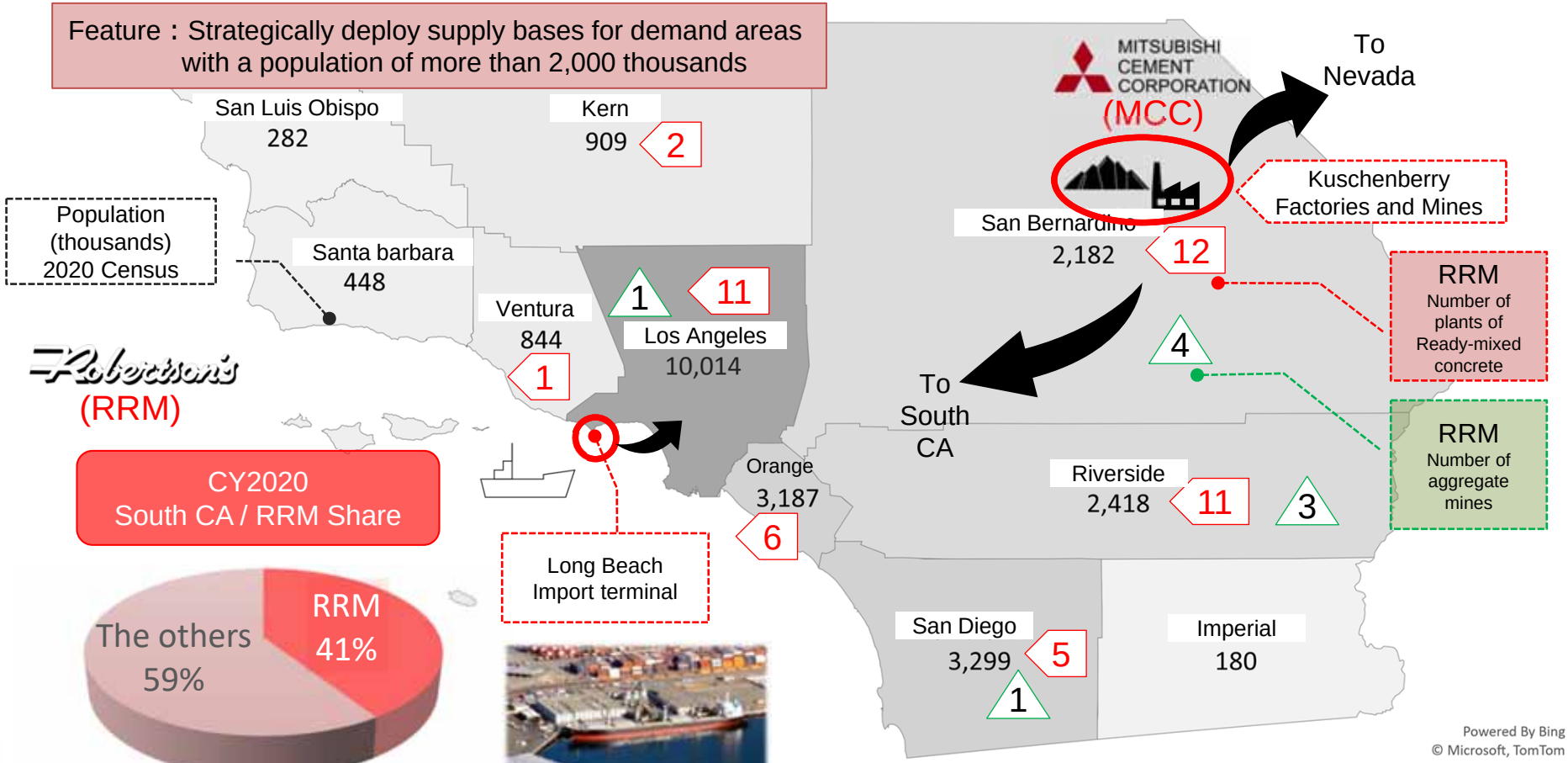
Cement（MCC： 1 plant・mine、1 terminal）

Aggregate（RRM：9 mine）

Ready-mixed concrete plants（RRM：48 plants）

Customers

Feature：Strategically deploy supply bases for demand areas with a population of more than 2,000 thousands



