

# Group Vision 2030

# Business Direction: Details

November 2, 2020

Kawasaki Heavy Industries, Ltd.

Yasuhiko Hashimoto,  
President and Chief Executive Officer

カワる、  
サキへ。  
Changing forward

# Trustworthy Solutions for the Future

Frontier

New Values

Cross Over

1. Kawasaki's Solutions to Social Issues
2. Structure for Creating Solutions  
(Restructuring of the Business Portfolio)
3. Scenario for Growth

# Solutions through Advances in Transportation Devices for a Safe and Secure Society



Expanded the Business in the US, after Starting the Plant Construction first as a company from the Japanese Automobile Industry

Demand Increase on Off-Road Motorcycles and Four-Wheelers

Increasing focus on off-road motorcycles and four-wheelers as leisure activities ensuring social distancing.

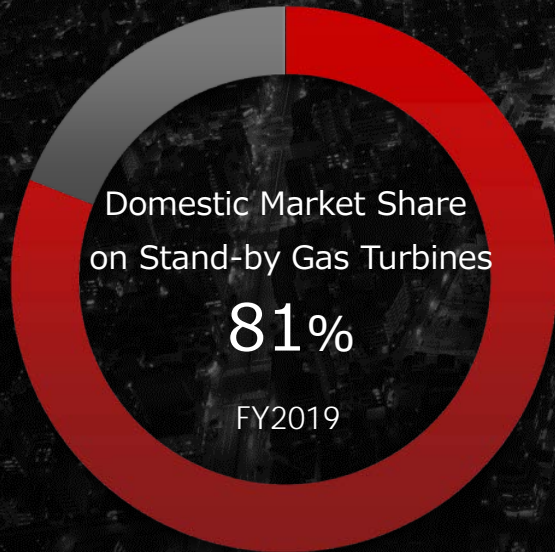


# Achieved Significant Growth after Starting the Stand-By Gas Turbine Business First in Japan in 1976

Gas Turbines, Gas Engines, CCPPs driven by Clean Energy, etc.



**5G/6G**



Out of the total 1,035 units of the company's stand-by gas turbines installed at areas affected by power outages due to the Great East Japan Earthquake, 1,034 had been operated.



\* The only gas turbine that failed to operate was one that had not received maintenance.

Contributed to Japan as the Leader in Robotics since its start of Robot Development and Manufacturing in 1968 which was the First in Japan

Continued to expand the technology to new fields; proposing new ways of robotics in the field of medical care, coexistence, remote-coexistence, etc.

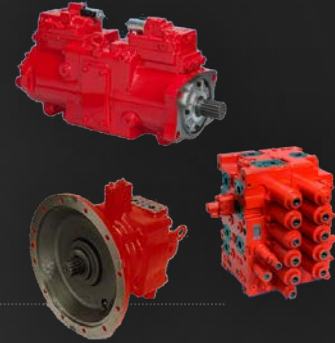


Robot technology enabling labor saving and supporting the aging society

Contributed to the World as the Pioneer in Hydraulic Equipment

Entered the Chinese market two decades ago and greater results have been generated.

Sales on shovels after April increased by appx. 50%, compared to the previous year supported by post COVID-19 economic stimulus measures implemented by the Chinese Government.





# For the Future



**Remotely-connected society**



**Population: Decreasing birthrate and the aging population**



**Pandemics/disasters**



**Global environment**



**Energy**

# Kawasaki's Focal Fields of Business in the Future

— Opening Up Frontiers from Our Unique Perspective

**[1] A Safe and Secure Remotely-Connected Society**

**[2] Near-Future Mobility**

(Transforming the Movement of People and Freight)

**[3] Energy and Environmental Solutions**

# Realize a Safe and Secure Remotely-Connected Society through Medical / Healthcare Business



# Healthcare: Robotic Assisted Surgery System

Minimally invasive to reduce patient physical and mental burden Telesurgery  
with minimal numbers of medical staff



Surgeon

Telesurgery

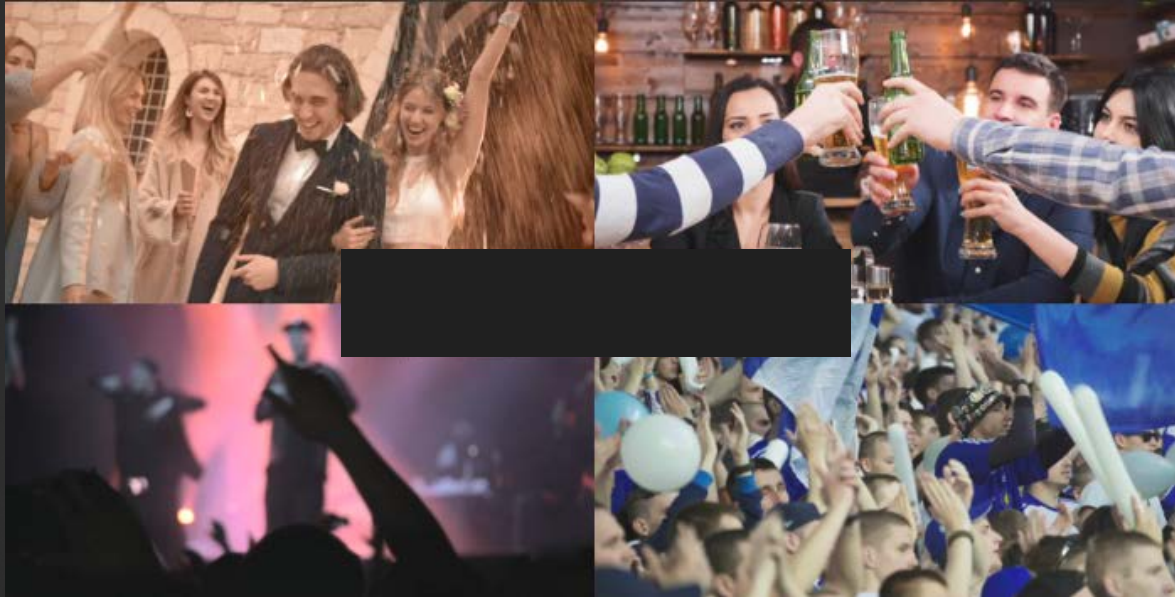


Operating theater



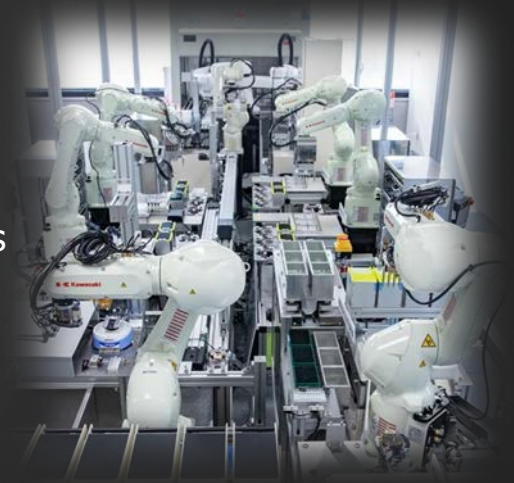
# PCR Testing Business

Contributing to reopening society and restoring people's mobility  
in collaboration with national and local governments



