

## Message from the President and CEO



**Mitsugu Yamaguchi**  
President, CEO and  
Representative Director

**We have kicked off a new KOBELCO Group Medium-Term Management Plan (FY2021–2023) that prioritizes the establishment of a stable earnings base and the challenge of realizing carbon neutrality. For the Group to get onto a growth trajectory, we must first stabilize our current earnings base.**

### Introduction

I believe it is the Group's social responsibility to keep our manufacturing sites and power plants running as per normal and provide the technology, products, and services required to sustain people's lives, social infrastructure, and other necessities, even in the midst of the COVID-19 pandemic. All employees at manufacturing sites have been working together to prevent the spread of infection so that operations can continue without a hitch. Thanks to their efforts, we have been able to operate our business, not being significantly affected by the pandemic to date. I would like to take this opportunity to express my sincere gratitude not only to our employees but also to our customers, business partners, and other stakeholders for their continued support of the Group's business activities.

### Identifying Materiality Toward Medium- to Long-Term Value Creation

For more than 100 years, the KOBELCO Group did not have a corporate philosophy in written form, and that has something to do with how the Group was built. Starting with the steel casting and forging business, we have developed various businesses such as machinery, rolled steel, copper, engineering, construction machinery, aluminum, welding, and more recently electric power. However, since the management of these operations was undertaken by each business division, we were not very conscious of what the Group as a whole was aiming for, even though each business division was ready and willing to take on the challenge of making further improvement. On the occasion of the 100th anniversary of the Company's founding in 2005, we formulated a corporate philosophy, which is the current Core Values of KOBELCO, but unfortunately this initiative was not so successful in increasing recognition among employees.

In 2017, we launched the Core Values of KOBELCO Next 100 Project. Along with this move, we held discussions and shared the awareness that the corporate philosophy should be something familiar to each and every employee and be implemented on a daily basis. We therefore redefined the original corporate philosophy as the Core Values of KOBELCO to represent our commitments to society and the shared values of the Group. We also formulated the Six Pledges of KOBELCO, a code of conduct for all Group employees to follow in order to fulfill the Core Values.

While promoting such initiative, the Company disclosed the quality misconduct. With this incident, we caused a lot of trouble to many stakeholders and the KOBELCO brand was seriously damaged. It gave me a true sense of crisis. Even if we make a big organization, there is no meaning unless it has a soul in it. So, in order to put our souls into what we do, we first worked to raise awareness of the Core Values of KOBELCO and the Six Pledges of KOBELCO and instill them in employees' minds. By doing so, we encouraged people to start putting them into practice in daily work.

However, while these principles served as guidelines for daily operations, we were missing important points—the perspective of who we are and what we are aiming for. So, in May 2020, we newly established our corporate philosophy by integrating KOBELCO's View of the Future (corporate vision) and KOBELCO's Mission (corporate mission) into the existing principles of the Core Values of KOBELCO and the Six Pledges of KOBELCO that are considered as a foundation that support the two new statements.

At this point, we still had some work to do. It was to identify the Company's materiality that fills the gap between the abstract concept (KOBELCO's View of the Future and

## Message from the President and CEO

KOBELCO's Mission) and the daily practical guidelines (the Core Values of KOBELCO and the Six Pledges of KOBELCO).

When we aim for a world envisioned in KOBELCO's View of the Future, we need to clarify what we place importance on from a medium- to long-term perspective. To this end, we held a series of discussions among members of the management team, including Independent Directors, in light of the operating environment up ahead, business compatibility, and what our stakeholders consider most important. As a result, we have identified issues of materiality as follows:

- **Contributing to a green society**
- **Ensuring safety and security in community development and manufacturing**
- **Providing solutions for the future connecting people and technology**
- **Promoting active participation of diverse human resources**
- **Pursuing governance that supports sustainable growth**

### Review of the FY2016–2020 Group Medium-Term Management Plan

In the Fiscal 2016-2020 Group Medium-Term Management Plan, we worked to establish a business enterprise focused on three core business areas of materials, machinery and electric power and sought to address two themes: (1) the establishment of a stable earnings base centered on the consolidation of upstream processes in the steel business and the launch of new electric power projects; and (2) the pursuit of growth opportunities anchored by strategies to reduce the weight of vehicles.

To establish a stable earnings base, we reviewed our strategy in the steel business, a long-time pillar of earnings. In the steel business, there has been a wide range of fluctuations in earnings. In addition, it has become apparent that structural problems such as the rise of Chinese steel makers and shrinking future demand in Japan. Taking these factors into consideration, we adopted a strategy of consolidating upstream processes and reducing fluctuations in earnings in order to improve efficiency and boost competitiveness. In the electric power business, we launched new projects that would have potential to generate stable earnings. In the construction machinery business, despite a temporary uptick in earnings, we took steps to reorganize the construction machinery business in China mainly because of a sizeable amount of bad debts. Of the various businesses in our Group, those that are not expected to grow in the future or that are deemed not suitable for allocating management resources were reviewed in terms of capital relationships and some of them were sold. In the steel business, however, even though we completed the scheduled consolidation of upstream processes at steelworks, we were not able to boost earnings as expected due to skyrocketing raw material prices, US-China trade friction, and other changes in the external environment. The electric power business is making progress as planned, but it has been facing changes in the external environment as coal-fired power generation is being watched more harshly than ever before. In the construction machinery business, earnings are steadily growing after its reorganization, but competition is intensifying owing to the rise of Chinese manufacturers.

In pursuing growth opportunities, we pushed ahead with strategies to reduce the weight of automobiles to comply with stricter fuel efficiency regulations and worked on proactively expanding the compressor business. However, the automotive industry gave priority to vehicle electrification over weight reduction while accelerating environmental efforts, including response to stricter fuel efficiency regulations. This pushed back the timing of growth in demand for lighter materials. In addition, it turned out that we should address issues of *monozukuri*\* capabilities in terms of productivity. In the compressor sector, the business did not expand as expected due to a decline in investment appetite caused mainly by the sluggish crude oil market and the impact of the COVID-19 pandemic.

As a result, we recorded a net loss in two of the five fiscal years under the previous

medium-term management plan, and we have not yet achieved the goal of strengthening our profitability and financial position.

\**Monozukuri* means craftsmanship in manufacturing.

### New Medium-Term Management Plan

In light of the challenges identified under the Fiscal 2016–2020 Group Medium-Term Management Plan, the new Medium-Term Management Plan prioritizes the establishment of a stable earnings base, with the aim of achieving a ROIC of at least 5% throughout the Group in fiscal 2023 when all of our power plants go into full-scale operation and contribute to earnings. To achieve this, we will implement the following five key measures.

#### 1. Strengthening the earnings base of the steel business

The current strong domestic demand is expected to decline in the long run. Even before the outbreak of COVID-19, the steel business recorded an ordinary loss in fiscal 2019 due to the impact of US-China trade friction, despite the crude steel production of 6.37 million tons (excluding the electric arc furnace production at Takasago Works). We will first establish a structure that enable us to secure stable earnings with crude steel production of 6.3 million tons and then in the long run, we will aim to maintain profitability even with 6.0 million tons.

#### 2. Smooth startup and stable operation of new electric power projects

The No. 3 and No. 4 units of the Kobe Power Plant will commence commercial operations in the second half of fiscal 2021 and the second half of fiscal 2022, respectively. This means all of the Group's power plants will go into operation. Stable operations at each of our power plants will enable us to help stabilize regional energy supply and shore up our earnings base.

#### 3. Strategic investment in the materials businesses leading to earnings contribution

We believe demand for lighter materials in the automotive industry will remain strong. The aim of weight reduction is shifting from realizing better fuel efficiency of gasoline-powered vehicles to extending the driving range of electric vehicles (EVs), but there is still a strong need to reduce the weight of EVs equipped with heavy batteries. In addition, weight reduction is still required from the viewpoint of collision safety. Although there has been a delay in the timing of strategic investment making contribution to earnings from the initial expectations, we will work to secure earnings at the earliest possible time.

#### 4. Restructuring unprofitable businesses

Amid changes in the demand environment and industrial structure, we plan to streamline the steel casting and forging business, titanium business, and crane business with the aim of returning to profitability through fiscal 2021–2022. The steel casting and forging business is mainly for the shipbuilding sector, and we anticipate a recovery in shipbuilding demand from around 2024 or 2025. However, the shipbuilding industry is in the direction of shrinking, so we will take steps to reexamine our business structure in line with this trend. In the titanium business, the recovery of demand for aircraft has been slow owing to COVID-19 travel restrictions. Accordingly, we will look to offset earnings losses by reducing fixed costs and boosting sales of other items. In the crane business, we already made the decision to downsize our operations in light of intensifying competition, so we will continue to move forward with this approach. Other underperforming businesses are also expected to return to profitability in 2023.

#### 5. Stabilizing earnings in the machinery business and responding to growing markets

We anticipate an increase in demand for carbon neutrality in our machinery businesses up ahead. We will seek to timely respond to growing demand in the future.

By implementing these measures, we aim to achieving a ROIC of 5% or higher in fiscal



## Message from the President and CEO

2023. Going forward, we plan to utilize ROIC in the management of each business. In addition, we are always prepared with a number of strategies in case the external environment deteriorates more than expected or in case our efforts of cutting fixed costs or other measures fail. For the implementation of these measures, we will set milestones and review strategies whenever necessary.

As for the investments over the period of fiscal 2021–2023, we have no plans for any new large-scale investments because we have finished our strategic investments and we are now focused on reaping profits. Nevertheless, we will undertake the necessary case studies in preparation for changes in the operating environment, like the acceleration of the trend toward carbon neutrality. We are taking a defensive stance over the next three years, but if a turning point comes, we will not hesitate to make swift management decisions.

### The Challenge of Carbon Neutrality

The new Medium-Term Management Plan unveiled a roadmap for carbon neutrality. Some businesses of the KOBELCO Group, particularly the steel and electric power businesses, emit a lot of CO<sub>2</sub>. While leveraging social and technological innovations, we will set our sights on reducing CO<sub>2</sub> emissions in these businesses and achieving carbon neutrality in our production processes.

Furthermore, the KOBELCO Group possesses a wide range of technologies, products, and services that contribute to reducing CO<sub>2</sub> emissions in society. The transition to carbon neutrality presents business opportunities and the KOBELCO Group will strive to contribute to the realization of a carbon-neutral society by integrating our diverse technologies, products, and services.

In the materials businesses, we will work to reduce CO<sub>2</sub> emissions from blast furnaces not only by further developing existing technology, but also by leveraging the Group's unique technologies combined with MIDREX® Process in the engineering business.

There are several options for achieving carbon neutrality, including high-grade steelmaking with electric arc furnaces and hydrogen reduction ironmaking, and the combined use of external innovative technologies. Although there are many issues to overcome, including technological hurdles, huge investment and development costs, and rising production costs—not to mention the impact they have on our finances, we will boldly take on these challenges.

In the electric power business, we will endeavor to curb CO<sub>2</sub> emissions with ammonia co-firing and single-fuel firing. We will also strive to make energy use of local communities even more efficient by leveraging the biomass technology of our subsidiary Kobelco Eco-Solutions Co., Ltd.



In the materials businesses, from the viewpoint of contributing to the realization of a carbon-neutral society, we have been providing products that contribute to automotive weight reduction and electrification. Our machinery businesses boast a lineup of products including compressors, heat exchangers, and vaporizers. These products had been used to compress fossil fuels, among other applications, but nowadays they are catering to social needs related to carbon neutrality, such as storage and transportation of hydrogen and ammonia. In addition, we have the MIDREX® Process, which is a direct reduction ironmaking method that uses natural gas. Midrex has an approximately 60% share of the global direct reduced iron market. We will continue to contribute to reduction of CO<sub>2</sub> emissions from society by providing CO<sub>2</sub> reduction solutions through the MIDREX® Process, while responding to growing demand for electric arc furnaces, providing CO<sub>2</sub> reduction solutions for blast furnaces, and taking on the challenge of developing hydrogen reduction ironmaking processes.

### Promoting Sustainability Management

In its history of more than 100 years, the KOBELCO Group has always strived to contribute to society and will continue to do so. However, social needs are changing. We therefore will need to promote sustainable management by responding to the changing needs of society and integrating the Group's diverse technologies to create new value, while securing earnings for business continuity.

Although each of our business units is not very large, the Group as a whole has a wealth of technologies and knowledge that we have accumulated over the years, and we must make the most of them. Up until now, our Group had struggled to leverage synergies of various technologies and knowledge possessed by respective businesses. As a result, the corporate value of the Group was equivalent to the simple sum of the business segments. But we are now conscious of our ability to combine different expertise. By bringing together all of the Group's technologies and insights, we will provide solutions to the needs of society and enhance our corporate value.

At the same time, we must strive to reinforce our management foundation, including the governance that underpins corporate value, as well as the effective utilization of human resources. We must never forget the lessons learned from the quality misconduct. I will continue to fulfil my responsibility while pouring my heart and soul into the Company.

### In conclusion

Today the world is changing rapidly and drastically. Especially with the occurrence of the COVID-19 pandemic and abnormal weather events of late, there is a growing demand for a sustainable society that offers safety and security. Under these circumstances, our Group's mission of providing solutions to the needs of society by making the best use of the talents of our employees and our technologies is becoming increasingly important. The KOBELCO Group will continue to support the United Nations Global Compact—an initiative we joined this year—as we strive to realize a sustainable society in order to fulfil our corporate social responsibilities. We appreciate the continued guidance and encouragement of all our stakeholders.

Mitsugu Yamaguchi  
President, CEO and  
Representative Director

# Framework for Sustainability Management

## Promotion of Sustainability Management Based on the Group Corporate Philosophy

The KOBELCO Group promotes sustainability management based on the Group Corporate Philosophy by addressing key management issues that are classified into two categories: the business foundation area to support business activities and the value creation area to realize business growth.

We will pursue sustainable growth and the medium- to long-term enhancement of our corporate value to realize a world envisioned in KOBELCO's View of the Future as we carry out KOBELCO's Mission.

### Group Corporate Philosophy

#### KOBELCO's View of the Future

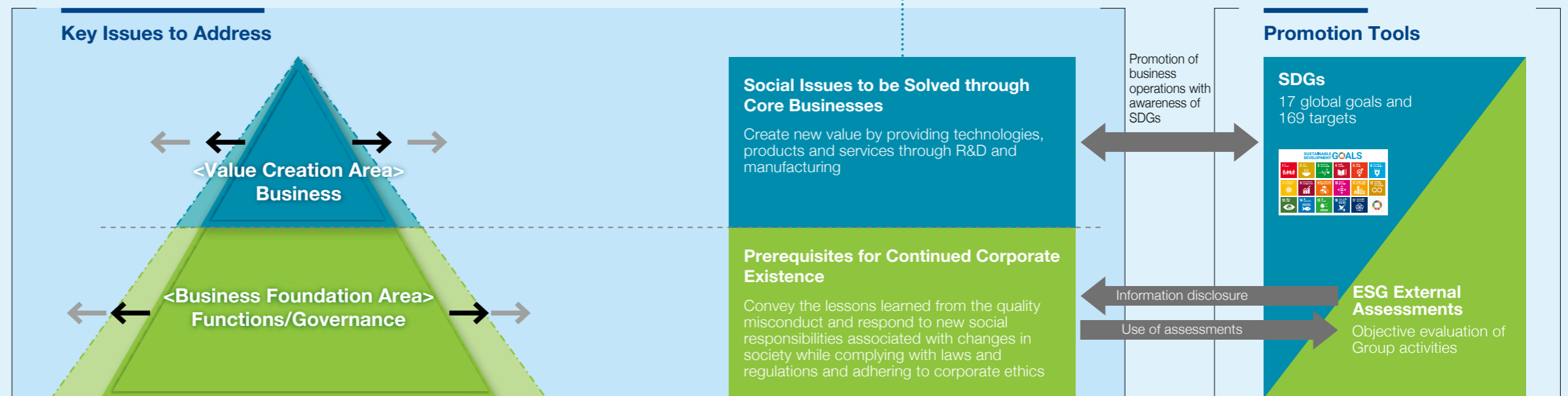
We envision a world in which people, now and in the future, can fulfill their hopes and dreams while enjoying safe, secure, and prosperous lives.

#### KOBELCO's Mission

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.

#### Core Values of KOBELCO

#### Six Pledges of KOBELCO



### KOBELCO's Mission

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.

KOBELCO's assets and strengths lie in the various talents of each employee as well as in its diverse technologies that support our broad range of businesses. We have cultivated these advantages in an effort to meet the needs of the times.

We continue to take on the challenge of transcending organizational boundaries and conventional thinking to solve increasingly complex issues, while supporting the foundations of society.

### KOBELCO's View of the Future

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.

Our technologies, products, and services are not only for those who live in the present, but also for future generations.

KOBELCO sees a sustainable, beautiful, and flourishing world in the future, with safety and security in people's lives. Such a future will give rise to value that creates new conveniences and comfort and help people fulfill their hopes and dreams.

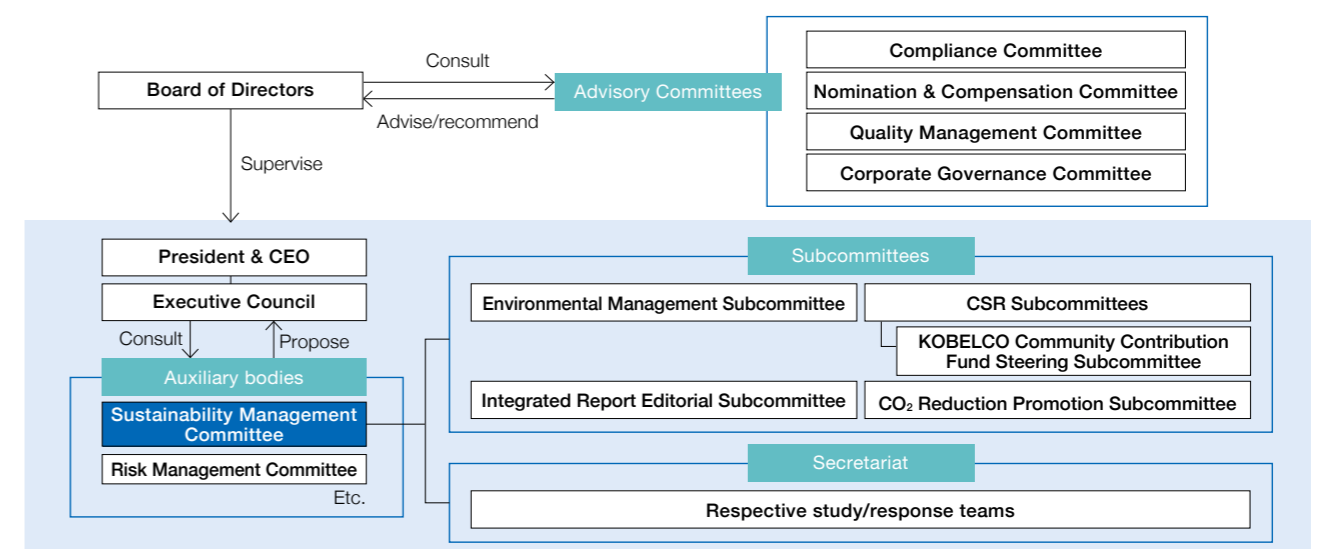
## Framework for Promoting Sustainability Management

In promoting sustainability management, priority issues are addressed through a management cycle that centers on the Sustainability Management Committee, an auxiliary body to the Executive Council. While proactively disclosing information and utilizing promotion tools, such as ESG external assessments and SDGs, we have put into place a system that allows the Board of Directors to monitor sustainability management.

## The Sustainability Management Committee's Structure and Functions

- Chair (Responsible officer):** Hajime Nagara, Director, Executive Officer
- Report to the Board of Directors:** Once every quarter
- Meetings:** Once every quarter
- Functions:**
- Identify sustainability-related issues of the Group
  - Create the schedule for sustainability promotion activities
  - Advise on the Group's Medium-Term Management Plan
  - Monitor and advise on the Group's sustainability promotion activities
  - Announce information on the initiatives that the Company supports and promote relevant activities
  - Respond to external assessments on the environment, society, and governance

## Sustainability Management Committee in the Organizational Chart



# Materiality and Indicators/ Targets

In May 2020, the KOBELCO Group formulated a new Group Corporate Philosophy, and toward sustainable growth based on the Group Corporate Philosophy, we defined a framework for sustainability management that addresses key management issues by classifying them into the value creation area and the business foundation area.

