

KOBELCO

“ KOBELCO ESG DAY ”

KOBELCO Group Initiatives on Construction Machinery Business

Sep 27, 2023
Kobe Steel, Ltd.

1. Positioning of the construction machinery business

2. Medium- to Long-Term Goals and Initiatives

3. Kobelco Construction Machinery's Carbon Neutral strategy

Five key measures toward establishing a stable earnings base

1 Strengthening the earnings base of the steel business

- ❑ Lowering break-even point
- ❑ Improving product mix

2 Smooth startup and stable operation of new electric power projects

- ❑ Ensuring stable operation of existing power plants
- ❑ Securing stable earnings with the start of operation of Kobe Power Plant No. 3 and 4 units

3 Strategic investment in the materials businesses leading to earnings contribution

- ❑ Realizing steady and early contribution to earnings from strategic investment for automotive weight reduction

4 Restructuring unprofitable businesses

- ❑ Making the steel casting and forging, titanium, and crane businesses return to profitability

5 Stabilizing earnings in the machinery businesses and responding to growing markets

- ❑ Enhancing environmental contribution lineup and strengthening of collaboration in Group
- ❑ Reforming earnings structure of the construction machinery business

Stabilizing earnings in the machinery businesses and responding to growing markets

Construction Machinery

■ Focus of today's presentation

Engineering

MIDREX® Process

Sep. 2021
ESG Seminar

Presentation materials

Kobelco Eco-Solutions

Sep. 2022
Environmental Contribution Initiatives
in the Machinery Business

Presentation materials

Machinery

Kobelco Machinery

July. 2023
Kobelco Group Initiatives in the Machinery Business

Presentation materials

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Overview of Construction Machinery Business

Main Product Ranges of Kobelco Construction Machinery

- ✓ Hydraulic excavators, crawler cranes, environmental recycling machines, and building demolition machines
- ✓ Also focusing on DX solutions.

Hydraulic excavators, mini excavators



- Contributing to the realization of a low-carbon society and to cost reductions with fuel-efficient excavators

Building demolition machines, environmental recycling machines



- Pioneer in building demolition machines with extensive product range
- Contributing to a recycling-oriented society with multiple recycling machines for metals, industrial waste, etc.

Crawler cranes, wheel cranes

- Active in construction of large structures such as industrial plants and wind-power generation facilities
- Many models offering both power and transport/environmental performance

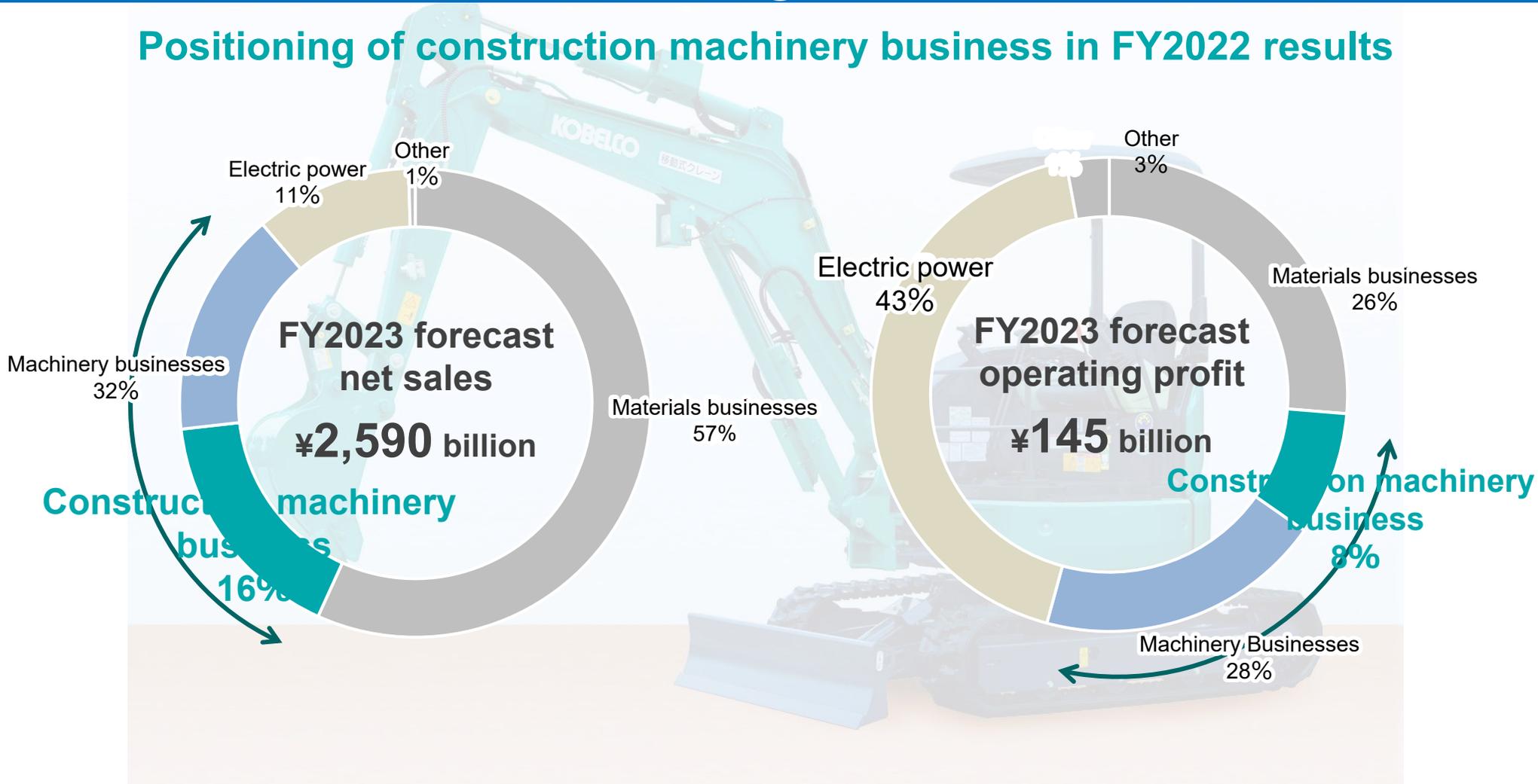


Digital transformation solutions

- Contributing to digital transformation at construction sites, including K-DIVE®, a site improvement solution using remote operation systems

Stabilizing Earnings in the Machinery Businesses and Responding to Growing Markets