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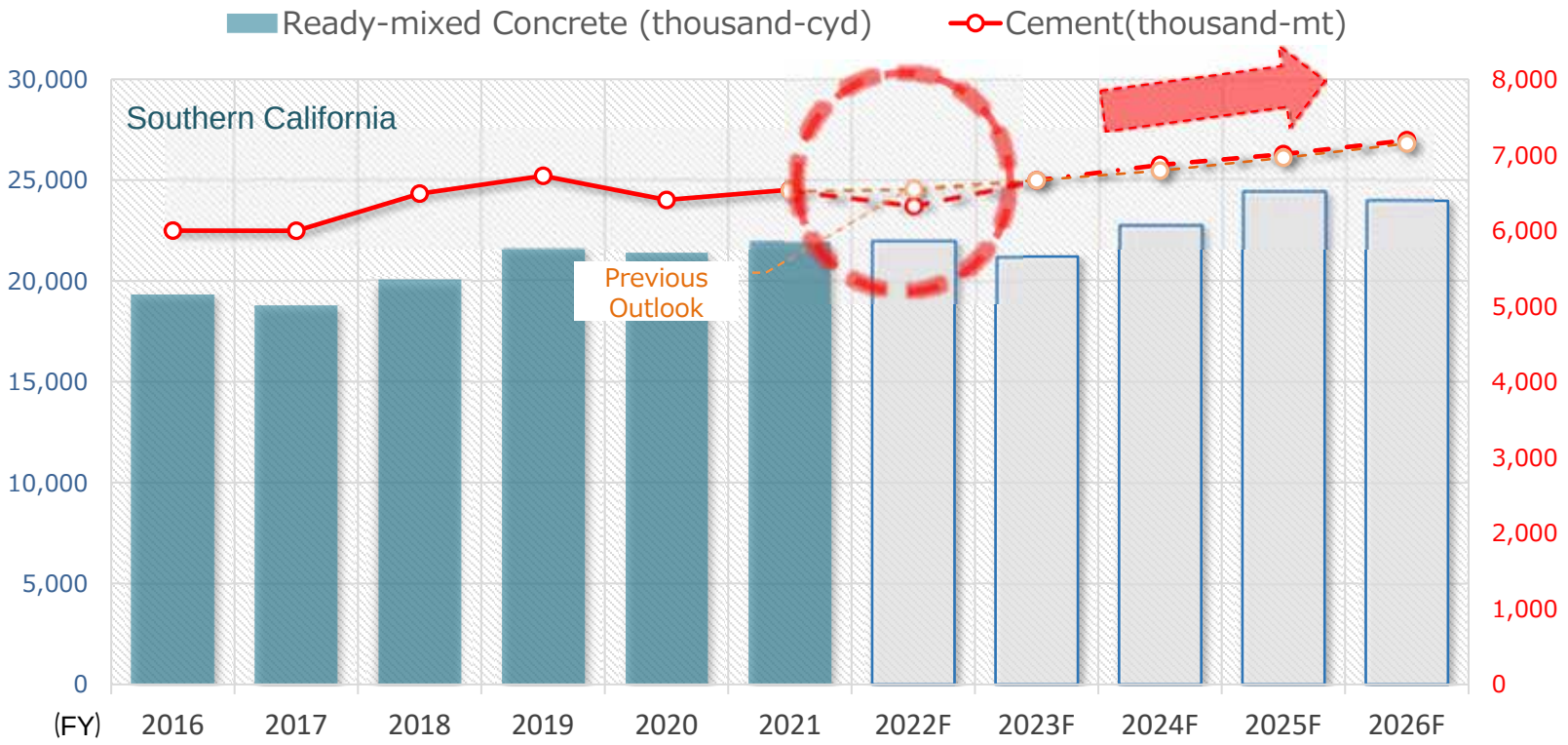
Outlook for Demand for Cement and Ready-mixed Concrete in Southern California, a Major Market

- Regarding the demand forecast for cement in Southern California (published by the U.S. Cement Association), the Company expects the demand to be firm this fiscal year due to the U.S. employment plan and population growth, despite a temporary decline due to the current labor shortage.



- Cement : Published by the American Cement Association（2021/Summer)
- Ready-mixed Concrete ：Published by McGraw-Hill（FY2022/2Q)

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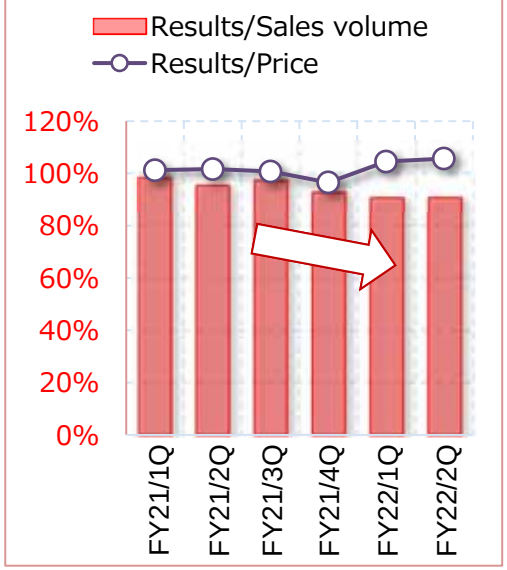
Current Situation of Robertson's Ready Mix (RRM)

Supported by strong demand

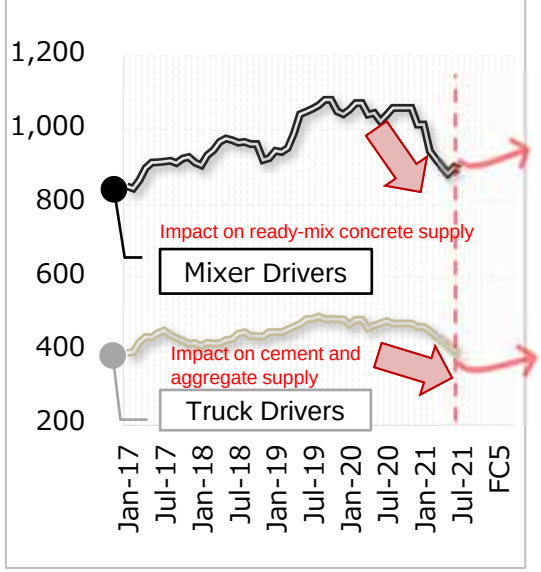
Challenges	Causes	Countermeasures	Future
Stagnation in sales volume	• Increase in driver turnover	• Improve benefits and working environment • Strengthen recruitment activities	• Recover supply capacity • Recover sales volume
Cost increase	• Increase fuel and material costs	• Further price increase of ready-mixed concrete	• Improve profitability

Profit increase

Quarterly Year-on-year Changes



Changes in number of drivers



Robertson's

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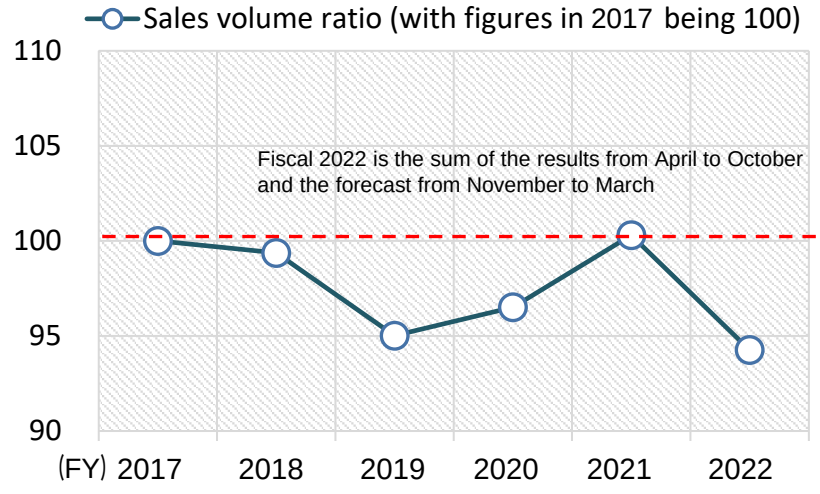
Sales of US Mitsubishi Cement Corporation (MCC) in the U.S.

