

**Main Points of
KEIDANREN's Commitment to a Low Carbon Society
Fiscal 2020 Follow-up Results Summary**

**<Performance in fiscal 2019> [final version]
(Tentative Translation)**

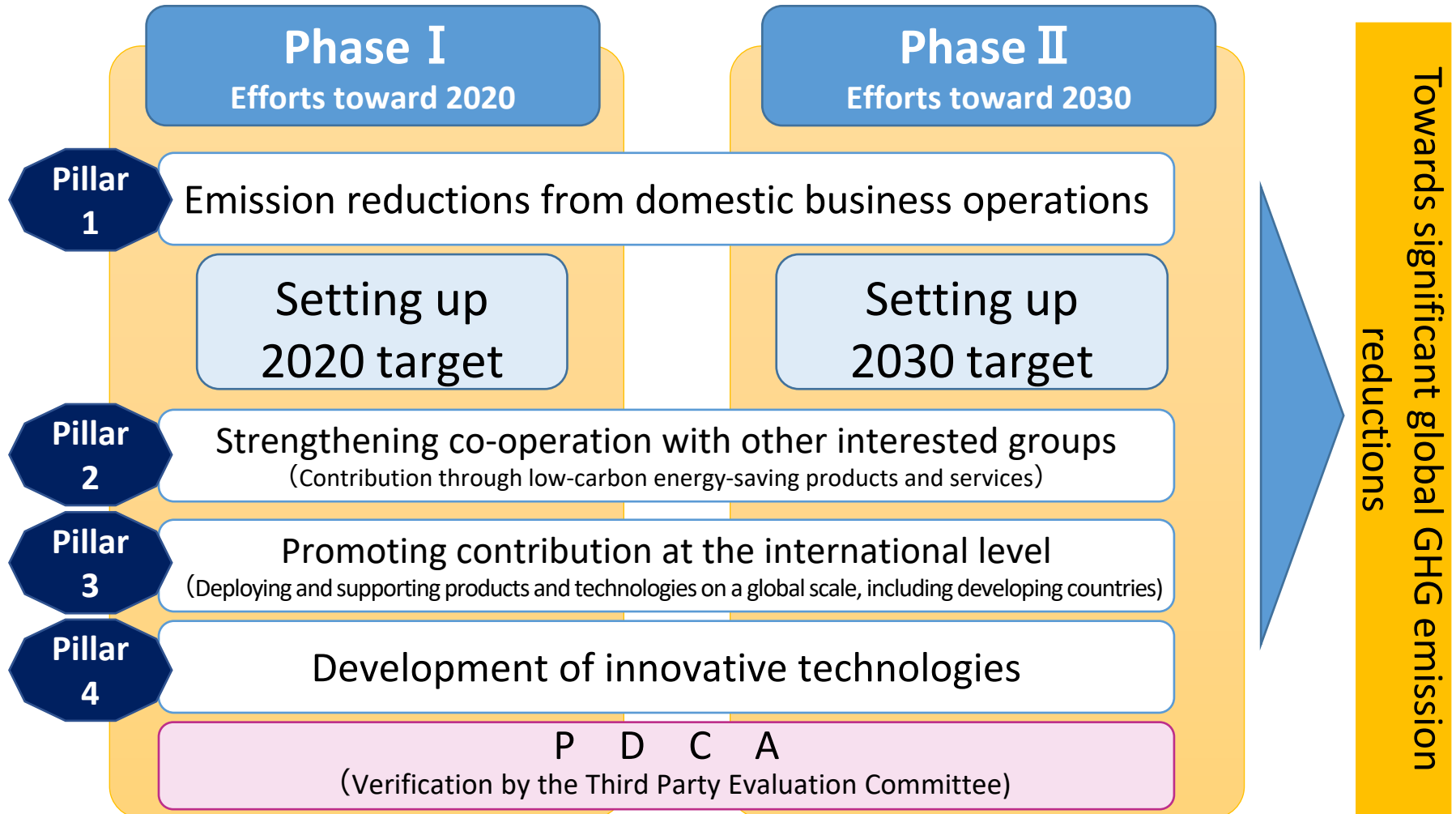
March 31, 2021

KEIDANREN
(Japan Business Federation)

Outline of KEIDANREN's Commitment to a Low Carbon Society

- Contributing to global long-term global warming countermeasures on a global scale through efforts based on four pillars.