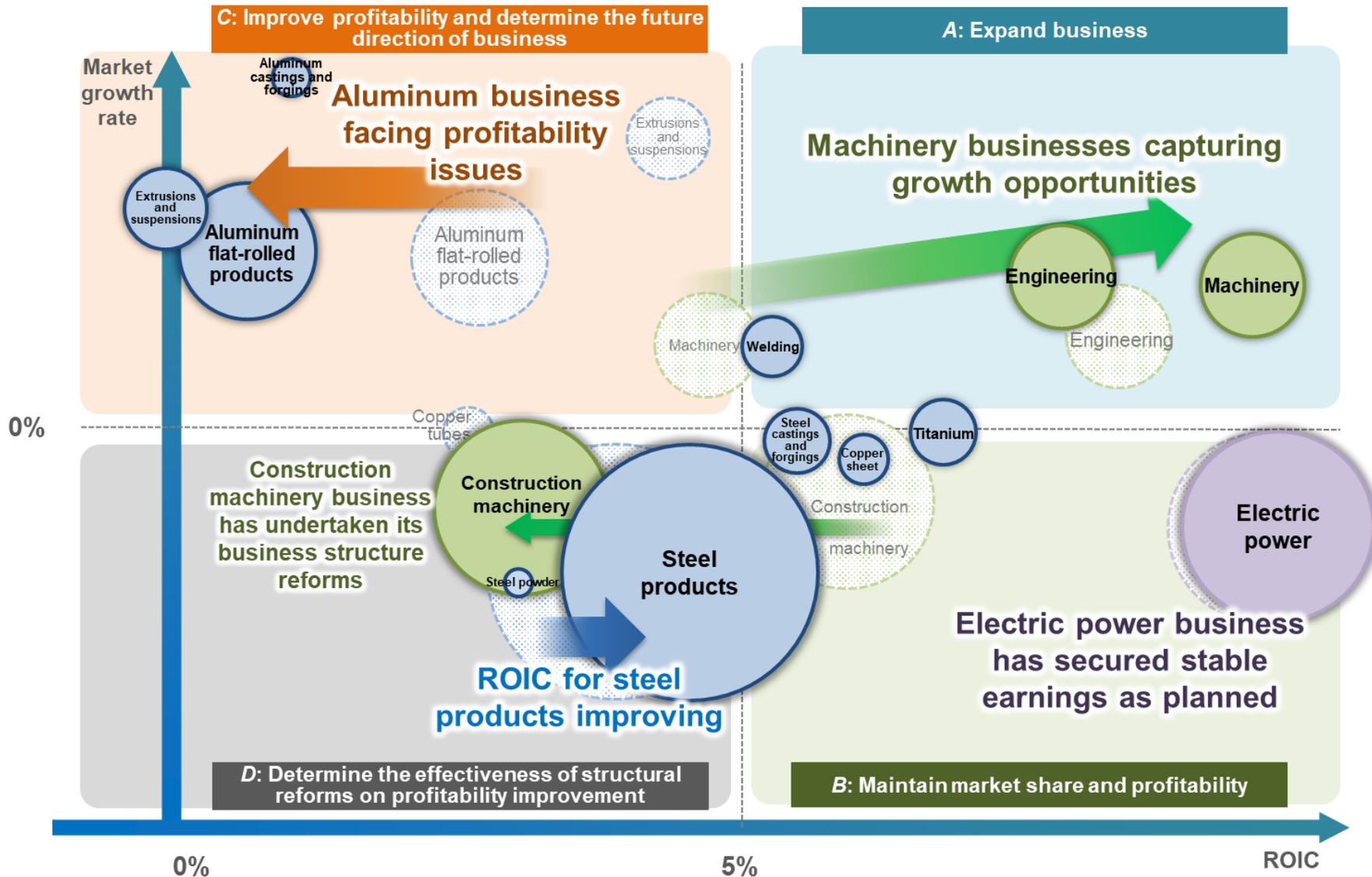
Positioning of construction machinery business in FY2022 results



Construction Machinery Business's Positioning in Business Portfolio

Business portfolio (Forecast for fiscal 2023)

⊙: Assumptions for fiscal 2023 when the Medium-Term Management Plan was drawn up



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Medium- to Long-Term Goals and Initiatives

Medium-
to Long-
Term
Goals



Initiatives

1. Departure from dependence on the Chinese market
2. Turning profits from solution business through provision of solutions for innovations such as workstyle reforms in the construction industry, etc.
3. Commercialization of peripheral businesses through provision of know-how on the installation of new systems, etc.

Existing businesses

- ✓ Strengthen area strategy
- ✓ Restructure global production system

New Businesses

- ✓ Provision of IoT solution including K-DIVE® and BIM software, etc.

Building a stable
earnings structure

“We aim to achieve a ROIC of 5% or more as early as possible and maintain it stably while striving for even higher levels.”

Impact of and Response to Engine Certification Problem

(1) Background

- ✓ In January 2021, Kobelco was advised by the manufacturer supplying engines to Kobelco's North American plant that, due to problems obtaining certification for those engines, it would be unable to supply them to the plant. Subsequently, the decision was made to suspend production at the North American plant.
- ✓ Due to the impact of problems with emissions and fuel efficiency tests announced by that manufacturer in August 2022, shipment and sales of those engines to Japan and Europe were suspended. This affected 30 hydraulic excavator models and 16 crane models for the Japanese market, and 27 excavator models and three crane models for the European market.

(2) Status of response: Impact on results kept to a minimum by urgent development of model fitted with alternative engine

Europe: Shipment of main models resumed

- Sep. 2022: Suspended sales of affected models
- Apr. 2023: Began marketing alternative models
- Jun. 2023: Resumed shipment of main models
Suspension of sales of large models continues
- Within 2024: Plan to market alternative large models

North America: Return to normal

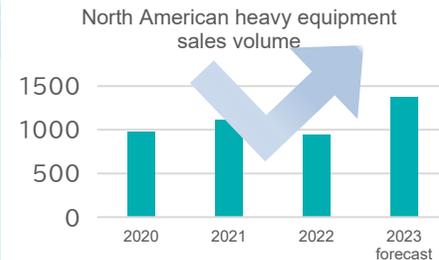
- May 2021: Suspended sales of affected models
- Feb. 2022: Sold plant, marketed alternative model
- Anticipate V-shaped recovery of sales volume in FY2023

UK: Launched model with alternative engine

- Sep. 2022: Suspended sales of affected models
- Apr. 2023: Began marketing alternative models
- within 2024 Plan to market alternative large models