Challenges	Causes	Countermeasures
Decrease in sales volume	• Equipment failurea	• Advancement of operations through exchange of engineers between Japan and the U.S. • Renewal of aging equipment
Cost increase	• Soaring energy cost	• Upgrade to high-efficiency equipment • Increase in alternative thermal energy rate

Changes in sales volume over the past five years



MITSUBISHI CEMENT CORPORATION

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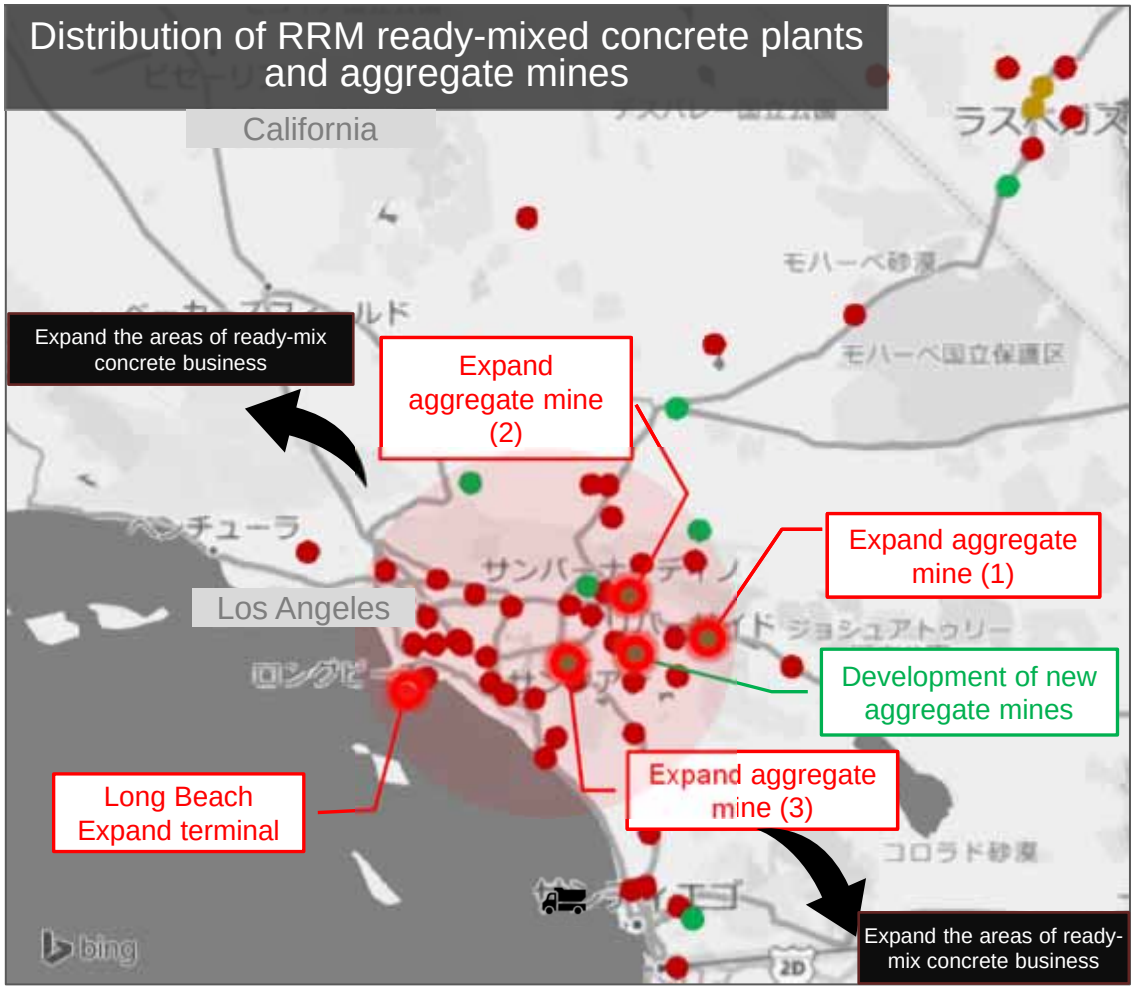
A milestone for the future



Growth strategies

<Responses toward market growth>

- Expand aggregate mines
- Expand terminal
  - ・Reliable capture of sales opportunities during periods of increased demand
- Expand the scale of ready-mix concrete business
  - ・Expand areas into blank zones
  - ・Expand bases in areas with high demand

<Response to energy-saving and low-carbonization>

- Sustainable cement supply system
  - ・Initiatives for low-carbon society
  - ・Expansion of limestone mines
  - ・Improving the Efficiency of Cement Plants

7. Integration of Cement Business with Ube Industries, Ltd.

Integration of Cement Business with Ube Industries, Ltd. (1)

◆ Scheduled effective date of integration

April 1, 2022

◆ Background and purpose of integration

➢ Change in business environment (more than 20 years since establishment of Ube-Mitsubishi Cement Corporation)

Achieved a certain level of rationalization in the cement sales and distribution divisions

⇔

・Decline in domestic demand
・Significant energy price fluctuations, etc.

➢ Integrate overall Cement Business and related businesses, etc.

MMC

1. Kyushu Plant that boasts the largest production capacity in Japan
2. Higashidani Mine with abundant limestone resources
3. Highly competitive U.S. cement and ready-mixed concrete businesses, etc.

Ube Industries, Ltd.

1. Infrastructure facilities such as large port facilities and call centers in the Ube area
2. Nationwide network of ready-mixed concrete production and sales
3. Inorganic material business, etc. of Ube Material Industries , Ltd.

➢ Establish an optimal management system to achieve sustainable growth as a company that contributes to the development of social infrastructure and a recycling-oriented society

Integration of Cement Business with Ube Industries, Ltd. (2)

◆ Direction of the new integrated company

✓ **Strengthen domestic business foundation**

Promote efficiency throughout the value chain to maximize synergy effect

- Further optimization of production system
- Restructuring of the sales and logistics divisions, including the downstream ready-mix concrete business, etc.