※62 participating industries



Pillar 1: Emission reductions from domestic business operations

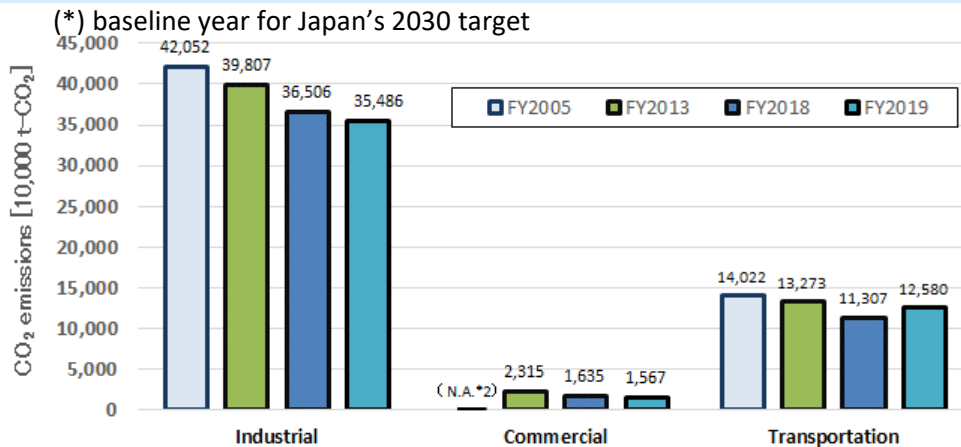
- Performance in CO₂ emissions -

CO₂ emissions in FY2019

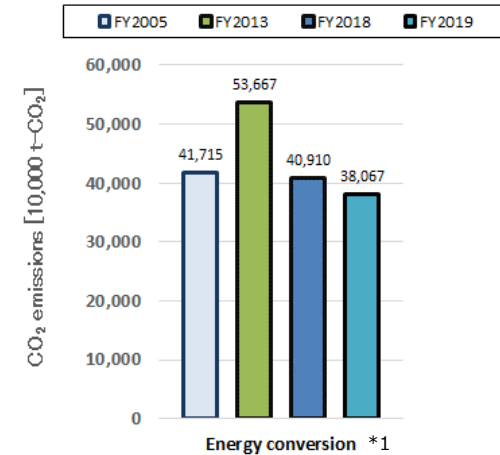
- Relative to previous fiscal year (fiscal 2018): **reductions were achieved in all sectors (industrial, energy conversion, commercial), except transportation**

*Impacts of COVID-19 were limited.

- Relative to FY2013(*): **reductions were achieved in all sectors (industrial, energy conversion, commercial, transportation)**



<CO₂ emissions after power distribution>



<CO₂ emissions before power distribution>

Sector	Target industries/ participating ind.	FY2018 emissions	Relative to FY 2005	Relative to FY 2013	Relative to previous FY (FY2017)
Industrial	31/31 industries	354.86 Mt-CO ₂	-15.6%	-10.9%	-2.8%
Commercial	14/16 industries	15.67 Mt-CO ₂	—※2	-32.3%	-4.1%
Transportation	12/12 industries	125.80 Mt-CO ₂	-13.8%	-5.2%	+11.3%
Energy conversion *1	3/3 industries	380.67 Mt-CO ₂	-8.7%	-29.1%	-6.9%

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

*2 Emissions in the commercial sector in fiscal 2005 are not provided due to the status of data collection.