Japan: Shipment of main models resumed

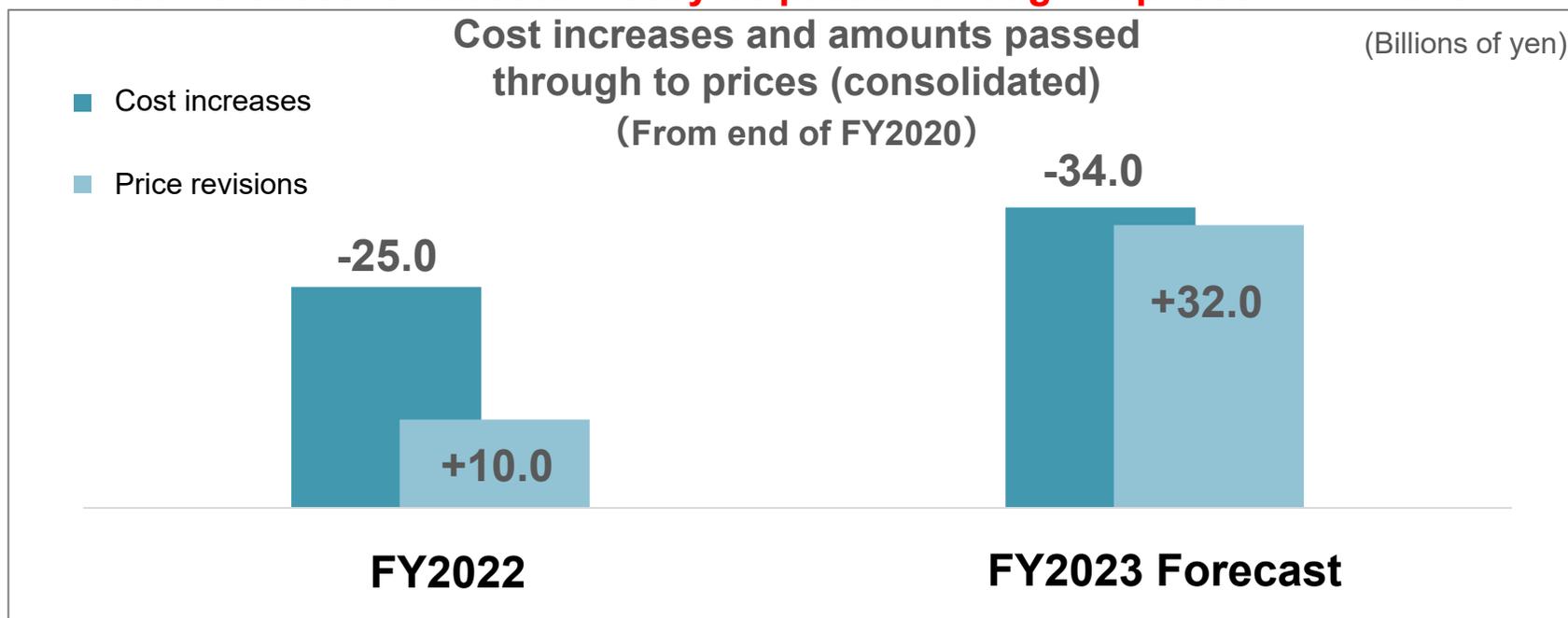
- Aug. 2022: Suspended sales of affected models
- Sep. 2022: Resumed shipment of main models
Suspension of sales of large models continues
- Within 2024: Plan to market alternative large models



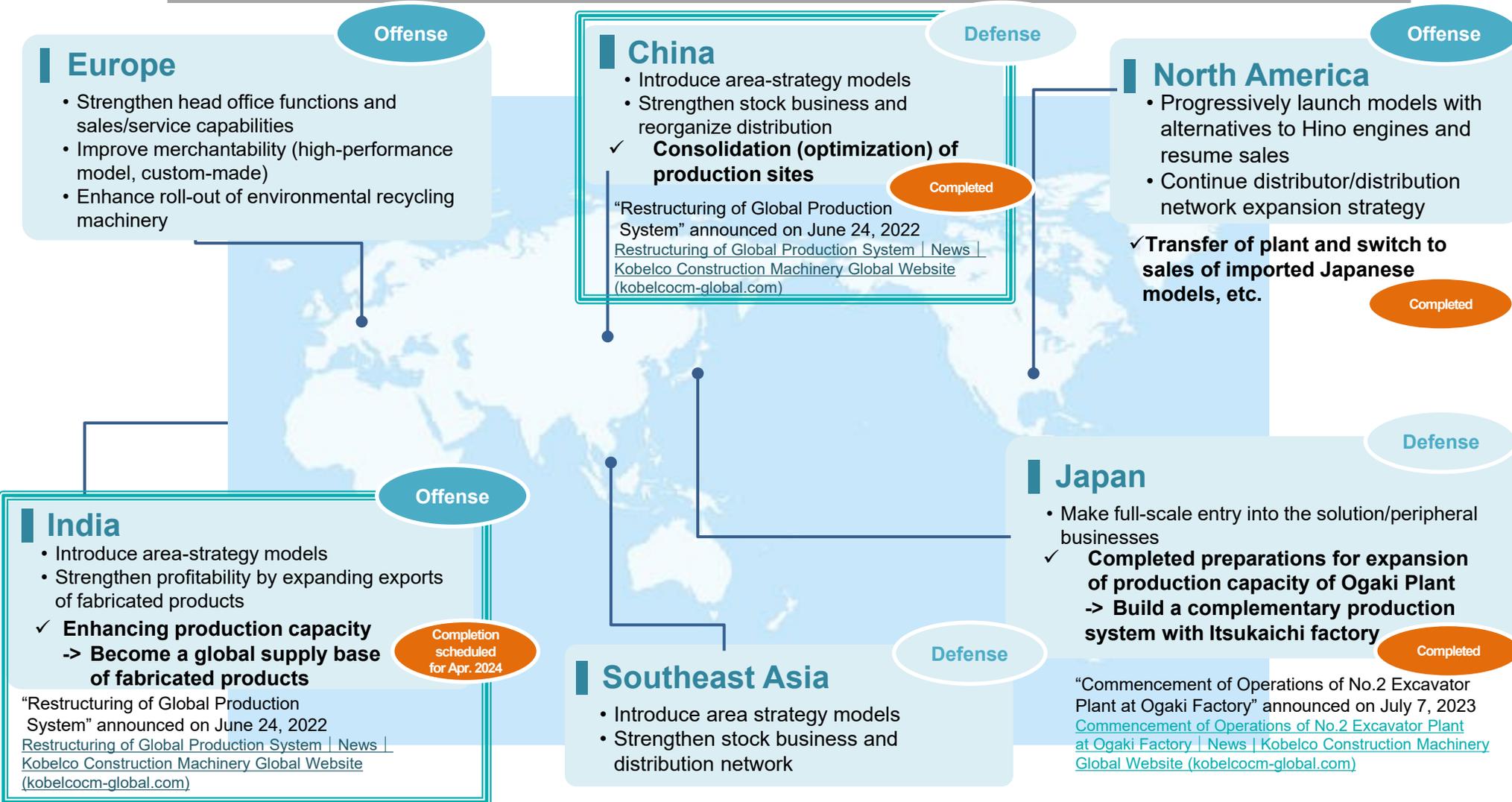
Cost Increases and Status of Pass-through to Product Prices

