

Advancing Our Environmental Vision and Long-Term Environmental Targets

Hitachi's Approach

Hitachi faces a broad range of environmental challenges regarding its products and services, such as reducing carbon emissions, improving resource efficiency, and minimizing impact on natural capital across the value chain. At the same time, given the expectations of society, achieving innovations that help resolve environmental issues presents major business opportunities.

Guided by an Environmental Vision defining the goals of environmental management from a broader perspective, we announced in September 2016 a set of long-term environmental targets called Hitachi Environmental Innovation 2050 to achieve a low-carbon society, a resource efficient society, and a harmonized society with nature. We are promoting Group-wide environmental activities in line with our Environmental Action Plan for 2018 that lays out specific activity areas and improvement targets over a three-year period.

We will promote efforts to achieve the targets set forth in Hitachi Environmental Innovation 2050 and the Environmental Action Plan for 2018 in order to conduct environmental management in a manner that meets the expectations of society.

The Environmental Vision and Hitachi Environmental Innovation 2050

As climate change, resource depletion, ecosystem destruction, and other environmental issues grow more serious, companies face increasing demands and expectations to reduce the environmental burden of their business activities.

The *Fifth Assessment Report* of the Intergovernmental Panel on Climate Change (IPCC) concluded that limiting global warming “below 2°C relative to pre-industrial levels” would require “40 to 70% global anthropogenic GHG emissions reductions by 2050 compared to 2010.” The Paris Agreement, which came into force in 2016, sets ambitious targets, including a global long-term target of keeping global warming to below 2°C and efforts to limit the increase to 1.5°C. Environmental targets have also been set in the Sustainable Development Goals (SDGs)—the centerpiece of the 2030 Agenda for Sustainable Development, adopted by the United Nations in 2015—whose Goal 13 reads: “Take urgent action to combat climate change and its impacts.”

In the light of these global demands and our own management policy, we created an Environmental Vision clearly stating our aim to both improve the quality of life and achieve a sustainable society from a long-term perspective, as well as to achieve a low-carbon society, a resource efficient society, and a harmonized society with nature by promoting environmental management. Looking toward 2030 and 2050, we also established long-term environmental targets called Hitachi Environmental Innovation 2050 that demonstrates our resolve to achieve the kinds of societies outlined in our

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.

The aim of Hitachi's environmental management



Low-Carbon Society
Climate Change Mitigation/Adaptation



Resource Efficient Society
Saving and Recycling Resources



Harmonized Society with Nature
Preservation of Ecosystems

Long-term Environmental Targets

Hitachi's resolution looking toward 2050 and 2030

Hitachi Environmental Innovation 2050

For a low-carbon society

Through the value chain CO₂ emissions

FY 2050
80% reduction

FY 2030
50% reduction (compared to FY 2010)



For a resource efficient society

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

Efficiency in use of water/resources
FY 2050

50% improvement
(compared to FY 2010 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



Environmental Vision.

Our environmental strategy, centered on the Environmental Vision and our long-term environmental targets, is deliberated by the Executive Sustainability Committee, chaired by President and CEO Toshiaki Higashihara, and advanced by the Hitachi Group as a whole.

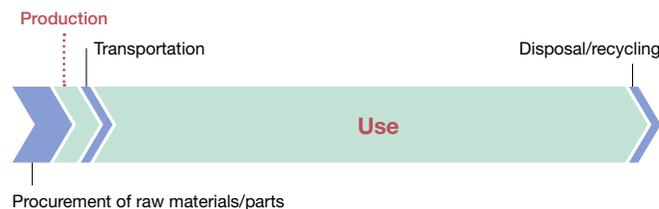
Achieving a Low-Carbon Society

Efforts to Achieve a Low-Carbon Society

Hitachi has established a goal of reducing CO₂ emissions throughout its value chain by 50% by fiscal 2030 and 80% by fiscal 2050 (compared to fiscal 2010 levels) to help achieve the drop in global anthropogenic GHG emissions deemed necessary in the IPCC's *Fifth Assessment Report*.

Because a significant share of our value chain CO₂ emissions comes from the use of our products and services by our customers, our efforts to reduce such emissions focus on enhancing the efficiency of our products, delivering supplies of low-carbon energy, and developing innovative technologies and solutions. We will also reduce emissions during production by enhancing the efficiency of our factories and offices, advancing energy-saving measures, and expanding our use of renewable energy.

Ratio of CO₂ Emissions at Each Stage of Hitachi Value Chain



▶ Responding to Climate Change Through Growth in “Low-Carbon Businesses”

As part of its efforts to address challenges posed by climate change, Hitachi is combining the strengths of its business units and Group companies through digital solutions built on the Lumada platform, and expanding its low-carbon businesses through co-creation with customers and partners.