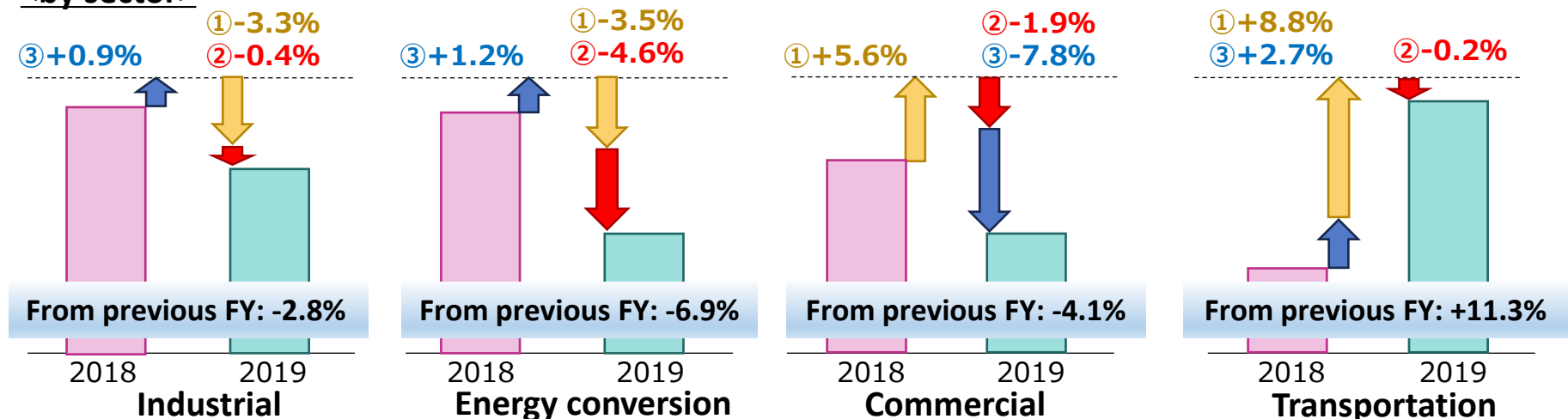
Pillar 1: Emission reductions from domestic business operations

- Factor analysis of change in emissions: relative to FY2018 -

Breakdown of factors of change in CO₂ emissions

- ① **Change in economic activity** Increase in commercial and transportation sectors, reduction in other sectors
 ← economic situation, changes in demand, etc. *A limited number of industries attributed decreased economic activities to COVID-19.
- ② **Change in CO₂ emission factors (decarbonization of energy)**
Reductions in all sectors ← Continued operation of restarted nuclear power plants[※], utilization of renewable energy, deployment of high-efficient thermal power plants, etc.
[※]Ohi Power Station Units 3 & 4, Genkai Nuclear Power Station Units No. 3 & 4 were restarted in fiscal 2018.
- ③ **Change in energy consumption per unit economic activity (energy saving efforts)**
 Reductions in the commercial sector ← improvements in facility efficiency and operations, etc.

<by sector>



<Main factors>

- ② : Fuel conversion, energy recovery
- ③ : Increased share of fixed costs due to reduced production activities, aging facilities, increase in energy-intensive production methods due to high-mix low-volume production

<Main factors>

- ② : Continued restarted nuclear power plants, renewable energy, high-efficient thermal power plants
- ③ : Reduced efficiency due to increased output control at thermal power plants used as adjustable electricity sources of renewable energy

<Main factors>

- ① : Substantial increase in communications traffic
- ② : Enjoying the benefits of decarbonizing energy, as an energy-intensive sector
- ③ : Improved efficiency of facilities, equipment and operations

<Main factors>

- ① : Larger coverage
- ③ : Reduced transport efficiency due to reduced loading ratio in the context of economic stagnation

Pillar 1: Emission reductions from domestic business operations

-Probability of target achievement and rate of progress-

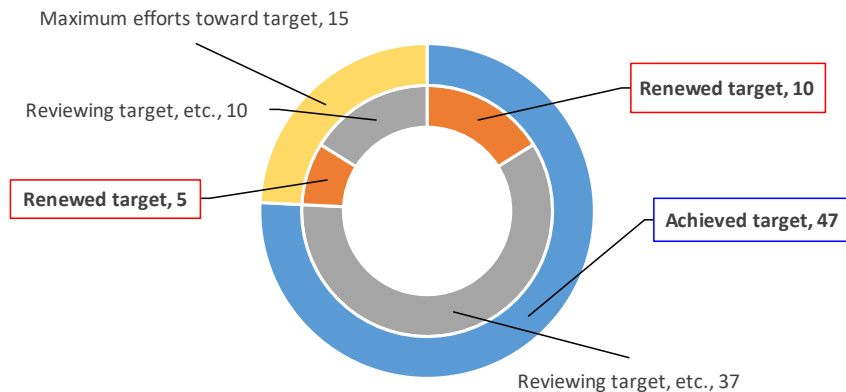
- Implement effective measures through the PDCA cycle
- Renew to more ambitious targets, according to status of achievement
- Consider and account for target levels that will enable maximum social commitment

Phase I (FY2020) target

47/62 industries have already achieved their targets
-15 industries have renewed their targets to more ambitious targets.

