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# Hitachi's Activities towards achieving Carbon Neutral

December 17 ,2021

## **Lorena Dellagiovanna**

Vice President and Executive Officer  
Chief Diversity & Inclusion Officer  
Deputy Chief Environmental Officer  
Deputy GM of Government & External Relations Group  
Hitachi, Ltd.

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1. Outline of Hitachi
2. Long-term Environmental Targets (mainly on carbon neutrality)
3. GHG reduction measures

Our mission

**“Contribute to society through the development of superior, original technology and products”**



Founder  
Namihei ODAIRA

Hitachi Founding Spirit

- **Harmony**
- **Sincerity**
- **Pioneering Spirit**

Hitachi-city, Ibaraki-prefecture  
Hitachi founding place

# 1.2 Hitachi At A Glance



## Key Figures FY 2020

### Consolidated Revenue

**¥8,729.1bn**  
(8兆7,291億円)

YoY ±0%

### Adjusted Operating Income

¥661.8bn  
(6,618億)

¥495.1bn  
(4,951億)

Ratio  
5.7%

FY19 FY20

### EBIT

¥850.2bn  
(8,502億)

¥183.6bn  
(1,836億)

Ratio  
9.7%

FY19 FY20

### Number of Employees

**350,864**

(As of Mar. 2021)

### Number of Subsidiaries

**871**

(As of Mar. 2021)

### Years since foundation

**111 years**

### Hitachi Metals



YoY 86%

Hitachi Construction Machinery



YoY 87%

Automotive(Astemo)



