

Environmental / R&D Strategies Web Conference

Environmental Strategy

February 25, 2021

Alistair Dormer

Executive Vice President and Executive Officer
Hitachi, Ltd.

1 | Hitachi Commitment to Carbon Neutral

- Aiming for world class ESG performance

2 | Macro Trends to accelerate CO2 reduction

3 | Environment x Digital = Engine & Growth

- Enabling the Energy Transition
- Enabling Carbon free Mobility
- Enabling Carbon free Industry
- Promoting the use of Renewable Energy

4 | Summary



1-1. Our Commitment: Carbon Neutrality 2030

Hitachi Carbon Neutrality 2030

Hitachi will become “Carbon Neutral” by FY2030 in global operation* (*Factories and office)

1) Action

- Global best practice deployment to minimize factory energy consumption
- Pool purchasing of renewable energy by region to minimize cost
- Minimize requirement of carbon credit purchase

2) Investment

- Invest 84 B¥ for 10 years to implement the action plan.
- This action plan to minimize energy consumption will reduce electricity consumption by 22% and reduce CO2 by 24% over 10 years. (ex listed companies)

3) External Validation



SCIENCE
BASED
TARGETS


Sept. 2018 – Committed to achieving SBT
Dec. 2020 – SBT approved across value chain

'Hitachi, Ltd. commits to reduce absolute scope 1 and 2 GHG emissions 100% by 2030 from a 2010 base year.'
'Hitachi, Ltd. also commits to reduce absolute scope 3 GHG emissions 40% over the same time frame'
GHG: Greenhouse Gas


4) Leading Carbon Neutral Site

High-Tech Corporation
3 sites


- Became carbon neutral factory in FY2020
- ✓ By switching all electricity to renewable



Hitachi High-Tech Kyushu




Hitachi High-Tech Science



Hitachi High-Tech Fine Systems

Central Research Laboratory
“Kyōsō-tō” (a research building)

- Will become carbon neutral in FY2021
- ✓ By using renewable energy power
- ✓ New building “Kyōsō-tō” will become carbon neutral



The new Kyōsō-tō research building within the Kyōsō-no-Mori facility.

5) Incentive

- Introduction of Executive pay link to Environmental performance from April 2021
- Strengthening “Hitachi Internal Carbon Pricing” system, introduced from FY2019

1-2. Hitachi's Contribution to Carbon Reduction 2050

Hitachi set the 80% CO2 emission reduction target by FY2050 through the value chain

And will contribute to realize the Carbon Net Zero society by 2050 through its
"Social Innovation Business"

Measurement

- 1) Hitachi will take actions to create green innovation together with its customers, partners and other stakeholders
- 2) 70% by value of Supply Chain (exc. listed subsidiaries) engaged to develop CO2 reduction plans from FY2021

Participating Initiatives (Joint Action)