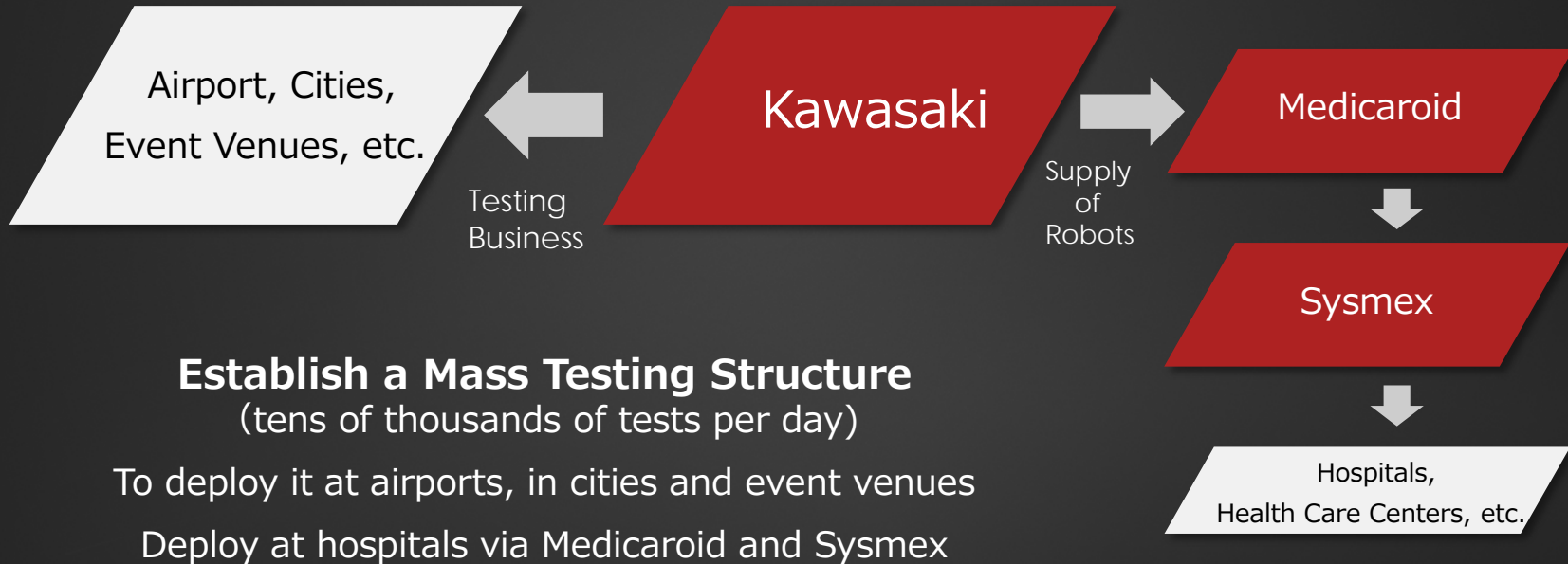
# PCR Testing Business

1. **Shortening testing times** using internationally-accepted methods (testing in 80 minutes)
2. Automation using robots  
**reduces the workload of physicians and other medical professionals**
3. **Simplifying operation** while also ensuring safety of remote control
4. **Mass production** initiatives in compliance with Ministry of Health, Labour and Welfare and the Japan Medical Association requirements
5. Enabling **space-saving installation**  
(Fits in a 40ft container and can be moved)



# PCR Testing Business Structure

## Testing business run in airports, in cities and event venues



# PCR Testing Business Plan

**Providing business that enables the issue of  
“Certificate of Negative Test Result” for hundreds of  
thousands to millions in a day;**

focusing on international travel, large-scale sporting events.

Rollout to overseas  
airports and event venues

Deployment in  
domestic airports / Hospital

October Announcement on Demonstration Systems  
November Commencement of Demonstration of Specimen Tests in Kobe

Announcement on PCR Testing Robots  
(Cooperation with Kobe City and Hyogo Prefecture)

Start development

March 2020

June 2020

October 2020  
~November 2020

December 2020  
~January 2021



**Offering New Ways of Living and Working  
to Realize a Safe and Secure Remotely-Connected Society**



# Offering New Ways of Living and Working to Realize a Remotely-Connected Society

## Realization of a society inclusive of all

- Free of restrictions at any time
- Possible from anywhere including remote operation and isolated locations
- People who have previously struggled to engage in social activities



**Remote work in  
factory manufacturing**

Practical operations using robots and remote control

Profound changes to the ways people currently live and work



# Practical operations using robots and remote control



Grinding work  
(Development of a remote control system using 5G)



Patient care  
(Move, Work, Communication)



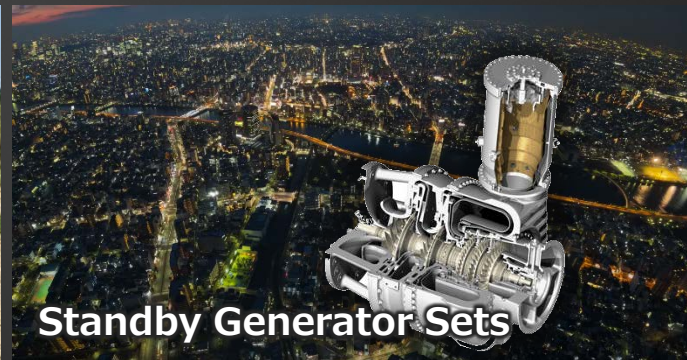
Painting work

**Realize a Safe and Secure Remotely-Connected Society  
by using Life Saving Devices**



# Protecting Life and Property from Disasters

Solutions using a variety of transportation devices and power generation equipment



# Hospital ships capable of telemedicine using robots



Telesurgery

Medical Service Helicopters

Standby Generator Sets

Off-road four-wheelers and motorcycles

# Kawasaki's Focal Fields of Business in the Future

— Opening Up Frontiers from Our Unique Perspective

**[1] A Safe and Secure Remotely-Connected Society**

**[2] Near-Future Mobility**

(Transforming the Movement of People and Freight)

**[3] Energy and Environmental Solutions**

# Changing the Future Movement of People and Freight



×



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# Embracing the Challenge of New Business Fields

