

# **Keidanren Carbon Neutrality Action Plan**

**– Vision toward Carbon Neutrality by 2050  
and Fiscal 2025 Follow-up Results  
(Performance in Fiscal 2024) –**

(Provisional Translation)

March 30, 2026

KEIDANREN  
(Japan Business Federation)

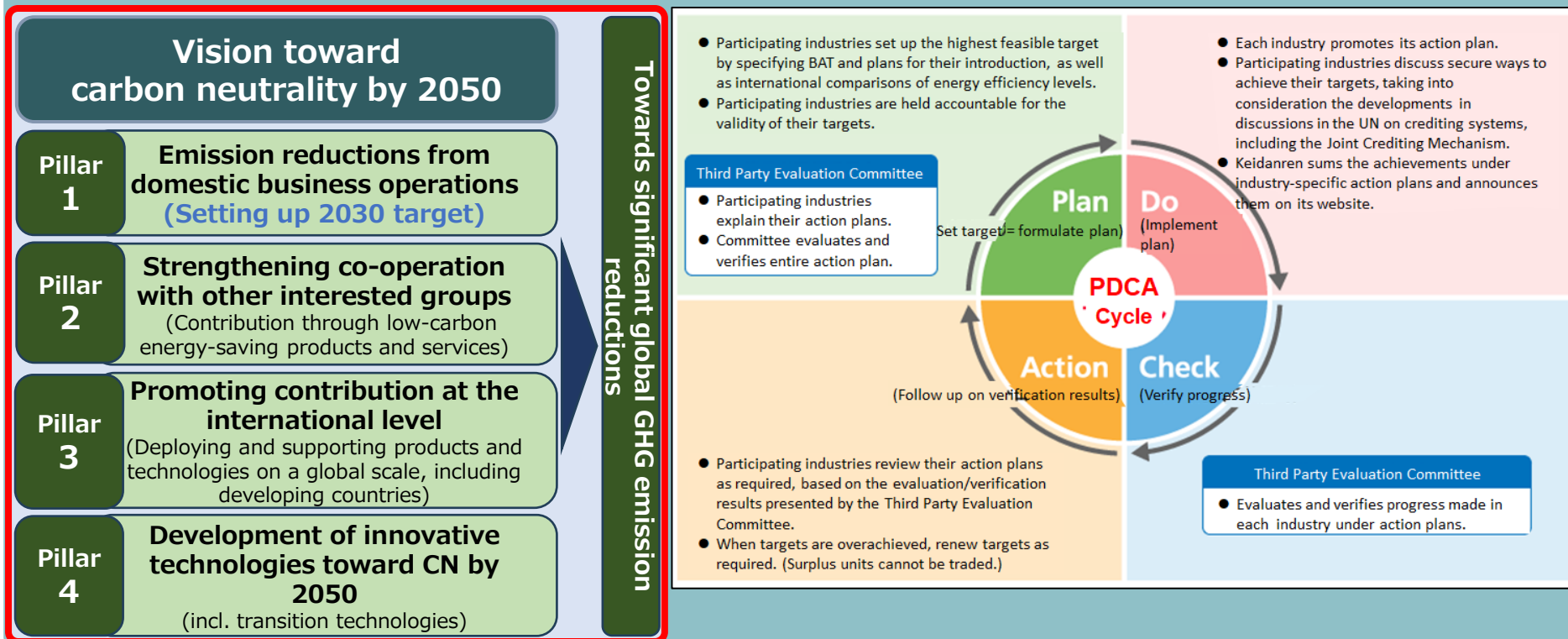
# 1. Keidanren's efforts to combat climate change

	Keidanren's initiatives	Domestic and international initiatives
1991 Apr	Keidanren Global Environment Charter	
1992 Jun		Adoption of the Framework Convention on Climate Change
1997 Jun	<b>Keidanren Voluntary Action Plan on the Environment</b>	
1997 Dec		Adoption of Kyoto Protocol (COP3)
2013 Jan	<b>The first phase of the plan for Keidanren's Commitment to a Low Carbon Society</b>	
2013 Mar		Current Policy of Global Warming Countermeasures
2016 Nov		<b>Entry into force of the Paris Agreement</b>
2018 Nov	Keidanren's Concept Book "Contributing to Avoided Emissions through the Global Value Chain"	
2019 Jan	Keidanren's "Actions by the Business Community on Long-term Global Warming Countermeasures up to 2050"	
2019 Jun		Japan's Long-term Strategy under the Paris Agreement
2020 Jun	Starting "Challenge Zero"	
2020 Oct		Declaration of challenge of achieving carbon neutrality by 2050
2021 Nov	<b>Keidanren Carbon Neutrality Action Plan</b>	
2022 May	<b>Toward Green Transformation (GX)</b>	
2023 Jul		<b>GX Promotion Strategy</b>
2024 Jul		<b>Inauguration of the GX Acceleration Agency</b>
2025 Feb		<b>GX2040 Vision</b>
2025 May		<b>Revised GX Promotion Act</b>

# 2. Outline of Keidanren Carbon Neutrality Action Plan

- Industry associations **formulate their industry's vision toward achieving carbon neutrality (CN) by 2050 and an action plan comprising 4 pillars.**
- **Individual industries formulate targets** based on the maximized deployment of BAT (best available technologies) and prospects of economic activity.
- **The progress made under the Action Plan is checked by the Third Party Evaluation** and target levels are continuously reviewed (PDCA).
- 63 industries participate.