Race To Zero Campaign

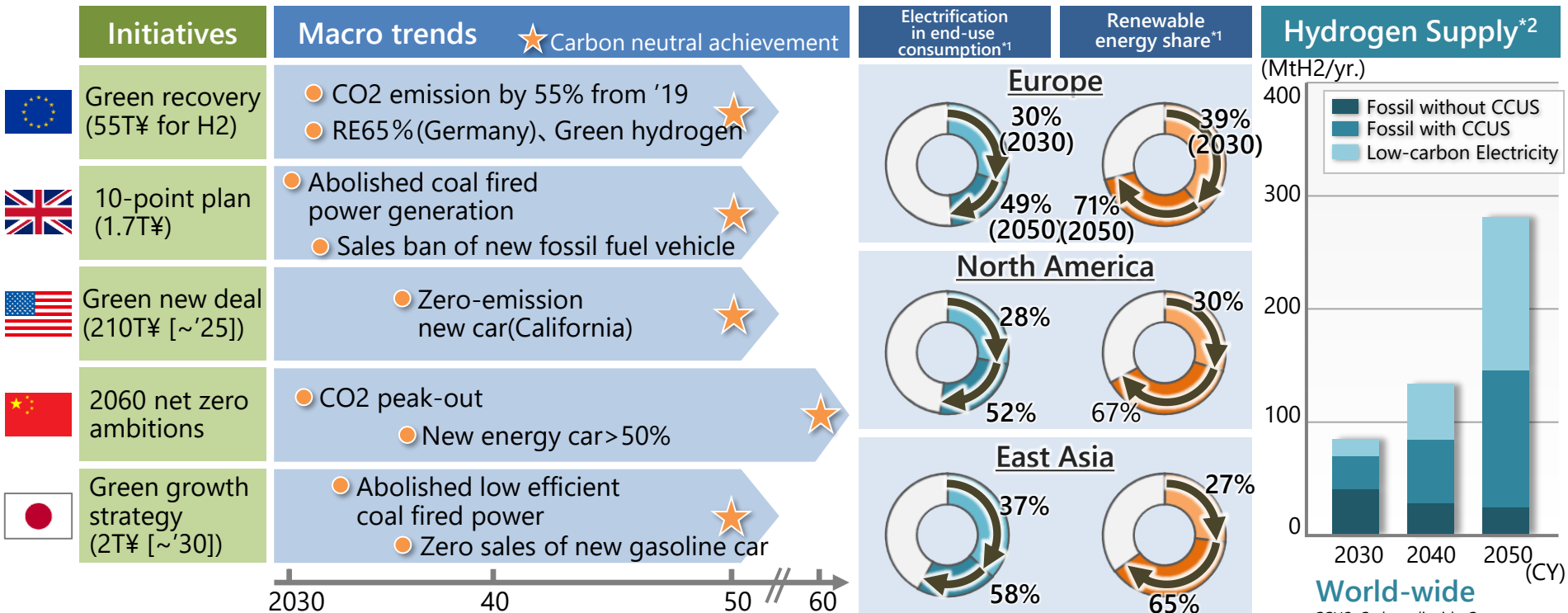


SOS1.5 Project



2. World Trends: Following wind for Hitachi

Each country declares both CO2 reduction and economic growth, increasing investment for Renewable Energy(RE)/electrification/hydrogen



*1 Global Renewables Outlook: Energy transformation 2050, IRENA, Apr.2020
https://irena.org/-/media/Files/IRENA/Agency/Publication/2020/Apr/IRENA_Global_Renewables_Outlook_2020.pdf

*2 IEA, Global hydrogen production in the Sustainable Development Scenario, 2019-2070
<https://www.iea.org/data-and-statistics/charts/global-hydrogen-production-in-the-sustainable-development-scenario-2019-2070>

“

Electricity
will be the
backbone
of the
entire
energy
system

01

Accelerated shift from fossil-based to renewable power generation

02

Growing electrification of Transportation, Industry and Buildings sectors

03

Sustainable energy carriers, complementary to direct electrification

Fast facts

- “ Electricity demand will more than double by 2050
- “ Electrification improves energy efficiency
- “ All market sectors converting towards electrification
- “ Energy sector-coupling beneficial

So what?

Digital and energy platforms are needed...

...to manage the enormous power system energy transition challenges:

- increased complexity
- additional capacity

for CO₂e reduction

Accelerating the transition to a carbon neutral energy system requires adapting and adopting policies and regulations to enable technology and new business models to support stronger, smarter and greener electricity systems.

3-1-2. Hitachi ABB Power Grids is Highly Credible with Growing Global Opportunities



Sustainable



Accessing clean electricity
Powering sub-Saharan Africa's largest solar venture in Angola



Energizing NordLink
Norway-Germany HVDC link integrating renewables to support Europe's carbon-neutral vision



Supporting sustainable mobility
e-bus pilot at IIT Madras campus with Ashok Leyland, India

Strong



Pioneering Innovation
High-voltage hybrid switchgear for offshore wind in China



Collaborating for success
Teaming up with Tensio TN A/S to deliver Norway's first fully digital, eco-efficient substation



Powering six million homes
and accelerating UK's green energy transition with a new contract for the world's largest offshore wind farm

Safe & Secure



Enabling power security
Substation control & monitoring for 33 substations with advanced cyber security solution in Dubai



Optimizing rail networks
Innovative technologies to optimize asset performance for high-speed rail network, UK



Facilitating Data centers
1 gigawatt high-voltage substation to serve Dublin's data center boom

Providing sustainable energy solutions for society

“
The only
methods more
environmentally
friendly than
trains are
walking and
cycling

01

The transportation sector is responsible for more than 20% of CO2 emissions globally.