More recently, based on the Group Corporate Philosophy, our Group has identified its Materiality composed of five key issues to be addressed in order to achieve sustainable growth while securing profitability and to become a corporate group indispensable to society through providing solutions to social issues and creating new value over the medium to long term.

## Process of Identifying Materiality

Under the leadership of the Chair of the CSR Committee (present Sustainability Management Committee), we evaluated the appropriateness of the materiality evaluation process and analysis results and examined issues of materiality that should be addressed with priority.

The process is as follows:

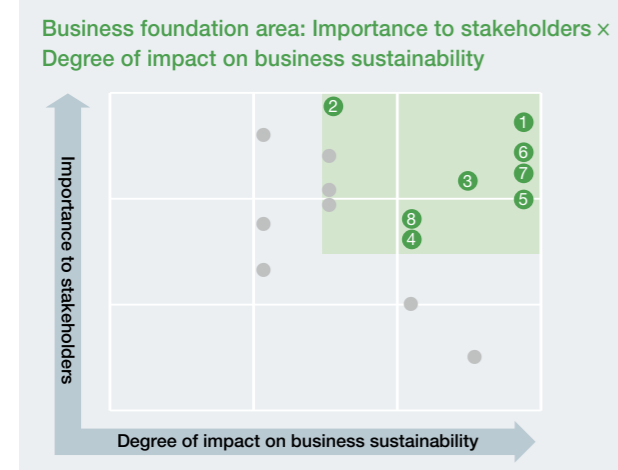
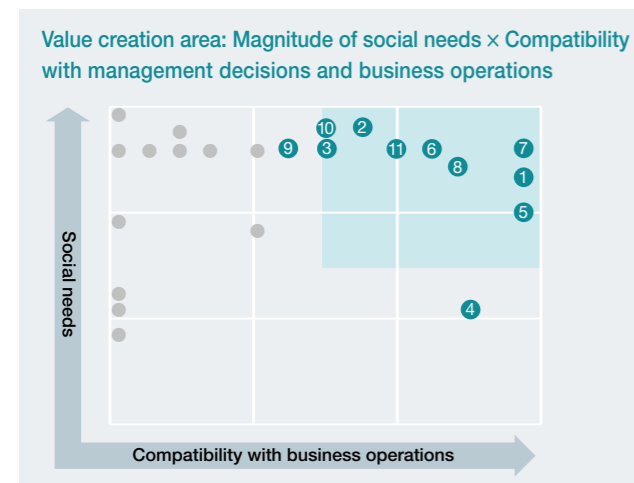
(1) Comprehensively identify social issues with reference to megatrends, international frameworks and guidelines.

The frameworks and guidelines referred to include the following:

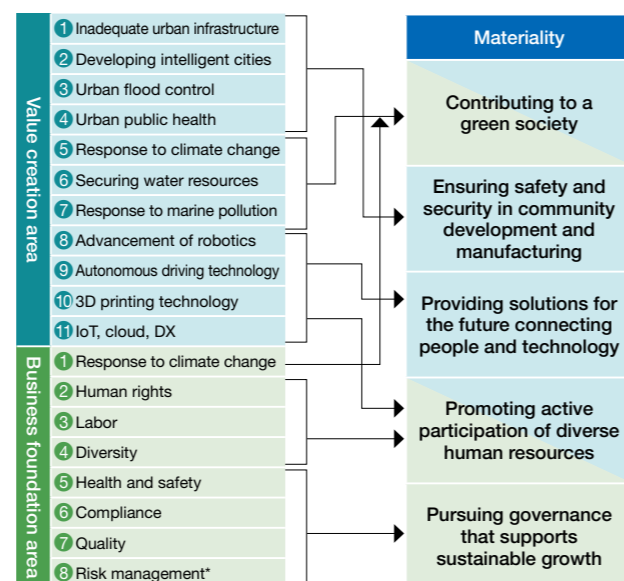
- Ten Principles of the UN Global Compact
- Sustainable Development Goals (SDGs)
- OECD Guidelines for Multinational Enterprises
- UN Guiding Principles on Business and Human Rights

- GRI Standards
- SASB Standards
- ISO 26000

(2) Score the social issues on their level of importance from the following viewpoints and map them out



(3) Merge key issues that are common to both of the value creation and business foundation areas and identify similar issues



\*Including top risks relating to environmental laws and regulations, disaster prevention, etc.

(4) Discuss issues several times at the management level, including Independent Directors, while checking their consistency with the Group Corporate Philosophy

(5) Finalize materiality and receive approval from the Board of Directors

## Indicators/Targets for Materiality

Materiality of the KOBELCO Group	Indicators/Targets				
	Indicators	Targets	Actual (FY2020)		
<b>Contributing to a green society<sup>*1</sup></b> 	Response to climate change	(1) Reduction of CO <sub>2</sub> emissions in production processes	FY2030: Down 30-40% (compared to FY2013 levels) FY2050: Taking on the challenge of realizing carbon neutrality	Down 21%	
		(2) Reduction of CO <sub>2</sub> emissions through technologies, products, and services	FY2030: 61 million tons (including at least 45 million tons through MIDREX <sup>®</sup> Process) FY2050: 100 million tons or more	40.9 million tons	
		(3) Reduction of CO <sub>2</sub> emissions in the electric power business	FY2030: Increasing efficiency of coal-fired power plants USC or higher FY2050: Taking on the challenge of realizing carbon neutrality	—	
	Response to resource recycling	(4) Water recycling rate	Maintaining at 95% or higher	95.9%	
		(5) Waste recycling rate	Recycling of three major items <sup>*2</sup> FY2025: 99%	98.7%	
<b>Ensuring safety and security in community development and manufacturing</b> 	Supplying energy focused on energy security, economic efficiency, environment, and safety (3E plus S)	—	—		
	Providing materials and machinery that meet needs	FY2025: Percentage of wire rods/bars and high-strength steel in the steel business: 52%	44%		
	Improving safety and productivity		—		
<b>Providing solutions for the future connecting people and technology</b> 	Reforms in manufacturing and operations through digital transformation (DX)	(7) Number of digitization projects	—	— <sup>*3</sup>	
		(8) Progress rates of reconstruction of existing systems	—	—	
		(9) Number of DX personnel trained	a. FY2023: About 500 <sup>*4</sup> b. FY2023: About 140 <sup>*4</sup>	a. 35 b. 99	
	Fusion and innovation of diverse intellectual assets	(10) New business creation	FY2025: Multiple task forces (TFs) to move toward creating new businesses FY2030: Multiple TFs to launch new businesses (annual target earnings of 1 billion yen or more per business)	—	
		(11) Number of employees with PhD	—	177	
<b>Promoting active participation of diverse human resources</b> 	Diversity & inclusion <sup>*5</sup>	(12) Employment rate of female new graduates	FY2023: a. Career-track administrative positions: 50% or more b. Career-track technical positions: 15% or more c. General technical positions: 15% or more	a. 34% b. 16% c. 9%	
		(13) Ratio of female managers	Doubled from fiscal 2020	2.7%	
		(14) Employment rate of people with disabilities	2.3% (statutory employment rate)	2.34%	
		(15) Number of non-Japanese employees	—	87	
		(16) Percentage of employees taking special childcare leave (Male employees)	FY2023: 100%	77.8%	
		(17) Turnover of employees within 10 years	Less than 15%	15.8%	
		(18) Overtime hours worked	—	16.6 (per month/employee)	
	Work style reform	(19) Average number of days of annual paid leave taken	15 (per year/employee)	11	
		(20) Actual total of hours worked	Under 2,000 per year	1,978 h	
		(21) Continuation of employee awareness survey	—	Ongoing	
	Human resource development	(22) Improving and expanding employee training	a. Total hours trained (across all employees) b. Average hours of training per employee	a. 210,948 h b. 18 h	
		<b>Pursuing governance that supports sustainable growth</b> 	Compliance and risk management	(23) Number of internal reporting (whistleblowing) cases	—
	Respect for human rights		(24) Improving and expanding employee training	— <sup>*6</sup>	—
	Health and safety		(25) Lost time injury frequency rate	0.10 or less	0.24 (calendar year)
			(26) Improving and expanding supervisor training	—	65
	Quality assurance		(27) Accreditation rate in compliance with Quality Guidelines in internal quality audit	70% of internal quality audit target locations in FY2023	— <sup>*7</sup>
		(28) Automation rate of testing and inspection equipment as defined by the Company	— <sup>*8</sup>	—	
(29) Continuation of customer satisfaction survey		—	Ongoing		
Corporate governance	(30) Improving the effectiveness of the Board of Directors	—	Ongoing		

\*1. A green society is not limited to the narrow meaning of a society that merely uses natural energy, but is defined as a society that addresses climate change and resource recycling.  
 \*2. Three major items: Slag, dust, and sludge  
 \*3. From fiscal 2021, we started to count the number of projects with the target carefully selected.  
 \*4. a. IT evangelists (those who take the initiative to plan and promote business reforms in their respective divisions utilizing IT)  
 b. Data scientists (those capable of advanced data analysis)  
 \*5. To ensure diversity among core personnel, we will continue to examine our response to the revised Corporate Governance Code.  
 \*6. We are studying ways to improve and expand human rights training for employees and to implement human rights due diligence.  
 \*7. We began Quality Guideline accreditation from the quality audit in fiscal 2021.  
 \*8. Medium- to long-term targets are under consideration.



# Mission Story



Midrex Technologies, Inc.  
**Stephen Montague**  
 President & CEO

**The MIDREX® Process is the key to achieve the roadmap for carbon neutrality. We have interviewed Stephen Montague, the President & CEO of Midrex Technologies, Inc. (a wholly owned subsidiary of Kobe Steel), who is leading the company's business operations, to talk about the current situation and the future.**

## MIDREX® Process and Current situation

**Q. I have heard that Midrex has been receiving many inquiries from potential customers. Could you explain the situation?**

**A.** The market has taken a very steep upturn, particularly since the first of this year. Early last year there was high interest, but when COVID-19 came, many companies paused their activities. By the end of last year, activity began to resume, and we expected some gradual increase in plant sales, but it didn't happen that way. Around February, there was a really sharp increase, and I think this is the most activity that I've seen in nearly 20 years. I believe the primary reason is that every steelmaker today is taking decarbonization seriously and they're making their transition plans. And these transition plans include direct reduced iron (DRI).

**Q. What was the situation before the pandemic? Was there an increase in the number of inquiries?**

**A.** There was. Some very proactive steelmakers were already looking at their plans for the future. And, to be really frank, I expected the steel industry to use the COVID-19 pandemic as an excuse for not pushing decarbonization. I've been pleasantly surprised that not only did the interest return where it was before the pandemic, but it has now escalated beyond our expectations.

**Q. You said that the number of inquiries has been increasing rapidly. Could you tell us which areas or regions are most actively looking to do business with Midrex?**

**A.** For confidentiality reasons, it's best not to mention specific projects under development, but generally speaking, the CIS market, especially Russia, is extremely active. They have all the right ingredients for being a low-cost producer of DRI. They have iron ore, natural gas, and the prospect for hydrogen in the future, and they already have the mindset to be an exporter of hot briquetted iron (HBI). In addition, there is activity in the US and MENA. There is even considerable activity in Europe, driven by the need for decarbonization, where historically we would not have imagined new DRI plants given the high cost of energy. These are just some examples. Any place where there's a strong push for decarbonization, like Europe, and

places where natural gas is affordable and/or hydrogen will be affordable and in sufficient quantities in the future have the biggest potential for new DRI plants.

## Strengths of the MIDREX® Process

**Q. As there is growing interest in the MIDREX® Process, we need to provide more basic information about it. Midrex has a share of about 60% of the world DRI/HBI production (about 80% of natural gas based DRI/HBI). What do you think are the strengths of the MIDREX® Process, and what makes it differentiate from other processes in the market?**

**A.** You may be looking more for a technical answer, but first I will tell you our greatest strengths—our people and our culture, because they are the foundation of the Midrex team. Of course, we have to differentiate ourselves technically, but it is people who drive innovation and people who build and operate plants, so it always comes back to the people and teamwork.

From the technical point of view, Midrex pioneered HBI. We also introduced multiple methods to transport hot DRI to adjacent melters. As you know, we are now commercializing MIDREX H<sub>2</sub>™ for 100% hydrogen-based reduction of iron ore. All of these factors, combined with the strong foundation of the MIDREX® Process, have allowed us to maintain the dominant market share.

Midrex has the expertise to not only design but also supply the major components of the Process such as our proprietary

## About the MIDREX® Process



voestalpine's Go West plant in the US produces 2 million tons of DRI annually

shaft furnace and reformer as well as many other systems in the plant. We manage these things by ourselves and create the opportunity to learn more about them and continually innovate.

In terms of strengths of the MIDREX® Process, the production reliability with proven long-term plant performance is built on state-of-the-art technology. MIDREX® plants typically exceed their annual rated capacity and in fact some older plants now reach nearly double the rated capacity owing to continuous innovation. Flexibility is also extremely important especially given the rapid changes in the market. Midrex plants have the flexibility to utilize both high and low Fe iron ores, multiple energy sources (e.g. natural gas, hydrogen, coke oven gas), and the ability to produce multiple products simultaneously like hot DRI to an adjacent melter along with HBI.

I think there is another key factor that is not technical: our relationship with Kobe Steel, Ltd. This is an important reason why Midrex has been able to keep our strong market position. Kobe Steel acquired Midrex in 1983. Throughout the steel business cycles, the ups and downs, through it all, Kobe Steel has taken a long view to stand beside us and support our business. This has made a huge difference. It has provided a very stabilizing effect that has allowed us to endure and prosper over a long period.

**Q. What challenges or issues do you think Midrex may face in the future?**

**A.** There are two primary challenges: people and innovation. The first challenge is finding the right teammates to add to Midrex as we grow. It is not just people who have the right resume—they have to fit the culture.

The second challenge is innovation. Competition is increasing and innovation is the way to create technical advantage with new products and new uses for existing products such as HBI for the blast furnace, utilization of low Fe iron ore, MIDREX H<sub>2</sub>™, and MIDREX Carbon Capture. Commercializing these products in the right timeframe is going to be the biggest challenge for our team. We have a dedicated R&D Center and relationships with partners including Kobe Steel that add to our own expertise which helps us address these challenges head on.

**Q. There are some technical questions pointed out in the market. For example, if only high-grade iron ore is suited for direct reduction ironmaking, and the challenges in using hydrogen as reducing agent. What is your view on these issues?**

**A.** MIDREX® plants have used lower Fe pellets and will use lower Fe pellets even more so in the future. The flexibility to use

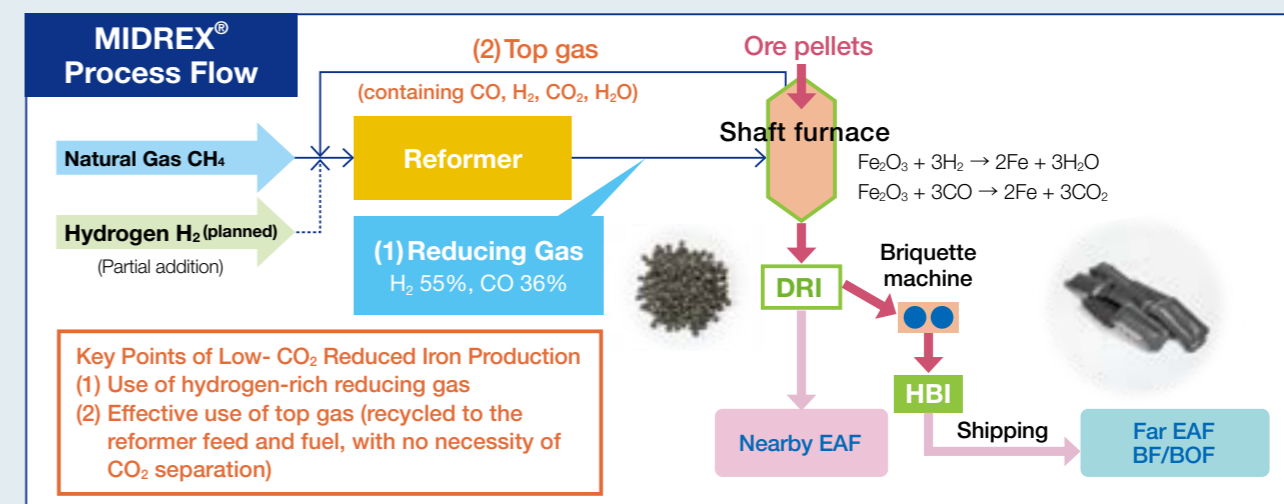
**MIDREX® Process:** Produces direct reduced iron (DRI) by directly reducing iron ore with reducing gas (containing a large amount of hydrogen) obtained by reforming **natural gas**

**CO<sub>2</sub> reduction:** **20–40%** (EAF using DRI vs. BF/BOF)

**Leading market share:** **Over 80** MIDREX modules worldwide, producing **80%** of the world's DRI\*;

\*Natural gas based DRI/HBI

DRI (Direct Reduced Iron): Clean iron source (Fe ~90%, low impurities), widely used and substituting high-grade scrap and pig iron in EAF, BF and BOF  
 HBI (Hot Briquetted Iron): Compacted & briquetted DRI for long distance transport by sea or other means



Source: KOBELCO Group's CO<sub>2</sub> Reduction Solution for Blast Furnace Ironmaking (February 16, 2021)

## Mission Story

either high or low Fe pellets in the shaft furnace is certainly one of the strengths of the MIDREX® Process over our competitors. For the question about reduction with hydrogen, the MIDREX® Process operated commercially for many years with about 75% hydrogen in the reducing gas. So, it is a small leap up from 75% hydrogen to 100% hydrogen. With our experience and our test data, we are very confident about going to 100%.

### Prospects for the Medium-Term Management Plan and Medium- to Long-Term Vision

**Q. In the Medium-Term Management Plan of the KOBELCO Group, which was announced in May, “taking on the challenge of realizing carbon neutrality” is one of the most important issues. In this effort, MIDREX® Process is expected to play an extremely important role. Could you tell us about Midrex’s initiatives and medium- to long-term business strategies for solving the global issue of CO<sub>2</sub> reduction?**

**A.** Our strategy is quite simple. Utilize the MIDREX® Process and our future innovations to help iron ore companies and steel companies transition to low CO<sub>2</sub> metallics such as DRI and HBI with the goal of reaching carbon neutrality.

Many of the decisions we take in the next five years will greatly affect the progress we make towards commercializing innovative products like MIDREX H<sub>2</sub>™, HBI for Blast Furnace, and MIDREX Carbon Capture. The success we have in the next five years towards creating these products and other innovations will determine our long-term success. It doesn’t mean that there will be 10 plants with these new products in the next five years. In the next five years we have to invest in the technology.

Some people say hydrogen is not until 2030. That’s not true. There are companies that are going to build commercial-size hydrogen-based DRI plants in the next five years. We will see several 100% hydrogen-based plants. We will see people begin to use MIDREX Carbon Capture. We will see blast furnaces using HBI.

This will create “lighthouse projects” to launch these technologies. Then these lighthouses will show the world the way to the future. From 2030 and beyond, we’ll see many more projects, particularly as hydrogen becomes more widespread and affordable with green electricity.

**Q. You are seeing an increasing number of inquiries right now. Do you have capacity limitation to pursue those projects? And, do you have a plan to expand it?**

**A.** Of course, like every company, we have a certain capacity. Fortunately, the Midrex business model includes our Construction Licensees. Midrex already has long-term relationships with trusted companies like Primetals, SMS/Paul Wurth, and Kobe Steel. We’ve successfully, over a number of years, leveraged these relationships to build plants together.



So, even as a small company, Midrex is able to amplify what we can do in the marketplace, with our Construction Licensees. Around 2005 to 2008 we were able to do seven projects at the same time with only two construction licensees. Now we have three construction licensees. So, I would expect to be able to do quite a few more. At the same time, we’re growing to become a larger company to manage the increase, as well.

### Closing

**Q. We would like to hear your view about the role that MIDREX® Process would play in the future of iron and steel making.**

**A.** Our world and our industry are changing very rapidly. If steelmakers must be carbon neutral in 2050, then we will not continue to make iron with coal/coke. DRI will grow because there’s no other proven way to reach carbon neutrality. It’s going to be a journey of almost 30 years and such a large transition requires a lot of changes.

These changes are going to be painful. If we have to walk 1000 miles, it’s better to start now and walk a little each day over a long period. Those who wait to start the journey are going to suffer more. Those who start the journey soon, can make a more gradual transition.