## 【Framework of Keidanren Carbon Neutrality Action Plan】



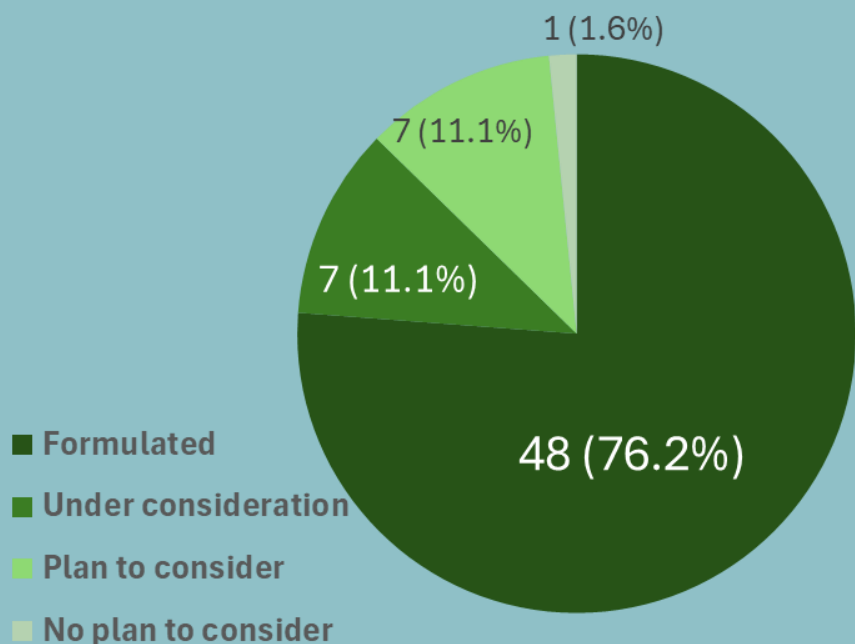
# 3-1. Vision toward Carbon Neutrality by 2050 (status)

■ An additional industry have formulated visions, resulting in a total of 48 industries (76.2% of participating industries) with visions.

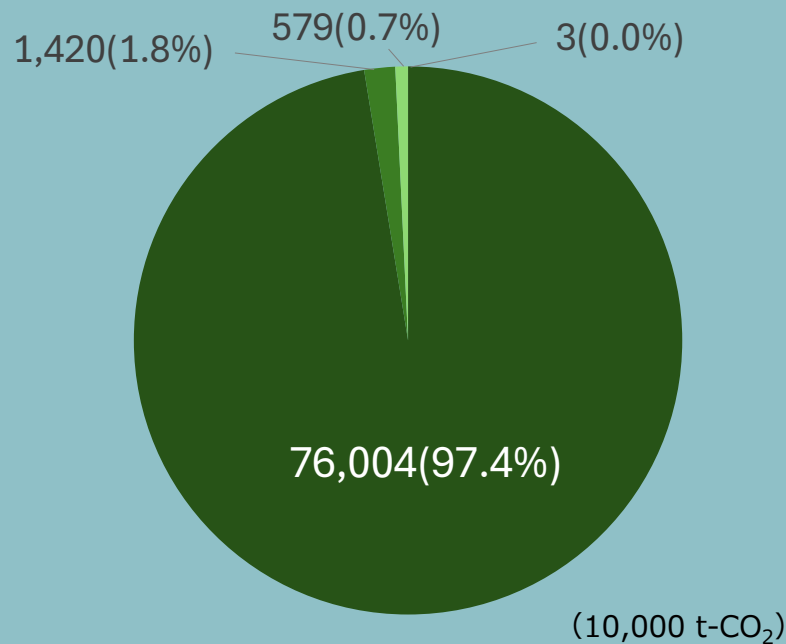
※An industry (Shikoku Railway Company) formulated the vision. 2 industries (Japan Chemical Industry Association, The Japan Gas Association) reviewed visions.

■ In terms of emissions, the coverage rate has reached **97.4%**.

## 【Status of Vision formulation among participating industries】



In terms of number of industries



In terms of emissions※

\* CO<sub>2</sub> emissions after electric power distribution are used for the industry, commercial and transport sectors, and CO<sub>2</sub> emissions before electric power distribution are used for the energy conversion sector.

