

Hitachi Investor Day 2023

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## Green Strategy

June 13, 2023

**Alistair Dormer**

Executive Vice President and Executive Officer,  
General Manager of Green Energy & Mobility Strategy Planning Division  
Hitachi, Ltd.

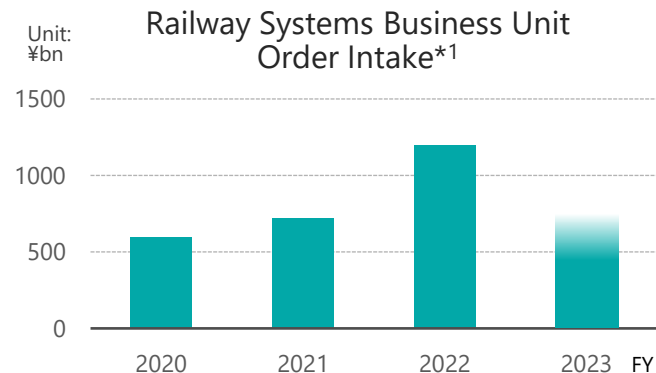
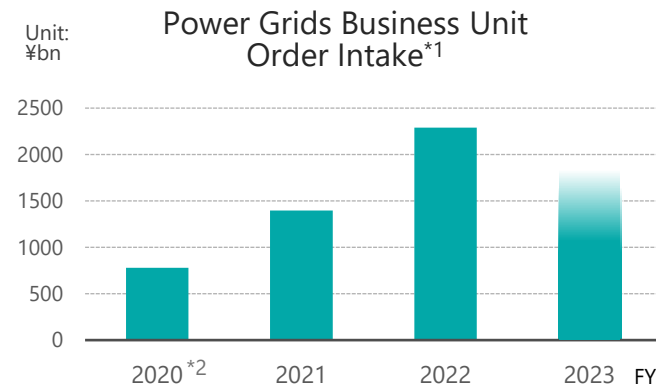
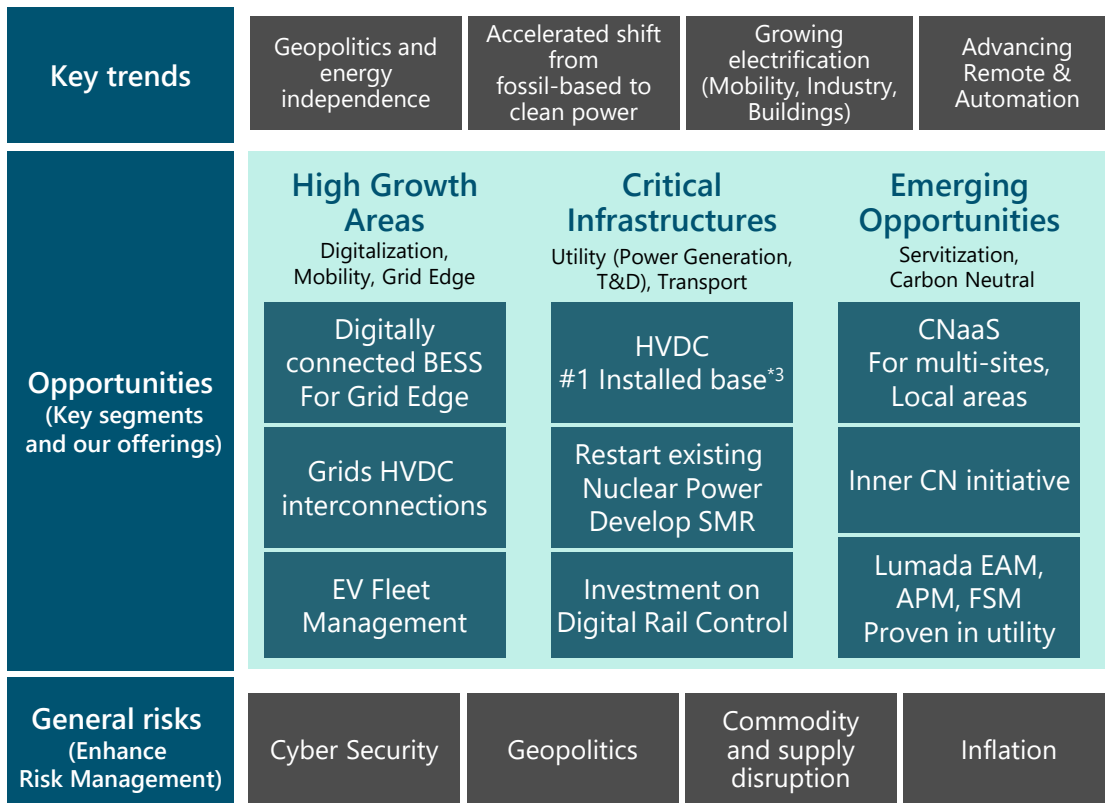
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1. The Green light is on
2. Hitachi is ready and best placed to lead the transition
3. Case studies of Hitachi Green success
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# 1-1. Green Energy and Mobility market growing strongly

Market is attractive - huge investment to accelerate green transition and electrification even in adversity



\*1: FY2023 order forecasts exclude certain large-scale projects with strong prospects, due to uncertain timing of order confirmation.

\*2: 9 months from Jul 2020-Mar 2021 \*3: Market share based on internal estimates as of May 2023

# 1-2. Hitachi is investing for a bright Green future

Hitachi is investing in new technologies that drives the transition for future opportunities



Hitachi will invest more than ¥0.8tn\* on R&D activities during 2024 MMP period

\*Total investment in 3 sectors plus corporate advanced research. The equivalent investment during 2021 MMP was approx. ¥0.6tn.