The days of being slow and conservative are gone. Winning companies will take action now and begin moving towards the market trends. Winners will not wait for perfect timing because no one knows when that will be. It’s the future. You can’t wait and you can’t forecast it.

Simply begin moving in the direction of the market trends and be agile—ready to make adjustments. That’s what we’re doing at Midrex. We see the trends. I don’t know the perfect timing, but I know the way the world is moving, and we will keep moving in that direction together with Kobe Steel as “One Team” in order to contribute to the future growth of iron and steel industry.

### Developing Construction Machinery Telematics System that Solves Social Issues Specific to Construction Sites

The “K-DIVE CONCEPT” is a worker-centric construction machinery telematics system powered by next-generation remote operation technology. Based on a heavy machinery remote operating system, this technology enables us to digitally transform on-site processes at customer sites by connecting people, heavy machinery, and worksites at all times. Heavy machinery can be operated from an on-site office or remote location, the benefits of which include improved safety and productivity at customer worksites, accelerated acquisition of technical skills by employees, and the advancement of working style reforms. The concept also opens up job opportunities to a wide range of people, including elderly operators, women, and people with disabilities. Our worker-centric K-DIVE CONCEPT has been favorably received by many of our customers and business partners, and we are confident that it can help solve social issues such as labor shortages and the handing down of technical knowledge.



**Yoichiro Yamazaki**

General Manager of Business Development Department and Corporate Planning Division, Kobelco Construction Machinery, Co., Ltd. Visiting Professor at Hiroshima University

### Contributing to CO<sub>2</sub> Reduction by Expanding Sales of Aluminum Sheets for Automotive Body Panels to Reduce Vehicle Weight

Under the Paris Agreement on climate change, China has declared that it will reduce CO<sub>2</sub> emissions by 60-65% by 2030 compared to 2005 levels and aim to achieve carbon neutrality by 2060. Behind this commitment is the pressing need to improve fuel efficiency of passenger vehicles, which also means there is a growing need for lighter materials.

The China Automotive Technology and Research Center (CATARC) estimates that the amount of aluminum used per vehicle in China will increase from 180 kg in 2019 to 200 kg by 2030. Driven by growing demand for aluminum panels, orders received at Kobelco Automotive Aluminum Rolled Products (China) Co., Ltd. (KARP) in Tianjin, China have increased remarkably over the past few years. In particular, many of KARP’s products are used in electric vehicles.

As a sales representative at KARP’s Shanghai Branch, I have been committed to expanding sales to European and US-based automakers. Every time I see a car of automakers which I have worked with on the streets of Shanghai, I feel proud to be doing my job that can help improve the environment.



**Zhu Wenyu**

Sales Dept., Shanghai Branch, Kobelco Automotive Aluminum Rolled Products (China) Co., Ltd.

### Helping Solve Social Issues by Developing Materials with Various Properties

In the Surface Design & Corrosion Research Section, we are undertaking R&D to provide materials that meet customer needs with high functionality, high durability, and long life with the aim of contributing to a green society and ensuring safety and security in community development. We contribute to solving social issues by creating new value with such products as **KENIFINE™**, a highly functional anti-bacterial coating technology that is effective against COVID-19, and Eco-View, corrosion-resistant steel that can reduce lifecycle costs by extending the painting cycle of bridges and other structures. In addition, with the aim of realizing a hydrogen-fueled society, we are also working on the development of conductive surface treated titanium for fuel cell separators to be installed in next-generation mobility systems, as well as technology that can extend the service life of materials in order to address the problem of hydrogen embrittlement, which occurs to high-pressure tanks and other chambers that are exposed to highly concentrated hydrogen, as it weakens the strength of materials with hydrogen permeating the material surface. We will continue striving to develop materials that solve various social issues.



**Mikako Takeda**

Head of Surface Design & Corrosion Research Section, Materials Research Laboratory Technical Development Group, Kobe Steel, Ltd.



# KOBELCO Group Medium-Term Management Plan (FY2021–FY2023)

Under the Fiscal 2016–2020 Group Medium-Term Management Plan that commenced in April 2016, we aimed to establish three core business areas: materials, machinery, and electric power. However, we have yet to establish those three business pillars due to changes in demand forecasts for our automotive weight reduction strategy, which we have aggressively invested in, as well as due to the emergence of issues concerning our *monozukuri* capabilities and profitability particularly in the materials businesses. In these circumstances, we must continue to work to restore profitability.

Looking at the business environment surrounding our Group, we anticipate further deterioration of structural problems in the steel industry, changes in society moving towards carbon neutrality, and the advancement of digital transformation. We will need to proactively address all of these areas as opportunities for business structure reform and as new sources of earnings.

In light of these circumstances, we have placed top priority on establishing a stable earnings base and taking on the challenge of realizing carbon neutrality in the new KOBELCO Group Medium-Term Management Plan for fiscal 2021–2023.



## The two most important issues to be addressed under the new Medium-Term Management Plan

- (1) Establishing a stable earnings base
- (2) Taking on the challenge of realizing carbon neutrality

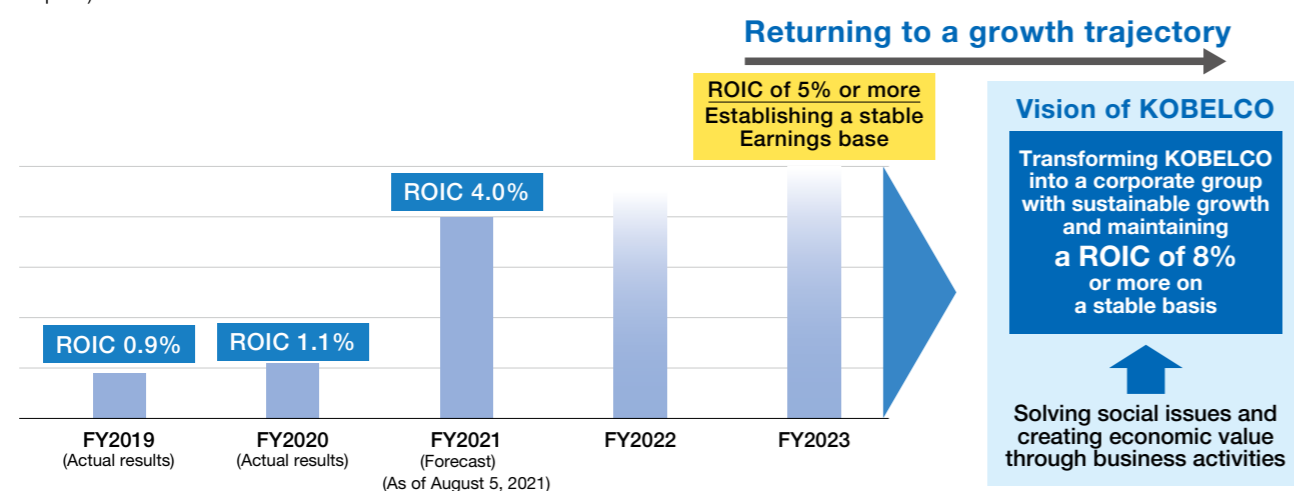
### (1) Establishing a Stable Earnings Base

During the period of our new Medium-Term Management Plan, we will further pursue initiatives aimed at strengthening profitability focused on the materials businesses and establish a stable earnings base for the KOBELCO Group.

We will look to achieve a ROIC (return on invested capital) of at least 5% in fiscal 2023 when our new electric

power projects come into operation and fully contribute to earnings. In the future, our Group aims to maintain a stable ROIC of 8% or higher and achieve sustained growth.

To this end, we will steadily implement the following five key measures.



### Strengthening the earnings base of the steel business

- Under the assumption that domestic demand will continue to decline over the long term, we will establish a structure that can guarantee stable earnings with crude steel production of 6.3 million tons of and secure profitability even with 6.0 million tons.

### Smooth startup and stable operation of new electric power projects

- We will secure earnings of 40.0 billion yen/year from the stable operation of Kobe Power Plant's No. 1 and No. 2 units and Moka Power Plant's No. 1 and No. 2 units and the planned commercial operation of Kobe Power Plant's No. 3 and No. 4 units.

### Strategic investment in the materials businesses leading to earnings contribution

- We will promote strategic investment for automotive weight reduction to realize early earnings contribution by responding to the continuously growing need for lighter vehicles, despite adverse factors such as delays in demand rise and challenges in *monozukuri* capability.

### Restructuring unprofitable businesses

- Amid changes in the demand environment and industrial structure, we are streamlining the steel casting and forging business and the titanium business, which incurred impairment of fixed assets in fiscal 2019, as well as the crane business, which continues to suffer losses, with the aim of turning profits from fiscal 2021–2022.

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

- In the machinery and engineering businesses, we will expand environmental contribution menu, including solutions to CO<sub>2</sub> reductions, and respond to the growing markets while promoting intra-Group collaboration.
- In the construction machinery business, we will work to depart from dependence on the Chinese market, turn profits from businesses leading to new value creation through providing solutions for innovations such as workstyle reforms in the construction industry, and promote commercialization of peripheral businesses through providing know-how on the installation of new systems.

## (2) Taking on the Challenge of Realizing Carbon Neutrality

The KOBELCO Group has set targets for 2030 and a vision for 2050 from two angles: (1) reducing CO<sub>2</sub> in the Group's production processes; and (2) contributing to reducing CO<sub>2</sub> emissions with the Group's technologies, products, and services.

In order to achieve carbon neutrality in 2050, we will make bold efforts to reduce CO<sub>2</sub> in our production processes mainly by promoting technological development

and utilizing external innovative technologies. In addition, we will capture growing demand for these menus as a business opportunity, taking advantage of our strengths that enables the fusion of technologies and diverse menus that contribute to reducing CO<sub>2</sub> emissions, such as MIDREX<sup>®</sup> Process and materials for lightweight and electric vehicles.

	FY2030 targets	FY2050 vision
Reduction of CO <sub>2</sub> emissions in production processes	30–40%* <sup>1</sup> (vs. FY2013)	Take on the challenge of achieving carbon neutrality
Contribution to reduction of CO <sub>2</sub> emissions through technologies, products, and services* <sup>2</sup>	61 Mt (including 45 Mt or more through MIDREX <sup>®</sup> Process* <sup>3</sup> )	100 Mt or more

\*1 Most of the reduction targets are associated with iron and steel making processes. We reviewed the targets announced in September 2020 (with the change from BAU to the total amount basis, and the increased use of original solutions reflected).

\*2 The KOBELCO Group contributes to the reduction of CO<sub>2</sub> emissions in various areas of society through its distinctive technologies, products, and services.

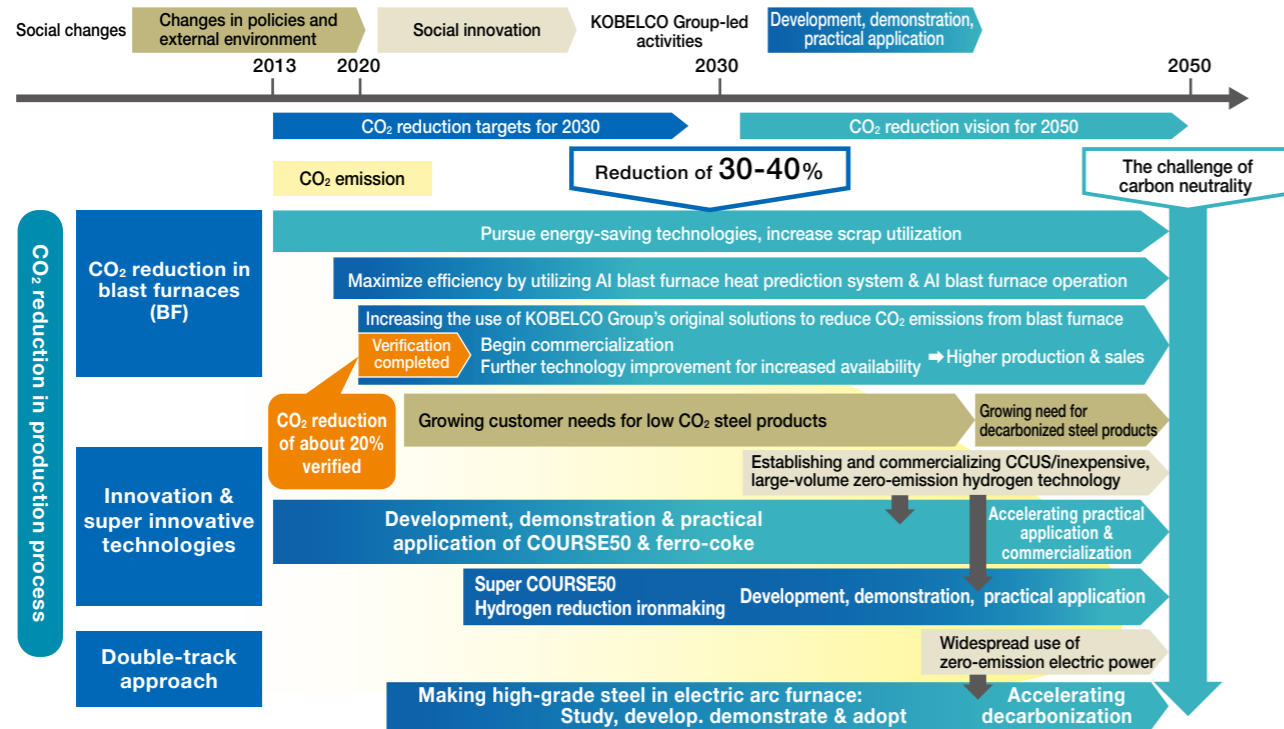
\*3 Reviewed calculation formula announced in September 2020



### Roadmap for Carbon Neutrality in Ironmaking Process

We will strive to lead the industry in the field of CO<sub>2</sub> emission reduction and differentiate ourselves from other companies by utilizing our Group's original MIDREX<sup>®</sup> technologies for blast furnaces as announced in February 2021, while promoting the development of existing

technologies (energy-saving technologies, increased use of scrap, blast furnace operation technology utilizing AI, etc.) as well as innovative technologies (COURSE50, ferro-coke, etc.). We are also considering the introduction of high-grade steel production using electric arc furnaces.



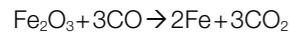
### Blast Furnace Ironmaking

#### Why does the blast furnace emit so much CO<sub>2</sub>?

Roughly 80–90% of CO<sub>2</sub> emissions from iron and steel production is generated by the blast furnace process. This owes to the two functions of the blast furnace.

#### (1) Reduction of iron ore

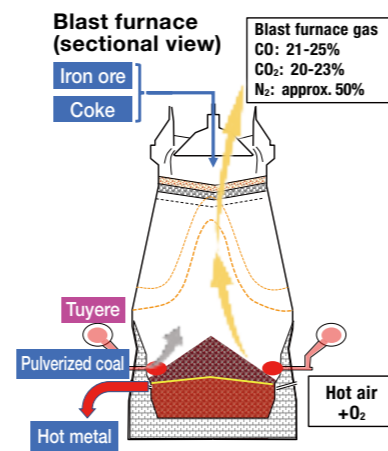
Carbon contained in coke is used to remove oxygen from iron ore.



#### (2) Melting of iron (from solid to liquid)

Iron is melted with combustion heat during carbon combustion and reaction heat during reduction.

These functions make it possible to produce high-grade steel with less impurities compared to the electric arc furnace route that melts scrap iron.



### MIDREX<sup>®</sup> Process

The MIDREX<sup>®</sup> Process is a direct reduction ironmaking technology developed by Midrex Technologies, Inc., Kobe Steel's wholly-owned U.S. subsidiary in the US.

It is the world's leading natural gas-based direct reduction ironmaking method, accounting for roughly 80% of the world's natural gas-based direct reduced iron (DRI) production (approximately 60% of the world's total DRI

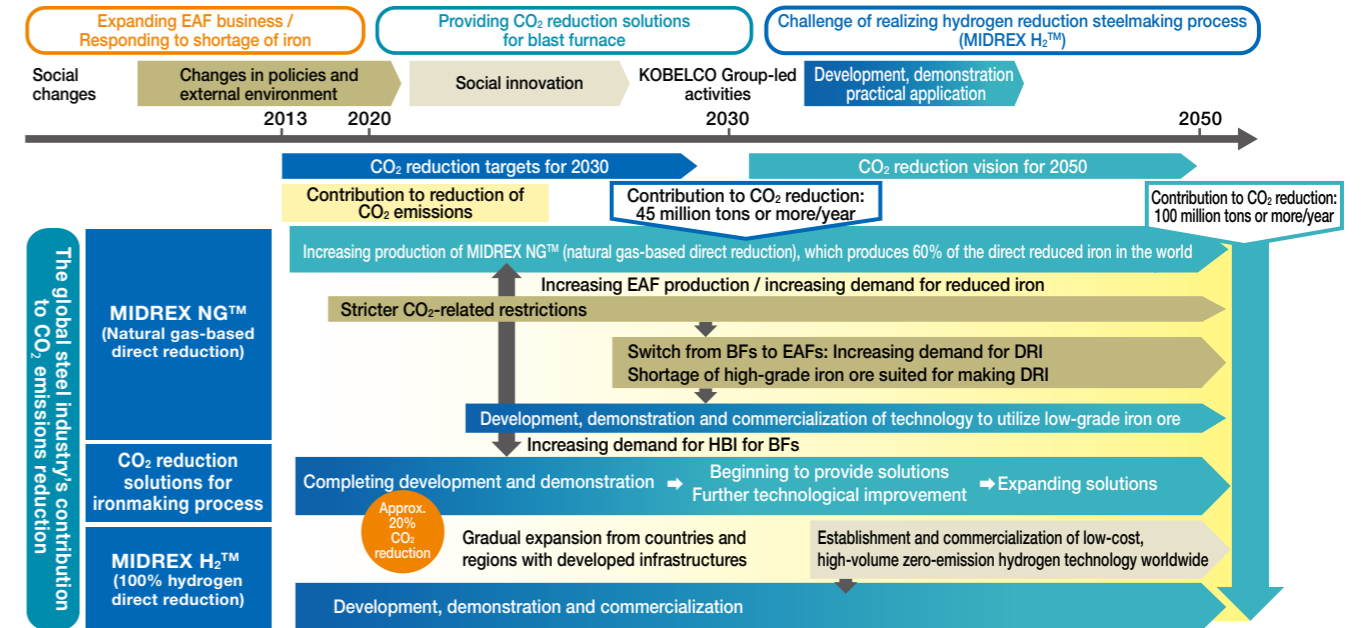
production). Compared to the blast furnace method, the MIDREX<sup>®</sup> Process can lower CO<sub>2</sub> emissions in the ironmaking process by around 20–40%. Over 80 MIDREX<sup>®</sup> plants have been in operation worldwide.

Please refer to the interview with the Midrex President & CEO on pages 30–32.

### Roadmap for CO<sub>2</sub> Reduction through Midrex<sup>®</sup> Process

The MIDREX<sup>®</sup> Process—a proprietary technology of the KOBELCO Group—is a direct reduction ironmaking method that uses natural gas. This process accounts for approximately 60% of the global direct reduced iron (DRI) production. We will continue to drive earnings growth and contribute to the reduction of CO<sub>2</sub> emissions by

providing solutions through the MIDREX<sup>®</sup> Process, while striving to meet greater demand for electric arc furnaces, providing CO<sub>2</sub> reduction solutions for blast furnaces, and taking on the challenge of developing hydrogen reduction ironmaking processes.



### CO<sub>2</sub> Reduction Solutions for Ironmaking Process

We successfully demonstrated technology that can reduce CO<sub>2</sub> emissions from blast furnace operations by charging a large amount of HBI\* produced with the MIDREX<sup>®</sup> Process

in a blast furnace. Please refer to page 70 for more details.

\*Hot briquetted iron: direct reduced iron (DRI) in a briquetted form. Since hot DRI is not suitable for long-distance transportation, it is pressed into a compact solid (briquette) upon being discharged from the reduction furnace.

### MIDREX H<sub>2</sub><sup>TM</sup> (100% hydrogen-based direct reduction)

In the MIDREX<sup>®</sup> Process, natural gas can be gradually replaced with hydrogen to achieve even greater CO<sub>2</sub> emission reductions. In addition, it has been confirmed that the process can be switched to a hydrogen-based reduction ironmaking method that uses 100% hydrogen gas as reductant without the need for additional large investment.

Midrex Technologies, Inc. has entered into a joint research agreement with ArcelorMittal, the world's largest steelmaker, to supply the hydrogen-based direct reduction ironmaking technology in the research and development of low-carbon ironmaking using hydrogen, promoted by ArcelorMittal.