## 3-2. Vision toward Carbon Neutrality by 2050 (example)

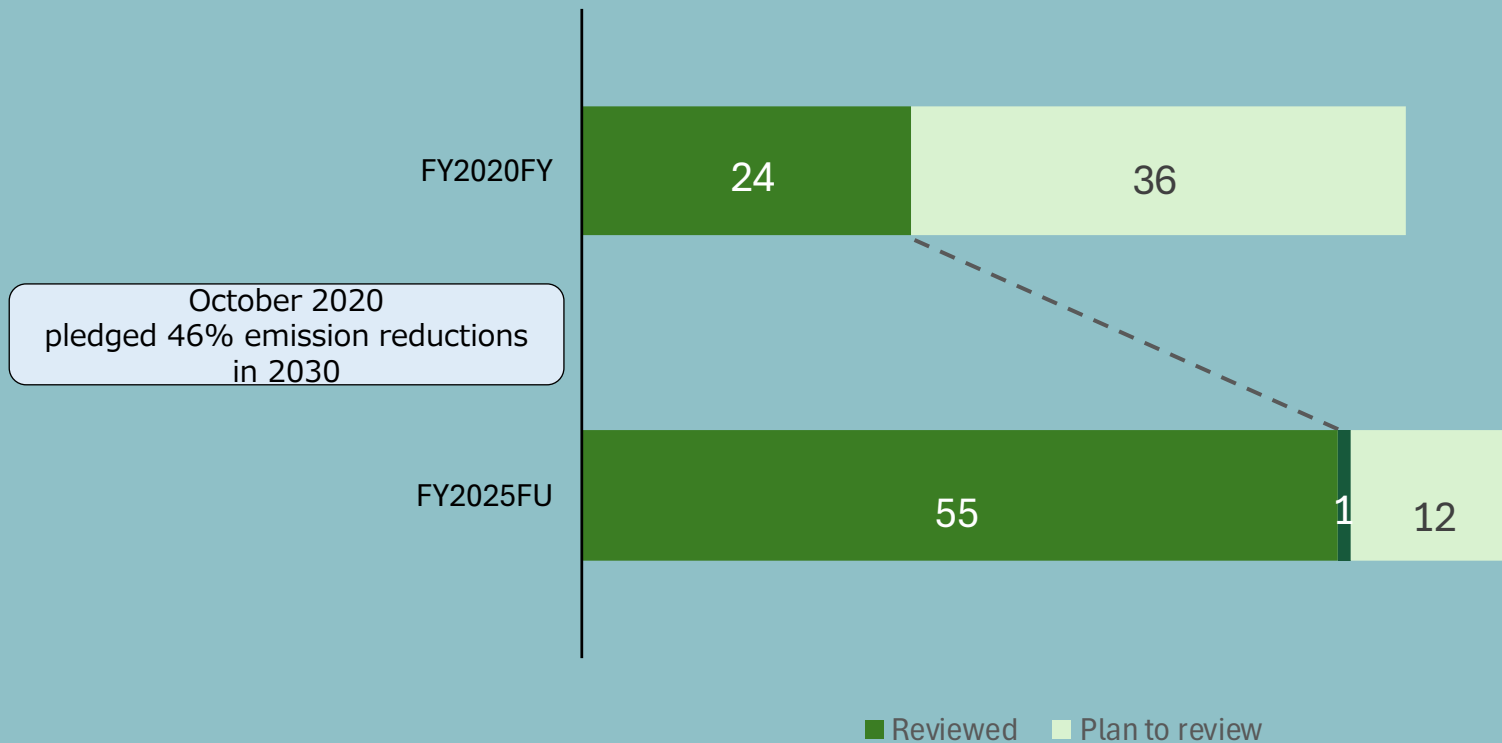
Sector	Industry	Vision (Basic Policy, etc.)
Energy conversion	Electric power	Continue to implement measures that serve both purposes of “ <b>decarbonizing electric power</b> ” and “ <b>promoting electrification</b> ,” such as maximizing the use of established technologies for decarbonizing power generation (nuclear power and renewable energy) and utilizing heat pumps, while also pursuing an energy mix that <b>simultaneously achieves “S+3Es.”</b> At the same time, it will work closely with the government toward the practical application of innovative technologies (small module reactors, next-generation solar power, storage batteries, hydrogen- and ammonia-fired power generation, CCUS/carbon recycling) through “ <b>innovations</b> ,” or solutions to advance electric power supply services.
	Petroleum	Contribute to achieving society-wide CN through aiming to net zero CO <sub>2</sub> emissions (CN) and decarbonizing the products it supplies by accelerating efforts to decarbonize supply chains and products and actively engaging in the research and development and social implementation of innovative technologies infrastructure ((1) <b>CO<sub>2</sub>-free hydrogen</b> , 2) <b>synthetic fuels</b> , 3) <b>CCS/CCU (Carbon recycling)</b> , etc.) that can utilize existing.
	Gas	Contribute to achieving CN for customers and local communities. Work toward the carbon-neutralization of gas by 2050 with a focus on <b>e-methane</b> and <b>biogas</b> . Considering technological innovation trends and global energy developments, actively adopt new technologies and realize the carbon-neutralization of gas by <b>employing the most appropriate means</b> available at each point in time.
Industrial	Iron and steel	Toward achieving carbon-neutrality, explore multiple pathways by employing every possible means including the drastic reduction of CO <sub>2</sub> emissions from blast furnace through <b>COURSE 50</b> and <b>ferro coke</b> technologies plus CCUS, development of super innovative technologies such as <b>hydrogen-based iron making</b> and expanded use of scrap.
	Chemical	Viewing the <b>realization of carbon neutrality and a circular society</b> not merely as a response to environmental regulations, but as a strategic opportunity for sustainable growth and strengthening international competitiveness, advance not only decarbonization technologies, but also <b>shift toward and strengthen high value-added functional chemicals</b> , including electronics materials, mobility-related materials (such as battery materials), healthcare and medical/welfare equipment, as a “ <b>solution provider</b> ” that leads transformation across society.
	Cement	For reducing CO <sub>2</sub> emissions from producing clinker, the cement industry enhances to <b>reduce not only clinker cement ratio</b> but also <b>fossil energy sources by using various waste and biomass</b> , in addition <b>hydrogen and ammonia in the future</b> .
	Paper manufacturing	Promote energy efficiency efforts and fuel conversion in production activities (active introduction of the latest energy-efficient facilities and technologies, increase of the utilization ratio of renewable energies, innovative technologies (development of <b>high efficiency pulp production methods</b> ), etc.). Also engage in unique efforts such as reducing CO <sub>2</sub> emissions from product life cycles by developing and utilizing environment-friendly materials derived from wood biomass ( <b>cellulose nanofiber</b> , etc.) and expand contribution in afforestation as a source of CO <sub>2</sub> absorption.
	Electrical & electronics	Under the policy of contributing to resolve social issues related to climate change and energy constraints through various business fields from the three perspectives of “technology development”, “co-creation”, and “resilience”, engage in innovating advanced energy conservation and carbon-free technology ( <b>smart grids, hydrogen production using water electrolysis, power semiconductors, rapid or wireless charging systems</b> , etc.) and the social implementation of advanced data utilization solutions ( <b>autonomous driving systems, smart factories, accurate weather observation and simulation technologies</b> , etc.).
	Automobile	Deploy electric vehicles ( <b>HV, PHV, EV, FCV</b> , etc.) and to achieve a hydrogen economy (spreading <b>FC-based mobility</b> , etc.).
Commercial	Real estate, buildings	Envisioning a society that has reached CN by 2050 with widely deployed “energy-savings and renewable energy-conscious buildings, such as <b>ZEB</b> and <b>ZEH</b> ”, “buildings that use low-impact construction material,” and “cities that enable community-wide CO <sub>2</sub> reductions by combining <b>renewable energy facilities, storage batteries and power interchange</b> ,” promote ZEB/ZEH and HEMS/BEMS in individual buildings and promote ZET and CEMS in the context of entire communities.
Transportation-related	Shipping	Work on the shift to <b>zero-emission vessels using alternative fuels such as carbon-recycled methane, ammonia and hydrogen</b> .
	Airlines	Work on <b>introducing new aircrafts, improve operational methods, and promote the introduction and expanded use of Sustainable Aviation Fuel (SAF)</b> .
	Shikoku Railway	<b>Advance GX investments</b> , such as the <b>introduction of next-generation vehicles, as much as possible ahead of schedule</b> , and take responsibility for post-deployment operations, addressing both hardware and software aspects.