# 1-3. New markets are emerging

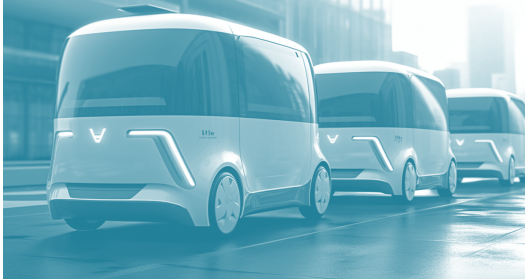
## Electrification of Mobility

## Mobilising Energy in Commercial and Industry

Accelerate electrification and sustainability

Reduce risk of total cost of ownership

Generate new revenue streams



EMS Services for e-Mobility and C&I market\*1



2nd Life BESS Service & Solution\*2



Renewable energy  
Community PV share

Energy management solution

- Renewable energy integration
- Multiple load management
- Energy optimization including heat
- CO<sub>2</sub> footprint visualization



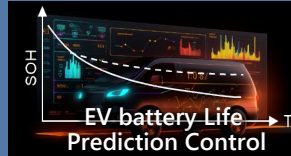
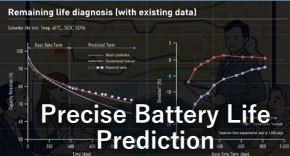
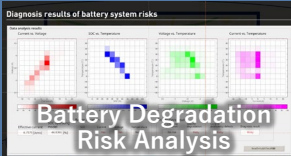
Connection to energy market

Energy storage solution  
using 2nd life battery

- Electricity buffer
- Peak shaving and arbitrage
- Compliance with EU regulation regarding battery circularity

EV charging, V2X

Core technologies

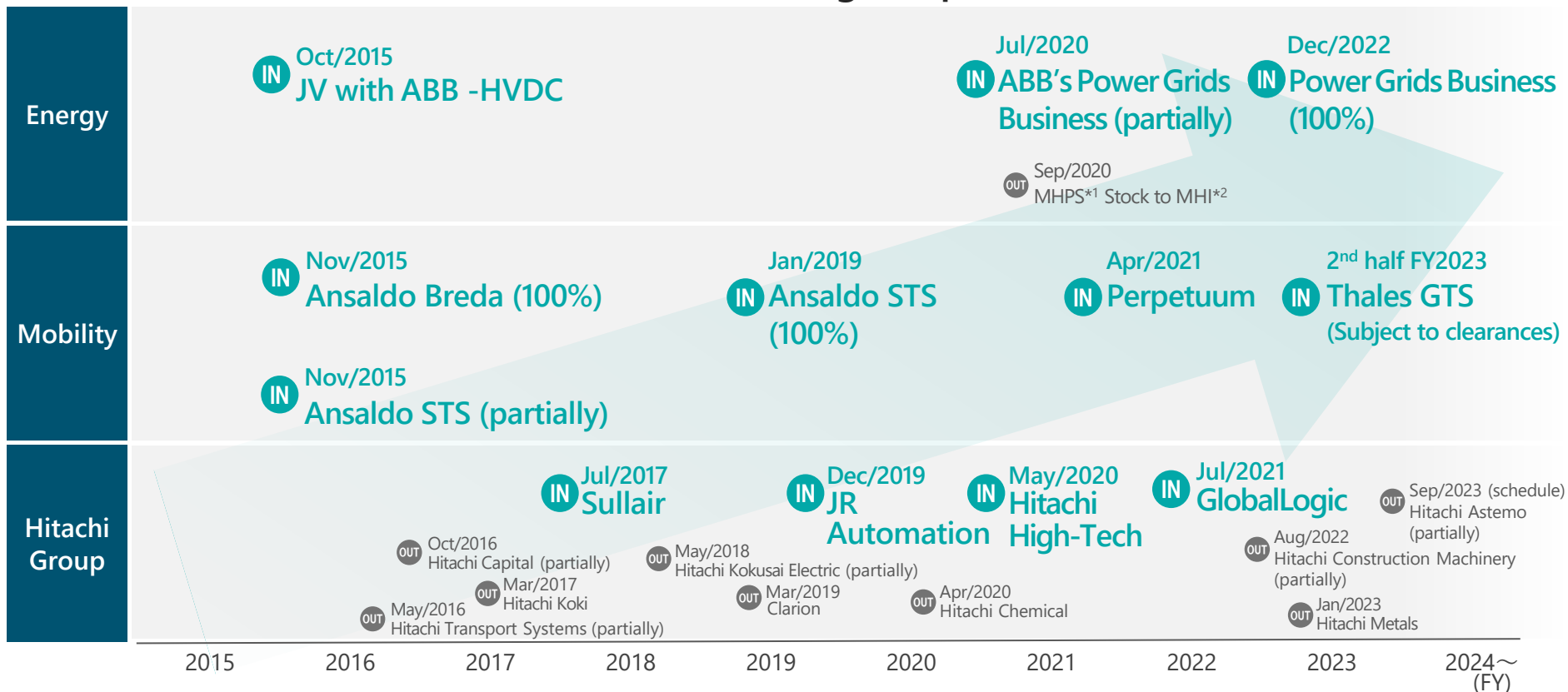


\*1:Source: P&S Intelligence, "Europe Energy Management System Market Report"

\*2:Source: IDTechEx, "Second-life Electric Vehicle Batteries2020 -2030", "Second-life Electric Vehicle Batteries2023 -2033"

# 1-4. Simplification, Digitalization and Greenification

## Hitachi is transforming the portfolio



\*1: Mitsubishi Hitachi Power Systems, Ltd. \*2: Mitsubishi Heavy Industries, Ltd.

