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Initiatives for Hitachi Environmental Innovation 2050 and Creation of Environmental Values

ESG Briefing

September 24, 2019

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1. Global Environment Problems Are Urgent Challenges to Be Addressed

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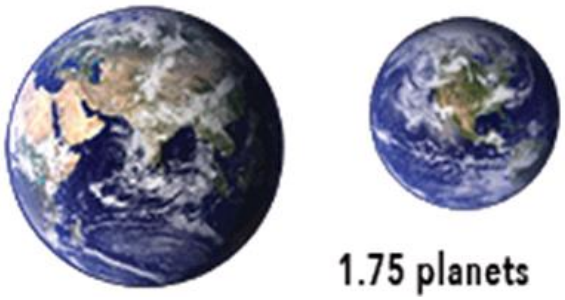
In recent years, natural disasters such as floods and forest fires have been rapidly increasing due to climate change. Further, the living environment for humans has rapidly degraded because of the increase in disasters. We need to take immediate actions to solve the global environment problems, including countermeasures against climate change.

Humanity has exhausted natural resources by an amount equivalent to those of 1.75 planets



* https://www.overshootday.org/

2. Hitachi Has Tackled Society's Challenges Since Its Foundation

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Hitachi's Corporate Mission

- ✓ **Contribute to society through the development of superior, original technology and products**

Worsening social and environmental issues

- ✓ **Further worsening of environmental challenges such as the problems of climate change and the resource shortage that threaten global sustainability**
- ✓ **Widening social problems such as expanding disparities and threatened security and safety**

Hitachi's advancement of its sustainable management (social value, environmental value, economic value)

- ✓ **The 2021 Mid-Term Management Plan specifies the simultaneous increase of "social value, environmental value, and economic value"**
- ✓ Enhancement of **"sustainability governance"**
  Initiatives integrating management strategies and business strategies by the Executive Sustainability Committee, chaired by Hitachi's president and CEO
- ✓ **Targets set based on long-term perspectives and the implementation of current operations**
  Addressing environmental issues through the **Hitachi Environmental Innovation 2050** (2016) and the Environmental Action Plan developed every three years, among others

3. Key Points to Be Explained Today

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1. Hitachi group's governance system for advancing sustainable management from a long-term perspective

2. Hitachi's further initiatives to address climate-related issues
   - Introduction of Hitachi internal carbon pricing system
   - Expansion of the decarbonization business and collaborative value creation by scenario analysis for long-term impacts

3. Examples for achieving a resource efficient society and a harmonized society with nature

4. Hitachi Environmental Innovation 2050 (September 2016)

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Environmental Vision

Hitachi will resolve environmental issues and achieve both a higher quality of life and a sustainable society through its Social Innovation Business in collaborative creation with its stakeholders.

Hitachi Environmental Innovation 2050

For a low-carbon society

Through the value chain CO_2 emissions

FY2050	FY2030
80% reduction	50% reduction

(compared to FY2010)

For a resource efficient society

Build a society that uses water and other resources efficiently with customers and society

Efficiency in use of water/resource FY2050

50% improvement

(compared to FY2010 in the Hitachi Group)

For a harmonized society with nature

Impact on natural capital

Minimized

Environmental Action Plan

Set environmental action items and targets every 3 years in order to achieve the long-term targets.

The Environmental Action Plan for 2021 specifying the targets for the period from 2019 to 2021 has now been implemented.

5. Environment-related KPIs in 2021 Mid-Term Management Plan

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The environmental targets to be achieved by FY2021 were set in order to achieve the long-term environmental targets called Hitachi Environmental Innovation 2050.
To achieve these targets, the Environmental Action Plan for 2021 were developed to accelerate Hitachi's Group-wide initiatives.

Through the value chain
CO_2 emissions

Reduced by more than **20**%
(compared to FY 2010)

Efficiency in use of water
(in Hitachi Group)

Improver by more than **26**%
(compared to FY 2010)

Efficiency in use of resources
(in Hitachi Group)

Improver by more than **12**%
(compared to FY 2010)

6. Hitachi's Environmental Governance

To realize our Environmental Vision and achieve our long-term environmental targets, we are enhancing environmental governance by building a global structure to support environmental decision making and implementation at Hitachi, Ltd. and its consolidated subsidiaries.

7. Advancing the Environmental Action Plan and PDCA

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The Environmental Action Plan is drawn up every three years. Its achievement is periodically evaluated, and the results are used in the Environmental Action Plan's PDCA to promote further environmental activities in the Hitachi Group whole.

Promoting the Environmental Action Plan (a three-year plan)

- The Eco-Management Meetings decide on the Hitachi Group Environmental Action Plan.
- Performance data of Hitachi, Ltd. and its subsidiaries are collected (twice a year) to assess the achievement status.
- The assessment results are used in the Environmental Action Plan's PDCA.
- The working group is established on an as-needed basis. It plans measures necessary for achieving the targets, and disseminates them across the Hitachi Group.

Environmental audit

- The environmental audit verifies each item and its progress of the Environmental Action Plan.

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Further Enhancement of Initiatives to Address the Climate-related Issues

8. Hitachi's Initiatives for a Low-Carbon Society

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To reduce CO_2 emissions from the entire value chain, Hitachi has been making efforts not only to reduce the CO_2 emissions involved in production, but also to reduce the CO_2 emissions involved in the use of products and services.