- ✓ The impact of rising raw material and logistics costs was an increase in costs of approx. 25.0 billion yen in FY2022 from the end of FY2020, with a further approx. 34.0 billion-yen increase expected in FY2023. Even despite ongoing efforts to curb costs, the trend of rising costs continues.
- ✓ We are proceeding with revisions of sales prices on the global market, passing approx. 10.0 billion yen through to product prices in FY2022, and we expect to make a further 32.0 billion yen in cost pass-throughs in FY2023. The impact of outstanding orders has delayed progress, but the price increases are steadily penetrating the market.

Cost increases forecast to mostly be passed through to prices in FY2023



1. Strengthening Area Strategy and Restructuring of Global Production System (Excavator business)



Strengthening Area Strategy and Restructuring of Global Production System (Excavator business)

Changes in global production system (assembly capacity)

Total: 39,000 units (incl. 30,500 units of heavy-duty excavators)

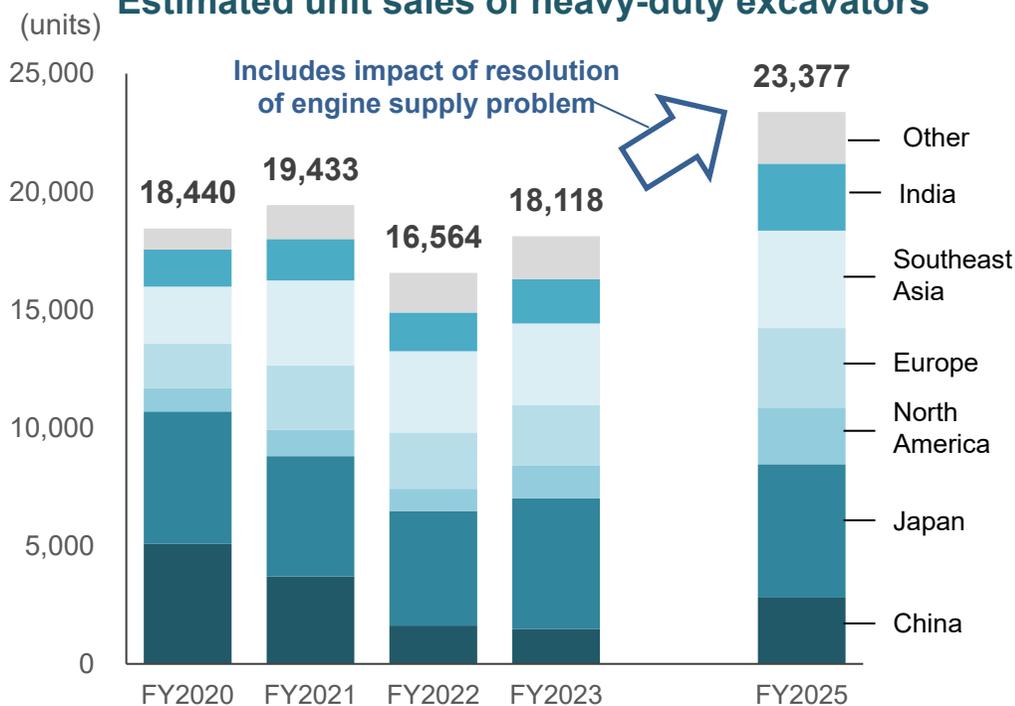
Japan (Itsukaichi)	10,500 units
(Ogaki)	8,500 units*
China (Chengdu)	5,500 units
(Hangzhou)	5,000 units (to Chengdu)
India	3,000 units
Thailand	4,700 units
North America	1,800 units (transferred)

Total: 35,200 units (incl. 26,700 units of excavators)

Japan (Itsukaichi)	10,500 units
(Ogaki)	11,500 units* Expanded
China (Chengdu)	5,500 units
India	3,000 units (4,700 units) Machinery production (Expanding production of fabricated products)
Thailand	4,700 units

- Ogaki's production capacity includes the production capacity of 8,500 mini excavators.
- The above figures are for nominal assembly capacity and will increase or decrease with headcount changes and shift changes.

Estimated unit sales of heavy-duty excavators



By creating the optimal supply system, work toward stabilization of profitability and reduction of production costs

Strengthening Area Strategy and Restructuring of Global Production System (Excavator business)

Europe/North America

–Establish stable position in area

- Strengthen functions of local subsidiaries to expand market share in Europe
- 1) Commence new plant relocation project (completion: 2024)
 - ✓ Increase presence and brand power
 - ✓ Establish new workshop aimed at strengthening customization capabilities
- 2) Strengthen the functions of business bases for major markets and expand sales channels through agencies in low market share areas.
 - ✓ Appoint new distributors in Southern and Eastern Europe
 - ✓ Improve distribution network to reduce lead times
- Sales expansion strategy through establishment of new yard complex
 - ✓ Use demonstration/test yard for distributor education
 - ✓ Increase sales volumes by expanding crane yard

Global

–Strengthen stock business

- Capture after-sales business for growing number of machines in service
 - ✓ Full-scale operation of Tojo Parts Logistics Center
 - ✓ Develop spare parts in China and supply to whole world
 - ✓ Expand major components recycling business
- Increase customer satisfaction by promoting DX
 - ✓ Support smooth management of machines in service with use of app
 - ✓ Strengthen preventive maintenance domain by enhancing online service functions
 - ✓ Strengthen sales capabilities with introduction of online training system for distributors

Kobelco Construction Machinery Europe B.V. (KCME)

Strengthen PR functions with establishment of new demonstration yard and presentation room

Artist's rendering of new company building



Tojo Parts Logistics Center

- Floor space: 42,000m²
- Installation of cutting-edge picking system

Improve efficiency of parts collection

<AutoStore>



Turning Profits from Solution Business: “K-DIVE®”



- Site improvement solution that uses remote control of heavy equipment and operational data
- Supports transformation into “workplaces where anyone can work” to solve construction industry issues
- Provides three values originating with people working on construction sites

Essential safety

Improved on-site productivity

Diverse personnel



✓ Service launched in December 2022

-> Currently in Phase 1. Inquiries received from over 100 companies, with some introducing the system on a full scale.

