Progress of the Plan for Global Warming Countermeasures in FY2021

June 30, 2023

Global Warming Prevention Headquarters

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1. This Examination of Progress

This examination of the progress in FY2021 on policies and measures detailed in the Plan for Global Warming Countermeasures (approved by the Cabinet on October 22, 2021; hereafter referred to as "the Plan") has been conducted based on the progress management methodology in the Plan and is compiled here by the Global Warming Prevention Headquarters.

2. Progress of Countermeasures

(1) FY2021 Greenhouse Gas Emissions and Removals in Japan (Final Figures)

Japan's greenhouse gas (GHG) emissions and removals totaled 1,122 million tons (CO_2 equivalent; same applies below) in FY2021, showing an increase of 2.0% compared to the previous year and a decrease of 20.3% compared to the emissions in FY2013.

(2) FY2021 Greenhouse Gas Emissions in Japan (Final Figures)

Japan's GHG emissions totaled 1,170 million tons in FY2021, showing an increase of 2.0% compared to the previous year and a decrease of 16.9% compared to FY2013.

FY2021 emissions are thought to have increased from the previous year due primarily to factors such as increased energy consumption in the post-COVID-19 economic recovery.

(3) FY2021 Greenhouse Gas Emissions in Japan (Final Figures) by Gas Type and Sector

Final figures for GHG emissions in Japan by gas type and sector in FY2021 are given in the table. The factors that led to changes in emissions from past years are explained below.

A. Energy-related CO_2

- FY2021 emissions: 988 million tons
  (+2.1% compared to the previous year; -20.0% compared to FY2013)

① Industrial Sector (Factories, etc.)

- FY2021 emissions: 373 million tons
  (+5.4% compared to the previous year; -19.5% compared to FY2013)
  [Primary causes of increase from the previous year]
  - Increased energy consumption due to higher production volumes in the manufacturing industry with the recovery of the economy from the slump caused by the COVID-19 pandemic, etc. (among other factors)

  [Primary causes of decrease from FY2013]
  - Improved CO_2 emission intensity of electricity (CO_2 emissions per unit of electricity consumption) and continued low production volumes in the manufacturing industry relative to pre-pandemic levels (among other factors)

② Commercial Sector (Commerce, Services, Offices, etc.)

- FY2021 emissions: 190 million tons
  (+3.3% compared to the previous year; -19.8% compared to FY2013)
  [Primary causes of increase from the previous year]
  - Increased energy consumption due to the recovery of the economy from the slump caused by the COVID-19 pandemic, etc. (among other factors)

  [Primary causes of decrease from FY2013]
  - Lower emissions from electricity consumption due to improvements to CO_2 emission

intensity of electricity, and lower energy consumption due to improvements in energy consumption intensity (energy consumption per Indices of Tertiary Industry Activity) due to progress in energy conservation, etc. (among other factors)

③ Residential Sector

- FY2021 emissions: 156 million tons
  (-6.3% compared to the previous year; -24.8% compared to FY2013)
  [Primary causes of decrease from the previous year]
  - Decrease in electricity consumption and other energy consumption due to people spending less time at home with the easing of pandemic restrictions on outings (among other factors)

  [Primary causes of decrease from FY2013]
  - Lower energy consumption due to improvements in energy consumption intensity (energy consumption per household) due to improvement in energy conservation, etc., as well as improvements in CO_2 emission intensity of electricity (among other factors)

④ Transport Sector (Automobiles, etc.)

- FY2021 emissions: 185 million tons
  (+0.8% compared to the previous year; -17.6% compared to FY2013)
  [Primary causes of increase from the previous year]
  - Increased freight volumes due to the recovery of the economy from the slump caused by the COVID-19 pandemic, etc. (among other factors)

  [Primary causes of decrease from FY2013]
  - Both passenger and freight transport volumes continue to be below pre-pandemic levels (among other factors). Until FY2019, improvements in automobile fuel economy and other aspects resulted in the improvement of energy consumption intensity in passenger transport (energy consumption per unit of transport volume), and this further contributed to the decrease

⑤ Energy Conversion Sector (Power Plants, Oil Refineries, etc.) (Excl. statistical error from electricity and heat allocation)

- FY2021 emissions: 89.5 million tons
  (+9.1% compared to the previous year; -15.7% compared to FY2013)
  [Primary causes of increase from the previous year]
  - Increased emissions from the manufacturing of petroleum products and coal products (coke manufacturing) (among other factors)

  [Primary causes of decrease from FY2013]
  - Decreased emissions from the manufacturing of petroleum products and utility power generation (among other factors)

B. Non-energy-related CO_2

- FY2021 emissions: 75.8 million tons
  (+2.1% compared to the previous year; -7.7% compared to FY2013)
  [Primary causes of increase from the previous year]
  - Increased emissions in industrial processes and product usage due to increased lime production (among other factors)

  [Primary causes of decrease from FY2013]
  - Decreased emissions in industrial processes and product usage due to decreased cement production (among other factors)

C. Methane (CH_4)

- FY2021 emissions: 27.4 million tons
  (-0.1% compared to the previous year; -6.1% compared to FY2013)
  [Primary causes of decreases from the previous year and FY2013]

- Decreased emissions in the waste sector (landfills, etc.) (among other factors)

D. Nitrous Oxide (N_2O)

- FY2021 emissions: 19.5 million tons
  (-1.1% compared to the previous year; -11.1% compared to FY2013)
  [Primary causes of decrease from the previous year]
  - Decreased emissions in the waste sector (among other factors)
  [Primary causes of decrease from FY2013]
  - Decreased emissions from fuel combustion and leakage (among other factors)

E. Fluorinated gases

- FY2021 emissions: 59.1 million tons
  (+1.8% compared to the previous year; +51.2% compared to FY2013)
  [Primary causes of increases from the previous year and FY2013]
  - Increased emissions in refrigerants due to the replacement of ozone-depleting substances such as hydrochlorofluorocarbons (HCFCs) with HFCs (among other factors)

(4) FY2021 Greenhouse Gas Removals in Japan

The amount of removals by Japan's forest and other removal measures in 2021 is 47.6 million tons.

Moving forward, the plan is to achieve removals of approx. 47.7 million tons in FY2030 through the steady implementation of countermeasures.

Table: Greenhouse Gas Emissions and Removals (FY2021 Final Figures)

(Unit: Million tons)

	FY2013 [Share]	FY2021 <compared to FY2013>	FY2030 Targets and estimates *1 <compared to FY2013>
Energy-related CO_2	1,235 [87.8%]	988 <-20.0%>	677 <-45%>
Industry	464 [32.9%]	373 <-19.5%>	289 <-38%>
Commercial and others	237 [16.9%]	190 <-19.8%>	116 <-51%>
Residential	208 [14.7%]	156 <-24.8%>	70 <-66%>
Transport	224 [15.9%]	185 <-17.6%>	146 <-35%>
Energy conversion	106*2 [7.5%]	89.5*2 <-15.7%>	56 <-47%>
Non-energy-related CO_2	82.1 [5.8%]	75.8 <-7.7%>	70.0 <-15%>
Methane	29.1 [2.1%]	27.4 <-6.1%>	26.7 <-11%>
Nitrous Oxide	21.9 [1.6%]	19.5 <-11.1%>	17.8 <-17%>
Fluorinated gases	39.1 [2.8%]	59.1 <+51.2%>	21.8 <-44%>
HFCs	32.1	53.6	14.5
PFCs	3.3	3.2	4.2
SF_6	2.1	2.0	2.7
NF_3	1.6	0.4	0.5
Greenhouse gas removals	—	-47.6	-47.7
Total	1,408 [100%]	1,122 <-20.3%>	760*3 <-46%>

*1: Target values (or estimates, for energy-related CO_2) contained in the current plan. Values for the 2013 ratio indicate comparisons with 2013 emissions at the time the current targets and estimates were formulated.

*2: Excludes statistical error from electricity and heat allocation. For that reason, the figures of energy-related CO_2 for each fiscal year does not correspond to the total value for each sector.

*3: Forecasted removals achieved via greenhouse gas removals activities.

(5) Progress on Each Policy and Measure

In this examination, for the 'Steady implementation, evaluation and verification of the Action Plan for Low Carbon Society' among the policies and measures in the industry, transport, commercial and energy conversion sectors, the actual figures of carbon dioxide emissions in FY2021 in each industry were identified, and the progress towards the target levels for 2030 and other years was evaluated.

With respect to policies and measures in other sectors, this examination identified the actual performance of these policies and measures based on the measure evaluation indicators, energy savings, and emission reductions in FY2021. Additionally, it looked at these performance figures and implementation status, etc. to evaluate progress towards FY2030 target levels[*4] based on estimates and forecasts for measure evaluation indicators, etc. through FY2030.

These are summarized in the attachment after the progress of the policies and measures was identified as shown in the appendix. The summary of the results was as follows.

*4: FY2030 measure evaluation indicators, energy savings forecasts, emission reductions forecasts, etc. contained in the Plan

1) Steady Implementation, Evaluation, and Verification of the Action Plan for Low Carbon Society (number of industries: 114)
   A. Performance exceeded the target level: 40 industries
   B. Performance exceeded the level of reference year/BAU, but fell below the target level: 61 industries
   C. Performance fell below the target level and increased compared to the reference year/BAU: 7 industries
   D. Data not compiled (newly established / change in target levels / revisions to calculation methodology / etc.): 2 industries
   E. Targets not set: 4 industries

2) Policies and Measures Not Covered in (1) (number of policies and measures: 115)
   A. Expected to exceed the target level if efforts are continued, and performance already exceeded the target level: 7 cases
   B. Expected to exceed the target level if efforts are continued (excl. A): 14 cases
   C. Expected to reach the same level as the target if efforts are continued: 67 cases
   D. Expected to fall below the target level if efforts remain unchanged: 20 cases
   E. Quantitative data are not available, etc.: 7 cases

3. Future Outlook

(1) Actions to Achieve Targets of the Plan

We will continue working to achieve the targets in the Plan by promoting the Plan's policies and measures based on annual GHG emissions and the results of this examination.

In particular, with respect to the 40 industries evaluated as "A. Performance exceeded the target level" in 2 (5) 1) above, we will promote constant review, including consideration of raising targets, and promote further countermeasures that go beyond the status quo. With respect to the 61 industries evaluated as "B. Performance exceeded the level of reference year/BAU, but fell below the target level," as well as the 7 industries evaluated as "C. Performance fell below the target level and increased compared to the reference year/BAU" and the 4 industries falling under "E. Targets not set," we will promote the strengthening and enhancing of efforts as well as the setting of targets. Additionally, we will focus on industries that have yet to establish an Action Plan for Low Carbon Society to urge consideration of such a plan.

Meanwhile, with respect to the 20 policies and measures in 2 (5) 2) "D. Expected to fall below the target level if efforts remain unchanged," we will consider ways to strengthen and enhance them, etc. in addition to considering new policies and measures as necessary. We will also promote efforts to further reduce emissions for policies and measures other than "D."

(2) Examination of the Progress of the Plan

We will continue to rigorously examine the status of the progress of the Plan based on annual GHG emissions and the results of this examination. Moving forward, new policies and measures established based on (1) above will also be subject to examination.

In this examination, there were policies and measures for which no forecasts were presented for annual measure evaluation indicators, etc. through FY2030, and we will endeavor to provide such forecasts where possible in future examinations so as to make it possible to accurately grasp current progress.

Furthermore, for policies and measures for which it is considered necessary to scrutinize the relationship between the measure evaluation indicators and the emission reductions resulting from the countermeasures concerned in this inspection, a study will be conducted to ensure that the emission reductions from the policies and measures concerned can be properly identified.

Additionally, we will strive to speed up the process of calculating the final figures etc. that are needed for examinations, rapidly establish methods of evaluating policies and measures, etc. that will help transform socioeconomic systems, and further analyze the causes underlying progress status on individual policies and measures.

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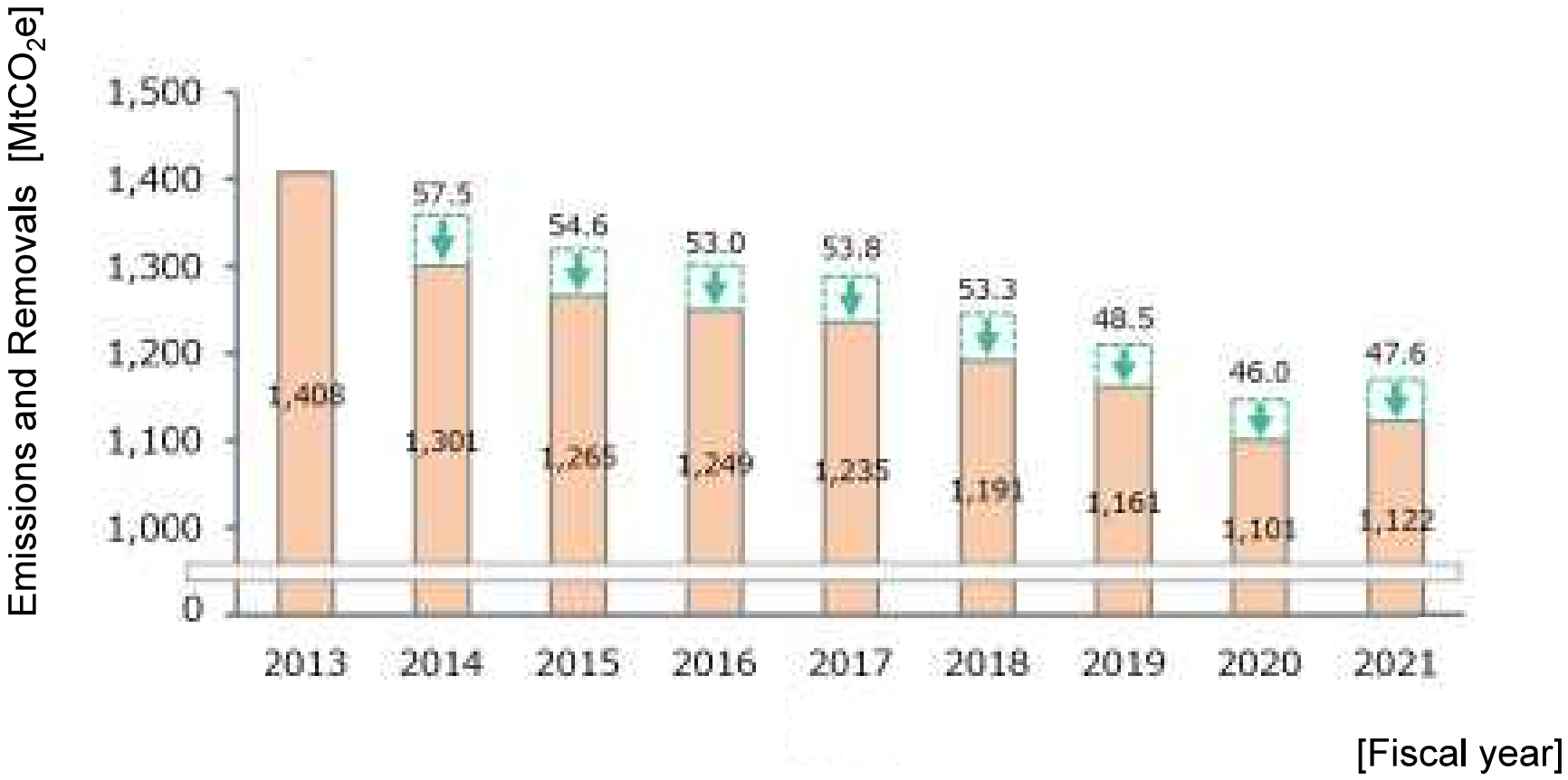
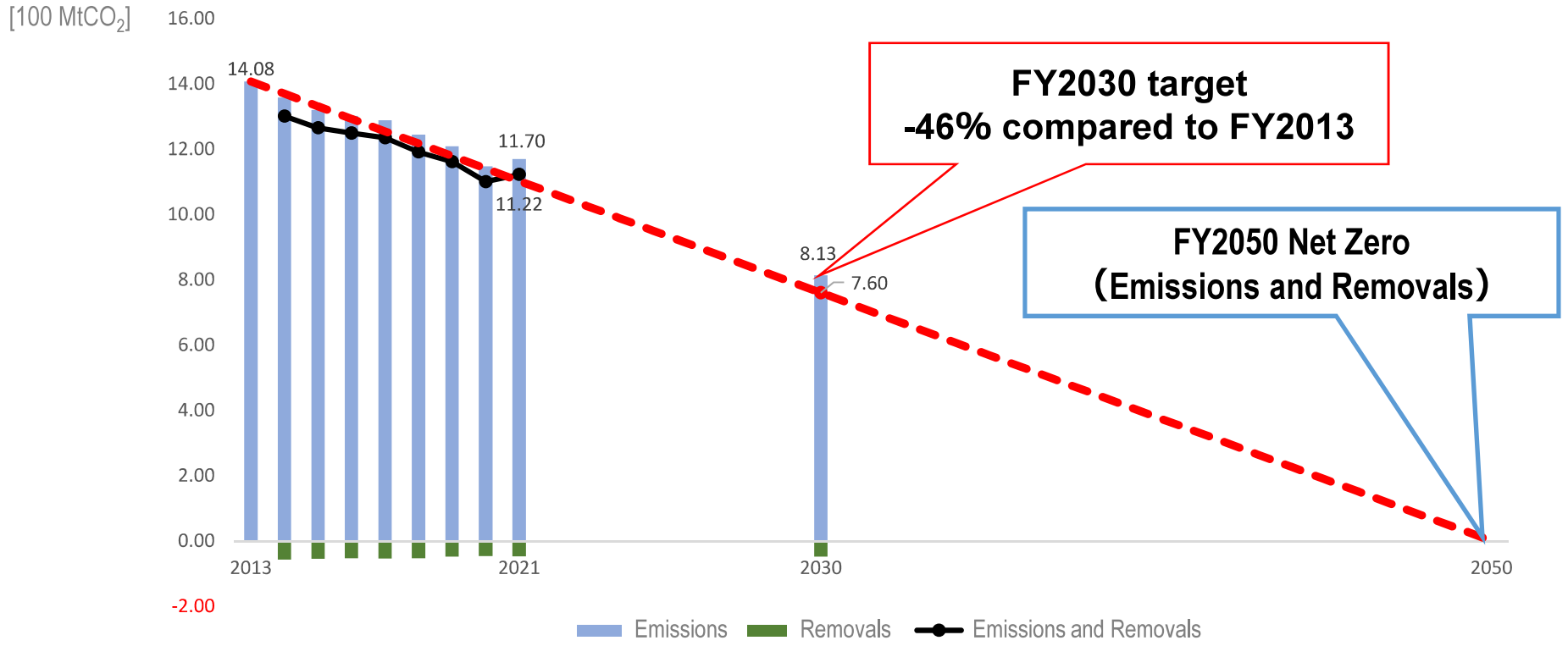
Overview of Japan's GHG emissions and removals in FY2021 (final figures)

- In FY2021, GHG emissions and removals totaled 1,122 $MtCO_2e$, a 2.0% increase compared to FY2020 (+21.5 $MtCO_2e$) and a 20.3% decrease compared to FY2013 (-285.3 $MtCO_2e$).
- Removals were 47.6 $MtCO_2e$ in FY2021, marking the first increase in the past four years.

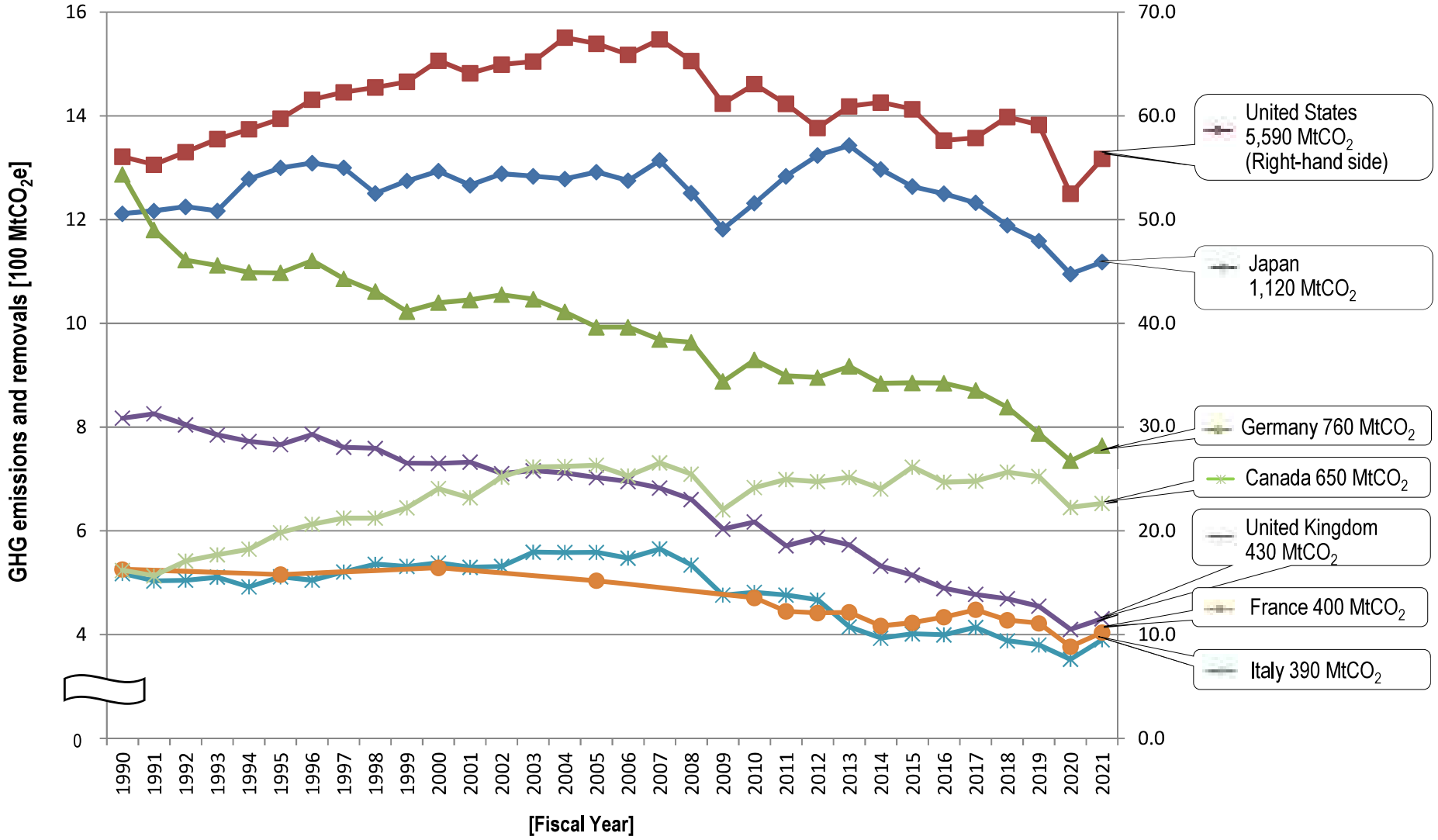


Progress towards the FY2030 target and FY2050 GHG net zero

- The reason for the increase in emissions in FY2021 compared to FY2020 could be an increase in energy consumption due to the economic recovery from the COVID-19 pandemic.
- However, there was a 3.4% decrease compared to FY2019, indicating progress in implementing countermeasures towards achieving the FY2030 target and FY2050 GHG net zero.



(Reference material) Trends of GHG emissions and removals in G7 countries



Note: Data for France is only available for every fifth year between 1990 and 2010. Therefore, the Ministry of the Environment interpolated the data.

Reference: UNFCCC. *Greenhouse Gas Inventory*

Assessing progress of policies and measures implemented in FY2021

○ Basic approach

- Assess the progress of each policy and measure **compared to the projected emissions and removals in FY2030 and the FY2030 target level***, taking into account **the performance of the measure evaluation indicator in FY2021 and the projected evaluation indicator from FY2021 to FY2030 etc.**
- **Apply multi-level assessment for policy and measure projected to meet or exceed the target level in FY2030** accordingly.

* Countermeasures assessment index, projected energy savings, and projected emissions reduction presented in FY2030 in the Plan for Global Warming Countermeasures.

○ Assessment Method

Assess the policies and measures implemented in FY2021 **on the following A to E scale.**

Steady Implementation, evaluation and verification of Industry's Action Plans for a Low Carbon Society

A. **Performance in FY2021 already exceeded the FY2030 target level** ····· **40 industries**
B. **Performance in FY2021 exceeded the level of reference year/BAU, but fell below the FY2030 target level** ··· **61 industries**
C. **Performance in FY2021 fell below the FY2030 target level and increased compared to the reference year/BAU** ··· **7 industries**
D. Data not compiled (newly established / change in target levels / revisions to calculation methodology / etc.) ····· **2 industries**
E. Targets not set ····· **4 industries**

Policies and measures not covered in the above

A. Measure evaluation indicator is expected to exceed the target level in FY2030 if efforts are continued, and **performance in FY2021 already exceeded the FY2030 target** ····· **7 cases**
B. Measure evaluation indicator is **expected to exceed the target level in FY2030** if efforts are continued, (excluding A) ····· **14 cases**
C. Measure evaluation indicator is **expected to reach the same level as the target in FY2030** if efforts are continued ····· **67 cases**
D. Measure evaluation indicator is **expected to fall below the target level in FY2030** if efforts remain unchanged ····· **20 cases**
E. Quantitative data are not available, etc. ····· **7 cases**

Progress towards achieving FY2030 targets

GHG emissions and removals [Unit: $MtCO_2e$]		FY2013[*1]	FY2030 target[*1]	FY2021 (final figures)	FY2030 Reduction rate [%]	FY2021 Reduction [%] (final figures)	FY2021[*2] Assessment
		1,408	760	1,122	-46%	-20%	A, B, C: 88 cases[*3] D, E: 27 cases[*3]
Energy-related CO_2		1,235	677	988	-45%	-20%	A, B, C: 73 cases D, E: 18 cases
Sector	Industry	463	289	373	-38%	-20%	A, B, C: 25 cases D, E: 4 cases
Sector	Commercial and others	238	116	190	-51%	-20%	A, B, C: 14 cases D, E: 4 cases
Sector	Residential	208	70	156	-66%	-25%	A, B, C: 8 cases D, E: 4 cases
Sector	Transport	224	146	185	-35%	-18%	A, B, C: 21 cases D, E: 6 cases
Sector	Energy conversion	106	56	89.5	-47%	-16%	A, B, C: 5 cases D, E: 0 case
Non-energy-related CO_2, Methane, N_2O		134	115	122.7	-14%	-9%	A, B, C: 5 cases D, E: 5 cases
Fluorinated gases		39.1	22	59.1	-44%	+51%	A, B, C: 2 cases D, E: 3 cases
GHG removals		-	-48	-47.6	-	-	A, B, C: 3 cases D, E: 0 case
Joint Crediting Mechanism (JCM)		Japan aims to contribute to international emission reductions and removals of approximately 100 million tons of CO_2 cumulatively by FY2030 through public-private collaborations. The acquired credits will be counted appropriately to achieve Japan's NDC.					A, B, C: 1 case D, E: 0 case

*1. Figures in the Plan for Global Warming Countermeasures (Cabinet decision on October 22, 2021)
*2. Assessing the progress of policies and measures, excluding *the Examination and Assessment of the Commitment to a Low-Carbon Society*
*3. The following measures are cross-cutting or do not have emission reduction targets for FY2030 and are therefore not included in the assessment of progress by gas and sector, and subsequently do not add up to the total by gas and sector: promotion of local energy production and consumption and area energy networks; promotion of the J-credit scheme; decarbonization in national parks; measures led by local governments and supported by the national government; and promotion of measures based *on the Action Plans of Local Governments (Area measures)*.

Projections of emissions and removals in FY2030 and assessment of progress by gas and sector and other classifications

○ In the following material, countermeasures by gas and sector and other classifications are allocated area in each pie chart proportional to the expected emission reductions and removals in FY2030, then sorted by progress assessment on the A to E scale by grouping the (1) to (7) as below.

Policies and measures to reduce greenhouse gas emissions

(1) Industrial sector (e.g., manufacturing plants) of energy-related CO_2

(2) Commercial sector of energy-related CO_2

(3) Residential sector of energy-related CO_2

(4) Transport sector of energy-related CO_2

(5) Energy conversion sector of energy-related CO_2

(6) Other than energy-related CO_2 (i.e. non-energy-related CO_2, methane, nitrous oxide, fluorinated gases)

Policies and measures to remove greenhouse gasses

(7) GHG removals

○ In monitoring the progress of the Plan for Global Warming Countermeasures, the progress by gas and other classifications in meeting targets, etc. is to be reviewed based on the text of this report in the following chapter:

2. (3) FY2021 Greenhouse Gas Emissions in Japan by Gas Type and Sector; and

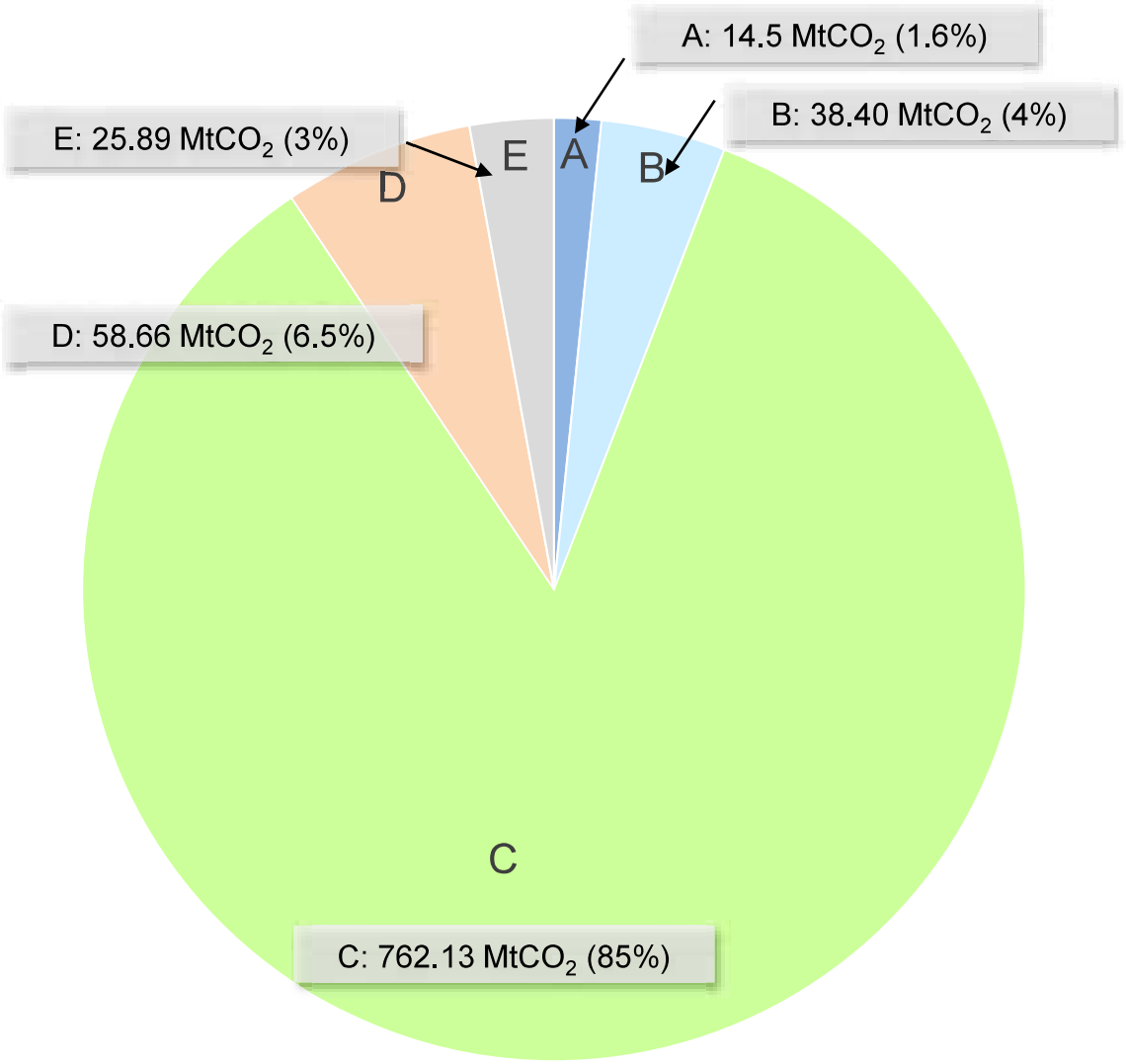
2. (4) FY2021 Greenhouse Gas Removals in Japan

Accordingly, please note that the diagrams do not allow to forejudge the progress in each classification.