YoY 122%

Smart Life



YoY 92%

Mobility



YoY 105%

IT



YoY 98%

Energy



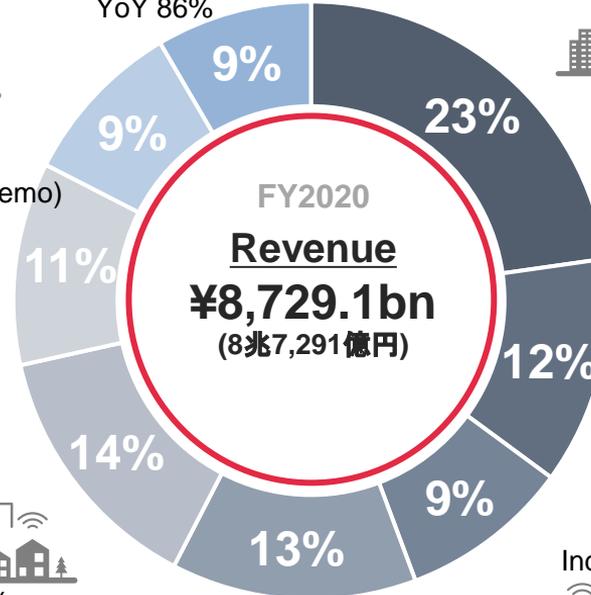
YoY 278%

Hitachi ABB Power Grids integrated in Jul2020

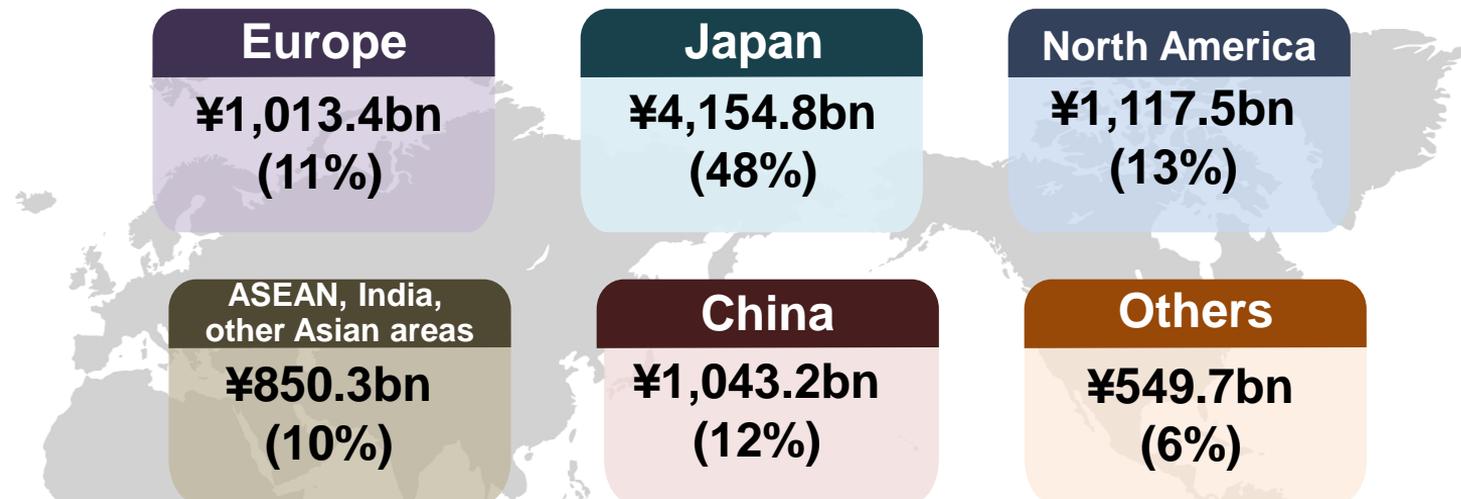
Industry



YoY 99%



## Hitachi earns 52% of its global revenue from overseas markets



	Revenues	Number of companies <sup>(*)</sup>	Number of employees <sup>(*)</sup>
Japan	¥4,154.8bn (48%)	159	158 thousand
Outside Japan	¥4,574.3bn (52%)	712	193 thousand
<b>Total</b>	<b>¥8,729.1bn</b>	<b>871</b>	<b>351 thousand</b>

(\*)As of March 2021

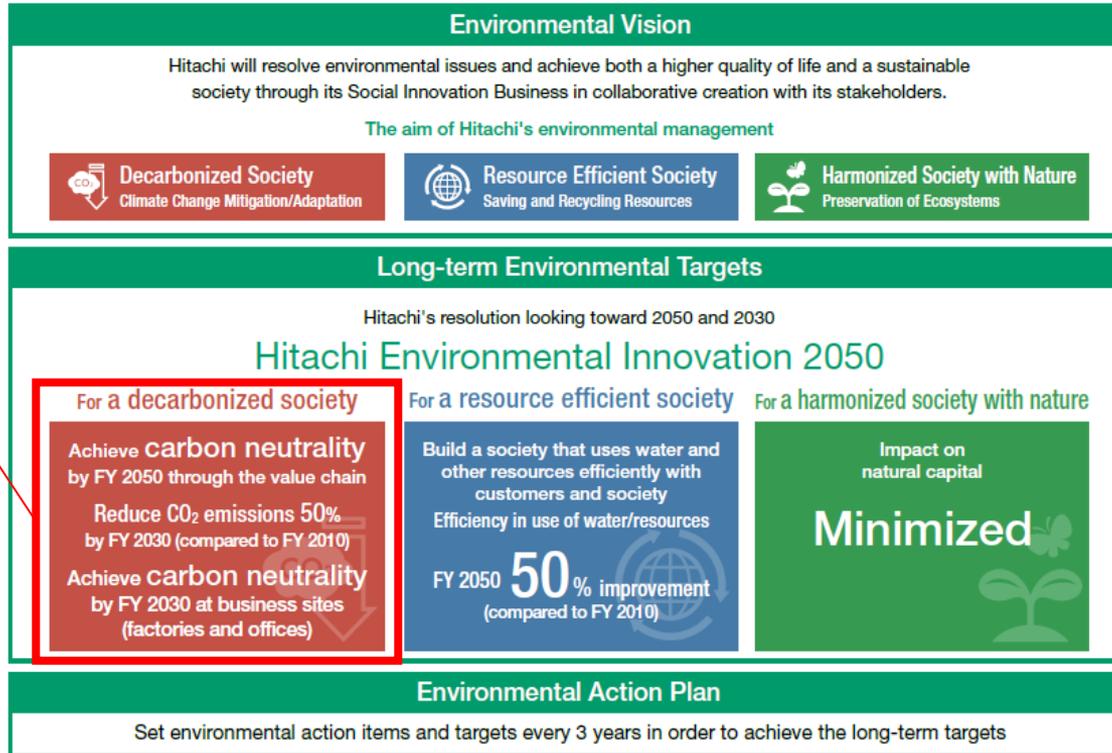
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# 2.1 Long-term Environmental Targets