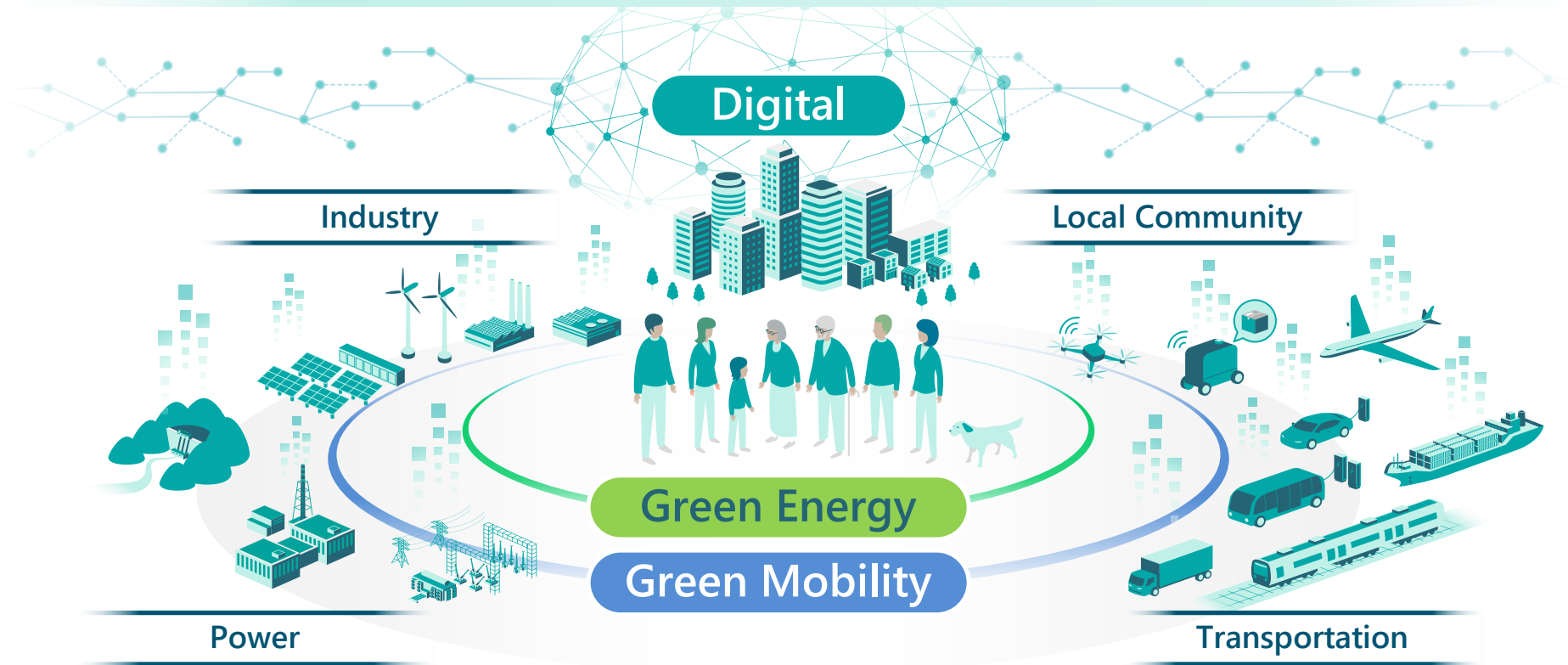
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# 2-1. Green Energy & Mobility our Future World

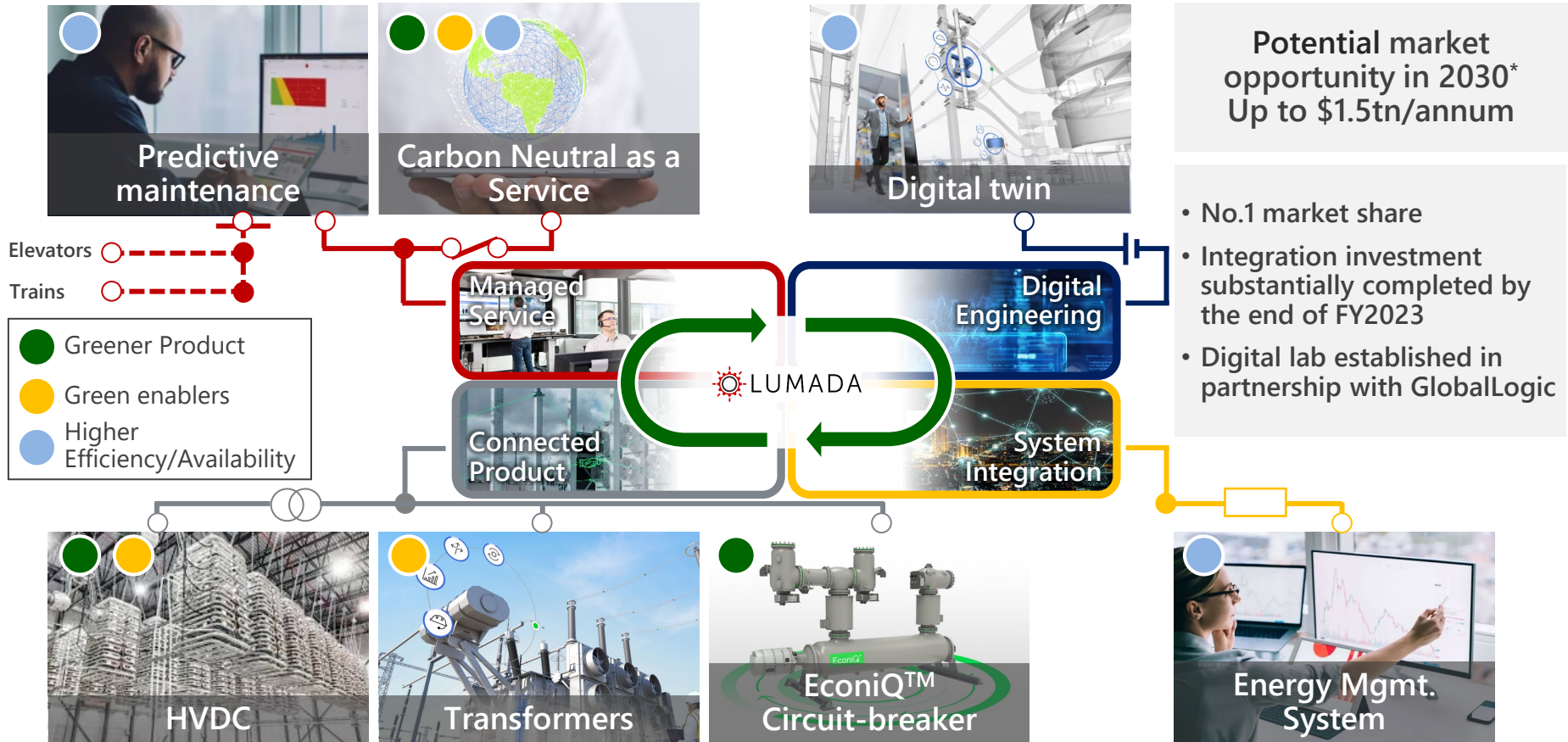
“Green Energy” x “Green Mobility” x “Digital” will form future society