# 4-1(1).【Pillar 1】Emission reductions from domestic business operations〔targets〕

- **An industry<sup>※</sup> has reviewed the target in fiscal 2025 FU.**
- This is evidence of the business community's will to contribute to achievement of the Government's target to reduce emissions by 46%.

※Japan Soft Drink Association

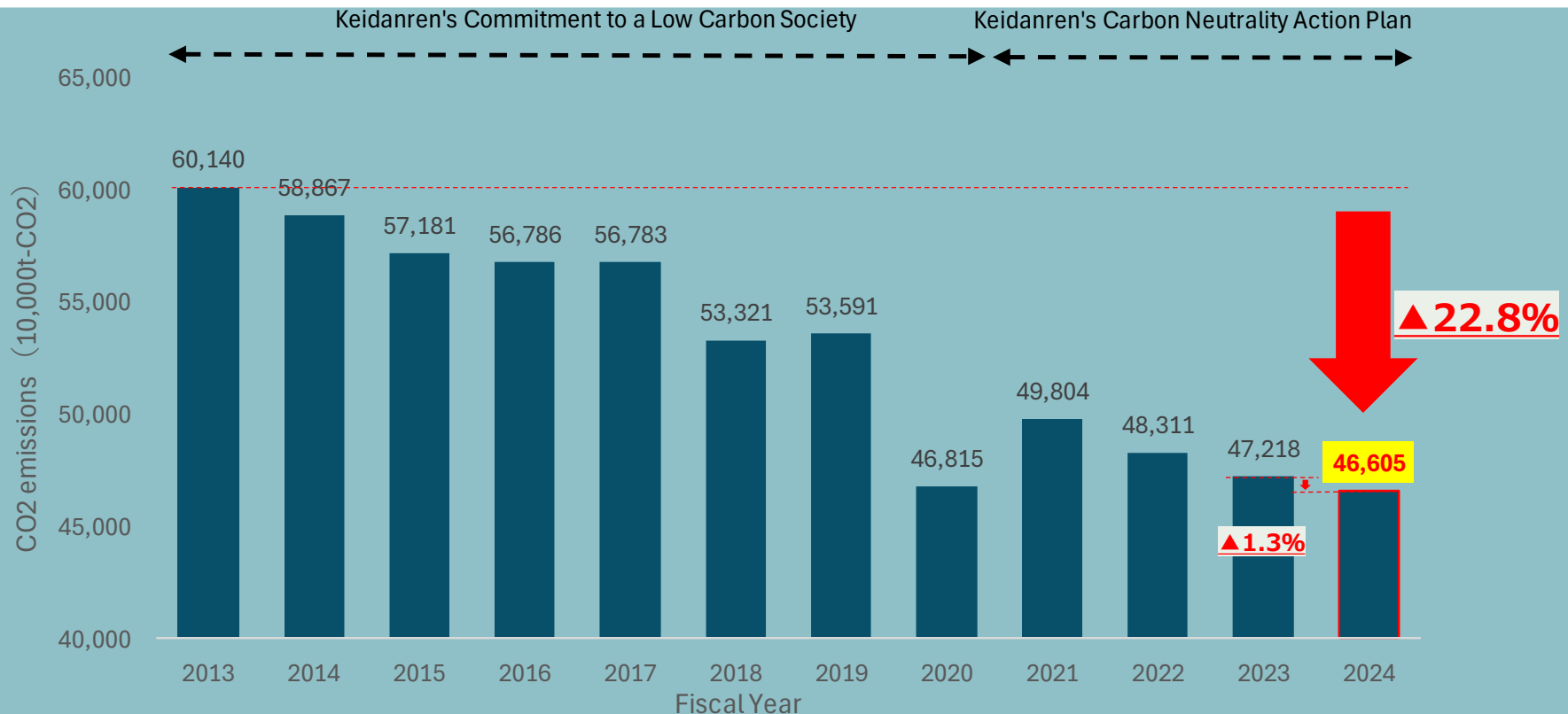
## 【Status of review of 2030 target】



※Result for industries that have disclosed their targets and performance.  
(The total does not match as several industries revisited their target several times. )