✓ **Enhance the Company's position as a contributor to the development of social infrastructure and a recycling-oriented society**

✓ **Intensive investment in businesses with growth potential**

Intensive investment of resources in the overseas cement and ready-mixed concrete businesses and the advanced inorganic materials business based on high-quality limestone, etc.

✓ **Aiming for industry-leading profitability and stability**

Integration of Cement Business with Ube Industries, Ltd. (3)

◆Announced the name of the new company on July 7, 2021

✓ By truly fusing the Mitsubishi and UBE brands, we aim to become a "Global company that continues to evolve".

Company name：**Mitsubishi UBE Cement Corporation**

Abbreviation　：**MUCC**

Head office location ;
2-1-1, Uchisaiwaicho, Chiyoda-ku, Tokyo（IINO BUILDING）

Title and name of representative ;
Makoto Koyama, Representative Director, President
Kazuto Hirano, Representative Director, Vice President

Environment & Energy Business Company

IR Day

November 30, 2021

Managing Executive Officer,
Shogo Yamaguchi

MITSUBISHI MATERIALS

Contents

1. Overview of the entire business

2. Environmental recycling business

3. Renewable energy business

4. Technological development for the creation of new businesses

Basic Policy of the Environment & Energy Business Company

Company Business Policy

By promoting recycling and energy businesses that take advantage of the unique characteristics of the Group, we will contribute to the construction of a sustainable, low environmental impact, recycling-oriented society and realize both social and economic value.

Mission

Prosperous society

Recycling-oriented society

Decarbonized society

Environmental recycling business

- **Stably supply of recycled materials**
- **Solve urban waste problems**
- **Build a sustainable social system**

Renewable energy business

- **Stable supply of clean energy**
- **Provide renewable energy**

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Environmental recycling business

●	"E-waste" (used electronics and electrical products)
●	Automobile recycling
●	Fly ash treatment
●	Biogas

※**Bold underline** : Consolidated subsidiaries

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Renewable energy business

●	Geothermal energy
▲	Hydroelectric
■	Mega solar

※Each value shows equipment capacity(kW)

Komonomori Region

Resource Survey (2021-2025)
* JOGMEC subsidized project
⇒Determination of expected output and operation start-up date
⇒Construction of Komonomori district power plant
⇒Continue development of new geothermal area

Hydroelectric Power Plant

Nagtata	721kW
Ikari	1,873kW
Ooyu	956kW
Komatagawa No.1	5,720kW
Komatagawa No.2	1,750kW
Komatagawa No.4	6,808kW

Komatagawa New Power Plant (Under Construction) 10,326kW

Appi (Under Construction) 14,900kW

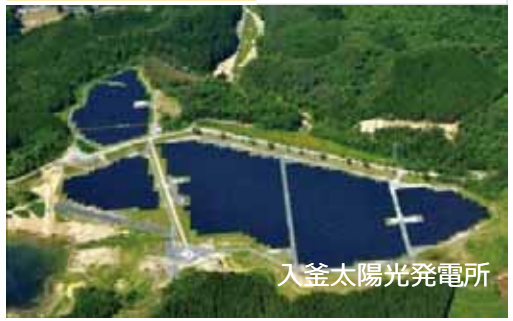
Omuma 9,500kW

Sumikawa 50,000kW

Wasabizawa 46,199kW

Torigoe 1,990kW

Irigama 6,930kW



Fukui 1,990kW

Makabe 1,990kW

Yabuki 6,544kW

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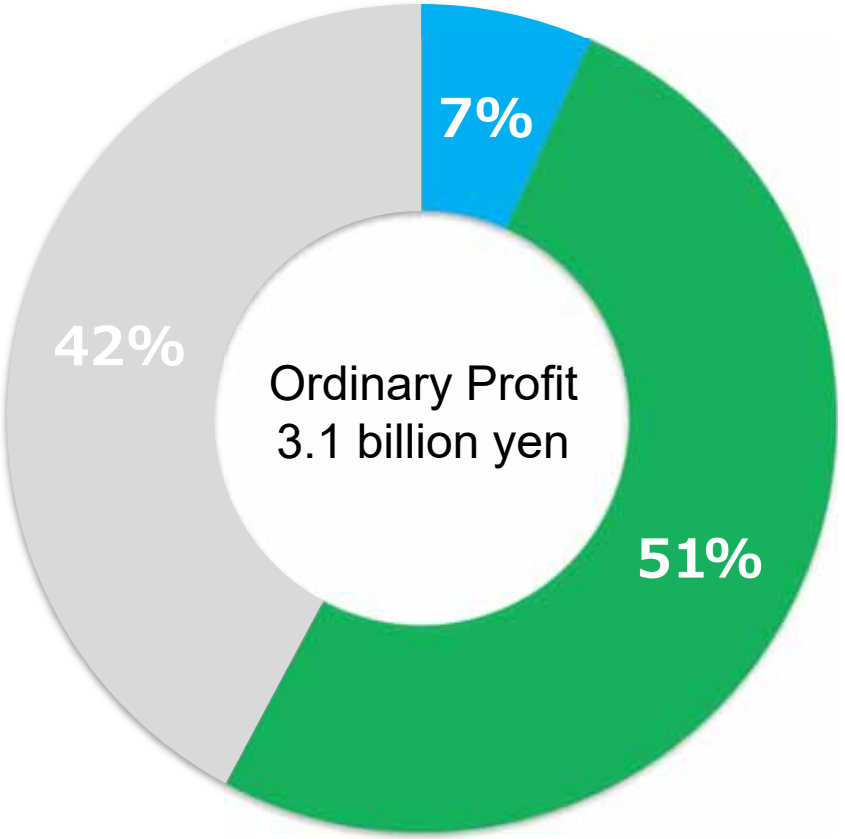
Business scale of environment and energy business（Ordinary profit by business）

Environmental recycling business



Renewable energy business

*"Other" includes the business of nuclear power related and DIA CONSULTANTS CO., Ltd. DIA CONSULTANTS CO., Ltd. was out of the scope of consolidation in July 2021.