○ Please note that the totals of the projected emissions and removals in each pie chart do not always match the “Differences between FY2013 performance by gas and FY2030 emission targets and estimates" presented in the Plan for Global Warming Countermeasures. The main reasons for the differences are as follows:

- Basically, (1) reductions due to energy saving measures are included in the industry, commercial and others, residential, and transport sectors, and (2) reductions due to decrease of emission factors for electricity are included in the energy conversion sector, with respect to the projected emission reductions of energy-related CO_2 in the pie charts.
- The projected emission reductions and removals in FY2030 in the pie charts are not emission reductions compared to FY2013 but estimated emission reductions against FY2030 demand, based on economic growth from FY2013.

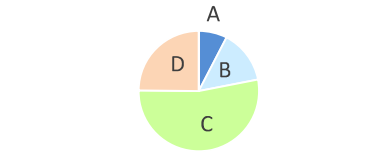
Projections of emissions and removals in FY2030 and assessment of progress - General Overview



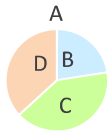
A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
B. Projected to exceed FY2030 target level
C. Projected to meet FY2030 target level
D. Projected to fall below FY2030 target level
E. Quantitative data are not available, etc.

Projections of emissions and removals in FY2030 and assessment of progress – By Sector*

* The size of each pie chart is proportional to the absolute value of expected emission reductions in FY2030.

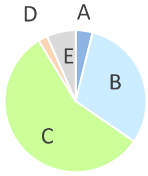


Industrial sector (e.g. manufacturing plants), energy-related CO_2
53.62 $MtCO_2$

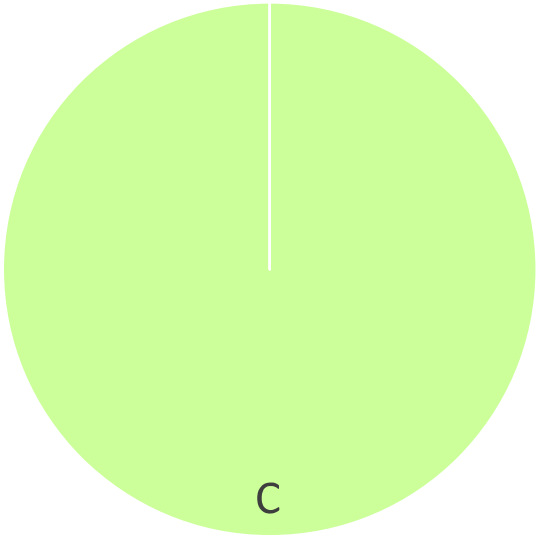


Commercial sector, energy-related CO_2
43.21 $MtCO_2$

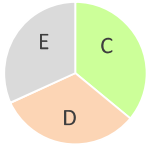
Residential sector, energy-related CO_2
35.35 $MtCO_2$



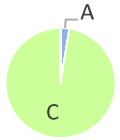
Transport sector, energy-related CO_2
67.14 $MtCO_2$



Energy conversion sector, energy-related CO_2
584.93 $MtCO_2$



Other than energy-related CO_2
(non-energy-related CO_2, methane, nitrous oxide, fluorinated gases)
67.60 $MtCO_2$

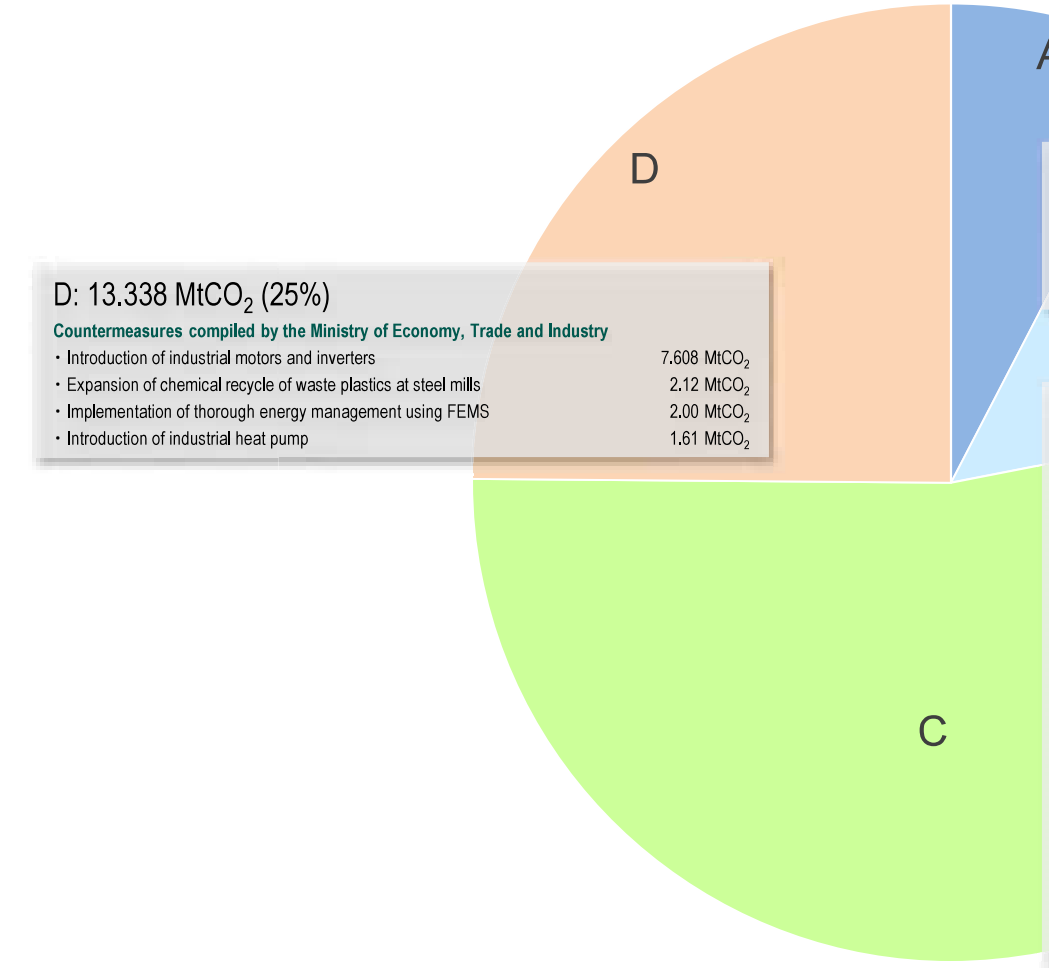


GHG removals
47.74 $MtCO_2$

- A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
- B. Projected to exceed FY2030 target level
- C. Projected to meet FY2030 target level
- D. Projected to fall below FY2030 target level
- E. Quantitative data are not available, etc.

Projections of emissions and removals in FY2030 and assessment of progress

(1) Industrial sector (e.g., manufacturing plants) of energy-related CO_2



A: 4.083 $MtCO_2$ (8%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

・Introduction of energy-saving process technologies in chemistry	3.891 $MtCO_2$
・Technology to use waste as a substitute for thermal energy	0.192 $MtCO_2$

B: 7.674 $MtCO_2$ (14%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

・Introduction of high-performance boilers	4.679 $MtCO_2$
・Introduction of industrial lighting	2.931 $MtCO_2$
・Conventional energy-saving technology	0.064 $MtCO_2$

C: 28.521 $MtCO_2$ (53%)

Countermeasures compiled by the Ministry of Agriculture, Forestry and Fisheries

・Introduction of energy-saving equipment in horticulture facilities	1.55 $MtCO_2$
・Energy-saving on fishing vessels	0.194 $MtCO_2$
・Introduction of energy-saving agricultural machinery	0.0079 $MtCO_2$

Countermeasures compiled by the Ministry of Economy, Trade and Industry

・Introduction of cogeneration	10.61 $MtCO_2$
・Introduction of low-carbon industrial furnaces	8.069 $MtCO_2$
・Introduction of innovative pig iron making process (ferro coke)	0.82 $MtCO_2$
・Promotion of energy conservation initiatives through inter-industry collaboration	0.78 $MtCO_2$
・Improvement of power generation efficiency (in-house power generation facilities)	0.70 $MtCO_2$
・Introduction of high-efficiency air conditioning	0.69 $MtCO_2$
・Enhancement of energy-saving facilities	0.65 $MtCO_2$
・Efficiency improvement of coke oven	0.48 $MtCO_2$
・Introduction of hybrid construction equipment, etc.	0.44 $MtCO_2$
・Improvement of power generation efficiency (joint thermal power generation facilities)	0.44 $MtCO_2$
・Innovative cement production process	0.408 $MtCO_2$
・Introduction of carbon dioxide utilization technologies	0.173 $MtCO_2$
・Introduction of environmentally harmonious ironmaking processes	0.11 $MtCO_2$
・Introduction of high-efficiency used paper pulping process technology	0.105 $MtCO_2$
・Improvement of efficiency of main electricity demand facilities	0.10 $MtCO_2$
・Glass melting process technology	0.081 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

・Promotion of fuel conversion	2.11 $MtCO_2$

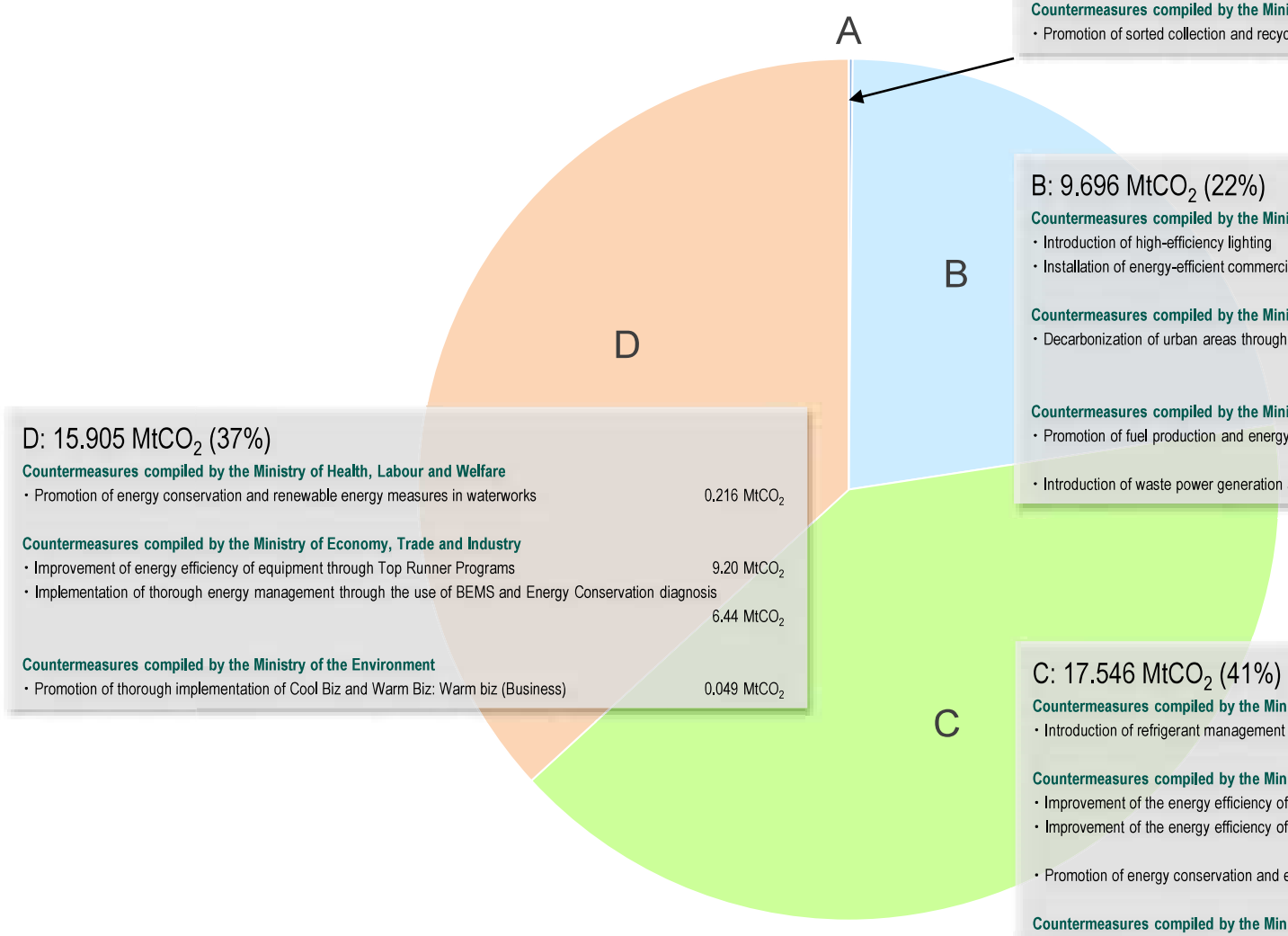
D: 13.338 $MtCO_2$ (25%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

・Introduction of industrial motors and inverters	7.608 $MtCO_2$
・Expansion of chemical recycle of waste plastics at steel mills	2.12 $MtCO_2$
・Implementation of thorough energy management using FEMS	2.00 $MtCO_2$
・Introduction of industrial heat pump	1.61 $MtCO_2$

A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
B. Projected to exceed FY2030 target level
C. Projected to meet FY2030 target level
D. Projected to fall below FY2030 target level
E. Quantitative data are not available, etc.

(2) Commercial sector of energy-related CO_2



A: 0.062 $MtCO_2$ (0.1%)

Countermeasures compiled by the Ministry of the Environment

- Promotion of sorted collection and recycling of plastic containers and packaging — 0.062 $MtCO_2$

B: 9.696 $MtCO_2$ (22%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of high-efficiency lighting — 6.72 $MtCO_2$
- Installation of energy-efficient commercial water heaters — 1.41 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Decarbonization of urban areas through improvement of the thermal environment by heat island control — 0.02 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of fuel production and energy conservation measures in the waste management industry — 1.35 $MtCO_2$
- Introduction of waste power generation at industrial waste incineration plants — 0.20 $MtCO_2$

D: 15.905 $MtCO_2$ (37%)

Countermeasures compiled by the Ministry of Health, Labour and Welfare

- Promotion of energy conservation and renewable energy measures in waterworks — 0.216 $MtCO_2$

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Improvement of energy efficiency of equipment through Top Runner Programs — 9.20 $MtCO_2$
- Implementation of thorough energy management through the use of BEMS and Energy Conservation diagnosis — 6.44 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of thorough implementation of Cool Biz and Warm Biz: Warm biz (Business) — 0.049 $MtCO_2$

C: 17.546 $MtCO_2$ (41%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of refrigerant management technology — 0.016 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

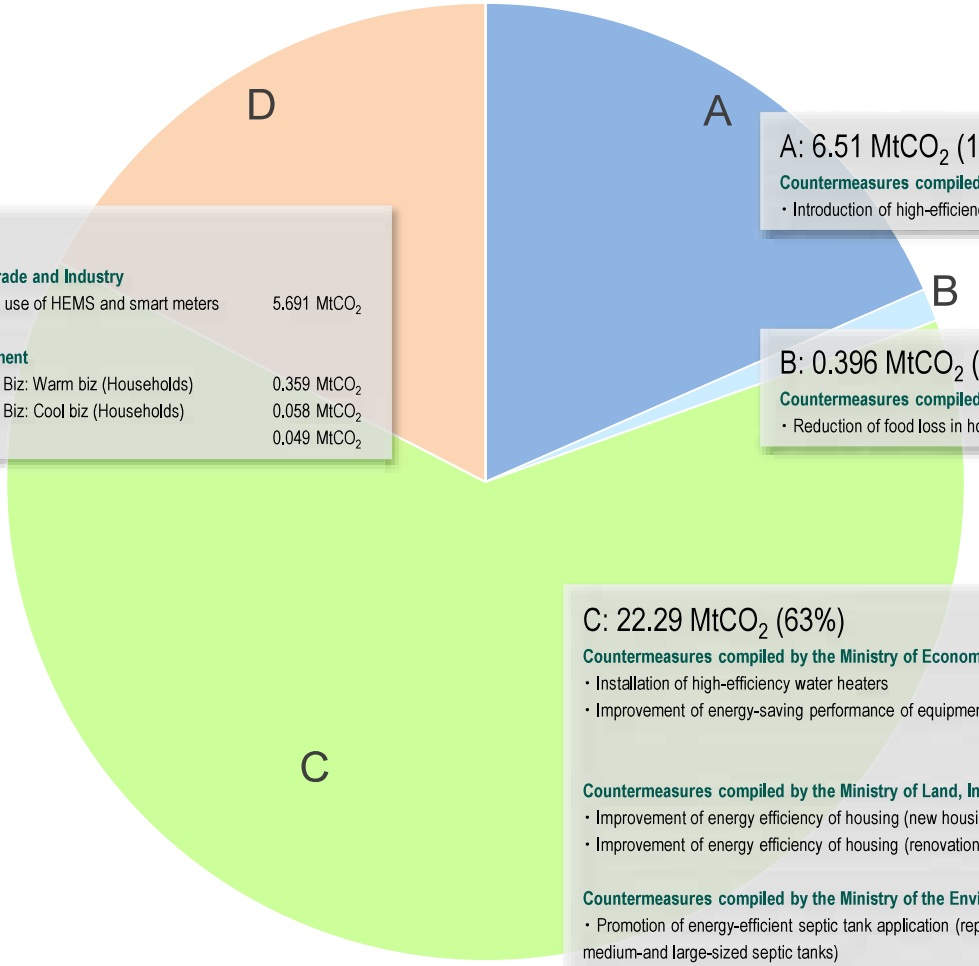
- Improvement of the energy efficiency of buildings (new buildings) — 10.10 $MtCO_2$
- Improvement of the energy efficiency of buildings (renovation and reconstruction of existing buildings) — 3.55 $MtCO_2$
- Promotion of energy conservation and energy creation measures in sewage systems — 1.30 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Introduction of waste power generation at municipal waste incineration plants — 1.24 $MtCO_2$
- Proactive actions by the national government — 1.101 $MtCO_2$
- Introduction of electric waste collection vehicles — 0.15 $MtCO_2$
- Promotion of thorough implementation of Cool Biz and Warm Biz: Cool biz (Business) — 0.087 $MtCO_2$

A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
B. Projected to exceed FY2030 target level
C. Projected to meet FY2030 target level
D. Projected to fall below FY2030 target level
E. Quantitative data are not available, etc.

(3) Residential sector of energy-related CO_2



A: 6.51 $MtCO_2$ (18%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of high-efficiency lighting — 6.51 $MtCO_2$

B: 0.396 $MtCO_2$ (1%)

Countermeasures compiled by the Ministry of the Environment

- Reduction of food loss in households — 0.396 $MtCO_2$

C: 22.29 $MtCO_2$ (63%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Installation of high-efficiency water heaters — 8.98 $MtCO_2$
- Improvement of energy-saving performance of equipment through the Top Runner Program — 4.757 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Improvement of energy efficiency of housing (new housing) — 6.20 $MtCO_2$
- Improvement of energy efficiency of housing (renovation and reconstruction of existing housing) — 2.23 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of energy-efficient septic tank application (replacement of low energy-efficient existing medium-and large-sized septic tanks) — 0.074 $MtCO_2$
- Promotion of energy-efficient septic tank application (introduction of advanced energy-efficient household septic tanks) — 0.049 $MtCO_2$

D: 6.157 $MtCO_2$ (17%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

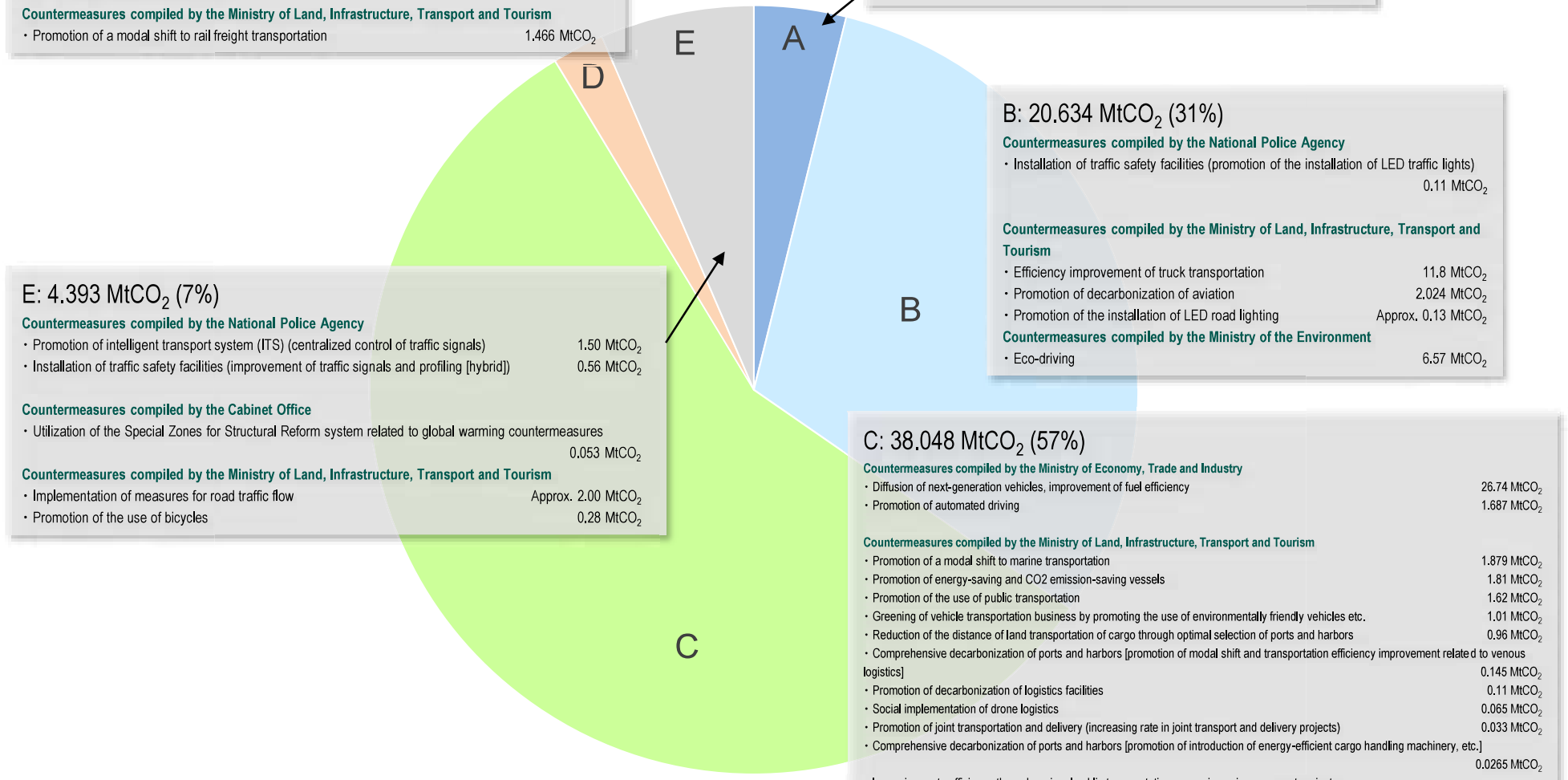
- Implementation of thorough energy management through the use of HEMS and smart meters — 5.691 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of thorough implementation of Cool Biz and Warm Biz: Warm biz (Households) — 0.359 $MtCO_2$
- Promotion of thorough implementation of Cool Biz and Warm Biz: Cool biz (Households) — 0.058 $MtCO_2$
- Home Eco-Diagnosis — 0.049 $MtCO_2$

A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
B. Projected to exceed FY2030 target level
C. Projected to meet FY2030 target level
D. Projected to fall below FY2030 target level
E. Quantitative data are not available, etc.

(4) Transport sector of energy-related CO_2



A: 2.60 $MtCO_2$ (4%)

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Promotion of decarbonization of railways 2.60 $MtCO_2$

B: 20.634 $MtCO_2$ (31%)

Countermeasures compiled by the National Police Agency

- Installation of traffic safety facilities (promotion of the installation of LED traffic lights) 0.11 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Efficiency improvement of truck transportation 11.8 $MtCO_2$
- Promotion of decarbonization of aviation 2.024 $MtCO_2$
- Promotion of the installation of LED road lighting Approx. 0.13 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Eco-driving 6.57 $MtCO_2$

C: 38.048 $MtCO_2$ (57%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Diffusion of next-generation vehicles, improvement of fuel efficiency 26.74 $MtCO_2$
- Promotion of automated driving 1.687 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Promotion of a modal shift to marine transportation 1.879 $MtCO_2$
- Promotion of energy-saving and CO2 emission-saving vessels 1.81 $MtCO_2$
- Promotion of the use of public transportation 1.62 $MtCO_2$
- Greening of vehicle transportation business by promoting the use of environmentally friendly vehicles etc. 1.01 $MtCO_2$
- Reduction of the distance of land transportation of cargo through optimal selection of ports and harbors 0.96 $MtCO_2$
- Comprehensive decarbonization of ports and harbors [promotion of modal shift and transportation efficiency improvement related to venous logistics] 0.145 $MtCO_2$
- Promotion of decarbonization of logistics facilities 0.11 $MtCO_2$
- Social implementation of drone logistics 0.065 $MtCO_2$
- Promotion of joint transportation and delivery (increasing rate in joint transport and delivery projects) 0.033 $MtCO_2$
- Comprehensive decarbonization of ports and harbors [promotion of introduction of energy-efficient cargo handling machinery, etc.] 0.0265 $MtCO_2$
- Improving route efficiency through regional public transportation convenience improvement projects 0.0229 $MtCO_2$
- Promotion of joint transportation and delivery (redelivery rate in the results of the fact-finding survey on parcel redelivery) 0.017 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Car sharing 1.92 $MtCO_2$

D: 1.466 $MtCO_2$ (2%)

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Promotion of a modal shift to rail freight transportation 1.466 $MtCO_2$

E: 4.393 $MtCO_2$ (7%)

Countermeasures compiled by the National Police Agency

- Promotion of intelligent transport system (ITS) (centralized control of traffic signals) 1.50 $MtCO_2$
- Installation of traffic safety facilities (improvement of traffic signals and profiling [hybrid]) 0.56 $MtCO_2$

Countermeasures compiled by the Cabinet Office

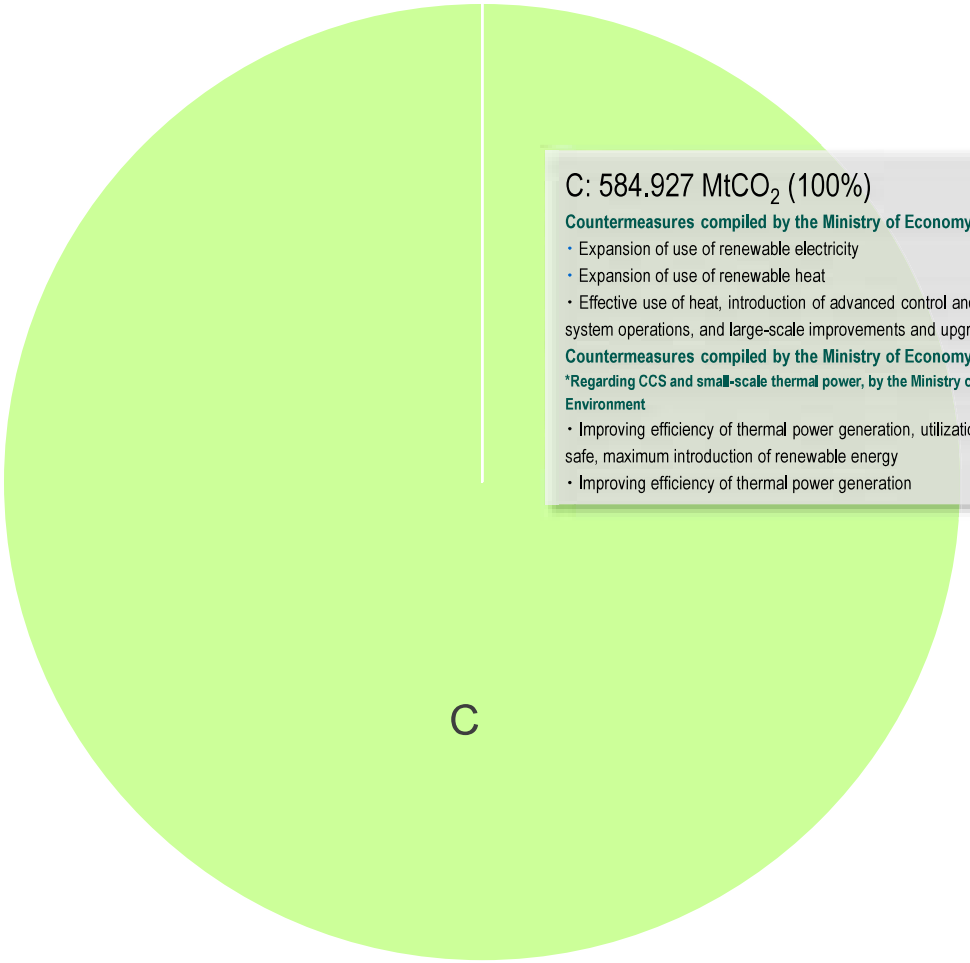
- Utilization of the Special Zones for Structural Reform system related to global warming countermeasures 0.053 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Implementation of measures for road traffic flow Approx. 2.00 $MtCO_2$
- Promotion of the use of bicycles 0.28 $MtCO_2$

- A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
- B. Projected to exceed FY2030 target level
- C. Projected to meet FY2030 target level
- D. Projected to fall below FY2030 target level
- E. Quantitative data are not available, etc.