As part of the agreement, Midrex Technologies also entered into an agreement to undertake the design of a demonstration plant for the production of reduced iron using hydrogen, which will be constructed at ArcelorMittal's

Hamburg plant in Germany, utilizing Midrex's technology.

In this demonstration plant, verification of hydrogen reduction will be conducted by recovering hydrogen contained in the top gas from the existing DRI plant that uses natural gas as reductant. The plant will produce about 100,000 tons of DRI per year, making it the world's largest DRI plant that uses only hydrogen as reductant.



ArcelorMittal's existing DRI plant in Hamburg, Germany

**Initiatives in the Automotive Field**

Many major countries have set targets for vehicle electrification as part of their efforts to achieve carbon neutrality, and automakers are accelerating their move toward vehicle electrification. The KOBELCO Group is contributing to this shift in the automotive industry with products that enhance the electric vehicle (EV) qualities, including bearing steel, special steel, magnetic materials,

and titanium foil.

And making vehicles lighter not only improves the fuel efficiency of conventional gasoline-powered vehicles but also extends the driving range of EVs. We are working to reduce CO<sub>2</sub> emissions through the supply of materials and components that contribute to the automotive weight reduction.

KOBELCO Group's Contribution to Vehicle Electrification		
Products	Main applications (target parts)	Anticipated effects
Steel: High strength steel	Body frame, bumper, door impact beam	Improved characteristics from lightweighting (Easing weight increase in electrification) • Improved fuel economy for hybrid cars • Longer driving range of electric cars • Improved collision safety (Easing increased braking distance)
Aluminum: Extrusions		
Aluminum: Panel material	Hood, door, roof, fender	Improved characteristics of electric cars
Aluminum: Forged suspensions	Suspension	
Steel: Bearing steel, Special steel wire rod	Electromagnetic parts (motor, etc.) Cold-forged parts (gears, shafts, etc.)	Improved characteristics of electric cars
Steel: Pure iron soft magnetic material (wire rod)		
Steel powder: Magnetic steel powder		
Titanium: NC titanium	Fuel cell stack	Improved characteristics of fuel cell cars

Note: Applications for ICEV (Internal Combustion Engine Vehicle), HEV (Hybrid Electric Vehicle), PHEV (Plug-in Hybrid Vehicle), BEV (Battery Electric Vehicle), FCEV (Fuel Cell Electric Vehicle)

**Renewable Energy Initiatives**

From a long-term perspective, we expect a shift from fossil fuels to natural gas and renewable energy as a result of significant changes in the composition of global primary energy sources. In the machinery businesses, our Group will help reduce CO<sub>2</sub> emissions through the provision of technology, products, and services that can

contribute to these fields. In the welding and other materials businesses, we will contribute to the transition to renewable energy through our distinctive technologies, products, and services.

Please refer to pages 56-59 for information about our initiatives in the machinery businesses.

**Welding Solutions**

**Liquefied CO<sub>2</sub> Storage Tanks**

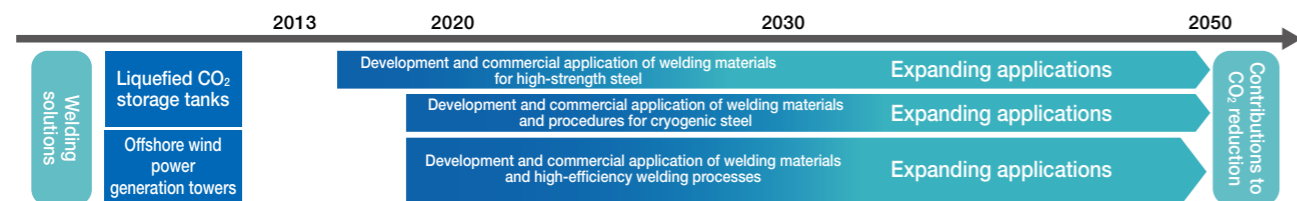
For liquefied CO<sub>2</sub> storage tanks, the industry plans to use high-strength steel, but the possibility of using cryogenic steel is increasing in the future. We have been developing high-efficiency electroslag welding materials and methods that employ cryogenic steel for fuel tanks of ships. Going forward, we believe this technology can be applied to liquefied CO<sub>2</sub> storage tanks. By proposing a high-quality, high-efficiency welding process and responding to demand for the construction of liquefied CO<sub>2</sub> storage tanks, we will contribute to the building of a CO<sub>2</sub> recycling infrastructure and the reduction of CO<sub>2</sub> emissions.

high-quality, high-efficiency technologies, including narrow groove welding, high-speed weldability, and high rigidity. We have started developing our own welding materials and processes with a view to commercial application. In particular, the Japanese market is moving toward the introduction of offshore wind power generation, so we expect an increase in demand for high-efficiency welding to lower power generation costs. Going forward, we will continue to develop high-efficiency welding processes and optimal welding materials and increase customer value by proposing welding solutions of our expertise, thereby supporting offshore wind power generation from the welding field and contributing to the reduction of CO<sub>2</sub> emissions.



**Offshore Wind Power Generation Towers**

In the welding of offshore wind power generation towers, special welding processes are used. These require

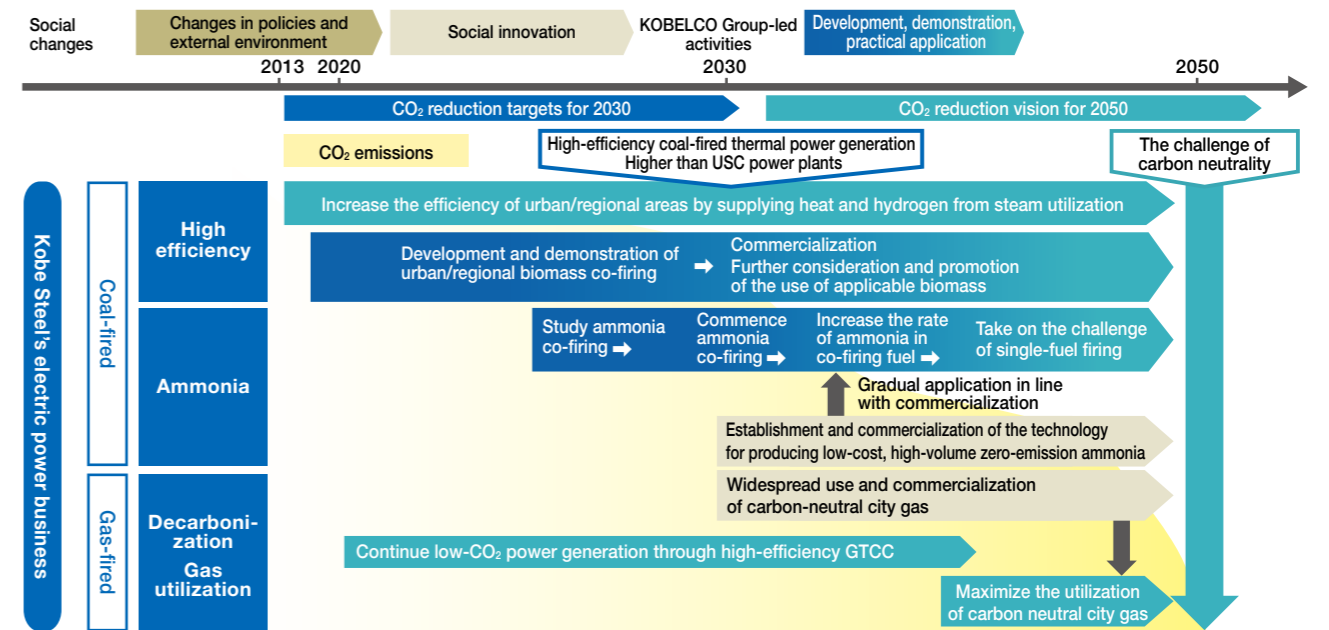


**Roadmap for Carbon Neutrality in the Electric Power Business**

In the coal-fired power generation at the Kobe Power Plant, we will supply heat and hydrogen to surrounding areas using steam from the power plant and increase the efficiency of region-wide energy use. We will promote the collaboration of the Electric Power Business and the Engineering Business divisions to strengthen CO<sub>2</sub> reduction initiatives such as co-firing of biomass fuel (sewage sludge and food residue) and ammonia, aiming to achieve the world's most advanced urban coal-fired power plant. In

the gas-fired power generation at the Moka Power Plant, we will continue stable operation of low-CO<sub>2</sub> power generation using high-efficiency GTCC.

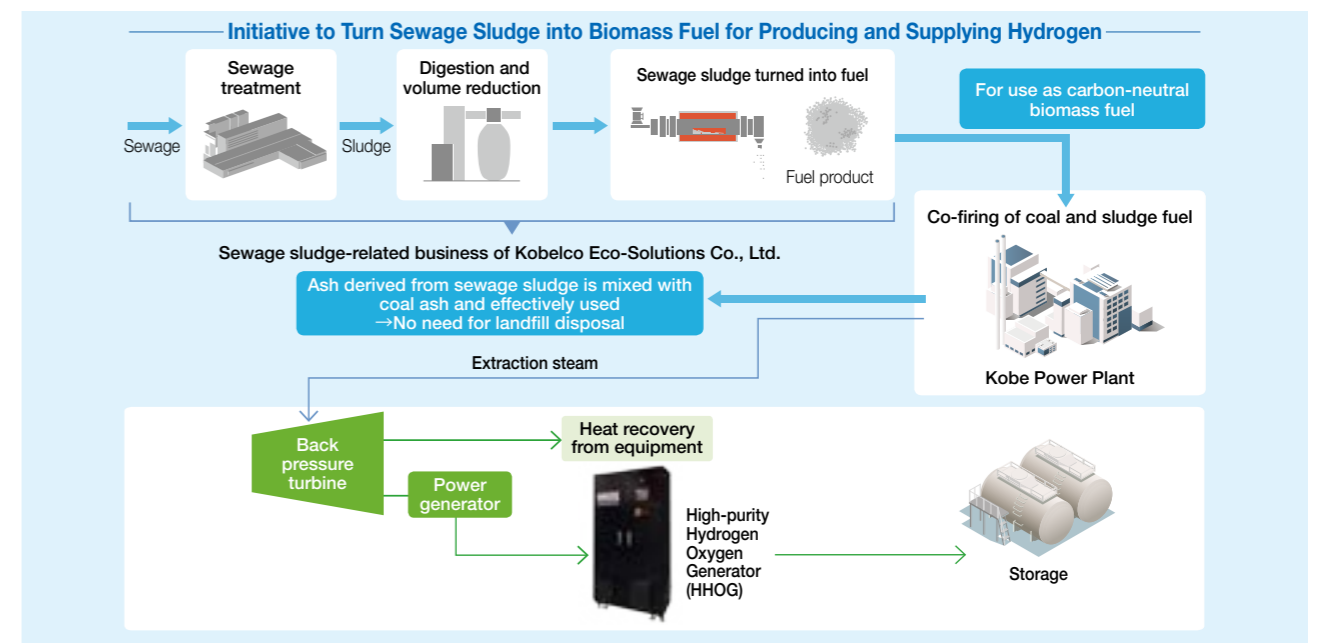
In addition, at the Kobe Power Plant, we will increase the rate of co-firing of ammonia, and ultimately we will take on the challenge of single-fuel firing. At the Moka Power Plant, we are also considering the maximum use of carbon neutral city gas, and through these measures, we aim to achieve carbon neutrality by 2050.



**Urban/Regional Biomass Co-firing: Initiatives for Effective Use of Underutilized Energy**

In collaboration of Kobelco Eco-Solutions Co., Ltd., which operates sewage sludge treatment business, and the Kobe Power Plant, we plan to convert sewage

sludge into fuel and use it as a biomass fuel for co-firing at the Kobe Power Plant.

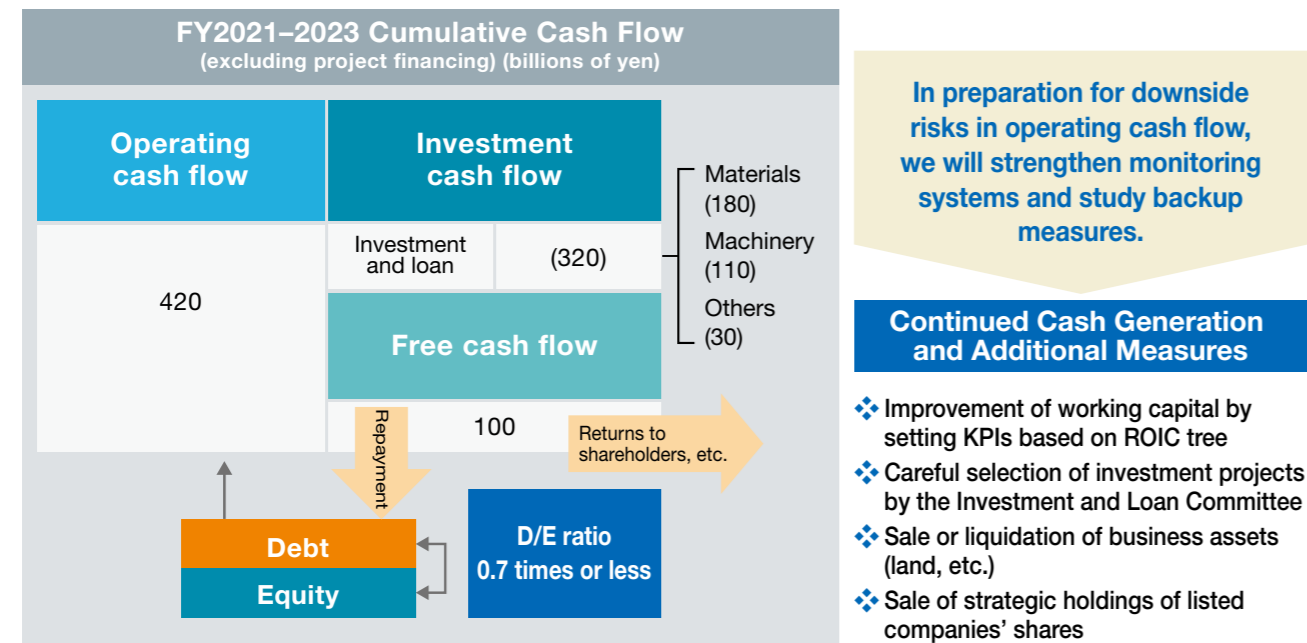




**Financial Strategy**

The basic policy of the Group's financial strategy during the period of the new Medium-Term Management Plan is to carefully select capital and other investments and loans with the goal of keeping investment cash flow within the scope of operating cash flow and achieving a D/E ratio of 0.7 times or less at the end of fiscal 2023.

In addition, we will continue to promote activities to improve working capital and similar metrics, and in preparation for downside risks in operating cash flow, we will strengthen monitoring systems and study and prepare backup measures.



**Returns to Shareholders**

Our basic policy is to return profits to shareholders through dividends. Kobe Steel determines dividends taking its financial condition, business performance, future capital needs and other factors into overall consideration with the aim of paying dividends on a continuous and steady basis in principle.

For the time being, the target dividend payout ratio will continue to be 15–25% of consolidated net income attributable to owners of the parent. However, we will review the situation, including the possibility of raising the payout, starting in fiscal 2023.

	FY2019	FY2020	FY2021–2022	FY2023 and beyond
Dividend payout ratio	NA	15.6% (10 yen/share)	15–25%	To be reviewed including a raise

**Business Portfolio Management**

In light of the problems with the previous Medium-Term Management Plan, which included insufficient focus on asset efficiency and cost of capital and inadequate monitoring of each business unit, the Group will

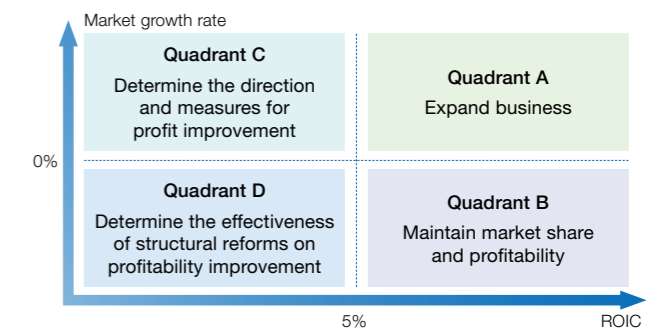
use return on invested capital (ROIC) in the management and evaluation of our business units and work to make efficient use of capital costs and management resources and strengthen the business foundation.

Business Portfolio Management	Management in Business Units
<ul style="list-style-type: none"> <li>• Development of business portfolio strategy</li> <li>• Monitoring of business units</li> <li>• Investment decisions based on business portfolio strategy</li> </ul>	<ul style="list-style-type: none"> <li>• Setting of KPIs based on ROIC tree</li> <li>• Performance management using KPIs</li> </ul>

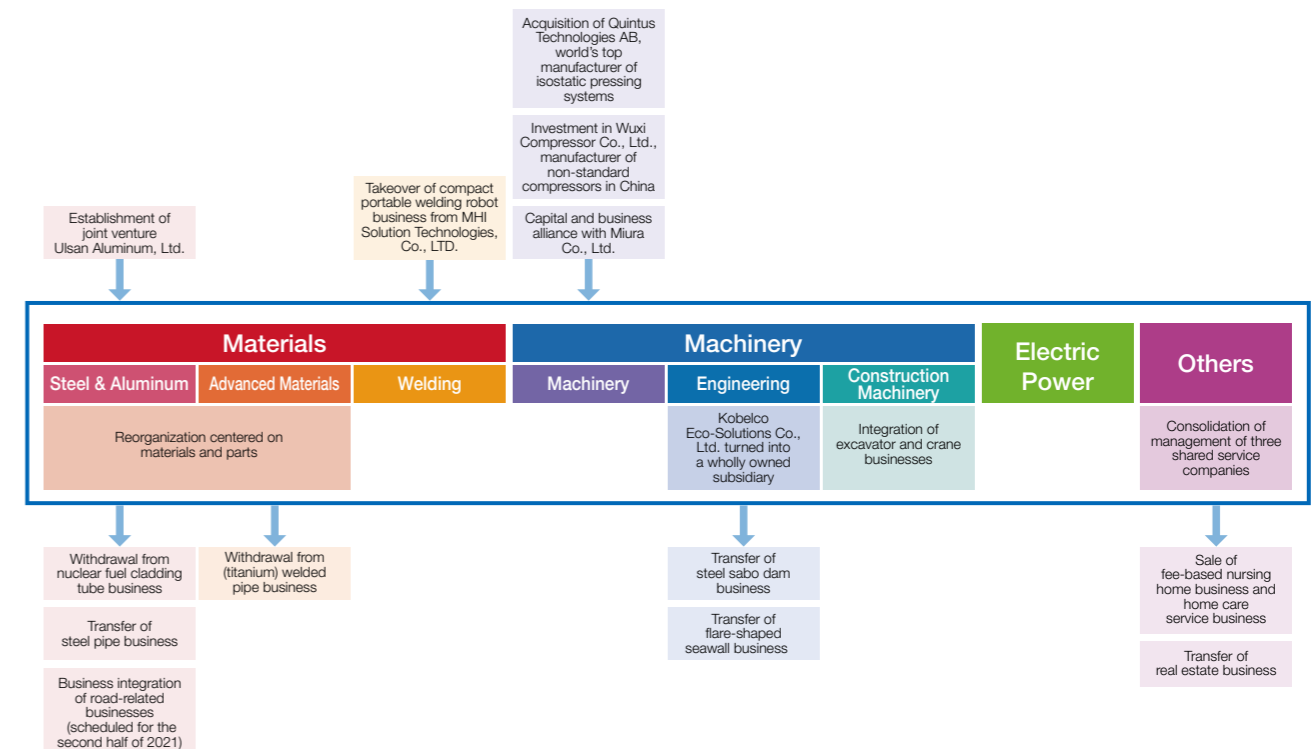
**Business Portfolio Management Policy**

In order to manage our business portfolio, we divide it into four quadrants (A to D) along the axes of profitability (ROIC) and market growth potential. This allows us to consider and implement measures tailored to each quadrant and to optimize the allocation of management resources according to the corresponding strategy.

To implement these measures, we established the Business Portfolio Management Committee and the Investment and Loan Committee in April 2021 as auxiliary bodies to the Executive Council.