System is continually being updated to offer features that reflect customers’ wishes.

From introduction at subcontractor businesses on premises of a large steelmaker, roll-out is proceeding into other business premises. Also increasing number of units.

Roadmap

Now

Phase 1

Work in fixed yards



Remote operation of heavy equipment in fixed yards, e.g. metal scrap yard, industrial waste treatment yard, soil pit.

Plan to launch in 2025

Phase 2

Work at general civil engineering site



Remote operation of heavy equipment on sites with short work periods, e.g., general civil engineering sites and land development sites

Phase 3

Matching service



Support efficient human resources development and help broaden horizons for workers.

Development underway toward service launch



Features: Remote cockpit functions that only KOBELCO can offer

Overwhelming ease of use, achieving the same level of operability as riding the actual machine

Motion simulator seat

Feedback of large tilts and subtle vibrations that affect operation



Sound feedback

Feedback of engine noise, machine operation noise, horn, etc.



Movable main camera

Camera can be moved up, down, left, and right from the cockpit to check surroundings



Dashboard

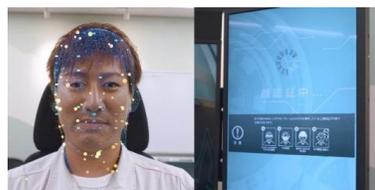
Operator and equipment data managed collectively. Improves work efficiency and enables adjustments between busy and non-busy periods.



Microsoft

Operator facial recognition

Recognizes operator's face, disabling operation by unauthorized persons.



Microsoft

Eyes-off-the-job detection

Machine stops working in hydraulic lock state when system detects that operator's eyes have left the screen



Microsoft



Current State of Progress

Phase 1

■ Kobe Steel Kakogawa Works

- ✓ Demonstration testing (FY2021-2022) completed.
Full-scale introduction planned.



Verification toward Phase 2

■ Erosion control dam construction site

- ✓ Plan to operate at unmanned work site at inundation stage.



■ Pre-launch verification envisaging large-scale civil works

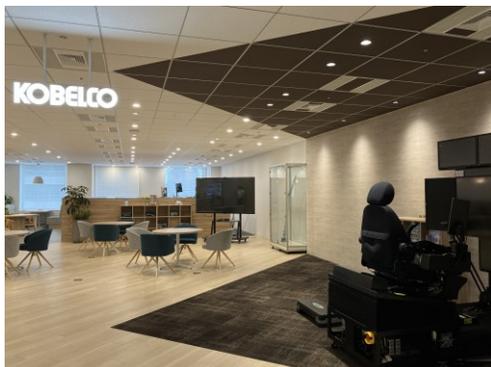
- ✓ Verification of long-distance remote operation: Kobelco Construction Machinery in Shinagawa -> A company's technology lab



Currently working on solutions to issues identified in verification trials

Establishment of new hands-on demonstration venue, Shinagawa Remote Station (Shinagawa RS)

Kobelco Construction Machinery Tokyo Headquarters (Bright Core 15F)



Remote operation



Kobelco Construction Machinery Kobe Training Center

Hands-on experience of remote operation of heavy equipment using K-DIVE®

Autonomous Driving Initiatives

Combination of • Complex tasks performed remotely by human
• Simple tasks performed autonomously by machine makes **unmanned operations** possible

Joint demonstration testing with HAZAMA ANDO CORPORATION

- Four demonstration trials aimed at
- Development of autonomous driving system for hydraulic excavators
 - Development of control system for safe on-site application
 - Formulation of site operation rules

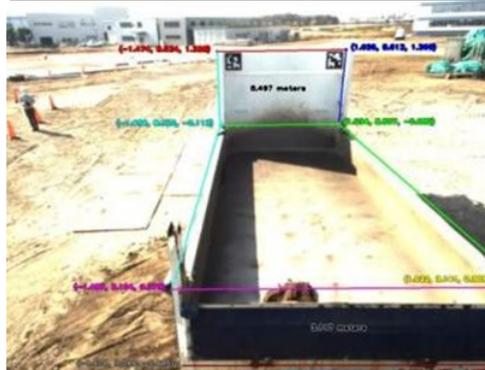
FY2019

Teaching & Playback



FY2020

Response to situation changes with object recognition



FY2021

Demonstration trial at actual work site



FY2023

Simultaneous operation and control of multiple units



Commercialization of Peripheral Businesses “K-D2 PLANNER®”



- Revit® add-in simulation software to assist with optimal crane operation planning
- MLIT*1 recommends use of BIM/CIM*2,3 for improving productivity on construction sites
- Equipped with features only achievable by a construction machinery manufacturer, covering all crane information needed for works

*1 MLIT: Ministry of Land, Infrastructure, Transport and Tourism

*2 BIM: Building Information Modeling

*3 CIM: Construction Information Modeling

Topics from past twelve months

✓ April 2023: General market launch

- > Product receiving higher than expected praise from plant- and bridge-related companies, as well as large general construction firms
- > Companies that have already installed the system are considering additional installation. Inquiries regarding installation received from close to 100 companies.



- A solution perfectly suited to the workflow of a general construction firm!
- This tool helps prevent reworking, including on construction sites, demonstrating the true worth of BIM.

Praised for elimination of customers' issues, such as preventing reworking on construction sites and leveraging knowledge in operation planning