(5) Energy conversion sector of energy-related CO_2



C: 584.927 $MtCO_2$ (100%)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Expansion of use of renewable electricity 206.70 $MtCO_2$
- Expansion of use of renewable heat 36.18 $MtCO_2$
- Effective use of heat, introduction of advanced control and high-efficiency equipment, improvement of power system operations, and large-scale improvements and upgrades of processes 2.047 $MtCO_2$

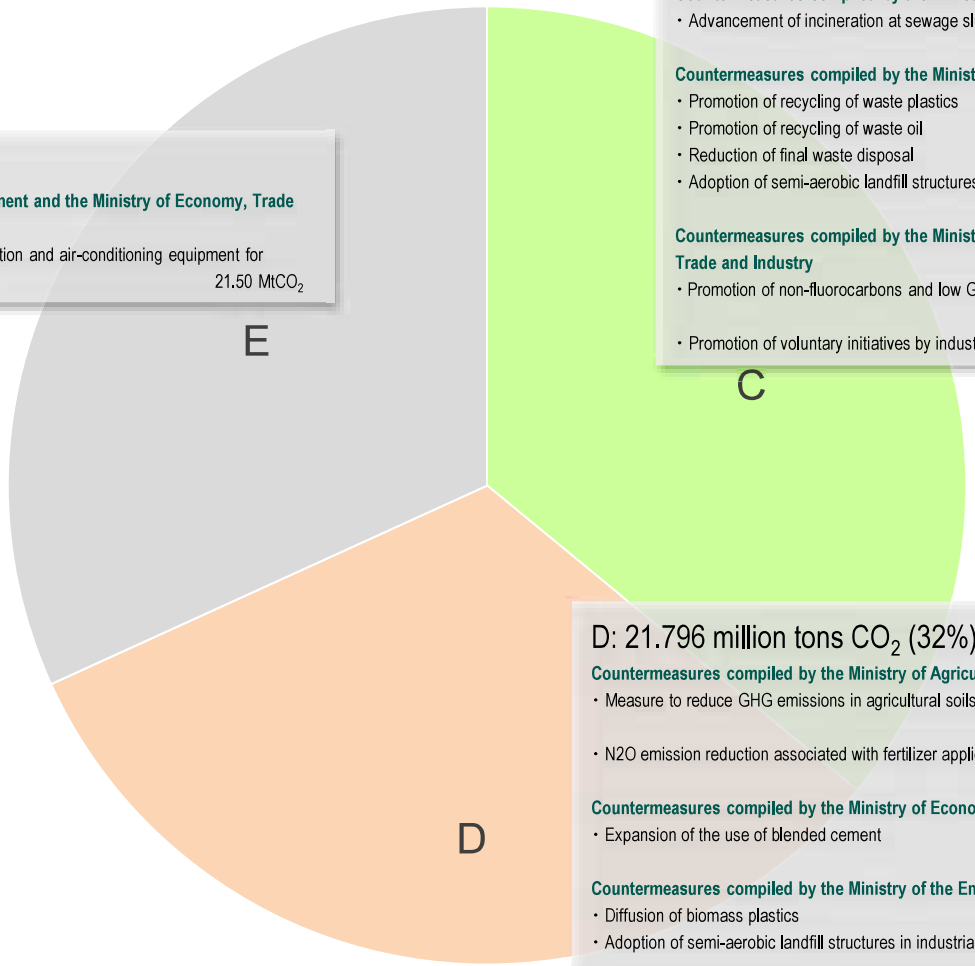
Countermeasures compiled by the Ministry of Economy, Trade and Industry

***Regarding CCS and small-scale thermal power, by the Ministry of Economy, Trade and Industry and the Ministry of the Environment**

- Improving efficiency of thermal power generation, utilization of nuclear power generation that has been confirmed safe, maximum introduction of renewable energy 329.00 $MtCO_2$
- Improving efficiency of thermal power generation 11.00 $MtCO_2$

A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
B. Projected to exceed FY2030 target level
C. Projected to meet FY2030 target level
D. Projected to fall below FY2030 target level
E. Quantitative data are not available, etc.

(6) Other than energy-related CO_2 (non-energy-related CO_2, methane, nitrous oxide, fluorinated gases)



C: 24.303 $MtCO_2$ (36%)

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Advancement of incineration at sewage sludge incineration facilities 0.78 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of recycling of waste plastics 6.40 $MtCO_2$
- Promotion of recycling of waste oil 0.70 $MtCO_2$
- Reduction of final waste disposal 0.52 $MtCO_2$
- Adoption of semi-aerobic landfill structures in municipal waste disposal sites 0.054 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment and the Ministry of Economy, Trade and Industry

- Promotion of non-fluorocarbons and low GWP products in gas and manufacturing sector 14.63 $MtCO_2$
- Promotion of voluntary initiatives by industry 1.22 $MtCO_2$

E: 21.50 $MtCO_2$ (32%)

Countermeasures compiled by the Ministry of the Environment and the Ministry of Economy, Trade and Industry

- Preventing leakage of fluorocarbons from the use of refrigeration and air-conditioning equipment for business use 21.50 $MtCO_2$

D: 21.796 million tons CO_2 (32%)

Countermeasures compiled by the Ministry of Agriculture, Forestry and Fisheries

- Measure to reduce GHG emissions in agricultural soils [CH4 emission reduction from rice cultivation] 1.04 $MtCO_2$
- N2O emission reduction associated with fertilizer application 0.24 $MtCO_2$

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Expansion of the use of blended cement 0.388 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

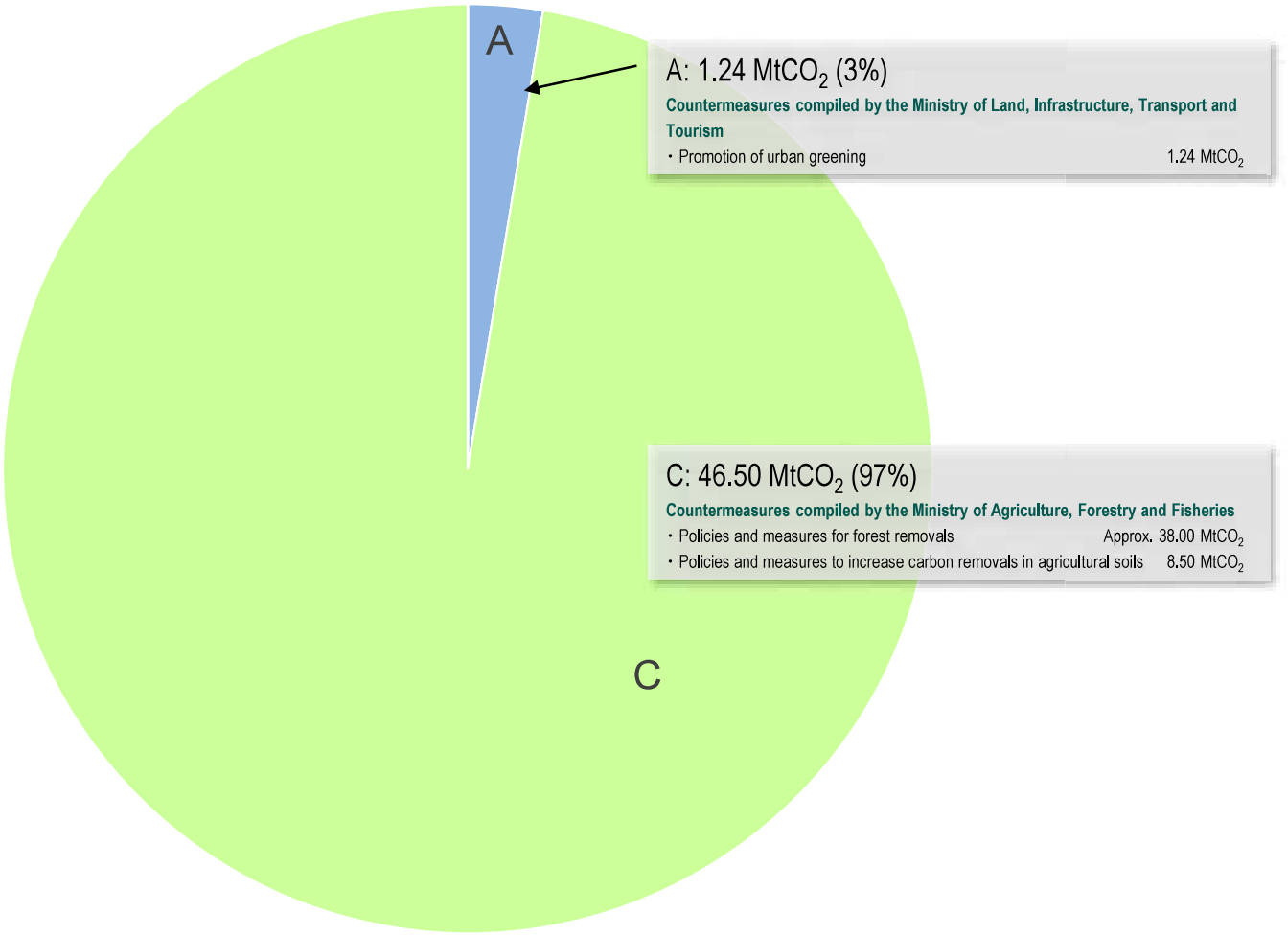
- Diffusion of biomass plastics 2.09 $MtCO_2$
- Adoption of semi-aerobic landfill structures in industrial waste disposal sites 0.004 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment and the Ministry of Economy, Trade and Industry

- Recovery of fluorocarbons from commercial refrigeration and air-conditioning equipment waste 16.90 $MtCO_2$
- Recovery and proper processing of fluorocarbons from the disposal of household air conditioners 1.13 $MtCO_2$

A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
B. Projected to exceed FY2030 target level
C. Projected to meet FY2030 target level
D. Projected to fall below FY2030 target level
E. Quantitative data are not available, etc.

(7) GHG removals



A. Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021
B. Projected to exceed FY2030 target level
C. Projected to meet FY2030 target level
D. Projected to fall below FY2030 target level
E. Quantitative data are not available, etc.

List of the progress of policies and measures related to the reduction and removal of greenhouse gas emissions (by Evaluation)

A. Measure evaluation indicator is expected to exceed the target level in FY2030 if efforts are continued, and performance in FY2021 already exceeded the FY2030 target

■ Policies and measures related to the reduction and removal of greenhouse gas emissions ■

1. Policies and measures to reduce greenhouse gas emissions

<Energy-related CO_2>

○ Industrial sector (e.g., manufacturing plants)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of energy-saving process technologies in chemistry: 3.891 $MtCO_2$
- Technology to use waste as a substitute for thermal energy: 0.192 $MtCO_2$

○ Commercial sector

Countermeasures compiled by the Ministry of the Environment

- Promotion of sorted collection and recycling of plastic containers and packaging: 0.062 $MtCO_2$

○ Residential sector

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of high-efficiency lighting: 6.51 $MtCO_2$

○ Transport sector

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Promotion of decarbonization of railways: 2.60 $MtCO_2$

2. Policies and measures to remove greenhouse gasses

<Promotion of Urban Greening, etc.>

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Promotion of urban greening: 1.24 $MtCO_2$

■ Policies at Public Institutions ■

Countermeasures compiled by the Ministry of the Environment

- Promotion of efforts under the action plans of local governments (area measure version): － tCO_2

B. Measure evaluation indicator is expected to exceed the target level in FY2030 if efforts are continued (excluding A)

■ Policies and measures related to the reduction and removal of greenhouse gas emissions ■

1. Policies and measures to reduce greenhouse gas emissions

<Energy-related CO_2>

○ Industrial sector (e.g., manufacturing plants)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of high-performance boilers: 4.679 $MtCO_2$
- Introduction of industrial lighting: 2.931 $MtCO_2$
- Conventional energy-saving technology: 0.064 $MtCO_2$

○ Commercial sector

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of high-efficiency lighting: 6.72 $MtCO_2$
- Installation of energy-efficient commercial water heaters: 1.41 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Decarbonization of urban areas through improvement of the thermal environment by heat island control: 0.0071 $MtCO_2$ to 0.0332 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of fuel production and energy conservation measures in the waste management industry: 1.35 $MtCO_2$
- Introduction of waste power generation at industrial waste incineration plants: 0.20 $MtCO_2$

○ Residential sector

Countermeasures compiled by the Ministry of the Environment

- Reduction of food loss in households: 0.396 $MtCO_2$

○ Transport sector

Countermeasures compiled by the National Police Agency

- Installation of traffic safety facilities (promotion of the installation of LED traffic lights): 0.11 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Efficiency improvement of truck transportation: 11.8 $MtCO_2$
- Promotion of decarbonization of aviation: 2.024 $MtCO_2$
- Promotion of the installation of LED road lighting: Approx. 0.13 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Eco-driving: 6.57 $MtCO_2$

C. Measure evaluation indicator is expected to reach the same level as the target in FY2030 if efforts are continued

■ Policies and measures related to the reduction and removal of greenhouse gas emissions ■

1. Policies and measures to reduce greenhouse gas emissions

<Energy-related CO_2>

○ Industrial sector (e.g., manufacturing plants)

Countermeasures compiled by the Ministry of Agriculture, Forestry and Fisheries

- Introduction of energy-saving equipment in horticulture facilities: 1.55 $MtCO_2$
- Energy-saving on fishing vessels: 0.194 $MtCO_2$
- Introduction of energy-saving agricultural machinery: 0.0079 $MtCO_2$

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of cogeneration: 10.61 $MtCO_2$
- Introduction of low-carbon industrial furnaces: 8.069 $MtCO_2$
- Introduction of innovative pig iron making process (ferro coke): 0.82 $MtCO_2$
- Promotion of energy conservation initiatives through inter-industry collaboration: 0.78 $MtCO_2$
- Improvement of power generation efficiency (in-house power generation facilities): 0.70 $MtCO_2$
- Introduction of high-efficiency air conditioning: 0.69 $MtCO_2$
- Enhancement of energy-saving facilities: 0.65 $MtCO_2$
- Efficiency improvement of coke oven: 0.48 $MtCO_2$
- Introduction of hybrid construction equipment, etc.: 0.44 $MtCO_2$
- Improvement of power generation efficiency (joint thermal power generation facilities): 0.44 $MtCO_2$
- Innovative cement production process: 0.408 $MtCO_2$
- Introduction of carbon dioxide utilization technologies: 0.173 $MtCO_2$
- Introduction of environmentally harmonious ironmaking processes: 0.11 $MtCO_2$
- Introduction of high-efficiency used paper pulping process technology: 0.105 $MtCO_2$
- Improvement of efficiency of main electricity demand facilities: 0.10 $MtCO_2$
- Glass melting process technology: 0.081 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of fuel conversion: 2.11 $MtCO_2$

○ Commercial sector

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of refrigerant management technology: 0.016 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Improvement of the energy efficiency of buildings (new buildings): 10.1 $MtCO_2$
- Improvement of the energy efficiency of buildings (renovation and reconstruction of existing buildings): 3.55 $MtCO_2$
- Promotion of energy conservation and energy creation measures in sewage systems: 1.3 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Introduction of waste power generation at municipal waste incineration plants: 0.91 $MtCO_2$ to 1.57 $MtCO_2$
- Proactive actions by the national government: 1.101 $MtCO_2$

- Introduction of electric waste collection vehicles: 0.15 $MtCO_2$
- Promotion of thorough implementation of Cool Biz and Warm Biz: Cool biz (commercial sector): 0.087 $MtCO_2$

○ Residential sector

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Installation of high-efficiency water heaters: 8.98 $MtCO_2$
- Promotion of thorough implementation of Cool Biz and Warm Biz: Cool biz (Residential Sector): 4.757 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Improvement of energy efficiency of housing (new housing): 6.20 $MtCO_2$
- Improvement of energy efficiency of housing (renovation and reconstruction of existing housing): 2.23 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of energy-efficient septic tank application (replacement of low energy-efficient existing medium-and large-sized septic tanks): 0.074 $MtCO_2$
- Promotion of energy-efficient septic tank application (introduction of advanced energy-efficient household septic tanks): 0.049 $MtCO_2$

○ Transport sector

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Diffusion of next-generation vehicles, improvement of fuel efficiency: 26.74 $MtCO_2$
- Promotion of automated driving: 1.687 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Promotion of a modal shift to marine transportation: 1.879 $MtCO_2$
- Promotion of energy-saving and CO_2 emission-saving vessels: 1.81 $MtCO_2$
- Promotion of the use of public transportations: 1.62 $MtCO_2$
- Greening of vehicle transportation business by promoting the use of environmentally friendly vehicles etc.: 1.01 $MtCO_2$
- Reduction of the distance of land transportation of cargo through optimal selection of ports and harbors: 0.96 $MtCO_2$
- Comprehensive decarbonization of ports and harbors [promotion of modal shift and transportation efficiency improvement related to venous logistics]: 0.145 $MtCO_2$
- Promotion of decarbonization of logistics facilities: 0.110 $MtCO_2$
- Social implementation of drone logistics: 0.065 $MtCO_2$
- Promotion of joint transportation and delivery (increasing rate in joint transport and delivery projects) 0.033 $MtCO_2$
- Comprehensive decarbonization of ports and harbors [promotion of introduction of energy-efficient cargo handling machinery, etc.]: 0.0265 $MtCO_2$
- Improving route efficiency through regional public transportation convenience improvement projects: 0.0229 $MtCO_2$
- Promotion of joint transportation and delivery (redelivery rate in the results of the fact-finding survey on parcel redelivery): 0.017 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Car sharing: 1.92 $MtCO_2$

○ Energy conversion sector

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Expansion of use of renewable electricity: Approx. 201.60 $MtCO_2$ to approx. 211.80 $MtCO_2$
- Expansion of use of renewable heat: Approx. 36.18 $MtCO_2$
- Effective use of heat, introduction of advanced control and high-efficiency equipment, improvement of power system operations, and large-scale improvements and upgrades of processes: 2.047 $MtCO_2$

Countermeasures compiled by the Ministry of Economy, Trade and Industry (*Both the Ministry of Economy, Trade and Industry and the Ministry of the Environment for CCS and small-scale thermal power generation)

- Improving efficiency of thermal power generation, utilization of nuclear power generation that has been confirmed safe, maximum introduction of renewable energy: 329 $MtCO_2$
- Improving efficiency of thermal power generation: 11 $MtCO_2$

<Other than energy-related CO_2>

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Advancement of incineration at sewage sludge incineration facilities: 0.78 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of recycling of waste plastics: 6.40 $MtCO_2$
- Promotion of recycling of waste oil: 0.70 $MtCO_2$
- Reduction of final waste disposal: 0.52 $MtCO_2$
- Adoption of semi-aerobic landfill structures in municipal waste disposal sites: 0.054 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment and the Ministry of Economy, Trade and Industry

- Promotion of non-fluorocarbons and low GWP products in gas and manufacturing sector: 14.63 $MtCO_2$
- Promotion of voluntary initiatives by industry: 1.22 $MtCO_2$

2. Policies and measures to remove greenhouse gasses

<Policies and measures for forest removals>

Countermeasures compiled by the Ministry of Agriculture, Forestry and Fisheries

- Policies and measures for forest removals: Approx. 38 $MtCO_2$

<Policies and measures to increase carbon removals in agricultural soils >

Countermeasures compiled by the Ministry of Agriculture, Forestry and Fisheries

- Policies and measures to increase carbon removals in agricultural soils: 8.5 $MtCO_2$

■ Cross-cutting Measures ■

Countermeasures compiled by the Ministry of the Environment

- Promotion of the Joint Crediting Mechanism (JCM): 100 $MtCO_2$
- Revitalization of the J-Credit Scheme: 15 $MtCO_2$
- Promotion of decarbonization efforts in national parks [Zero Carbon Park]: - tCO_2

■ Policies at Public Institutions ■

Countermeasures compiled by the Ministry of the Environment

- Initiatives led by local governments and promotion by the national government: - tCO_2

D. Measure evaluation indicator is expected to fall below the target level in FY2030 if efforts remain unchanged

■ Policies and measures related to the reduction and removal of greenhouse gas emissions ■

1. Policies and measures to reduce greenhouse gas emissions

<Energy-related CO_2>

○ Industrial sector (e.g., manufacturing plants)

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Introduction of industrial motors and inverters: 7.608 $MtCO_2$
- Expansion of chemical recycle of waste plastics at steel mills: 2.12 $MtCO_2$
- Implementation of thorough energy management using FEMS: 2.00 $MtCO_2$
- Introduction of industrial heat pump: 1.61 $MtCO_2$

○ Commercial sector

Countermeasures compiled by the Ministry of Health, Labour and Welfare

- Promotion of energy conservation and renewable energy measures in waterworks: 0.216 $MtCO_2$

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Improvement of energy efficiency of equipment through Top Runner Programs: 9.20 $MtCO_2$
- Implementation of thorough energy management through the use of BEMS and Energy Conservation diagnosis: 6.44 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of thorough implementation of Cool Biz and Warm Biz: Cool biz (commercial sector): 0.049 $MtCO_2$

○ Residential sector

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Implementation of thorough energy management through the use of HEMS and smart meters: 5.691 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Promotion of thorough implementation of Cool Biz and Warm Biz: Cool biz (residential sector): 0.359 $MtCO_2$
- Promotion of thorough implementation of Cool Biz and Warm Biz: Cool biz (residential sector): 0.058 $MtCO_2$
- Home Eco-Diagnosis: 0.049 $MtCO_2$

○ Transport sector

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Promotion of a modal shift to rail freight transportation: 1.466 $MtCO_2$

<Other than energy-related CO_2>

Countermeasures compiled by the Ministry of Agriculture, Forestry and Fisheries

- Measure to reduce GHG emissions in agricultural soils
  [CH4 emission reduction from rice cultivation]: 1.04 $MtCO_2$
- N2O emission reduction associated with fertilizer application: 0.24 $MtCO_2$

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Expansion of the use of blended cement: 0.388 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment

- Diffusion of biomass plastics: 2.09 $MtCO_2$
- Adoption of semi-aerobic landfill structures in industrial waste disposal sites: 0.004 $MtCO_2$

Countermeasures compiled by the Ministry of the Environment and the Ministry of Economy, Trade and Industry

- Recovery of fluorocarbons from commercial refrigeration
  and air-conditioning equipment waste: 16.90 $MtCO_2$
- Recovery and proper processing of fluorocarbons
  from the disposal of household air conditioners: 1.13 $MtCO_2$

E. Quantitative data are not available, etc.

■ Policies and measures related to the reduction and removal of greenhouse gas emissions ■

1. Policies and measures to reduce greenhouse gas emissions

<Energy-related CO_2>

○ Commercial sector

Countermeasures compiled by the Ministry of Economy, Trade and Industry

- Promotion of local production for local consumption and use of energy in a whole area: - tCO_2

○ Transport sector

Countermeasures compiled by the National Police Agency

- Promotion of intelligent transport system (ITS)
  (centralized control of traffic signals): 1.50 $MtCO_2$
- Installation of traffic safety facilities
  (improvement of traffic signals and profiling [hybrid]): 0.56 $MtCO_2$

Countermeasures compiled by the Cabinet Office

- Utilization of the Special Zones for Structural Reform system
  related to global warming countermeasures: 0.053 $MtCO_2$

Countermeasures compiled by the Ministry of Land, Infrastructure, Transport and Tourism

- Implementation of measures for road traffic flow: Approx. 2.00 $MtCO_2$
- Promotion of the use of bicycles: 0.28 $MtCO_2$

<Other than energy-related CO_2>

Countermeasures compiled by the Ministry of the Environment and the Ministry of Economy, Trade and Industry

- Preventing leakage of fluorocarbons from the use of refrigeration
  and air-conditioning equipment for business use: 21.50 $MtCO_2$

List of the progress of policies and measures related to the reduction and removal of greenhouse gas emissions