02

Global Plug-in Vehicle Sales Up 43% In 2020, European Sales Up 137%

03

Rail transport is key to sustainably, emissions per kilometer on rail transport is 80% less than cars.

Fast facts

“ A typical train line can carry 50,000 people per hour. Compare this with a freeway lane, which can move only 2,500 people per hour.

“ Battery-powered buses record up to 70 percent lower GHG emissions than their fossil fuel counterparts.

So what?

Rail and bus transportation currently only represents about 20% of the passenger transportation and is seen as a significant growth market. With Hitachi's carbon free mobility solutions, it is well positioned to take advantage of this environmentally friendly sustainable growth market.

Right product offering to take advantage.

3-2-2. Enabling Carbon Free Mobility - Rail



Battery hybrid train in the UK

- Partnership with Hyperdrive
- London-Penzance intercity route



Battery tram in Florence

- Trial in Florence
- Reduced cost and disruption in city centres



Battery hybrid train in Italy

- Masaccio commuter service
- 43 trains ordered



Hydrogen prototype in JAPAN

- East Japan Railway and Toyota partnership
- HYBARI* prototype to be launched in 2022



Turning one intercity train into battery hybrid on the London to Penzance route saves 240 tons of CO2 p.a. (equivalent of 12k trees, 180 passenger cars)

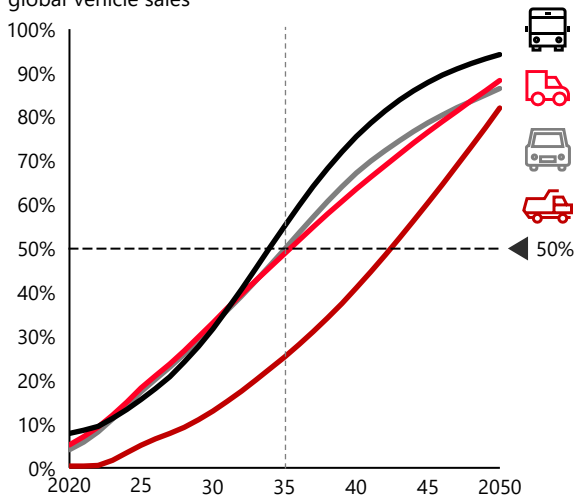
* HYdrogen-HYBrid Advanced Rail vehicle for Innovation