Examples of companies that have installed the system *Not an exhaustive list

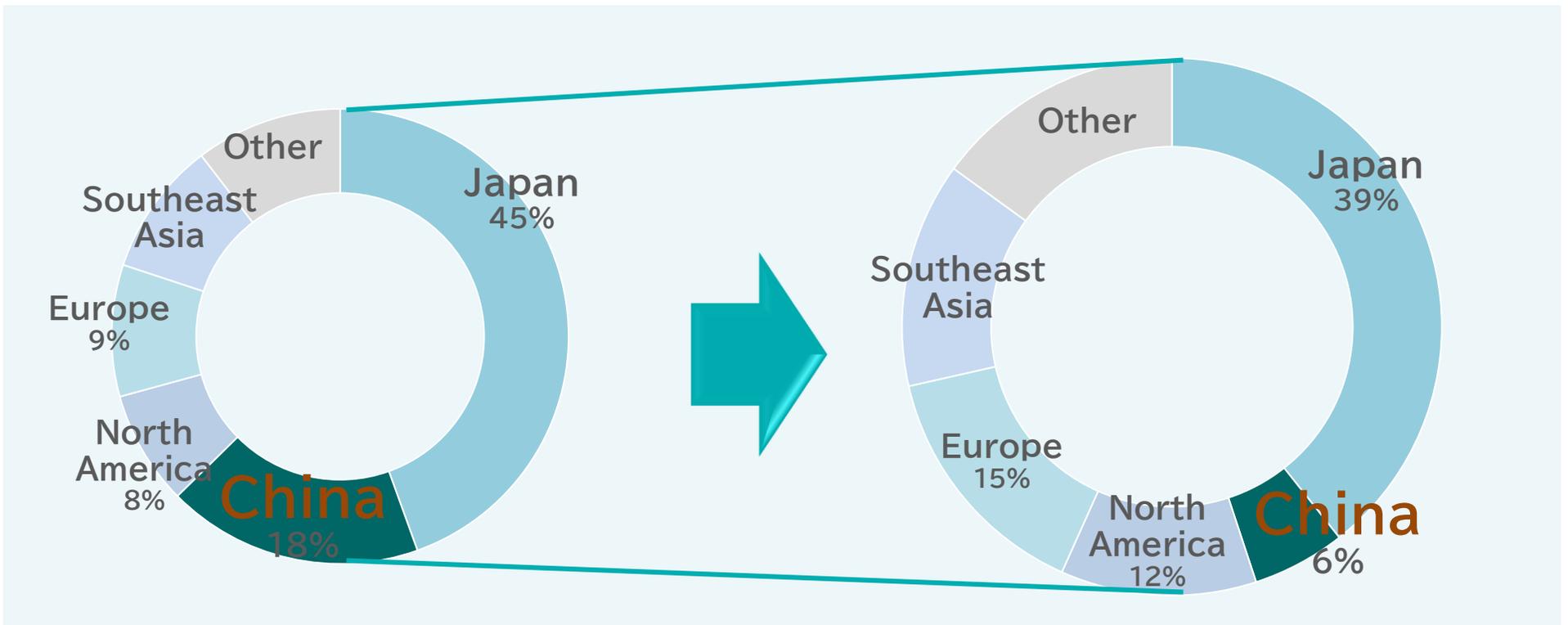


- ✓ Continue to aim for product merchantability to suit customer needs and creation of new value
- ✓ Focus efforts on expansion of distribution networks and service, including cooperation with distributors, to develop an environment that will make it easy for customers to use the system

Changes in Sales Composition by Area

FY2020

FY2023



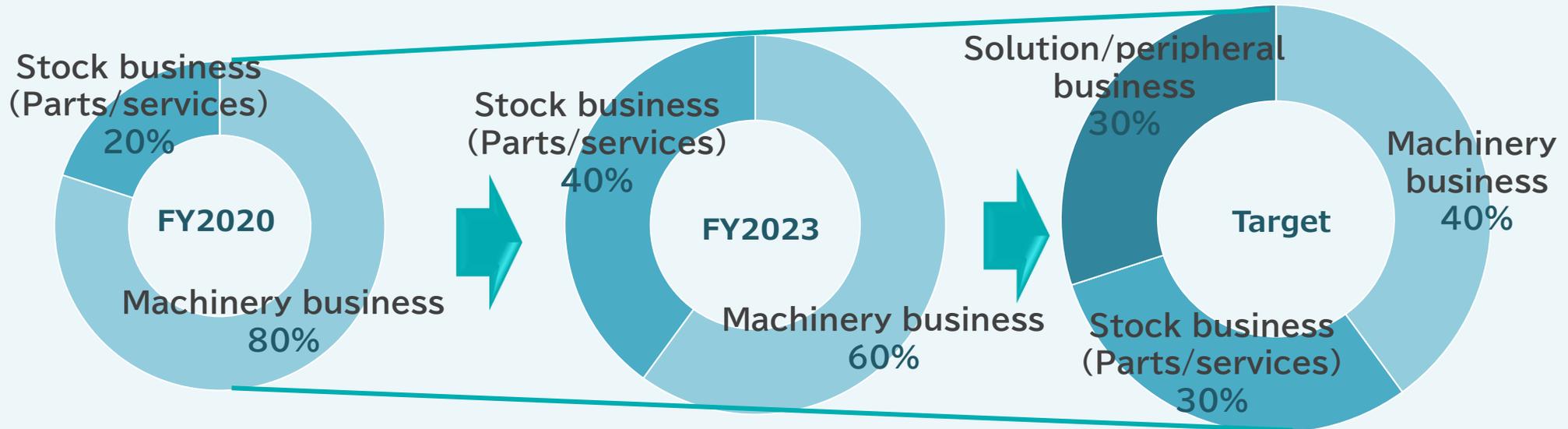
Departure from dependence on the Chinese market