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
[energy-related CO_2]																								
○ industrial Sector (Manufacturing Plants, etc.)																								
	Steady Implementation, evaluation and verification of Industry's Action Plans for a Low- Carbon Society (industrial sector)																							
	[Industry (Planning Body)]	CO_2 emissions	10^4 t-CO_2		Actual performance																			
		[Target Indicator]	[Base Year/BAU]		(Compared to the base year/BAU ratio)																			
	Industry under Ministry of Finance																							
	Brewers Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	57.1	54.7	53.1	51.2	49.8	47.2	46.0	40.8	39.5											
		CO_2 emissions	FY2013	Actual result	-	▲ 16%	▲ 17%	▲ 18%	▲ 19%	▲ 21%	▲ 23%	▲ 31%	▲ 31%										B	
				Target level								-										▲ 46%		
	Japan Tobacco Inc.	CO_2 emissions	10^4 t-CO_2	Actual result	95.0	92.0	90.0	83.5	79.1	77.0	72.6	66.3	65.6											
		CO_2 emissions	FY2019	Actual result	-	-	-	-	-	-	-	▲ 10%	▲ 12%										B	
				Target level								-										▲ 47%		
	Industry under Ministry of Health, Labor and Welfare																							
	The Federation of Pharmaceutical Manufacturers' Associations of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	256.5	246.9	240.9	243.1	234.8	219.7	213.3	206.2	218.1											
		CO_2 emissions	FY2013	Actual result	-	▲ 4%	▲ 6%	▲ 5%	▲ 8%	▲ 14%	▲ 17%	▲ 20%	▲ 15%										B	
				Target level								-										▲ 46%		
	Industry under Ministry of Fisheries, Forestry and Agriculture																							
	Japan Starch & Sweeteners Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	114.8	118.0	125.5	113.9	112.2	107.8	108.1	98.4	95.9											
		CO_2 emissions	FY2013	Actual result	-	+3%	+9%	▲ 1%	▲ 2%	▲ 6%	▲ 6%	▲ 14%	▲ 16%										B	
				Target level								-										▲ 30.3%		
	Japan Dairy Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	119.5	115.5	116.0	111.7	103.5	97.7	95.8	94.2	126.4											
		CO_2 emission intensity	FY2013	Actual result	-	▲ 3%	▲ 10%	▲ 13%	▲ 19%	▲ 22%	▲ 24%	▲ 23%	▲ 31%										B	
				Target level								-										▲ 38.0%		
	Japan Soft Drink Association	CO_2 emissions	10^4 t-CO_2	Actual result	122.0	115.6	115.0	114.0	110.6	117.8	116.1	109.3	113.7											
		CO_2 emission intensity	FY2021	Actual result	+2%	▲ 3%	▲ 7%	▲ 10%	▲ 15%	▲ 12%	▲ 19%	▲ 15%	▲ 18%										A	
				Target level								-										▲ 18.0%		
	Japan Baking Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	108.5	109.1	107.0	104.7	102.0	99.5	97.9	92.3	89.0											
		CO_2 emission intensity	FY2013	Actual result	-	▲ 6%	▲ 8%	▲ 11%	▲ 15%	▲ 16%	▲ 18%	▲ 20%	▲ 24%										A	
				Target level								-										▲ 13.0%		
	Japan Canners Association	CO_2 emissions	10^4 t-CO_2	Actual result	75.5	67.9	63.4	78.8	106.2	61.6	62.8	64.0	58.5											
		Energy consumption intensity	FY2009	Actual result	▲ 5%	▲ 15%	▲ 9%	▲ 13%	▲ 7%	▲ 29%	▲ 26%	▲ 15%	▲ 19%										A	
				Target level								-										▲ 19.0%		
	Japan Beet Sugar Association	CO_2 emissions	10^4 t-CO_2	Actual result	63.8	65.3	70.4	60.1	66.1	64.8	69.2	66.6	69.6											
		Energy consumption intensity	FY2010	Actual result	▲ 15%	▲ 19%	▲ 21%	▲ 12%	▲ 17%	▲ 25%	▲ 17%	▲ 18%	▲ 17%										A	
				Target level								-										▲ 15.0%		
	Japan Oilseed Processors Association	CO_2 emissions	10^4 t-CO_2	Actual result	61.0	60.7	61.2	62.4	63.5	61.6	59.3	58.5	57.3											
		CO_2 emission intensity	FY2013	Actual result	-	+0%	▲ 2%	▲ 2%	▲ 2%	▲ 0%	▲ 4%	▲ 7%	▲ 6%											
				Target level								-										▲ 6.5%	B	
		CO_2 emissions	FY2013	Actual result	-	▲ 0%	+0%	+2%	+4%	+1%	▲ 3%	▲ 4%	▲ 6%											
				Target level								-										▲ 6.5%		
	All Nippon Kashi Association	CO_2 emissions	10^4 t-CO_2	Actual result	97.4	97.3	96.0	91.6	94.3	86.3	83.0	86.0	87.6											
		CO_2 emissions	FY2013	Actual result	-	▲ 0%	▲ 1%	▲ 6%	▲ 3%	▲ 11%	▲ 15%	▲ 12%	▲ 10%											
				Target level								-										▲ 17.0%	B	
		CO_2 emission intensity	FY2013	Actual result	-	▲ 7%	▲ 18%	▲ 25%	▲ 25%	▲ 32%	▲ 35%	▲ 33%	▲ 30%											
				Target level								-										▲ 17.0%		
	Japan Sugar Refiners' Association	CO_2 emissions	10^4 t-CO_2	Actual result	39.0	37.6	36.5	35.8	34.5	32.4	30.3	27.8	28.9											
		CO_2 emissions	FY2013	Actual result	-	▲ 4%	▲ 6%	▲ 8%	▲ 12%	▲ 17%	▲ 22%	▲ 29%	▲ 26%										A	
				Target level								-										▲ 22.0%		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
01. Steady Implementation, evaluation and verification of Industry s Action Plans for a Low- Carbon Society	Japan Frozen Food Association	CO_2 emissions	10^4 t-CO_2	Actual result	43,7	40,3	41,9	51,4	49,9	52,8	66,2	65,6	59,4										B	
		Energy consumption intensity	FY2013	Actual result	-	▲ 3%	▲ 5%	▲ 6%	▲ 9%	▲ 8%	▲ 4%	▲ 6%	▲ 7%											
				Target level								-										▲ 15,7%		
	Japan Ham & Sausage Processors Cooperative Association	CO_2 emissions	10^4 t-CO_2	Actual result	56,9	56,9	56,1	55,0	54,7	51,4	51,1	48,3	48,2										B	
		Energy consumption intensity	FY2011	Actual result	▲ 6%	▲ 4%	▲ 6%	▲ 6%	▲ 8%	▲ 4%	▲ 3%	▲ 7%	▲ 7%											
				Target level								-										▲ 17.0%		
	Flour Millers Association	CO_2 emissions	10^4 t-CO_2	Actual result	30,5	30,3	28,6	27,5	26,8	24,2	23,2	22,7	22,3										B	
		CO_2 emission intensity	FY2013	Actual result	-	▲ 1%	▲ 7%	▲ 11%	▲ 14%	▲ 21%	▲ 24%	▲ 24%	▲ 25%											
				Target level								-										▲ 32.1%		
	All Japan Coffee Association	CO_2 emissions	10^4 t-CO_2	Actual result	11,8	11,6	12,0	13,6	12,6	12,7	12,7	12,7	12,4										A	
		CO_2 emission intensity	FY2005	Actual result	▲ 33%	▲ 38%	▲ 41%	▲ 44%	▲ 49%	▲ 52%	▲ 53%	▲ 49%	▲ 51%											
				Target level								-										▲ 25,0%		
	Japan Soy-sauce Association	CO_2 emissions	10^4 t-CO_2	Actual result	19,8	18,2	17,4	17,0	16,6	16,1	15,4	14,5	14,5										A	
		CO_2 emissions	FY1990	Actual result	▲ 5%	▲ 12%	▲ 16%	▲ 18%	▲ 20%	▲ 22%	▲ 25%	▲ 30%	▲ 30%											
				Target level								-										▲ 23.0%		
	Japan Convenience Foods Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	24,7	25,4	25,8	25,9	26,4	26,3	26,5	27,0	27,4										B	
		CO_2 emission intensity	FY2013	Actual result	-	▲ 2%	▲ 3%	▲ 1%	▲ 3%	▲ 5%	▲ 5%	▲ 7%	▲ 5%											
				Target level								-										▲ 10,0%		
	Japan Association of Mayonnaise & Dressings	CO_2 emissions	10^4 t-CO_2	Actual result	6,2	6,0	5,8	5,7	5,5	5,3	5,0	4,4	4,4										A	
		CO_2 emissions	FY2012	Actual result	+1%	▲ 1%	▲ 6%	▲ 7%	▲ 11%	▲ 14%	▲ 19%	▲ 28%	▲ 29%											
				Target level								-										▲ 21,7%		
		CO_2 emission intensity	FY2012	Actual result	▲ 1%	▲ 3%	▲ 9%	▲ 11%	▲ 15%	▲ 18%	▲ 24%	▲ 29%	▲ 32%											
				Target level								-										▲ 17,9%		
	Japan Rice Millers Association	CO_2 emissions	10^4 t-CO_2	Actual result	7,0	7,0	7,0	8,6	8,7	7,7	7,1	7,2	7,6										B	
		Energy consumption intensity	FY2005	Actual result	▲ 3%	▲ 7%	▲ 3%	▲ 10%	▲ 9%	▲ 6%	▲ 12%	▲ 13%	▲ 11%											
				Target level								-										▲ 12,0%		
	Industry under Ministry of Economy, Trade and Industry																							
	The Japan Iron and Steel Federation	CO_2 emissions	10^4 t-CO_2	Actual result	19440,8	19180,3	18408,5	18264,3	18120,0	17738,5	17261,3	14593,2	16308,6										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 1,3%	▲ 5,3%	▲ 6,1%	▲ 6,8%	▲ 8,8%	▲ 11,2%	▲ 24,9%	▲ 16,1%											
				Target level								-										▲ 30%		
	Japan Chemical Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	6268,6	6171,0	6054,3	5889,3	5948,6	5790,4	5710,6	5461,7	5675,9										B	
		CO_2 emissions	BAU	Actual result	+0%	+1%	▲ 1%	▲ 2%	▲ 4%	▲ 4%	▲ 4%	+2%	+2%											
				Target level								-										▲6.5 million t-CO_2		
		CO_2 emissions	FY2013	Actual result	-	▲ 2%	▲ 3%	▲ 6%	▲ 5%	▲ 8%	▲ 9%	▲ 13%	▲ 9%											
				Target level								-										▲ 6.79 million t-CO_2 (▲ 10.7%)		
	Japan Paper Association	CO_2 emissions	10^4 t-CO_2	Actual result	1882,8	1815,9	1793,4	1779,8	1786,0	1751,9	1661,3	1564,9	1583,5										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 4%	▲ 5%	▲ 5%	▲ 5%	▲ 7%	▲ 12%	▲ 17%	▲ 16%											
				Target level								-										▲ 38%		
	Japan Cement Association	CO_2 emissions	10^4 t-CO_2	Actual result	1806,5	1774,4	1717,7	1695,7	1731,9	1685,7	1613,8	1551,3	1529,1										B	
		Energy consumption intensity	FY2013	Actual result	+1.9%	+1.5%	+0.7%	▲ 0.6%	+0.2%	▲ 1.2%	▲ 2.2%	▲ 2.8%	▲ 5.5%											
				Target level								-										▲ 9.7%		
	Liaison Group of Japanese Electrical and Electronics Industries for Global Warming Prevention	CO_2 emissions	10^4 t-CO_2	Actual result	1303,8	1250,3	1307,8	1385,1	1330,8	1456,9	1701,8	1733,8	1236,1										C	
		Energy intensity improvement rate	FY2020	Actual result	-	-	-	-	-	-	-	-	+5%											
				Target level								-										▲ 9.56%		
	Japan Auto Parts Industries Association	CO_2 emissions	10^4 t-CO_2	Actual result	770,7	744,4	686,3	698,0	698,6	650,3	618,8	571,0	571,1										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 16%	▲ 21%	▲ 18%	▲ 15%	▲ 17%	▲ 19%	▲ 24%	▲ 26%											
				Target level								-										▲ 46.0%		
	Japan Automobile Manufacturers Association / Japan Auto- Body Industries Association	CO_2 emissions	10^4 t-CO_2	Actual result	747,3	715,0	663,3	669,4	660,6	624,2	582,7	522,9	521,0										A	
		CO_2 emissions	FY2013	Actual result	-	▲ 28%	▲ 33%	▲ 32%	▲ 33%	▲ 37%	▲ 41%	▲ 47%	▲ 48%											
				Target level								-										▲ 38%		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
	Japan Mining Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	448.9	440.7	404.0	368.4	361.4	341.0	330.6	320.0	314.4										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 8%	▲ 14%	▲ 20%	▲ 20%	▲ 21%	▲ 22%	▲ 24%	▲ 30%											
				Target level								-										▲ 38%		
	Lime Manufacture Association	CO_2 emissions	10^4 t-CO_2	Actual result	246.3	246.0	222.6	224.6	226.7	223.0	209.9	176.2	187.9										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 0.2%	▲ 9.5%	▲ 8.7%	▲ 7.9%	▲ 9.5%	▲ 14.8%	▲ 28.6%	▲ 23.7%											
				Target level								-										▲ 29%		
	The Japan Rubber Manufacturers Association	CO_2 emissions	10^4 t-CO_2	Actual result	210.3	203.3	189.9	181.7	173.9	161.5	146.2	137.8	150.7										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 22%	▲ 25%	▲ 26%	▲ 27%	▲ 29%	▲ 34%	▲ 37%	▲ 29%											
				Target level								-										▲ 46%		
	Japan Textile Finishers' Association	CO_2 emissions	10^4 t-CO_2	Actual result	116.5	115.4	112.3	109.7	103.9	98.2	87.9	78.8	74.9										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 1%	▲ 4%	▲ 6%	▲ 11%	▲ 16%	▲ 25%	▲ 32%	▲ 36%											
				Target level								-										▲ 38%		
	Japan Aluminum Association	CO_2 emissions	10^4 t-CO_2	Actual result	146.2	149.0	144.2	144.9	141.9	134.4	126.0	117.3	122.4										B	
		CO_2 emissions	FY2013	Actual result	-	+2%	▲ 1%	▲ 1%	▲ 3%	▲ 8%	▲ 13%	▲ 20%	▲ 16%											
				Target level								-										▲ 31%		
	Japan Federation of Printing Industries	CO_2 emissions	10^4 t-CO_2	Actual result	155.7	149.1	146.8	142.5	129.5	119.1	109.9	103.6	99.2										A	
		CO_2 emissions	FY2013	Actual result	-	▲ 4%	▲ 6%	▲ 8%	▲ 17%	▲ 24%	▲ 29%	▲ 33%	▲ 36%											
				Target level								-										▲ 55%		
		CO_2 emissions	FY2010	Actual result	▲ 11%	▲ 13%	▲ 11%	▲ 12%	▲ 18%	▲ 21%	▲ 25%	▲ 29%	▲ 31%											
				Target level								-										▲ 28%		
	Flat Glass Manufacturers Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	117.1	110.2	106.2	106.0	108.8	109.8	111.4	94.1	91.7										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 6%	▲ 9%	▲ 9%	▲ 7%	▲ 6%	▲ 5%	▲ 20%	▲ 22%											
				Target level								-										▲ 26%		
	Japan Glass Bottle Association	CO_2 emissions	10^4 t-CO_2	Actual result	89.4	84.8	85.2	83.8	80.9	76.8	73.1	68.6	68.5										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 5%	▲ 5%	▲ 6%	▲ 10%	▲ 14%	▲ 18%	▲ 23%	▲ 23%											
				Target level								-										▲ 27.1%		
	The Japanese Electric Wire & Cable Makers' Association	CO_2 emissions	10^4 t-CO_2	Actual result	96.1	91.4	88.1	85.3	82.5	78.6	71.7	65.7	67.1										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 5%	▲ 8%	▲ 11%	▲ 14%	▲ 18%	▲ 25%	▲ 32%	▲ 30%											
				Target level								-										▲ 37.4%		
	The Japan Bearing Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	84.6	83.6	78.8	78.1	78.4	74.4	67.7	59.5	66.7										A	
		CO_2 emission intensity	FY1997	Actual result	▲ 21%	▲ 25%	▲ 24%	▲ 23%	▲ 28%	▲ 29%	▲ 26%	▲ 25%	▲ 28%											
				Target level								-										▲ 28%		
	The Japan Society of Industrial Machinery Manufacturers	CO_2 emissions	10^4 t-CO_2	Actual result	61.0	60.9	57.6	56.6	55.2	51.5	49.8	48.0	46.3										A	
		CO_2 emissions	FY2013	Actual result	-	▲ 0%	▲ 5%	▲ 7%	▲ 8%	▲ 14%	▲ 18%	▲ 22%	▲ 22%											
				Target level								-										▲ 10.0%		
	Japan Copper and Brass Association	CO_2 emissions	10^4 t-CO_2	Actual result	47.6	45.7	42.3	45.1	40.0	37.7	35.2	33.1	36.4										B	
		Energy consumption intensity	FY2005 to FY2010	Actual result	+0%	▲ 3%	▲ 2%	+1%	▲ 0%	▲ 4%	▲ 0%	+2%	▲ 2%											
				Target level								-										▲ 6%		
	Japan Construction Equipment Manufacturers Association	CO_2 emissions	10^4 t-CO_2	Actual result	50.1	47.5	41.0	41.1	44.8	41.1	35.9	34.0	38.4										A	
		Energy consumption intensity	FY2013	Actual result	-	▲ 11%	▲ 14%	▲ 5%	▲ 17%	▲ 25%	▲ 25%	▲ 17%	▲ 24%											
				Target level								-										▲ 17%		
	Limestone Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	28.4	28.0	27.3	26.6	26.4	26.0	25.6	24.4	24.7										B	
		CO_2 emissions	BAU	Actual result	▲ 1%	▲ 1%	▲ 1%	▲ 2%	▲ 3%	▲ 3%	▲ 4%	▲ 6%	▲ 6%											
				Target level								-										▲ 17,000t-CO_2		
	Japan Sanitary Equipment Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	25.7	23.2	19.9	19.6	19.7	20.3	19.8	18.3	18.3										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 10%	▲ 22%	▲ 24%	▲ 23%	▲ 21%	▲ 23%	▲ 29%	▲ 29%											
				Target level								-										▲ 40%		
	Japan Machine Tool Builders' Association	CO_2 emissions	10^4 t-CO_2	Actual result	36.3	37.0	35.4	33.4	33.7	32.9	29.4	25.5	28.8										B	
		CO_2 emissions	FY2013	Actual result	-	+2%	▲ 3%	▲ 8%	▲ 7%	▲ 9%	▲ 19%	▲ 30%	▲ 21%											
				Target level								-										▲ 38%		
	Japan Petroleum Development Association	CO_2 emissions	10^4 t-CO_2	Actual result	25.4	22.1	21.5	21.1	20.3	23.1	21.2	21.0	35.5										C	
		CO_2 emissions	FY2013	Actual result	-	▲ 13%	▲ 15%	▲ 17%	▲ 20%	▲ 9%	▲ 17%	▲ 17%	+39%											
				Target level								-										▲ 40%		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
	Japan Prefabricated Construction Suppliers & Manufacturers Association	CO_2 emissions	10^4 t-CO_2	Actual result	16.3	13.8	13.7	13.7	13.4	12.3	11.4	10.1	11.1											
		CO_2 emissions	FY2013	Actual result	-	▲ 16%	▲ 16%	▲ 16%	▲ 18%	▲ 25%	▲ 30%	▲ 38%	▲ 33%										B	
				Target level								-										▲ 50%		
	Japan Industrial Vehicles Association	CO_2 emissions	10^4 t-CO_2	Actual result	4.8	4.7	4.4	4.3	4.2	4.0	3.7	3.7	4.1											
		CO_2 emissions	FY2005	Actual result	▲ 41%	▲ 41%	▲ 44%	▲ 44%	▲ 43%	▲ 44%	▲ 52%	▲ 47%	▲ 40%										B	
				Target level								-										▲ 41%		
	Japan Carbon Association	CO_2 emissions	10^4 t-CO_2	Actual result	46.7	47.1	41.3	33.8	40.5	41.0	35.4	27.0	31.9											
		CO_2 emissions	FY2013	Actual result	-	+1%	▲ 8%	▲ 23%	▲ 5%	+1%	▲ 10%	▲ 31%	▲ 32%										B	
				Target level								-										▲ 46.0%		
	Industry under Ministry of Land, Infrastructure, Transport and Tourism																							
	The Shipbuilders' Association of Japan/The Cooperative Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	65.0	69.4	69.3	70.5	65.0	59.5	53.5	53.3	42.2											
		CO_2 emissions	FY2013	Actual result	-	+7%	+7%	+8%	+0%	▲ 8%	▲ 18%	▲ 18%	▲ 35%										A	
				Target level								-										▲ 6.5%		
	Japan Ship Machinery and Equipment Association	CO_2 emissions	10^4 t-CO_2	Actual result	8.5	8.5	8.0	8.3	7.0	6.6	7.0	6.5	5.3											
		Energy consumption intensity	FY1990	Actual result	▲ 30%	▲ 29%	▲ 27%	▲ 23%	▲ 33%	▲ 37%	▲ 33%	▲ 24%	▲ 33%										A	
				Target level								-										▲ 30%		
	Japan Marine Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	2.6	2.7	2.6	2.6	2.6	2.7	2.6	2.0	2.7											
		CO_2 emissions	FY2010	Actual result	▲ 14%	▲ 11%	▲ 13%	▲ 14%	▲ 13%	▲ 9%	▲ 14%	▲ 34%	▲ 11%										B	
				Target level								-										▲ 14%		
	Japan Association of Rolling Stock Industries	CO_2 emissions	10^4 t-CO_2	Actual result	3.6	3.6	3.4	3.4	3.5	3.2	3.1	2.9	2.7											
		CO_2 emissions	FY1990	Actual result	▲ 22%	▲ 22%	▲ 26%	▲ 26%	▲ 24%	▲ 30%	▲ 33%	▲ 39%	▲ 41%										A	
				Target level								-										▲ 35%		
	Japan Federation of Construction Contractors	CO_2 emissions	10^4 t-CO_2	Actual result	411.3	438.2	431.3	423.7	411.9	429.1	444.8	394.9	355.0											
		CO_2 emission intensity	FY1990	Actual result	▲ 18%	▲ 18%	▲ 19%	▲ 19%	▲ 21%	▲ 21%	▲ 22%	▲ 26%	▲ 32%										A	
				Target level								-										▲ 25%		
	Japan Federation of Housing Organizations	CO_2 emissions (over life cycle)	10^4 t-CO_2	Actual result	260 (22,183)	240 (20,891)	239 (19,943)	241 (19,965)	228 (20,790)	211 (20,756)	206 (18,847)	198 (18,564)	209 (15,600)											
		Environmental performance of new houses	-	Actual result	-	-	-	-	-	-	-	-											D	
				Target level								-										Realization of ZEH on average for new construction		
	○ commercial and other sectors																							
	Steady Implementation, evaluation and verification of Industry's Action Plans for a Low- Carbon Society (commercial and other sectors)																							
	Industry under Financial Services Agency																							
	Japanese Bankers Association	CO_2 emissions	10^4 t-CO_2	Actual result	139.0	134.0	127.0	120.0	112.0	100.0	92.0	89.0	83.0											
		Energy consumption intensity	FY2009	Actual result	▲ 17%	▲ 18%	▲ 20%	▲ 22%	▲ 24%	▲ 26%	▲ 29%	▲ 30%	▲ 33%										A	
				Target level								-										▲ 19%		
	The Life Insurance Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	110.7	101.9	95.6	85.1	79.6	72.7	66.7	63.0	62.5											
		CO_2 emission intensity	FY2013	Actual result	-	-	-	-	-	-	-	-	▲ 33%										B	
				Target level								-										▲ 51%		
	The General Insurance Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	27.0	25.6	23.5	22.3	20.0	18.8	17.0	16.5	15.5											
		CO_2 emission intensity	FY2013	Actual result	-	-	-	-	-	-	-	-	▲ 39%										B	
				Target level								-										▲ 51%		
	The National Association of Shinkin Banks	CO_2 emissions	10^4 t-CO_2	Actual result	32.1	30.2	28.1	27.2	25.8	23.2	21.6	21.6	21.2											
		Energy consumption	FY2009	Actual result	▲ 11%	▲ 14%	▲ 17%	▲ 17%	▲ 18%	▲ 21%	▲ 24%	▲ 23%	▲ 24%										A	
				Target level								-										▲ 19%		
	Community Bank Shinyo Kumiai	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-											
		Energy consumption	FY2009	Actual result	-	-	-	-	-	-	-	-	▲ 22%										A	
				Target level								-										▲ 18%		
	Japan Securities Dealers Association	CO_2 emissions	10^4 t-CO_2	Actual result	19.4	18.0	16.8	16.0	14.7	13.6	12.2	11.3	10.8											
		CO_2 emission intensity	FY2013	Actual result	-	-	-	-	-	-	-	-	▲ 39%										B	
				Target level								-										▲ 51%		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
	Industry under Ministry of Internal Affairs and Communications																							
	Telecommunications Carriers Association	CO_2 emissions	10^4 t-CO_2	Actual result	570.6	565.2	552.0	520.4	501.0	480.6	463.0	468.0	422.0										B	
		Energy consumption intensity	FY2013	Actual result	-	▲ 24%	▲ 48%	▲ 65%	▲ 70%	▲ 76%	▲ 79%	▲ 86%	▲ 87%											
				Target level								-										▲ 90%		
	Telecom Services Association	CO_2 emissions	10^4 t-CO_2	Actual result	102.1	96.3	89.5	89.4	81.1	77.2	81.2	80.1	79.8										A	
		Energy consumption intensity	FY2013	Actual result	-	▲ 3%	▲ 6%	▲ 4%	▲ 9%	▲ 9%	▲ 7%	▲ 0%	▲ 8%											
				Target level								-										▲ 2%		
	The Japan Commercial Broadcasters Association	CO_2 emissions	10^4 t-CO_2	Actual result	24.5	22.6	22.3	22.2	22.0	20.2	21.3	21.6	20.2										A	
		CO_2 emission intensity	FY2012	Actual result	▲ 6%	▲ 6%	▲ 6%	▲ 7%	▲ 13%	▲ 19%	▲ 26%	▲ 24%	▲ 24%											
				Target level								-										▲ 10%		
	Japan Broadcasting Corporation	CO_2 emissions	10^4 t-CO_2	Actual result	21.1	19.9	18.8	18.5	17.1	15.9	15.8	15.7	15.4										E	
		CO_2 emissions	FY2018	Actual result	-	-	-	-	-	-	-	-												
				Target level								-										-		
	Japan Cable and Telecommunications Association	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	-	10.9	11.3	11.0	9.3	8.9	8.2										C	
		Energy consumption intensity	FY2020	Actual result	-	-	-	-	-	-	-	-	+3%											
				Target level								-										▲ 1%		
	Japan Satellite Broadcasting Association	CO_2 emissions	10^4 t-CO_2	Actual result	1.0	0.9	0.8	0.7	0.6	2.3	1.0	1.2	1.4										A	
		Energy consumption intensity	FY2010	Actual result	▲ 4%	▲ 10%	▲ 11%	▲ 12%	▲ 12%	▲ 12%	▲ 14%	▲ 14%	▲ 15%											
				Target level								-										▲ 15%		
	Japan Internet Providers Association	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	5.8	5.6	5.1	7.3	5.2	5.2	4.9										A	
		Energy consumption intensity	FY2015	Actual result	-	-	-	▲ 17%	+14%	▲ 24%	▲ 26%	▲ 36%	▲ 53%											
				Target level								-										▲ 1%		
	Industry under Ministry of Education, Culture, Sports, Science and Technology																							
	The Federation of All Japan Private Schools' Associations	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	365.1	382.1	363.8	352	-	312.2	-										E	
		-	-	Actual result	-	-	-	-	-	-	-	-	-											
				Target level								-										-		
	Industry under Ministry of Health, Labor and Welfare																							
	Japan Medical Association / Council of 4 Hospitals	CO_2 emissions	10^4 t-CO_2	Actual result	917.0	877.6	851.5	870.5	863.8	812.9	756.8	758.1	-										D	
		CO_2 emission intensity	FY2006	Actual result	▲ 18%	▲ 21%	▲ 22%	▲ 21%	▲ 20%	▲ 23%	▲ 25%	▲ 25%	-											
				Target level								-										▲ 25%		
	Japanese Consumers Co-operative Union	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-										B	
		CO_2 emissions	FY2013	Actual result	-	▲ 21%	▲ 21%	▲ 25%	▲ 26%	▲ 26%	▲ 24%	▲ 34%	▲ 35%											
				Target level								-										▲ 40%		
	Industry under Ministry of Fisheries, Forestry and Agriculture																							
	Japan Processed Foods Wholesalers Association	CO_2 emissions	10^4 t-CO_2	Actual result	29.1	32.6	32.2	28.9	27.2	26.9	27.7	25.4	25.3										A	
		Energy consumption intensity	FY2011	Actual result	+2%	▲ 2%	▲ 9%	▲ 5%	▲ 7%	▲ 8%	▲ 16%	▲ 15%	▲ 20%											
				Target level								-										▲ 5%		
	Japan Foodservice Association	CO_2 emissions	10^4 t-CO_2	Actual result	720.9	682.4	679.4	672.2	647.2	605.7	589.4	526.6	503.9										B	
		Energy consumption intensity	FY2013	Actual result	-	▲ 4%	▲ 5%	▲ 8%	▲ 10%	▲ 14%	▲ 15%	▲ 10%	▲ 15%											
				Target level								-										▲ 15.7%		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
01. Steady implementation, evaluation and verification of Industry's Action Plans for a Low- Carbon Society	Industry under Ministry of Economy, Trade and Industry																							
	Japan Chain Stores Association	CO_2 emissions	10^4 t-CO_2	Actual result	540.0	495.0	392.9	283.2	219.8	209.4	206.0	209.9	191.3										B	
		Energy consumption intensity	FY2013	Actual result	-	+1%	▲ 11%	▲ 12%	▲ 14%	▲ 1%	▲ 2%	▲ 2%	▲ 2%											
				Target level								-										▲ 5.1%		
	Japan Franchise Association	CO_2 emissions	10^4 t-CO_2	Actual result	437.9	457.8	448.8	447.2	430.1	401.4	375.6	358.7	357.2										B	
		CO_2 emission intensity	FY2013	Actual result	-	-	-	-	-	-	-	-	▲ 30%											
				Target level								-										▲ 46%		
	Japan Council of Shopping Centers	CO_2 emissions	10^4 t-CO_2	Actual result	331.7	275.5	268.8	258.5	255.4	230.8	220.7	198.4	187.1										A	
		Energy consumption intensity	FY2005	Actual result	▲ 30%	▲ 32%	▲ 34%	▲ 35%	▲ 37%	▲ 37%	▲ 37%	▲ 41%	▲ 42%											
				Target level								-										▲ 23.0%		
	Japan Department Stores Association	CO_2 emissions	10^4 t-CO_2	Actual result	190.5	172.6	159.4	151.3	133.9	119.6	113.2	87.5	89.5										A	
		Energy consumption intensity	FY2013	Actual result	-	▲ 6%	▲ 11%	▲ 12%	▲ 14%	▲ 17%	▲ 19%	▲ 24%	▲ 24%											
				Target level								-										▲ 26.5%		
		CO_2 emissions	FY2013	Actual result	-	▲ 9%	▲ 16%	▲ 21%	▲ 30%	▲ 37%	▲ 41%	▲ 54%	▲ 53%											
				Target level								-										▲ 50%		
		CO_2 emissions	10^4 t-CO_2	Actual result	81.1	77.7	71.3	70.4	67.1	60.5	60.3	56.1	54.3										B	
		Energy intensity	FY2013	Actual result	-	▲ 4%	▲ 6%	▲ 8%	▲ 12%	▲ 14%	▲ 16%	▲ 22%	▲ 19.9%											
				Target level								-										▲ 26.8%		
	Japan D.I.Y. • HC Association	CO_2 emissions	10^4 t-CO_2	Actual result	48.7	46.3	46.3	46.6	34.9	28.2	33.3	22.7	45.2										B	
		Energy consumption intensity	FY2013	Actual result	-	▲ 10%	▲ 13%	▲ 14%	▲ 11%	▲ 21%	▲ 10%	▲ 13%	▲ 10%											
				Target level								-										▲ 17%		
	Japan Information Technology Services Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	20.6	16.6	13.4	11.5	10.5	9.6	9.0	10.0	9.5										A	
		(Office) Energy consumption intensity	FY2006	Actual result	▲ 11%	▲ 27%	▲ 34%	▲ 33%	▲ 35%	▲ 37%	▲ 38%	▲ 48%	▲ 50%											
				Target level								-										▲ 37.7%		
		CO_2 emissions	10^4 t-CO_2	Actual result	64.3	61.7	55.3	52.2	44.0	40.8	47.7	47.1	44.5											
		(Data center) Energy consumption intensity	FY2006	Actual result	▲ 8%	▲ 7%	▲ 7%	▲ 7%	▲ 7%	▲ 10%	▲ 11%	▲ 13%	▲ 17%											
				Target level								-										▲ 7.8%		
	Japan Association of Chain Drug Stores	CO_2 emissions	10^4 t-CO_2	Actual result	132.5	150.2	155.1	158.9	168.8	168.3	155.1	159.7	166.4										B	
		Energy consumption intensity	FY2013	Actual result	-	▲ 7%	▲ 16%	▲ 19%	▲ 21%	▲ 23%	▲ 27%	▲ 29%	▲ 33%											
				Target level								-										▲ 34.2%		
	Japan Foreign Trade Council Inc.	CO_2 emissions	10^4 t-CO_2	Actual result	5.4	5.1	4.5	4.1	3.7	3.4	3.2	2.8	2.9										A	
		Energy consumption intensity	FY2013	Actual result	-	▲ 3%	▲ 6%	▲ 10%	▲ 11%	▲ 13%	▲ 13%	▲ 20%	▲ 23%											
				Target level								-										▲ 15.7%		
		CO_2 emissions	10^4 t-CO_2	Actual result	3.1	3.0	2.8	2.8	2.7	2.5	2.4	2.4	2.4										B	
		Energy consumption	FY2010	Actual result	▲ 5%	▲ 7%	▲ 8%	▲ 7%	▲ 6%	▲ 7%	▲ 7%	▲ 7%	▲ 6%											
				Target level								-										▲ 10%		
	Japan Leasing Association	CO_2 emissions	10^4 t-CO_2	Actual result	0.9	1.8	1.7	1.6	1.5	1.4	1.4	1.4	0.8										A	
		Energy consumption intensity	FY2013	Actual result	-	+8%	+3%	▲ 4%	▲ 4%	▲ 5%	▲ 5%	▲ 4%	▲ 28%											
				Target level								-										▲ 5%		
	Industry under Ministry of Land, Infrastructure, Transport and Tourism																							
	The Japan Warehousing Association Inc.	CO_2 emissions	10^4 t-CO_2	Actual result	119.0	106.0	121.0	122.0	129.0	125.0	125.0	125.0	122.0										A	
		Energy consumption intensity	FY1990	Actual result	▲ 15%	▲ 18%	▲ 19%	▲ 19%	▲ 19%	▲ 20%	▲ 22%	▲ 24%	▲ 30%											
				Target level								-										▲ 20%		
	Japan Association of Refrigerated Warehouses	CO_2 emissions	10^4 t-CO_2	Actual result	106.4	103.1	97.6	95.6	90.1	85.5	82.7	82.4	83.8										B	
		Energy consumption intensity	FY2013	Actual result	-	-	-	-	-	-	-	-	▲ 8%											
				Target level								-										▲ 19%		
	Japan Hotel Association	CO_2 emissions	10^4 t-CO_2	Actual result	65.5	64.3	61.9	60.4	59.4	57.0	53.9	41.6	44.8										A	
		Energy consumption intensity	FY2010	Actual result	▲ 8%	▲ 10%	▲ 12%	▲ 12%	▲ 12%	▲ 14%	▲ 16%	▲ 15%	▲ 18%											
				Target level								-										▲ 15%		
	Japan Ryokan & Hotel Association	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	-	5.0	5.7	2.4	7.2	3.8	1.7										A	
		Energy consumption intensity	FY2016	Actual result	-	-	-	-	▲ 10%	▲ 10%	▲ 7%	▲ 37%	▲ 49%											
				Target level								-										▲ 10%		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
	Japan Automobile Service Promotion Association	CO_2 emissions	10^4 t-CO_2	Actual result	415,5	416,5	418,5	419,1	413,3	416,1	399,9	419,6	427,5											
		CO_2 emissions	FY2007	Actual result	▲ 8%	▲ 8%	▲ 7%	▲ 7%	▲ 9%	▲ 8%	▲ 12%	▲ 7%	▲ 5%										B	
				Target level								-										▲ 15%		
	The Real Estate Companies Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-											
		Energy intensity	FY2005	Actual result	▲ 21%	▲ 24%	▲ 25%	▲ 26%	▲ 24%	▲ 27%	▲ 27%	▲ 32%	▲ 36%										A	
				Target level								-										▲ 30%		
	Japan Building Owners and Managers Association	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	316,0											
		-	-	Actual result	-	-	-	-	-	-	-	-	-										E	
				Target level								-										-		
	Industry under Ministry of the Environment																							
	Japan Federation of Industrial Waste Management and Recycling Associations	CO_2 emissions	10^4 t-CO_2	Actual result	447,5	456,5	470,6	472,7	476,5	497,6	480,9	481,8	465,9											
		CO_2 emissions	FY2010	Actual result	+3%	+5%	+8%	+8%	+9%	+14%	+10%	+10%	+7%										C	
				Target level								-										▲ 10%		
	The Japan Newspaper Publishers & Editors Association	CO_2 emissions	10^4 t-CO_2	Actual result	53,7	50,0	46,7	45,3	42,0	37,4	34,9	32,5	31,3											
		Energy consumption intensity	FY2013	Actual result	-	Annual average ▲ 5,8%	Annual average ▲ 5,0%	Annual average ▲ 4,4%	Annual average ▲ 4,4%	Annual average ▲ 4,6%	Annual average ▲ 4,6%	Annual average ▲ 4,5%	Annual average ▲ 4,2%										A	
				Target level								-										Annual average ▲ 1%		
	Zenkoku Pet Kyoukai (pet retail)	CO_2 emissions	10^4 t-CO_2	Actual result	0,54	0,55	0,56	0,52	0,52	0,51	0,50	0,50	0,56											
		CO_2 emission intensity	FY2012	Actual result	+28%	+35%	+4%	▲ 18%	+0%	▲ 4%	▲ 6%	▲ 9%	▲ 0%										A	
				Target level								-										▲ 0%		
	Industry under National Police Agency																							
	All Japan Pachinko Association	CO_2 emissions	10^4 t-CO_2	Actual result	502	447	426	401	383	329	311	266	260											
		CO_2 emissions	FY2007	Actual result	▲ 15%	▲ 22%	▲ 23%	▲ 25%	▲ 26%	▲ 32%	▲ 33%	▲ 42%	▲ 43%										A	
				Target level								-										▲ 22%		
	Japan Amusement Industry Association	CO_2 emissions	10^4 t-CO_2	Actual result	25,3	23,7	23,8	23,3	22,5	19,0	18,7	18,8	18,8											
		CO_2 emissions	FY2012	Actual result	▲ 6%	▲ 12%	▲ 12%	▲ 14%	▲ 17%	▲ 30%	▲ 31%	▲ 30%	▲ 30%										A	
				Target level								-										▲ 16.6%		
○ transport sector																								
	Steady Implementation, evaluation and verification of Industry's Action Plans for a Low- Carbon Society(transport sector)																							
	Industry under Ministry of Land, Infrastructure, Transport and Tourism																							
	The Japanese Shipowners' Association	CO_2 emissions	10^4 t-CO_2	Actual result	5538,8	5417,2	5214,5	5258,2	5402,5	3266,2	4563,5	4023,7	3709,5											
		CO_2 emission intensity	FY1990	Actual result	▲ 38,4%	▲ 43,2%	▲ 40,7%	▲ 38,6%	▲ 48,0%	▲ 36,7%	▲ 30,6%	▲ 35,0%	▲ 37,7%										A	
				Target level								-										▲ 30%		
	Japan Trucking Association	CO_2 emissions	10^4 t-CO_2	Actual result	4079	4100	4091	4068	4087	4104	4044	3874	4114											
		CO_2 emission intensity	FY2005	Actual result	▲ 8,8%	▲ 6,5%	▲ 4,0%	▲ 7,0%	▲ 7,4%	▲ 7,0%	▲ 10,2%	+3,0%	+4,2%										C	
				Target level								-										▲ 31%		
	The Scheduled Airlines Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	2152,2	2247,6	2319,9	2437,6	2536,2	2487,1	2539,4	1260,2	1703,2											
		CO_2 emission intensity	FY2013	Actual result	-	▲ 6,4%	▲ 6,6%	▲ 8,8%	▲ 11,8%	▲ 8,8%	▲ 8,7%	+5,6%	+2,8%										C	
				Target level								-										▲ 22%		
		CO_2 emission intensity	FY2019	Actual result	-	-	-	-	-	-	-	+15,7%	+12,6%											
				Target level								-										▲ 15,4%		
	Japan Federation of Coastal Shipping Associations	CO_2 emissions	10^4 t-CO_2	Actual result	722,1	725,7	703,9	713,1	702,6	706,7	699,9	665,7	700,1											
		CO_2 emissions	FY1990	Actual result	▲ 15,9%	▲ 15,4%	▲ 18,0%	▲ 16,9%	▲ 18,1%	▲ 17,7%	▲ 18,5%	▲ 22,4%	▲ 18,4%										B	
				Target level								-										▲ 34%		
	Japan Passengerboat Association	CO_2 emissions	10^4 t-CO_2	Actual result	361,3	365,6	350,9	347,9	342,4	335,6	337,7	321,5	336,9											
		CO_2 emission intensity	FY2012	Actual result	▲ 1,4%	▲ 2,4%	▲ 5,7%	▲ 5,9%	▲ 9,5%	▲ 9,2%	▲ 10,9%	▲ 18,9%	▲ 18,9%										E	
				Target level								-										-		
	Japan Federation of Hire-Taxi Associations	CO_2 emissions	10^4 t-CO_2	Actual result	338,3	325,4	310,0	286,1	272,9	252,7	227,0	128,0	126,6											
		CO_2 emissions	FY2010	Actual result	▲ 11,6%	▲ 14,9%	▲ 19,0%	▲ 25,2%	▲ 28,7%	▲ 33,9%	▲ 40,7%	▲ 66,5%	▲ 66,9%										A	
				Target level								-										▲ 25.0%		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
01. Steady Implementation, evaluation and verification of Industry's Action Plans for a Low- Carbon Society	Nihon Bus Association	CO_2 emissions	10^4 t-CO_2	Actual result	375.7	373.2	366.4	359.0	348.0	341.0	364.0	246.0	239.4											
		CO_2 emission intensity	FY2015	Actual result	-	-	-	▲ 0.3%	▲ 3.8%	▲ 0.4%	▲ 0.4%	+16.2%	+8.7%										C	
				Target level								-										▲ 6%		
	Japan Private Railway Association	CO_2 emissions	10^4 t-CO_2	Actual result	286.0	274.0	261.0	256.0	246.0	228.0	216.0	205.0	182.0											
		CO_2 emissions	FY2013	Actual result	-	+5.4%	+0.4%	▲ 1.5%	▲ 5.4%	▲ 12.5%	▲ 17.1%	▲ 21.2%	▲ 30.0%										B	
				Target level								-										▲ 46.0%		
	East Japan Railway Company	CO_2 emissions	10^4 t-CO_2	Actual result	215.0	223.0	216.0	218.0	212.0	206.0	199.0	194.0	183.0											
		CO_2 emissions	FY2013	Actual result	-	+3.7%	+0.5%	+1.4%	▲ 1.4%	▲ 4.2%	▲ 7.4%	▲ 9.8%	▲ 14.9%										B	
				Target level								-										▲ 50.0%		
	West Japan Railway Company	CO_2 emissions	10^4 t-CO_2	Actual result	185.5	181.7	177.2	171.7	164.0	160.2	151.8	138.8	152.9											
		CO_2 emissions	FY2013	Actual result	-	▲ 15.4%	▲ 17.5%	▲ 20.1%	▲ 23.7%	▲ 25.5%	▲ 29.4%	▲ 35.4%	▲ 28.9%										B	
				Target level								-										▲ 46.0%		
	Central Japan Railway Company	CO_2 emissions	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	124.2											
		CO_2 emissions	FY2013	Actual result	-	▲ 29.0%	▲ 30.4%	▲ 31.6%	▲ 32.3%	▲ 34.8%	▲ 38.4%	▲ 39.4%	▲ 26.1%										B	
				Target level								-										▲ 46.0%		
	The Japan Harbor Transportation Association	CO_2 emissions	10^4 t-CO_2	Actual result	39.0	38.4	37.7	37.8	37.7	37.3	36.5	33.2	34.8											
		CO_2 emission intensity	FY2005	Actual result	▲ 10.1%	▲ 10.8%	▲ 10.0%	▲ 10.6%	▲ 13.6%	▲ 15.4%	▲ 14.7%	▲ 15.3%	▲ 11.2%										B	
				Target level								-										▲ 20.0%		
	Japan Freight Railway Company	CO_2 emissions	10^4 t-CO_2	Actual result	64.9	62.3	60.1	56.3	55.1	45.5	49.0	47.1	45.4											
		Energy consumption intensity	FY2013	Actual result	-	▲ 2%	▲ 4%	▲ 7%	▲ 8%	▲ 11%	▲ 4%	+1%	▲ 0.1%										B	
				Target level								-										▲ 15.0%		
	Kyushu Railway Company	CO_2 emissions	10^4 t-CO_2	Actual result	44.2	43.0	41.0	39.4	37.9	34.3	32.7	30.3	29.3											
		CO_2 emissions	FY2013	Actual result	-	▲ 0%	▲ 6%	▲ 18%	▲ 25%	▲ 30%	▲ 47%	▲ 49%	▲ 46.3%										B	
				Target level								-										▲ 50.0%		
	Hokkaido Railway Company	CO_2 emissions	10^4 t-CO_2	Actual result	32.1	31.4	30.5	30.8	30.5	31.0	32.1	31.5	30.7											
		Energy consumption intensity	FY2013	Actual result	-	▲ 0.4%	▲ 0.8%	▲ 3.6%	▲ 5.9%	▲ 5.9%	▲ 7.1%	▲ 7.5%	▲ 6.3%										B	
				Target level								-										▲ 7.0%		
	All Japan Freight Forwarders Association	CO_2 emissions	10^4 t-CO_2	Actual result	12.9	12.9	12.7	12.5	12.3	12.3	12.0	11.0	10.9											
		CO_2 emissions	FY2009	Actual result	▲ 3.0%	▲ 3.0%	▲ 4.5%	▲ 6.0%	▲ 7.5%	▲ 7.7%	▲ 9.5%	▲ 17.5%	▲ 18.0%										B	
				Target level								-										▲ 20%		
	Shikoku Railway Company	CO_2 emissions	10^4 t-CO_2	Actual result	8.0	7.7	7.7	7.6	7.4	6.9	6.9	6.6	6.4											
		CO_2 emissions	FY2013	Actual result	-	▲ 4%	▲ 4%	▲ 5%	▲ 7%	▲ 14%	▲ 14%	▲ 18%	▲ 20.0%										B	
				Target level								-										▲ 30.0%		
○ energy conversion sector																								
01. Steady Implementation, evaluation and verification of Industry's Action Plans for a Low- Carbon Society	Steady Implementation, evaluation and verification of Industry's Action Plans for a Low- Carbon Society (energy conversion sector)																							
	Industry under Ministry of Economy, Trade and Industry																							
	The Electric Power Council for a Low Carbon Society	CO_2 emissions	10^4 t-CO_2	Actual result	49300.0	46900.0	44100.0	43000.0	41100.0	37200.0	34500.0	32900.0	32700.0											
		CO_2 emissions	BAU	Actual result	-	▲ 38%	▲ 41%	▲ 56%	▲ 61%	▲ 77%	▲ 85%	▲ 96%	▲ 88%											
				Target level								-										▲11 million t-CO_2	B	
		CO_2 emission intensity	-	Actual result	-	121%	112%	106%	98%	85%	78%	76%	74%											
				Target level								-										Approximately 0.25 kg-CO_2/kWh		
	Petroleum Association of Japan	CO_2 emissions	10^4 t-CO_2	Actual result	4032.6	3823.3	3833.5	3844.3	3808.3	3682.4	3439.5	3087.0	3236.0											
		Energy reductions	BAU	Actual result	30%	37%	47%	53%	63%	66%	68%	65%	71%										B	
				Target level								-										▲ 1 million kL		
	The Japan Gas Association	CO_2 emissions	10^4 t-CO_2	Actual result	45.6	47.6	44.5	45.9	45.4	42.6	39.8	40.0	40.1											
		CO_2 emission intensity	FY2013	Actual result	-	+2%	▲ 3%	▲ 6%	▲ 6%	▲ 7%	▲ 10%	▲ 9%	▲ 10%										B	
				Target level								-										▲ 28%		