Decarbonization at factories and offices

(1) Promoting investment in low-carbon equipment

(2) Advancing the introduction of renewable energy

Reduction target for FY2021 (compared to FY2010): **9%**

Expansion of Decarbonization Business

(1) Advancing businesses that contribute to the achievement of a low-carbon society
- Shifting to low-carbon products and services
- Creation of innovative technologies and solutions for decarbonization

Reduction target for FY2021: **21%**

Reduction target for FY2021 in total of the entire value chain (compared to FY2010): **more than 20%**

9. Decarbonization at Our Factories and Offices

(1)Promoting investment in low-carbon equipment

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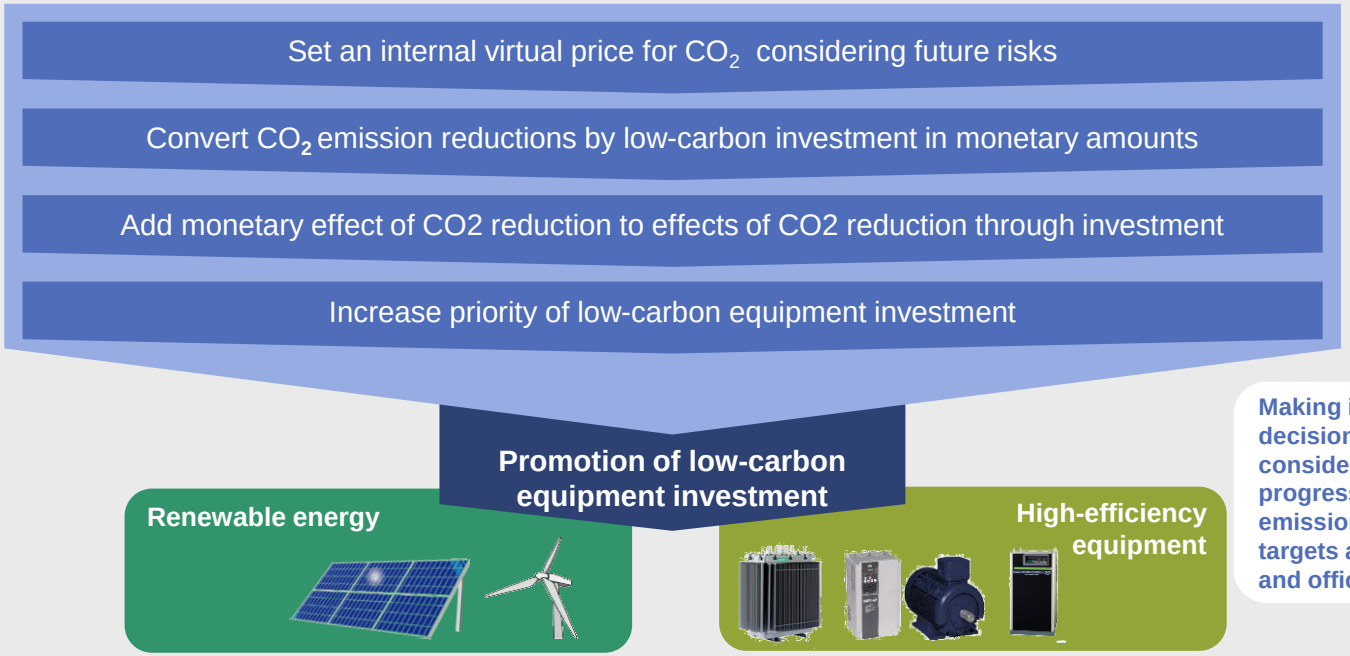
The Hitachi Internal Carbon Pricing System*1 has been introduced (starting from FY 2019 investment)

- To promote capital investment in low-carbon equipment, a virtual price was set for CO_2 emissions, and the priority of reducing CO_2 emissions in investment judgment has been raised
- This system applies to all of Hitachi, Ltd., its wholly owned subsidiaries, and the four listed subsidiaries
- The virtual price of CO_2 is 5,000 [¥/tCO_2]*2



*1 Internal carbon pricing is a system in which an organization uniquely prices carbon emissions and applies the prices to its management's decision making, used to promote the shift of the activities of the organization to low carbonization.
*2 Determined with reference to IEA WEO2017 SD scenario and other references

10. Climate-related risks and opportunities in Hitachi's Businesses (1)

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In June 2018, Hitachi announced its endorsement of the TCFD recommendations and began disclosing information in the Integrated Reports and other reports on the basis of the disclosure criteria in the recommendations.

Examining the impacts (risks and opportunities) from predictable future climate change on Hitachi's businesses to assess Hitachi's resilience to climate change

Assuming two scenarios: one scenario of global warming as a result of temperature rise from pre-industrial levels of 2°C or less and another scenario of 4°C or more (with reference to IEA, IPCC, and other references)

2°C scenario:	A scenario that is the presumption to the development of Hitachi's long-term environmental targets. Measures against climate change will be taken and the temperature rise will be limited to within 2°C by the end of this century.
4°C scenario:	Measures against climate change will not be sufficiently implemented, resulting in temperature rise of 4°C or more. Many physical risks will arise.

Spans of analysis of the scenarios

Short term:	Three fiscal years from 2019 to 2021 (Period of management by 2021 Environmental Action Plan specifying our environmental activities for the three fiscal years
Medium term:	Until FY2030 in accordance with the targets for Hitachi's Long-term Environmental Targets 2030
Long term:	Until FY2050 in accordance with the targets for Hitachi's Long-term Environmental Targets 2050

TCFD: Taskforce on Climate-related Financial Disclosure

11. Climate-related risks and opportunities in Hitachi's Businesses (2)

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An analysis of the time when climate-related risks on Hitachi's entire business may arise on a short-, medium- and long-term basis according to the categories by the TCFD

(1) Risks in transition to low-carbon economy

Category	Major risks	Time when the risks may appear	Measures against the risks
Policy and Legal Risks	Increase of operation costs to be borne arising due to the introduction of carbon taxes and taxation on the consumption of fuels and energy	Short to long term	Prevent and alleviate the impact from the increased operation costs arising due to taxation and other factors by increasing production efficiency and decarbonization, and by advancing the use of low-carbon energy
Technology Risk	Loss of sales opportunities caused by delayed technological development for products and services	Medium to long term	Develop and spread innovative products and services contributing to the reduction of CO_2 emissions; expand post-carbon businesses

(2) Risks related to the physical impacts of climate change

Category	Major risks	Time when the risks may appear	Measures against the risks
Acute and chronic risks	Risks to business continuity caused by the increased severity of typhoons, floods, water shortage (acute risks), and so on; rise in the sea level, chronic heat waves, and other factors	Short to long term	Take into consideration factors such as location and the possibility of damage from flooding, water shortage, and so on when establishing a new plant or deciding on the deployment of equipment. Strengthen the measures against water risks in each region on the basis of the Water Risk Assessment Guideline that is under development.