Changes in Earnings Composition by Business

FY2020

FY2023

Target

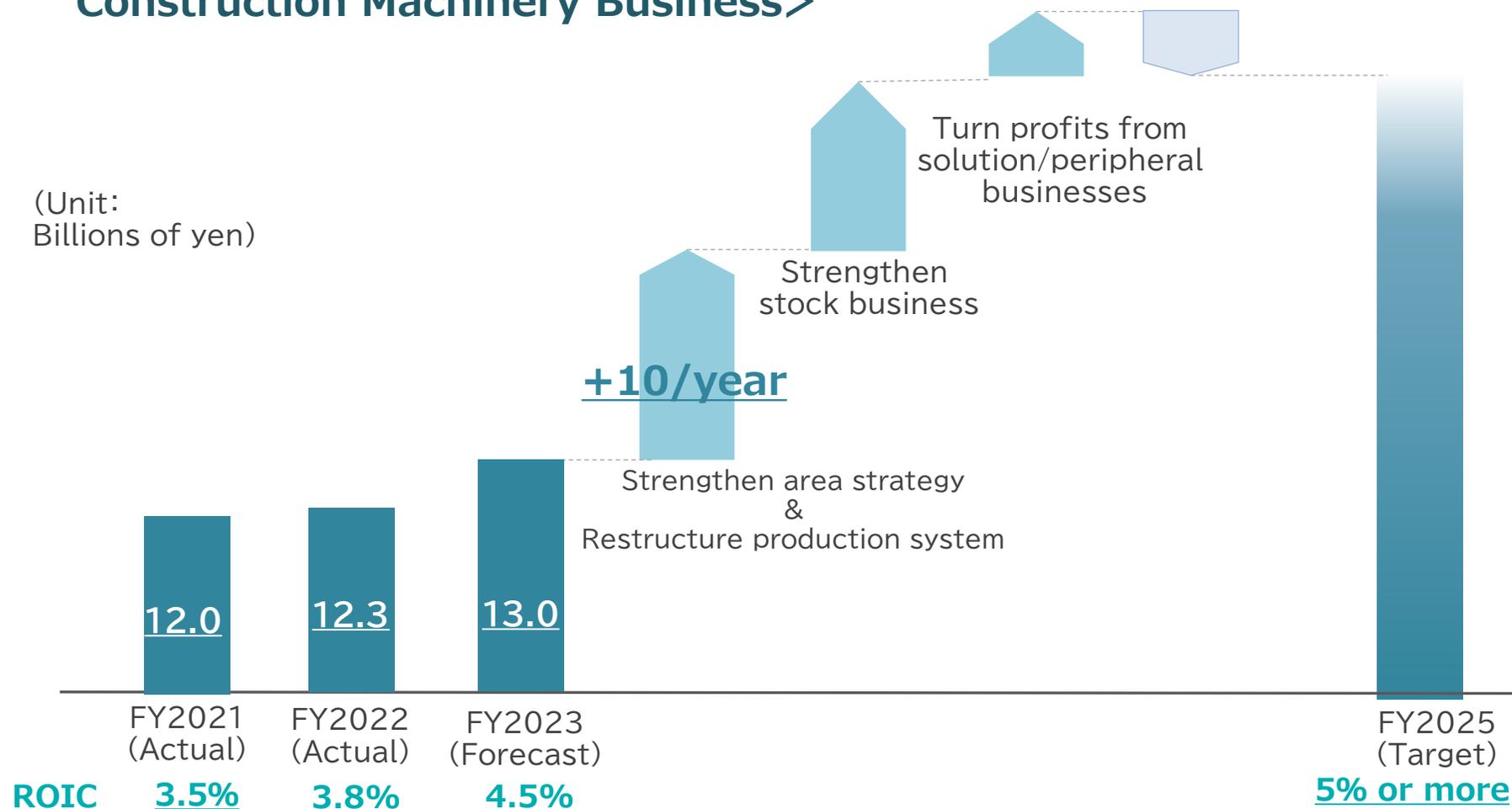


Vision for FY2025 Building a Stable Earnings Structure

<Ordinary profit or loss from Construction Machinery Business>

Build a structure that earns 30.0 billion yen

(Unit: Billions of yen)



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Medium- to Long-term Recognition of Environment Surrounding Construction Machinery Business

MEGATRENDS

[Impacts on construction machinery business]

KMC's Efforts

• Changes in population structure
• Progressive urbanization

- Worsening labor shortages in construction industry worldwide
- Medium- to long-term growth in construction demand, particularly in emerging economies

- Leverage competitive products to capture infrastructure demand with certainty
- **Accelerate commercialization of K-DIVE®**



Security and geopolitical risks

- Destabilization of supply chains due to growing economic security and geopolitical risks

- Establish globally robust profit structure -> **Departure from dependence on China + Area strategies**

Demand for sustainable society

- **Tightening of diesel engine regulations for carbon neutrality response**
- **Creation of new demand to help realize recycling-oriented society**

- **Reduce CO₂ emissions from products**
 - ➔ **Pursue existing fuel efficiency technologies**
 - Accelerate efforts in electrification, alternative fuels, etc.**

Technological advances

- Progress in use of next-generation technologies, e.g., IoT/autonomous driving technologies, electrification

- Contribute to recycling throughout whole of society
 - ➔ Strengthen “building demolition” to operate more efficiency, and “environmental machinery” to improve recycling rates
- Maintain and strengthen business competitiveness through constant adoption of ICT technologies



As the “Pioneer of the Construction Machinery Industry” That Continues to Create Innovative Products

Fuel Efficient Kobelco

Contributing to reduction of CO₂ emissions as follows

- ✓ Developed the 50K electric shovel, Japan’s first domestically produced construction machine, in 1930
- ✓ Provision of the world’s highest level of fuel efficiency
- ✓ Developed hybrid excavators, power cable-type electric excavators, etc.



50K electric shovel
1930 Japan’s first domestically produced construction machine



Acera Super Version
1993 Industry-first. Adopted “blue-green,” which blends in with the townscape, as our brand color



World’s first hybrid excavator
2006 Achieved approx. 40% improvement in fuel efficiency compared with existing models



Electric excavator (vehicle dismantling machinery)
2003 Zero exhaust gas, no need for fueling, enabling continuous operation



Standard-specification model
World-class productivity and fuel efficiency

The KOBELCO Group has adopted the challenge of carbon neutrality and is aiming to enhance corporate value through its activities. In addition to reducing CO₂ in its production processes, Kobelco Construction Machinery will promote initiatives to accelerate the reduction of CO₂ emissions from its products*¹, to contribute to the realization of carbon neutrality.

*1: CO₂ emissions from 11 products in Scope 3 category in Ministry of the Environment guidelines

Reference:

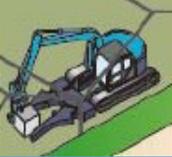
With aim of 45.9% reduction (compared with FY2013) in KMC’s greenhouse gas emissions

[“Decision to introduce electric power derived from renewable energy at Hiroshima factory” announced on April 3, 2023](#) (Japanese only)

Carbon Neutral Response Products for Different Site Environments and Applications

✓ Envisage need for diverse carbon neutral response products to suit different site environments and applications

- ➔ (1) Power cable-type electric (2) Battery-type electric
 (3) Fuel cell-type electric (4) Alternative fuels for diesel engine models