* The CO_2 emissions from FY 2013 to FY 2021 shown in the table are calculated using the adjusted emission factor for each fiscal year for all industries. Therefore, they do not necessarily match the CO_2 emissions used in the actual results (%) against the target for FY 2030.
* For industries that have set BAU targets, the percentage (%) is calculated from the actual results for FY 2013 to FY 2021 and the BAU for each fiscal year, so the progress rate of the target reduction amount does not match.

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
02. Promotion of the introduction of facilities and equipment with high energy- saving performance (across industries)	Introduction of high-efficiency air conditioning	Measure evaluation indicator Average APF/COP (electrical system)	-	Actual result	4,8	4,8	5,1	5,1	5,1	5,2	5,0	5,0	5,1										D	
				Expected level								5,5					6.4					6.4		
		Measure evaluation indicator Average APF/COP (fuel system)	-	Actual result	1,5	1,5	1,5	1,5	1,7	1,6	1,7	1,8	1,7										B	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all facilities and equipment. This is due to the fact that the Top Runner Program of the Energy Conservation Act has promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment etc. has been promoted. Continuous efforts will be made to encourage businesses to invest in high-efficiency air conditioning facilities and introduce them through both regulatory measures under the Energy Conservation Act and support measures through subsidies.
				Expected level								1.6					1.8					1.9		
		Energy conservation	10^4 kL	Actual result	1	2	4	5	7	9	12	13	15										C	
				Expected level								11					20					29		
		Emissions reduction	10^4 t-CO_2	Actual result	5	9	15	21	26	31	40	45	50										C	
				Expected level								48					86					69		
	Introduction of industrial heat pump	Measure evaluation indicator Cumulative installed capacity	1,000 kW	Actual result	11	40,0	65,1	88,1	115,8	137,9	157,5	168,4	197,3										D	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all facilities and equipment. This is due to the fact that the regulations of the Energy Conservation Act have promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment etc. has been promoted. However, while a certain level of progress is recognized, the current progress is evaluated to be lower than expected compared to the forecast when the measure evaluation indicator changes linearly every fiscal year toward the forecast for FY 2030. Therefore, further efforts are required to achieve the target. Continuous efforts will be made to encourage businesses to invest in high-efficiency industrial HPs and introduce them through both regulatory measures under the Energy Conservation Act and support measures through subsidies.
				Expected level								277					824					1673		
		Energy conservation	10^4 kL	Actual result	0,2	1,8	3,1	4,3	5,8	7,0	8,0	8,6	10,1										D	
				Expected level								14					43					87,9		
		Emissions reductions	10^4 t-CO_2	Actual result	0.2	1.9	3.6	5,1	7.1	9.2	10.8	11.7	13.7										D	
				Expected level								15					66					161		
	Introduction of industrial lighting	Measure evaluation indicator Cumulative market introductions	100 million units	Actual result	0.16	0.25	0.36	0.47	0.59	0.71	0.83	0.94	1.05										B	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all facilities and equipment. The current progress is evaluated to be higher than expected compared to the forecast when the measure evaluation indicator changes linearly every fiscal year toward the forecast for FY 2030. This is due to the fact that the Top Runner Program of the Energy Conservation Act has promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment etc. has been promoted.
				Expected level								0.58					0.80					1.05		
		Energy conservation	10^4 kL	Actual result	11.0	20.9	33.0	44.6	58.4	71.6	84.8	96.9	109										B	
				Expected level								57					86					109		
		Emissions reduction	10^4 t-CO_2	Actual result	67,0	125,9	188,1	255,2	325,2	390,2	453,2	510,2	583,2										B	
				Expected level								349					844.2					293.1		
	Introduction of low-carbon industrial furnaces	Measure evaluation indicator Cumulative number of introduced units	1,000 units	Actual result	9.4	9.8	10.2	10.9	11.5	12.2	12.8	13.4	14.0										C	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all facilities and equipment. This is due to the fact that the regulations of the Energy Conservation Act have promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment etc. has been promoted. Continuous efforts will be made to encourage businesses to invest in high-efficiency low-carbon industrial furnace s and introduce them through both regulatory measures under the Energy Conservation Act and support measures through subsidies.
				Expected level								13.6	14.2				16.6					19.1		
		Energy conservation	10^4 kL	Actual result	17,0	32,1	47,2	70,6	93,5	115,8	137,3	158,3	178,6										C	
				Expected level								173	195.7				281.1					374.1		
		Emissions reduction	10^4 t-CO_2	Actual result	57,5	101,7	141,6	215,5	282,3	336,3	391,0	447,2	504,3										C	
				Expected level								516.5	584.2				692.5					806.9		
	Introduction of industrial motors and inverters	Measure evaluation indicator Cumulative number of introduced units of highly efficient motors	10^4 units	Actual result	1,6	9.0	74,9	165,9	207.2	265,7	307.2	334,8	353,2										D	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all facilities and equipment. This is due to the fact that the Top Runner Program of the Energy Conservation Act has promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment has been promoted. However, while a certain level of progress is recognized, the current progress is evaluated to be lower than expected compared to the forecast when the measure evaluation indicator changes linearly every fiscal year toward the forecast for FY 2030. Therefore, further efforts are required to achieve the target. Continuous efforts will be made to encourage businesses to invest in highly efficient industrial motors and inverters and introduce them through both regulatory measures under the Energy Conservation Act and support measures through subsidies.
				Expected level													1723					2756		
		Measure evaluation indicator Cumulative number of introduced units of inverters	10^4 units	Actual result	152,1	299,7	448,8	599,9	772,2	939,5	1098,3	1231,3	1377.0										D	
				Expected level													2370					3811		
		Energy conservation	10^4 kL	Actual result	5,48	11,2	20,0	30,2	38,5	47,7	55,5	61,7	67,9										D	
				Expected level													176.2					282.6		
		Emissions reduction	10^4 t-CO_2	Actual result	33,8	67,3	114,1	169,5	207,5	237,0	265,4	292,4	322,4										D	
				Expected level								376					1082					760,8		
	Introduction of high-performance boilers	Measure evaluation indicator Number of introduced units	100 units	Actual result	280,0	330,4	379,2	432,1	479,7	531,0	580,1	620,6	665,9										B	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all facilities and equipment. This is due to the fact that the Top Runner Program of the Energy Conservation Act has promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment has been promoted. Continuous efforts will be made to encourage businesses to invest in high-performance boilers and introduce them through both regulatory measures under the Energy Conservation Act and support measures through subsidies.
				Expected level								591					745.4					957		
		Energy conservation	10^4 kL	Actual result	10,8	22,9	34,6	47,3	58,7	71,0	82,8	92,6	103,4										B	
				Expected level								85,4					122,5					173,3		
		Emissions reduction	10^4 t-CO_2	Actual result	29,2	61,8	93,4	127,7	158,4	191,7	223,5	250,0	279,2										B	
				Expected level								230.6					330.7					467.9		
	Introduction of cogeneration	Measure evaluation indicator Cumulative installed capacity of co-generation	10^4 kW	Actual result	1,004	1,016	1,034	1,050	1,060	1,077	1,102	1,134	1,153										C	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all facilities and equipment. This is due to the fact that the Top Runner Program of the Energy Conservation Act has promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment has been promoted. However, while a certain level of progress is recognized, the current progress can be said to be roughly in line with the forecast, compared with the forecast when the measure evaluation indicator changes linearly every fiscal year toward the forecast for FY2030. Continuous efforts will be made to encourage businesses to make capital investment in co-generation through both regulatory measures under the Energy Conservation Act and support measures in the form of subsidies.
				Expected level								1,134					1,230					1,336		
		Energy conservation	10^4 kL	Actual result	12	19	29	39	45	54	68	87	97										C	
				Expected level								87					147					212		
		Emissions reduction	10^4 t-CO_2	Actual result	41	63	97	127	149	201	254	332	380										C	
				Expected level								294					694					1,061		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
03.Promotion of the introduction of facilities and equipment with high energy- saving performance (iron and steel industry)	Improvement of efficiency of main electricity demand facilities	Measure evaluation indicator Rate of widespread use	%	Actual result	-4	35	27	-25	3	44	93	90	96										C	The measure evaluation indicator, energy saving and emission reduction for FY 2021 all increased compared to FY 2013 and FY 2020. This measure is considered to be one of the voluntary initiatives of the steel industry based on the Carbon Neutrality Action Plan, and although businesses are replacing with main facilities that consume electricity with higher efficiency equipment with support from the national government for the installation of facilities, there is also the impact of fixed electricity used for the maintenance and management, etc., of steel plants. Thus, there is a possibility that the actual results will fluctuate depending on the increase or decrease in crude steel production volume. Although the actual amounts may fluctuate in the future due to the increase or decrease in crude steel production volume, in FY 2021, the businesses are expected to upgrade to facilities that consume electricity with higher efficiency equipment, including support from the national government for the introduction of facilities, and are expected to upgrade to highly efficient electricity demand facilities over medium and long-term as well.
				Expected level													-					100		
		Energy conservation	10^4 kL	Actual result	-0.2	1.8	1.3	-1.2	0.1	2.2	4.7	4.5	4.9										C	
				Expected level													-					5		
		Emissions reduction	10^4 t-CO_2	Actual result	-0.4	3.4	2.6	-2.4	0.3	4.3	9.0	8.7	9.6										C	
				Expected level													-					10		
	Expansion of chemical recycle of waste plastics at steel mills	Measure evaluation indicator Amount of processed waste plastic	10^4 t	Actual result	40	45	44	45	47	41	45	37	41										D	The measure evaluation indicator in FY 2021 increased by 10,000 tons compared to FY 2013 and 40,000 tons compared to FY 2020. The steel industry is aiming to expand chemical recycling at steel plants based on the assumption that the sorted collection volume of waste plastic, etc., that can be used at steel plants in accordance with the Containers and Packaging Recycling Low will increase. However, since the collection volume of waste plastic, etc., derived from containers and packaging has increased less than expected, it is difficult to expand the use of waste plastic, etc., in chemical recycling, resulting in sluggish performance of each indicator (Reference: Annual Report (The Japan Containers And Packaging Recycling Association)). Under the Act on Promotion of Resource Circulation for Plastics, which comes into effect on April 1, 2022, municipalities will collect waste from plastic-using products other than containers and packaging through the sorted collection of waste from plastic-using products, in addition to the waste from plastic containers and packaging collected under the Containers and Packaging Recycling Law. While taking into account the status of enforcement of the Act on Promotion of Resource Circulation for Plastics, efforts will be made to expand the use of waste plastic, etc. for chemical recycling. * Plastic containers and packaging that guarantee a certain level of quality (safety and hygiene assurance, removal of foreign substances, etc.)
				Expected level													-					100		
		Energy conservation	10^4 kL	Actual result	-2	3	2	3	4	-1	1	-4.3	-0.9										D	
				Expected level													-					49		
		Emissions reduction	10^4 t-CO_2	Actual result	-7	11	7	11	18	-4	2	-18	-4										D	
				Expected level													-					212		
	Efficiency improvement of coke oven	Measure evaluation indicator Rate of widespread use	%	Actual result	93	90	92	91	90	92	93	92	92										C	The measure evaluation indicator, energy saving and emission reduction for FY 2021 decreased compared to FY 2013 and increased compared to FY 2020. This measure is considered to be one of the voluntary efforts of the steel industry based on the Carbon Neutrality Action Plan, and the upgrading of coke ovens has been progressing sequentially. The rate of decline has been decreasing after peaking in FY 2017. It is expected that the businesses will continue to make strategical upgrades.
				Expected level													-					100		
		Energy conservation	10^4 kL	Actual result	-4	-12	-7	-10	-12	-7	-3	-6	-6										C	
				Expected level													-					17		
		Emissions reduction	10^4 t-CO_2	Actual result	-10	-32	-19	-29	-34	-20	-8	-18	-17										C	
				Expected level													-					48		
	Improvement of power generation efficiency (joint thermal power generation facilities)	Measure evaluation indicator Rate of widespread use (joint thermal power)	%	Actual result	22	22	30	30	30	30	30	35	35										C	This measure is one of the voluntary efforts of the steel industry based on the Industry's Action Plans for a Low-Carbon Society, in which businesses are replacing their joint thermal power generation facilities with high-efficiency equipment, including support from the national government for the introduction of facilities. The measure evaluation indicator, energy saving and emission reduction for FY 2021 increased compared to FY 2013 and remained flat compared to FY 2020. Facility replacements have been making steady progress, and it is expected that businesses will continue to make strategical replacements.
				Expected level													-					39		
		Energy conservation	10^4 kL	Actual result	6	7	9	9	9	9	9	13	13										C	
				Expected level													-					14		
		Emissions reduction	10^4 t-CO_2	Actual result	19	23	29	29	29	29	29	40	40										C	
				Expected level													-					44		
	Improvement of power generation efficiency (in-house power generation facilities)	Measure evaluation indicator Rate of widespread use (private power generation)	%	Actual result	38	38	54	54	54	54	62	62	62										C	This measure is one of the voluntary efforts of the steel industry based on the Industry's Action Plans for a Low-Carbon Society, in which businesses are replacing their in-house power generation facilities with high-efficiency equipment, including support from the national government for the introduction of facilities. The measure evaluation indicator, energy saving and emission reduction for FY 2021 increased compared to FY 2013 and remained flat compared to FY 2020. Facility replacements have been making steady progress, and it is expected that businesses will continue to make strategical replacements.
				Expected level													-					92		
		Energy conservation	10^4 kL	Actual result	5	5	10	14	16	16	21	21	21										C	
				Expected level													-					30		
		Emissions reduction	10^4 t-CO_2	Actual result	11	11	23	33	38	38	49	49	49										C	
				Expected level													-					70		
	Enhancement of energy-saving facilities	Measure evaluation indicator Rate of widespread use (TRT)	%	Actual result	91	91	90	90	89	89	89	89	88										C	This measure is one of the voluntary efforts of the steel industry based on the Industry's Action Plans for a Low-Carbon Society, in which the businesses are expanding energy-saving facilities, including support from the national government for the introduction of facilities. The measure evaluation indicators (CDQ, steam recovery), energy saving and emission reduction for FY 2021 increased compared to FY 2013 and decreased compared to FY 2020. Since businesses are making progress in facility upgrades, the amount of energy conservation and emissions reduction cannot be expected to increase significantly immediately. Businesses are upgrading to energy-saving facilities, including support from the national government for the introduction of facilities, it is expected that measures will advance along with the progress of facility upgrades, leading to the achievement of the target for FY 2030.
				Expected level													-					100		
		Measure evaluation indicator Rate of widespread use (CDQ)	%	Actual result	86	87	88	87	87	87	87	88	87										C	
				Expected level													-					100		
		Measure evaluation indicator Rate of widespread use (steam recovery)	%	Actual result	83	84	84	84	84	84	85	85	84										C	
				Expected level													-					100		
		Energy conservation	10^4 kL	Actual result	0.5	2	3	2	2	2	2	3	2										C	
				Expected level													-					34		
		Emissions reduction	10^4 t-CO_2	Actual result	0.9	3	6	4	4	4	5	6	3										C	
				Expected level													-					65		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
04.Promotion of the introduction of facilities and equipment with high energy- saving performance (chemical industry)	Introduction of innovative pig iron making process (ferro coke)	Measure evaluation indicator Number of introduced facilities	Units	Actual result	0	0	0	0	0	0	0	0	0										C	Research and development of this measure is being carried out with the aim of establishing the technology for this measure by around 2022, and to have five installed facilities by FY 2030. Since the measure evaluation indicator is the number of steps introduced using this process, there was no progress in FY 2021. Measures are steadily progressing through support for technology development. After the technology has been established, businesses will proceed strategical introduction, and the target is expected to be achieved.
				Expected level								0	0				-					5		
		Energy conservation	10^4 kL	Actual result	0	0	0	0	0	0	0	0	0										C	
				Expected level								-					-					19		
		Emissions reduction	10^4 t-CO_2	Actual result	0	0	0	0	0	0	0	0	0										C	
				Expected level								-					-					82		
	Introduction of environmentally harmonious ironmaking processes	Measure evaluation indicator Number of introduced facilities	Units	Actual result	0	0	0	0	0	0	0	0	0										C	Research and development of this measure is being carried out with the aim of establishing the technology for this measure by around 2025, and to have one installed facility by FY 2030. Since the measure evaluation indicator is the number of steps introduced using this process, there was no progress in FY 2021. Measures are steadily progressing through support for technology development. After the technology has been established, businesses will proceed strategical introduction, and the target is expected to be achieved.
				Expected level								0	0				-					1		
		Energy conservation	10^4 kL	Actual result	0	0	0	0	0	0	0	0	0										C	
				Expected level								-					-					5		
		Emissions reduction	10^4 t-CO_2	Actual result	0	0	0	0	0	0	0	0	0										C	
				Expected level								-					-					11		
	Introduction of energy-saving process technologies in chemistry	Measure evaluation indicator —	-	Actual result	-	-	-	-	-	-	-	-	-										-	With regard to energy-saving process technology in petrochemicals, the chemical manufacturing process as a whole has reduced CO_2 emissions by 4.29 million tons-CO_2 (the difference between the actual results of Carbon Neutrality Action Plan of the chemical industry in FY 2021 and FY 2013) by accumulating investments in energy-saving measures at each company. It is expected that the industry will continue to invest tens of billions of JPY and maintain a reduction in CO_2 emissions of hundreds of thousands of tons.
				Expected level										-	-	-	-	-	-	-	-	-		
		Energy conservation	10^4 kL	Actual result	16.9	33.3	50.7	64.1	87.4	101.8	118.5	140.0	158.8										A	
				Expected level													-					144.1		
		Emissions reduction	10^4 t-CO_2	Actual result	45.6	89.8	137.0	173.0	236.1	275.0	320.0	378.1	428.9										A	
				Expected level													-					389.1		
	Introduction of carbon dioxide utilization technologies	Measure evaluation indicator Introduced amount	10^4 t	Actual result	-	0	0	0	0	0	0	0	0										C	In FY 2021, study of the performance improvement of the photocatalyst continued, and improvement of conversion efficiency with the photoelectrode type was achieved. In order to identify issues for upsizing in the future, a system that connects the photocatalyst panel and separation membrane module was constructed, and a long-term field test was conducted outdoors. In addition, continuous operation of small pilots for methanol synthesis and olefin synthesis was carried out, respectively. The setup of the experimental environment for the successor Green Innovation Fund Project commenced. From FY 2022 onward, study will be conducted on the technology for improving the performance of photocatalysts for photocatalyst sheets, lowering the cost of photocatalytic modules, and practical application of separation membrane modules. For methanol production using hydrogen and olefin production, efforts will be made to develop elemental technologies for practical use.
				Expected level													0.64					64		
		Energy conservation	10^4 kL	Actual result	-	0	0	0	0	0	0	0	0										C	
				Expected level													0.06					6.4		
		Emissions reduction	10^4 t-CO_2	Actual result	-	0	0	0	0	0	0	0	0										C	
				Expected level													0.16					17.3		
05.Promotion of the introduction of facilities and equipment with high energy- saving performance (cement and ceramic industry)	Conventional energy-saving technology	Measure evaluation indicator Energy intensity reduction	MJ/t-cem	Actual result	2	2	5	5	6	6	10	10	10										B	The introduction of conventional energy-saving technologies is based on the capital investment plans of individual companies, taking into account the business conditions, production conditions, aging of equipment and the timing of replacement of each company. Although the actual results are not necessarily linear, facilities are continuously being introduced. In FY 2021, as in the previous fiscal year, there were cases where the introduction of new energy-saving facilities was postponed due to restrictions on access to factories for the purpose of preventing the pandemic of COVID-19. As long as there is no significant change in demand trends, the capital investment plans of each company are expected to progress. Thus, it was evaluated to exceed the target level by FY 2030. However, there is a possibility that the capital investment plans will be revised due to the labor shortage of construction workers, rising labor and material costs, changes in construction methods, and the impact of soaring material prices, etc. due to the recent situation in Ukraine.
				Expected level													-					14		
		Energy conservation	10^4 kL	Actual result	0.2	0.4	0.7	0.8	0.9	1.0	1.6	1.5	1.5										B	
				Expected level													-					2.4		
		Emissions reduction	10^4 t-CO_2	Actual result	0.5	1.1	1.9	2.1	2.4	2.7	4.3	4.0	4.0										B	
				Expected level													-					6.4		
	Technology to use waste as a substitute for thermal energy	Measure evaluation indicator The co-firing ratio of alternative waste to thermal energy	%	Actual result	-0.2	-0.2	0.7	1.7	0.9	1.7	2.4	3.0	2.9										A	Thermal energy alternative waste will not become widely used solely by the technical capabilities of the users, but will be accepted or rejected by a combination of factors such as the amount of waste discharged to be used, the type of waste discharged, the cost of treatment, the existence of waste treatment facilities, economic rationality, and competition with other industries. The amount of waste used in FY 2021 was about the same as the previous year, and the share of waste to the energy required for cement production (co-firing ratio) remained at a high level compared to the previous year, exceeding the target level for FY 2030. Since FY 2022, although the rate of increase in waste usage may be smaller than before due to the enforcement of the Plastic Resource Circulation Law and the expansion of material recycling of each company is actively making capital investments aimed at increasing the acceptance of waste in order to further reduce fossil energy, and an increase in the co-firing ratio is expected. Thus, it was evaluated that the result is expected to exceed the target level for FY 2030, and the actual value for FY 2021 already exceeds the target for FY 2030.
				Expected level													1					1.5		
		Energy conservation	10^4 kL	Actual result	-3.1	-2.2	4.5	9.7	5.2	9.1	12.2	15.8	16.0										A	
				Expected level													4.7					7.2		
		Emissions reduction	10^4 t-CO_2	Actual result	-8.2	-6.0	12.1	26.0	26.0	24.3	32.8	42.4	42.9										A	
				Expected level													12.7					19.2		
	Innovative cement production process	Measure evaluation indicator Low-temperature firing clinker production volume	%	Actual result	0	0	0	0	0	0	0	0	0										C	Toward the practical application of the envisioned technology, there are many issues and problems, such as establishing a stable supply system for feedstocks, establishing manufacturing conditions and product quality control conditions through actual machine tests, reviewing product applicability and standard systems, and understanding of users and establishing a supply system for widespread use, and it is necessary to continue the study. On the other hand, technology development for practical use of energy-saving cement is being promoted through trial manufacturing of actual facilities. Thus, it was evaluated to be about the same as the target level for FY 2030.
				Expected level													28.9					73.1		
		Energy conservation	10^4 kL	Actual result	0	0	0	0	0	0	0	0	0										C	
				Expected level													4.5					15.1		
		Emissions reduction	10^4 t-CO_2	Actual result	0	0	0	0	0	0	0	0	0										C	
				Expected level													12.2					40.8		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
	Glass melting process technology	Measure evaluation indicator Technology introduction rate	%	Actual result	0	0	0	0	0	0	0	0	0										C	In order to develop the outcomes of the project that was completed in FY 2012, a small burner that enables simplified, small-scale experiments based on the knowledge obtained in the project was developed. Continuous efforts are being made to popularize this burner. Two companies purchased this burner by FY 2019. In addition, this burner has been loaned free of charge to the National Institute for Materials Science (NIMS), where experiments and research have been conducted, respectively. Inquiries have been received from relatively many companies about this burner, although such inquiries did not result in the introduction of this burner. However, since FY 2020, the number of inquiries has decreased. The impact of the COVID-19 pandemic is considered as one of the factors behind the decrease. Activities to popularize this burner are planned in FY 2022 and beyond. By publicizing the energy-saving effects of using the burner, it is expected that some companies would like to conduct a scale-up experiment. In order to establish and introduce innovative melting technology suitable for large-scale melting furnaces, it is expected that the technical difficulty will be high, but considering the background of focusing on GHG net zero, it was decided to aim at realization of the production facility with a glass pulling capacity of 1 ton/day, and the current progress was evaluated as being as expected.
				Expected level													1.2					3.7		
		Energy conservation	10^4 kL	Actual result	0	0	0	0	0	0	0	0	0										C	
				Expected level													1.5					3.0		
		Emissions reduction	10^4 t-CO_2	Actual result	0	0	0	0	0	0	0	0	0										C	
				Expected level													4.1					8.1		
06.Promotion of the introduction of facilities and equipment with high energy- saving performance (pulp, paper, and paper product industry)	Introduction of high-efficiency used paper pulping process technology	Measure evaluation indicator Rate of widespread use	%	Actual result	12	14	19	19	21	21	25	31	31										C	The actual value for FY 2021 was higher than the previous fiscal year, and it is thought to be due to the production conditions, aging of equipment, and the timing of replacement. Since the detailed investment plans of each company cannot be determined, it is difficult to provide estimates up to FY 2030. Recently, paper manufacturers are in a difficult business condition due to the impact of sluggish paper demand resulting from the shift to telework caused by the pandemic of COVID-19 and a decrease in inbound demand and soaring raw material and fuel prices. However, as investments in the environment are expected to be made toward the long-term goal of GHG net zero, it was evaluated to be about the same as the target level for FY 2030. As a result of the accumulation of energy-saving measures including the introduction of the above facilities, and fuel conversion measures, the paper manufacturing process as a whole has reduced CO_2 emissions by 3 million tons-CO_2 (total of results from FY 2013 to FY 2021: Industry's Action Plans for a Low-Carbon Society of the paper industry). It is expected that efforts will be made to promote energy-saving measures through the introduction of highly efficient equipment, etc. and fuel conversion measures through the promotion of the use of biomass and renewable energy, thereby leading to the expansion of energy conservation and reduction of emissions.
				Expected level													34					37		
		Energy conservation	10^4 kL	Actual result	0.2	0.7	1.6	1.7	2.0	2.1	2.8	3.1	3.2										C	
				Expected level													3.4					3.9		
		Emissions reduction	10^4 t-CO_2	Actual result	0.5	1.9	4.3	4.6	5.4	5.7	7.6	8.4	8.7										C	
				Expected level													9.2					10.5		
07.Promotion of the introduction of facilities and equipment with high energy- saving performance (construction work and special vehicles field)	Introduction of hybrid construction equipment, etc.	Measure evaluation indicator Number of introduced units of hybrid construction machinery	10^4 units	Actual result	Approximately 0.2	0.3	0.4	0.6	0.8	0.9	1.0	1.1	1.2										C	The measure evaluation indicator, energy saving and emission reduction are linked in the calculation method, and the number of introduced units of energy-saving construction machinery, which is a measure evaluation indicator, has consistently increased since FY 2013. Although growth has been sluggish since 2020 due to the pandemic of COVID-19 and other factors, demand for construction equipment is recovering at present, and it is considered to be about the same as the target level for FY 2030 in the future while combining support measures.
				Expected level		0.4	0.5	0.6	0.8	1.0	1.2	1.4	1.7	2.0	2.3	2.6	2.9	3.2	3.5	3.9	4.3	Approximately 4.7		