Commercializing new personal mobility that enables anyone to move around safely and effortlessly



\*Electric three-wheelers inspired through our business idea suggestion system which encourages employees to take on new challenges

# Changing the Future Movement of People and Freight



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**Providing new solutions**

Autonomous logistics system utilizing new mobility

## Revolution by Autonomous and Remote Control Technologies



Providing solutions to issues related to decline in the labor force population

# Kawasaki's Focal Fields of Business in the Future

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**[2] Near-Future Mobility**

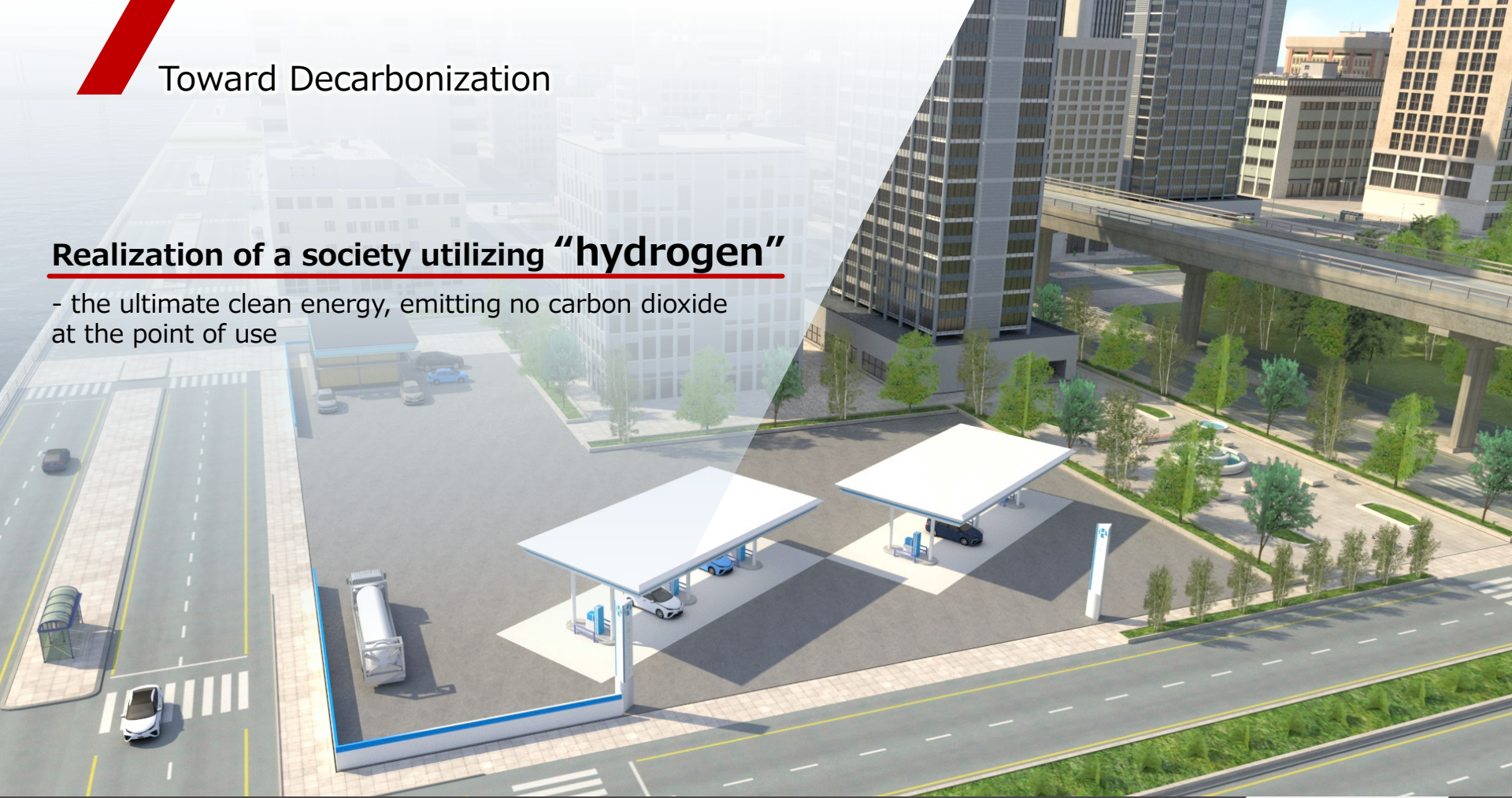
(Transforming the Movement of People and Freight)

**[3] Energy and Environmental Solutions**

# Toward Decarbonization

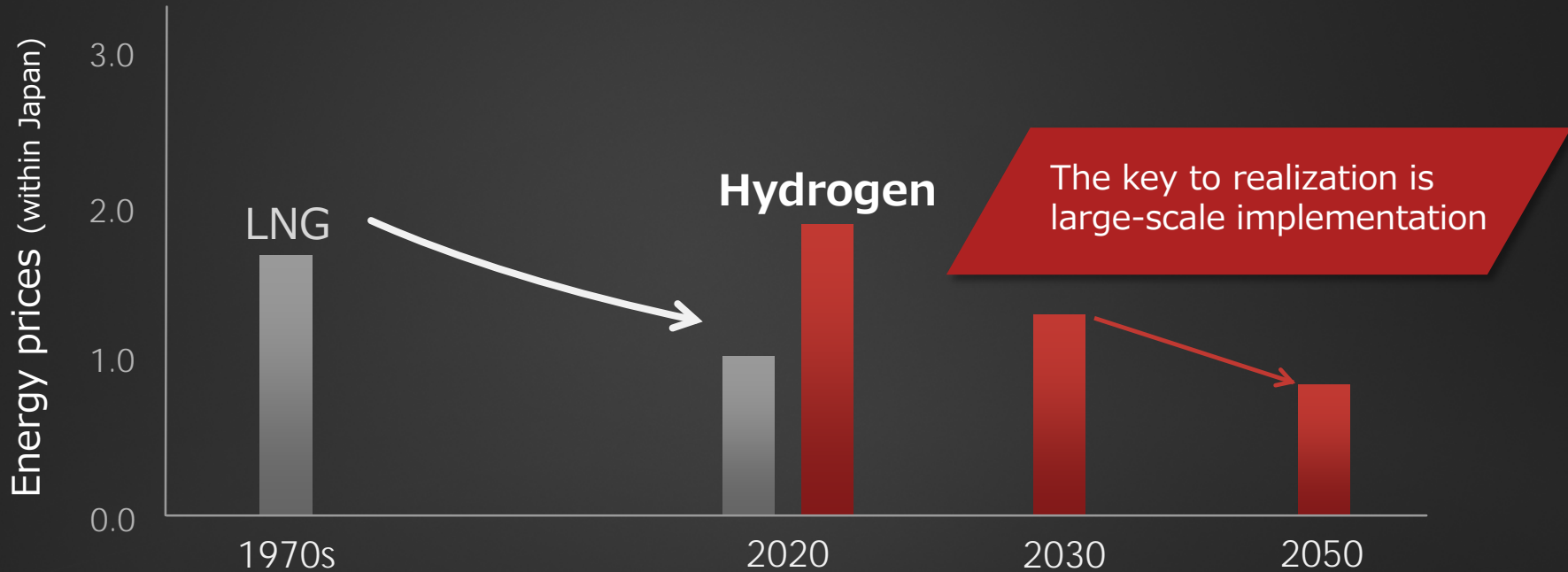
## Realization of a society utilizing “hydrogen”

