Keidanren
Policy & Action

Main Points of
KEIDANREN's Commitment to a Low Carbon Society
Fiscal 2019 Follow-up Results Summary

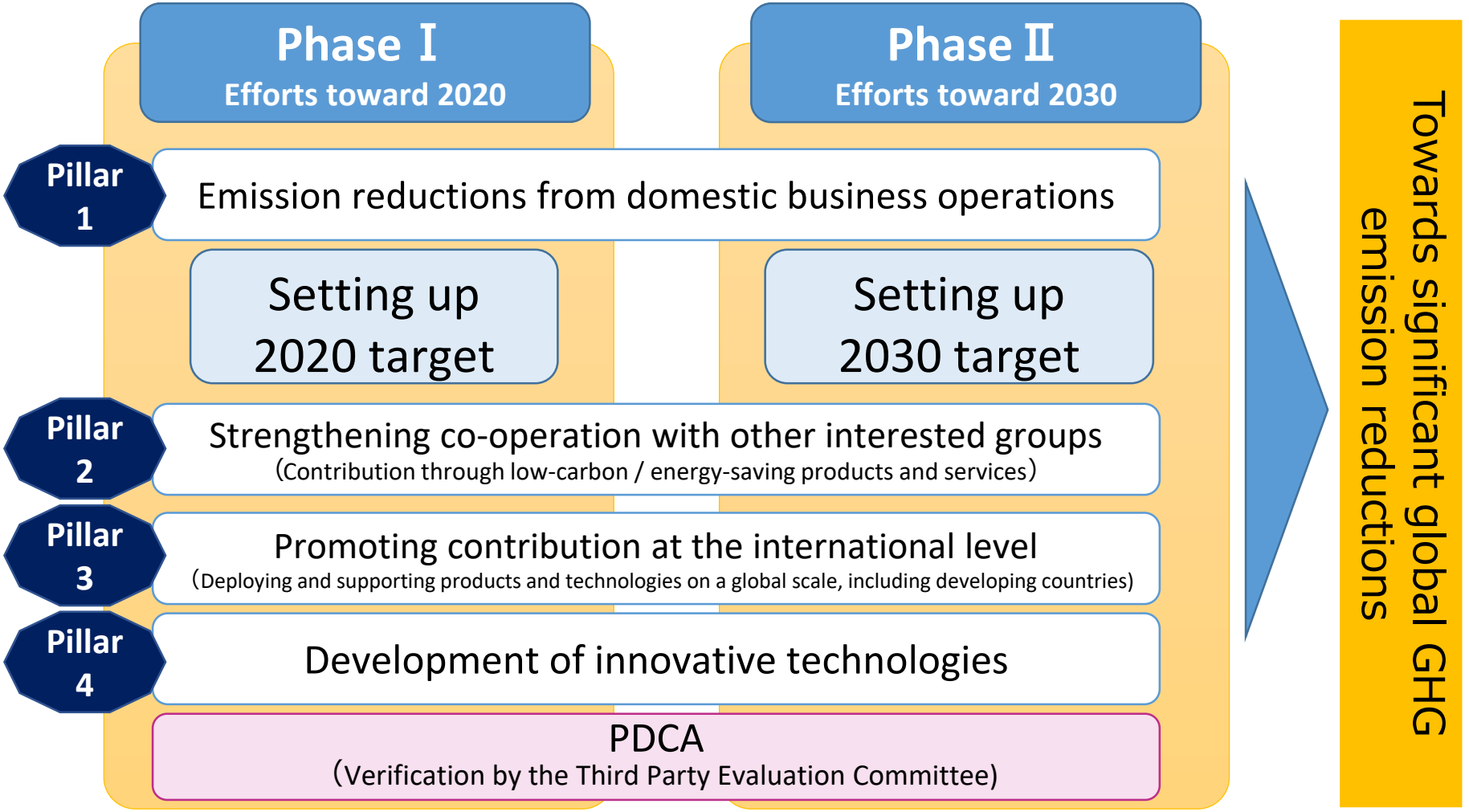
<Performance in fiscal 2018> [final version]
(Tentative translation)