# 2-2. Green Energy Transition

Hitachi is at the forefront of the transition with our holistic solutions



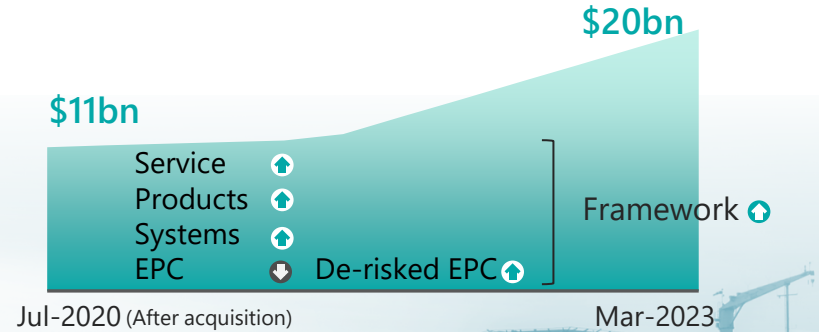
\*Source: McKinsey& Company, "Identifying opportunities and starting to build a new green business in the industrial sector" (Oct, 2022)

# 2-3. Green Energy Transition

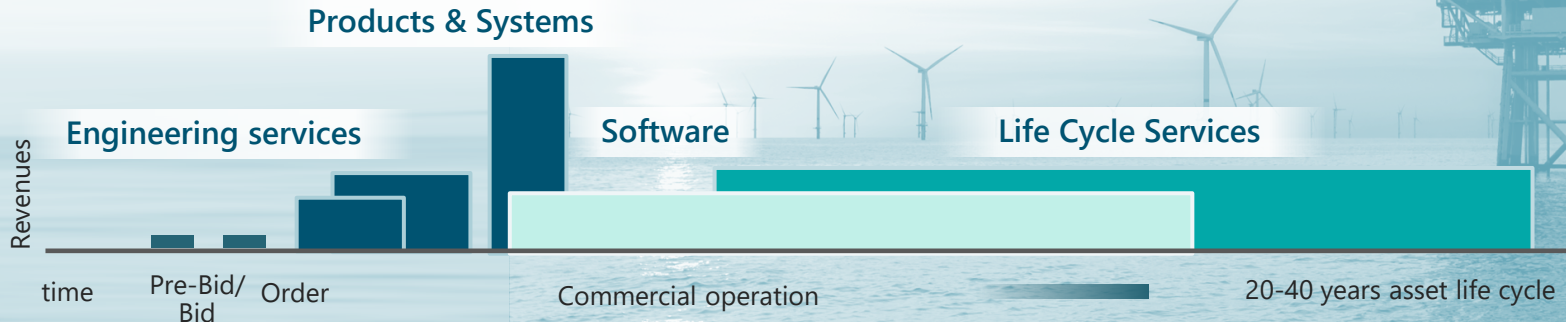
Power Grids backlog doubled since acquisition with increasingly attractive mix

## Advanced integration of Hitachi Energy

- Acquired remaining 20% stake from ABB in December 2022
- Backlog doubled since acquisition in 2020 and de-risked through business model transformation
- Significant growth in service business contributing to improved margins



## Operating model and key characteristics (Illustrative)



# 2-4. Nuclear Energy and Hitachi Power Solutions

## Nuclear Energy

Contribute to carbon neutrality through our nuclear technology

### Japan market restarting



- Totally support early BWR plant restarts and Fukushima decommissioning as a leading company
- Built-in safety enhancement for new-build (ex. HI-ABWR<sup>\*1</sup>) and develop fast reactor for fuel cycle to meet growing nuclear demand

### Huge potential for Small Modular Reactor in partnership with GE



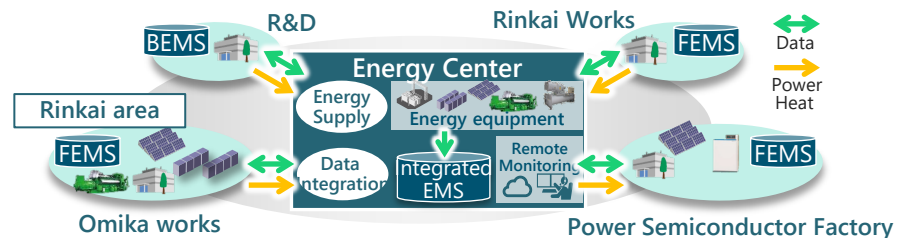
- Top runner for the deployment of SMR through our global partnership with GE
- Underpin the technology by Hitachi's excellent plant engineering, module planning, and manufacturing for main components