		Energy conservation	10^4 kL	Actual result	0.3	0.6	1.0	1.6	2.2	2.7	3.2	3.6	3.8										C	
				Expected level		0.7	1.1	1.5	2.2	2.9	3.7	5	5.8	6.6	7.7	8.8	9.9	11.0	12.0	13.5	15.0	16		
		Emissions reduction	10^4 t-CO_2	Actual result	0.7	1.5	2.8	4.3	5.9	7.4	8.7	9.7	10.3										C	
				Expected level		2.0	3.0	3.9	5.9	7.9	9.9	13	15.8	17.7	20.7	23.7	26.6	29.6	32.5	36.5	40.4	44		
		Measure evaluation indicator * Reference: Rate of widespread use of construction machinery that meets fuel efficiency standards (hydraulic excavators)	%	Actual result	-	-	-	-	6.7	10	14	22	29										C	The measure evaluation indicator is progressing steadily against the forecast value. It is thought that the widespread use is accelerating, partly due to the effects of support measures. The diffusion rate of widespread use of construction machinery that meets fuel efficiency standards has consistently increased since FY 2017, and it is considered to be about the same as the target level for FY 2030. FCFL was launched in 2016, and sales volume growth is expected to accelerate. The amount of energy conservation and emission reductions changes in tandem with the measure evaluation indicator.
				Expected level													49.4					82.3		
		Measure evaluation indicator * Reference: Rate of widespread use of construction machinery that meets fuel efficiency standards (wheel loaders)	%	Actual result	-	-	-	-	2.0	4	6	6	6											
				Expected level													39.8					60.7		
		Measure evaluation indicator * Reference: Rate of widespread use of construction machinery that meets fuel efficiency standards (bulldozers)	%	Actual result	-	-	-	-	5.1	6	8	12	16											
				Expected level													33.2					49.3		
		Measure evaluation indicator * Reference: The number of widely-used construction machinery that meets fuel efficiency standards (FCFL)	Units	Actual result	-	-	-	-	77	156	244	326	397											
				Expected level													500					2500		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	1	2.1	2.9	13.5	13.5										C	
				Expected level													11					18		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	4	5.6	7.7	10.1	12.4										C	
				Expected level													29					48		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
08.Promotion of the introduction of facilities and equipment with high energy- saving performance (horticulture, agricultural machinery and fisheries)	Introduction of energy-saving equipment in horticulture facilities	Measure evaluation indicator Introduction of energy-saving equipment	1,000 units	Actual result	63	78	85	91	98	104	109	114	119										C	Although the progress of the results against the forecast of the two measure evaluation indicators (energy-saving equipment and energy-saving facilities) are slightly different, the results of both of them have been at the same level as the forecast of the plan. Thus, it is considered to be about the same as the target level in FY 2030. Since the amount of energy saving and emission reduction changes in tandem with the measure evaluation indicators, they are considered to be about the same as the target level for FY 2030. From the standpoint of reducing greenhouse gas emissions in the protected horticulture industry, while supporting the introduction of energy-saving facilities and the establishment of energy-saving technologies that also contribute to the reduction of greenhouse gas emissions, dissemination and public awareness-raising of energy-saving production management is carried out continuously based on the Protected Horticulture Energy-Saving Production Management Manual and Protected Horticulture Energy-Saving Production Management Check Sheet. Support for the introduction of facilities and establishment of technologies, dissemination and public awareness-raising of energy-saving production management will be promoted continuously.
				Expected level		78	85	91	98	104	109	115	120	126	131	137	143	148	154	159	165	170		
		Measure evaluation indicator Introduction of energy-saving facilities	1,000 locations	Actual result	105	125	143	162	180	198	217	234	251										C	
				Expected level		125	143	162	180	198	217	231	246	260	275	289	304	318	333	347	362	376		
		Energy conservation	10^4 kL	Actual result	-	6.6	10.6	14.3	17.9	21.4	25.1	28.3	31.6										C	
				Expected level		6.6	10.6	14.3	17.9	21.4	25.1	28.0	30.9	33.9	36.8	39.7	42.7	45.6	48.5	51.5	54.4	57.3		
		Emissions reduction	10^4 t-CO_2	Actual result	-	18	29	39	48	58	68	76	85										C	
				Expected level		18	29	39	48	58	68	76	84	91	99	107	115	123	131	139	147	155		
	Introduction of energy-saving agricultural machinery	Measure evaluation indicator The number of widely-used energy-saving agricultural machinery	1,000 units	Actual result	0.45	0.96	1.7	3.0	4.8	6.7	9.1	14.4	18.0										C	The actual value of the measures evaluation indicator for FY 2021 was slightly lower than the expected value due to the impact of the supposedly stable demand in Hokkaido area, where energy-saving agricultural machinery was introduced ahead of other areas. It is expected that the introduction of energy-saving agricultural machinery will be promoted in Honshu area, where the introduction of energy-saving agricultural machinery is increasing, and the value is considered to be about the same as the target level for FY 2030 while combining support measures.
				Expected level								10.0	22.0	34.0	46.0	58.0	70.0	94.0	118.0	142.0	166.0	190.0		
		Energy conservation	10^4 kL	Actual result	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.03										C	
				Expected level								0.02	0.03	0.05	0.07	0.09	0.11	0.14	0.18	0.22	0.26	0.29		
		Emissions reduction	10^4 t-CO_2	Actual result	0.00	0.00	0.01	0.01	0.02	0.03	0.04	0.06	0.08										C	
				Expected level								0.04	0.09	0.14	0.19	0.24	0.29	0.39	0.49	0.59	0.69	0.79		
	Energy-saving on fishing vessels	Measure evaluation indicator Shift to energy-saving fishing boats	%	Actual result	12.4	14.0	15.1	17.4	18.9	20.6	22.5	24.1	25.7										C	The actual value of the measure evaluation indicator was 25.7%, up 1.6 points from FY 2020, as expected. The amount of energy saving was 30,000 kL, up 4,000 kL from FY 2020, as expected. The amount of emission reduction was 80,000 tons-CO_2, up 9,000 tons-CO_2 from FY 2020, almost as expected. The shift to energy-saving fishing vessels is progressing as planned and is expected to be about the same as the target level in FY 2030. While continuously promoting the appropriate maintenance and operation management of fishing boats by fishery operators, initiatives to demonstrate energy-saving technologies in fishing vessels fisheries including technologies that contribute to improving the efficiency of fishing ground exploration, and the introduction of energy-saving fishing vessels will be promoted.
				Expected level		13.9	14.8	15.8	16.8	17.8	18.8	19.8	25.8	27.5	29.2	30.9	32.6	34.3	35.9	37.6	39.3	41.0		
		Energy conservation	10^4 kL	Actual result	-	0.4	0.8	1.2	1.5	1.9	2.2	2.6	3.0										C	
				Expected level		0.4	0.7	1.1	1.4	1.8	2.1	2.5	2.9	3.4	3.9	4.3	4.8	5.3	5.7	6.2	6.7	7.2		
		Emissions reduction	10^4 t-CO_2	Actual result	-	1.0	2.1	3.1	4.1	5.0	6.0	7.1	8.0										C	
				Expected level		1.0	1.9	2.9	3.8	4.8	5.7	6.7	8.2	9.4	10.7	11.9	13.2	14.4	15.7	16.9	18.1	19.4		
09.Promotion of energy conservation initiatives through inter-industry collaboration	Promotion of energy conservation initiatives through inter-industry collaboration	Measure evaluation indicator —	-	Actual result	-	-	-	-	-	-	-	-	-										-	The actual amount of energy saving and emission reduction are on an increasing trend, and if efforts continue as they are, the measure evaluation indicator is considered to be about the same as the target level in FY 2030. This is due to the fact that since FY 2015, subsidies have been used to support integrated energy-saving projects among multiple existing factories, leading to the advancement of energy-saving efforts through cooperation among multiple businesses. Energy conservation initiatives through inter-industry collaboration will be continuously promoted through support measures in the form of subsidies, etc.
				Expected level													-					-		
		Energy conservation	10^4 kL	Actual result	0	0	1.6	2.8	6.0	7.0	11.3	14.4	14.9										C	
				Expected level													21					29		
		Emissions reduction	10^4 t-CO_2	Actual result	0	0	5.3	9.2	19.4	22.0	33.6	44.7	46.3										C	
				Expected level													71					78		
10.Promotion of fuel conversion	Promotion of fuel conversion	Measure evaluation indicator The amount of fuel converted to gas	Million Nm^3	Actual result	-	191	306	408	499	640	835	965	1082										C	The measure evaluation indicator and emission reduction are linked in the calculation method. Estimates from FY 2021 onward were made on the assumption that the amount of development of 132 million Nm^3 and reduction effect of 125,000 tons-CO_2/year will accumulate each year based on actual amount from FY 2016 to FY 2019, and are expected to change linearly toward FY 2030. Promotion of fuel conversion will be carried out through subsidy projects.
				Expected level													-					-		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level													-					-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	20	26	42	45	58	76	87	110.4										C	
				Expected level									101	113	126	138	151	163	176	188	201	211		
11.Implementation of thorough energy management using FEMS	Implementation of thorough energy management using FEMS	Measure evaluation indicator FEMS coverage rate	%	Actual result	5	5.6	6.1	6.5	6.5	7.6	10.7	9.2	5.7										D	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend. This is due to the promotion of the introduction of FEMS and energy management as a result of calls for thorough energy management at factories in accordance with the Public Notice of the Energy Conservation Act (standards of judgment for businesses using energy at factories, etc.) and support for the introduction of FEMS through subsidies, etc. However, while a certain level of progress in policies and measures is recognized, the current progress is evaluated to be lower than expected compared to the forecast when the measure evaluation indicator changes linearly every fiscal year toward the forecast for FY 2030. Therefore, further efforts are required to achieve the target for FY 2030. Continuous efforts will be made to encourage businesses to make capital investment in FEMS through both regulatory measures under the Energy Conservation Act and support measures in the form of subsidies, thereby facilitating thorough energy management using FEMS.
				Expected level													18					24		
		Energy conservation	10^4 kL	Actual result	4	5.6	7.4	8.7	8.9	11.9	19.5	15.1	7.0										D	
				Expected level													62					74		
		Emissions reduction	10^4 t-CO_2	Actual result	15	21.3	27.4	31.8	31.9	42.0	68.0	50.9	23.6										D	
				Expected level													238					200		
12.Improvement of the energy efficiency of buildings	Improvement of the energy efficiency of buildings (new buildings)	Measure evaluation indicator The percentage of medium to large-scale new buildings that meet the energy-saving performance* of the ZEB standard	%	Actual result	0	-	-	-	-	-	29	35											C	The actual amount of energy saving and emission reduction are on an increasing trend. This is thought to be due to the promotion of the spread of low-carbon buildings with high energy-saving performance and the promotion of the improvement of energy-saving performance in new buildings by providing support for leading projects with excellent energy-saving and CO_2 emission reduction feasibility. However, while some progress has been made, further efforts are needed to achieve the target. The Act to Partially Amend of the Act the Improvement of Energy Consumption Performance of Buildings (Act No. 4 of 2019) was promulgated in May 2019 and fully enforced in April 2021, it includes measures such as addition of medium-sized office buildings, etc, to be subject to the mandatory compliance system. In addition, the Act to Partially amend the Energy Consumption Performance of Buildings to Contribute to the Realization of a Decarbonized Society, which includes measures such as mandatory compliance with energy-saving standards for all new houses and buildings, was promulgated in June 2022 in order to raise the level of energy-saving performance, and will be fully enforced by FY 2025. Furthermore, in October 2022, the guidance standards in accordance with the Building Energy Conservation Act and the certification standards for low-carbon buildings in accordance with the Act on Promotion of Low-Carbonization of Urban Cities were raised. Continuous efforts will be made to achieve the target by strengthening the measures described in future plans.
				Expected level													-					100		
		Energy conservation	10^4 kL	Actual result	3.0	13.1	24.3	37.5	53.5	69.9	77.2	83.2											C	
				Expected level													-					403.0		
		Emissions reduction	10^4 t-CO_2	Actual result	12.5	54.0	96.0	161.1	203.1	252.1	272.5	292.1											C	
				Expected level													-					1010		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
	Improvement of the energy efficiency of buildings (renovation and reconstruction of existing buildings)	Measure evaluation indicator The percentage of building stock that meets energy-saving standards	%	Actual result	25	26	28	30	31	33	35	37											C	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend, This is thought to be due to the promotion of energy-saving renovation of existing buildings through support, etc. for energy-saving renovation of existing buildings. However, while a certain level of progress is recognized, further efforts are required to achieve the target. Since September 2021, discussions took place at the Building Environment Subcommittee of the Building Committee of the Social Infrastructure Improvement Council regarding the strengthening of energy-saving measures for housing and buildings. On February 1, 2022, the Social Infrastructure Improvement Council sent the Future of Energy-Saving Measures for Housing and Buildings (Third Report) to the Minister of Land, Infrastructure, Transport and Tourism. In addition, the Act to Partially amend the Energy Consumption Performance of Buildings to Contribute to the Realisation of a Decarbonized Society, which includes measures such as mandatory compliance with energy-saving standards for all new houses and buildings, was promulgated in June 2022 in order to raise the level of energy-saving performance, and will be fully enforced by FY 2025. Energy-saving renovation of existing buildings will be continuously promoted through support measures in the form of subsidies, etc.
				Expected level													-					57		
		Energy conservation	10^4 kL	Actual result	2.4	4.7	8.8	11.9	22.3	26.4	39.6	44.8											C	
				Expected level													-					143		
		Emissions reduction	10^4 t-CO_2	Actual result	9.1	17.9	32.5	43.8	79.4	89.6	132.1	148.5											C	
				Expected level													-					355		
13.Promotion of high-efficiency energy-saving equipment	Installation of energy-efficient commercial water heaters	Measure evaluation indicator Cumulative number of introduced units of HP water heaters	10^4 units	Actual result	2.9	3.2	3.5	3.8	4.1	4.4	5.2	5.5	5.8										B	
				Expected level								5					9					14		
		Measure evaluation indicator Cumulative number of introduced units of latent heat recovery type water heater	10^4 units	Actual result	15	17.6	20.4	23.5	26.9	30.5	34.2	37.2	38.3										D	The measure evaluation indicator, energy saving, and emission reductios have been on an increasing trend,This is due to the fact that the Top Runner Program of the Energy Conservation Act has promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment etc. has been promoted. In addition, the current progress can be said to be roughly in line with the forecast, compared with the forecast when the measure evaluation indicator changes linearly every fiscal year toward the forecast for FY 2030. Continuous efforts will be made to encourage businesses to make capital investment in water heaters in commercial sector through both regulatory measures under the Energy Conservation Act and support measures in the form of subsidies.
				Expected level								81					100					110		
		Energy conservation	10^4 kL	Actual result	2	4.9	7.8	10.9	14.1	17.5	29.2	32.2	34.2										B	
				Expected level								26					44					66		
		Emissions reduction	10^4 t-CO_2	Actual result	5	13.9	22.7	31.9	41.1	51.1	65.7	72.6	77.4										B	
				Expected level								64					115					141		
	Introduction of high-efficiency lighting	Measure evaluation indicator Cumulative number of introduced units	100 million units	Actual result	0.5	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8										B	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all facilities and equipment. The current progress is evaluated to be higher than expected compared to the forecast when the measure evaluation indicator changes linearly every fiscal year toward the forecast for FY 2030. This is due to the fact that the Energy Conservation Act and regulations have promoted the improvement of energy consumption efficiency of each facility, and as a result of support for the introduction of high-efficiency facilities and equipment, the replacement with high-efficiency facilities and equipment has been promoted. Continuous efforts will be made to encourage businesses to invest in high-efficiency lighting and introduce them through both regulatory measures under the Energy Conservation Act and support measures through subsidies.
				Expected level								1.8					2.7					3.2		
		Energy conservation	10^4 kL	Actual result	16	39.4	65.5	88.0	116	145	173	198	223										B	
				Expected level								131					205					250		
		Emissions reduction	10^4 t-CO_2	Actual result	98	238.9	387.7	511.5	659.4	802.8	937.7	1056.7	1211.2										B	
				Expected level								803					1257					672		
	Introduction of refrigerant management technology	Measure evaluation indicator Rate of widespread use of appropriate management technology	%	Actual result	51	58.0	65.0	72.0	79.0	100	100	100	100										C	The measure evaluation indicator and energy saving are evaluated to be progressing as expected. The emissions reduction peaked in FY 2016 and has been decreasing, due to the impact of the number of Class I specified products that have been widely used, and the implementation of appropriate management through steady enforcement of the Fluorocarbon Emissions Control Act, and the support of refrigerant management technology through subsidies. While a certain level of progress is recognized overall, further efforts are required to achieve the target. Appropriate refrigerant management technology will be continued to be implemented through the steady enforcement of the Fluorocarbon Emissions Control Act, etc.
				Expected level								100					100					100		
		Energy conservation	10^4 kL	Actual result	3.8	4.3	4.7	5.1	5.6	6.9	6.8	6.7	5.7										C	
				Expected level								6.8					3.5					0.6		
		Emissions reduction	10^4 t-CO_2	Actual result	23.5	25.6	26.9	28.8	29.9	34.6	32.3	31.8	27.1										C	
				Expected level								41.6					21.6					1.6		
14.Improvement of energy efficiency of equipment through Top Runner Programs	Improvement of energy efficiency of equipment through Top Runner Programs	Measure evaluation indicator —	-	Actual result	-	-	-	-	-	-	-	-											-	The actual amount of energy saving and emission reduction are on an increasing trend for all equipment. This is due to the fact that the Top Runner Program of the Energy Conservation Act and other measures have promoted the improvement of energy consumption efficiency of each piece of equipment, and subsidies have supported the introduction of high-efficiency equipment, which in turn has promoted the replacement with high-efficiency equipment. However, while a certain amount of progress has been made in policies and measures, the current progress is evaluated to fall below the expected level compared to the amount of energy saved if the amount of energy saved remained linear each year toward the FY 2030 and further efforts are needed to achieve the target. Possible factors include, for example, the lack of progress in the diffusion of energy-efficient equipment. From the viewpoint such as room for improvement in energy consumption and energy efficiency, efforts will be continuously made to prioritize issues and work on revising the Top Runner Standards, and the widespread use of energy-saving equipment through support measures in the form of subsidies, etc, will be promoted.
				Expected level										-	-	-	-	-	-	-	-	-		
		Energy conservation	10^4 kL	Actual result	8	17	25	33	41	51	63	81.0	100.4										D	
				Expected level													212					342		
		Emissions reduction	10^4 t-CO_2	Actual result	52	82	112	144	175	253	303	381.6	474.5										D	
				Expected level													1300					920		
15.Implementation of thorough energy management through the use of BEMS, and Energy Conservation diagnosis	Implementation of thorough energy management through the use of BEMS and Energy Conservation diagnosis	Measure evaluation indicator Rate of widespread use	%	Actual result	8	9.4	10.9	12.3	14.2	16.0	17.4	19.1	20.9										D	The measure evaluation indicator, energy saving and emission reduction have been on an increasing trend, This is due to the promotion of the introduction of BEMS and energy management as a result of calls for thorough energy management at offices and buildings in accordance with the Public Notice of the Energy Conservation Act (Standards for Businesses' Judgments Regarding the Rationalization of Energy Use at Factories, etc.) and support for the introduction of BEMS through subsidies and demonstration support projects, etc. for the Net Zero Energy Building (ZEB) project for buildings. However, while a certain level of progress in policies and measures is recognized, the current progress is evaluated to be lower than expected compared to the forecast when the measure evaluation indicator, etc. changes linearly every fiscal year toward the forecast for FY 2030. Therefore, further efforts are required to achieve the target. Continuous efforts will be made to encourage businesses to invest in BEMS and introduce them through both regulatory measures under the Energy Conservation Act and support measures through subsidies.
				Expected level													37					48		
		Energy conservation	10^4 kL	Actual result	13	21.0	29.5	37.7	48.3	58.6	66.8	76.6	86.7										D	
				Expected level													137					239		
		Emissions reduction	10^4 t-CO_2	Actual result	56	95.0	128.3	161.8	201.5	230.7	252.9	292.0	331.0										D	
				Expected level													628					644		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
16.Promotion of local production for local consumption and areal use of energy	Promotion of local production for local consumption and areal use of energy	Measure evaluation indicator Number of regional microgrids constructed	Units	Actual result	-	-	-	-	-	-	0	2	5	(1)									E	Efforts are steadily being made by promoting the establishment of an energy system based on local production for local consumption use of energy in a whole area that utilizes renewable energy and unused heat in a whole area within the region. This measure is an initiative in which various entities in the region combine various energy facilities and systems to promote the efficient use of energy in a regional area. In addition, it is difficult to confirm the progress of the initiative using specific indicators that can be checked regularly since the implementation of the initiative takes a long time. Efforts will be continuously made through budgetary projects and other means.
				Expected level									10	12								-		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
17.Decarbonization of urban areas through improvement of the thermal environment by heat island control	Decarbonization of urban areas through improvement of the thermal environment by heat island control	Measure evaluation indicator Area of rooftop greening construction	ha	Actual result	-	32,6	57,5	88,7	113,3	130,0	153,3	176,7	191,1										B	In 2021, both the area of rooftop greening construction, which is a measure evaluation indicator, and CO_2 emission reduction exceeded the forecast, and have been on an improving trend since FY 2014. Thus, the same trend is expected to continue in the future toward FY 2030 and urban greening will be promoted continuously. A supplementary survey was conducted on the area of rooftop greening construction before 2020, and as a result, the actual values for 2019 to 2020 has been changed.
				Expected level		16,9	31,6	44,4	55,5	65,2	73,6	168,1	185,5	201,9	217,3	231,8	245,4	258,2	270,2	281,5	292,1	302,1		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level													-					-		
		Emissions reduction	10^4 t-CO_2	Actual result (Method A)	-	0,80	1,34	2,02	2,49	2,63	2,99	3,41	3,68										B	
				Actual result (Method B)	-	0,17	0,29	0,43	0,53	0,56	0,64	0,73	0,79											
				Expected level (Method A)		0,42	0,79	1,11	1,39	1,63	1,84	3,15	3,33	3,47	3,56	3,62	3,64	3,63	3,59	3,53	3,43	3,32		
				Expected level (Method B)		0,09	0,17	0,24	0,30	0,35	0,40	0,67	0,71	0,74	0,76	0,78	0,78	0,78	0,77	0,76	0,74	0,71		
18.Introduction of energy conservation and renewable energy in water supply and sewage (promotion of energy conservation and renewable energy measures in waterworks)	Promotion of energy conservation and renewable energy measures in waterworks	Measure evaluation indicator The amount of renewable energy generated	10^4 kWh	Actual result	5496	5751	5788	6342	6314	5928	6032	6414											D	In FY 2020, the measure evaluation indicator (the amount of renewable power generations) exceeded the level of the previous fiscal year. The introduction of renewable energy facilities will be continuously promoted by utilizing the CO_2-saving renovation support project for water and sewage facilities by water supply utilities, etc. (a joint project between the Ministry of Health, Labour and Welfare and the Ministry of the Environment). The amount of energy savings was about the same as the FY 2019 level. The information will be continuously disseminated regarding the examples of introduction of energy-saving facilities and the CO_2-saving renovation support project for water and sewage facilities, etc. (a joint project between the Ministry of Health, Labour and Welfare and the Ministry of the Environment), thereby promoting the introduction of energy-saving facilities. [Reference] Number of water purification plants, total power consumption, water purification amount, electricity intensity in each fiscal year In September 2019, the Ministry of Health, Labour and Welfare formulated the Basic Policy for Strengthening the Infrastructure of Water Supply in accordance with the revised Waterworks Act, which was enacted in December 2018, and required water supply utilities to revise the water supply system to an appropriate scale based on the long-term outlook according to local conditions. In the future, energy-saving measures are expected to make progress by promoting the integration and improvement of facilities, etc. At the same time, while promoting the further use of the CO_2-saving renovation support project for water and sewage facilities, etc. (a joint project between the Ministry of Health, Labour and Welfare and the Ministry of the Environment), promoting the introduction of effective energy-saving measures by utilizing the results of a set of works including surveys conducted in FY 2020 for the construction of a decarbonized water system, and providing information on energy saving and renewable energy measures, efforts will be made to achieve a decarbonized water system among water supply utilities, etc. nationwide.
				Expected level	5861												17004					24852		
		Measure evaluation indicator The amount of energy savings compared to FY2013	10^4 kWh	Actual result	-	5522	3576	1043	-6216	-904	300	151											D	
				Expected level													44911					75054		
		Energy conservation	10^4 kL	Actual result	-	1,4	0,9	0,3	-1,6	-0,2	0,1	0,0											D	
				Expected level													11,6					19,3		
		Emissions reduction	10^4 t-CO_2	Actual result	-	3,1	1,8	0,6	-3,1	-0,8	-0,3	-0,2											D	
				Expected level													32,0					21,6		
19.Introduction of energy conservation and renewable energy in water supply and sewage (promotion of energy conservation and energy creation measures in sewage systems)	Promotion of energy conservation and energy creation measures in sewage systems	Measure evaluation indicator Energy-derived CO2 emissions per treated water	t-CO_2/1,000 m^3	Actual result	0.28	0.27	0.26	0.25	0.26	0.26	0.26	0.27											C	The progress of the measure evaluation indicator (energy-related CO_2 emissions per treated water) has been lagging slightly because it takes time to introduce sewage sludge energy-generating facilities and energy-saving water treatment facilities in conjunction with the renovation and renewal of facilities, and to improve the sophistication and efficiency of facility management. Further reductions are expected through studies and surveys to reduce greenhouse gas emissions, which are required for the formulation and revision of Action Plans of Local Governments in accordance with the Global Warming Prevention Act, and through the establishment of support for the installation of measuring equipment and control equipment necessary for changing the operation methods of facilities. The measure evaluation indicator (sewage sludge energy conversion rate) has been increasing in recent years following the revision of the Sewerage Act in 2015, which imposes the obligation to make utmost efforts, but progress has been lagging. On the other hand, the introduction of energy-creating facilities in conjunction with the renovation and renewal of facilities is being considered in the future. Furthermore, the focus is placed on measures such as the utilization of the budget system for the conversion of sewage sludge to energy, the formulation and publication of technical guidelines, and the implementation of project formation. Thus, the introduction of facilities is expected to increase. Based on the above, emission reductions are expected to decrease through further promotion of initiatives, although emissions per unit of treated water tend to be flat.
				Expected level							0.25	0.24	0.24	0.23	0.23	0.22	0.22	0.22	0.21	0.21	0.20	0.09		
		Measure evaluation indicator Sewage sludge energy conversion rate	%	Actual result	15	15	16	17	22	23	24	27											C	
				Expected level							28	32	33	33	34	34	35	36	36	36	37	37		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-											-	
				Expected level									-	-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	16	28	35	54	64	59	60											C	
				Expected level							69	81	92	104	115	127	138	150	161	173	184	130		

[Reference] Number of water purification plants, total power consumption, water purification amount, electricity intensity in each fiscal year

	Number of water purification plants	Total power consumption	Water purification amount	Electricity intensity
FY2013	5,480 locations	7,407,420,000 kWh	15,100,000 m^3	490,6
FY2016	6,423 locations	7,297,150,000 kWh	14,900,000 m^3	489,9
FY2017	8,081 locations	7,499,290,000 kWh	15,160,000 m^3	494,7
FY2018	8,369 locations	7,398,500,000 kWh	15,060,000 m^3	491,2
FY2019	8,636 locations	7,346,480,000 kWh	14,980,000 m^3	490,4
FY2020	9,026 locations	7,398,930,000 kWh	15,080,000 m^3	490,5
Increase or decrease compared to FY2019	105%	101%	101%	100%