March 27, 2020

KEIDANREN
(Japan Business Federation)

Outline of KEIDANREN's Commitment to a Low Carbon Society

■ Contributing to long-term global warming countermeasures on a global scale through efforts based on four pillars.
※62 participating industries

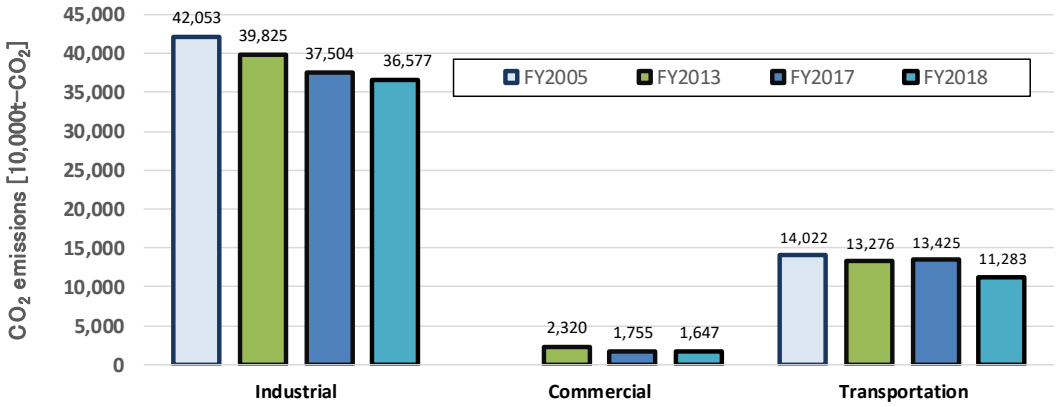


Pillar 1: Emission reductions from domestic business operations - Performance in CO_2 emissions -

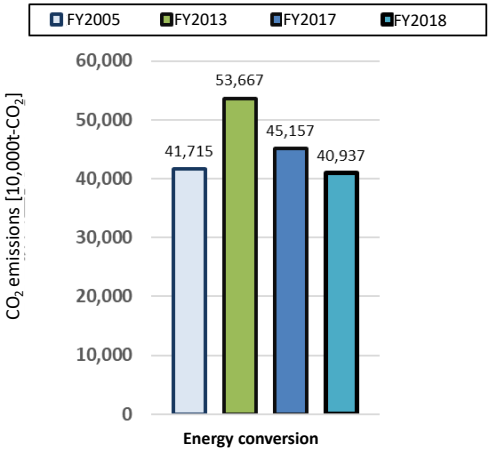
- CO_2 emissions in FY2018

1. Relative to previous fiscal year (fiscal 2017): **reductions were achieved in all sectors** (industrial, energy conversion, commercial, transportation)
2. Relative to FY2013(*): **reductions were achieved in all sectors** (industrial, energy conversion, commercial, transportation)

(*) baseline year for Japan's 2030 target



<CO_2 emissions after power distribution>



<CO_2 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	365.57 Mt-CO_2	-13.2%	-8.2%	-2.5%
Commercial	14/16 industries	16.47 Mt-CO_2	― ※2	-29.3%	-6.2%
Transportation	12/12 industries	112.83Mt-CO_2	-23.2%	-15.0%	-16.0%
Energy conversion[*1]	3/3 industries	409.37Mt-CO_2	-1.9%	-23.7%	-9.3%

*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 FY2017-

Breakdown into factors of change in CO_2 emissions

① **Change in economic activity** Increase in commercial sector, reductions in other sectors ←economic fluctuation, changes in demand, etc.