# 4-1(2).【Pillar 1】Emission reductions from domestic business operations (all sectors)

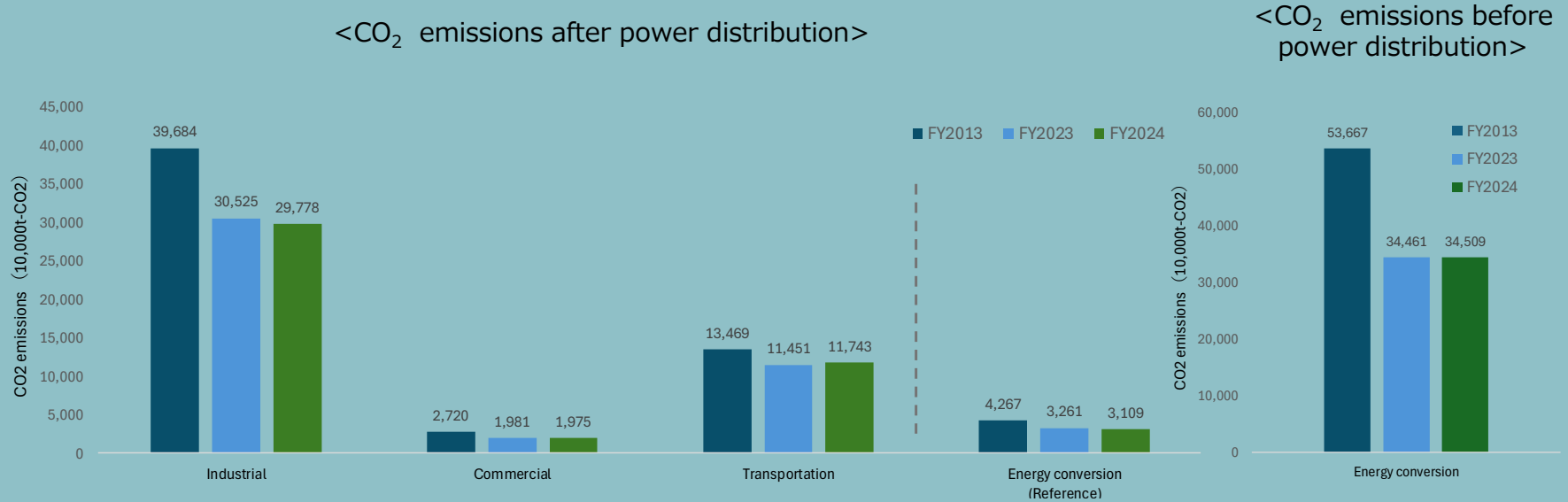
- Total CO<sub>2</sub> emissions from all sectors (industrial, energy conversion, commercial, transportation) **decreased by 22.8% (▲137.22Mt-CO<sub>2</sub>) from fiscal 2013\*** to fiscal 2024. (※) Baseline year for Japan's 2030 target
- **Emissions have decreased by 1.3% from fiscal 2023 (▲6.13Mt-CO<sub>2</sub>)** .
- This can be mainly attributed to a decline in the level of economic activity, including a contraction in external demand for steel and chemical products associated with the slowdown of the Chinese economy, as well as increased transport efficiency in the trucking industry.



※The Final Version reports CO<sub>2</sub> emissions (after electric power distributions) from 63 industries out of the 63 participating industries. The most recent heat values and carbon emission coefficients available at the time of the survey have been used for calculating CO<sub>2</sub> emissions.  
※ Comparison with FY2013 levels were calculated excluding the Real Estate Association of Japan and Japan Internet Providers Association for which FY2023 data is not available.

# 4-1(3).【Pillar 1】Emission reductions from domestic business operations (each sector)

- Compared to fiscal 2013, CO<sub>2</sub> emissions were reduced in all sectors in fiscal 2023.
- Compared to the previous year, CO<sub>2</sub> emissions increased in energy conversion and transportation sectors in fiscal 2023. On the other hand, CO<sub>2</sub> emissions in industrial and commercial sectors decreased.



Sector	Target industries / participating ind.	FY2023 emissions	Relative to FY2013	Relative to previous FY (FY2023)
Industrial	31/31 industries	297.78Mt-CO <sub>2</sub>	▲ 25.0%	▲ 2.4%
Commercial	17/17 industries	19.75Mt-CO <sub>2</sub>	▲ 34.2%	▲ 0.3%
Transportation	12/12 industries	117.43Mt-CO <sub>2</sub>	▲ 12.8%	+ 2.6%
Energy conversion*	3 / 3 industries	345.09Mt-CO <sub>2</sub>	▲ 35.7%	+ 0.1%

※Emissions before power distribution are provided for the energy conversion sector; and emissions after power distribution, for other sectors.