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Goals of the Environment & Energy Business

Carbon neutral

CO2 resource recovery

Car recycling

LiB recycling
Co and Ni Recovery Process

Recycling centers

Study of commercialization with an eye to 2030 (Technology development, policy advocacy)

Home appliance recycling
Automation technology/ LCA evaluation

Incineration ash Recycling

Promote and expand recycling business and renewable energy (FY2023 Strategy)

New hydropower generation

New geothermal generation

Launch into EU and Southeast Asia

Municipal waste

PV recycling

Food waste Biogasification

Continuous development of existing businesses which support a recycling-oriented society

Resin regeneration

Geothermal and hydropower generation

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Initiatives to Build a Recycling-oriented Society (circular economy)

Contribution goals for a sustainable Society

Annual processing volume of home appliance recycling

Up 27%

FY2020 results
2.75 million units

FY2023 target
3.5 million units

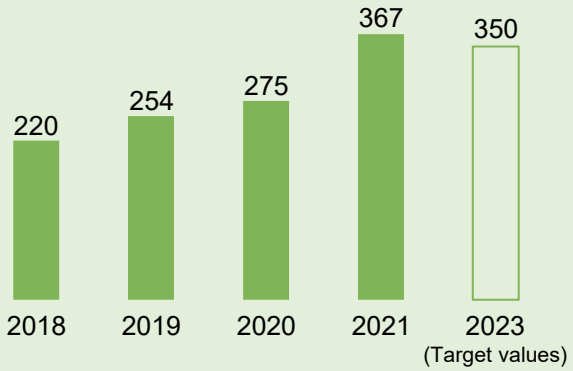
Annual total power generated by renewable energy*

Up 22%

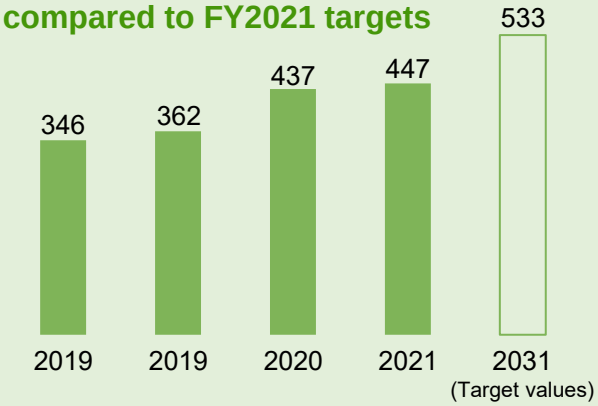
FY2020 results
437GWh

FY2031 target
533GWh

Achievement of 105% compared to FY2021 targets



Achievement of 84% compared to FY2021 targets



*The definition of renewable energy generated has been revised to be the generated volume of each business multiplied by our ownership share.
*Total amount of steam supplied to geothermal power plants (converted to the amount of generated power) and the amount of power transmitted (amount of power sold) other than steam supply.

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Initiatives in the Environmental Recycling Business

Long-term goal : Leader for resource-recycling systems

Long-term strategy: Provision of a safe recycling system with thorough traceability, etc.

Incinerator ash cleaning plant

✓Secure stable plant operations of Kita Kyushu Ash Recycle Systems Co., Ltd.

Home appliance recycling plant

✓Promote demolition automation
✓Add high value to recovered products
✓Promote DX
✓Verify solar panel recycling

Food Waste Biogas plant

✓Secure stable plant operations of "New Energy Fujimino"
✓Consider the second plant

Automobile recycling plant

✓Demonstrate LIB recycling technology
✓Streamline dismantling

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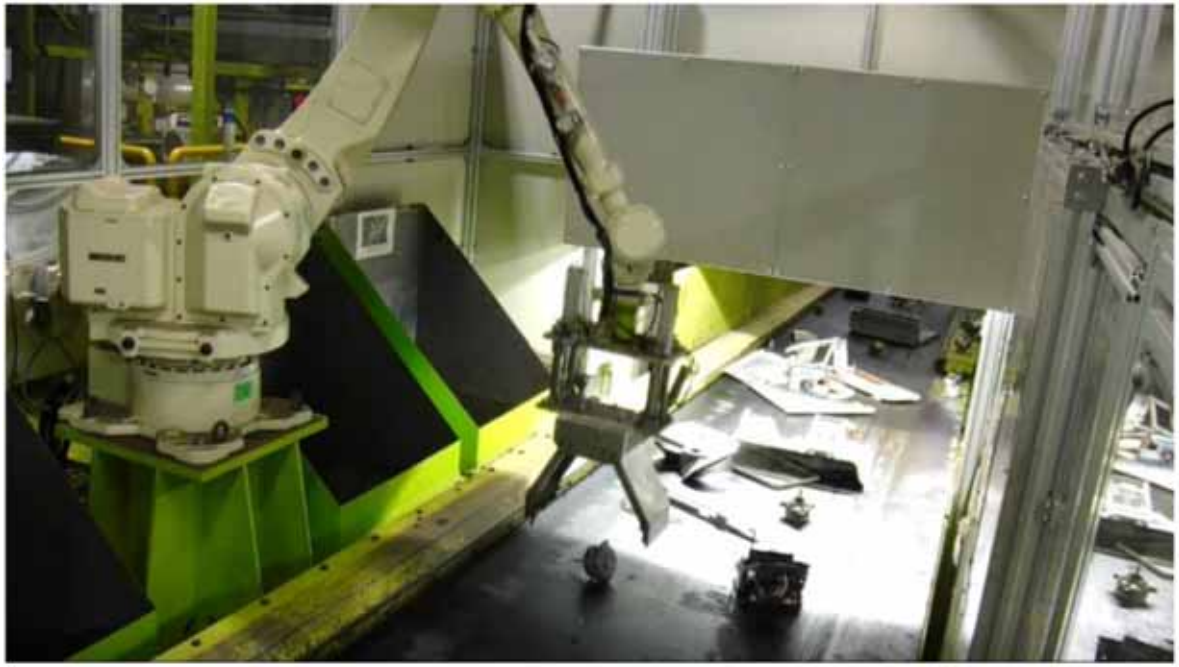
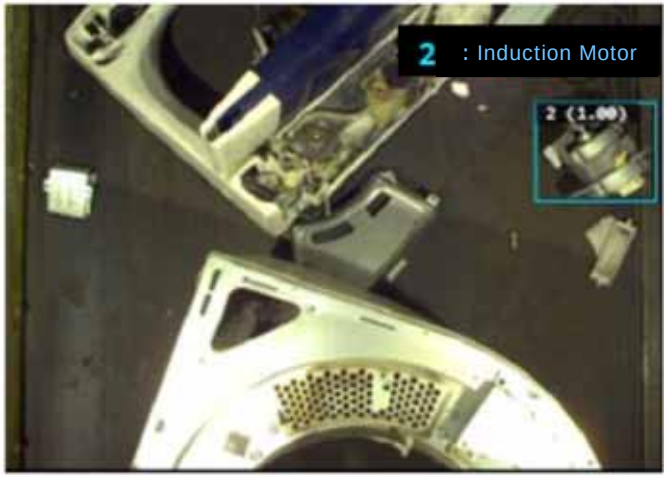
Promotion of automated disassembly