- the ultimate clean energy, emitting no carbon dioxide at the point of use



# Cost is a barrier to the widespread use of hydrogen energy

Future of the potential of introducing hydrogen, viewed from the history of introducing LNG

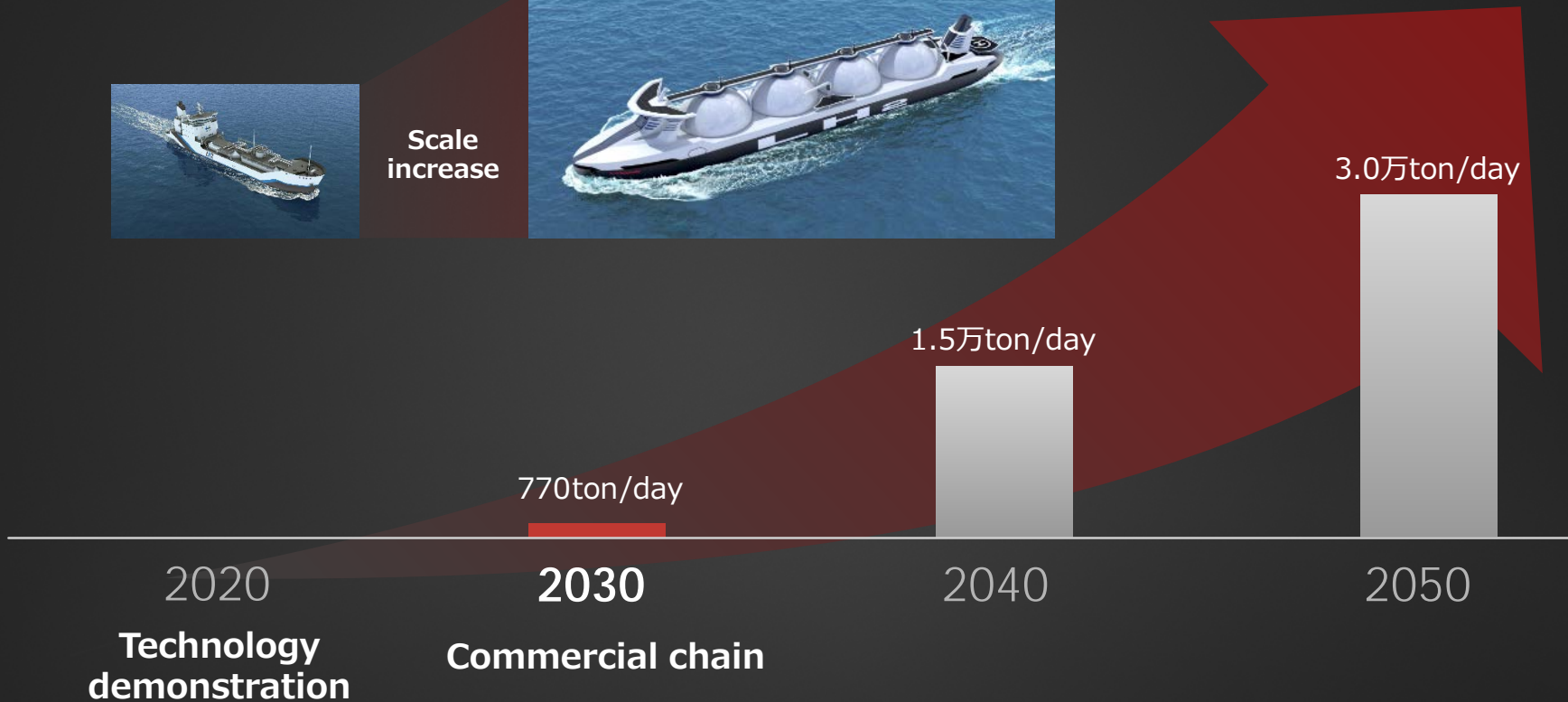


\*Rate of oil price

# Large-scale utilization and transportation of low-cost hydrogen from overseas



Scale  
increase



# Liquefied Hydrogen: Realizing Large-Scale Transportation

Embracing the challenge of cryogenic temperatures

**-253°C**



**$\frac{1}{800}$**



# Liquefied Hydrogen: Realizing Large-Scale Transportation

## Kawasaki's world-class insulation technology

(-162°C)