\*1: High Innovative ABWR: Advanced large reactor with enhanced safety and economic efficiency  
\*2: GE Hitachi Nuclear Energy, Ontario Power Generation, Tennessee Valley Authority, Orlen Synthos Green Energy

## Hitachi Power Solutions

- Best use of energy such as power or heat, with asset light solution driven by data
- Provide "Visualization, Optimization, Operation and Maintenance" as a service

### Carbon Neutral as a Service (CNaaS)



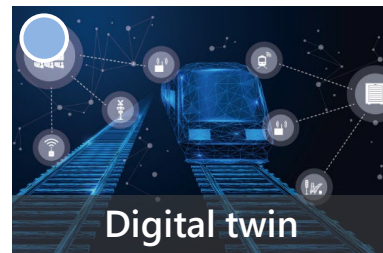
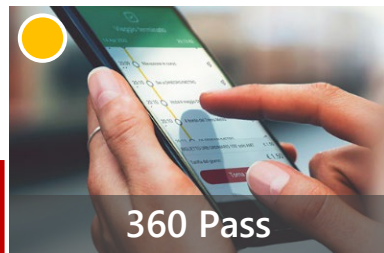
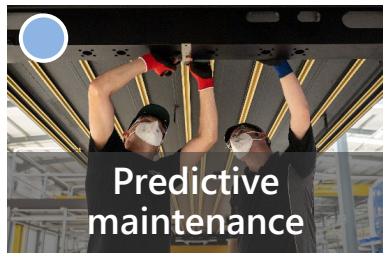
### Service Network Center



- A nationwide 35 service network center help customers 24 hours 365 days

# 2-5. Green Mobility Transition

Hitachi is at the forefront of the transition with our holistic solutions



Potential market opportunity in 2030\*  
Up to \$2.7tn/annum

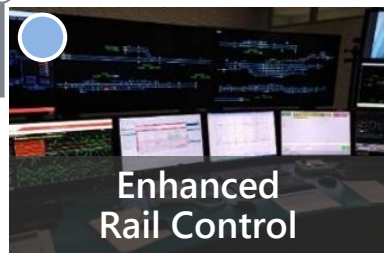
Elevators ○  
Energy Assets ○

- Greener Product
- Green enablers
- Higher Efficiency/Availability



LUMADA

- Thales GTS acquisition targeted for completion in the 2<sup>nd</sup> half of FY2023
- Globally integrated management structure for achievement of ¥1tn target



\*Source: McKinsey & Company, "Identifying opportunities and starting to build a new green business in the industrial sector" (Oct 2022)

# 2-6. Green Mobility Transition

Transformation for further growth and profitability

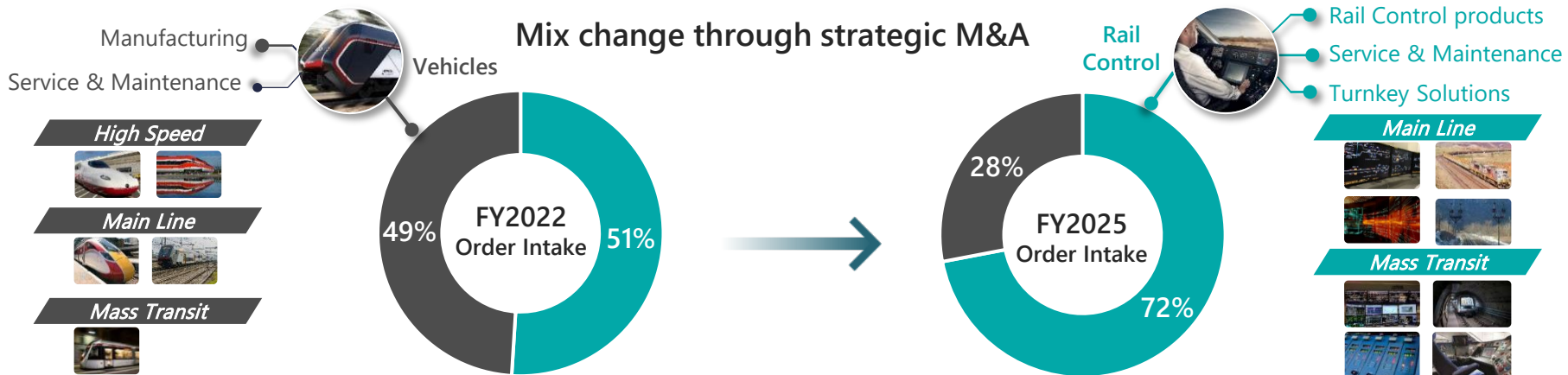


## New leadership

### Core leadership focus

- Stable growth in core markets, expand in US
- Portfolio transition through proposed Thales GTS acquisition
- Drive new Digital revenues (e.g. Smart mobility)

## Portfolio Transition



# 2-7. Green Industry Transition

## Diverse accessible markets

### Mega Charging System for Mining



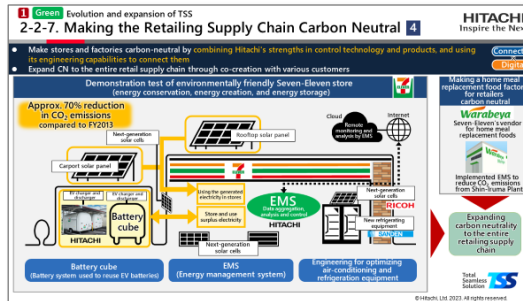
Hitachi Energy has been selected as a technology vendor in the Charge On™ Innovation Challenge, to solve one of the biggest challenges in decarbonizing mining operations: the electrification of haul trucks.