(no industry renewed their targets this fiscal year)

<Status of FY 2020 target achievement and review>



*Industries that have renewed their targets have been categorized according to their current achievement status.

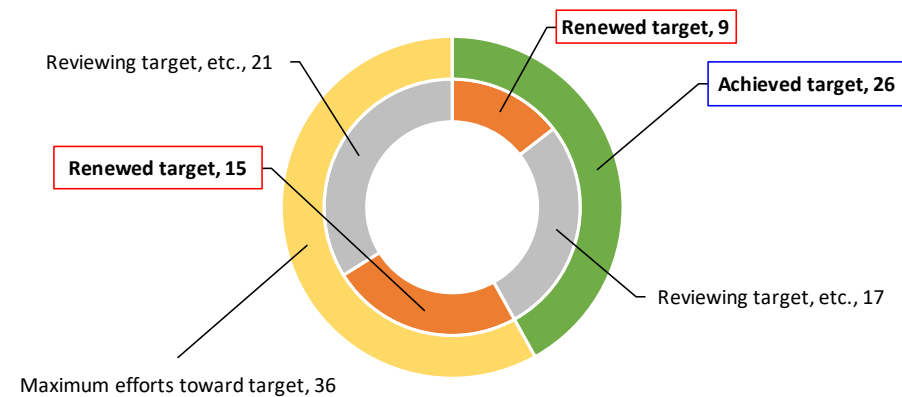
*Industries that are currently reviewing their targets will enhance their efforts toward Phase II and continue to take measures, including renewing their Phase II target with a view to long-term .

Phase II (FY2030) target

26/62 industries have already achieved their targets
 - **24 industries** have renewed their targets to more ambitious targets

(2 industries renewed their target this fiscal year)

<Status of FY2030 target achievement and review>



*Industries that have renewed their targets have been categorized according to their current achievement status.

*It is important for industries that are currently reviewing their targets to continue to analyze trends and make efforts to consider and account for maximized target levels.

Status of deployment of renewable energy , energy recovery and utilization

- With a view to achieving a low carbon society, more industries are deploying and developing **renewable energy (solar power, hydropower, wind power, biomass and geothermal, etc.)**
- Seek CO₂ emission reductions **by recovering and utilizing waste heat and byproduct gases** generated during manufacturing or fuel use, thus reducing fuel consumption

Deployment of renewable energy

Renewable power generation (Japan Paper Association, Liaison Group of Japanese Electrical and Electronics Industries for Global Warming, Japan Cement Association, Japan Auto Parts Industries Association, Japan Rubber Manufacturers Association, Japan Soft Drink Association, Japan Dairy Association, Japan Machine Tool Builders' Association, Brewers Association of Japan, Japan Industrial Vehicles Association, Electric Power Council for a Low Carbon Society, Telecommunications Carriers Association, Japan Franchise Association, Japan Foreign Trade Council, Telcom Services Association, Association of Japanese Private Railways)

Use of wood biomass at onsite power generation facilities (Japan Cement Association)

Deployment of biomass power plant (Japan Paper Association)

Use of hydropower at business establishment (Japan Aluminium Association)

Energy recovery and utilization

Recovery of byproduct energy, including waste heat, use of recovered steam for power generation (The Japan Iron and Steel Federation)

Use of waste as alternatives for heat (Japan Cement Association)

Utilization of surplus heat for power generation (Japan Mining Industry Association, etc.)

Utilization of waste heat from boilers as a heat source for HVAC at plants (Japan Rubber Manufacturers Association, etc.)