# 4-1(4).【Pillar 1】Emission reductions from domestic business operations〔factor analysis〕

■ Emission reductions from the previous fiscal year can be explained in terms of the following three factors:

**① Change in economic activity**

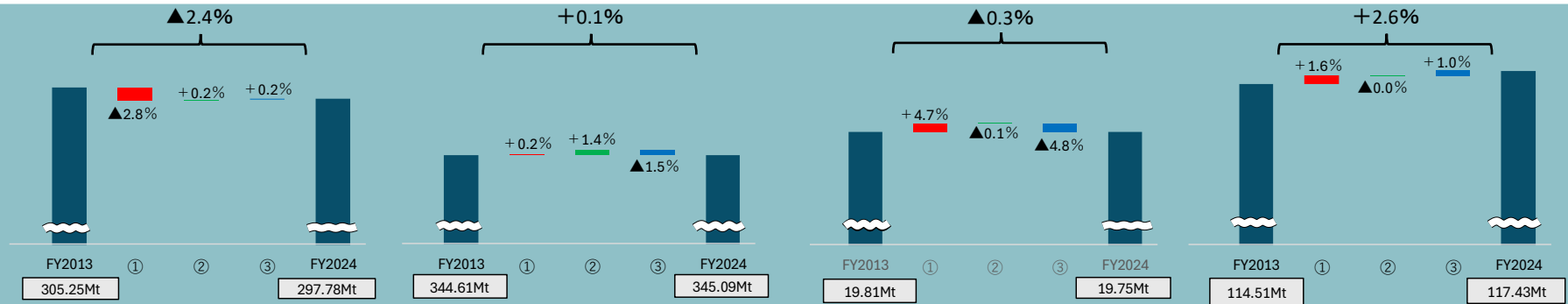
Increase in the energy conversion, commercial and transportation sectors, decrease in the industrial sector

**② Change in CO<sub>2</sub> emission factors (decarbonization of energy)\***

Increase in the industrial and energy conversion sectors, decrease in the commercial and transportation sectors

**③ Change in energy consumption per unit economic activity (energy saving efforts)**

Increase in the industrial and transportation sectors, decrease in the energy conversion and commercial sectors



## 【Industrial】

< Main factors >

- ① Decline in the level of economic activity, including a contraction in external demand for steel and chemical products associated with the slowdown of the Chinese economy
- ② Changes in the composition of energy consumption, etc.
- ③ While energy-saving efforts continue, aggravated energy due to reduced economic activity.

## 【Energy conversion】

< Main factors >

- ① Increased power sales
- ② Increased CO<sub>2</sub> emissions from thermal power plants, due to increased power sales
- ③ Improved heat efficiency in thermal power generation

## 【Commercial】

< Main factors >

- ① Increased network communication traffic and new supply of office buildings
- ② Electrification in office buildings
- ③ Efficiency improvements in equipment and operations, and energy conservation in office buildings

## 【Transportation】

< Main factors >

- ① Increased international airline passengers due to growth in inbound tourism
- ② Progress in fuel switching in the domestic coastal shipping industry, etc.
- ③ Increased fuel consumption in the international shipping industry due to revisions of navigation routes

# (Reference) [Pillar 1] Decadal CO<sub>2</sub> emission trends from 2013

- CO<sub>2</sub> emissions were reduced in all sectors, **decreasing 137.22Mt-CO<sub>2</sub> (22.8%) relative to 2013.**
- Emission reductions from FY2013 can be explained in terms of the following three factors:

## ① Change in economic activity:

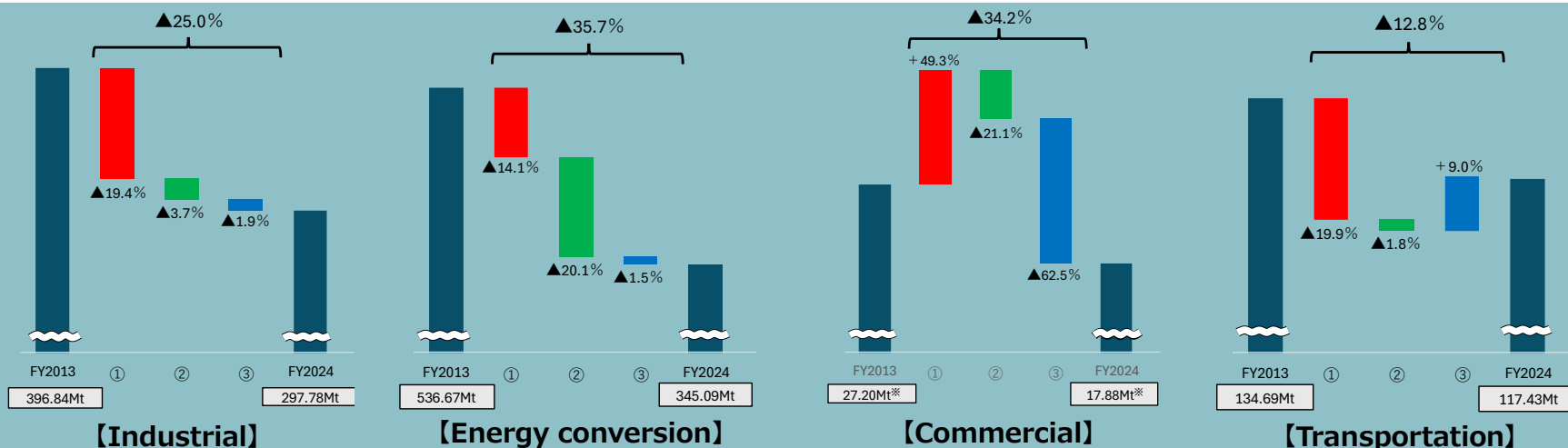
Increase in the commercial sector, decrease in the industrial, energy conversion and transportation sectors

## ② Change in CO<sub>2</sub> emission factors (decarbonization of energy)\*:

Decrease in all sectors. Restarting of nuclear power plants, increased renewable energy deployment, advancements in energy conversion

## ③ Change in energy consumption per unit economic activity (energy saving efforts):

Increase in the transportation sector, decrease in the industrial, energy conversion and commercial sectors



\*A comparison of the energy conversion sector is provided for reference because of the discontinuity of the data before and including fiscal 2014 and beyond fiscal 2015.