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
20.Initiatives in waste treatment	Promotion of sorted collection and recycling of plastic containers and packaging	Measure evaluation indicator Sorted collection volume of waste from plastic containers and packaging	10^4 t	Actual result	66	65.4	66.3	65.7	65.0	64.7	65.5	68.1	71.8										C	The result of sorted collection of plastic containers and packaging, which is a measure evaluation indicator, has increased slightly, and it is considered to be about the same as the target level due to the promotion of sorted collection by municipalities. Furthermore, due to the increase in the result of sorted collection, energy saving and emission reduction are also expected to exceed the target level.
				Expected level		66	67	67	68	68	68	69	69	70	70	70	71	71	72	72	72	73		
		Energy conservation	10^4 kL	Actual result	-	1.8	1.8	1.8	1.7	-1.8	2.0	2.2	4.6										A	
				Expected level		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7		
		Emissions reduction	10^4 t-CO_2	Actual result	-	6.2	6.2	6.1	5.9	-6.5	6.9	7.5	16.0										A	
				Expected level		0.3	0.7	1.0	1.4	1.8	2.2	2.5	2.9	3.3	3.6	4.0	4.4	4.7	5.1	5.5	5.9	6.2		
	Introduction of waste power generation at municipal waste incineration plants	Measure evaluation indicator The amount of electricity generated per unit of waste disposed	kWh/t	Actual result	231	234	241	260	273	284	292	307											C	Electricity generations per unit of waste disposed, which is a measure evaluation indicator, increased from 231 kWh/t (FY 2013) to 307 kWh/t (FY 2020) due to the progress of initiatives related to the introduction of waste power generation at municipal waste treatment facilities, such as the renewal of facilities that enable highly efficient energy recovery through the use of grants for promoting the establishment of a recycling-based society, etc., and the promotion of improvements to facilities that contribute to CO_2 emission reductions. The energy saving and emission reduction was 610,000 kL in FY 2020 and 1,067,000 tons-CO_2 in FY 2020, respectively. If the amount increases at the level of the amount of electricity generated from FY 2019 to FY 2020 in the future, it is expected that the target level for FY 2030 will be achieved. In addition to the renewal of facilities that enable highly efficient energy recovery through the use of grants for promoting the establishment of a recycling-based society, etc. and the promotion of improvements to facilities that contribute to CO_2 emissions reduction, technology evaluation and verification projects related to the utilization of waste energy, etc. at small- and medium-sized waste treatment facilities that have not fully utilized waste energy so far will be conducted, aiming at achieving targets with certainty.
				Expected level		244	256	269	281	294	307	319	332	344	357	369	382	395	407	420	432	445		
				Expected level		239	246	254	261	269	276	284	291	299	306	314	321	329	336	344	351	359		
		Energy conservation	10^4 kL	Actual result	-	0.7	7.2	23	35	44	56	61											C	
				Expected level		9	19	28	37	47	56	65	75	84	93	103	112	121	131	140	149	158		
				Expected level		5	11	16	22	27	32	38	43	49	54	59	65	70	76	81	86	92		
		Emissions reduction	10^4 t-CO_2	Actual result	-	1.6	15.1	46.7	68.8	80.8	98.5	106.7											C	
				Expected level		21	42	63	84	106	127	148	169	190	211	232	253	274	295	317	338	157		
				Expected level		12	24	37	49	61	73	86	98	110	122	135	147	159	171	183	196	91		
	Introduction of waste power generation at industrial waste incineration plants	Measure evaluation indicator The amount of power generated from industrial waste	GWh	Actual result	3748	4205	4102	4094	4137	4373	4529	3961											B	In FY 2020, four new facilities introduced waste power generation, but the amount of power generated decreased from the previous fiscal year. The introduction of waste power generation in industrial waste treatment facilities will continue to be promoted by utilizing projects to promote achievement of multi-benefits, etc. through effective utilization of waste energy.
				Expected level		3759	3759	3770	3770	3781	4388	4403	4417	4432	4447	4462	4477	4491	4506	4521	4536	4551		
		Energy conservation	10^4 kL	Actual result	-	11.5	8.9	8.7	9.8	15.7	19.7	5.4											B	
				Expected level		0.3	0.3	0.6	0.6	0.8	16.1	16.5	16.9	17.2	17.6	18.0	18.3	18.7	19.1	19.5	19.8	20		
		Emissions reduction	10^4 t-CO_2	Actual result	-	25.6	18.8	18.0	19.5	28.8	44.5	12.1											B	
				Expected level		0.6	0.6	1.3	1.3	1.9	36.5	37.3	38.2	39.0	39.8	40.7	41.5	42.4	43.2	44.1	44.9	20		
	Promotion of fuel production and energy conservation measures in the waste management industry	Measure evaluation indicator RPF production volume	1,000 t	Actual result	971	953	980	1047	1057	1068	1048	1017											B	Since FY 2016, energy savings and emission reductions through the substitution of fossil fuels will be promoted by promoting the installation of RPF manufacturing facilities through the utilization of low-carbon waste treatment support projects (from FY 2020, "projects to promote achievement of multi-benefits, etc. through effective utilization of waste energy").
				Expected level		913	913	919	925	931	1104	1140	1176	1212	1248	1284	1320	1356	1392	1428	1464	1500		
		Energy conservation	10^4 kL	Actual result	-	-1.3	0.7	5.6	6.3	7.2	5.7	3.4											B	
				Expected level		-	-	0.44	0.88	1.3	9.8	12.5	15.1	17.8	20.4	23.1	26	28.4	31.0	33.7	36.3	39		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-4.6	2.3	19.4	22.0	24.8	19.6	11.8											B	
				Expected level		-	-	1.5	3.1	4.6	34	43	52	61	70	80	89	98	107	116	125	135		
	Introduction of electric waste collection vehicles	Measure evaluation indicator Number of introduced units of EV garbage collection vehicles	Units	Actual result	0	0	0	0	0	2	2	2	3	(3)									C	Although the number of introduced units of EV waste collection vehicles, which is a measure evaluation indicator, has not increased, it is thought to be about the same as the target level due to the promotion of introduction of EV waste collection vehicles by the national government and sales promotion by manufacturers. As a result, the amount of emission reduction is thought to be about the same as the target level.
				Expected level							2	2	2	302	3602	6902	10200	13500	16800	20100	23400	26700		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	0	0	0	0	0	0.0002	0.0002	0.0002	0.0004	(0.0004)									C	
				Expected level										0.04	0.44	0.84	1.2	1.6	2.0	2.4	2.8	15		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
21.Improvement of energy efficiency of housing	Improvement of energy efficiency of housing (new housing)	Measure evaluation indicator The percentage of new houses that meet the energy-saving performance* of the ZEH standard	%	Actual result	0	-	-	-	-	-	12	24											C	The actual amount of energy saving and emission reduction are on an increasing trend. This is thought to be due to the promotion of improvement of the energy-saving performance of new houses by the Housing Top Runner Program under the Building Energy Conservation Act and support, etc. for Net Zero Energy Houses (ZEH). However, while a certain level of progress is recognized, further efforts are required to achieve the target. The Act to Partially Amend of the Act the Improvement of Energy Consumption Performance of Buildings (Act No. 4 of 2019) was promulgated in May 2019 and fully enforced in April 2021; it includes measures such as the addition of custom-built detached houses and rental apartments to be subject to the Housing Top Runner Program, and the establishment of a system that requires accountability of architects to building owners for detached houses, etc. In addition, the Act to Partially amend the Energy Consumption Performance of Buildings to Contribute to the Realization of a Decarbonized Society, which includes measures such as mandatory compliance with energy-saving standards for all new houses and buildings, was promulgated in June 2022 in order to raise the level of energy-saving performance, and will be fully enforced by FY 2025. Furthermore, in October 2022, the guidance standards in accordance with the Building Energy Conservation Act and the certification standards for low-carbon buildings in accordance with the Act on Promotion of Low-Carbonization of Urban Cities were raised. In January 2022, the borrowing limit according to the environmental performance of the housing loan tax reduction was increased, and in October, the interest rate for ZEH was further reduced in the Japan Housing Finance Agency's Flat 35S. Continuous efforts will be made to achieve the target by strengthening the measures described in the future plans.
				Expected level													-					100		
		Energy conservation	10^4 kL	Actual result	0	6.3	10.5	18.9	28.6	42.6	37.3	47.7											C	
				Expected level													-					253		
		Emissions reduction	10^4 t-CO_2	Actual result	0	20.7	33.7	60.1	89.5	129	111.2	141.5											C	
				Expected level													-					620		
	Improvement of energy efficiency of housing (renovation and reconstruction of existing housing)	Measure evaluation indicator The percentage of housing stock that meets energy-saving standards	%	Actual result	6	7	8	9	10	11	13	14											C	Measure evaluation indicators, energy savings, and emission reductions have been on an increasing trend. This is thought to be due to the promotion of energy-saving renovation of existing housing through support, etc. for energy-saving renovation through subsidies. In FY 2018, a subsidy program was established for energy-saving renovations at small and medium-sized contractors, and efforts were strengthened. However, while a certain level of progress is recognized, further efforts are required to achieve the target. Since October 2021, discussions took place at the Building Environment Subcommittee of the Building Committee of the Social Infrastructure Improvement Council regarding the strengthening of energy-saving measures for housing and buildings. On February 1, 2022, the Social Infrastructure Improvement Council sent the Future of Energy-Saving Measures for Housing and Buildings (Third Report) to the Minister of Land, Infrastructure, Transport and Tourism. In addition, the Act on Partial Revision of the Act on the Improvement of Energy-Saving Performance of Buildings to Contribute to the Realization of a Decarbonized Society, etc., which includes measures such as mandatory compliance with energy-saving standards for all new houses and buildings, was promulgated in June 2022 in order to raise the level of energy-saving performance, and will be fully enforced by FY2025. Since FY2019, support has been given to efforts to raise awareness about the effects of improving the thermal environment of living spaces through insulation renovation, etc. on the health condition of residents. In addition, since FY2020, support has been given to efforts for verification and widespread use by private businesses, etc. to build a model for partial energy-saving renovation; Energy conservation in existing houses will continue to be promoted through support measures, etc. through subsidies.
				Expected level													-					30		
		Energy conservation	10^4 kL	Actual result	-	1.4	3.5	5.5	7.7	9.9	23.0	27.9											C	
				Expected level													-					91		
		Emissions reduction	10^4 t-CO_2	Actual result	-	3.9	11.2	17.8	24.3	30.3	69.1	83.4											C	
				Expected level													-					223		
22.Diffusion of high-efficiency energy-saving equipment	Installation of high-efficiency water heaters	Measure evaluation indicator Cumulative number of introduced units of heat pump (HP) water heaters	10^4 units	Actual result	422.0	463.5	504.3	546.7	591.4	639.5	691.9	745.9	806.4										C	The actual results of measure evaluation indicator, energy saving and emission reduction have been on an increasing trend for all equipment. This is because the Top Runner Program of the Energy Conservation Act and other measures promoted the improvement of energy consumption efficiency of each appliance, and the introduction of high-efficiency hot-water supply equipment was supported through subsidies and support for the spread of zero-energy houses (ZEH), which encouraged the replacement of hot-water supply equipment with high-efficiency hot-water supply equipment. However, while some progress has been made, further efforts are needed to achieve the target. Continuous efforts will be made to promote the introduction of highly efficient water heaters through both regulatory measures under the Energy Conservation Act and support measures in the form of subsidies.
				Expected level													1200					1590		
		Measure evaluation indicator Cumulative number of introduced units of latent heat recovery type	10^4 units	Actual result	448.0	540.6	635.8	735.2	842.1	946.6	1051.4	1152.5	1243.8										D	
				Expected level													2700					3050		
		Measure evaluation indicator Cumulative number of introduced units of fuel cells	10^4 units	Actual result	7.2	11.3	15.4	19.5	23.5	27.6	31.3	35.3	43.3										D	
				Expected level													210					300		
		Energy conservation	10^4 kL	Actual result	11.0	24.4	37.7	51.9	66.6	82.0	98.5	120.2	138.9										C	
				Expected level													217					332		
		Emissions reduction	10^4 t-CO_2	Actual result	18.0	50.7	83.7	118.1	154.9	193.7	235.1	301.5	347.2										C	
				Expected level													640					898		
	Introduction of high-efficiency lighting	Measure evaluation indicator Cumulative number of introduced units	100 million units	Actual result	0.6	1.0	1.4	1.9	2.4	2.8	3.3	3.7	4.2										B	The actual results of measure evaluation indicators, energy savings, and emission reductions are on an increasing trend for all equipment. The current progress can be evaluated as exceeding the expected level compared to the forecast if the measure evaluation indicators etc. were linear each year toward FY 2030. This is because the Top Runner Program of the Energy Conservation Act has promoted the improvement of energy consumption efficiency of various equipment, and the introduction of high-efficiency lighting etc. has been supported through subsidies and support for the spread of zero-energy houses (ZEH), which has encouraged the replacement of lighting with high-efficiency lighting etc.
				Expected level								2.4					4.4					4.6		
		Energy conservation	10^4 kL	Actual result	12.0	34.2	56.3	86.3	115.1	143.9	172.7	199.1	226.1										B	
				Expected level								116					205					242		
		Emissions reduction	10^4 t-CO_2	Actual result	73.0	205.2	331.2	499.0	651.6	795.0	932.0	1054	1219										A	
				Expected level								711					1257					651		
23.Diffusion of high-efficiency energy-saving equipment (energy-saving septic tanks)	Promotion of energy-efficient septic tank application (introduction of advanced energy-efficient household septic tanks)	Measure evaluation indicator Cumulative number of septic tanks with a 26% reduction in power consumption compared to septic tanks for a low-carbon society in FY2013	10^4 units	Actual result	3.5	7.1	11	15	19	24	28	33	37										C	The measure evaluation indicator energy saving and emission reduction (absorption) are linked in the calculation method. Currently, each of the figures is almost in line with the forecast, and some effects are being generated by initiatives such as financial support, etc. through government subsidized projects. Future estimates are made based on the changes in FY 2017–2019. If efforts continue as they are, the measure evaluation indicator is considered to be about the same as the target level in FY 2030. The introduction and widespread use of energy-saving septic tanks will be promoted by utilizing grants for promoting the establishment of a recycling-based society (the septic tank maintenance promotion project for environmental consideration and disaster prevention town-building) and subsidies for business expenses for carbon dioxide emission control measures (the project to promote decarbonization of septic tank systems), etc.
				Expected level										45	51	57	63	69	75	81	87	93		
		Energy conservation	10^4 kL	Actual result	-	-	0.2	0.2	0.3	0.4	0.4	0.5	0.6										C	
				Expected level										0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	1.1	1.5	1.9	2.3	2.7	3.1	3.5										C	
				Expected level										4.3	4.9	5.5	6.1	6.7	7.2	7.8	8.4	4.9		
	Promotion of energy-efficient septic tank application (replacement of low energy-efficient existing medium-and large-sized septic tanks)	Measure evaluation indicator Cumulative number of energy-saving medium-and large-scale septic tanks	10^4 units	Actual result	0.1	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.9										C	The measure evaluation indicator, energy saving and emission reduction (including absorption) are linked in the calculation method. Currently each of the figures is almost in line with the forecast, and some effects are being generated by initiatives such as financial support, etc. through government subsidized projects. Future estimates are made based on the changes in FY2017–2019. If efforts continue at the present level, the measure evaluation indicator, etc. is considered to be about the same as the target level in FY2030. The introduction and widespread use of energy-saving septic tanks will be promoted by utilizing grants for promoting the establishment of a recycling-based society (the septic tank maintenance promotion project for environmental consideration and disaster prevention town-building) and subsidies for business expenses for carbon dioxide emission control measures (the project to promote decarbonization of septic tank systems), etc.
				Expected level										1.5	1.8	2.0	2.2	2.4	2.7	2.9	3.1	3.4		
		Energy conservation	10^4 kL	Actual result	-	-	0.3	0.4	0.4	0.5	0.6	0.6	0.6										C	
				Expected level										1.0	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	1.6	2.3	2.7	3.1	3.7	3.7	3.9										C	
				Expected level										6.4	7.4	8.3	9.2	10.1	11.1	12.0	12.9	7.4		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
24.Improvement of energy efficiency of equipment through Top Runner Programs (residential sector)	Improvement of energy efficiency of equipment through Top Runner Programs	Measure evaluation indicator —	-	Actual result	-	-	-	-	-	-	-	-	-										-	The measure evaluation indicator, energy saving and emission reduction are on an increasing trend for all equipment. This is due to the promotion of the improvement of energy consumption efficiency of each piece of equipment under the Top Runner Program of the Energy Conservation Act, and the promotion of the replacement with highly efficient equipment as a result of the support for the introduction of highly efficient equipment through subsidies. From the viewpoint such as room for improvement in energy consumption and energy efficiency, efforts will be continuously made to prioritize issues and work on revising the Top Runner Standards, and the widespread use of energy-saving equipment through support measures in the form of subsidies, etc. will be promoted.
				Expected level										-	-	-	-	-	-	-	-	-		
		Energy conservation	10^4 kL	Actual result	3.9	9.8	16.6	21.0	27.4	31.8	36.4	44.7	48.0										C	
				Expected level								56.1					128					180		
		Emissions reduction	10^4 t-CO_2	Actual result	24.3	60.0	96.4	119.5	149.7	159.5	175.1	209.6	223.2										C	
				Expected level								300					713.4					475.7		
25.Implementation of thorough energy management through the use of HEMS, smart meters, and smart home devices and the provision of energy-saving information	Implementation of thorough energy management through the use of HEMS and smart meters	Measure evaluation indicator Number of widely-used HEMS	10^4 households	Actual result	21.0	25.2	31.0	37.8	42.1	51.0	62.4	646.8	740.2										D	The measure evaluation indicator, energy saving and emission reduction are on an increasing trend. This is thought to be due to the promotion of energy management of houses through the introduction of HEMS as well as the widespread popularization of ZEH. While a certain level of progress in policies and measures is recognized, the situation remains below the forecast, and further efforts are required to achieve the target. In order to further expand the diffusion of ZEH, home builders, etc., with a goal of increasing the proportion of ZEH to 50% or more of the homes they receive orders for are positioned as "ZEH builders," and the use of ZEH builders is set as a requirement for receiving subsidies to facilitate the revitalization of private companies that possess energy-saving know-how in housing. In FY 2021, a trial operation of the Energy Conservation Communication Ranking System, which evaluates and announces the status of efforts for energy-saving information provision to general consumers by energy retailers, commenced. Through such efforts, etc., energy conservation through thorough energy management in households will be promoted.
				Expected level								984					1688.5					4940.9		
		Measure evaluation indicator Rate of implementation of energy-saving information provision	%	Actual result	0.0	-	-	-	-	-	-	-	17.5										D	
				Expected level													44					80		
		Energy conservation	10^4 kL	Actual result	0.4	0.5	0.7	0.9	1.1	1.4	1.7	20.7	35.7										D	
				Expected level								33					87.4					216.0		
		Emissions reduction	10^4 t-CO_2	Actual result	2.4	3.2	4.1	5.2	5.8	6.8	8.2	98.2	134										D	
				Expected level								202					365.8					569.1		
26.Diffusion of next-generation vehicles, improvement of fuel efficiency, etc.	Diffusion of next-generation vehicles, improvement of fuel efficiency	Measure evaluation indicator The ratio of next-generation vehicles to new vehicle sales	%	Actual result	23.2	25.6	32.3	35.8	36.7	38.4	38.9	41.2	45.8										C	The share of next-generation vehicles to new car sales and average fuel efficiency of owned vehicles, which are measure evaluation indicators, are indicators for passenger cars and will remain proportional to the steady progress of vehicle replacement. Since the introduction of the FY 2030 fuel efficiency standards for passenger cars has been decided, an improvement in fuel efficiency is expected in the future. Energy savings and emission reductions are for all vehicle types, and while passenger cars are making steady progress in saving energy and reducing CO_2 emissions, freight vehicles are not making progress in improving fuel efficiency at this time, so the two together show a downward trend. However, with the strengthening of enforcement to comply with the FY 2022 and FY 2025 fuel efficiency standards for freight vehicles, fuel efficiency will improve in the future, and energy saving and emission reductions are expected to progress toward FY 2030. It is difficult to quantitatively estimate the estimated value of widely-used next-generation vehicles up to FY 2030 because it is susceptible to external factors such as future economic conditions, gasoline prices, subsidies, and environmental regulations. Not only in Japan but also around the world, fuel efficiency regulations are becoming stricter, and electrification targets are being set. Qualitatively, the ratio of next-generation vehicles and average fuel consumption will continue to increase, and the amount of energy conservation and emissions reduction is also expected to increase.
				Expected (Improvement)								50					-					70		
				Expected (Conventional)								20					-					50		
		Measure evaluation indicator Average fuel consumption	km/L	Actual result	14.7	15.3	16.0	16.6	17.2	17.9	18.5	19.2	19.9										C	
				Expected level								18.5					-					24.8		
		Energy conservation	10^4 kL	Actual result	19.9	49.2	85.1	89.7	128.6	165.4	205.1	240.4	296.8										C	
				Expected level								283.4					-					990		
		Emissions reduction	10^4 t-CO_2	Actual result	53.3	131.5	227.5	239.8	343.0	440.8	546.3	640.1	788.9										C	
				Expected level								702.5					-					2674		
27.Road traffic flow measures (promotion of road traffic flow measures, etc.)	Implementation of measures for road traffic flow	Measure evaluation indicator Percentage of highway usage	%	Actual result	Approximately 16	-	Approximately 18	-	-	-	-	-	-										E	The National Road and Street Traffic Survey is a survey conducted once every five years and was scheduled to be conducted in FY2020. However, due to the pandemic of COVID-19, the implementation of the survey was postponed to FY 2021 and actual figures for FY2021 cannot be shown. The results of the survey in FY 2021 are expected to become available at the end of FY 2023.
				Expected level			16					17					-					Approximately 20		
		Energy conservation	10^4 kL	Actual result	-	-	Approximately 37	-	-	-	-	-	-										E	
				Expected level			4					15					-					Approximately 74		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	Approximately 100	-	-	-	-	-	-										E	
				Expected level			10					40					-					Approximately 200		
28.Road traffic flow measures (promotion of the maintenance of LED road lighting)	Promotion of the installation of LED road lighting	Measure evaluation indicator Number of LED road lights on the national roads under the direct control	10^4 units	Actual result	Approximately 7	-	-	-	-	-	-	Approximately 19	Approximately 22										B	
				Expected level													Approximately 20					Approximately 30		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	Approximately 0.5	Approximately 0.9										B	The installation result in FY 2021 is higher than expected, and if this trend continues, it is thought to exceed the target level for FY 2030.
				Expected level													Approximately 0.9					Approximately 1.4		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	Approximately 4	Approximately 6										B	
				Expected level													Approximately 5					Approximately 13		
29.Road traffic flow measures (promotion of Intelligent Transport Systems (ITS) (centralized control of traffic signals))	Promotion of intelligent transport system (ITS) (centralized control of traffic signals)	Measure evaluation indicator Centralized control of traffic signals	Units	Actual result	48800	50800	51000	51200	51400	51500	51700	51800	52100	(52300)	(52400)	(52600)	(52800)						E	The measure evaluation indicator and emission reduction after FY 2022 are calculated based on the Fifth Priority Plan for Infrastructure Development, which covers the plan period from FY 2021 to FY 2025. However, estimates after FY 2026 are not available at this time because they fall outside the plan period of the relevant plan. Centralized control of traffic signals will be continuously promoted mainly in areas where effects are expected.
				Expected level		50000	50600	51200	51700	52300	52800	53400					52700					-		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	133	137	140	140	141	141	142	142	143	(143)	(143)	(144)	(144)						E	
				Expected level		130	130	130	140	140	140	140					144					150		
30.Road traffic flow measures (maintenance of traffic safety facilities (improvement and profile (hybrid) of traffic signals))	Installation of traffic safety facilities (improvement of traffic signals and profiling (hybrid))	Measure evaluation indicator Improvement of traffic signals	Units	Actual result	42000	43800	44500	45100	45700	46200	46800	47300	47800	(48300)	(48800)	(49300)	(49800)						E	Measure evaluation indicators and emission reductions after FY 2022 are calculated based on the Fifth Priority Plan for Infrastructure Development, which covers the plan period from FY 2021 to FY 2025. However, estimates after FY 2026 are not available at this time because they fall outside the plan period of the relevant plan. Improvement of traffic signals will be continuously promoted mainly in areas where effects are expected.
				Expected level		43000	44000	45000	46000	48000	49000	50000					49700					-		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	47	49	50	50	50	50	50	51	51	(51)	(52)	(52)	(53)						E	
				Expected level		49	49	50	50	51	52	52					52					56		
31.Road traffic flow measures (maintenance of traffic safety facilities (promotion of the use of LED lights in signal lights))	Installation of traffic safety facilities (promotion of the installation of LED traffic lights)	Measure evaluation indicator LED signal lights	Lights	Actual result	346800	386600	424600	460800	494100	529700	573500	628000	666900	(699800)	(732700)	(765600)	(798500)	(831300)	(864200)	(897100)	(930000)	(962900)	B	
				Expected level		380000	414000	448000	482000	516000	550000	584000	618000	652000	686000	720000	770900	788000	822000	856000	890000	935400		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	6.5	9.8	10.3	11.0	11.4	11.3	11.7	12.6	13.7	(12.9)	(13.0)	(13.1)	(13.0)	(13.0)	(12.8)	(12.6)	(12.3)	(12.0)	B	
				Expected level		9.9	10.8	11.8	12.7	13.6	14.5	15.5					12.2					11.0		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
32.Road traffic flow measures (promotion of automated driving)	Promotion of automated driving	Measure evaluation indicator Rate of widespread use of ACC/CACC	%	Actual result	1.3	1.9	3.0	5.2	8.2	11.4	15.8	21.7	23.1										C	The measure evaluation indicator, energy saving and emission reduction are expected to follow the logistic curve, and the results up to FY 2021 can be evaluated to be in line with expected. Thus, they are thought to be about the same as the target level by FY 2030. The promotion of demonstration experiments and public relations activities promoted the improvement of autonomous driving technology and the public's understanding of autonomous driving. The rate of widespread use of ACC/CACC, which is a measure evaluation indicator, seems to be growing steadily as the functions and prices that capture consumer needs have been accepted by the market.
				Expected level										27.4			43.3					76		
		Energy conservation	10^4 kL	Actual result	2.1	2.7	3.6	4.8	6.3	8.0	9.7	16.2	17.9										C	
				Expected level										20.8			31.0					62		
		Emissions reduction	10^4 t-CO_2	Actual result	5.6	7.2	9.6	12.9	17.0	21.7	26.2	43.7	48.4										C	
				Expected level										56.1			83.3					168.7		
33.Greening of the vehicle transportation business by promoting the use of environmentally friendly vehicles etc.	Greening of vehicle transportation business by promoting the use of environmentally friendly vehicles etc.	Measure evaluation indicator Number of widely-used eco-driving-related equipment	1,000 units	Actual result	518	520	530	592	665	721	733	731	733										C	The number of eco-driving-related equipment (measure evaluation indicator) is about the same as the forecast for FY2020, and the trend in CO_2 emissions reduction suggests that the introduction of eco-driving-related equipment has resulted in a reduction in CO_2 emissions. It is necessary to continue to make steady progress in policies and measures by disseminating eco-driving.
				Expected level		516	529	542	577	613	604	720	726	733	741	750	761	773	794	816	838	860		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	0	1	4	25	49	67	71	69	69										C	
				Expected level		-1	4	8	20	31	28	66	67	68	70	73	75	78	84	90	96	101		
34.Promotion of the use of public transportation and bicycles (promotion of the use of public transportation)	Promotion of the use of public transportation	Measure evaluation indicator Transfer volume from private traffic	million passenger	Actual result	38	54	111	90	73	60	27.1	-56.2											C	The measure evaluation indicator and emission reduction are linked in the calculation method. Since FY 2016, countermeasures to promote the use of public transportation, such as tax incentives, subsidy projects, and public awareness-raising activities, have been effective to some extent, and the figure has exceeded the expected value in some cases. However, in FY 2019, due to repeated natural disasters and the pandemic of COVID-19 at the end of the fiscal year, the figure was lower than the expected value. In FY 2020, the total volume of transportation by public transportation fell sharply due to restrictions on activities such as self-restraint on going out due to the issuance of the declaration of a state of emergency, etc., and the switch from private vehicles and the reduction of CO_2 emissions were significantly lower than the expected value. On the other hand, in FY 2023, there is a plan to significantly expand various menus for budgets, etc. so as to strongly promote the reconstruction of local public transportation. As a result, it is expected that the switch from private vehicles and CO_2 emission reductions will recover and increase as local public transportation becomes more convenient. In the midst of changes in lifestyles after the COVID-19 pandemic, while focusing on fluctuations in the scale of transportation, efforts will be continuously made to promote the use of public transportation such as improvement of convenience with the development of new lines, etc., and implementation of policies and measures including tax incentives, subsidy projects, and public awareness-raising activities.
				Expected level		32	45	57	68	79	88	97	106	114	122	129	135	141	147	153	158	163		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-											-	
				Expected level									-	-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	24	104	80	56	40	9.8	-68.9											C	
				Expected level		17	33	48	61	67	78	88	98	107	115	123	131	138	144	150	156	162		
	Improving route efficiency through regional public transportation convenience improvement projects	Measure evaluation indicator Number of implementation plans for improving the convenience of local public transportation compiled	Units	Actual result	-	-	-	-	-	-	-	42	47										C	The measure evaluation indicator and emission reduction are linked in the calculation method. With regard to the implementation plan for improving the convenience of local public transportation, an average of about six projects have been approved every year, but as of the end of FY 2021, there were 47 projects. This plan is a specific project plan in accordance with the Act on Revitalization and Rehabilitation of Local Public Transportation Systems partially amended in FY 2020. It is linked to the obligation to make efforts to prepare regional public transportation plans in accordance with the legal amendment. In addition, in FY 2023, various menus for budgets, etc. will be expanded to strongly promote the reconstruction of local public transportation, and the number of drafts and certifications is expected to increase. For this reason, it is expected that the development of plans will be promoted in each region through measures such as support for the development of plans, and it is expected to reach the level equivalent to the target level for FY 2030. * Although the number of certifications was expected to be 48 at the end of FY 2021 initially, the actual figure for the fiscal year concerned was slightly lower. However, the number of certifications in FY 2022 was steady (51 as of the end of December 2022, and several other certifications are expected within the fiscal year).
				Expected level									48	54	60	66	72	78	84	90	96	102		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	0.94	1.05										C	
				Expected level									1.08	1.21	1.35	1.48	1.61	1.75	1.88	2.02	2.15	2.29		
35.Promotion of the use of public transportation and bicycles (promotion of the use of bicycles)	Promotion of the use of bicycles	Measure evaluation indicator Bicycle sharing for commuting purposes	%	Actual result	-	-	15.2	-	-	-	-	-	-										E	The result of the National Urban Traffic Characteristics Survey conducted in 2021 will be published approximately two years after the survey was conducted. It is difficult to assess the survey result at this time due to the inability to acquire the actual values of measure evaluation indicators, etc. In accordance with the Second Bicycle Use Promotion Plan, which was formulated in May 2021, continuous efforts will be made to take measures to promote the use of bicycles, aiming at the achievement of the target level for FY 2030.
				Expected level													18.2					20.0		
		Energy conservation	10^4 kL	Actual result	-	-	0	-	-	-	-	-	-										E	
				Expected level													5					10		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	0	-	-	-	-	-	-										E	
				Expected level													14					28		
36.Decarbonization of the railways	Promotion of decarbonization of railways	Measure evaluation indicator Rate of improvement in energy consumption intensity (FY2013 standard)	-	Actual result	100.0	98.4	96.9	96.8	96.5	96.0	94.8	94.7	92.8										C	Although the rate of improvement in energy consumption intensity has not achieved the expected level, it has improved from the previous fiscal year. The amount of energy saving and CO_2 emissions reduction has already exceeded the target level for FY 2030. Continued support will be given to the introduction of energy saving vehicles and the introduction of energy-saving facilities to railway facilities through subsidy projects and tax exemptions, etc., thereby promoting initiatives to enable railway operators to achieve the reduction target of energy consumption intensity by an average of 1% per year.
				Expected level		99.000	98.010	97.030	96.060	95.099	94.148	93.207	92.274	91.352	90.438	89.534	88.638	87.752	86.875	86.006	85.146	84.294		
		Energy conservation	10^4 kL	Actual result	-	4.9	11.1	19.2	28.9	45.4	69.6	82.0	89.6										A	
				Expected level		4.3	8.7	13.1	17.5	21.9	26.2	30.6	35.0	39.4	43.8	48.2	52.5	56.9	61.3	65.7	70.1	74.5		
		Emissions reduction	10^4 t-CO_2	Actual result	-	17.2	38.7	67.0	100.7	158.3	242.8	286.0	312.7										A	
				Expected level		15.2	30.5	45.8	61.1	76.4	91.7	107.0	122.3	137.6	152.9	168.2	183.5	198.8	214.1	229.4	244.7	260.0		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