3-2-3. Enabling Carbon Free Mobility - EV



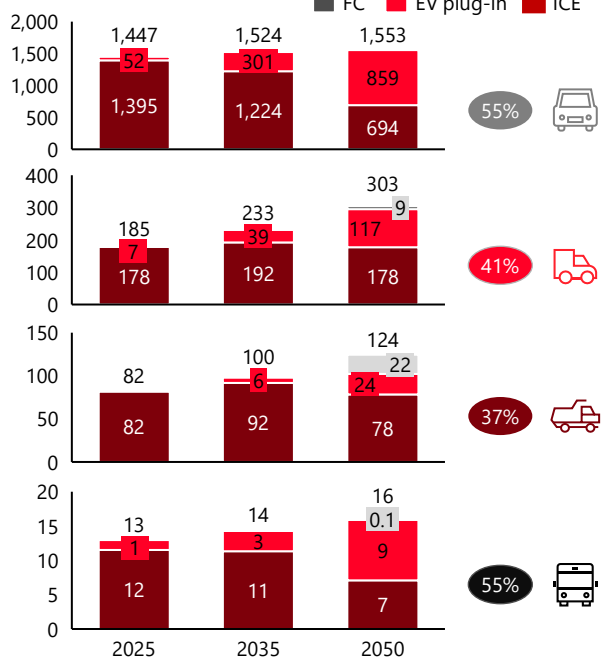
EV sales uptake by segment*1

% of global vehicle sales



Global car parc,

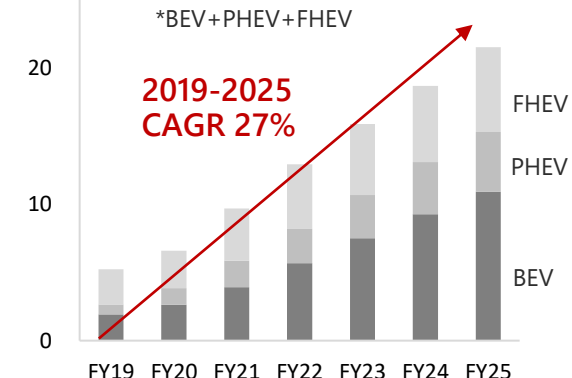
Million vehicles



xEV global market forecast (production)

Million vehicles

Source: IHS



*BEV+PHEV+FHEV
 FY19 FY20 FY21 FY22 FY23 FY24 FY25
 FC : Fuel Cell
 ICE : Internal Combustion Engine
 BEV : Battery Electric Vehicle
 PHEV : Plug-in Hybrid Electric vehicle
 FHEV : Full Hybrid Electric vehicle
 CAGR : Compound Average Growth Rate

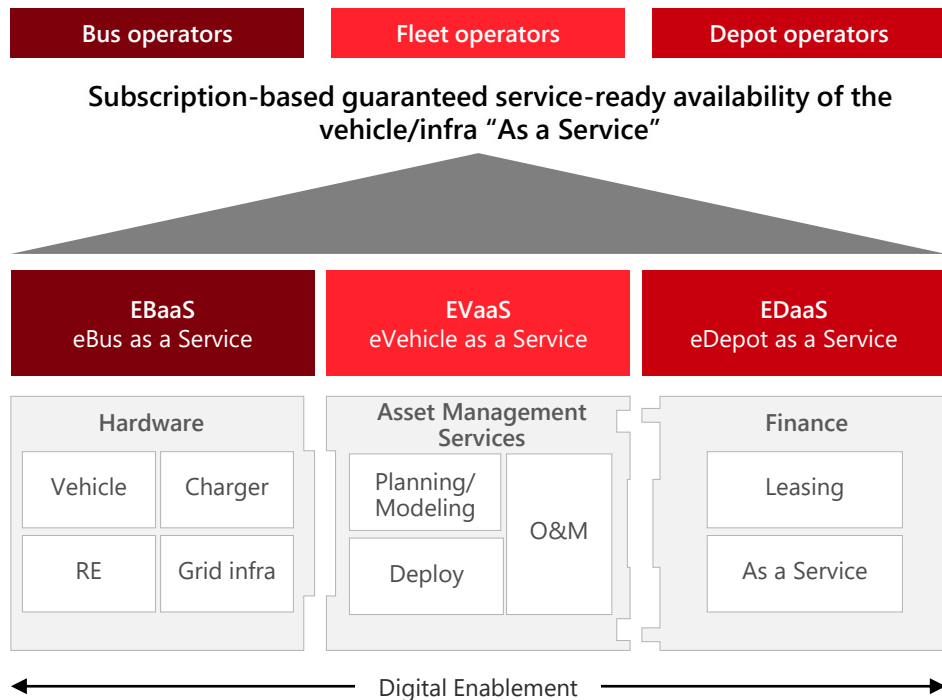
Astemo
 Advanced Sustainable Technologies for Mobility
 Launched to make the world a better place