② **Change in CO_2 emission factor（decarbonization of energy)**

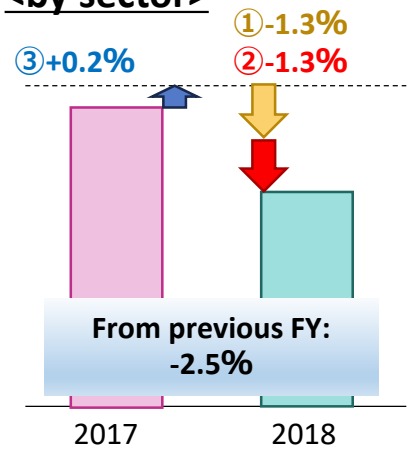
Reductions in all sectors ← restarting nuclear power plants※, utilization of renewable energy, deployment of high-efficiency thermal power plants, etc.

※Ohi Power Station Units B3 & 4, Genkai Nuclear Power Station Units No. 3 & 4 were restarted in fiscal 2018.

③ **Change in energy consumption per unit of economic activity (improvement of energy efficiency)**

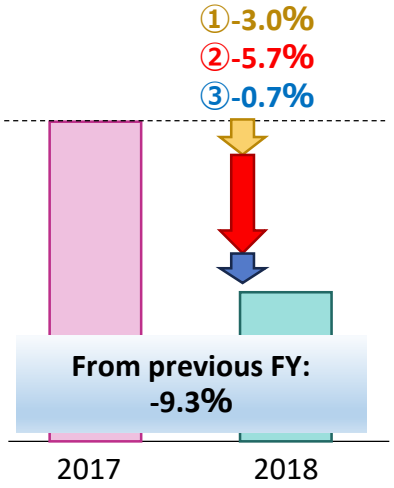
Reductions in the energy conversion and commercial sectors ←improvements in facility efficiency and operations, etc.

<by sector>



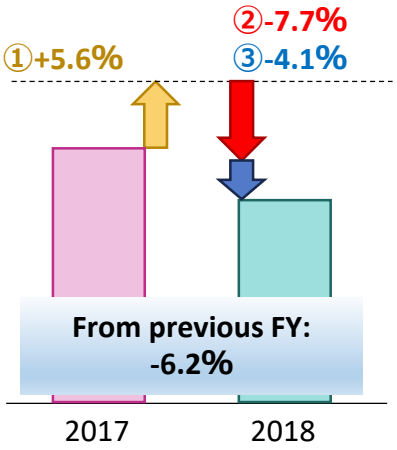
Industrial

<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



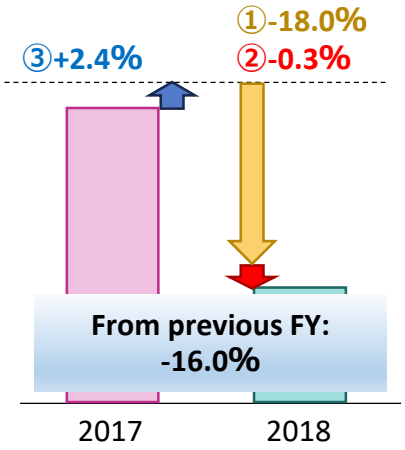
Energy conversion

<Main factors>
② : Restarting nuclear power plants, renewable energy, high-efficiency thermal power plants



Commercial

<Main factors>
② : Enjoying the benefits of energy decarbonization, due to its tendency of heavy use of electric power
③ : Improving efficiency of facilities and equipment



Transportation

<Main factors>
① : Offshoring business operations
③ : Exclusion of highly efficient business operations due to ①
Prioritizing on safe operations due to increased disasters
Reduced payload due to trade frictions

Pillar 1: Emission reductions from domestic business operations -Probability of target achievement and rate of progress-