### H2 production for Steel



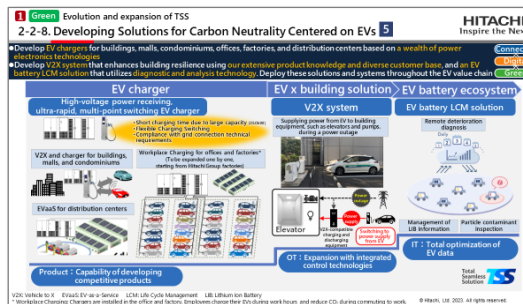
Hitachi Energy and H2 Green Steel partner to leverage electrification, digitalization, and hydrogen for green steel production

### CN for Retail



Case study from Connective Strategy presentation

### CN for EV Value chain



Case study from Connective Strategy presentation

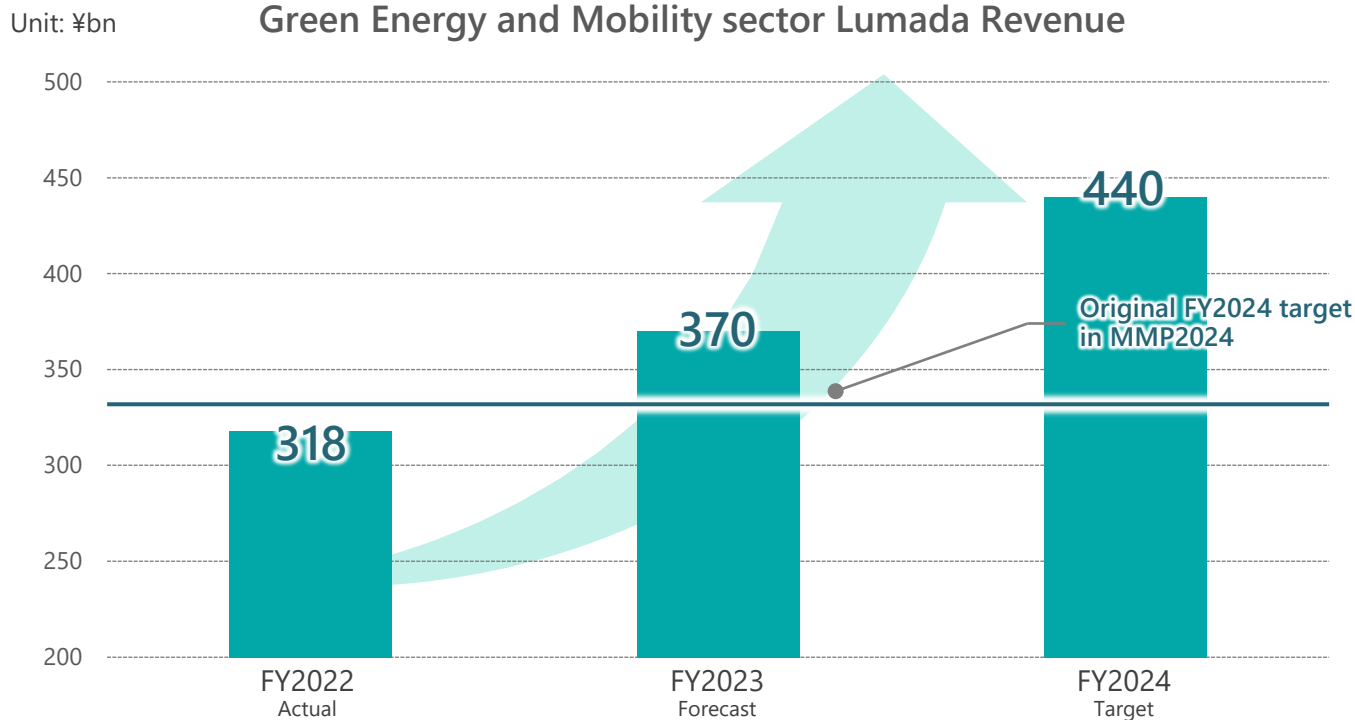
Potential market opportunity in 2030\*  
Up to \$2.0tn/annum

Hitachi is driving the transition supporting our customers throughout their Green journey

\*Source: McKinsey& Company, "Identifying opportunities and starting to build a new green business in the industrial sector" (Oct, 2022)

## 2-8. Lumada business growth

### Steady growth in Lumada revenue



- Expect to overachieve our MMP target for FY2024
- Digital enablers are further accelerating the growth of Green business
- Closely working with GlobalLogic in both Energy and Mobility businesses

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# 3-1. DX x GX for Growth with GlobalLogic

## 1 Transformation



"Share with me your view of the future, and help me understand how I get there"

## 2 Acceleration



"I like your roadmap, but I need it sooner"

## 3 Co-creation



"I need a DERMS, but not traditional, it needs to be more like a Digital Twin"

## 4 Innovation



"I need to manage a huge Eco System of providers, build me a platform to do that"

3.5 "One Hitachi" Customer Case: a Major Energy Company in the US **HITACHI** Inspire the Next

Green × Digital

**Formulate company-wide DX grand design**

Hitachi Energy & GlobalLogic

- Support design and execution of digital transformation across the entire energy value chain, from operation optimization of power generation, transmission and distribution to UX improvement of services for users
- Raising employee awareness toward DX and creating a safe and secure work environment

Expand these initiatives to other global regions and businesses  
Accelerate collaborative creation with customers with energy industry domain knowledge and design and digital engineering capabilities

The photograph is an image © Hitachi, Ltd. 2023. All rights reserved.

Case study from Digital Strategy presentation

3.6 "One Hitachi" Customer Case: Washington Metro **HITACHI** Inspire the Next

Green × Digital

**People and Environment-conscious state-of-the-art digital factory**

Hitachi Rail, Hitachi America(R & D), Flexware Innovation, GlobalLogic and Hitachi Vantara

- Promote the digitalization of a large-scale rolling stock manufacturing plant\* (Maryland, USA) for the Washington Metro by "One Hitachi"
- Realize a sustainable manufacturing environment by applying cutting-edge digital technology in the entire value chain

As a showcase of One Hitachi's digital ecosystem, accelerate expansion to the Americas, Europe, other global regions and other industries.