Automatic picking robot



Item Determination by Deep Learning



- By applying the accumulated robot control and AI technologies, the Company developed a picking robot that automatically detects and sorts collected items after the disassembly process.
- An area camera captures images of the recovered items on the conveyor, and selectively picks only the items should be picked
- The robot automatically learns the target items from the actual images taken, thus enabling a high level of automation in the recycling field, which has been difficult to achieve in the past

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Picking robot：

Picking status of collected items of air conditioner outdoor unit

This page is a video, but it has been omitted.

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Flat-screen TV disassembly device：

Processing status of internal boards（Automatic dismantling of unscrewing）

This page is a video, but it has been omitted.

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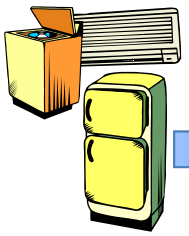
Add high value to recovered products

◎Home appliance processing process



Manual disassembly → Crusher → Magnetic Sorter → Eddy Current Sorter → Water Specific Gravity Sorter → Near infrared ray sorting machine → Resin

Magnetic Sorter → Iron

Eddy Current Sorter → Non-ferrous metals (Copper, Aluminum)

Water Specific Gravity Sorter → Residue

Shipment

Resin → Resin recycling companies → Compounder → Molding company

In-house production of PP pellets from recovered resin after crushing

PP pellets

- Add High Value
- Improve traceability to products

↓

Compliance with Guidelines for Recycling

Resin purification process

Crushing → Water specific gravity sorting → Dry process Specific gravity sorting → Pulverization → Extrusion → Pelletization

Introduction of urethane removal and sorting equipment and improvement of PP pelletizer for stable plant operations, resulting in higher recovery volume and work efficiency.

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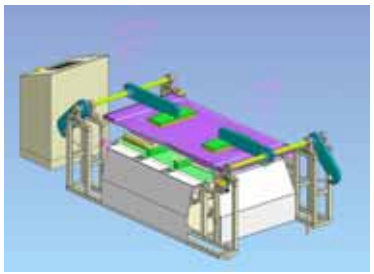
Solar panel recycling demonstration

◎Solar cell module processing process

Solar cell module



Frame Separator

Heater

Glass Separation machine

Vibration Screen

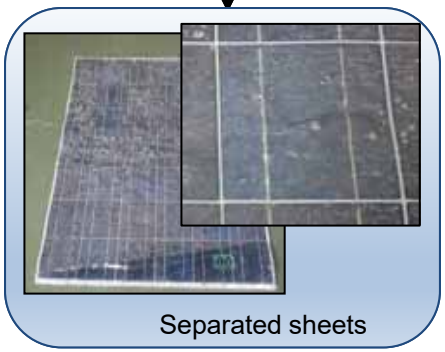
Color Sorter

Clear glass

Recycling of glass as raw materials

Aluminum frame, J-BOX

Raw materials for recovery of aluminum, copper, etc.

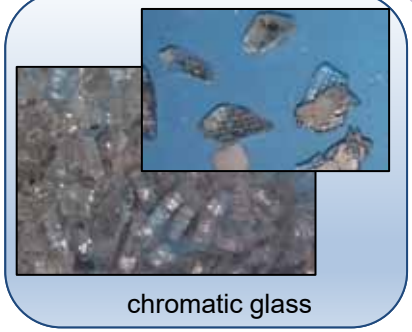


Separated sheets

Silver recovery materials

Smaller than 2mm

Silver recovery materials



chromatic glass

Silver recovery materials

Improve recycling technology

I. Improve quality and recovery rate of glass and back sheet by improving the separation the glass separation machine
⇒ Introduce the heater and remodel