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

<Examples of emissions reduction efforts along the value chain>

Procurement of products that emit less before manufacturing

Biomass polyethylene containers (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)
High-efficiency IT products and solutions (Liaison Group of Japanese Electrical and Electronics Industries for Global Warming)
Improved fuel economy, next-generation vehicles (Japan Automobile Manufacturers Association)
High mileage tires (Japan Rubber Manufacturers Association)
Smart meter (Electric Power Council for a Low Carbon Society)
Latent heat recovery type high-efficiency oil hot water boiler (Petroleum Association of Japan)

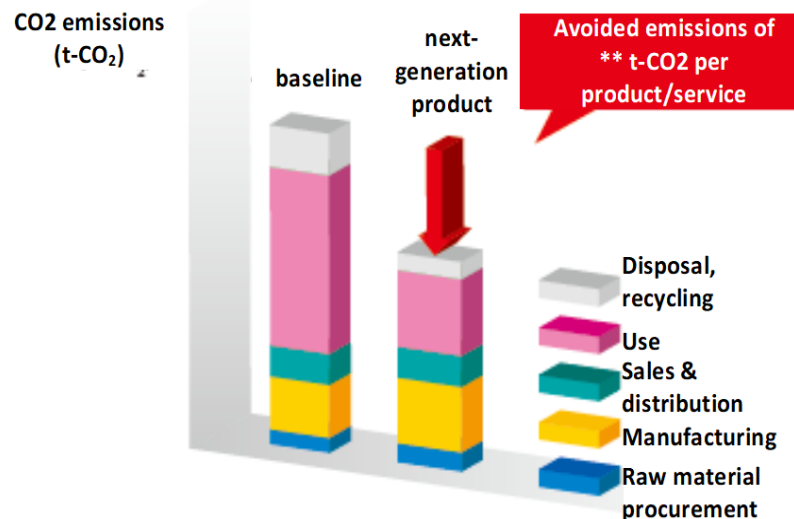
Provision of lightweight products that emit less during transport

Lightweight paper and cardboard (Japan Paper Association)

Disposal of products (3R)

Effective utilization of waste and byproducts (Japan Cement Association)
Reuse of glass bottles (Japan Dairy Industry Association)

<Approach to avoided CO₂ emissions>



Pillar 3: Promoting contribution at the international level

- Many industries contribute to reducing global GHG emissions through overseas transfer of our advanced products and services and overseas deployment of our 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 emissions overseas>

Overseas transfer of technologies and knowhow

Ion-exchange membrane for the production of caustic soda (Japan Chemical Industry Association)
CDQ (coke dry quenching) and TRT (top-pressure recovery turbine) power generation (The Japan Iron and Steel Federation)
Aluminum recycling (Japan Aluminum Association)
Renewable power generation (Electric Power Council for a Low Carbon Society, The Japan Gas Association)
Renewable energy IPP (independent power producer) business (Japan Foreign Trade Council)
RE100 plants (Japan Rubber Manufacturers Association)
CO₂ zero emission plants (Japan Industrial Vehicles Association)

Provision of low-carbon products and services

High efficient thermal power generation and renewable power generation technologies, high efficiency IT products, solutions (Liaison Group of Japanese Electrical and Electronics Industries for Global Warming Prevention)
Next-generation vehicles (Japan Automobile Manufacturers Association)
Energy-saving ships (Shipbuilders' Association of Japan & Cooperative Association of Japan Shipbuilders)
Permanent magnet synchronous motors (PMSM) for railway vehicles (Japan Association of Rolling Stock Industries)

Pillar 4: Development of innovative technologies

- **The creation of completely new innovations is key** to achieving significant greenhouse gas reductions in the medium- to long-term, 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**.

<Examples of innovative technologies and services>

Deployment started

Green chemistry (Federation of Pharmaceutical Manufacturers' Associations of Japan)
Cellulose nanofiber (Japan Paper Association)
Smart energy networks (The Japan Gas Association)
5G (Telecommunications Carriers Association)

To be deployed in 2020 and beyond

Biofuels (Japan Paper Association)
High-efficiency petroleum refining technologies (Petroleum Association of Japan)
LNG bunkering technologies (The Japan Gas Association)
Alternative aviation fuels (Scheduled Airlines Association of Japan)

To be deployed in 2030 and beyond

COURSE50, ferrocoke (The Japan Iron and Steel Federation)
Artificial Photosynthesis Project (Japan Chemical Industry Association)
High-temperature superconductive cables (The Japanese Electric Wire & Cable Makers' Association)
Innovative cement production process (Japan Cement Association)

<Examples of innovative technology development in partnership with the Government>

