

ICEF2018 Decarbonisation by Industrial Sector

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## **Hitachi's initiatives to contribute to achieving a low-carbon society**

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**Founder  
Namihei Odaira**

Founded in 1910 as a machine repair shop at Kuhara Mining Company in Hitachi City, Ibaraki Prefecture, Japan (Incorporated in 1920).

**【Mission】**

Contribute to society through the development of superior, original technology and products.

- ✓ Hitachi's sincere belief, "Contribute to society through our business", has been handed down to the Hitachi Group today from its founding over a century ago.
- ✓ Contributed to the development of Japanese industry and society through establishment of the machine industry by our original technologies.
- ✓ Established in-house specialized education schools to invest in human resource development.

### 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<sub>2</sub> emissions

FY 2050

FY 2030

80%

reduction

(compared to FY 2010)

50%

reduction



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 FY2050

50% improvement

(compared to FY2010 in  
the Hitachi Group)



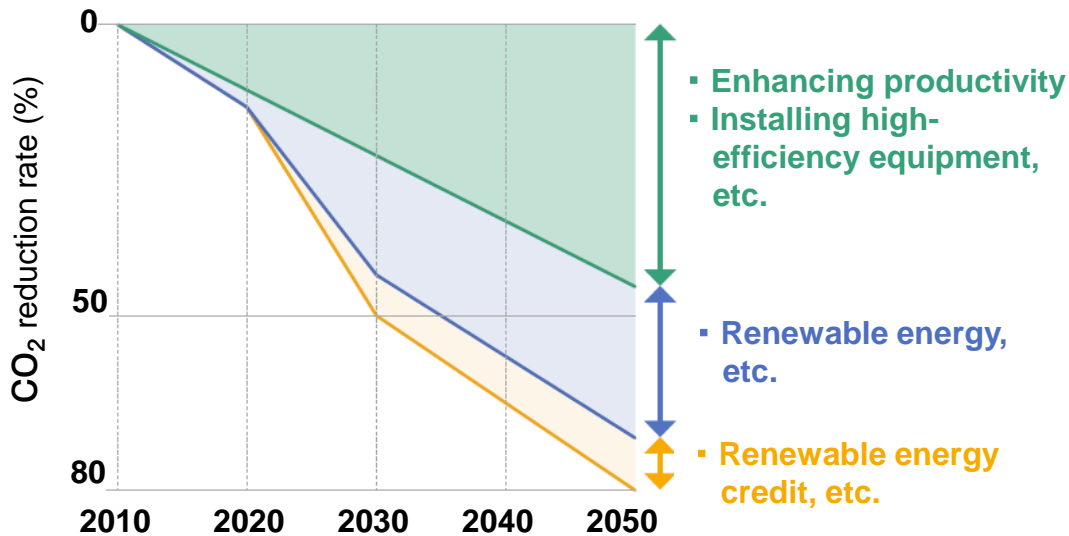
For  
a harmonized society  
with nature

Impact on natural capital

Minimized



## Low-Carbon Roadmap for Our Factories and Offices



- Measures to achieve low-carbon factories and offices
  - Enhance productivity
    - Develop high-efficiency manufacturing system using IoT technologies of Lumada.
  - Expand introduction of renewable energy
    - Introduce self-consumption solar power schemes.
  - Install high-efficiency equipment and accelerate update speed of them
    - Promote environmental investment by internal carbon pricing.
  - Utilize renewable energy credits

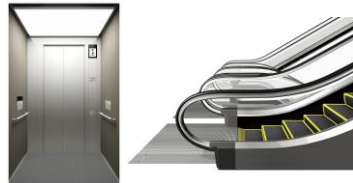
## Achieving Low-Carbon Energy Supplies

- Non-fossil Energy Systems
  - Wind energy systems
- Smart Grids
  - Distributed power supply solutions
  - Energy management



## Achieving Low-Carbon Spaces

- Offices
  - Total solutions for buildings
  - Elevators
  - Escalators
- Factories
  - Smart manufacturing
- Smart Life & Ecofriendly Systems
  - Smart life business
  - Home appliances



## Achieving Low-Carbon Mobility

- Railways
  - Operation management/ Railway information systems
  - Rolling stock
- Automobiles
  - Electric powertrain systems (Storage batteries, motors, inverters, etc.)
  - Automobile Components



## Low-Carbon Products with Innovative Technologies

- Industrial Equipment
  - Amorphous transformers
  - Air compressors
  - Motors
- High Functional Materials & Components
  - Amorphous metal materials for transformers
  - Rare earth magnets



Digital Solutions Built on Lumada Platform

# 5. Case Study 1: Railway Systems

As a comprehensive rail systems integrator, Hitachi provides transport systems such as signalling and train management systems to customers globally such as in Japan, Europe, the Americas, India and Asia.

## ◆ Contribution to solving environmental issues

- Transport with lower CO<sub>2</sub> emissions
- Mitigation of the risk of air pollution from vehicle emissions.