\*\*Factor analysis for the commercial sectors was conducted excluding the Real Estate Association of Japan and Japan Internet Providers Association, for which FY2013 data is not available.

※The Electric Power Council for a Low Carbon Society's CO<sub>2</sub> coefficient for the electric power sector is 0.423kg-CO<sub>2</sub>/kWh (▲0.144kg-CO<sub>2</sub>/kWh relative to FY2013) .

# 4-1(5).Status of deployment of renewable energy, energy recovery and utilization

- With a view to achieving CN, more industries are **deploying and developing renewable energy (solar power, hydropower, wind power, biomass and geothermal, etc.)**.
- Seek CO<sub>2</sub> emission reductions by **recovering and utilizing waste heat and byproduct gases** generated during manufacturing or fuel use, thus reducing fuel consumption.

※Keidanren's "Recommendations for Revising the Strategic Energy Plan" lays importance on "low cost, stable supply and business discipline" while recognizing that "renewable energy is an important decarbonizing power source that contributes to improving Japan's energy self-sufficiency level.

## Deployment of renewable energy

- Development and deployment of solar, hydro, wind, biomass and geothermal power generation (Electric Power Council for a Low Carbon Society)
- Development and deployment of Net Zero Energy House(Japan Federation of Housing Organization)
- Introduction of renewable energy-derived electricity for railway traction power (West Japan Railway Company, The Association of Japanese Private Railway)
- Solar power generation (Japan Paper Association, Liaison Group of Japanese Electrical and Electronics Industries for Global Warming Prevention, Japan Automobile Manufacturers Association/Japan Auto-Bodies Industries Association, The Japan Rubber Manufacturers Association, The Federation of Pharmaceutical Manufacturers' Associations of Japan, Japan Federation of Printing Industries, Japan Dairy Industry Association, Japan Association of Rolling Stock Industries, Japan Energy Resources Development Association, The Japan Gas Association, Japan Chain Stores Association, Telecommunications Carriers Association, Japan Franchise Association, Japan Foreign Trade Council, The General Insurance Association of Japan, Japan LP Gas Association, The Real Estate Companies Association of Japan, East Japan Railway Company:19 industries)
- Finance and investment in renewable energy projects (Japanese Bankers Association, The General Insurance Association of Japan, Japan Securities Dealers Association:3 industries)

## Energy recovery and utilization

- Power generation using byproduct gases and waste heat recovered energy; steam use (The Japan Iron and Steel Federation)
- Use of waste as alternatives for heat (Japan Cement Association)
- Power generation using surplus heat at waste treatment facilities (Japan Mining Industry Association)
- Hot-water supply and heating using hot spring heat, and heat pumps using hot spring wastewater (Japan Hotel Association)
- Cogeneration Systems (Japan Paper Association, The Japan Rubber Manufacturers Association, The Japan Gas Association, Japan Hotel Association:4 industries)
- Other waste heat recovery and use (Japan Chemical Industry Association, Japan Mining Industry Association, Japan Lime Association, The Japanese Electric Wire & Cable Makers' Association, The Japan Bearing Industrial Association, Jpan Industrial Vehicles Association, Petroleum Association of Japan:7 industries)

## 4-2. [Pillar 2] Strengthening co-operation with other interested groups

- Many industries **contribute to achieving avoided emissions along the value chain (procurement, provision of products and services, use, disposal, etc.)**.
- Active communication through **the quantification of reductions** and Keidanren's concept book in order to raise public recognition of products and services that contribute to society-wide emission reductions.

### Procurement of products that emit less before manufacturing

- Low carbon concrete (Japan Federation of Construction Contractors)
- Biomass polyethylene containers (The Federation of Pharmaceutical Manufacturers' Associations of Japan)

### Provision of products and services that emit less during use

- High-function steel (The Japan Iron and Steel Federation)
- Residential thermal insulation material (Japan Chemical Industry Association)
- Digital solutions utilizing IoT and AI (Liaison Group of Japanese Electrical and Electronics Industries for Global Warming)
- Next-generation vehicles (Japan Automobile Manufacturers Association)
- High mileage tires (The Japan Rubber Manufacturers Association)
- Conversion of data center wiring to optical fiber (The Japanese Electric Wire & Cable Maker's Association)
- Advanced CCS Projects (Japan Energy Resources Development Association)
- Latent heat recovery type high-efficiency oil hot water boiler (Petroleum Association of Japan)

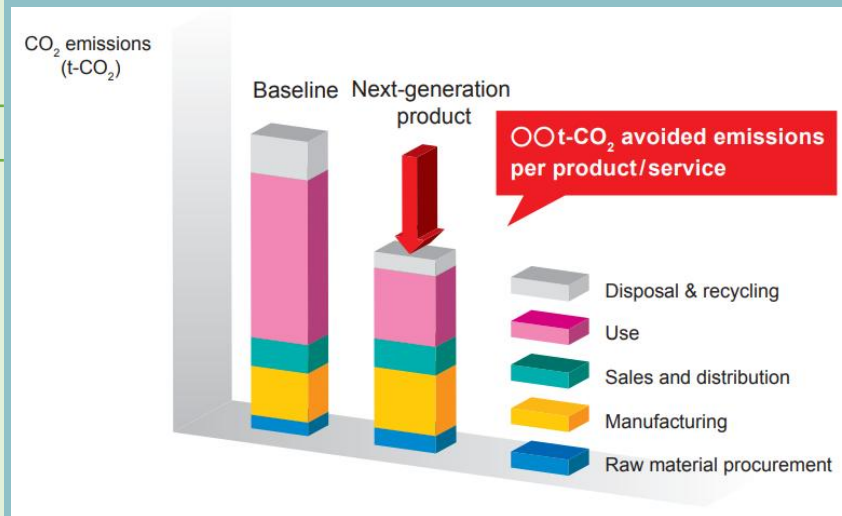
### Provision of lightweight products that emit less during transport