Aluminum rolling industry

R&D under the NEDO "Demonstration Project for Achieving a Horizontal Closed-Loop Vehicle Recycling System"

Copper and brass industry

R&D under the NEDO "Development of 'Hetero-nano' super high strength copper alloy material contributing to energy conservation strategy"

Shipbuilding industry

Wind Challenger Program (next-generation sailing vessel)

Challenges and measures to be taken

(1) Pillar 1 (Emission reductions from domestic business operations)

- Promotion of sustained efforts toward industry-specific targets
- Close observation of COVID-19 impacts
- Accounting for the validity and progress of targets

(2) Pillar 2, 3 (Strengthening co-operation with other interested groups/Promoting contribution at the international level)

- Development and domestic and overseas deployment of energy-saving products and services of excellence with a view to emission reductions on a global scale
- Further promotion of “visualization” of avoided emissions

(3) Pillar 4 (Development of innovative technologies)

- Promotion of social deployment of innovative technologies
- Promotion of R&D led by industry-government-academia collaboration that will serve substantial reductions in the long-term

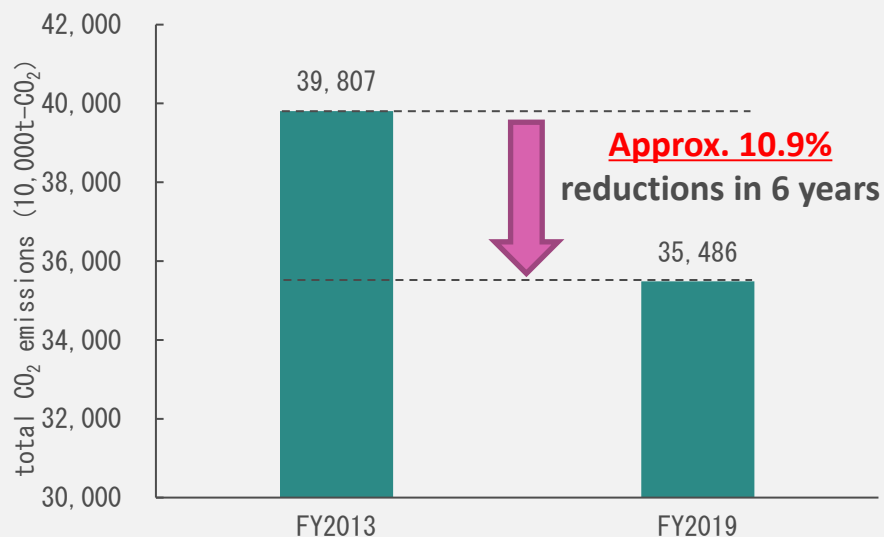
Reductions achieved in six years in relation to Pillar 1

- CO₂ emissions in the industrial sector were reduced by **approx. 10.9%** from fiscal 2013 to 2019.
- Total CO₂ emissions (after electric power distribution) in all sectors (industrial, energy conversion, commercial and transportation) were reduced by **approx. 10.7%** from fiscal 2013 to 2019.

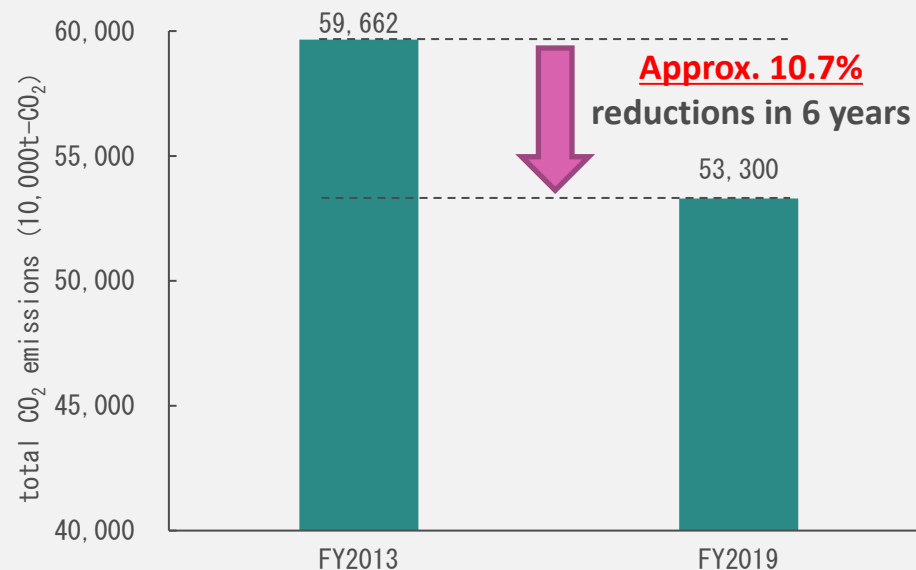
<Changes in emissions from participating industries and companies -performance in FY2013~2019->