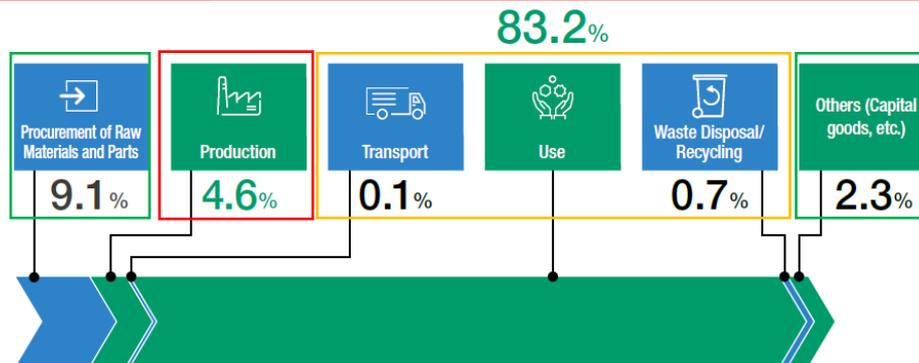
## Hitachi set a new target to contribute to Net Zero Society in September, 2021



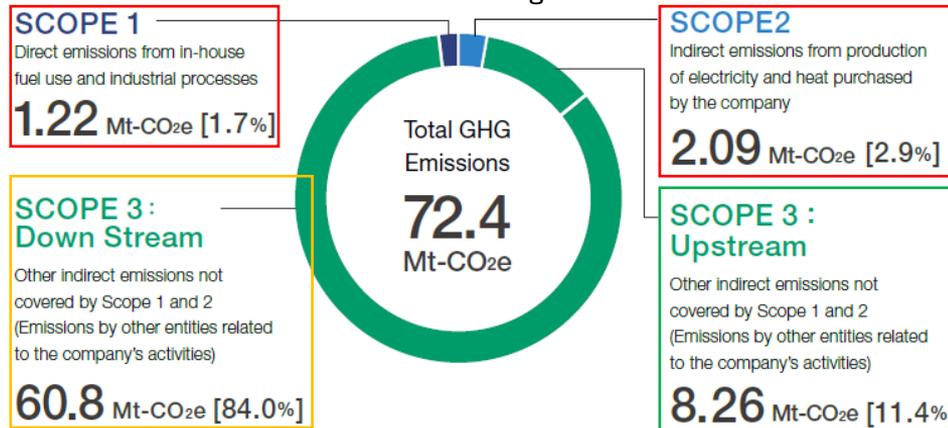
Today's scope

## 2.2 Breakdown of Hitachi's CO2 and GHG emissions (FY2020)

### 4.6 % emitted production and 95.4% from the rest of our value chain



Ratio of CO2 Emissions at each stage of Hitachi value chain



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# 3.1 GHG reduction measures (for scope 1+2)

## Hitachi commits to be “CN” by 2030 in global operation (factories and offices)

### Expand use of RE-origin energy

- **Install RE facilities** to our sites
- **Purchase environmental certificates** (e.g. J-credit, non-fossil / green power certificates)
- **PPA**(long-term RE purchase agreement)

### Decarbonizing Investments

- **Invest 84bn yen** over 10years to:
  - ✓ Installation of energy-saving equipment (e.g. LED, air conditioners, transformers)
  - ✓ Motor-driven equipment (e.g. electric furnace)
- Share the best practices of **our leading CN sites**

**High-Tech Corporation**  
3 sites

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



Hitachi High-Tech Science  
Hitachi High-Tech Kyushu  
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

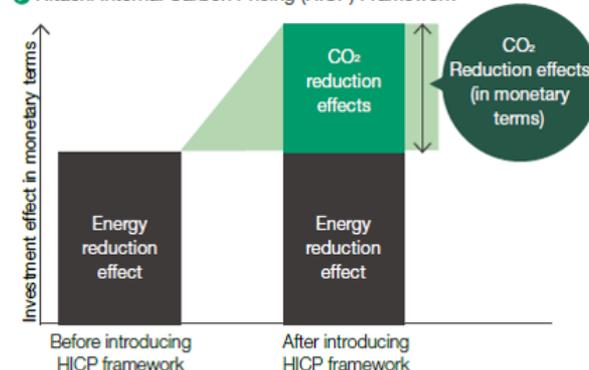


Central Research Laboratory Kyōsō-tō

### Internal Incentives

- **Internal carbon pricing** (since 2019)
  - ✓ Promote investments by business divisions
  - ✓ From August 2021, the amount per tCO2 was changed from 5,000yen to 14,000 yen.