12. Climate-related risks and opportunities in Hitachi's Businesses (3)

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Selecting five businesses that are highly likely to be affected by climate change; examining and assessing their impacts (risks and opportunities) on the businesses in the 2°C/4°C scenarios

Target businesses for examination	Railway systems business	Automobile-related Business	Water system business	Power generation and power grids related business	Information system business
Measures against business risk and business Opportunities	In either of the 2ºC/4ºC scenarios, a global increase in demand for railway systems is expected; the enhancement of the railway system business is to be continued	In the case of the 2ºC scenario, measures for new markets such as the electric motor powered vehicles market are to be strengthened In the case of the 4°C scenario, measures for the existing technologies including combustion engine-powered vehicles are also to be enhanced	In either of the 2ºC/4ºC scenarios, as measures for increased demand for water that will be caused due to factors such as global economic growth, urbanization, and growing population, the offering of water generation systems including desalination equipment is to be enhanced	In either of the 2ºC/4ºC scenarios, demand for non-fossil energy such as renewable energy and nuclear-generated power is predicted to expand; measures for expanded markets should continue to be taken	The market is expected to expand in either of the 2ºC/4ºC scenarios. Digital service solutions creating new values are therefore to continue to be strengthened in addition to energy saving at the data centers and development of energy-saving digital Technologies

Hitachi has sufficient resilience to respond to medium- and long-term changes in the markets, flexibly and strategically develop its business and realize continuous growth in either of the 2°C/4°C scenario.

13. Expanding Decarbonization Business

(1) Advancing businesses that contribute to the achievement of a low-carbon society

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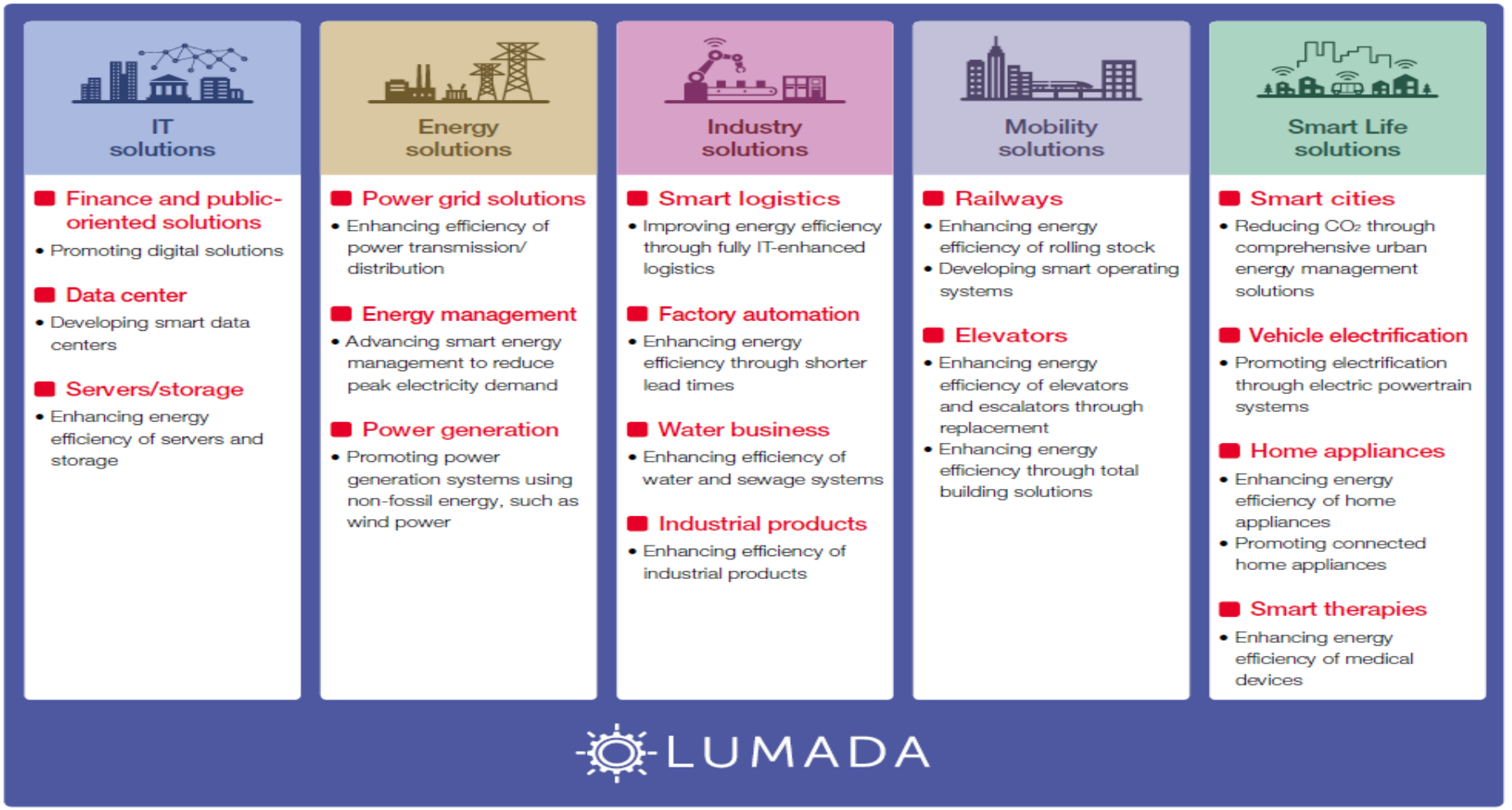
Contributing to alleviation of climate change by extending the product/service (expanding post-carbon businesses) capable of contributing to creation of a low-carbon society



14. Social Innovation Business That Collaboratively Creates Environmental and Social Value (1)

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Mobility Sector

Offering safe, secure, and comfortable products and services to people around the world

Example: Using aluminum for vehicle body materials for weight reduction; energy-saving operation has been implemented by reducing electrical loss through using the SiC inverter

Example: In Honolulu, railways services substituted transportation by automobiles to achieve a reduction of CO_2 emissions of 210,000 tons per year