Technology developed for LNG carriers and storage tanks



# Kawasaki's Cryogenic Technology Enables Large-Scale Transportation

**Storage of very large amounts of liquefied hydrogen at -253 ° C for extended periods of time**



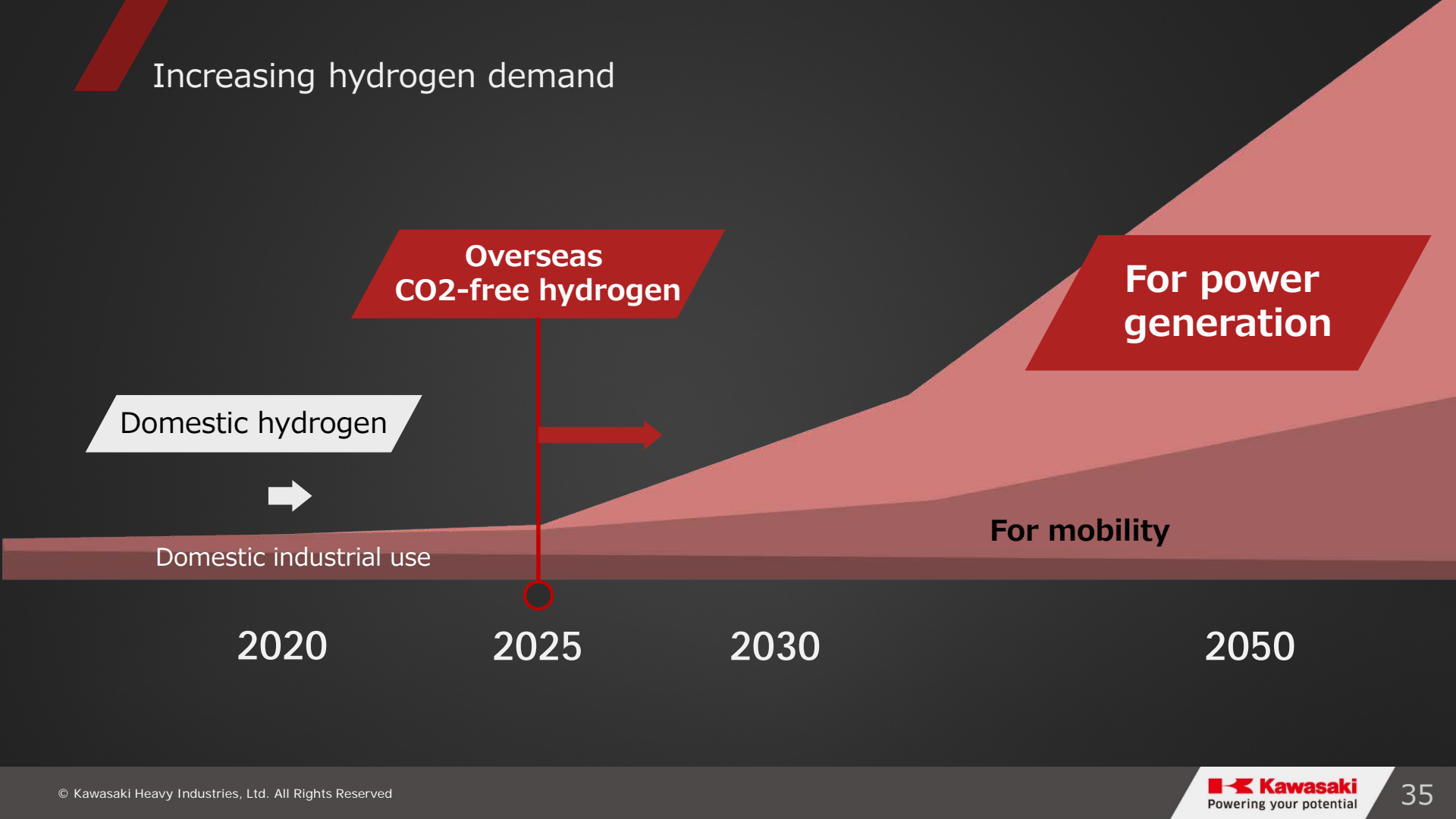
**World's first liquefied hydrogen carrier**



**Japan's largest liquefied hydrogen storage tank**

**Realized through a giant double-wall low-temperature insulation structure**

# Increasing hydrogen demand



Domestic hydrogen

Overseas CO2-free hydrogen

For power generation

Domestic industrial use

For mobility

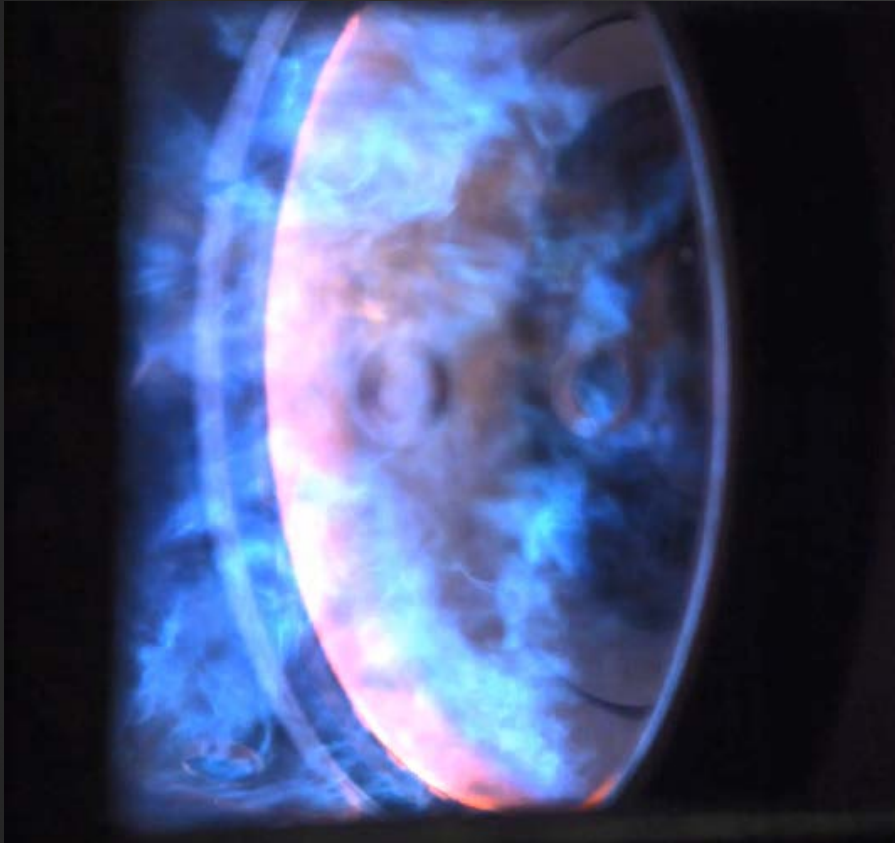
2020

2025

2030

2050

## Power generation using hydrogen as fuel



A technical issue with hydrogen combustion is the generation of nitrogen oxides (pollutants) in the high-temperature areas of the engine

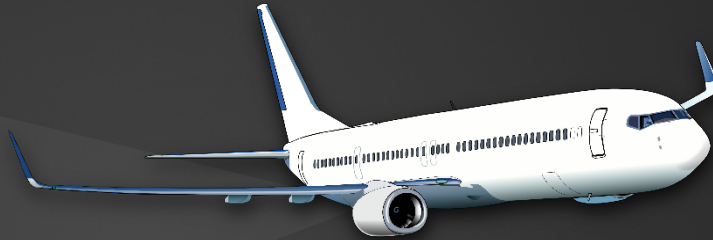
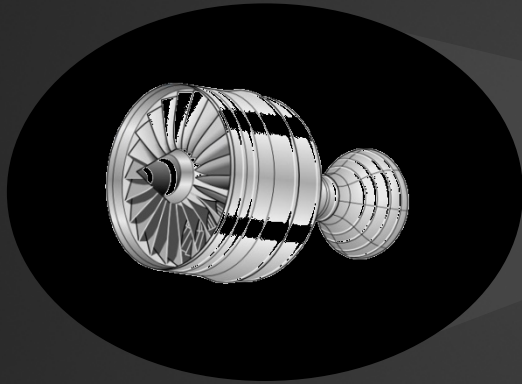


The issue was resolved with Kawasaki's unique technology.