\*New factory will design and produce a fleet of up to 800 metro cars for the Washington Metropolitan Area Transit Authority (WMATA). Scheduled to open in 2024.

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Case study from Digital Strategy presentation

## 3-2. Case studies of Hitachi Green Successes

We are leveraging our GX x DX capabilities to generate Green successes



### Copenhagen Metro

Mobility

x

Digital

**A 20-year collaborative partnership delivering a pioneering autonomous metro**

Providing the technology, vehicles and operation capability for Copenhagen's pioneering autonomous 24H metro system



### Canada – NY HVDC

Energy

x

Digital

**HVDC - a digitalised way of transmitting energy**

Our HVDC Light<sup>®</sup> transmission system will transfer renewable energy for over 1 million New York homes and help achieve the state's climate goals



### First Bus

Energy

x

Mobility

x

Digital

**Zero emission mobility - at the crossroad of Energy & Mobility**

We are partnering with our customer First Bus at their Caledonia depot in Glasgow, which is one of the largest EV charging hubs in Europe

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## A Green strategy...

- Hitachi is unique in its GX x DX capability
- More than ¥0.8tn will be invested in R&D during 2024 MMP
- Hitachi portfolio effectively addresses the Green agenda

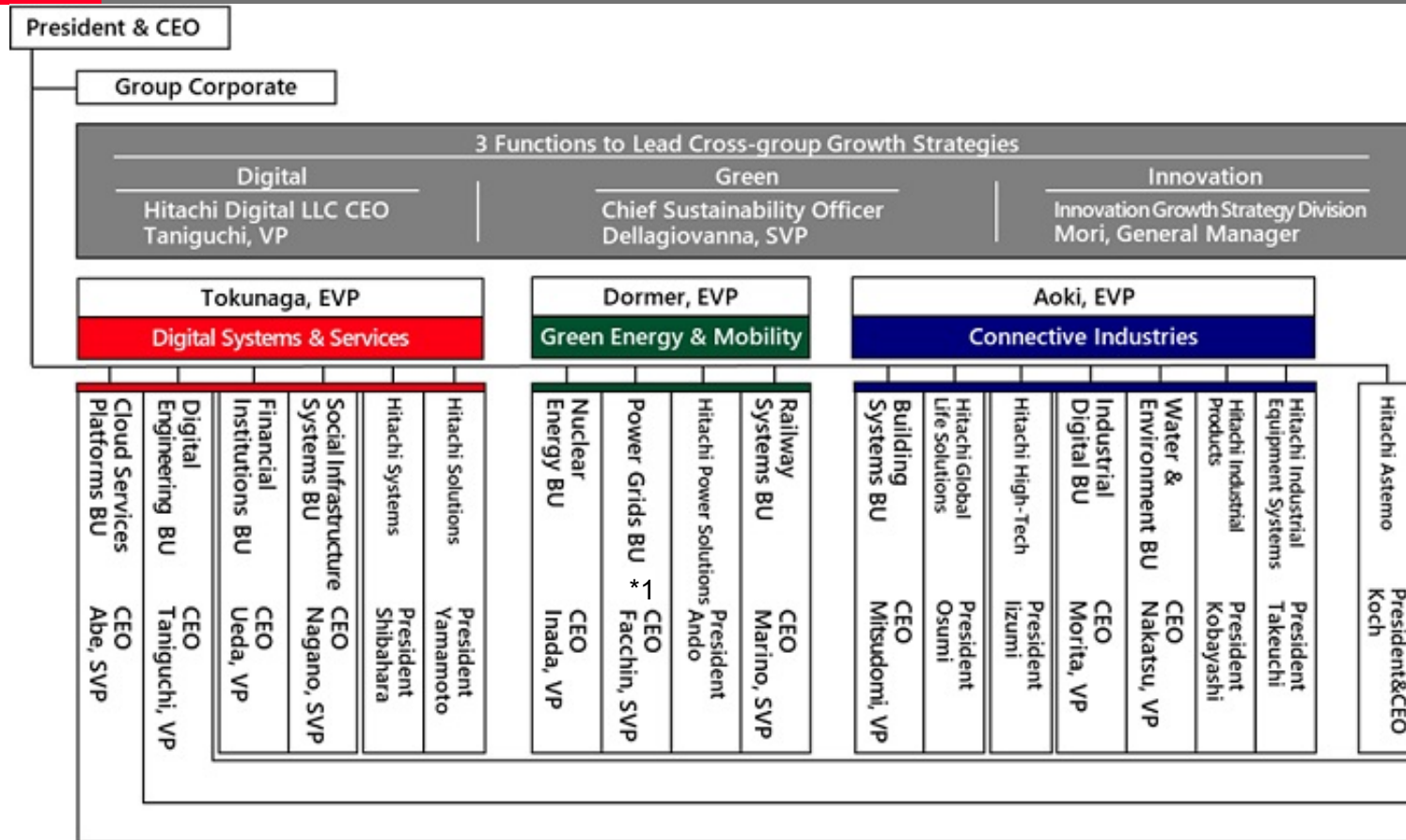
## ...reflecting in performance

- Hitachi Green Energy and Mobility is growing at 13% CAGR\*
- Power Grids market leader in growing HVDC market
  - Integration nearing completion
- Rail on course to strengthen Rail Control business
  - Thales GTS targeted to close 2<sup>nd</sup> half of FY2023

A woman with her back to the camera, wearing a bright yellow jacket, stands on a green hillside. In the background, there are several white wind turbines on a grassy slope. To the right, a dense city skyline with various skyscrapers is visible under a clear blue sky. The entire scene is overlaid with a complex network of white and blue lines and dots, resembling a digital or social network. The text 'Hitachi Social Innovation is POWERING GOOD' is centered in the upper half of the image.