**Business Structure Changes (Since 2016)**

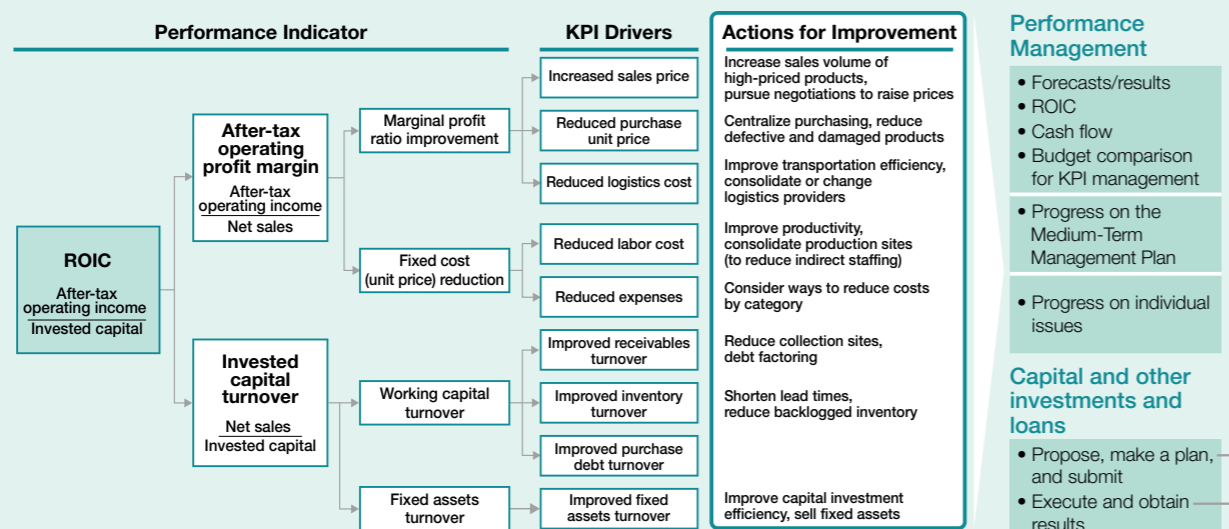


**Business Units**

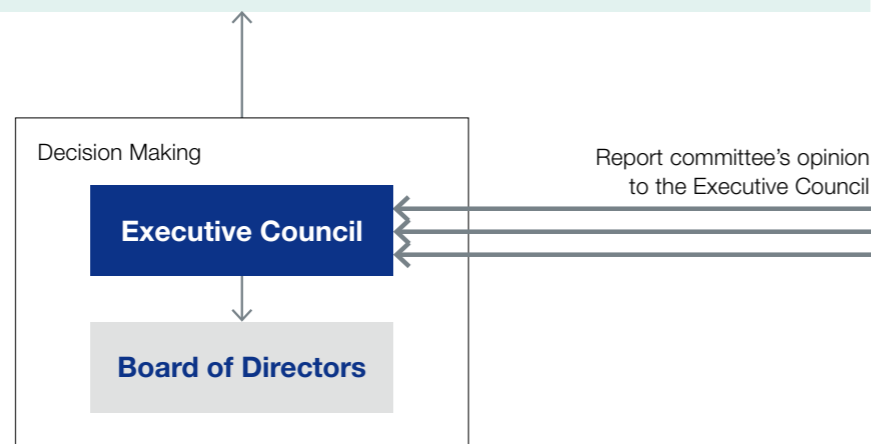
**Business Management Based on ROIC Tree**

In each business unit, major KPIs are set using the ROIC tree, and performance management is conducted based on the KPIs. The Business Portfolio Management Committee conducts monitoring on a quarterly basis.

**ROIC tree** (The following is a generalized ROIC tree for explanatory purposes only.)



\*Net operating profit after tax (NOPAT) = operating income + dividend income + equity method investment income - tax expenses



**Business Portfolio Management Committee**

**Development of Business Portfolio Strategy**

From the perspective of asset efficiency and cost of capital, the committee formulates Companywide business portfolio strategies and optimal capital structure policies consistent with the strategy.

- Formulate policies for optimal capital structure and cash allocation based on financial planning
- Develop Companywide business portfolio strategies
- Discuss the positioning of each business unit (in the four quadrants) in the Companywide business portfolio strategy
- Consider investment quotas and prioritization by business unit and division

**Monitoring of Business Units**

The committee conducts performance monitoring and KPI management of each business unit.

- Carry out ROIC and cash flow management by business unit and Group company
- Direct and monitor the development of improvement plans for unprofitable businesses
- Examine the future of unprofitable businesses and individual businesses
- Discuss the direction of management resource allocation for new businesses

**Investment and Loan Committee**

**Preliminary Deliberations**

The committee confirms the consistency of important investment projects with the business portfolio strategy, conducts preliminary deliberations that include risk analysis of investment projects and evaluation of the businesses to be invested in, and reports the findings to the Executive Council.

**Main Items to be Checked**

1. Consistency between the positioning of the business units in the business portfolio and the investments implemented
2. 3C analysis and SWOT analysis of the relevant investment and business unit
3. Risk analysis of investment project\*
4. Identification of follow-up items

\* Risk analysis is conducted by the relevant departments, including Corporate Planning Department, Finance and Accounting Department, Business Development Department, IT Planning Department, Environment and Safety Department, Legal Department, etc.

**Investment Project Follow-up**

For important investment projects, the committee will review progress after the investment is made and report the findings to the Executive Council.

- Review the progress on important investment projects
- For projects that have not yet achieved their targets, conduct focused monitoring and, in some cases, reconsider the project plans
- Accumulate knowledge and know-how through the centralized management of investment projects to strengthen the PDCA cycle
- Report the results of the review to the Executive Council

	Business Portfolio Management Committee	Investment and Loan Committee
Committee Chair (Responsible officer)	Executive Officer overseeing the Corporate Planning Dept. (Vice Chair: Executive Officer responsible for the Corporate Planning Dept.)	Executive Officer responsible for the Corporate Planning Dept.
Functions	<ul style="list-style-type: none"> <li>• Develop business portfolio strategy</li> <li>• Monitor profit and loss and cash flow of each business unit</li> </ul>	<ul style="list-style-type: none"> <li>• Preliminary deliberation before making decisions on important new projects</li> <li>• Follow-up of ongoing projects</li> </ul>



# Message from the CFO



**Under the new Medium-Term Management Plan, we will steadily implement our “aggressive” initiative of establishing a stable earnings base and our “defensive” initiative of strengthening the corporate financial structure.**

**Yoshihiko Katsukawa**  
Director, Executive Officer

## Summary of FY2020 Results and Previous Medium-Term Management Plan

In fiscal 2020, sales decreased significantly both in Japan and overseas due to the impact of the COVID-19 pandemic. In the second half of the fiscal year, however, owing to a recovery in demand in the automotive industry and Companywide efforts to improve profitability, we recorded an ordinary income of 16.1 billion yen. In addition, we managed to keep a D/E ratio of 1 or lower, excluding early procurement of borrowings, by controlling expenditures, strengthening cash management, and improving working capital.

Under the previous Medium-Term Management Plan, Kobe Steel aimed to establish a business enterprise centered on the three core business areas of materials, machinery and electric power. The plan included measures

to establish a stable earnings base by consolidating upstream operations in the steel business and advancing new power generation projects, in addition to pursuing growth opportunities through automotive weight reduction strategies and other active investments. However, due to changes in demand assumptions and *monozukuri* capability issues, the automotive weight reduction strategies will likely take longer to contribute to earnings than initially expected. In addition, in fiscal 2019, we recorded significant impairment losses in the titanium, aluminum suspensions and aluminum casting and forging businesses. As a result, due to the challenges remaining in the materials businesses as a whole, we were unable to establish the “three-pillar business enterprise” as planned.

## Goals of the New Medium-Term Management Plan—ROIC Target

Under the new Medium-Term Management Plan, fiscal 2021–2023 is defined as a period for establishing a stable earnings base while ensuring a reliable return on investment. With our capital cost (WACC: weighted average cost of capital) in mind, we set a target for fiscal 2023 of achieving a ROIC (return on invested capital) of at least 5%. Our ROIC in fiscal 2020 was 1.1%, but we expect an improvement to 4% (as of August 5, 2021) in fiscal 2021. Currently, we are approaching our goal, and we

intend to achieve it step by step, aiming for establishing a system that can achieve a ROIC of 5% or higher on a stable basis. As a measure of capital efficiency, ROIC has the advantage of being able to compare business assets across business units, as well as comparing them with the Company's overall cost of capital. Another advantage is that the ROIC tree can be used to break down elements to identify which elements are growth drivers. We have

already created a ROIC tree for each business unit, identified KPIs (Key Performance Indicators) for the driver elements, and incorporated them into the targets for each worksite, although it will take some time for the business units to be able to fully utilize them.

To improve ROIC, you can either improve earnings (the numerator) or improve the efficiency of the invested

capital (the denominator); however, our approach links both earnings and invested capital. In terms of earnings, key measures include strengthening the earnings base of the steel business, making strategic investments contribute to earnings, and restructuring unprofitable businesses. In terms of invested capital, it will be important to reduce inventories and capital expenditures across all businesses.

## Business Portfolio Strategy

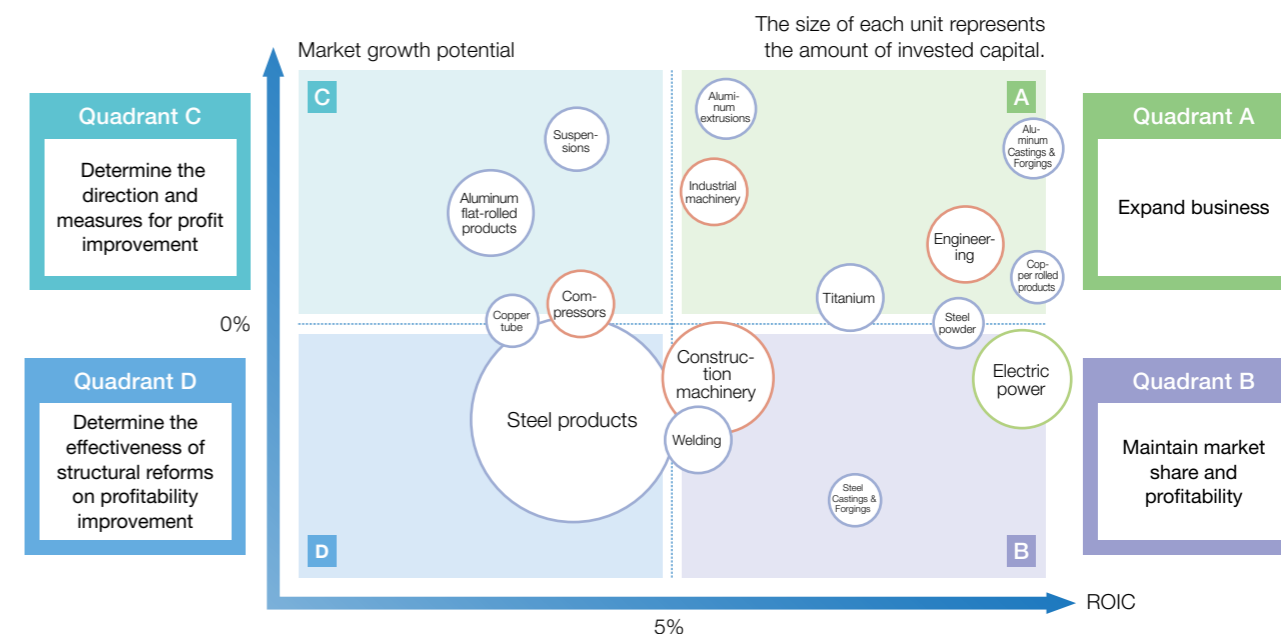
For management purposes, we have categorized our business portfolio into four quadrants based on ROIC and market growth potential, and then plotted the position of each business unit. In April of this year, the Business Portfolio Management Committee was established as an auxiliary body to the Executive Council. The functions of the committee are to promote business portfolio management and monitor the performance of each business unit. The committee discusses the position of each business unit, investment priorities, and the future of unprofitable businesses, and reports the results of its deliberations to the Executive Council.

As a result, the Executive Council now has a mechanism for open discussion of portfolio strategy based on the common benchmark of ROIC. However, since the business areas of materials, machinery and electric power have very different characteristics, it is necessary to consider not only ROIC but also business characteristics. In

terms of ROIC, process industries such as our materials businesses are at a disadvantage compared to the machinery businesses, but they will be evaluated differently in the contribution to value creation. Some businesses may have a ROIC of 10%, while other businesses may result in 5%. However, our final goal is to achieve a minimum of 5% overall.

In the business portfolio, it is particularly important to address the “Quadrant D” where both ROIC and market growth rates are low. The first task is to determine whether it is possible to improve capital efficiency and shift those businesses to the “Quadrant B” where the market growth rate is low but a ROIC of 5% or more can be expected. In the case of unprofitable businesses, we will instruct them to formulate improvement plans and strengthen monitoring, and if they fail to improve, we will review our strategy at an appropriate time.

## Business Portfolio (Assumption for FY2023)



## Message from the CFO

### Selecting Investment Projects and Ensuring their Success

Along with the Business Portfolio Management Committee, the Investment and Loan Committee was established in April of this year with the goal of reinforcing the PDCA cycle. The committee will work with the Business Portfolio Management Committee to manage invested capital. Specifically, in addition to preliminary deliberations that include risk analysis of investment projects and evaluation of the businesses to be invested in, the committee will hold in-depth discussions on the timing and feasibility of implementation and make recommendations to the Executive Council.

Also, with respect to the follow-up of investment projects that have already been decided, to ensure that the

desired results are achieved as planned, the committee will take advantage of the centralized management of investment projects to assemble the knowledge and know-how, conduct a thorough discussion, and report the follow-up results to the Executive Council. The PDCA (Plan-Do-Check-Act) cycle for investment projects tends to be lax in terms of C and A (Check and Action). However, by strengthening the follow-up (Check), we will be able to identify issues at an early stage and steadily implement measures for improvement (Action). As in the case of unprofitable businesses, we will focus on monitoring the projects that have not met their targets and review our strategy as necessary.

### Investment Plan in the New Medium-Term Management Plan

Large investments were made during the period covered by the previous Medium-Term Management Plan, and the period of fiscal 2021–2023 has been defined as essentially a payback period for these investments with limited new investments. On the other hand, supporting digital transformation (DX) is a priority, so we are planning to invest about 15 billion yen per year in IT strategy-related investments. This includes R&D of the K-DIVE CONCEPT, a remotely operated hydraulic excavator. With respect to R&D and capital investment for carbon neutrality, we

will implement those related to the MIDREX® Process as planned, but other than that, no such investments are included in the new Medium-Term Management Plan. However, there is no doubt that significant additional investment in carbon neutrality will be required as we approach the year 2030. If an investment is necessary for the development of sustainability management, which leads to the long-term improvement of our corporate value, we will continue to invest without hesitation even if ROIC deteriorates temporarily.

### Reducing Capital Costs

We recognize that our current cost of capital, as demanded by the market, is around 5%. While improving ROIC, we also need to make efforts to lower the cost of capital, which sets the hurdle rate for investments. There are three effective ways to lower the cost of capital: **(1) establish a stable earnings base, (2) strengthen the corporate financial structure, and (3) proactively disclose information to the market.**

#### (1) Establishing a stable earnings base

In order to stabilize earnings, it is necessary to lower the fixed costs of businesses with high earnings volatility, such as steel products and construction machinery, to make them less susceptible to market fluctuations. In terms of steel, we are planning to produce 6.7 million tons of crude steel in fiscal 2021, but we aim to establish

a profit structure that will allow us to remain profitable even if production falls to 6 million tons in the future. We will appropriately monitor each business to ensure that it is progressing as planned, and at the same time, review the business portfolio strategy of the entire company as necessary.

#### (2) Strengthening the corporate financial structure

We estimate the cumulative operating cash flow for the three-year period of fiscal 2021–2023 to be 420 billion yen. On the other hand, we have completed our scheduled large strategic investments and new investments in the future will be limited within the scope of operating cash flow. Therefore, free cash flow is assumed to be 100 billion yen, which will be used to repay interest-bearing

debt, excluding returns to shareholders, etc. By doing so, we aim to achieve a D/E ratio of 0.7 or less at the end of fiscal 2023 and return to an A+ financial rating in the future. At the same time, to prepare for downside risk in operating cash flow, we will strengthen our monitoring and consider backup measures such as the sale of business assets.

In addition, in June 2021, we issued five-year bonds amounting to 10 billion yen, which was a long-awaited milestone for the Company. We had not been able to issue corporate bonds since 2015 due to poor performance and the quality misconduct. As a result, we had to rely on borrowing, and our ratio of direct financing had fallen to 20%. Going forward, we will issue corporate bonds in a more consistent manner, including 7-year, 10-year and other long-term bonds, to bring the ratio

closer to the normal direct ratio. In addition, we will consider various other financing options such as green and transition financing in view of our efforts towards carbon neutrality.

#### (3) Proactive disclosure of information to the market

I believe that appropriate risk-taking is necessary to achieve sustainable growth and increase corporate value. We should strive to reduce uncertainty by disclosing important risks and our measures to deal with them in order to close the information gap between the companies and markets. We have been disclosing information appropriately through financial results briefings, business briefings, press releases, etc., and we will continue to proactively disclose information that is beneficial to the market.

### To Our Stakeholders

Our stakeholders, including shareholders and investors, are invaluable to the Company, especially in bringing external perspectives to the attention of management. Going forward, we hope to increase the opportunities for dialogue as a way to receive valuable feedback.

With respect to the dividend payout ratio, the current ratio of 15-25% will be maintained for fiscal 2021-2022, as we are still in the process of establishing a stable

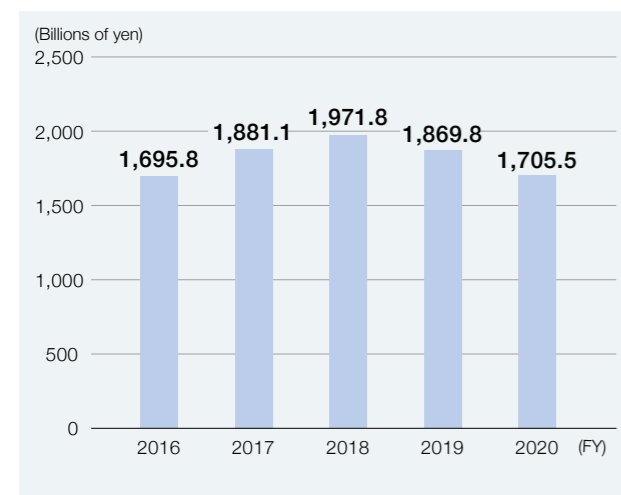
earnings base. However, we are fully aware that this level is low compared to other companies, and we intend to review our options, including an increase, starting in fiscal 2023. To do so, it is necessary to first establish a stable earnings base and return to a growth trajectory. I will devote my utmost efforts to solving our financial challenges in order to achieve the ROIC target of 5% or higher.