- Lightweight paper and cardboard (Japan Paper Association)

### Disposal of products (3R)

- Effective utilization of waste and byproducts (Japan Cement Association)

### <Approach to avoided CO<sub>2</sub> emissions>



## 4-3. [Pillar 3] Promoting contribution at the international level

- Many industries **contribute to reducing global GHG emissions** through overseas transfer of advanced products and services and overseas deployment of products and services.
- **Industries are promoting the quantification of emissions** avoided through international contribution, as done in measures taken under Pillar 2.

### <Examples of avoided emission overseas>

#### Overseas transfer of technologies and knowhow

- CDQ (Coke Dry Quenching), TRT (Top-pressure Recovery Turbine) power generation, GTCC (Gas Turbine Combined Cycle) exclusively fired using by-product gas (The Japan Iron and Steel Federation)
- Desalination technologies using reverse osmosis membranes (Japan Chemical Industry Association)
- Power generation using surplus heat at the company's own waste treatment facilities (Japan Mining Industry Association)
- CCS projects targeting CO<sub>2</sub> emissions from factories, oil fields, and gas fields (Japan Energy Resources Development Association)
- Operational data analysis and advisory services related to lime production (Japan Lime Association)
- LNG receiving, pipelines, and city gas distribution business (The Japan Gas Association)

#### Provision of low-carbon products and services

- Polyethylene terephthalate from biomass, aircraft lightweight materials, next-generation vehicles materials (Japan Chemical Industry Association)
- High-efficient thermal power generation and renewable power generation technologies, high efficiency home appliances, high efficiency IT products (Liaison Group of Japanese Electrical and Electronics Industries for Global Warming Prevention)
- Low-fuel-consumption tires, energy-saving belts, and heat-shielding products (The Japan Rubber Manufacturers Association)
- Next-generation vehicles (Japan Automobile Manufacturers Association)
- Energy-saving ships (The Shipbuilders' Association of Japan & The Cooperative Association of Japan Shipbuilders)
- Water-saving toilets (Japan Sanitary Equipment Industry Association)
- Gas Cogeneration (The Japan Gas Association)

# 4-4. [Pillar 4] Development of innovative technologies toward CN by 2050

- **The creation of completely new innovations is key** to achieving significant CO<sub>2</sub> reductions in the medium- to long-term toward CN by 2050, as drastic reductions cannot be achieved along the lines of conventional measures.
- Medium- to long-term R&D that the private sector finds difficulty in committing to alone will be continued **through collaboration with the Government**.

## <Example of roadmaps for developing and deploying innovative technologies>

Industry/company	Innovative technologies*	2024	2025	2030	2050
The Japan Iron and Steel Federation	Development of Hydrogen Reduction Technologies Utilizing Hydrogen From Within Steelworks			Implementation	
	Development of Low-carbon Technologies Using External Hydrogen and CO <sub>2</sub> Contained in Blast Furnace Exhaust Gas, development of direct hydrogen reduction technologies				Implementation
Japan Chemical Industry Association	Plastic feedstock production technologies using CO <sub>2</sub> , etc.	R&D including commercialization using GI Fund			Business phase
Japan Paper Association	Manufacturing of bio-ethanol for Sustainable Aviation Fuel (SAF)	Demonstration	Launch operation of pilot plant	>100kKL in domestic production phase	Deployment & expansion
Japan Cement Association	Lower emission cement	Preliminary considerations	Confirm manufacturing conditions, economic rationality, etc.		
The Japan Rubber Manufacturers Association	Hydrogen utilization technologies	Domestic: demonstration	Domestic: Continue studies - commercialization	Domestic; commercialization - deployment Overseas: studies - commercialization	Domestic: deployment Overseas: deployment
The Electric Power Council for a Low Carbon Society	Ammonia conversion	20% conversion pilot test		Full operation of 20% conversion 50%+ conversion pilot test	Full operation of 50%+ conversion
	Hydrogen conversion				
The Japan Gas Association	e-methane	Production capacity: Approx. 5~12.5Nm <sup>3</sup> /h	Production capacity: Approx. 400~500Nm <sup>3</sup> /h	Production capacity: Approx. 10,000Nm <sup>3</sup> /h	Production capacity: Approx. 10,000Nm <sup>3</sup> /h
West Japan Railway Company	Development of hydrogen-powered train	Demonstration	Implementation	Deployment	

\*Includes transition technologies

# 5. Conclusion

- To achieve carbon neutrality by 2050 in Japan, GX should be promoted as a growth strategy. In particular, the **government needs to promptly implement concrete measures to create a “GX products market”** in which higher-priced environmental value is widely accepted.
- **Keidanren is determined to continue contributing to the realization of CN in Japan and on a global scale, based on the CN Action Plan, even after the full-scale operation of the GX-ETS starting in FY2026.**