EU charger #*2: 2m, 10m, 49m, 126m
 Global charger #*2: 5m, 26m, 123m, 384m

*1 EV = BEV + PHEV + FC
 *2 Includes Passenger cars, LCVs, trucks and buses
 Source: McKinsey Energy Insights' Global Energy Perspective, October 2020

Globally, EVs will dominate vehicle sales across Bus, car fleet, and LCV segments within 15 years

Our Solution



Solution and Revenue Elements

EBaaS: *Bus fleets and depots* – providing electric bus and electrified depots for bus operators;

EVaaS: *LCVs, private vehicles, depots and workplaces* - turnkey provision of electric LCVs, electric private vehicles and charging infrastructure

EDaaS: *Depot* - motorway, hub charging and port charging hubs, providing remote and guaranteed charging facilities for logistics and large vehicle fleets.

Business Model and Revenue Mix

Fully Integrated subscription charge of per vehicle/per month/per mile incorporating:

1. **Asset Fee** (Vehicle, Charger and Battery) – sale commission from Lease company or OEM
2. **Asset management Services** –asset, operations and maintenance optimisation
3. **Digital Enablement** – Fully integrated SaaS suite of applications enabling different levels of optimised service
4. **ICE Fleet Optimisation & EV transition** – services and solutions to optimise, plan and deliver EV transition

Our solution proposes a "Turnkey" service to fleet operators providing services across the value chain



There is an increasing trend in manufacturing companies to prioritize environmental impact reduction due to growing international attention on global warming and stricter environmental regulations

01

Manufacturing represents 54% of the world's energy consumption and is responsible for 20% of global emissions.

02

More consumers/companies are making their purchasing decisions based on the environmental stance of companies they do business with.

03

Effective carbon-neutrality strategies must address the entire life cycle of the product.

Fast facts

“ Nearly 25% of Fortune Global 500 companies have made a commitment to reduce their net greenhouse gas emissions to net-zero by 2030.

“ Digital technologies could help reduce global CO2 emissions by up to 15%.

“ 65% of consumers are willing to stop using their favourite products if they aren't sustainable.

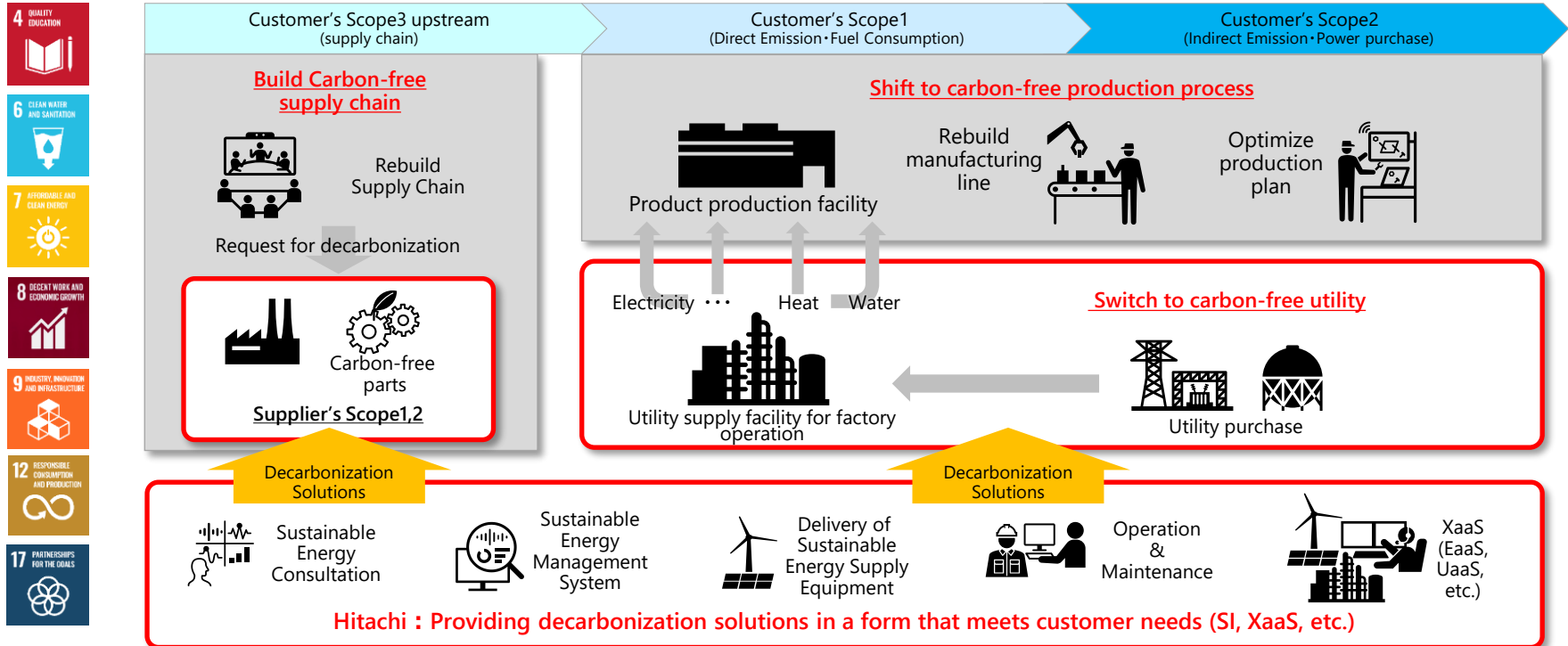
So what?