Kawasaki has successfully demonstrated a gas turbine using 100% hydrogen fuel, a world first in an urban area.

# Jet Engines Fueled with Hydrogen

## Utilizing Kawasaki's Hydrogen Combustion Technology for Aircrafts



European aircraft manufacturers to commercialize passenger planes fueled with hydrogen by 2035

Targeting to complete demonstration by 2030 for aircraft engine combustors

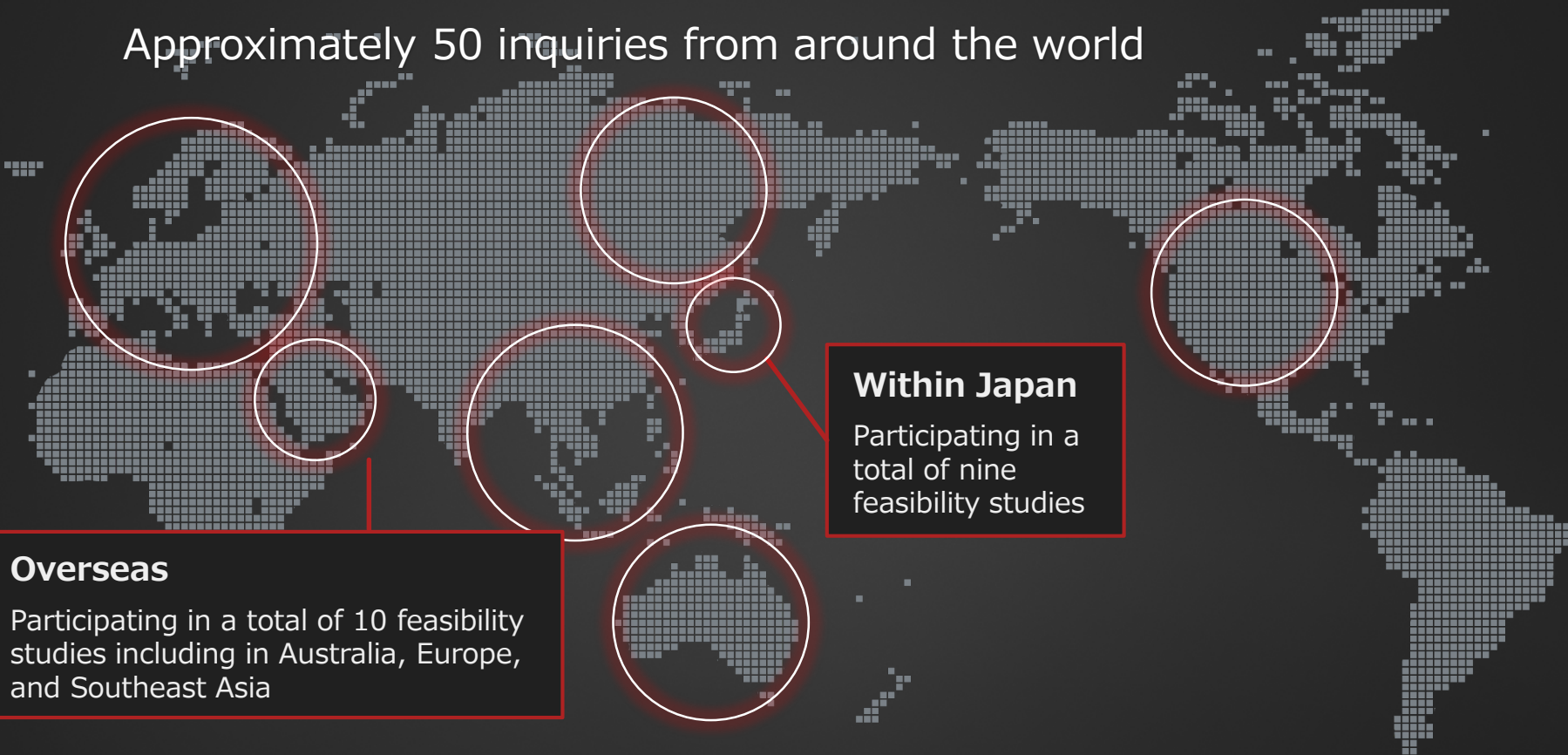
On the Leading Edge of Pioneering the Hydrogen Society

Forecast 2050 hydrogen market size: \$2.5 trillion

Kawasaki has already received numerous inquiries about projects from the likes of governments, private organizations, energy companies, and transportation companies in many countries around the world

# Hydrogen-Related Projects Currently Underway

## Approximately 50 inquiries from around the world



### Overseas

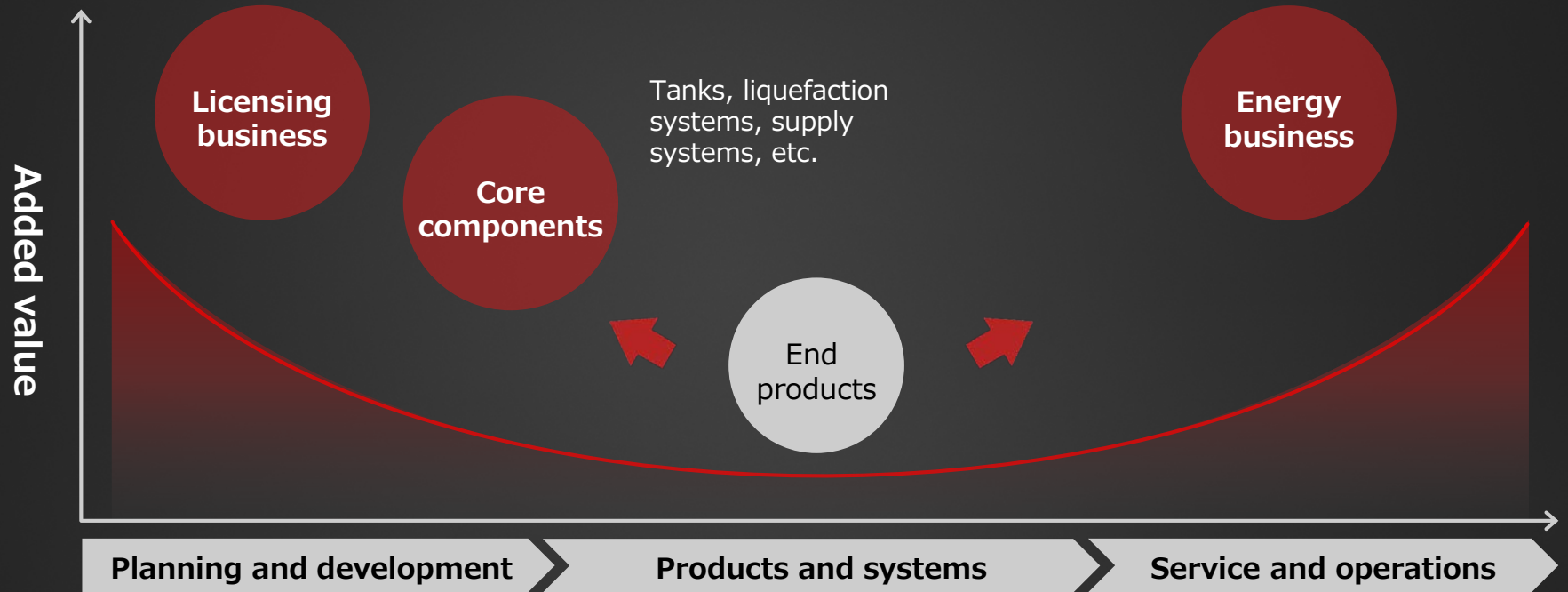
Participating in a total of 10 feasibility studies including in Australia, Europe, and Southeast Asia