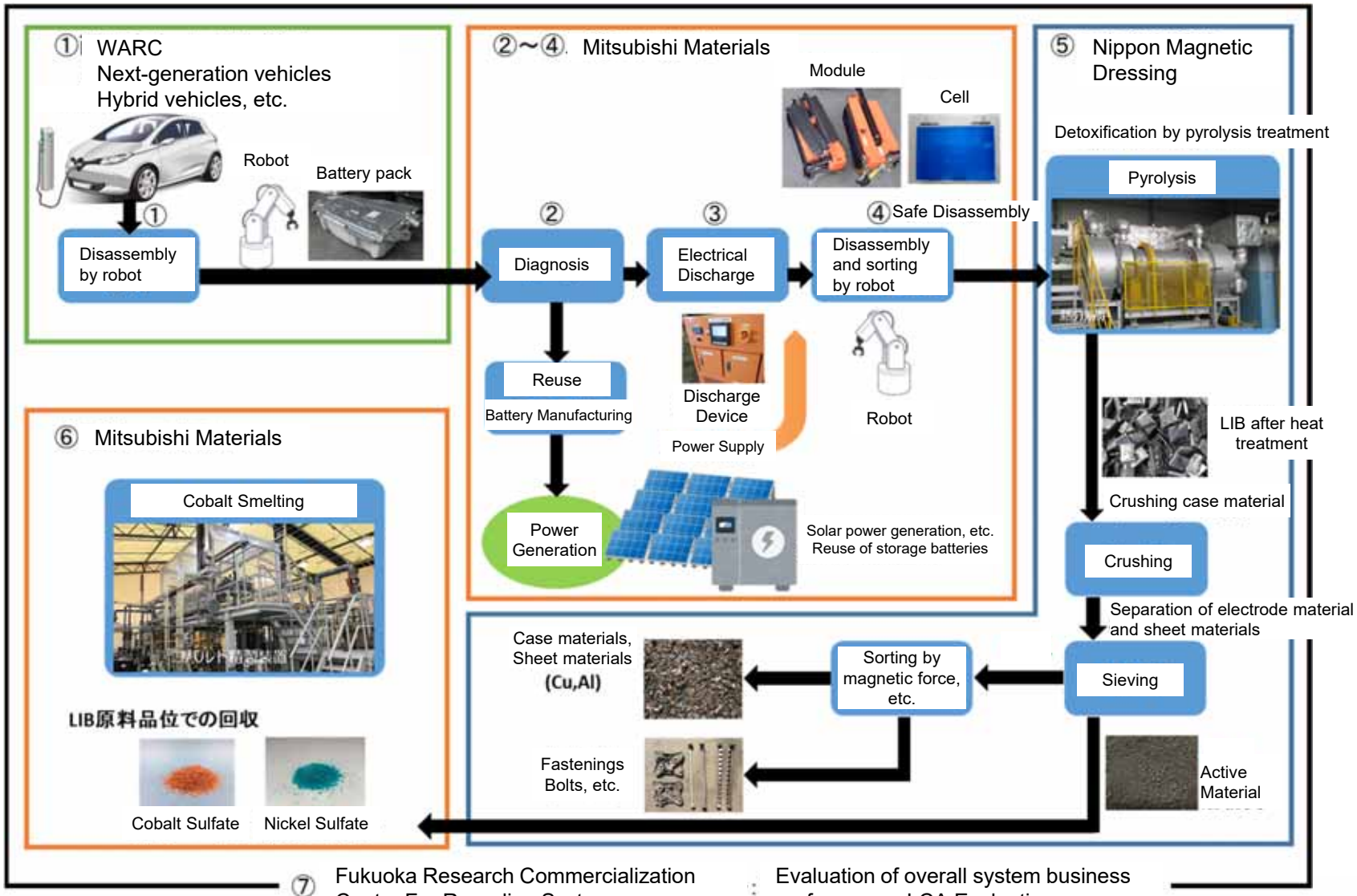
II. Labor and manpower saving through automation of frame separation and panel transfer panel transfer equipment
⇒ Introduce frame separator and

III. Reduced transportation and recycling costs by cutting back sheets
⇒ Introduce seat cutting machines

Lithium-ion battery (LiB) recycling verification project

【Demonstration project commissioned by the Ministry of the Environment】 (Period: FY2021 to FY2023)

■ Overall optimal LIB reuse, recycling technology, and system demonstration in the Kitakyushu region



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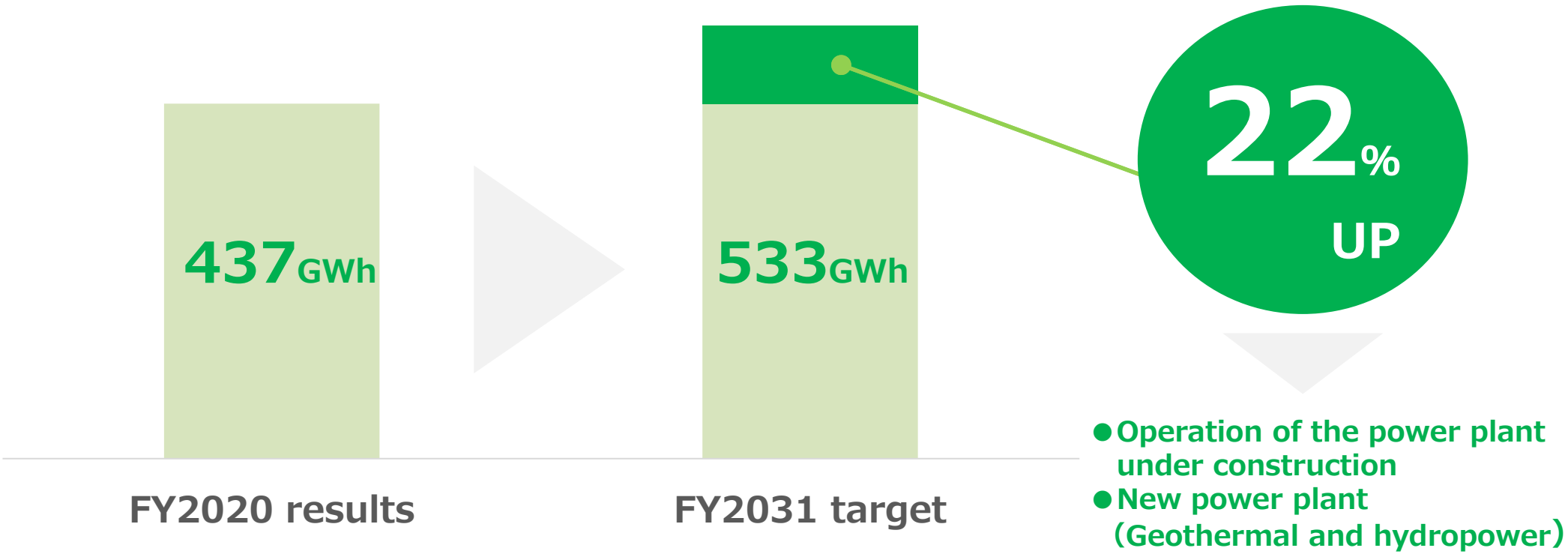
Renewable energy business

Long-term business goals： Leading company in geothermal development

Long-term strategy：Decarbonization by expanding renewable energy business

Annual total power generated by renewable energy※



※Revised definition of the generation volume of each business multiplied by the Company's ownership share.
※Total amount of steam supplied to geothermal power plants (converted to the amount of generated power) and the amount of power transmitted (amount of power sold) other than steam supply.