The companies best positioned to successfully navigate this trend are those that embrace advanced manufacturing technologies and solutions across their factories and supply chains, creating value and improving operations while also increasing sustainability.

Hitachi can be a partner for both digitalization and decarbonization.

3-3-2. Enabling Carbon Free Industry

Contribute to focusing customer resources on key issues by providing decarbonized solutions for Scopes 1 and 2



3-4. Promoting the use of Renewable Energy

- ✓ Develop a system to visualize the use of renewable energy for each facility and service.
- ✓ Started operating a system to certify the use of 100% renewable energy as "Powered by Renewable Energy."



By using smart meters and blockchain technology, we can visualize how much renewable energy is being used on a per-building and per-facility basis.

It is possible to visualize that 100% of the electricity used in each detailed building or production line is from renewable energy sources, contributing to raising corporate environmental awareness and promoting the use of renewable energy.

Hitachi started use this system at Central Research Laboratory from Feb. 1st

4. Green Tech v Digital Drive Growth – Hitachi Global Footprint

Hitachi (5 sector)	Revenues (billions of yen) (FY2020 forecast)	Japan / Overseas (%) (Q1-Q3 FY2020)	Growth Driven By:			
	6,780.0	50% / 50%				
Segment (Revenues. for FY2020, billions of yen)	Business (Driving force)	Japan / Overseas	China	Other Asia/ Oceania	Americas	EMEA
IT (1,970.0)	Digital Solutions	74% / 26%				
Energy (1,040.0)	Energy Solutions / Power Grids	29% / 71%				
Industry (800.0)	Smart Manufacturing	74% / 26%				
Mobility (1,150.0)	Elevator & Escalator / Building Services	36% / 64%				
	Rail / Fleet Management	18% / 82%				
Smart Life (2,100.0)	Appliances, Analytics / Metrology	54% / 46%				
	Automotive Systems (CASE / xEV)	38% / 62%				

Overseas revenues ratio of each businesses are calculated based on the results up to the third quarter of the fiscal year ending March 31, 2021.
Revenue by market ratio of the Automotive Systems business are based on the forecast for the fiscal year ending March 31, 2022.

Cautionary Statement

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:

- exacerbation of social and economic impacts of the spread of COVID-19;
- 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;
- 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;
- 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;
- 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;
- credit conditions of Hitachi’s customers and suppliers;
- 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;
- 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;
- the potential for significant losses on Hitachi’s investments in equity-method associates and joint ventures;
- uncertainty as to the success of cost structure overhaul;
- 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;
- 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 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 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.

Hitachi Social Innovation is

POWERING GOOD

HITACHI
Inspire the Next 