AZUMA operating on the UK National Rail

Energy Sector

Offering energy solutions using Lumada including smart grids, renewable energy, and energy management

Example: Managing 25% of substations all around the world, contributing to the stable supply of energy to about 1.8 billion people

Example: With strengthened collaboration with Enercon GmbH, developing the wind energy system business

Ultra high voltage (UHV) gas-insulated switchgear

15. Social Innovation Business That Collaboratively Creates Environmental and Social Value (2)

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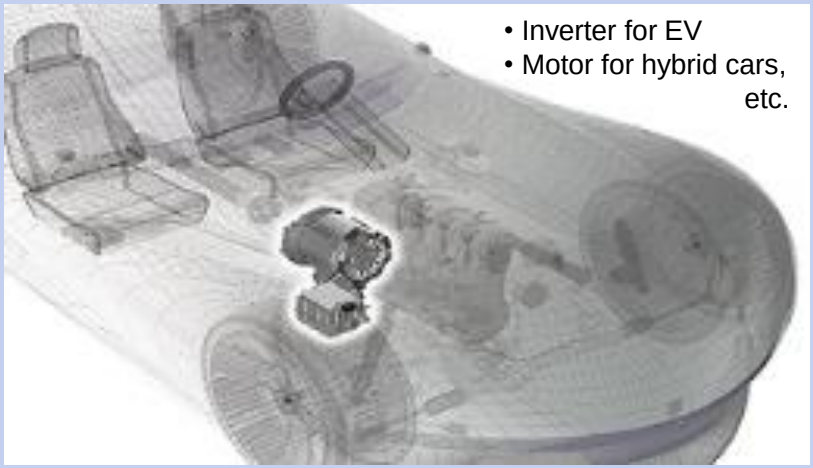
Smart Life Sector

Creating towns that enable people to lead healthy, safe, and comfortable lives with consideration for the environment and ease of living for everyone to contribute to improving people's QoL

Example: Shifting to the use of electric components and using IoT technologies, reducing the total CO_2 emissions of our products (by 99,000 tons in FY2021)

Example: Contributing to the reduction of deaths by traffic accidents through automatic operation technologies



(Electric) powertrain system

Industry Sector

Using OT/IT data from production fields in AI analysis and simulations to support the general customization of customers' production processes

Example: Using our plants as showcases (using IoT, reducing power consumption by 22%; implementing peak shaving of external power by using renewable energy)

Example: Using amorphous transformers to reduce power loss by 60%

Omika Works

Smart factory (Oomika Office)

16. Long-Term Environmental Targets and Environmental KPIs for 2021

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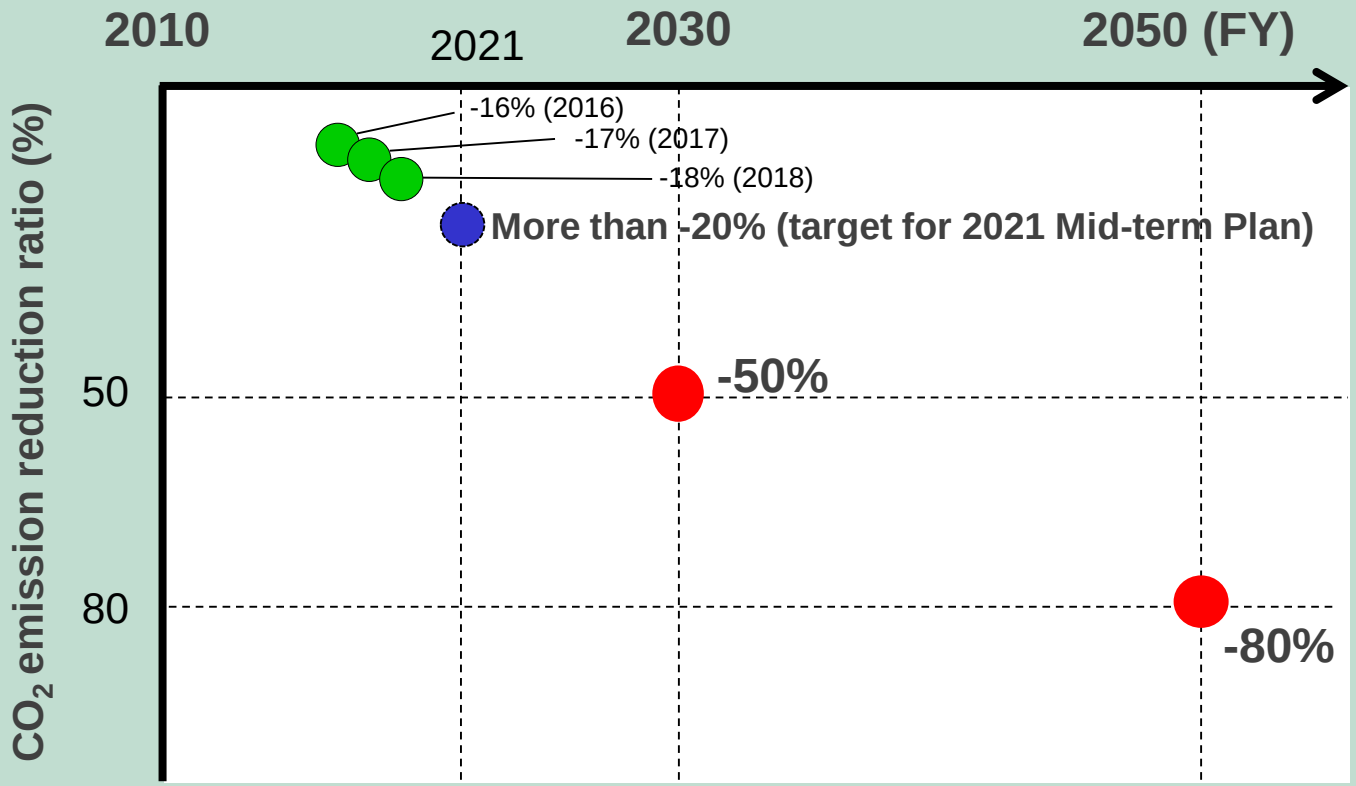
Advancing the offering of high efficiency products (for industry equipment, home appliances, etc.); introduction of highly efficient equipment and energy-saving equipment and systems at offices, thereby reducing CO_2 emissions.
Moving forward, we will make further efforts to reduce CO_2 emissions through the expansion of the post-carbon business.