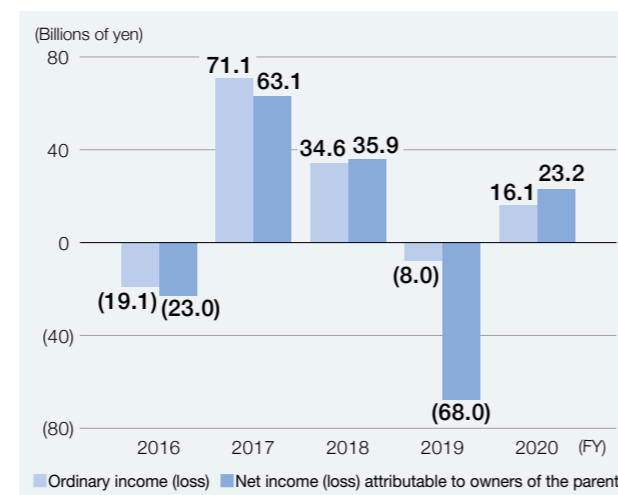


# Financial Highlights

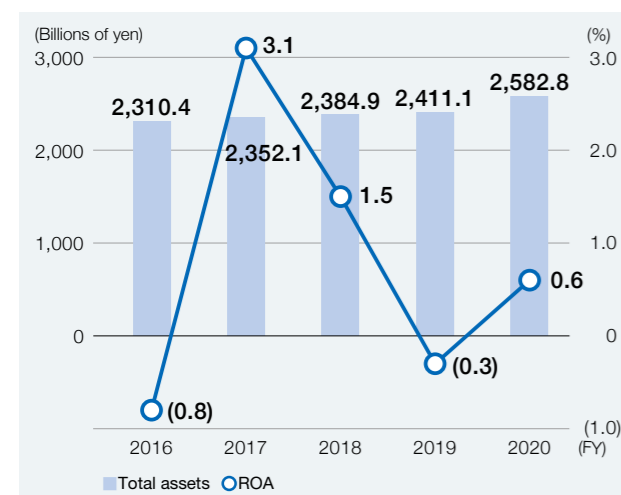
## Net Sales



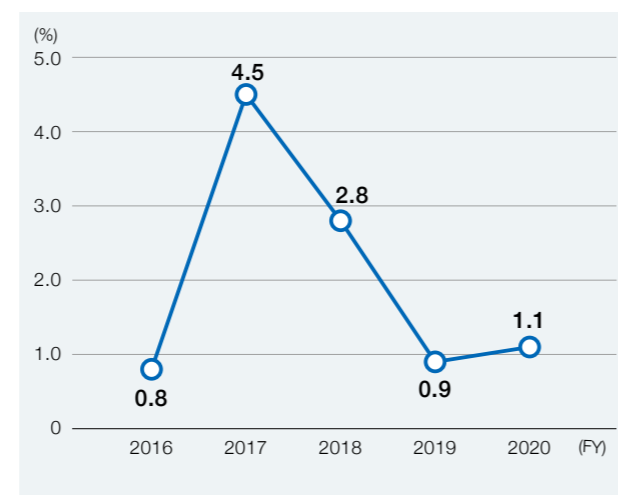
## Ordinary Income (Loss)/Net Income (Loss) Attributable to Owners of the Parent



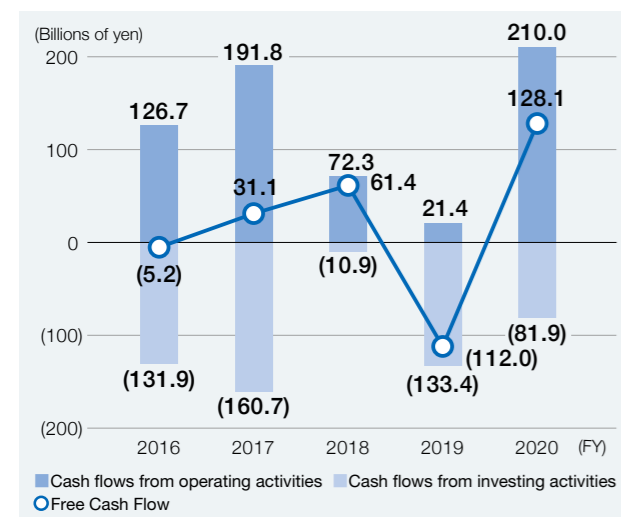
## Total Assets/ROA



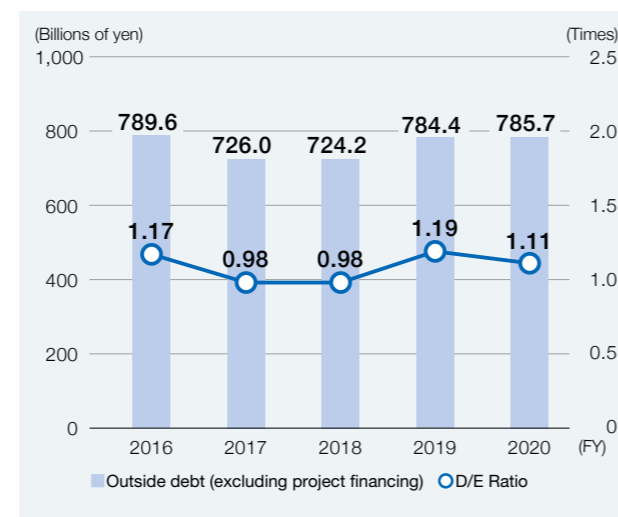
## ROIC



## Free Cash Flow



## Outside Debt & D/E Ratio



# At a Glance

Segment	
Materials Businesses	<h3>Steel &amp; Aluminum</h3> <p>Net sales <b>¥696.3 billion</b> (down ¥83.9 billion year on year)                      Ordinary income (loss) <b>¥(22.6) billion</b> (down ¥6.1 billion year on year)                      Total assets <b>¥1,000.3 billion</b> (down ¥22.1 billion year on year)                      Number of employees <b>12,424</b></p>
	<h3>Advanced Materials</h3> <p>Net sales <b>¥238.1 billion</b> (down ¥58.9 billion year on year)                      Ordinary income (loss) <b>¥(12.1) billion</b> (up ¥13.1 billion year on year)                      Total assets <b>¥256.0 billion</b> (down ¥21.1 billion year on year)                      Number of employees <b>6,080</b></p>
Machinery Businesses	<h3>Welding</h3> <p>Net sales <b>¥70.0 billion</b> (down ¥13.7 billion year on year)                      Ordinary income (loss) <b>¥1.7 billion</b> (down ¥1.1 billion year on year)                      Total assets <b>¥77.6 billion</b> (down ¥2.0 billion year on year)                      Number of employees <b>2,514</b></p>
	<h3>Machinery</h3> <p>Net sales <b>¥175.3 billion</b> (up ¥9.3 billion year on year)                      Ordinary income (loss) <b>¥11.4 billion</b> (up ¥1.8 billion year on year)                      Total assets <b>¥181.3 billion</b> (down ¥3.4 billion year on year)                      Number of employees <b>4,661</b></p>
Electric Power Business	<h3>Engineering</h3> <p>Net sales <b>¥136.1 billion</b> (down ¥5.3 billion year on year)                      Ordinary income (loss) <b>¥4.4 billion</b> (down ¥1.3 billion year on year)                      Total assets <b>¥123.8 billion</b> (down ¥15.1 billion year on year)                      Number of employees <b>3,524</b></p>
	<h3>Construction Machinery</h3> <p>Net sales <b>¥333.1 billion</b> (down ¥27.6 billion year on year)                      Ordinary income (loss) <b>¥12.7 billion</b> (up ¥5.2 billion year on year)                      Total assets <b>¥334.6 billion</b> (down ¥6.3 billion year on year)                      Number of employees <b>7,917</b></p>
Other Businesses	<h3>Electric Power</h3> <p>Net sales <b>¥80.4 billion</b> (up ¥4.7 billion year on year)                      Ordinary income (loss) <b>¥20.6 billion</b> (up ¥11.7 billion year on year)                      Total assets <b>¥321.3 billion</b> (up ¥69.6 billion year on year)                      Number of employees <b>263</b></p>
	<h3>Other Businesses</h3> <p>Net sales <b>¥27.8 billion</b> (down ¥5.8 billion year on year)                      Ordinary income (loss) <b>¥4.2 billion</b> (up ¥0.8 billion year on year)                      Total assets <b>¥56.1 billion</b> (up ¥1.2 billion year on year)                      Number of employees <b>1,637</b></p>

# Economic Environment by Customer Domain

The KOBELCO Group operates businesses centered on seven segments, and its main customer fields can be divided into three categories of Mobility, Life, and Energy & Infrastructure. The table below summarizes the economic environment, risks and opportunities associated with each of these three categories.

Target	Economic Environment	Risks and Opportunities	Related Segments
<b>Mobility</b>			
<b>Automobiles</b>	<ul style="list-style-type: none"> <li>Although production is recovering from the impact of the COVID-19 pandemic, the pace of recovery differs by region.</li> <li>On the other hand, the global semiconductor shortage is having a major impact on automobile production. This impact is expected to continue throughout fiscal 2021.</li> <li>In the medium- to long-term, global automobile production will steadily increase due to increased demand in emerging countries.</li> <li>In response to accelerating global efforts to become carbon neutral, many countries will strengthen efforts to support zero-emission vehicles. As a result, electrification will further accelerate.</li> <li>More and more new models will be "connected cars" that share internet access and data with various devices.</li> <li>There is a growing trend toward practical application of self-driving cars in countries around the world along with the advancement of testing and legislation.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Decline in demand for automobiles due to changes in lifestyles and increased adoption of sharing and MaaS (Mobility as a Service)</li> <li>Further tightening of fuel efficiency regulations and enactment of Life Cycle Assessment (LCA) regulations</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Acceleration of electrification</li> <li>Greater adoption of connected and self-driving vehicles</li> </ul>	Steel & Aluminum Advanced Materials Welding Machinery
<b>Aircraft</b>	<ul style="list-style-type: none"> <li>Demand decreased significantly due to travel restrictions caused by the COVID-19 pandemic. Demand is expected to return to pre-COVID levels in 2023 or later.</li> <li>The profitability of the airline industry has deteriorated. Demand for new aircraft is sluggish due to a reduction in the number of aircraft in use and a reconsideration of fleet upgrades.</li> <li>On the other hand, cargo demand remains strong.</li> <li>In response to accelerated efforts to become carbon neutral, there has been an increase in the use of fuel-efficient aircraft, improved engines, and the adoption of alternative aviation fuels.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Decrease in passenger demand due to lifestyle changes</li> <li>Sluggish demand for new aircraft due to deteriorating profitability</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Increase in cargo demand</li> <li>Expanded use of fuel-efficient aircraft and improved engines</li> </ul>	Advanced Materials
<b>Shipbuilding</b>	<ul style="list-style-type: none"> <li>As the global economy grows, the volume of marine cargo movements and the new shipbuilding market will expand over the medium to long term. However, the supply-demand balance deteriorated significantly due to the completion of a large number of new vessels ordered during the boom period and the supply of vessels that exceeded the growth in the volume of marine cargo. It will take some time for demand to recover.</li> <li>The COVID-19 pandemic has halted new shipbuilding negotiations, and the rapid acceleration of global warming countermeasures has lowered shipowners' confidence in placing orders.</li> <li>In response to the significant tightening of environmental regulations, study of the introduction of zero-emission vessels is accelerating.</li> <li>The development of IoT and AI, and the logistics revolution, have led to changes in the concept and value of shipping, including the concept of autonomous ships.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Deterioration in the supply-demand balance</li> <li>Rise of Chinese and Korean shipbuilders</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Accelerated introduction of zero-emission ships and additional needs</li> <li>Introduction of IoT and AI for ships</li> </ul>	Steel & Aluminum Advanced Materials Welding
<b>Life</b>			
<b>Food containers</b>	<ul style="list-style-type: none"> <li>Environmental considerations are driving a shift from plastic bottles to aluminum cans. Steady demand for aluminum cans is expected to continue.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Weather conditions</li> <li>Decline in domestic production due to imported materials</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Return to metal containers due to the growing attention to the problem of microplastic</li> </ul>	Steel & Aluminum
<b>IT &amp; semi-conductors</b>	<ul style="list-style-type: none"> <li>There is a significant increase in demand for semiconductors for gaming machines and computers due to the increase in telework and stay-at-home consumption impacted by the COVID-19 pandemic.</li> <li>There is an increase in demand for semiconductors for data centers and smartphones compatible with 5th generation mobile communication systems (5G).</li> <li>Despite cyclical changes in demand, this sector is anticipated to grow over the medium to long term.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Market fluctuations (supply-demand mismatches)</li> <li>Geopolitical risks</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Advancement of digital transformation</li> <li>Expanded adoption of connected and self-driving cars</li> </ul>	Steel & Aluminum Advanced Materials
<b>Energy &amp; Infrastructure</b>			
<b>Construction &amp; civil engineering</b>	<ul style="list-style-type: none"> <li>In addition to expected delays in construction work due to the prolonged impact of the COVID-19 pandemic, sluggish corporate earnings and cooling personal consumption are expected to slow the recovery in demand.</li> <li>Overseas, as in Japan, it will take time for investment to recover.</li> <li>Global demand is expected to expand in the U.S., Europe, and ASEAN markets due to increased infrastructure investments in 2021 or later. The Chinese market is expected to continue growing against the backdrop of strong infrastructure investment.</li> <li>In Japan, demand is expected to gradually recover after bottoming out in FY2021 and then remain generally flat over the medium term.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Decline in infrastructure investment in many countries due to economic downturn</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Acceleration of efforts toward the development of smart cities</li> <li>IT for construction machinery (automatic operation, remote control, etc.)</li> <li>DX progress at construction sites</li> </ul>	Steel & Aluminum Welding Construction Machinery

Target	Economic Environment	Risks and Opportunities	Related Segments
<b>Energy &amp; Infrastructure</b>			
<b>Water treatment and waste treatment</b>	<ul style="list-style-type: none"> <li>While demand for domestic public investment is expected to continue for the time being due to the government's Plan for Building National Resilience and similar programs, the market is undergoing changes such as population decline, regionalization, and public-private partnerships.</li> <li>Demand for water treatment-related infrastructure will continue to grow, especially in emerging Asian countries, as overseas populations increase and living standards improve.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Slowdown in public investment in Japan</li> <li>Decline in overseas demand due to the impacts of the US-China conflict and COVID-19 pandemic</li> <li>Upgraded technical standards for reducing environmental impact, etc., and increased cost burden and intensified competition in the development and verification of technologies</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Increasing needs driven by economic growth in emerging countries</li> </ul>	Engineering
<b>Oil refining and petro-chemical</b>	<ul style="list-style-type: none"> <li>Global demand is expected to grow as the economy recovers, although it has been declining due to restrictions on the movement of people and declining economic activity caused by the COVID-19 pandemic. However, oil demand is expected to continue to decline over the medium to long term due to factors such as improved fuel efficiency and the shift to other energy sources.</li> <li>With changes in the business environment toward carbon neutrality, it is expected that the current uncertainty will continue due to delays in development and capital investment projects by major oil companies.</li> <li>As the business environment continues to change in the face of stricter environmental regulations, it is necessary to make efforts to reduce greenhouse gas emissions through leveraging new non-fossil energy businesses such as renewable energy and hydrogen for future growth.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Shift in the business environment towards carbon neutrality</li> <li>Declining demand for crude oil and price fluctuations</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Expansion of non-fossil energy businesses</li> </ul>	Machinery
<b>Industrial machinery</b>	<ul style="list-style-type: none"> <li>Demand for industrial machinery has declined as user companies hold back capital investments against the backdrop of US-China trade friction, the prolonged Brexit, and the impact of the COVID-19 pandemic, while investments in some major industries have already peaked. Although capital investment is expected to recover in the future in response to the recovery in demand in major user industries, the pace of recovery remains slow and the situation is still uncertain.</li> <li>In the medium to long term, global demand will increase gradually, mainly in emerging countries. Domestic demand is also expected to recover gradually.</li> <li>With the acceleration of carbon-neutral initiatives, there is growing demand for CO<sub>2</sub> reduction and energy conservation.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Decline in investment sentiment due to corporate economic downturn</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Growing demand for energy conservation to achieve carbon neutrality</li> <li>Advancement of labor savings and work style reform accompanying the progress of DX</li> </ul>	Welding Machinery
<b>Renewable energy</b>	<ul style="list-style-type: none"> <li>Demand temporarily declined as the appetite for capital investment has receded due to the impact of the COVID-19 pandemic.</li> <li>However, adoption of renewable energy will expand with the acceleration of carbon-neutral initiatives, resulting in significant growth over the medium to long term.</li> <li>This expansion may be further accelerated by future national policies.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Delays in the development of national policies and legislation</li> <li>Cost competition due to intensifying competition and increased cost burden for development and verification of technologies</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Acceleration of carbon neutrality leading to legislation and increased investment in many countries</li> <li>Expanded use of renewable energy driven by lower cost of facilities</li> </ul>	Welding Machinery Engineering
<b>Urban transit</b>	<ul style="list-style-type: none"> <li>In emerging countries where the population concentrates in metropolitan areas, there is a strong need for transportation systems to alleviate traffic congestion and prevent air pollution.</li> <li>Japanese ODA loan projects will continue, mainly in Southeast Asia.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Decline in users in Japan due to the declining birthrate and the aging of society</li> <li>Delays in Japanese ODA loan projects and other projects due to the COVID-19 pandemic and a slowdown in the appetite for invest</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Demand for maintenance of existing projects and emergence of new and extension projects in Japan</li> <li>Continuation of Japan's infrastructure export policy</li> </ul>	Engineering
<b>Direct reduced iron</b>	<ul style="list-style-type: none"> <li>Interest has been increasing in the direct reduction ironmaking process, which emits less CO<sub>2</sub> than the blast furnace route.</li> <li>With growing global demand for zero-emission steel production, steel manufacturers are leaning toward adopting this technology.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Deterioration in supply-demand balance due to oversupply, especially by Chinese steelmakers</li> <li>Decline in investment sentiment of steelmakers due to economic downturn</li> <li>Intensifying competition and lower barriers to entry due to the rapid expansion of the direct reduced iron market</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Growing interest in low-CO<sub>2</sub> steel products associated with acceleration of carbon neutrality</li> <li>Tighter regulations on CO<sub>2</sub> emissions in many countries</li> <li>Increased need for lower CO<sub>2</sub> through expanded use of carbon pricing</li> </ul>	Steel & Aluminum Engineering
<b>Electric power</b>	<ul style="list-style-type: none"> <li>Intensified competition in electric power sales and the revitalization of wholesale electric power trading market have been taking place as a result of Japan's electricity system reforms, including the full liberalization of the retail market.</li> <li>There is a downtrend in prices in the wholesale electricity market, owing to a large influx of solar power and other forms of renewable energy.</li> <li>Japan seeks to reduce greenhouse gas emissions by 2030 while ensuring a stable energy supply, economic efficiency, and environmental compliance with priority on safety.</li> </ul>	<p><b>Risks</b></p> <ul style="list-style-type: none"> <li>Anti-coal trend and investor divestment movement</li> <li>Fading out of inefficient coal-fired power plants</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>With the progress of electrification and hydrogenation in the non-electric power sector, the amount of electricity required is expected to increase in the future</li> <li>Increasing need for decarbonized thermal power sources as a way to stabilize and adjust the electricity system</li> <li>Creation of new electricity markets triggered by the electricity liberalization</li> </ul>	Engineering Electric Power



# Materials Businesses



The Medium-Term Management Plan has laid out our 2030 targets and 2050 vision for carbon neutrality. In the materials businesses, reducing CO<sub>2</sub> emissions in the steelmaking process is a major issue, along with the efforts to establish a stable earnings base such as securing orders for lightweight materials for automobiles and strengthening our *monozukuri* capabilities. The Group will work to achieve its 2030 targets by introducing its proprietary HBI (hot briquetted iron) charging technology for blast furnaces, announced in February 2021. With respect to the vision of achieving carbon neutrality by 2050, there are many issues to be overcome in terms of technical hurdles, costs, and other factors, but we will strengthen our efforts to achieve this goal.

Meanwhile, the Group has many technologies and products that contribute to carbon neutrality. These technologies and products have been adopted by customers for a variety of environmentally friendly products, including electric vehicles. We will also work to strengthen these product capabilities as we work to reduce CO<sub>2</sub> in a wide range of ways.

Executive Vice President  
**Makoto Mizuguchi**

## Strategy

In the materials businesses, we place priority on the realization of a green society, in particular achieving carbon neutrality. With respect to CO<sub>2</sub> reduction from blast furnaces, we have already demonstrated the ability to reduce CO<sub>2</sub> emissions by about 20% by charging HBI into the blast furnace, and we will continue to improve the technology for commercialization and widespread use.

In addition, we are participating in three development projects (COURSE50, Ferro-coke, and Super COURSE50) that are being promoted by the New Energy and Industrial Technology Development Organization (NEDO), and we are taking a double-track approach by studying how to make high-grade iron in electric arc furnaces.

To contribute to CO<sub>2</sub> emission reduction, automakers are not only reducing weight but also accelerating the commercialization of electric vehicles. The Group will also take advantage of its strength of operating materials, parts, and welding businesses to contribute to automakers' carbon neutrality efforts through various technologies and products.

Looking at the current situation in the materials businesses, demand is recovering faster than expected in the automotive sector, which is our main customer base, and there is strong demand for IT, semiconductors, and beverage can materials. These factors have been contributing to high production rates at our manufacturing sites in Japan and overseas. On the other hand, from the perspective of medium- to long-term business strategy, it is important to firmly establish a stable earnings base during the period of the Medium-Term Management Plan in order to capture various business opportunities that may arise.

To this end, the materials businesses will focus on the following three key issues.

### ◆ Strengthening the Earnings Base in the Steel Business

Kobe Steel increased its cost competitiveness in the steel

business by consolidating upstream operations at steelworks in fiscal 2017. However, the reduction of fixed costs at the steelworks has been slower than we expected at the time of the previous Medium-Term Management Plan. Under the assumption that demand will decrease over the medium to long term, we will eliminate upward elasticity and establish a structure to secure stable earnings with crude steel production of 6.3 million tons per year and maintain profitability even with 6 million tons.