Hitachi Internal Carbon Pricing (HICP) Framework



- **Executives’ pay link**(since April 2021)
  - ✓ Environmental performance evaluation as a part of executive compensation system

## 3.2 GHG reduction measures (to scope 3 Upstream)

70% by value of Supply Chain (excl. Listed subsidiaries) engaged to develop CO2 reduction plans from FY2021

### Approval Hitachi Policy

- Shared with all procurement partners across the Hitachi Group (approx. 30,000 companies).
- In July 2021 by integrating and modifying the former “ CSR Procurement Guideline and “Green Procurement Guideline”.



Select priority partners for next actions in cooperation with the BUs and Value Integration Divisions



Requesting the formulation of a CO2 reduction plan

## Realization of a Decarbonized Society



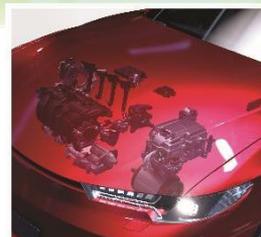
### Energy

Support the societal shift toward renewable energy  
Provide systems and high-efficiency products that realize stable energy supply



### Railway Systems

- Develop eco-friendly railcars
- Develop hybrid- and battery-powered trains



### Automotive Systems

- Develop high-efficiency electrification products and technologies to support the expansion of xEVs



### Industry

- Provide DX solutions and energy-saving industrial equipment for manufacturing and other industries

## Maximizing the drive efficiency of the electrified system to realize carbon neutrality

### Reducing CO<sub>2</sub> emission throughout the value chain

“Realizing carbon neutrality in our own production by FY2030” to accelerate the creation of environmental value throughout our business  
FY2030 Carbon Neutrality Commitment

Raw material /  
Parts procurement

Production

Logistics / Use /  
Disposal, Recycling



### High efficiency motor\*

Ichimura Prize in Industry  
against Global Warming (2020)

Energy-saving industrial motors using  
amorphous magnetic alloy foil

Achieved IEC's highest standard value of IE5 with  
rare-earth-free magnets

\*A part of this technology was developed as part of a NEDO, Japan, funded project



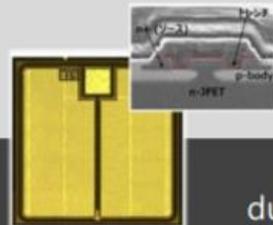
### High efficiency inverter

Nikkan Kogyo Shimbun  
Best 10 New Products Award (2019)



High output inverter for EV with double-  
sided direct water cooling power module

Achieved 2 times higher voltage (800V) and 2.7 times higher power  
density (94.3kVA/L) than previous Hitachi product (October 2019)



### Low-loss SiC power device

New SiC power device with both  
durability and low power consumption

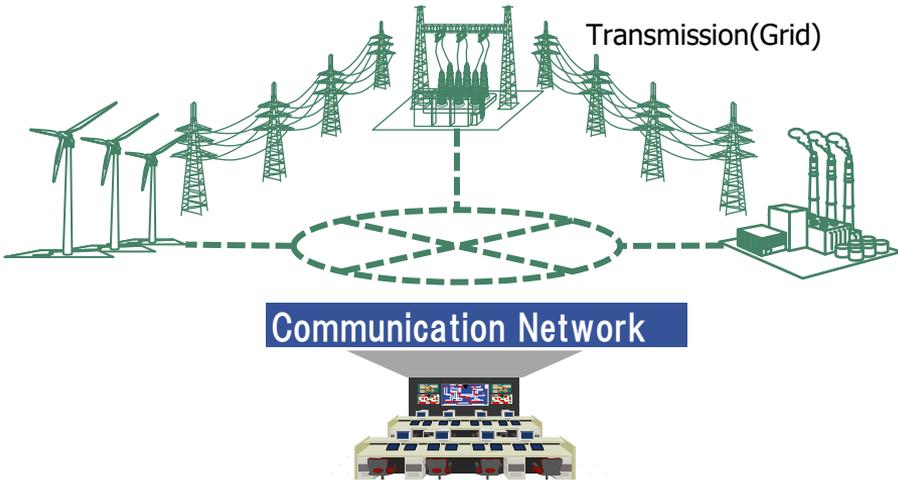
Achieved industry's highest-level performance (short-circuit  
tolerance improved by 20% and resistance reduced by 40%) of  
Trench Etched Double diffused MOSFET (TED-MOS) compared to 2018