CO_2 emission reduction targets and performance (compared to FY2010)

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Toward the Realization of a Resource Efficient Society and a Harmonized Society with Nature

17. Initiatives to Achieve a Resource Efficient Society

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Building a circular society that uses water/resources efficiently

Improving efficiency in the use of water

- Target for FY2021: 26%
- Target for FY2050: 50%

Improving efficiency in the use of resources

- Target for FY2021: 12%
- Target for FY2050: 50%

Addressing water risk by improving water use efficiency

Enhancing resource circulation through the value chain

Advancing the measures for water risk at factories and offices

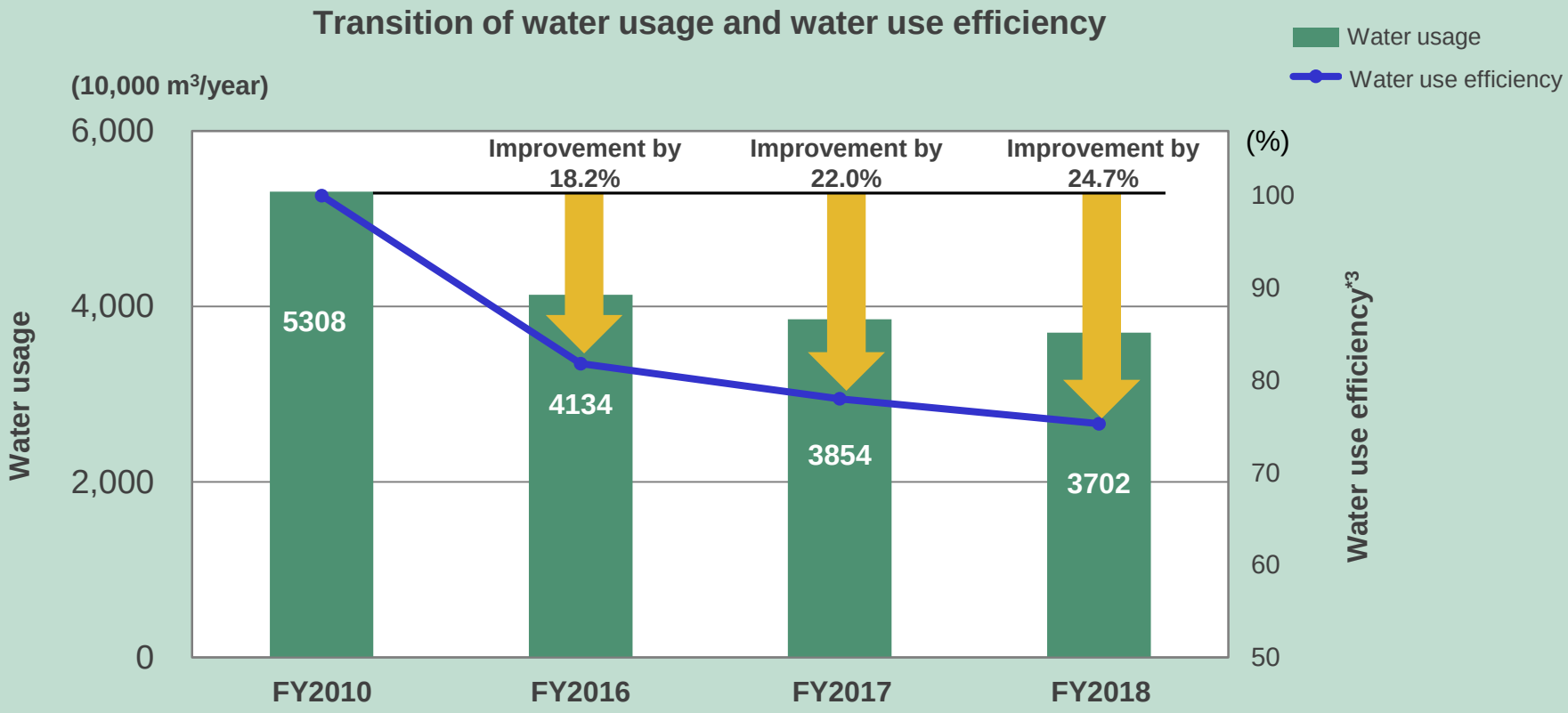
- ✓ Reducing use of fresh water
- ✓ Promoting use of circulated water, etc.

Advancing resource circulation at factories and offices

- ✓ Promoting use of recycled materials
- ✓ Reducing generation of waste, etc.

18. Transition of Water Use Efficiency

Reducing water usage and promoting the use of circulated water to improve efficiency in the use of water.



*3 Water usage per unit activity amount (proceeds, production, etc.), a ratio with the reference year as 100.

19. Cases of improved Water Use Efficiency

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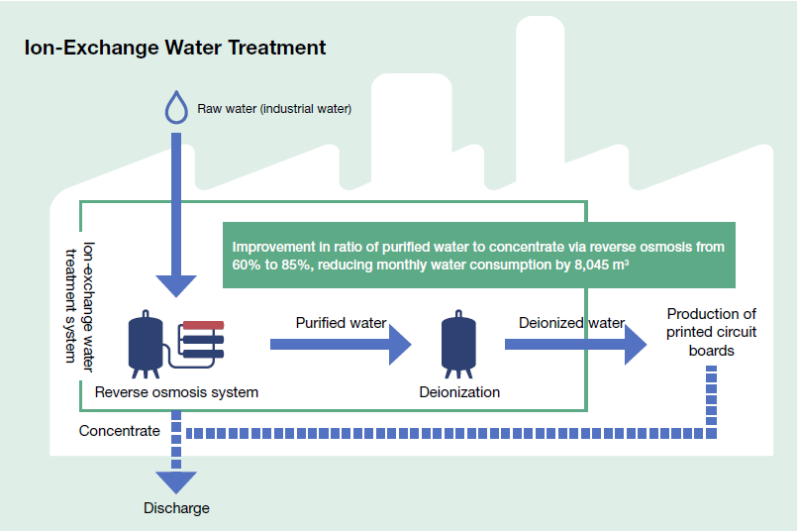
Plant in Singapore, where water resources are highly valuable (Hitachi Chemical (Singapore) Pte. Ltd.)