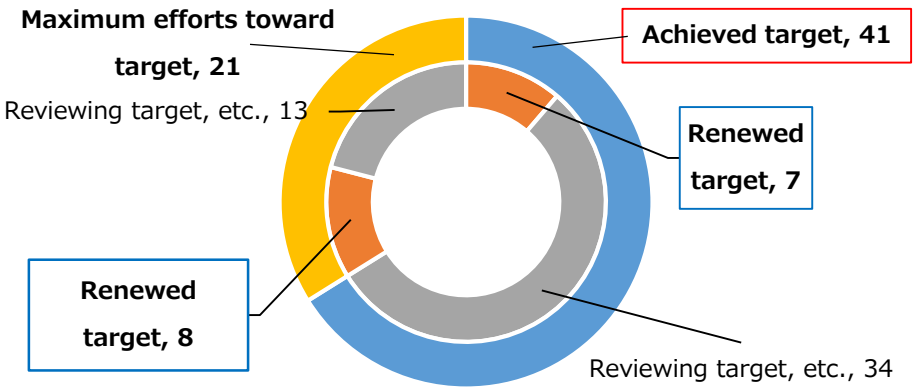
- Implement effective measure through the **PDCA cycle**
- **Renew to more ambitious targets,** according to status of achievement
- Consider and account for target levels that will enable maximum social commitment

Phase I target (FY2020)

41/62 industries have already achieved their targets **-15 industries** have renewed their targets to more ambitious targets.

（**2 industries** renewed their targets this fiscal year）

＜Status of target achievement and review＞



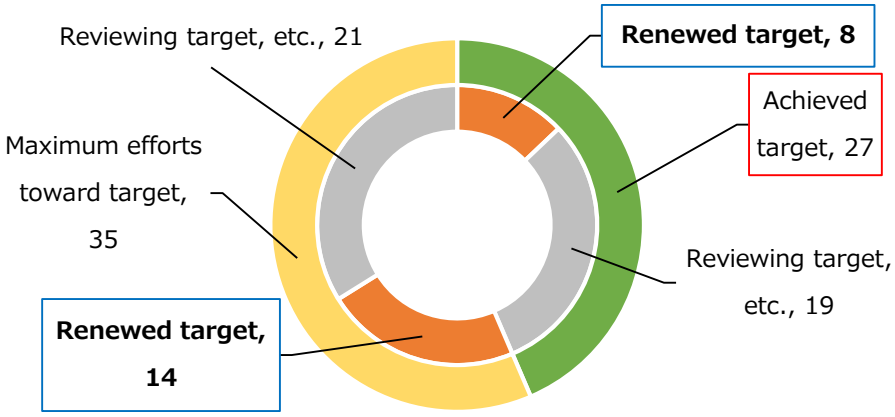
*Industries that have renewed their targets have been counted under their current achievement status.
*Industries that are currently reviewing their targets will enhance their efforts toward Phase II and continue to take measures, including renewing their Phase II target, with a view to achieving mid and long-term reduction.

Phase II target (FY2030)

27/62 industries have already achieved their targets - **22 industries** have renewed their targets to more ambitious targets

(**8 industries** renewed their target this fiscal year)

＜Status of target achievement and review＞



*Industries that have renewed their targets have been counted under their current achievement status.
*It is important for industries that are reviewing their targets to continue analyzing trends and making efforts to consider and account for the maximum 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 and biomass, etc.)**
- Working on CO_2 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
Installation of solar power generation facilities (Liaison Group of Japanese Electrical and Electronics Industries for Global Warming)
Biomass use in onsite power generation facilities (Japan Cement Association)
Deployment of biomass power generation facilities (Japan Paper Association)
Megasolar projects (Japan Petroleum Development 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)
Utilization of surplus heat for power generation (Japan Mining Industry Association, etc.)
Utilization of waste heat from boilers as a heat source for HVAC (Japan Rubber Manufacturers Association)
Recovery of total heat and sensible heat using heat exchangers (Federation of Pharmaceutical Manufacturers' Associations of Japan)