To help achieve low-carbon energy supplies, we offer wind and other non-fossil energy systems. We also promote improvements in power distribution efficiency via the use of smart grids and related technology. To realize low-carbon

spaces, we are striving to make buildings more efficient through total solutions and reduce the energy requirements of factories via smart manufacturing. Through the development of more efficient railway systems and the promotion of increased adoption of automotive electric powertrains, we are providing highly efficient transportation methods in order to achieve low-carbon mobility. Our amorphous transformers and other low-carbon products contribute to increasing efficiency and reducing emissions throughout society. In these and many other ways, we are helping to realize a low-carbon society and promoting measures to address climate change.

Low-Carbon Businesses: A Hitachi Focus

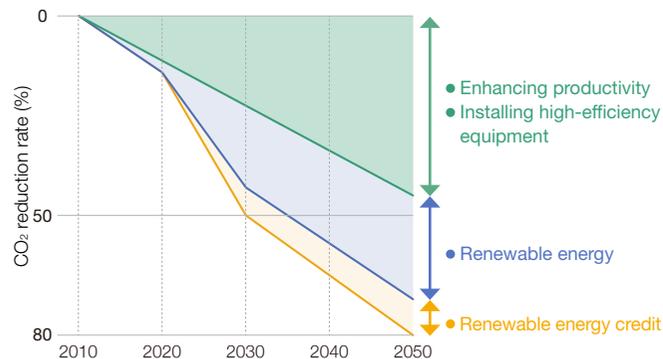
Achieving Low-Carbon Energy Supplies	Achieving Low-Carbon Spaces	Achieving Low-Carbon Mobility	Low-Carbon Products
<ul style="list-style-type: none"> ■ Non-fossil energy systems <ul style="list-style-type: none"> • Wind energy systems ■ Smart grids <ul style="list-style-type: none"> • Distributed power supply solutions • Energy management  <p>Wind energy systems.</p>	<ul style="list-style-type: none"> ■ Offices <ul style="list-style-type: none"> • Total solutions for buildings • Elevators • Escalators ■ Factories <ul style="list-style-type: none"> • Smart manufacturing ■ Smart life & ecofriendly systems <ul style="list-style-type: none"> • Smart life business • Home appliances  <p>Elevators. Escalators.</p>	<ul style="list-style-type: none"> ■ Railways <ul style="list-style-type: none"> • Operation management/railway information systems • Rolling stock ■ Automobiles <ul style="list-style-type: none"> • Electric powertrain systems (Storage batteries, motors, inverters, etc.) • Automobile components  <p>Rolling stock.</p>	<ul style="list-style-type: none"> ■ Industrial equipment <ul style="list-style-type: none"> • Amorphous transformers • Air compressors • Motors ■ High functional materials & components <ul style="list-style-type: none"> • Amorphous metal materials for transformers • Rare earth magnets  <p>Amorphous transformers.</p>
Digital solutions built on Lumada platform			

► Reducing CO₂ Emissions at Factories and Offices

Another way that we are reducing CO₂ emissions is to promote thoroughgoing energy savings at our factories and offices. We are applying IoT technology to enhance production efficiency at our factories, installing smart meters to reduce energy use during production. We are advancing the effective utilization of renewable energy and introducing renewable energy credits.*1 We are adopting internal carbon pricing*2 to raise the priority of low-carbon investment and developing self-consumption solar power schemes to further encourage the spread of renewable energy. Through these activities, by fiscal 2030 we aim to reduce CO₂ emissions at factories and offices by 40% to 50% from fiscal 2010 levels.

*1 Credits assigned to energy certified as having been produced from renewable sources. Purchasers of such credits can offset their conventional energy use instead of implementing their own reduction measures.
 *2 Internal prices for carbon emissions and reductions that companies set voluntarily to guide their investment and risk management decisions.

Low-Carbon Roadmap for Factories and Offices



Achieving a Resource Efficient Society

Efforts to Achieve a Resource Efficient Society

Together with our customers and society, Hitachi will work through its business operations to help build a society that uses water and other resources efficiently. We have set a target of improving the usage efficiency of water and other resources by 50% compared to fiscal 2010 levels by fiscal 2050. We will create higher economic value using less water and other resources and pursue production activities with a low environmental burden.

Initiatives to Achieve a Resource Efficient Society



► Initiatives to Build a Water Efficient Society

We will build a water efficient society by enhancing the efficiency of water usage and responding to water shortages. With regard to the former, we began setting reduction targets for water usage in fiscal 2006 and have been undertaking

initiatives to meet those targets. As a further step, we have established a long-term environmental target for fiscal 2050 to improve water use per unit by 50% compared to fiscal 2010 levels. Hitachi uses water in such production processes as cooling and cleaning, as well as for air conditioning. We will make a Group-wide effort to reduce water usage by promoting the use of recycled water and rainwater and strengthening measures against water leakage.

To address water shortages at Hitachi factories and offices, we are investigating water risks at approximately 200 Hitachi business sites around the world based on publicly available water stress maps. In fiscal 2017, we performed water risk assessments, calculating water demand and supply per watershed, at 40 business sites in countries with water shortage concerns. At 5 of those sites, we made efforts to obtain more detailed information, conducting surveys covering such factors as topography, geology, land use, and water demand. Going forward, we will plan and execute additional usage reduction measures based on the findings of the water risk assessments.