Reducing water use by optimizing the Ion-exchange water treatment system

- **Reduced water usage: 301,000 m³**
- **Rate of improved water use efficiency: 52%** *4

Casting plant requiring water in large quantities (Hitachi Metals, Ltd./Waupaca Foundry, Inc.)

Reducing water use by introducing the closed-loop water cooling system

- **Reduced water usage: 1,336,000 m³**
- **Rate of improved water use efficiency: 40%** *4

*4 Comparison to FY2010, performance for FY2018

20. Resource Circulation through the Value Chain

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Initiatives for resource circulation of Hitachi products

Recycling of plastics in home appliance products (Japan)

Refurbishment of storage systems (US)

Recycling of parts for construction machines

(Japan, China, India, Indonesia, Holland, Australia, Canada, US, Zambia)

Circulated use of amorphous metal materials (Japan)

Rebuilding of electric parts for automobiles (Japan)

Circulated use of metal materials for molded parts for automobiles (Japan)

21. Transition of Resource Use Efficiency

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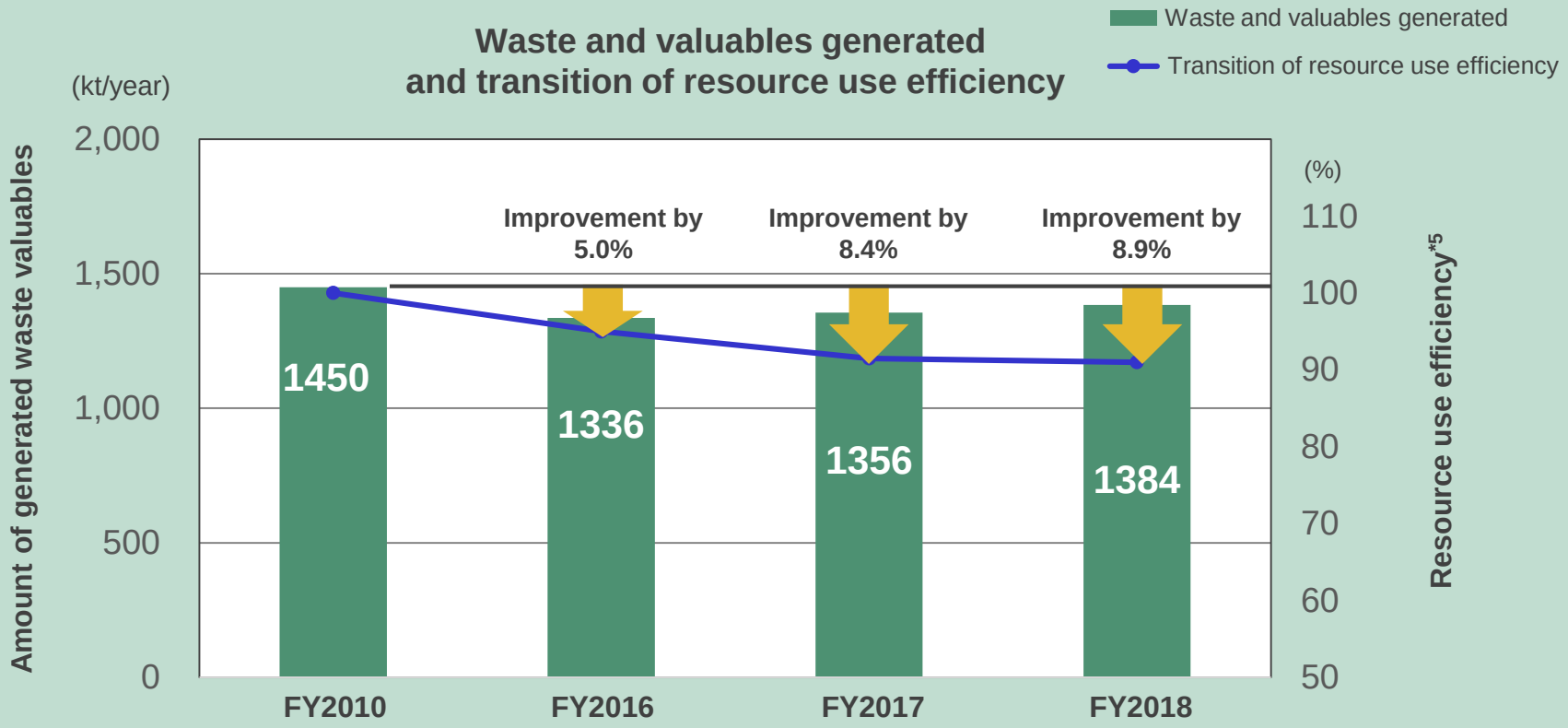
Improving resource use efficiency by advancing the circulated use and recycling of resources.



*5 Waste and valuables generated per unit activity (proceeds, production, etc.), a rate with the base year as 100.

22. Case Examples for Improved Efficiency of Resource Use

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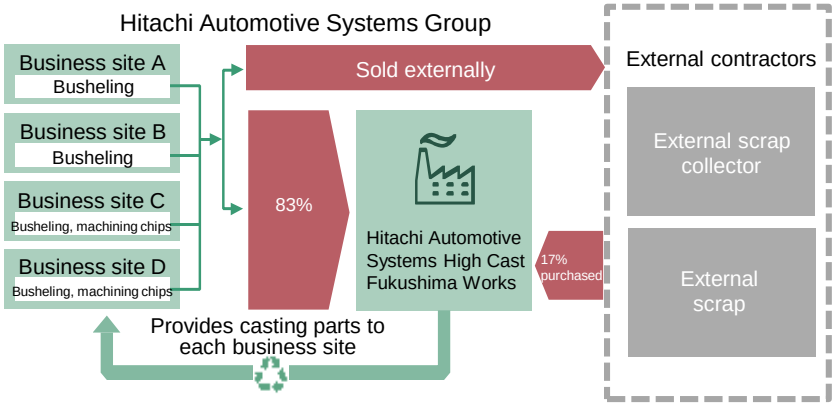
Closed-Loop Recycling for Scrap Iron (Hitachi Automotive Systems Group)

Closed-Loop Recycling Scheme for Scrap Iron



Using, in circulation, the scrap iron generated in the manufacturing processes of molded automotive parts within the group

- **Recycled amount: 14,550 t/year**
- **Ratio of improvement of resource use efficiency: 15.0%** *6

Promotion of recycling of slag (green sand and others) (Hitachi Metals, Ltd./Waupaca Foundry, Inc.)