### Within Japan

Participating in a total of nine feasibility studies

# Main Hydrogen-Related Businesses

Rolling out a wide range of businesses, across the entire value chain





# Hydrogen Business Scale



Scale  
increase



Net sales of **300.0** billion yen

Net sales of **120.0** billion yen

Participation in  
overseas projects

Technology demonstration

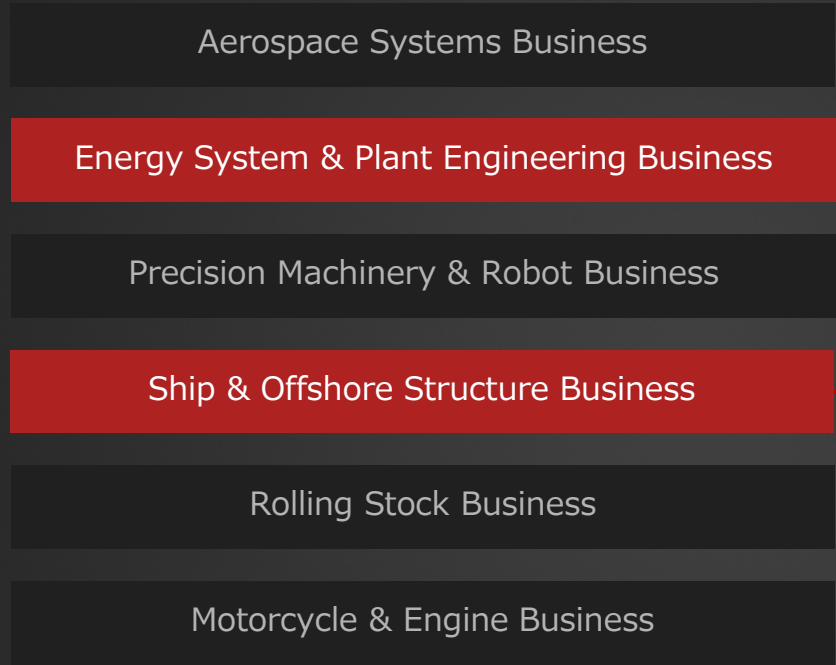
2020

2030

2040

1. Kawasaki's Solutions to Social Issues
2. Structure for Creating Solutions  
(Restructuring of the Business Portfolio)
3. Scenario for Growth

# Integration of the Ship & Offshore Structure and Energy System & Plant Engineering Businesses



Integrated management as one company

Integration in April 2021

## Integration of the Ship & Offshore Structure and Energy System & Plant Engineering Businesses

- Strengthening hydrogen-related businesses (utilizing technology developed for LNG)
- Accelerating development of advanced technologies such as automatic vessel navigation control
- The Sakaide Works will:
  - ✓ Focus on the manufacturing and engineering of hydrogen-related core components “Integrated Operation of Sakaide/Kobe/Harima”
  - ✓ Build LPG carriers for the time being



# Spin-Off of the Rolling Stock Business

Aerospace Systems Business

Energy System & Plant Engineering Business

Precision Machinery & Robot Business

Ship & Offshore Structure Business

Rolling Stock Business

Spin-Off in around October 2021

Motorcycle & Engine Business

## Spin-Off of the Rolling Stock Business

- Driving even greater autonomy in business management
- Agile and flexible engagement in collaboration with industry partners
- Working to discover new markets and consider a wide range of business styles to meet solid global demand

# Spin-Off of the Rolling Stock Business

Aerospace Systems Business

Energy System & Plant Engineering Business

Precision Machinery & Robot Business

Ship & Offshore Structure Business

Rolling Stock Business

Motorcycle & Engine Business

Strengthening collaboration

Spin-Off in around October 2021

# Collaboration between Rolling Stock and Aerospace Systems Businesses

Advancement of manufacturing technology and quality control in particular by leveraging similarity between manufacturing processes



**Aerospace Systems Business**



**Rolling Stock Business**





# Spin-Off of the Motorcycle & Engine Business

Aerospace Systems Business

Energy System & Plant Engineering Business

Precision Machinery & Robot Business

Ship & Offshore Structure Business

Rolling Stock Business

Motorcycle & Engine Business

Spin-Off in around October 2021

## Spin-Off of the Motorcycle & Engine Business

- Improve decision-making speed by driving even greater autonomy in business management and leveraging the characteristics of business-to-consumer businesses
- Strengthen the brand by providing products and services in sync with customers, including new lifestyle offerings focusing on the post COVID-19 environment
- Strengthen collaboration within the industry and revitalize the market through focus on compliance with environmental regulations as well as progress in electric drive and advanced safety technologies

# Spin-Off of the Motorcycle & Engine Business

Aerospace Systems Business

Energy System & Plant Engineering Business

Precision Machinery & Robot Business

Ship & Offshore Structure Business

Rolling Stock Business

Motorcycle & Engine Business

Strengthening collaboration

Spin-Off in around October 2021

## Collaboration between the Motorcycle & Engine Business and Precision Machinery & Robot Business

- Extending corporate resources to mass-production businesses
- Collaboration in business-to-business operations (hydraulic systems and general-purpose engines)



Hydraulic systems



General-purpose engines



Agricultural machinery and turf care markets, etc.