Going forward, we will either improve the marginal profit ratio or lower the break-even point by reducing fixed costs, pursuing cost reductions in variable costs, and improving the product mix (shifting to high value-added products such as specialty and high-strength steel) with the aim of increasing earnings.

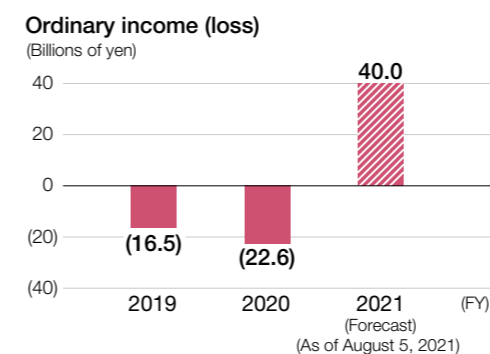
### ◆ Strategic Investment Leading to Earnings Contribution

Although we made strategic investments to promote our strategy of reducing the weight of automobiles, these investments have not yet made their anticipated contribution to earnings due to factors such as delays in the expected demand growth for automotive lightweight materials and issues of *monozukuri* capability. However, the need for automotive weight reduction is expected to increase in the future, and during fiscal 2021 we will work to resolve the *monozukuri* issues so that we can receive approval of materials and begin mass production as soon as possible.

### ◆ Restructuring Unprofitable Businesses

The steel casting and forging business and the titanium business recorded significant impairment losses in fiscal 2019. We will work on streamlining these businesses to return them to profitability in fiscal 2021–2022. For details of actions to be undertaken by each business, please see page 54.

## Steel & Aluminum



Note: Starting in fiscal 2020, Kobe Steel has changed its reportable segments in accordance with the reorganized corporate structure and business management units. The results include only the figures from fiscal 2019 onwards.

### Fiscal 2020 Summary

#### Steel

- Overall demand declined mainly in the automotive sector due to the impact of the COVID-19 pandemic.
- Sales prices fell mainly due to lower raw material prices and lower export prices.
- In addition to variable cost improvement, emergency profit improvement measures such as fixed cost reductions were implemented. However, due to the large impact of the decrease in sales volume, an ordinary loss of 23.3 billion yen was recorded.

#### Aluminum flat-rolled products

- Demand for beverage can materials and IT semiconductors has increased, despite a decrease in demand for automotive products.
- An ordinary income of 600 million yen was recorded, due in part to sales expansion and cost reductions.

## Promoting Sustainability Management



- We contribute to solving social issues in various fields by providing customers with unique technologies and products.
- We are working to improve efficiency of blast furnaces in order to establish a low-CO<sub>2</sub> ironmaking process and achieve a sustainable steel supply.
- We are helping preserve marine environments by slowing the increase in plastic waste, especially plastic bottles through

- the production of highly recyclable aluminum can stock.
- The Group will leverage synergies in its materials businesses to promote its own automotive weight reduction proposal activities, such as the global supply of automotive weight reduction technologies and lightweight materials, thereby contributing to further CO<sub>2</sub> reduction in the automotive sector.

## Business Strengths

### Steel

- Improved cost competitiveness through consolidation of upstream processes
- Distinctive products (special steel wire rods, high-strength steel)

### Aluminum flat-rolled products

- Beverage can stock: Strong relationships with customers
- Automotive: State-of-the-art heat treatment line : Proposal of solutions (analysis, design)
- Disks: Approx. 60% of global market share

## Important Issues and Initiatives

### Steel

- By reducing fixed costs and variable costs, establish a structure to secure stable earnings with crude steel production of 6.3 million tons per year and maintain profitability even with 6 million tons
- Improve the product mix by leveraging products with unique characteristics (special steel wire rods and high-strength steel)
- Obtain a selling price commensurate with the value of the product
- Promote initiatives to become the world's leading steel company in the field of CO<sub>2</sub> reduction

### Aluminum flat-rolled products

- Expand sales of products for beverage cans and IT/semiconductors
- Ensure that strategic investment project (aluminum materials for automotive body panels) contributes to earnings
  - Ensure Chinese subsidiaries reliably capture growing demand in China
  - Establish a mass production system with a new panel line at Moka Works
- Reduce costs by strengthening *monozukuri* capabilities
- Strengthen environmental friendliness
  - Support reducing the weight of automobiles
  - Improve recycling rate, utilization of green aluminum, etc.

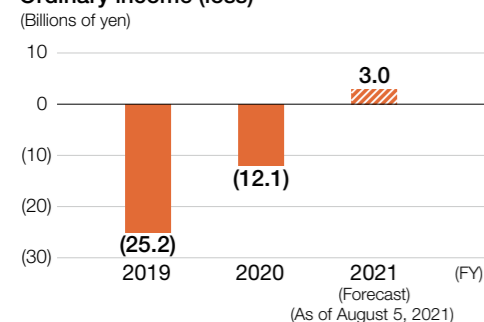
## TOPICS

- KOBELCO Group's CO<sub>2</sub> Reduction Solution for Blast Furnace Ironmaking (see p. 70)

# Materials Businesses

## Advanced Materials

### Ordinary income (loss)



Note: Starting in fiscal 2020, Kobe Steel has changed its reportable segments in accordance with the reorganized corporate structure and business management units. The results include only the figures from fiscal 2019 onwards.

### Fiscal 2020 Summary

- There was a decline in demand for automobiles, aircraft, and shipbuilding.
- An ordinary loss of 12.1 billion yen was recorded partly due to sales expansion, fixed cost reduction, and reduced depreciation by recording an impairment loss in fiscal 2019.

### Promoting Sustainability Management



- Pursue activities to propose products that meet the growing need for weight reduction in transportation equipment (automobiles, aircraft, ships, rolling stock, etc.) and vehicle electrification, which not only improves the driving performance but also contributes to reducing CO<sub>2</sub> emissions during operation
- Contribute to the reduction of environmental burden by improving the recycling and resource circulation rates

- Through agile organizational management of the parts business, accelerate synergies by strengthening information sharing and collaboration focused on customers and technologies such as casting, forging, and machining, translate our high market share in each market into revenue, and continue to be indispensable for our customers and society through offering reliable and valuable products

### Business Strengths

- Automobiles**
  - Own materials/parts products, and production bases in line with the trends of weight reduction and CASE
- Shipbuilding**
  - Japan's only full lineup manufacturer
- Aircraft**
  - Strong relationships with customers and extensive delivery track record
- IT**
  - Strong relationships with customers and extensive delivery track record

### Social Changes to Impact on Business

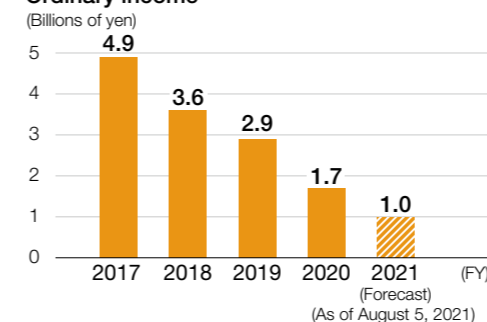
- Response to climate change
- Progress of digital transformation
- Changes in industrial structure triggered by COVID-19

### Important Issues and Initiatives

- Castings and forgings**
  - Amid declining demand in Japan, the following measures will be taken to return to profitability in FY2022:
    - Withdrawal from unprofitable businesses
    - Large-scale personnel reduction
- Titanium**
  - Review aircraft strategy in response to changes in industrial structure caused by COVID-19
  - Promote mass production of NC titanium for automotive fuel cells and return to profitability in FY2021
- Aluminum castings and forgings**
  - Expand sales in the IT and rolling stock fields and rebuild the sand-casting business
- Suspensions**
  - Respond to demand by maximizing production at the three bases of Japan, the U.S. and China (strengthen *monozukuri* capabilities)
- Aluminum extrusions**
  - Expand sales through product differentiation (automotive parts) and secure stable base cargo by promoting expansion of sales (rolling stock, spot sales)
- Copper rolled products**
  - Reliably capture growing demand for automotive terminals and semiconductors and maximize production; secure stable earnings in the lead frame business
- Steel powder**
  - Respond to vehicle electrification
- Copper tube**
  - Promote differentiation from Chinese competitors' products by expanding high-value-added product menu

## Welding

### Ordinary income



### Fiscal 2020 Summary

- There was a decline in demand for automobiles, construction machinery, and shipbuilding.
- An ordinary income of 1.7 billion yen, down 1.1 billion yen, was recorded despite fixed cost reductions.

### Promoting Sustainability Management



- We will contribute to society through our welding solution business that meets the needs of our customers by providing distinctive products and services globally, including welding materials with lower environmental impact (solid wire with no copper coating); our REGARC™ welding process, which significantly reduces the amount of spatter generated; and our automation solutions (robotic welding systems for hull assembly in shipbuilding).
- In collaboration with a customer, we developed a welding process that reduces slag generation and enhances the anti-corrosion performance of chassis components, an issue that arises when reducing the weight of automobiles,

- thereby contributing to the weight reduction of transportation equipment.
- Using AI to increase the functionality of welding robots, we will achieve the same quality welding as skilled welders and contribute to customers' *monozukuri* in terms of both efficiency and quality.
- We released the KOBELCO WELDING smartphone app, which gives customers access to technical information on welding and solutions for particular welding problems, thereby bringing our problem-solving assistance closer to the customer.

### Business Strengths

- The only company in Japan offering a total menu of welding materials, robot systems, power sources, and processes
- Ability to propose solutions based on our on-site insights and quick responses
- Largest sales organization for welding materials in the Japanese welding industry

### Social Changes to Impact on Business

- Response to climate change
- Labor shortage due to the declining birthrate and aging population
- Business transformation

### Important Issues and Initiatives

- Strengthen earnings base through structural reforms
  - Review production structure and right-size workforce
  - Promote DX and smart factories
- Increase earnings through practical application of welding solutions
  - Propose technical solutions by combining materials, systems, and processes
- Strengthen the earnings base of overseas businesses
  - Improve profits by improving management efficiency
  - Expand welding solutions overseas

### TOPICS

- Initiatives in welding solutions (see p. 38)
  - Liquefied CO<sub>2</sub> storage tank
  - Offshore wind power tower



# Machinery Businesses



We operate our machinery businesses for global customers in a diverse range of fields, including automobiles, aircraft, shipbuilding, construction and civil engineering, social and industrial infrastructure, and the environment and energy. Furthermore, our machinery businesses cover a broad range of technologies, products, and services that help reduce CO<sub>2</sub> emissions and ease the burden on the environment. On a worldwide basis, these businesses have the potential to provide solutions to the social issues faced by our customers and contribute to the environment and society.

The Group's machinery businesses are playing an increasingly active role in the realization of a sustainable society. We believe that creating and strengthening value through combining technologies, products and services in the machinery businesses worldwide will be a driver of the medium- to long-term growth of our machinery businesses.

In the machinery businesses, we are also working on reducing CO<sub>2</sub> emissions in collaboration with the steel and electric power businesses. By demonstrating our comprehensive capabilities, we will contribute to the KOBELCO Group's achievement of carbon neutrality.

Executive Vice President  
**Kazuto Morisaki**

## Strategy — Stabilizing Earnings and Responding to Growing Markets

### ◆ Machinery Business / Engineering Business

We place importance on advancing energy conversion and responding to growing market. While the fossil fuel sector is gradually shrinking due to stricter environmental regulations, the market is expected to expand in the environment-related fields.

We will enhance our environmental contribution menus, including CO<sub>2</sub> reduction, and actively engage in growth markets while advancing cooperation within the Group.

The machinery businesses, which are highly dependent on the fossil fuel sector, will begin to shift to the hydrogen and ammonia sectors.

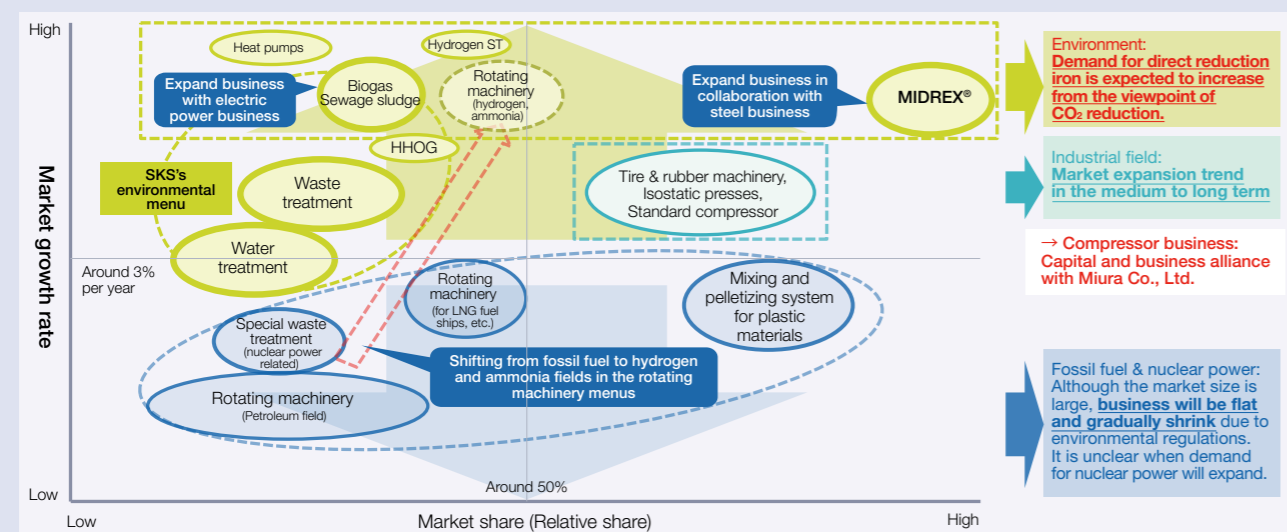
The Engineering Business offers a number of environmentally friendly options, including the MIDREX® Process, water treatment, and waste treatment. We aim to demonstrate the Group's collective strengths and create value unique to the Group by mutually utilizing management resources of the Machinery business and the Engineering business

and by collaborating with the steel business and electric power business.

### ◆ Construction Machinery Business

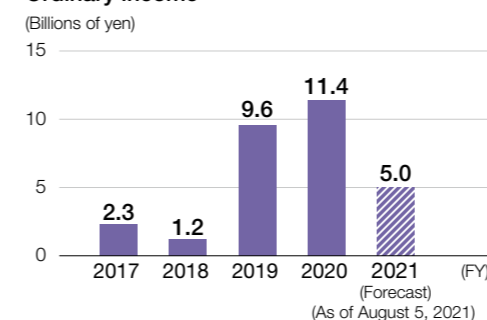
In the previous Medium-Term Management Plan for fiscal 2016 to 2020, we completed the restructuring of our business in China and established a structure that can generate stable profits in the major market China. However, competition is intensifying due to the rise of Chinese manufacturers with product strength and service capabilities.

Going forward, in order to quickly break away from the existing profit structure, which is highly dependent on the Chinese market, we will work to generate revenue in other areas. At the same time, we will aim to transform our profit structure by generating revenue from new value creation businesses that provide solutions for innovations such as workstyle reforms in the construction industry and by commercializing businesses related to construction machinery.



## Machinery

### Ordinary income



### Fiscal 2020 Summary

- **Orders:** Decreased both in the industrial machinery and compressor sectors against the backdrop of reductions and deferral of capital investments due to the impact of COVID-19.
- **Net sales:** Increased due mainly to sales of compressors for LNG-fueled ships as well as plastic processing machinery and compressors for the petrochemical sector, for which orders were strong in the previous fiscal year.
- **Ordinary income:** Increased due to cost reduction efforts such as fixed cost reduction.

### Promoting Sustainability Management



- Contributing to providing clean transportation: Promoting the production and sales of compressors for LNG-fueled ships, hydrogen stations, and other means of transportation with low environmental impact
- Contributing to energy conservation and reduction of CO<sub>2</sub> emissions in a wide range of fields: Providing highly efficient heat pumps for use in a wide range of fields, from commercial air conditioning to industrial cooling and heating
- Reducing energy consumption of compressors used worldwide: Promoting the production and sale of high-efficiency, energy-saving compressors



- Achieving high levels of economic productivity: Promoting cutting-edge technological innovation, such as IP processing for products manufactured by 3D printers
- Contributing to waste reduction: Promoting the production and sale of equipment that contributes to higher efficiency and longer service life of components, such as surface treatment and IP processing
- Contributing to the reduction of automotive emissions: Promoting the spread of fuel-efficient tires by pushing ahead with high-quality rubber mixers that enable the manufacture of fuel-efficient tires

### Business Strengths

- All types of compressors (screw, turbo, and reciprocating) are available to provide the best compressor for each application
- Creating new value through collaboration with other businesses

### Social Changes to Impact on Business

- Changes in the energy mix as a result of stricter environmental regulations (shifting from fossil fuels to hydrogen and ammonia)
- Business transformation
- Waste reduction

### TOPICS

#### Conclusion of basic agreement on capital and business alliance with Miura Co., Ltd.

Through the capital and business alliance with Miura Co., Ltd., we will become the world's first utility platformer with air compressors, heat pumps, and boilers, able to offer a one-stop service that provides customers with a comprehensive solution to saving energy and reducing CO<sub>2</sub> emissions.

For more information, please see our website.  
[https://www.kobelco.co.jp/english/releases/1207993\\_15581.html](https://www.kobelco.co.jp/english/releases/1207993_15581.html)



Standard compressors (Kobe Steel, Ltd.)

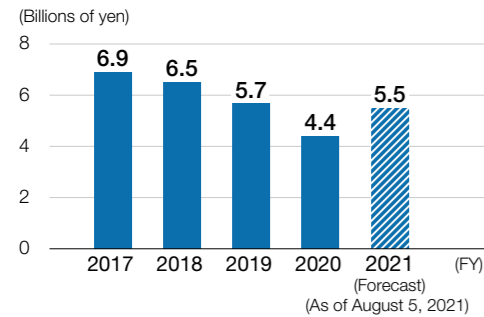


Boilers (Miura Co., Ltd.)

# Machinery Businesses

## Engineering

### Ordinary income



### Fiscal 2020 Summary

- **Orders:** Decreased from the previous fiscal year that saw orders for large-scale projects in the water treatment and waste treatment related businesses.
- **Net sales and ordinary income:** Decreased from the previous fiscal year due to the postponement of overseas construction projects caused by the impact of the COVID-19 pandemic.

### Promoting Sustainability Management



- Contributing to CO<sub>2</sub> reduction  
In addition to the MIDREX<sup>®</sup> Process, which contributes to CO<sub>2</sub> reduction, we provide renewable energy sources through hydrogen oxygen generators and woody biomass generators, etc.
- Contributing to securing safe water sources and the creation of sustainable communities  
· We provide technologies, products, and services that contribute to infrastructure development and a recycling-

oriented society based on the water treatment and waste treatment businesses.  
· We contribute to the development of transportation infrastructure through self-driving technologies and system integration capabilities that we developed through supplying new transit systems.



### Business Strengths

- Extensive lineup of environmentally friendly options including CO<sub>2</sub> reduction and renewable energy
- Process owner of the MIDREX<sup>®</sup> Process with a high market share of direct reduction iron plants
- Creating new value through collaborations with other businesses, such as CO<sub>2</sub> reduction solution for blast furnace ironmaking and co-firing of biomass fuel (sewage sludge and food residue) at the Kobe Power Station

### Social Changes to Impact on Business

- Efforts to achieve carbon neutrality
- Support for a recycling-oriented society

### TOPICS

#### Contract Signed to Supply New MIDREX<sup>®</sup> HBI Plant in Russia

Midrex Technologies, Inc., a Kobe Steel's wholly owned subsidiary in the United States, and its consortium partner Primetals Technologies, Limited, signed a contract with Mikhailovsky HBI LLC to supply a hot briquetted iron (HBI) plant using the MIDREX<sup>®</sup> Process in Russia. The plant, designed with the latest technology, will have the world's largest annual production capacity of 2.08 million tons of HBI, while reducing energy consumption and environmental impact. The plant is also designed to be able to shift to the full use of hydrogen as reductant in the future. Through the supply of the plant, we will further contribute to the reduction of CO<sub>2</sub> emissions.