Hitachi Social Innovation is  
**POWERING GOOD**

# Appendix. Hitachi Organization Chart



Source: [News Releases : February 1, 2023 : Hitachi Global](#)

\*1: Power Grids BU (¥1,438.7 bn sales in FY2022) includes Hitachi Energy Ltd. (¥1,413.9 bn sales in FY2022).

## Hitachi Energy and Petrofac secure landmark offshore wind agreement worth approximately 13 billion euros

- Largest framework agreement in Hitachi Energy company history, enabling long-term capacity expansion to accelerate the energy transition.
- Complementary technologies and expertise support TenneT's offshore wind capacity expansion in the German and Dutch sectors of the North Sea.



2GW offshore platform. Photo courtesy of TenneT

# Appendix. List of Key Abbreviations

Abbreviation	Definition
ABWR	Advanced Boiling Water Reactor
BESS	Battery Energy Storage System
BWR	Boiling Water Reactor
CCUS	Carbon dioxide Capture and Storage
CNaaS	Carbon Neutral as a Service
DERMS	Distributed Energy Resource Management System
EMS	Energy Management System
HVDC	High Voltage Direct Current
MaaS	Mobility as a Service
MRV	Monitoring, Reporting and Verification
SMR	Small Modular Reactor
V2X	Vehicle to Everything



Certain statements found in this document may constitute “forward-looking statements” as defined in the U.S. Private Securities Litigation Reform Act of 1995. Such “forward-looking statements” reflect management’s current views with respect to certain future events and financial performance and include any statement that does not directly relate to any historical or current fact. Words such as “anticipate,” “believe,” “expect,” “estimate,” “forecast,” “intend,” “plan,” “project” and similar expressions which indicate future events and trends may identify “forward-looking statements.” Such statements are based on currently available information and are subject to various risks and uncertainties that could cause actual results to differ materially from those projected or implied in the “forward-looking statements” and from historical trends. Certain “forward-looking statements” are based upon current assumptions of future events which may not prove to be accurate. Undue reliance should not be placed on “forward-looking statements,” as such statements speak only as of the date of this report.

Factors that could cause actual results to differ materially from those projected or implied in any “forward-looking statement” and from historical trends include, but are not limited to:

- economic conditions, including consumer spending and plant and equipment investment in Hitachi’s major markets, as well as levels of demand in the major industrial sectors Hitachi serves;
- exchange rate fluctuations of the yen against other currencies in which Hitachi makes significant sales or in which Hitachi’s assets and liabilities are denominated;
- uncertainty as to Hitachi’s ability to access, or access on favorable terms, liquidity or long-term financing;
- uncertainty as to general market price levels for equity securities, declines in which may require Hitachi to write down equity securities that it holds;
- fluctuations in the price of raw materials including, without limitation, petroleum and other materials, such as copper, steel, aluminum, synthetic resins, rare metals and rare-earth minerals, or shortages of materials, parts and components;
- credit conditions of Hitachi’s customers and suppliers;
- general socioeconomic and political conditions and the regulatory and trade environment of countries where Hitachi conducts business, particularly Japan, Asia, the United States and Europe, including, without limitation, direct or indirect restrictions by other nations on imports and differences in commercial and business customs including, without limitation, contract terms and conditions and labor relations;
- uncertainty as to Hitachi’s ability to respond to tightening of regulations to prevent climate change
- uncertainty as to Hitachi’s ability to maintain the integrity of its information systems, as well as Hitachi’s ability to protect its confidential information or that of its customers;
- uncertainty as to Hitachi’s ability to attract and retain skilled personnel;
- uncertainty as to Hitachi’s ability to continue to develop and market products that incorporate new technologies on a timely and cost-effective basis and to achieve market acceptance for such products;
- exacerbation of social and economic impacts of the spread of COVID-19;
- the possibility of disruption of Hitachi’s operations by natural disasters such as earthquakes and tsunamis, the spread of infectious diseases, and geopolitical and social instability such as terrorism and conflict;
- estimates, fluctuations in cost and cancellation of long-term projects for which Hitachi uses the percentage-of-completion method to recognize revenue from sales;
- increased commoditization of and intensifying price competition for products;
- fluctuations in demand of products, etc. and industry capacity;
- uncertainty as to Hitachi’s ability to implement measures to reduce the potential negative impact of fluctuations in demand of products, etc., exchange rates and/or price of raw materials or shortages of materials, parts and components;
- uncertainty as to the success of cost structure overhaul;
- uncertainty as to Hitachi’s ability to achieve the anticipated benefits of its strategy to strengthen its Social Innovation Business;
- uncertainty as to the success of acquisitions of other companies, joint ventures and strategic alliances and the possibility of incurring related expenses;
- uncertainty as to the success of restructuring efforts to improve management efficiency by divesting or otherwise exiting underperforming businesses and to strengthen competitiveness;
- the potential for significant losses on Hitachi’s investments in equity-method associates and joint ventures;
- uncertainty as to the outcome of litigation, regulatory investigations and other legal proceedings of which the Company, its subsidiaries or its equity-method associates and joint ventures have become or may become parties;
- the possibility of incurring expenses resulting from any defects in products or services of Hitachi;
- uncertainty as to Hitachi’s access to, or ability to protect, certain intellectual property; and
- uncertainty as to the accuracy of key assumptions Hitachi uses to evaluate its employee benefit-related costs.

The factors listed above are not all-inclusive and are in addition to other factors contained elsewhere in this report and in other materials published by Hitachi.