Further strengthening and synergy of core component businesses, which have a high industry market share

# Advanced mobility

## Mobile robots



## Off-Road Four-Wheelers



**A revolution in logistics  
through transition to  
advanced mobility**

# Three Business Groups

## Land & Air Transportation Systems

Aerospace Systems Business

Rolling Stock (new company)

## Motion Control & Motor Vehicles

Precision Machinery & Robot Business

Motorcycles & Engines (new company)

Near-Future  
Mobility

A Safe and Secure  
Remotely-Connected  
Society

Energy and  
Environmental  
Solutions

## Energy & Marine Engineering

Integrating the Energy System &  
Plant Engineering Business with the  
Ship & Offshore Structure Business

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## Forecast for 2020 Full Fiscal Year

	FY2019 Actual	FY2020 Forecast		Change	
		In Aug.	In This Time	vs. FY2019	vs. In Aug.
Order Received	1,513.5	1,400.0	<b>1,340.0</b>	-173.5	-60.0
Net Sales	1,641.3	1,460.0	<b>1,500.0</b>	-141.3	+40.0
Operating Income / Loss	62.0	-30.0	<b>-20.0</b>	-82.0	+10.0
Recurring Profit / Loss	40.4	—	<b>-25.0</b>	-65.4	—
Net Income /Loss Attributable to Owners of Parents	18.6	—	<b>-27.0</b>	-45.6	—
Before-tax ROIC	4.2 %	—	<b>-2.2%</b>	-6.4%	—
ROE	4.0 %	—	<b>-6.1%</b>	-10.1%	—
Dividend(per share)	35 yen	—	<b>0 yen</b>	-35 yen	—

Thorough efforts including:

- Strengthen financial profile
- Reducing manufacturing costs
- Improving cash flow
- Reviewing total labor costs



**Become profitable in FY2021**



# Aerospace Systems Business

Stable market expansion over the medium to long term  
However, we will flexibly allocate resources in view of the current slump  
in aviation demand

(Sample concept image of staff allocation)



# Growth Scenario

1 Motion Control and Energy will be our main profit centers in the immediate future, and the early launch of the PCR testing business will contribute in the recovery of aviation demand

2 Recovery in the Aerospace Business and the stable expansion of the market

3 Hydrogen and other new businesses will become our main profit drivers, with the areas of a safe and secure remotely-connected society, near-future mobility, and energy and environmental solutions forming a stable growth path

## Management Policies

### Pursue Growth

Development investment in growth fields and new businesses

### Profits

Operating profit margin

**5 ~ 8%**

Pre-tax ROIC

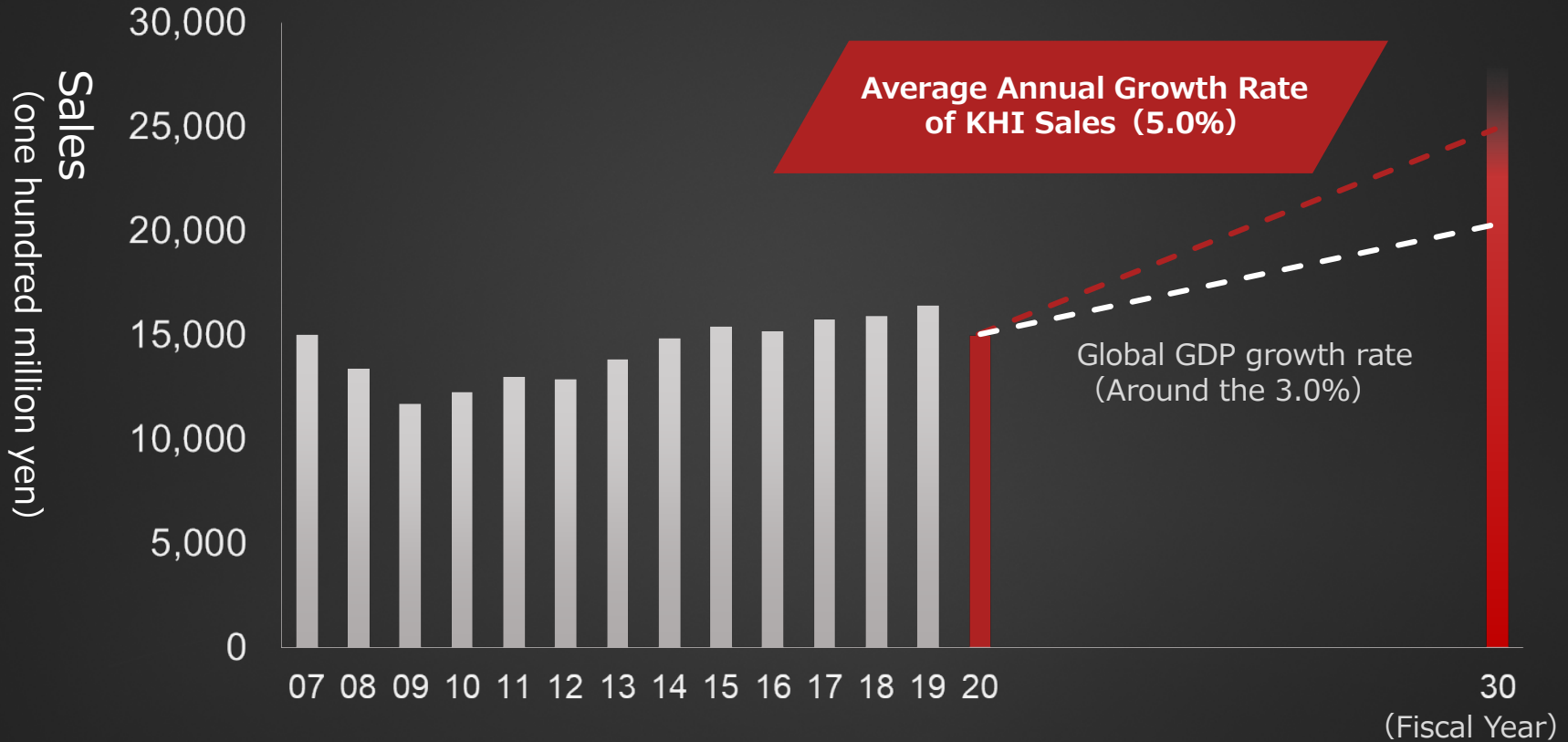
WACC **+3%** or more

### Stability/Synergy

Realizing the Conglomerate Premium

Contributing to the achievement of  
Sustainable Development Goals through our solutions to address social issues

# Growth Image



# Key Mechanisms Supporting the Growth Scenario

- **Personnel system and organizational structure**

- ▶ Shift to a personnel system more based on skills, roles and results and flexibly utilize human resources beyond company boundaries
- ▶ Establish a project promotion office under the direct control of the President and Chief Executive Officer

- **Digital transformation (DX)**

- ▶ Pursue efficiency gains and the shift to high added value in business processes
- ▶ Speed up decision-making by enabling visualization of management in real time

- **Promote the remotely-connected transition, including robotics**

- ▶ Realize highly-productive ways of working in close coordination with internal partners, customers, suppliers, etc. as well as new remote work enabled by practical operations using robots



**Kawasaki**  
Powering your potential