### Key Environmental Features

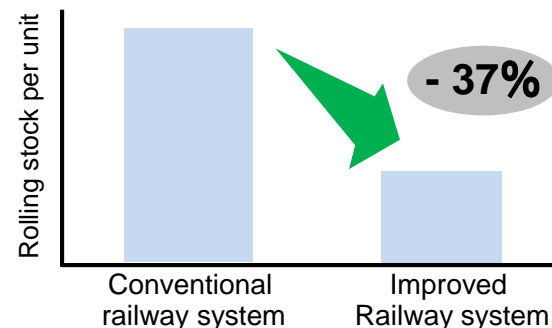
#### ■ Aluminium Rolling Stock (A-train)

- Saves energy while running at high speeds due to lighter than stainless steel rolling stock.
- Easy to recycle, enabling effective use of resources.

#### ■ SiC (silicon carbide) Inverters

- Reduce the power loss by 35% compared to conventional inverters.
- Help reduce the weight of rolling stock by reducing its size and weight by 40%.

### Comparison Example of Improvement Effect\*



\*A comparison example of a railway system with conventional equipment and that with energy-saving equipment including SiC inverter.



# 6. Case Study 2: Amorphous Core Transformers

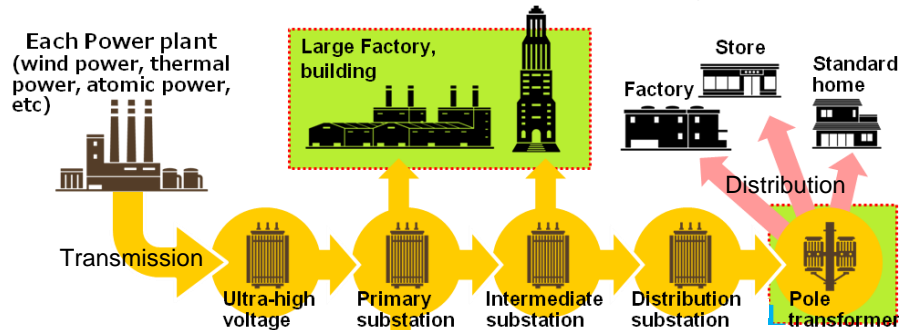
Hitachi offers energy-saving transformers for an electrical power infrastructure, and helps reduce CO<sub>2</sub> emissions by lowering the power loss of the transformer to be used for a long period of time in areas where the demand for electric power is expanding due to economic growth.

## ◆ Contribution to solving environmental issues

- Transformers operate 24 hours a day, seven days a week, and their average lifetime is 25 years - thus the reduction of the power loss per transformer will have a large energy-saving effect.

### Diagram of Electricity Delivery

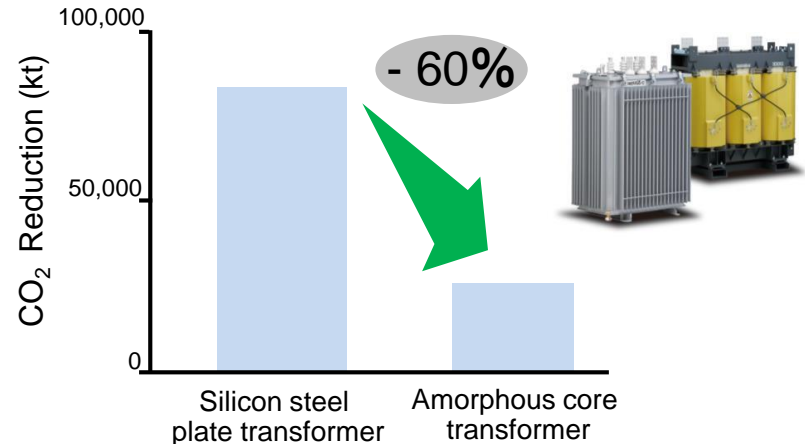
Transformers are essential to the process of electricity transmission and distribution, and used in large numbers.



## Key Environmental Features

### ■ Amorphous alloy adopted for transformers

- Reduce the power loss by 60%\* during the use.



\* Based on Hitachi calculations.

## Integrated Report 2018



**Hitachi's value creation story for multi-stakeholders including investors.**

To be released in mid-October, 2018

<http://www.hitachi.com/IR-e/index.html>

## Sustainability Report 2018



**Non-financial information for investors, auditors and CSR experts.**

Released in October, 2018

<http://www.hitachi.com/sustainability/download/index.html>

## Hitachi's Road to Sustainability



**Hitachi's journey to contribute to achieve Sustainable Development Goals.**

<http://www.hitachi.com/sustainability/sdgs/index.html>

- Hitachi announced its endorsement of the TCFD in June, 2018.
- In the Sustainability Report, Hitachi has disclosed environmental information including its climate-related risks and opportunities in accordance with the TCFD recommendation.



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Inspire the Next 