# 3.5 Hitachi's key Project in Asia

**Technology**

We use OPENVQ\* Technology

OPENVQ\* is an advanced operation technology developed in collaboration with utility companies.



**Reduction of Transmission Loss**



**Increase of transfer Capacity**



\*Optimized Performance Enabling Network for Volt/var (Q)

**Value**

We can provide 2 values.

Values in using renewable energy

Reduction of transmission loss

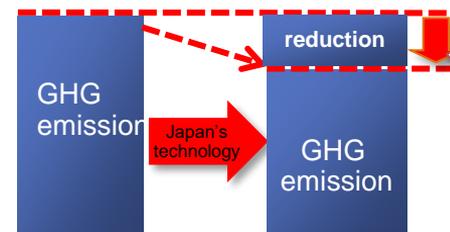
Use more efficiently

Increase of transfer capacity

Use more widely

**Phase**

We demonstrate in Thailand supported by NEDO



**[JCM:Joint Crediting Mechanism]**

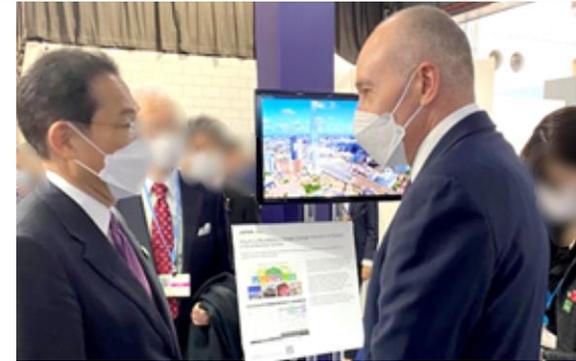
- GHG emission of emerging country is reduced by Japan's technology.
- Emission reduction(credit) is shared between the country and Japan.
- Japanese government financially supports such projects.

Further benefits(reduction) can be expected if the achievements gained from the PoC project in Thailand are applied to the entire ASEAN region.

## 3.6 Hitachi's contribution to Asia

### World Leaders Summit Statement by PM KISHIDA

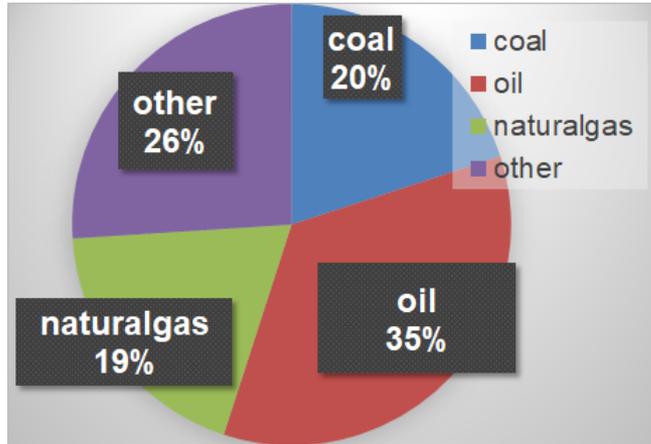
“To bring about a decarbonized society, Japan will introduce renewable energy as much as possible, and lead the way in the clean energy transition, **with a particular focus on Asia.**”



PM\_Kishida

Dormer(Hitachi.Ltd)

Energy resources in ASEAN(2018)



Source:JOGMEC's report

Hitachi became principal partner of COP26



**Hitachi can contribute to net zero in Asia**

**HITACHI**  
Inspire the Next 