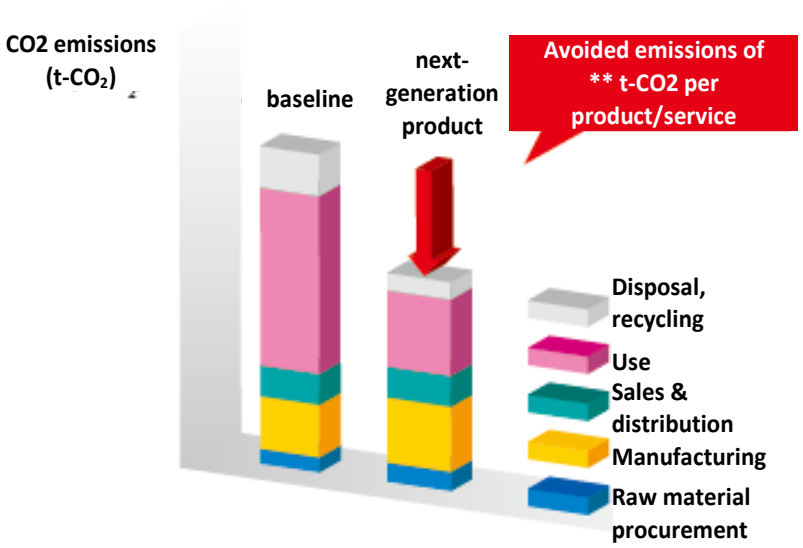
Pillar 2: Strengthening co-operation with other interested groups

- 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 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) Utilization of bioplastics (Japan Federation of Printing Industries)
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) 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 $C0_2$ emissions>



Pillar 3: Promoting contribution at the international level

- Many industries **contribute to reducing global GHG emissions** through overseas transfer of our advanced energy-saving and low-carbon technologies and overseas deployment of our products and services.
- **Industries promote 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	Provision of low-carbon products and services
Seawater desalination technologies by reverse osmosis membrane (Japan Chemical Industry Association) CDQ (coke dry quenching) and TRT (top-pressure recovery turbine plant) (The Japan Iron and Steel Federation) Hydropower generation (Japan Mining Industry Association) Aluminum recycling (Japan Aluminium Association) Permanent magnet synchronous motor technologies for railcars (Japan Association of Rolling Stock Industries) LNG upstream business (natural gas development and extraction, liquefaction and shipping bases) (The Japan Gas Association) CO_2 recovery and EOR (enhanced oil recovery) (Japan Petroleum Development Association) IPP (independent power producer) (Japan Foreign Trade Council)	High efficiency 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) Electrical forklifts （Japan Industrial Vehicles Association)

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

Smart Cities (Liaison Group of Japanese Electrical and Electronics Industries for Global Warming Prevention)
Cellulose nanofiber (Japan Paper Association)
Total-oxygen combustion technologies (Flat Glass Manufacturers Association of Japan)

To be deployed in 2020 and beyond

High-speed optical communication networks (Telecommunications Carriers 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)
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 energy-saving 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
- 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 of excellent energy-saving products and services, and domestic and overseas deployment 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

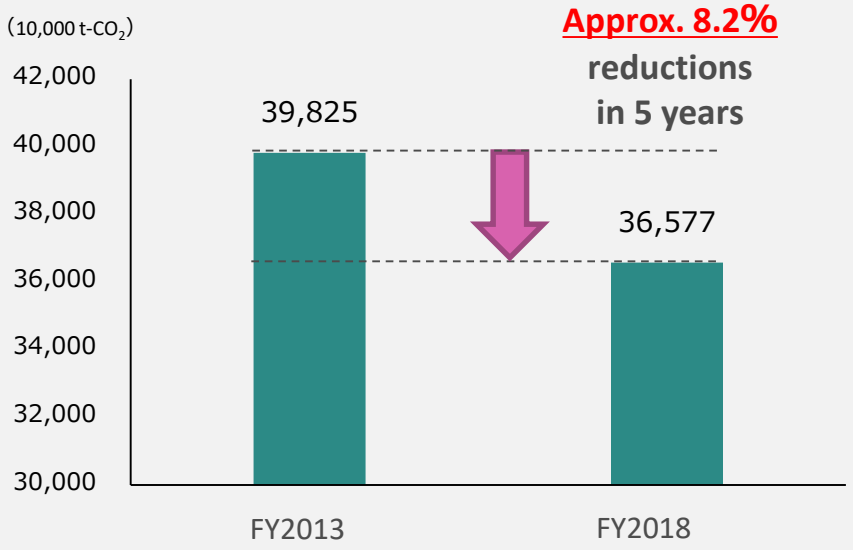
Reductions achieved in five years in relation to Pillar 1