Recycling green sand generated in the manufacturing processes of molded automotive parts

- **Recycled amount: 19,500 t/year**
- **Ratio of improvement of resource use efficiency: 9.5%** *6

*6 Comparison to FY2010, performance for FY2018

23. Long-Term Environmental Targets and Environmental KPIs for 2021

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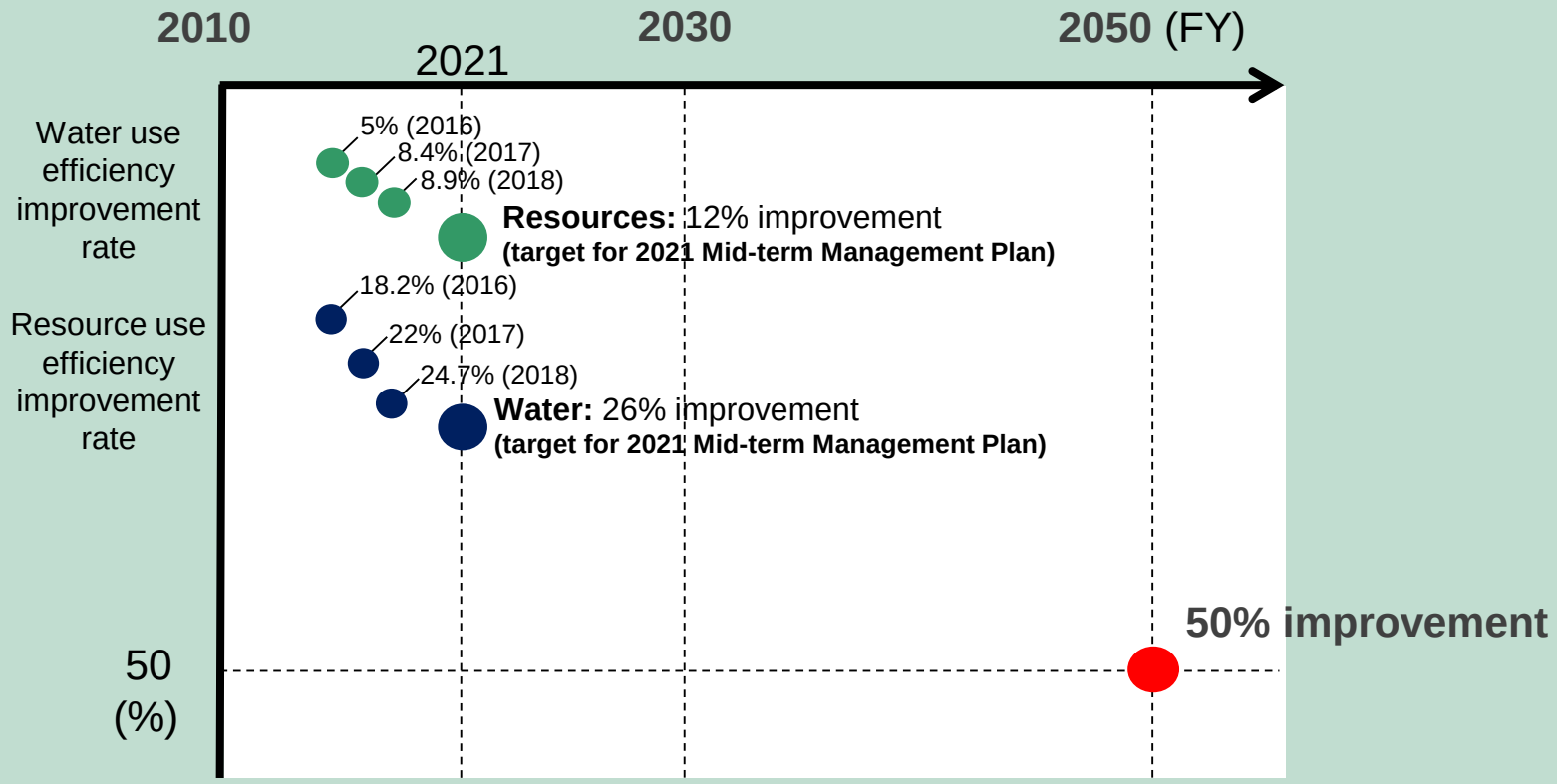
For FY2018, with the best practice development in the reduction of water usage, the circulated use of water and the reduction of waste, water and resource use efficiencies were improved to achieve the target.
Moving forward, we will make efforts to achieve the targets for 2021 and 2050.



Water and resource use efficiency improvement targets and performances (compared to FY2010)

24. Initiatives for Achieving a Harmonized Society with Nature

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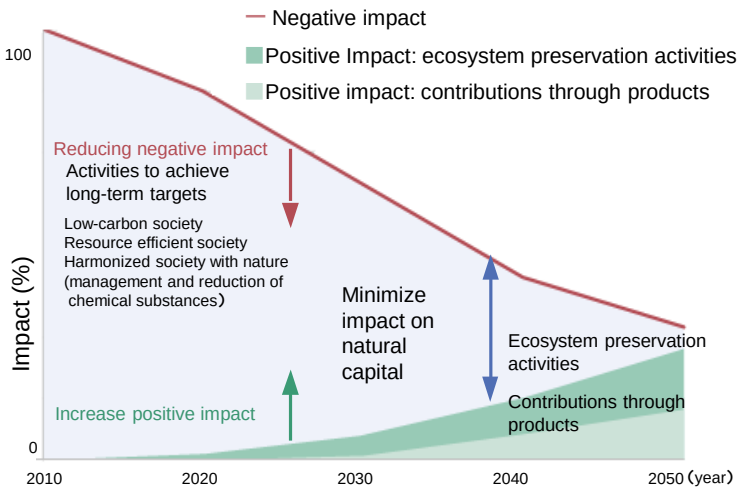
- **Classifying the impacts of Hitachi's businesses on natural capitals into negative impacts*1 and positive impacts*2, and quantifying them.**
- **Reducing negative impact and maximizing positive impact as much as possible.**