The shortage of water is also a global social concern, and we will contribute to its resolution through the generation of water resources. Hitachi has delivered wastewater recycling systems and desalination systems for use in different sectors and to meet a variety of needs for customers both in and outside Japan. We will further develop our technologies to address the needs and concerns of our customers in contributing to improving the water usage environment around the world.

► Initiatives to Build a Society that Uses Resource Efficiently

We will build a society that uses resource efficiently by enhancing efficiency in the use of resources and promoting the reduction and recycling of waste materials.

With regard to the former, while we have long been advanc-

ing efforts to reduce the generation of waste and valuables, we have established a long-term target for fiscal 2050 to improve waste generation per unit by 50% compared to fiscal 2010 levels. We will create products that use less resources and last longer to make the most of finite natural resources.

As for waste reduction and recycling, we will seek to reduce waste materials generated during production through such treatment processes as dehydration, desiccation, oil separation, crushing, and sorting. As for reusable waste and scrap, we will use them as raw materials in Hitachi products through closed-loop recycling. Active efforts will also be made, where possible, to reuse waste materials as fuel.

In our business operations, we will advance the development of new technologies to further promote the efficient use of resources, including through refurbishing (servicing end-of-use products to a condition conforming to new-product standards) and remanufacturing (restoring end-of-use products through disassembly, washing, component replacement, and other work to a condition equivalent to new products). These technologies and services will be offered broadly to contribute to building a resource efficient society.

Achieving a Harmonized Society with Nature

Efforts to Achieve a Harmonized Society with Nature

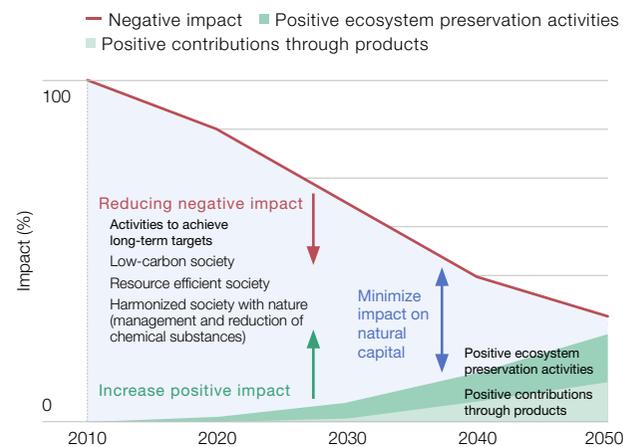
To adequately preserve the ecosystem and achieve a harmonized society with nature so that we may continue to enjoy nature's benefits, we have established targets to minimize our impact on natural capital. Specifically, we classify our activities into those that have either a negative or positive impact on

natural capital with the aim of minimizing any negative impact by 2050.

We perceive our negative impact activities as including the emission of greenhouse gases and chemical substances into the atmosphere and the generation of waste materials. We make a positive impact, meanwhile, by providing products and services that contribute to ecosystem preservation and by undertaking social contribution activities to protect the environment through the preservation of biodiversity and ecosystems.

By classifying Hitachi's activities across the value chain into those with positive and negative impact and then quantifying such impact, we are advancing initiatives to reduce our negative impact and maximize our positive impact.

A Timetable for Minimizing Impact



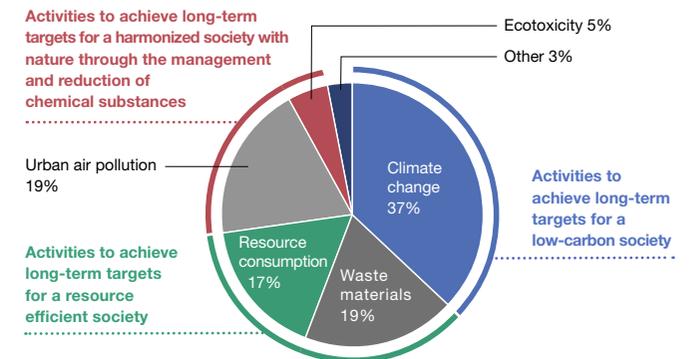
Initiatives to Minimize Impact on Natural Capital

Hitachi has identified and quantified the negative impact our business activities have on natural capital. In fiscal 2017, approximately 40% of such impact related to climate change, and 20%, respectively, concerned waste materials, resource

consumption, and urban air pollution. To reduce these and other forms of negative impact, we are advancing measures to achieve a low-carbon society and a resource efficient society, as outlined in our long-term environmental targets, and such other steps as the management and reduction of chemical substances.

To maximize our positive impact, meanwhile, we need to undertake social contribution activities toward forest conservation and to provide products and services that contribute to ecosystem preservation, such as water treatment plants. We will advance these measures and also discuss ways to quantify the effect of such activities. We have set targets for measures that are difficult to quantify but are nonetheless important, such as education regarding ecosystem preservation and the protection of rare species, and will make ongoing efforts in these areas as well.

Negative Impact on Natural Capital (FY 2017)



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

Scope of Negative Impact Calculations