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Power plant under construction

	Komatagawa New Power Plant	Appi Geothermal Power Plant
Operator	Mitsubishi Materials Corporation	Appi Geothermal Energy Corporation（MMC has 51% stake）
Authorized output	10,326kW	14,900kW
Scheduled to start operation	December 2022	April 2024

※Komatagawa 1st and 2nd (7,470 KW in total) will be abandoned.

New power plant （Geothermal, Hydropower）

Komonomori region

Resource Survey (2021-2025)
* JOGMEC subsidized project

▼

Determination of expected output and operation start-up date

▼

Construction of Komonomori district power plant

▼

Continue development of new geothermal area

Kazuno City, Kita-Akita City, and surrounding areas

Conduct new hydropower survey

▼

Aim to start operations from the point where business feasibility is confirmed

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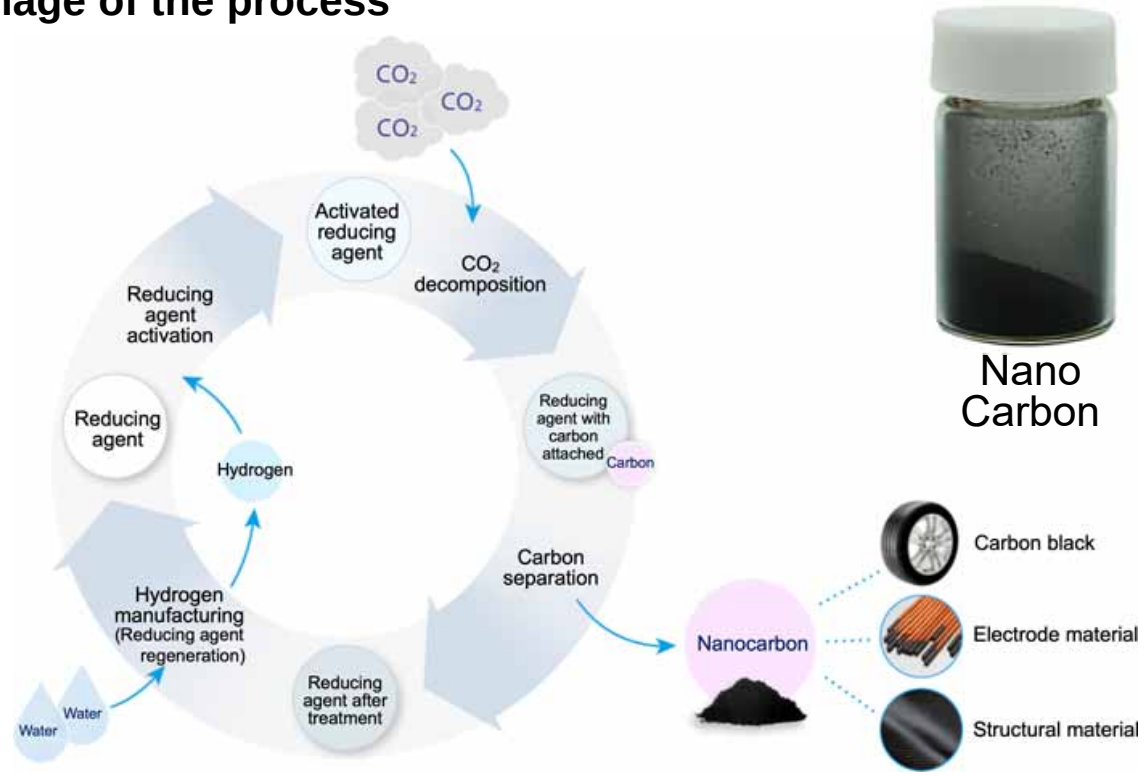
Technology Development for New Business Creation
: Contributing to the Construction of a Decarbonized Society

Adopted for NEDO project as one of the carbon recycling technologies*

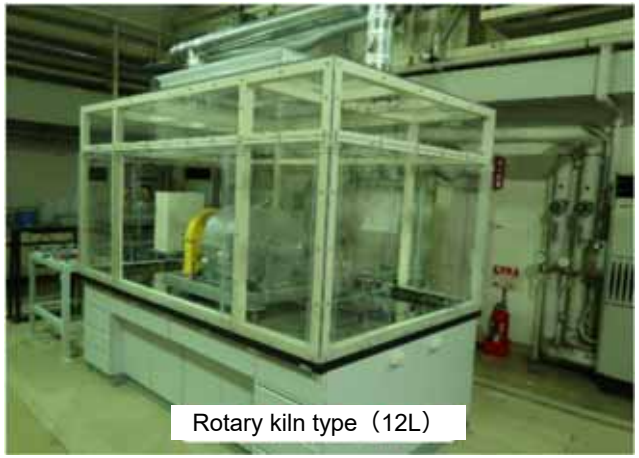
- Decompose **CO2 using a reductant to produce nano carbon**, and also **produce hydrogen** in the process of regenerating the reductant
- Conduct underlying technologies development, process optimization, and feasibility study in this project (scheduled for FY2021 - FY2025)
- Conduct demonstration tests on a larger scale from FY2026 onward, and put the technology **to practical use around 2030**.

Image of the process



Nano Carbon

Create high-value added materials from CO2



Reaction Furnace

*Selected as one of the six newly adopted themes for the development of carbon recycling technology, a key technology in the "Green Growth Strategy for Carbon Neutrality in 2050", for the effective use of CO2 in chemicals, fuels and minerals.
NEDO news release, October 15, 2021

MITSUBISHI MATERIALS

For further information, please contact at:

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TEL : +81-3-5252-5290

https://www.mmc.co.jp/corporate/en/index.html

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These projected performance figures are based on information available to the MMC's management as of the day for releasing this material. There are many uncertain or risk factors inherent in this projections, and there might be cases in which actual results materially differ from projections of this material.

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