- CO_2 emissions from the industrial sector were reduced by **approx. 8.2%** from fiscal 2013 to 2018.
- Total CO_2 emissions (after electric power distribution) from all sectors (industrial, energy conversion, commercial and transportation) were reduced by **approx.10.5%** fiscal 2013 to 2019.

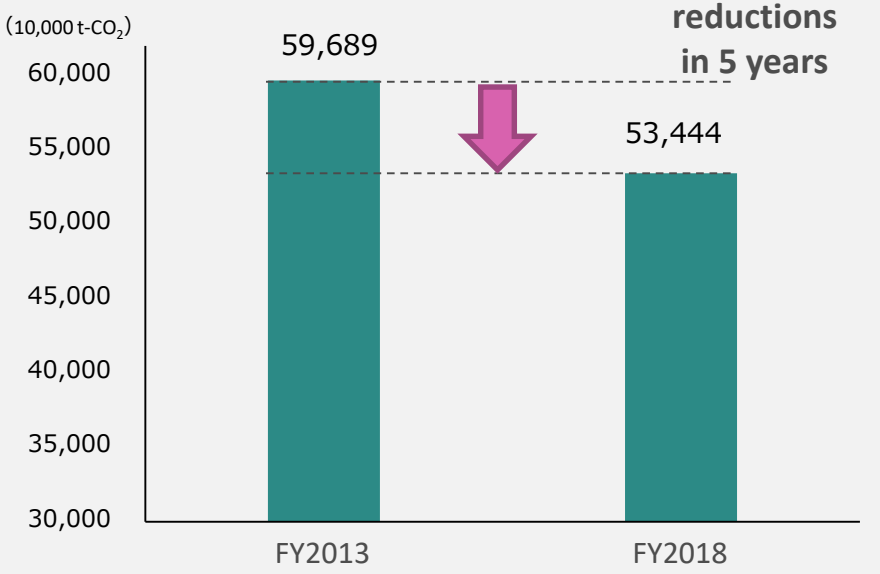
＜Changes in emissions from participating industries and companies –performance in FY2013-2018-＞

Fiscal 2019 Follow-up Results, final count (after electric power distribution)

Industrial sector



Total, all sectors



※ The final version reports total CO_2 emissions (after electric power distribution) from 60 industries out of the 62 participating industries. Emissions from the Real Estate Companies Association of Japan and Japan Building Owners and Managers Association are not included in the graph due to the status of data collection.

※The coverage of emissions differ between fiscal 2013 and fiscal 2018 for reasons including offshoring.

〔Reference〕Avoided emissions across the global value chain and 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

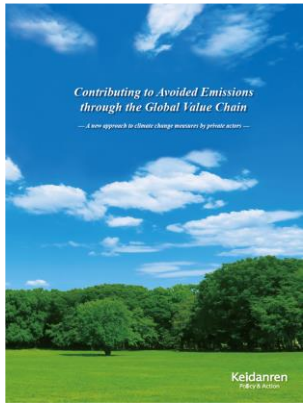
Avoided emissions across the global value chain

(1) Contribute to CO_2 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 CO_2 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 **28 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, **101 companies and organizations have formulated and announced their Long-term visions. 164 companies and organizations, have started discussing the formulation of a Long-term vision.** (as of Feb. 29, 2020)

(4) **Status of formulation / consideration of Long-term visions can be found on the Keidanren website.** (Information is updated as required.)

URL. https://www.keidanren.or.jp/en/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.