HBI (bar in the center)

#### Order Received from Private Water Company for Construction of Largest Treatment Plant in Hanoi, Vietnam

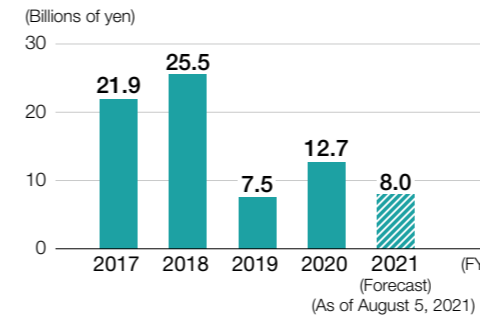
Kobelco Eco-Solutions Co., Ltd. and Kobelco Eco-Solutions Vietnam Co., Ltd. received a joint order from the Hong River Surface Water Joint Stock Company for the construction of a water treatment plant in Hanoi, Vietnam. The water treatment plant to be constructed will be one of the largest in Hanoi, with a treatment capacity of 300,000m<sup>3</sup>/day, and will use our technology of open siphon filtration (OSF). We will continue to develop our water infrastructure business in the Southeast Asian region, including Vietnam, and contribute to the supply of reliable, high-quality tap water.



Contract signing ceremony

## Construction Machinery

### Ordinary income



### Fiscal 2020 Summary

- **Unit sales:** Sales of hydraulic excavators increased in Japan. Overseas sales increased in China, but sales in Europe and Southeast Asia decreased due to the impact of the COVID-19 pandemic. Sales of crawler cranes decreased from fiscal 2019 both in Japan and overseas due to the impact of the COVID-19 pandemic.
- **Ordinary income:** Increased due to cost reduction through emergency measures.

### Promoting Sustainability Management



- Contributing to solving the shortage of construction workers, improving site productivity, and ensuring essential safety through unmanned operations:  
K-DIVE CONCEPT, a remote operation technology for construction equipment, enables "telework at construction sites"



- Contributing to the creation of a global recycling-oriented society:  
Providing a wide range of recycling machinery such as automobile dismantling machines
- Contributing to the reduction of climate change risks:  
Development and commercialization of construction machinery employing low-carbon technologies such as electrification and fuel cells

### Business Strengths

- Noise reduction and energy-saving technologies for hydraulic excavators and cranes
- K-DIVE CONCEPT technology for remote operation of hydraulic excavators

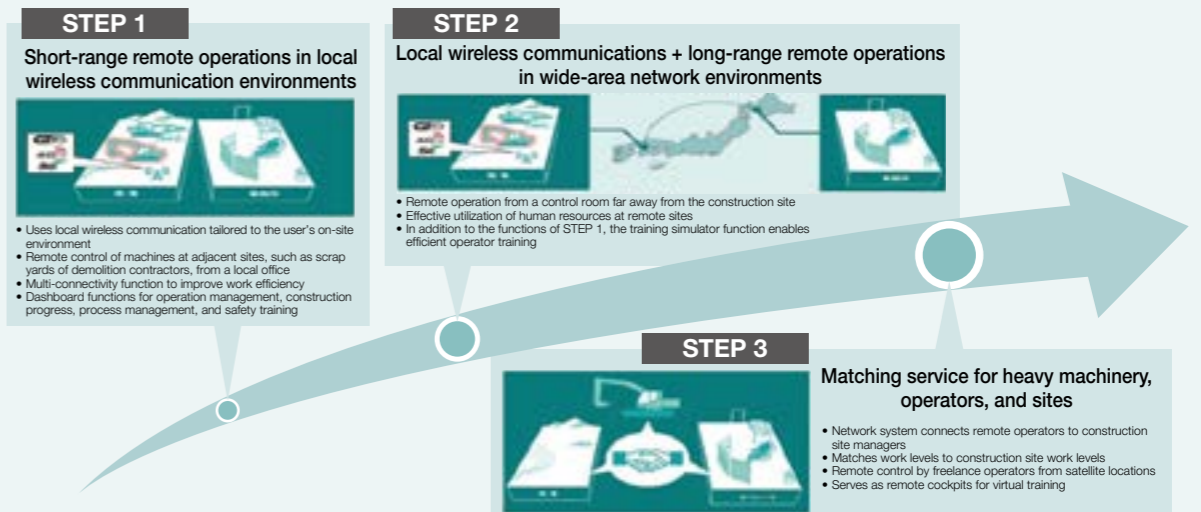
### Social Changes to Impact on Business

- Digitalization
- Widespread teleworking
- Declining and aging population in the construction industry

### TOPICS

#### K-DIVE CONCEPT —Remote Operation Technology for Hydraulic Excavators

Kobelco Construction Machinery Co., Ltd. has been advancing R&D for its K-DIVE CONCEPT under the slogan of realizing a teleworking system centered on people who work at construction sites. If successful, this system will enable on-site work without being restricted to specific people, locations, or times, helping to eliminate shortages of skilled construction workers, and improving productivity through on-site automation.





# Electric Power Business



We are taking all necessary measures to ensure stable operation of our electric power business in order to provide a stable supply of electricity through the operations of the No. 1 and No. 2 units at the Kobe Power Plant and the No. 1 and No. 2 units at the Moka Power Plant, which are currently in operation and serving as social infrastructure. The No. 3 and No. 4 units at the Kobe Power Plant, which are under construction, are also progressing as planned. Commercial operation of the No. 3 unit is scheduled to begin in the second half of fiscal 2021 and the No. 4 unit in the second half of fiscal 2022.

Currently, the global energy environment is undergoing major changes, with a transition to renewable energy that is becoming a major power source. Meanwhile, as occurred in Japan and Texas in the winter of 2021, it was recognized that thermal power sources would play an important role in the supply and coordination of electric power when weather conditions worsen and power supply becomes tight. Large-scale, highly efficient thermal power plants like ours therefore assume a significant responsibility in society.

Taking on the challenge of realizing carbon neutrality by 2050, the Electric Power Business will continue to promote reductions of carbon emissions and decarbonization in accordance with national laws and policies while supplying its customers with safe, economical, and stable electricity. In addition, we will communicate the social significance of our power business to our stakeholders while engaging sincerely in the mission that we are called upon to fulfill.

Executive Officer  
**Jiro Kitagawa**

## Social Significance of the Electric Power Business

### ◆ National Energy Policy

On October 26, 2020, Japan's Prime Minister announced a national policy that aims to become carbon neutral by 2050. In addition, at the 2021 Leaders' Climate Summit held in April of this year, Japan set a target of a 46% reduction in greenhouse gas emissions from 2013 levels by 2030.

In order to achieve these decarbonization goals, Japan's energy plan calls for an optimal mix of energy sources that prioritizes safety while ensuring a stable supply of energy, economic efficiency, and environmental compliance.

Under this plan, thermal power generation contributes to the stable supply of electric power, through functions such as the ability to adjust the balance of supply and demand by absorbing variations in the output of solar and wind power affected by weather and other factors, as well as its inertial force that reduces the possibility of blackouts. As the adoption of renewable energy continues to expand, thermal power generation will remain necessary to compensate for the variability of renewable energy in the supply and coordination of electric power.

Going forward, the Japanese government will continue to promote next-generation, high-efficiency thermal power generation, retire inefficient thermal power sources, and promote the use of fuels such as ammonia and hydrogen, with the goal of replacing current methods with decarbonized thermal power generation.

Based on the roadmap set out in the Medium-Term Management Plan, the Group will continue to stably supply highly economical electric power over the long term, while strengthening its efforts to achieve even higher efficiency and lower carbon with the aim of becoming carbon neutral by 2050. Through the stable supply of electricity, we will contribute to local communities and the global environment in order to realize safe, secure, and prosperous lifestyles for everyone.

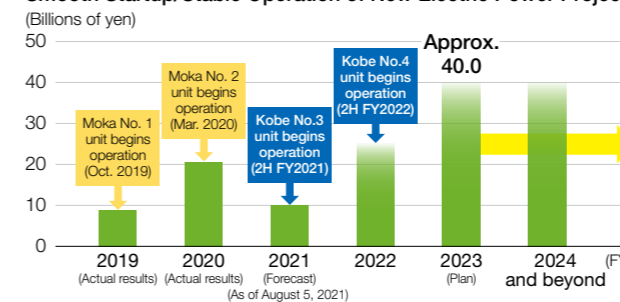
### ◆ Kobe Steel's Initiatives

In the Medium-Term Management Plan announced in May this year, we announced the medium- to long-term policies for our electric power business. We are committed to implementing measures toward our 2050 vision of taking on the challenge of realizing carbon neutrality.

Roadmap to 2030		
Kobe	Coal fired	<ul style="list-style-type: none"> <li>Increase the energy efficiency of cities/regions by supplying heat and hydrogen from steam utilization</li> <li>Co-firing of biomass fuel</li> <li>Study ammonia co-firing</li> </ul>
Moka	Gas fired	<ul style="list-style-type: none"> <li>Continue low-CO<sub>2</sub> power generation through high-efficiency GTCC</li> </ul>

Roadmap to 2050		
Kobe	Coal fired	<ul style="list-style-type: none"> <li>Increase the rate of ammonia in co-firing fuel, and take on the challenge of single-fuel firing</li> </ul> <p><b>[Social innovation]</b> <b>Establishment and commercialization of low-cost, zero-emission ammonia technology</b></p>
Moka	Gas fired	<ul style="list-style-type: none"> <li>Maximize utilization of carbon-neutral city gas</li> </ul> <p><b>[Social innovation]</b> <b>Widespread use and commercialization of carbon-neutral city gas</b></p>

## Smooth Startup/Stable Operation of New Electric Power Projects



Figures are actual results and forecasts of ordinary income in the Electric Power segment

## Fiscal 2020 Summary

In FY2020, the Electric Power Business recorded an ordinary income of 20.6 billion yen as the Moka Power Plant became fully operational and winter brought an increase in demand for electricity supply.

## Promoting Sustainability Management

The Electric Power Business will lead the way in sustainability management based on the Group Corporate Philosophy. In order to continue to provide solutions to the needs of society, by making the best use of the talents of our employees and our

technologies, as stated in KOBELCO's Mission, we will accelerate the practical application of CO<sub>2</sub> reduction technologies in the Electric Power Business through intra-Group collaborations with our Engineering and other businesses.

### Business Strengths

Kobe	Coal fired	<ul style="list-style-type: none"> <li>Helping improve electric power self-sufficiency of Kobe City and Hanshin region</li> <li>Compliance with toughest environmental standards in Japan</li> <li>Improvement of overall energy efficiency by harnessing power generation equipment for heat supply</li> <li>Effective use of sewage sludge from urban areas as biomass fuel</li> <li>Very low transmission losses from power plants due to their location in areas of high electricity demand</li> <li>Operating technologies accumulated from in-house power generation in the steel industry</li> <li>Utilization of infrastructure of port facilities</li> </ul>
Moka	Gas fired	<ul style="list-style-type: none"> <li>The Japan's first inland thermal power plant with low risk of damage from natural disasters such as earthquakes and tsunamis, serving as backup to Tokyo metropolitan area</li> <li>Adoption of the world's highest level of GTCC</li> <li>Utilization of existing infrastructure such as gas trunk lines and industrial complexes that have already been developed, as well as technologies and know-how accumulated from in-house power generation</li> </ul>

### Social Changes to Impact on Business

#### [Risks]

- Anti-coal trend and investor divestment movement
- Japanese government has announced a plan to fade out inefficient coal-fired power generation in order to align the power supply composition in FY2030 with its greenhouse gas reduction plan.

#### [Opportunities]

- As the transportation, industry, and consumer sectors continue to transition toward electrical and hydrogen power, demand for electricity is expected to increase in the future.
- Renewable energy, which will be the main power source in the future, is susceptible to fluctuations in output affected by weather and other factors. Therefore, decarbonized thermal power generation will remain indispensable for stabilizing the electricity system.
- New electricity markets are being created through the electricity liberalization.
- The development of carbon-free fuels such as ammonia for thermal power generation is becoming more active.

## TOPICS

### ◆ Artist's Impression of Planned No. 3 and No. 4 Units at the Kobe Power Plant



### ◆ Mirain Tour Facility at the Moka Power Plant



"Smart wall" interface allows visitors to learn about the Moka Power Plant and energy production



# Technical Development and DX Strategy



The KOBELCO Group aims to become a provider of technologies, products, and services that help solve social issues, including carbon neutrality, together with our customers.

In terms of technical development, we are committed to three goals: 1) Contributing to the establishment of a carbon-neutral society through the integration of existing technologies and innovative research and development; 2) Digital transformation (DX) to support stable, high-quality manufacturing; and 3) Implementing new business concepts to revamp the KOBELCO Group's business portfolio.

Meanwhile, with respect to driving DX, we will accelerate the shift to a new system that provides higher value in indirect operations and sales operations by restructuring our core systems and actively introducing AI and other technologies. We will also pursue Group synergies by promoting the digital shift in the management of the Group's proprietary technologies and customer needs.

Executive Vice President,  
Representative Director  
**Koichiro Shibata**

## Review of Technical Development under Previous Medium-Term Management Plan

We have made progress in restoring trust, launching large-scale strategic investments, and developing technologies for the stable production of high-strength steel, aluminum flat-rolled products, and titanium foil. In addition, our researchers are working closely with our manufacturing sites to strengthen their *monozukuri* capabilities, and this work will continue during the period of the new Medium-Term Management Plan. We have also developed strategic models for standard compressors, rotating machinery, and other equipment.

Furthermore, with respect to CO<sub>2</sub> reduction, we are promoting the use of direct reduction iron in blast furnaces and studying concrete measures to improve the efficiency of power generation.

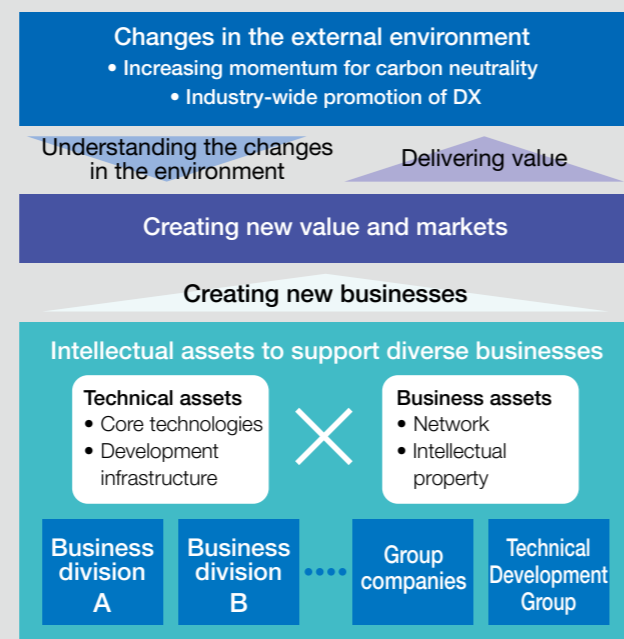
## Transformation for New Business Creation

In order to accelerate activities for the creation of new businesses, Kobe Steel established the Business Development Department under the Head Office, against the backdrop of rapid and significant social changes, such as carbon neutrality and digital transformation (DX). We see these changes as a business opportunity to plan and develop new businesses.

The mission of the Business Development Department is "Contributing to a green society" and "Ensuring safety and security in community development and manufacturing." We will create new value and markets by linking marketing and innovation, while making changes to existing markets with solutions that only the KOBELCO Group can provide. To do this, we need to combine the various intellectual assets of the Group (technical assets × business assets) and also work on DX and human resource development.

## Direction of Technical Development

The KOBELCO Group is taking on the following three challenges: 1) Achieving carbon neutrality through the integration of existing technologies and innovative development; 2) Establishing stable, high-quality manufacturing process through DX; and 3) Revamping KOBELCO Group's business portfolio through the revitalization of innovation activities. In order to achieve carbon neutrality, we are pursuing hydrogen reduction and blast furnace operation technology utilizing AI in the ironmaking process and investigating the use of biomass and ammonia in the electric power business. Furthermore, in the transportation sector, we are working to improve the characteristics of materials and machinery to support the transition to electric power and fuel cells, in addition to the automotive weight reduction that we have been working on.

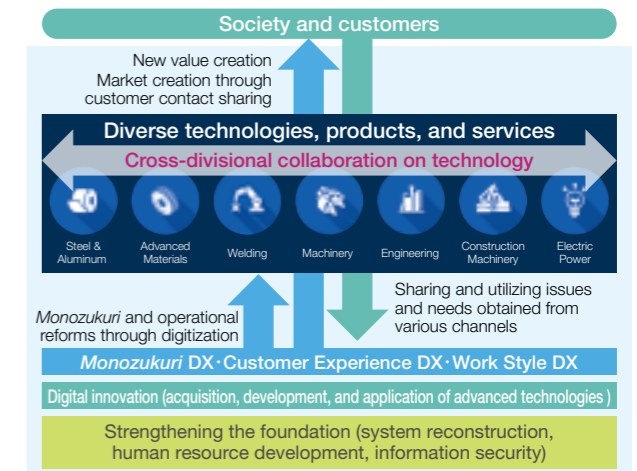


As the business environment changes dramatically due to digital technology and data utilization, we are promoting our digital transformation (DX) in order to solve social issues, create new value for our customers, and implement solutions to our management issues in accordance with the strategy outlined below.

## Basic policy on DX strategy

The basic policy on our DX strategy is transforming our Group's value chain with digital technology from the customer's perspective, with the aim of creating new value and providing solutions for customers and society by leveraging synergies that the KOBELCO Group can provide as a corporate group that operates a wide range of businesses. Based on this policy, we will implement a DX strategy that leverages the Group's unique strengths as follows.

- We will create new value by integrating the diverse and distinctive technologies that are the strength of the KOBELCO Group, which operates a wide range of businesses.
- We will consider the issues and needs identified through the contact with our diverse customers and stakeholders as important assets, and by promptly sharing and utilizing them, we will correctly understand what they require from us so that we can provide new products and services that meet their requirements.
- We will strengthen and accelerate the acquisition and development of advanced technologies and its application to business through special-purpose digital organizational units to respond to the increasingly sophisticated demands of society.
- We will respond to rapid social changes and changing business needs by moving away from customization-oriented approach and instead implementing optimal solutions based on the concepts of standardization and "fit to standard."



## Companywide DX Initiatives

The DX Strategy Committee has designated *monozukuri*, customer service, and work style as three priority themes in the value creation area for DX promotion. While keeping pace with the rapid changes in business needs, we will continue to address four priority themes in the business foundation area and promote DX across the entire Company.

Executive Council	DX Strategy Committee	DX Strategy Project Group	Subcommittees		Metrics	Business divisions
			Value Creation	Business Foundation		
			A. <i>Monozukuri</i> DX	Improve <i>monozukuri</i> capabilities by promoting data utilization through cutting-edge digital technology	Number of digitalization projects	
			B. Customer Experience DX	Strengthen customer contact points and services from the customer's perspective to enhance the value of the customer experience		
			C. Work Style DX	Achieve drastic productivity improvement by utilizing digital technology to create an environment that facilitates work without being bound by conventional practices		
			D. System Reconstruction	Completely reconstruct complicated existing systems, which are hindering the adoption of advanced technologies, to create an environment that can respond flexibly to changes.	Rate of progress in reconstructing existing systems	
			E. Human Resource Development	Establish programs to quickly and continuously develop DX experts that are in short supply	Number of DX experts trained	
			F. Infrastructure and Security*	Build infrastructure and ensure a security level to support DX initiatives in the value creation area and the reconstruction of existing systems		
			G. IT Architecture	Establish IT technology standards and processes for efficient Companywide reconstruction of existing systems		

\*About our information security initiatives  
We established the Information Security Subcommittee as a subordinate body of the Risk Management Committee, which is an auxiliary body of the Executive Council. The subcommittee works on information security at the management level, including the establishment of information security policies, development of standards, education, audits, and introduction of threat prevention tools.

## IT Investment

We are planning an IT capital investment of 45 billion yen over three years starting from fiscal 2021, which will enable us to reconstruct the core systems that form the foundation for data utilization in management and to build the foundation for the digital shift in *monozukuri* and services. The goals of the investment are to improve productivity, increase customer value, and utilize data for management, as shown in the table below.

Area	Investment Sector	Objective	Three-year investment (billion yen)
Value Creation	Smart factories, digital engineering	A, D Innovative productivity improvement in <i>monozukuri</i>	10.0
	Digital services, digitalization of customer contact points	B Improve customer value by transforming existing businesses	5.0
	Use of AI and RPA in office operations	C Shift employees to value-creating work	0.5
Business Foundation	Core system reconstruction, IT architecture design and construction	D, G Data-driven management, speed management	17.0
	Security, governance	F Minimize management risk	0.5
	Others		12.0