Fiscal 2020 Follow-up Results, final count (after electric power distribution)

Industrial sector



Total, all sectors



※ The final version reports total CO₂ emissions (after electric power distribution) from 60 industries out of the 62 participating industries. Real Estate Companies Association of Japan and Japan Building Owners and Managers Association have not reported emissions, and are thus not included in the graph.

※ The coverage of emissions differ between fiscal 2013 and fiscal 2019 for reasons including offshoring.

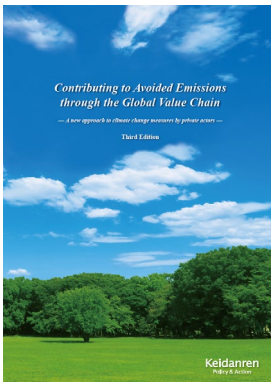
[Reference] Avoided emissions across the global value chain Formulation of the Long-term Vision (Long-term global warming countermeasures toward 2050)

- Keidanren promotes multidimensional global warming countermeasures in addition to Keidanren's Commitment to a Low Carbon Society

Avoided emissions across the global value chain

- (1) Contribute to CO₂ emission reductions on a global scale from the perspective of product and service life cycles through collaboration among various actors along corporate value chains spread across the world
- (2) **"Visualize" avoided CO₂ emissions** and accelerate the deployment of excellent products and services.
- (3) **Published concept book "Guidelines for Quantifying GHG emission reductions of goods or services through Global Value Chain". (Nov 2018)**

Introduces **29 measures taken by 18 diversified industries/companies.**



Examples of measures (excerpts)

- High-tensile strength steel (The Japan Iron and Steel Federation)
- Aircraft material (Japan Chemical Industry Association)
- Electric vehicles (Japan Automobile Manufacturers Association), etc.



URL : <http://www.keidanren.or.jp/en/policy/vape/gvc2018.pdf>

Long-term vision

- (1) Companies and organizations proactively present their business approach and long-term vision of long-term global warming countermeasures toward 2050, thus accelerating ESG investment and global warming countermeasures worldwide.
- (2) In Oct. 2018, Keidanren called on its member companies and organizations to formulate a "Long-term Vision" of global warming countermeasures toward 2050.
- (3) As a result, **129 companies and organizations have formulated and announced their Long-term Visions. 134 companies and organizations, have started discussing the formulation of a Long-term Vision.** (as of Feb. 28, 2021)
- (4) **Status of formulation / consideration of Long-term Visions can be found on the Keidanren website.** (Information is updated as required.)

URL : <http://www.keidanren.or.jp/policy/2019/001.html>

(※) These measures differ in character from Keidanren's Commitment to a Low Carbon Society which embraces targets that must be firmly achieved; and therefore, Long-term Visions do not constitute a part of the PDCA process under the follow-up.

〔Reference〕 Challenge Zero

- (1) In cooperation with the Japanese government, Keidanren strongly publicizes and encourages innovation actions that companies and organizations take to realize a decarbonized society, both in Japan and abroad.
- (2) Keidanren encouraged its members to participate in the Challenge Zero and to submit introductions of innovations; launched in June 2020.
- (3) As of end of February 2021, **181 participating companies and organizations have submitted 379 challenges.**

Encouraging ESG investment and collaboration through “Challenge Zero” (Image)

Participating companies and organizations **declare** one of the below **challenges**, and each company **reports** specific **actions** regarding its declaration.

1. Development of net-zero emission technologies (including transition technologies)

2. Dissemination and implementation of net-zero emission technologies

3. Finance for companies that are engaged in the above challenges



Showing and promoting the actions by the business community towards a net zero carbon society

Corporate Name & Logo

Specific Actions

Comprehensive Picture