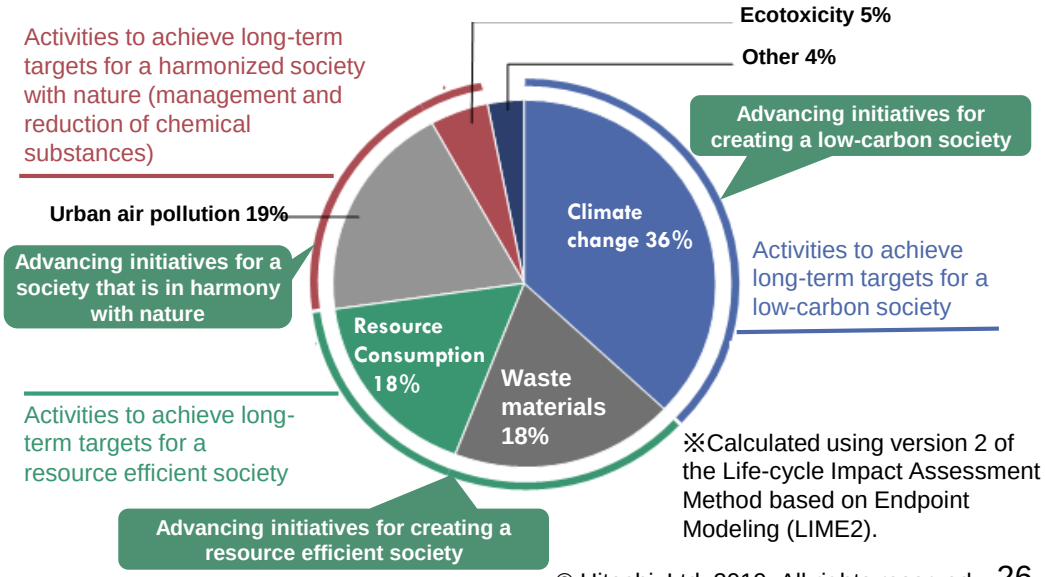
*1 Release of greenhouse gas and chemicals into the atmosphere, generation of waste, and others
*2 Social contribution activities related to preservation of natural environments, concerning the biodiversity and eco-systems

- **Reduction of negative impact** ⇨
  - **Advancing reduction of chemicals (VOC and others (emissions))**
  - **Advancing initiatives for realizing a low-carbon society and a resource efficient society**
- **Increase of positive impact** ⇨
  - **Advancing forest preservation, preservation of rare species, management of sites, green procurement, etc.**

A Timetable for Minimizing Impact



Negative Impact on Nature Capital (FY 2018)



※Calculated using version 2 of the Life-cycle Impact Assessment Method based on Endpoint Modeling (LIME2).

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Realizing sustainable management from a long-term perspective

25. External Evaluations and Awards

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Titles of external evaluations	Results for FY2018
CDP (An NGO that globally evaluates the impacts of corporate activities on environments, representing investors)	• CDP Climate Change 2018: Score: A- (2017 B) • CDP Water Security 2018: Score: B (2017 B)
MSCI (A major indices supplier)	MSCI Japan ESG Select Leaders Index; MSCI Japan Empowering Women (WIN) Select Index

Titles of external evaluations	Results for FY2018
2017 Energy Conservation Grand Prize (Sponsored by: Energy Conservation Center, Japan With support from: Ministry of Economy, Trade and Industry)	Received the Energy Saving Center President's Award • "Improvement in energy productivity by the use of the visualization system and uniquely developed technologies" • "Refrigerator-freezer HW series"
"National Green Factory" (Sponsored by: Ministry of Industry and Information Technology for FY2018)	• Obtained certification as a national green factory Certified as the third national green factory in the superior green production management system

26. Advancing Collaborative Value Creation with Local Communities

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Hitachi High-Technologies Science Forest

Forest maintenance for the preservation of water sources

Afforestation of the Horqin Desert

Hitachi Group will continue its contribution to the creation of abundant, secure, and safe global environments and communities by making efforts to resolve social issues through its social contribution activities using the unified power of its 300,000 employees and in cooperation with local communities.

Introduction of sustainable seafood

STEM education for the development of technicians in the UK

Realizing sustainable management from a long-term perspective

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- ✓ Strengthening governance and promoting management strategies based on a long-term perspective by directors and managers
- ✓ Development of new businesses and realization of extended growth through the visualization of environmental values and social values as a result of collaborative creation with customers
- ✓ Strengthening of penetration measures and incentives for unified efforts by Hitachi Group's employees with high motivation
- ✓ Continuous advancement of information disclosure that is correct and easily understandable, based on integrated management and ESG; continued advancement of communication with stakeholders

Cautionary Statement

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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 document.

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, particularly Japan, Asia, the United States and Europe, 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;
- the possibility of cost fluctuations during the lifetime of, or cancellation of, long-term contracts for which Hitachi uses the percentage-of-completion method to recognize revenue from sales;
- credit conditions of Hitachi’s customers and suppliers;
- fluctuations in product demand and industry capacity;
- uncertainty as to Hitachi’s ability to implement measures to reduce the potential negative impact of fluctuations in product demand, exchange rates and/or price of raw materials or shortages of materials, parts and components;
- 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;
- uncertainty as to Hitachi’s ability to attract and retain skilled personnel;
- increased commoditization of and intensifying price competition for products;
- 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;
- 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 the success of cost structure overhaul;
- uncertainty as to Hitachi’s access to, or ability to protect, certain intellectual property;
- 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;
- 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 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; 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 in other materials published by Hitachi.

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