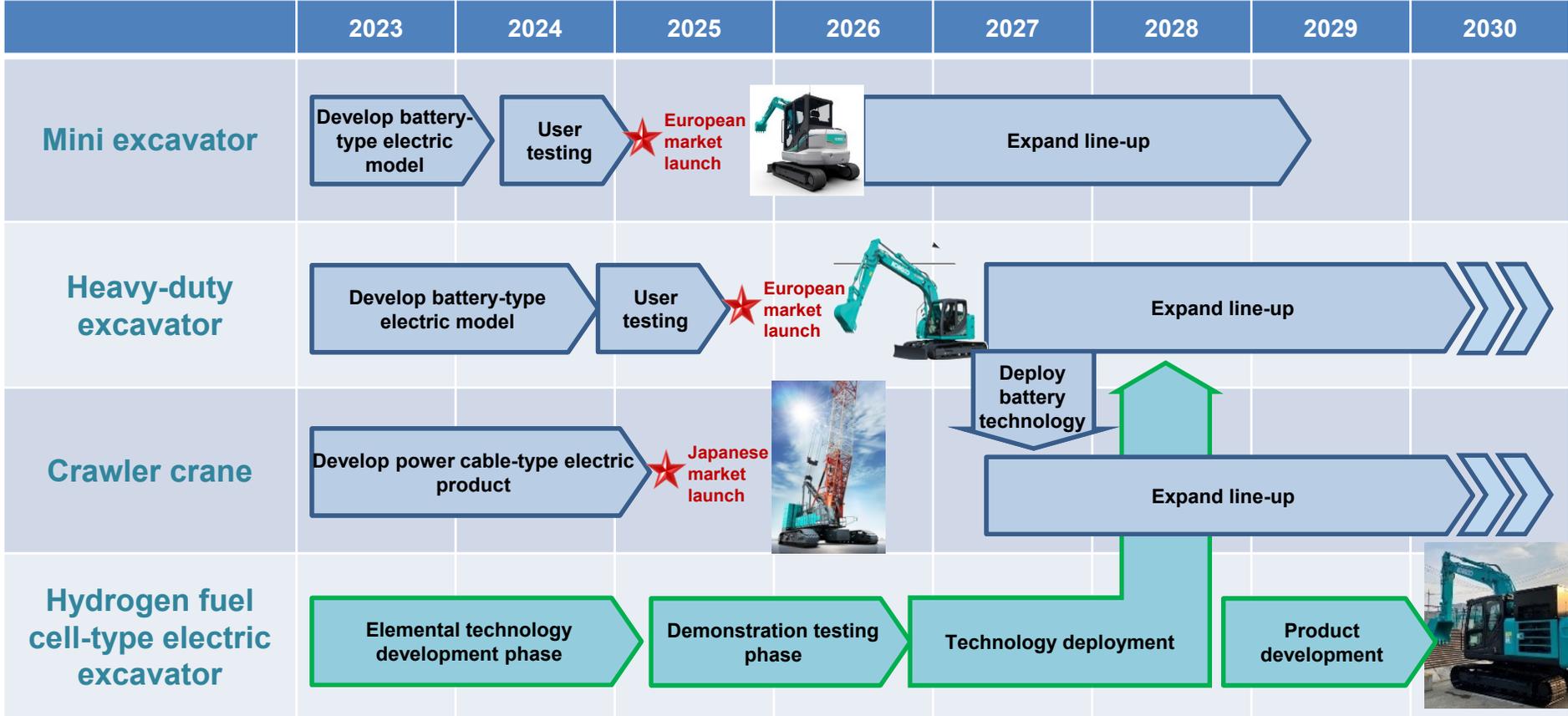
Operating range	Limited range	Narrow	↔	Wide	
Work site	Indoors	Inside yard		Off-road	
Envisaged sites	Vehicle dismantling 	Industrial waste/metal processing 	Urban area 	Forestry, rock crushing, land development 	
Mini excavator	(1) Power cable-type electric No need for fueling/recharging Low vibration Quiet *Constraints on operating range	Decline in economic feasibility and convenience depending on recharging/filling environment		(4) Conventional diesel engine models + Alternative fuels, e.g. e-Fuel, HVO Areas where recharging/filling infrastructure is difficult to introduce, etc.	
Heavy-duty excavator		(2) Battery-type electric Low vibration, quiet Constraints on operating time *Down time needed for recharging			
Crawler crane			(3) Fuel cell-type electric Filling time can be shortened *Spread of hydrogen infrastructure needed		



Carbon Neutral Product Development Roadmap

Promote Technological Development to Accommodate Diverse Carbon Neutrality Methods

- ✓ **Battery-type electric:** Mini & compact heavy equipment models under development. Aim for 2025 launch on European market
- ✓ **Power cable-type electric:** Under development for crawler crane. Planning 2025 launch on Japanese market
- ✓ **Fuel cell-type electric:** At R&D stage. Prototype completed. Envisage deploying technology in heavy-duty excavators



*Using Toyota Motor-made fuel cell unit and hydrogen tank

Completion of Fuel Cell-type Electric Excavator Prototype

- ✓ In 2021, “R&D and verification of hydraulic excavators equipped with fuel cell systems” was adopted as a NEDO* grant project. R&D is underway with aim of commercialization.
- ✓ Prototype was completed in 2023, **and it was able to perform basic movements with hydrogen as power source**
- ✓ KOBELCO Group owns hydrogen supply-related technology, and in a “multiplication of technology” within the Group, we will work on R&D to establish machine’s functions, safety, and reliability and address infrastructure-related issues, such as hydrogen supply and filling methods.



- Reference:
- NEDO [“New R&D for major expansion of dissemination of fuel cells commences”](#) (July 15, 2021 news release; Japanese only)
 - NEDO Hydrogen and Fuel Cell Outcomes Report 2022
[Industry-Academia-Government Research and Development Project for Solutions to Common Issues Aimed at Major Expansion of Use of Fuel Cells, etc./Development of Technologies for Realization of Many Uses for Fuel Cells/Research and Development and Verification of Hydraulic Excavators Equipped with Fuel Cell Systems](#) (Japanese only)

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<h2>KOBELCO's View of the Future</h2>	<p>Our view of a society and future to be attained as we carry out KOBELCO's mission</p> <p>We envision a world in which people, now and in the future, can fulfill their hopes and dreams while enjoying safe, secure, and prosperous lives.</p>
<h2>KOBELCO's Mission</h2>	<p>Our mission and the social significance of the KOBELCO Group that we must fulfill</p> <p>Our mission is to provide solutions to the needs of society, by making the best use of the talents of our employees and our technologies.</p>
<h2>Core Values of KOBELCO</h2>	<p>The commitments of the KOBELCO Group to society and the values shared by the entire KOBELCO Group</p> <ol style="list-style-type: none"> 1. We provide technologies, products and services that win the trust and confidence of our customers we serve and the society in which we live. 2. We value, and support the growth of, each employee on an individual basis, while creating a cooperative and harmonious environment. 3. Through continuous and innovative changes, we create new values for the society of which we are a member.
<h2>Six Pledges of KOBELCO</h2>	<p>Code of Conduct for all Group employees to follow to fulfill the Core Values of KOBELCO and the Quality Charter</p> <ol style="list-style-type: none"> 1. Uphold the Highest Sense of Ethics and Professionalism 2. Contribute to the Society by Providing Superior Products and Services Quality Charter 3. Establish a Comfortable but Challenging Work Environment 4. Live in Harmony with the Local Community 5. Contribute to a Sustainable Environment 6. Respect Each Stakeholder

■ Cautionary Statement

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 - Political situation and trade and other regulations
 - Changes in currency exchange rates
 - Availability and market conditions of raw materials
 - Products and services of competing companies, pricing policy, alliances, and business development including M&As
 - Strategy changes of alliance partners

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