37.Decarbonization of the shipping sector	Promotion of energy-saving and CO_2 emission-saving vessels	Measure evaluation indicator Number of widely-used ships that contribute to energy conservation	Ships	Actual result	-	52	121	172	227	271	310	375	429										C	Although actual amount for FY 2021 of the measure evaluation indicator (the number of widely-used ships that contribute to energy conservation) have not achieved the estimated figures, the concept of ships pursuing further energy conservation (collaborative energy-saving ships) was newly announced in FY 2022, such as continued use of the joint construction system of Japan Railway Construction, Transport and Technology Agency and special depreciation system for ships, a project to demonstrate the operational efficiency of coastal ships in collaboration with Ministry of Economy, Trade and Industry (subsidies for further promotion of transportation efficiency using AI, IoT, etc.), support through a project to promote the introduction of LNG fuel systems in cooperation with the Ministry of the Environment, and the dissemination of the energy-saving rating system for coastal ships. Through these efforts, it is expected that more energy-saving and CO_2-saving ships will be widely used. The energy saving and emission reduction in FY 2021 fell below the estimated figures. This is assumed to be due to the fact that energy-saving ships have not been fully promoted while cargo and passenger volumes are recovering significantly from the decrease caused by the COVID-19 pandemic. On the other hand, it will be possible to promote communication between coastal shipping operators and shippers and shipyards regarding the energy-saving effects and costs of collaborative energy-saving ships by utilizing the concept of collaborative energy-saving ships that pursues further energy-saving, which was developed in FY 2022. Through initiatives such as the aforementioned support system, it is expected that the widespread use of energy-saving ships among coastal shipping operators will accelerate in the future. Based on the above, the measure evaluation indicator (the number of widely-used ships that contributes to energy conservation), energy saving and emission reduction are expected to be about the same as the target level by FY 2030.
				Expected level		52	121	172	227	271	310	380	450	520	590	660	730	800	870	940	1010	1080		
		Energy conservation	10^4 kL	Actual result	-	-2.6	9.7	7.8	13.7	14.2	15.5	33.5	15.6										C	
				Expected level		-2.6	9.7	7.8	13.7	14.2	15.5	20	24	27	32	36	40	45	49	53	58	62		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-7.9	28.6	22.4	38.4	41.1	45.8	96.2	46.4										C	
				Expected level		-7.9	28.6	22.4	38.4	41.1	45.8	57	69	80	93	105	118	131	143	156	168	181		
38.Decarbonization of the aviation sector	Promotion of decarbonization of the aviation sector	Measure evaluation indicator CO2 emissions per unit of transportation	kg-CO_2/ton kilometer	Actual result	1.3977	1.3191	1.2713	1.2838	1.2600	1.2685	1.2912	1.7614	1.6399										B	The measure evaluation indicator in FY 2021 decreased from the previous fiscal year. This was due to a recovery in air travel demand from the significant drop in air travel demand caused by the pandemic of COVID-19 in the previous fiscal year, which led to an increase in revenue ton-kilometers, and an increase in fuel consumption and CO_2 emissions due to the increase in flights. On the other hand, the increase in CO_2 emissions was smaller than the increase in revenue ton-kilometers, so it is thought that the intensity of CO_2 emissions decreased. It is difficult to quantitatively indicate the forecast of achieving the target level by 2030 because the outlook for air travel demand is still unclear due to the pandemic of COVID-19. However, it is expected to achieve the target level by FY 2030 through continuous promotion of measures to reduce CO_2 emissions. The actual amount of the emission reduction in FY 2021 decreased from the previous fiscal year. This is thought to be due to an increase in fuel consumption and CO_2 emissions due to a recovery trend of the reduction of flights resulting from the pandemic of COVID-19 compared to the previous fiscal year. It is difficult to quantitatively indicate the forecast of achieving the target level by 2030 because the outlook for air travel demand is still unclear due to the pandemic of COVID-19. However, it is expected to reach the target level by FY 2030 through continuous promotion of measures to reduce CO_2 emissions.
				Expected level		1.3907	1.3838	1.3768	1.3700	1.3631	1.3563	1.2987	1.2851	1.2717	1.2584	1.2453	1.2323	1.2194	1.2067	1.1941	1.1816	1.1693		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	46.8	88.0	80.7	81.6	87.1	97.0	626.1	483.7										B	
				Expected level		5.3	10.7	16.3	22.0	27.7	33.6	81.1	93.2	105.5	117.3	129.1	141.0	152.9	164.8	177.2	189.8	202.4		
39.Improvement of efficiency of truck transportation and promotion of joint transportation and delivery (improvement of efficiency of truck transportation)	Efficiency improvement of truck transportation	Measure evaluation indicator Number of vehicles with a gross vehicle weight of more than 24 tons and less than 25 tons owned	Units	Actual result	182274	188668	197094	208479	219443	231071	243021	251129	257267										C	Among the measure evaluation indicators, the number of vehicles with a gross vehicle weight of over 24t and under 25t increased by about 2% compared to FY 2020 and is about 1% below the expected level for FY 2021. For the number of trailers owned, the numbers are up about 3 % compared to FY 2020 and about 0.5 % below the expected level for FY 2021. The proportion of the number of private and commercial trucks has increased by approximately 0.1% since FY 2020 and is approximately 0.6% above the expected level of FY 2021. Given that demand for private trucks is expected to exist to a certain extent, the proportion of the number of private and commercial trucks is considered to remain unchanged. The emission reductions have increased by about 8% compared to FY 2020 and about 12% above the expected level for FY 2021. The increase is largely due to an increase in the proportion of the number of private and commercial trucks. Continuous efforts will be made to achieve the target by creating a framework, etc. to accelerate environmental measures to be taken by trucking operators, such as through promotion of support for the introduction of large vehicles with high levels of environmental performance.
				Expected level		185520	187722	189207	190206	190875	191322	251379	260025	268968	278219	287788	297686	307924	318514	329469	340801	352522		
		Measure evaluation indicator Number of trailers owned	Units	Actual result	98720	101696	105827	110414	115204	125063	131104	135345	139407										C	
				Expected level		100307	101381	102106	102592	102918	103135	136561	140169	144934	149861	154955	160223	165669	171301	177124	183145	189371		
		Measure evaluation indicator Percentage of business/private use	%	Actual result	86.3	86.3	86.1	86.0	86.6	86.7	87.2	87.6	87.7										C	
				Expected level		87.1	87.1	87.1	87.1	87.1	87.1	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	35	57	90	262	373	536	660	712										B	
				Expected level		168	180	189	194	198	201	586	636	689	743	800	858	918	980	1045	1111	1180		
40.Improvement of efficiency of truck transportation and promotion of joint transportation and delivery (promotion of joint transportation and delivery)	Promotion of joint transportation and delivery	Measure evaluation indicator Rate of increase in the number of joint transportation and delivery initiatives	%	Actual result	100.0	114.3	126.8	144.5	165.9	193.8	202.1	190.3	202.6										C	Against the backdrop of the recent shortage of drivers and the revision, etc. of the Act on Advancement of Integration and Streamlining of Distribution Business, the measure evaluation indicator has reached 202.6%. The amount of emission reduction has also been steadily increasing in recent years, leading to a steady increase overall. Based on these facts, it is judged that the current measures have been effective to a certain extent. Continuous efforts will be made to promote joint transportation and delivery through approval of comprehensive efficiency improvement plans related to joint transportation and delivery in accordance with the Act on Advancement of Integration and Streamlining of Distribution Business, and steady progress in policies and measures such as partial subsidies for planning expenses through subsidies for projects promoting modal shifts, etc.
				Expected level													276					346		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	1.2	1.3	1.5	1.9	1.9	1.9	2.6											C	
				Expected level													2.7					3.3		
		Measure evaluation indicator Result of the re-delivery rate of the survey on the actual situation of re-delivery of the courier service	%	Actual result	-	-	-	-	-	-	-	9.95	11.55										C	The number of couriers increased sharply in FY 2021 compared to the estimated number in FY 2020 (from 4.496 billion to 4.953 billion). In addition, it is thought to be due to a decrease in time spent at home in April of FY 2021 compared to the same month of the previous year, which was affected by the self-restraint on going out, etc. due to the issuance of the nationwide declaration of a state of emergency caused by the COVID-19 pandemic. According to the survey in October, it is thought to be affected by a decrease in time spent at home due to the lifting of the declaration of a state of emergency caused by the COVID-19 pandemic in September of the same year. While continuously monitoring the occurrence of re-deliveries, in cooperation with private businesses and relevant ministries and agencies, continuous efforts will be made to reduce re-deliveries by couriers by promoting measures for the use of courier boxes and the widespread use and promotion of porch delivery, etc.
				Expected level													7.5					7.5		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-5.8										C	
				Expected level													1.7					1.7		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
	Social implementation of drone logistics	Measure evaluation indicator Number of social implementations by local governments	Units	Actual result	-	-	-	-	-	-	-	1	3										C	With regard to the estimated amount of emission reduction, in FY 2020, a regular service was launched in Ina City, Nagano Prefecture based on the calculation method that the amount of CO_2 reduction per project under the FY 2020 subsidy program is 16 tons/year. In FY 2021, a similar service was launched in Kosuge Village, Yamanashi Prefecture and Mitoyo City, Kagawa Prefecture. At present, there are no major fluctuating factors that can affect the forecast, so it is assumed that the social implementation of drone logistics will proceed as predicted. Therefore, at this point, it is expected to be at the same level as the target level.
				Expected level													174					1496		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	0,0016	0,0048										C	
				Expected level													0.5					6.5		
41.Promotion of a modal shift to marine and rail freight transportation (promotion of a modal shift to marine transportation)	Promotion of a modal shift to marine transportation	Measure evaluation indicator Marine cargo transportation volume	Billion ton kilometer	Actual result	330	331	340	358	351	351	358	356	387										B	The measure evaluation indicator for FY 2021 was 38,7 billion ton-kilometers, an increase of 3,1 billion ton-kilometers compared to FY 2020. In FY 2020, the result of emission reduction was 576,000 tons-CO_2, a decrease of 46,000 tons-CO_2 compared to FY 2019. In light of the outlook up to FY 2030, the measure evaluation indicator has generally been on an upward trend since FY 2014, and has increased significantly in FY2021. Thus, it was evaluated to exceed the target level. Since it is expected that the amount of emissions reduction is linked to the measure evaluation indicator in the calculation method, it was evaluated to be about the same as the forecast. In order to create an environment in which ships with high transportation efficiency and environmentally friendly modes of transportation continue to be selected, initiatives for modal shifts will be promoted through approval of comprehensive efficiency improvement plans related to modal shifts in accordance with the Act on Advancement of Integration and Streamlining of Distribution Business, partial subsidies for planning and operating expenses through subsidies for projects promoting modal shifts, promotion of modal shifts and construction of ships that contribute to low environmental loads by utilizing the joint ship construction program by the Japan Railway Construction, Transport and Technology Agency, encouragement through special tax measures, and steady progress in policies and measures such as promotion of the dissemination of the Eco Ship Mark.
				Expected level								367,4					388,9					410,4		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	3.3	22.5	61.5	48.1	51.0	62.2	57.6											C	
				Expected level								85.9					136.9					187.9		
42.Promotion of a modal shift to marine and rail freight transportation (promotion of a modal shift to rail freight transportation)	Promotion of a modal shift to rail freight transportation	Measure evaluation indicator Rail freight transportation volume	Billion ton kilometer	Actual result	193.4	194.5	199.5	196.6	199.8	176.6	183.8	168.4	165.2										D	The measure evaluation indicator for FY 2021 was 16,52 billion ton-kilometers, a decrease of 320 million ton-kilometers compared to FY 2020. In FY 2020, the result of emissions reduction was 435,000 tons-CO_2, a decrease of 284,000 tons-CO_2 compared to FY 2019. Since it is expected that the amount of emission reduction is linked to the measure evaluation indicator in the calculation method, the amount of emission reduction is expected to decrease in FY 2021. Efforts were made to promote a modal shift from trucks by providing support for projects, etc., based on the approved comprehensive efficiency improvement plans, However, the impact of natural disasters and the pandemic of COVID-19, etc, is thought to be a factor in the decline in the measures evaluation index. In light of the outlook up to FY 2030, it is difficult to say that the measures evaluation indicator and the amount of emissions reduction are going steadily, so it was evaluated to fall below the forecast. Initiatives for modal shifts will be continuously promoted through approval of comprehensive efficiency improvement plans related to modal shifts in accordance with the Act on Advancement of Integration and Streamlining of Distribution Business, partial subsidies for planning and operating expenses through subsidies for projects promoting modal shifts, and steady progress in policies and measures such as promotion of the dissemination of the Eco Rail Mark.
				Expected level													208.9					256.4		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	2.8	14.1	9.6	16.8	-31.4	-15.1	-43.5											D	
				Expected level								-47.1					42.4					146.6		
43.Promotion of decarbonization of logistics facilities	Promotion of decarbonization of logistics facilities	Measure evaluation indicator Number of decarbonized logistics facilities	Facility	Actual result	-	-	-	-	-	-	-	2	4										C	It is expected that the target will be achieved by promoting independent dissemination through the horizontal deployment of advanced cases such as the formulation of guidelines, etc. Thus, the progress of the measure evaluation indicator was rated as C. Accordingly, the energy saving and emission reduction were also rated as C.
				Expected level										14	23	35	-	-	-	-	-	200		
		Power reduction	Billion kWh	Actual result	-	-	-	-	-	-	-	0,01	0,02										C	
				Expected level												0.37	-	-	-	-	-	4.4		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	0,05	0,13										C	
				Expected level												1.9	-	-	-	-	-	11.0		
44.Efforts at ports and harbors (reduction of the distance of land transportation of cargo through optimal selection of ports and harbors)	Reduction of the distance of land transportation of cargo through optimal selection of ports and harbors	Measure evaluation indicator Amount of reduction in land transportation of cargo	Billion ton kilometer	Actual result	-	6.3	7.1	9.2	11.1	11.1	11.1	11.1	11.1										C	There is a large difference between the estimated amount of emission reduction and actual result regarding the measure evaluation indicator. However, in the future, the volume of cargo handled at ports and harbors is expected to increase due to the commencement of the use of quay facilities, etc, according to the progress of port and harbor development projects, and land transportation is expected to decrease, leading to an increase in emission reduction.
				Expected level		6	9	10	11	11	11	35	35	35	35	35	35	35	35	35	35	35		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	16.8	19.2	24.9	30.1	30.1	30.1	30.1	30.1										C	
				Expected level		17	25	28	30	30	30	96	96	96	96	96	96	96	96	96	96	96		
	Comprehensive decarbonization of ports and harbors (promotion of introduction of energy-efficient cargo handling machinery, etc.)	Measure evaluation indicator Number of introduced units of energy-saving cargo handling machines, etc.	Units	Actual result	-	22	34	50	63	87	111	111	(149)										C	
				Expected level		22	34	50	63	87	111	130	149	168	187	206	225	244	263	282	301	320		
				Expected level (Reference)		22	34	50	63	87	111	135	159	183	207	231	255	279	303	327	351	375		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	The measure evaluation indicator and emission reduction are linked in the calculation method. With the increase in the introduction of energy-saving cargo handling machines, the result was confirmed to be the same as the forecast for achieving the target level for FY 2030. Measures are expected to progress as a result of an increase in the introduction of energy-saving cargo handling machinery.
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	0.29	0.41	0.57	0.73	1.00	1.26	1.26	(1.69)										C	
				Expected level		0.29	0.41	0.57	0.73	1.00	1.26	1.39	1.51	1.64	1.76	1.89	2.02	2.14	2.27	2.40	2.52	2.65		
				Expected level (Reference)		0.29	0.41	0.57	0.73	1.00	1.26	1.42	1.58	1.74	1.90	2.06	2.22	2.38	2.54	2.69	2.85	3.01		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
45.Efforts at ports and harbors (comprehensive decarbonization at ports and harbors)	Comprehensive decarbonization of ports and harbors (promotion of modal shift and transportation efficiency improvement related to venous logistics)	Measure evaluation indicator Transportation volume of recyclable resources, etc. modally shifted from land transportation to marine transportation	Billion ton kilometer	Actual result	-	0.44	1.00	1.19	1.75	2.45	2.83	3.64	4.07										C	Even after the completion of the project to promote low-carbon venous logistics through a modal shift and improved transportation efficiency, the modal shift to marine transportation progressed, and an increase in the indicator was confirmed. By promoting a modal shift in venous logistics and the improvement of transportation efficiency, efforts will be made to achieve comprehensive low-carbonization at ports and harbors.
				Expected level		0.44	1.00	1.19	1.75	2.45	2.48	2.46	2.65	2.84	3.02	3.21	3.40	3.59	3.78	3.97	4.16	4.35		
				Expected level*Preference		0.44	1.00	1.19	1.75	2.45	2.48	2.46	3.40	3.97	4.54	5.10	5.67	6.24	6.80	7.37	7.94	8.51		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	0.55	1.22	1.48	2.21	3.14	3.6	4.65	5.22										C	
				Expected level		0.55	1.78	3.25	5.46	8.60	11.7	12.0	12.3	12.5	12.8	13.0	13.3	13.5	13.8	14.0	14.3	14.5		
				Expected level*Preference		0.55	1.78	3.25	5.46	8.60	11.7	12.5	13.3	14.0	14.8	15.5	16.3	17.1	17.8	18.6	19.3	20.1		
46.Utilization of the Special Zones for Structural Reform system related to global warming countermeasures	Utilization of the Special Zones for Structural Reform system related to global warming countermeasures	Measure evaluation indicator Number of cases of approved plans for the relevant special districts	Cases	Actual result	2	2	2	2	2	3	3	3	3										C	The measure evaluation indicator is progressing as expected. On the other hand, the amount of CO_2 emission reduction cannot be indicated because it is difficult for local governments that have been approved by the Structural Special District Plan to accurately grasp the situation in each fiscal year. Continuous efforts will be made to utilize the structural reform special district system, which contributes to global warming countermeasures, by promoting these projects and establishing new special measures for regulations.
				Expected level		2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	-										E	
				Expected level		5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3		
47.Reduction of CO_2 emission intensity in power sectors	Improving efficiency of thermal power generation	Measure evaluation indicator CO_2 reduction by utilizing BAT	10^4 t-CO_2	Actual result	-	420	450	620	670	850	930	1060	970										C	For the improving efficiency of thermal power generation, it is necessary to replace old thermal power generation facilities with high-efficiency facilities or to introduce high-efficiency facilities when a thermal power generation plant is newly built. These lead-times are not continuous since their period and timing vary depending on businesses in light of a stable supply of electricity and the understanding of the local people. Therefore, it is difficult to appropriately evaluate the probability of achieving the target level based on single-year figures alone. However, since the single-year progress toward the target for FY 2020 based on the voluntary framework of the electric power sector has reached 80%, it can be evaluated that the measure is on track. Since it is necessary to make continuous improvements in the future, efforts will be made to continue to replace aging thermal power plants and introduce highly efficient facilities when installing new plants. At the same time, efforts will be made to maintain and improve thermal efficiency by thoroughly maintaining and managing existing facilities appropriately so that thermal efficiency can be maintained as high as possible.
				Expected level													-				1100		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	420	450	620	670	850	930	1060	970										C	
				Expected level													-				1100		
	Improving efficiency of thermal power generation, utilization of nuclear power generation that has been confirmed safe, maximum introduction of renewable energy	Measure evaluation indicator CO_2 emission factor of the electric power industry	kg-CO_2/kWh	Actual result	0.57	0.55	0.53	0.52	0.50	0.46	0.44	0.44	0.44										C	For the improving efficiency of thermal power generation, it is necessary to replace old thermal power generation facilities with high-efficiency facilities or to introduce high-efficiency facilities when a thermal power generation plant is newly built. These lead-times are not continuous since their period and timing vary depending on businesses in light of a stable supply of electricity and the understanding of the local people. Furthermore, the operational status of nuclear power plants is determined not only by the physical status of the reactors, but also by multiple factors, such as the status of conformity assessments by the Nuclear Regulation Authority and the understanding of the municipalities where nuclear power plants are located and other relevant parties. Therefore, it is difficult to appropriately evaluate the probability of achieving the target level based on single-year figures alone. However, since both the CO_2 emission factor and CO_2 emissions have decreased compared to FY 2013, which is the base year for the evaluation of the plan, it can be evaluated that the measure is on track. In order to continue to ensure the effectiveness of initiatives to achieve the target of the voluntary framework in the electric power industry, policy measures will be taken continuously in accordance with the Energy Conservation Act and the Energy Supply Structure Advancement Act. At the same time, the safety of nuclear power plants is left to the expert judgment of the Nuclear Regulation Authority under the premise that safety is the top priority of all circumstances and that all efforts are made to address public concerns. If the Nuclear Regulation Authority determines that the safety of nuclear power plants conforms to the strictest regulatory standards in the world, the nuclear power plants will be restarted based on the respect for the decision. At that time, the national government will take the lead and work to obtain the understanding and cooperation of the municipalities where nuclear power plants are located and other relevant parties. In addition, in the Tomakomai CCS large-scale demonstration, which was conducted with the aim of commercializing CCS technology in around 2020, the target of 300,000 tons of subsea storage was achieved in FY 2019. As a result, operation and storage technology was acquired, and CCS was confirmed to be a safe system. In the future, while aiming for commercialization of CCS in 2030, surveys of suitable storage sites, etc., which are the prerequisites for the introduction of CCS, will be conducted. * Regarding the maximum introduction of renewable energy, refer to the progress status of the measure titled, "48. Maximum introduction of renewable energy."
				Expected level													-				0.25		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level										-	-	-	-	-	-	-	-	-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	400	2900	4100	5400	8800	11200	11600	11700										C	
				Expected level													-				32900		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
48.Maximum introduction of renewable energy	Expansion of use of renewable electricity	Measure evaluation indicator Amount of electricity generated	Billion kWh	Actual result	1179	1326	1486	1536	1696	1773	1852	1983	2093										C	As a result of the launch of the feed-in tariff (FIT) scheme in July 2012 based on the Act on Special Measures concerning the Procurement of Renewable Electricity by Electric Utilities, the amount of renewable energy introduced has expanded significantly compared to that before the start of the FIT. Steady progress is expected to be made toward achieving the target by continuing to promote efforts to expand the use of renewable electricity while curbing the burden on the public and coexisting in harmony with local communities. Since the energy mix does not specify a target for each fiscal year, it is difficult to properly evaluate the achievement of the target only by the single-year figure. However, as a result of the launch of the FIT scheme in July 2012, based on the Act above, the amount of renewable energy introduced has expanded significantly compared to that before the start of the FIT. Although it is difficult to predict the future growth of renewable energy introduction, the amount of electricity generated and emission reductions, which are the measure evaluation indicators, are 209.3 TWh and 136 Mt-CO_2, respectively, in FY 2021. Based on the trend of the certified amount under the Act on Special Measures concerning the Procurement of Renewable Electricity by Electric Utilities, at this point, it is evaluated that the measure is rated as C. Continued initiatives will be taken to expand the use of renewable energy electricity while curbing the burden on the public and coexisting with the local community. * While taking into consideration the energy mix, etc. stated in the 6th Strategic Energy Plan, the maximum introduction and expansion of renewable energy will be promoted.
				Expected level (previous)													*					Approximately 3530		
				Expected level (current)													*					Approximately 3360		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level (previous)																				
				Expected level (current)																				
		Emissions reductions	10^4 t-CO_2	Actual result	7662	8616	9660	9984	11026	11524	12036	12900	13605										C	* While taking into consideration the energy mix, etc. stated in the 6th Strategic Energy Plan, the maximum introduction and expansion of renewable energy will be promoted.
				Expected level (previous)													*					Approximately 21180		
				Expected level (current)													*					Approximately 20160		
	Expansion of use of renewable heat	Measure evaluation indicator Amount of heat supply (crude oil equivalent)	10^4 kL	Actual result	1104	1124	1126	1125	1160	1142	1156	1175	1071										C	Since the energy mix does not specify a target for each fiscal year, it is difficult to properly evaluate the achievement status of the target only by the single-year figure. The amount of heat supply, which are measure evaluation indicators from FY 2013 to FY 2020, and emission reduction are generally flat. By promoting measures through technological development aimed at reducing costs, it is expected to make steady progress toward achieving the target in the future. Although it is difficult to predict the future heat supply and emission reductions, the heat supply and emission reductions, which are the measure evaluation indicators, are 10,710,000 kL and 28.92 million tons-CO_2 in FY 2021, respectively, and assuming that they will continue linearly until FY 2030, it is evaluated that the measure is ranked as C at this time. Measures will be continued to be promoted through support for the introduction of renewable energy heat utilization facilities and technological development aimed at reducing costs, etc. * The expansion of the introduction of renewable energy heat will be promoted while taking into account the biofuel supply target, etc. under the Act on the Rational Use of Energy.
				Expected level													*					1341		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level																				
		Emissions reductions	10^4 t-CO_2	Actual result	2980	3035	3039	3037	3131	3084	3132	3187	2892										C	
				Expected level													*					3618		
49.Promotion the introduction of facilities and equipment with high energy-saving performance (petroleum product manufacturing sector)	Effective use of heat, introduction of advanced control and high-efficiency equipment, improvement of power system operations, and large-scale improvements and upgrades of processes	Measure evaluation indicator Prospect of introduction and widespread use	%	Actual result	31.3	39.1	49.0	55.1	65.5	69.0	69.9	65.4	71.2										C	The progress rate* in FY 2021 was 71% compared with the measure evaluation indicator, projected 1 million kL of crude oil equivalent in FY 2030. * Progress rate (%) = actual result for the current fiscal year/forecast for FY 2030 In FY 2021, the balance between COVID-19 infection countermeasures and economic activities has progressed, and the national demand for fuel oil has increased (recovered) compared to FY 2020, and the operation rate of refineries has risen. As a result, the amount of energy saved by the energy-saving facilities introduced in previous fiscal year has recovered (increased). In addition, the energy-saving measures newly introduced in FY 2021 led to an increase in the amount of energy saving by 53,000 kL equivalent to crude oil compared to FY 2020. Although it is difficult to make a detailed evaluation because estimates for FY 2022 and beyond cannot be provided, it is thought that the level will be equivalent to the 2030 target level at this time because each company will continue to work on energy-saving measures. However, it is always necessary to pay attention to the possibility that if facilities for which energy-saving measures have been taken are disposed of or shut down as a result of the closure or downsizing of refineries due to a structural decrease in domestic fuel oil demand, the amount of energy reduction of the facilities will decrease, and the progress rate will decrease.
				Expected level													76.5					100		
		Energy conservation	10^4 kL	Actual result	3.2	11.8	20.6	27.7	37.3	42.1	43.1	41.7	47.1										C	
				Expected level													52.3					75.8		
		Emissions reduction	10^4 t-CO_2	Actual result	7.5	30.0	52.9	72.1	97.9	109.6	114.1	112.8	127.2										C	
				Expected level													141.2					204.7		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
50.Expansion of the use of blended cement	Expansion of the use of blended cement	Measure evaluation indicator Mixed cement production/total cement production	%	Actual result	22.1	20.1	19.2	19.0	18.1	19.5	19.2	19.4	18.7										D	Unlike ordinary portland cement, which is widely used in general, blended cement has disadvantages of slow initial strength development and increased occurrence of cracks depending on conditions. Because of these characteristics of blended cement, it takes longer than ordinary Portland cement to reach the desired strength after construction, and the main applications in Japan are public works projects for bridges, dams, and harbors that do not require early strength. Therefore, the demand for blended cement is highly dependent on the volume of public works projects. The procurement rate of blended cement in public works projects by the national government has already achieved an extremely high-level thanks to the Act on Green Purchasing. For example, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), which procures the largest amount of cement, has procured 99.8% (FY 2019 data published by the MLIT). Further promotion of its use in private-sector construction is needed, but there are issues of prolonged curing periods, increased cracking, and restrictions on raw material procurement and distribution. The ratio of official demand and domestic sales volume in FY 2013, which is the base year, was 51.7% and 47 million tons, 51.7% and 45 million tons in FY 2014, 51.2% and 42.3 million tons in FY 2015, 50.5% and 41.5 million tons in FY 2016, 49.5% and 41.7 million tons in FY 2017, 47.3% and 42.5 million tons in FY 2018, 47.7% and 40.95 million tons in FY 2019, 48.0% and 38.88 million tons in FY 2020, 46.7% and 37.87 million tons in FY 2021 (Cement Handbook FY 2022 Version). Since the use of blended cement is overwhelmingly driven by public demand, the drop in public demand is thought to be one of the main reasons for the negative progress. With regard to the promotion of the use of mixed cement in private demand, while improving the environment to promote the use of mixed cement such as stipulating "pouring concrete with a small amount of Portland cement" in the methodologies under the J-Credit Scheme, which lists the "use of blast furnace cement or fly ash cement" as one of the selective items in the certification standards for low-carbon buildings in accordance with the Act on Promotion of Low-Carbonization of Urban Cities, the dissemination and public awareness-raising of mixed cement is carried out using the website of examples of use of mixed cement related to the widespread use and expansion measures of mixed cement. In addition, voluntary initiatives to promote the dissemination and awareness-raising of the use of mixed cement are being made by relevant academic societies and relevant industries, etc., such as the preparation of technical materials including guidelines, and the creation of pamphlets, leading to widespread use of mixed cement. In particular, since FY2018, the Architectural Institute of Japan has started an additional study of "environmental friendliness," which is highly evaluated for the use of mixed cement, in the revision of the Standard Specification for Construction Work from FY 2021 to FY 2022. A study on the formulation of guidelines for concrete using fly ash has also begun. As domestic demand shrinks, exports tend to increase. However, in this case, mixed cement will be exported as clinker. Thus, it is also necessary to pay attention to the fact that it will cause a decline in the measure evaluation index during the export expansion phase based on the current evaluation method including the export portion in total cement production.
				Expected level													-				25.7		
		Emissions reduction	10^4 t-CO_2	Actual result	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										D	
				Expected level													-				36.8		
51.Diffusion of biomass plastics	Diffusion of biomass plastics	Measure evaluation indicator Domestic shipments of biomass plastics	10^4 t	Actual result	5	5	4	6	6	6	6	10											D	Because biomass plastics are more expensive than petroleum-derived plastics, and their supply volume is not keeping up with potential demand, both domestic shipments and emission reduction are currently lower than expected at this point. However, the introduction of biomass plastic shopping bags is accelerating along with the exclusion of biomass plastic shopping bags under the system of charging plastic shopping bags that started in July 2020. The widespread use of biomass plastics will be further promoted in accordance with the Biomass Plastic Introduction Roadmap formulated in January 2021 and the Act on Promotion of Resource Circulation for Plastics enforced in April 2022.
				Expected level		8	20	32	43	55	67	79	91	102	114	126	138	150	161	173	185	197		
		Emissions reduction	10^4 t-CO_2	Actual result		-0.8	-0.7	0.5	0.8	0.7	0.9	4.5											D	
				Expected level			12	23	35	47	58	72	86	99	113	127	141	154	168	182	195	209		
52.Reduction of waste incineration	Promotion of recycling of waste plastics	Measure evaluation indicator Amount of plastic waste incinerated (dry base)	10^4 t	Actual result	515	471	462	440	403	403	395	372	365										C	As a result of the progress of efforts to reduce the amount of waste incineration, the amount of plastic incineration, which is a measure evaluation indicator, has decreased from 5.15 million tons (confirmed figure in FY2013) to 3.65 million tons (confirmed figure in FY 2021), and the amount of the emission reduction has been reduced to 4.15 million tons-CO_2 (FY 2021). It is expected that both the measure evaluation indicator and emission reduction will be making steady progress. Continuous efforts will be made to reduce the amount of plastic incineration through the promotion of charges for waste, etc., promotion of sorted collection of plastic containers and packaging, etc., and through the collection of product plastics, which will be expanded under the Plastic Resource Recycling Promotion Law enforced in April 2022.
				Expected level										364	353	341	331	320	310	299	289	278		
		Emissions reduction	10^4 t-CO_2	Actual result	0	119	143	203	221	302	324	387	415										C	
				Expected level										409	439	469	498	527	555	583	612	640		
	Promotion of recycling of waste oil	Measure evaluation indicator Amount of material recycled from waste solvents	kt	Actual result	490	514	514	490	514	522	506	487	536										C	The amount of material recycled from waste solvents in FY 2021 has started to increase. In order to achieve the target level for FY 2030, it is necessary to further strengthen efforts. In FY 2022, the Development of Waste Oil Recycling Process and CO_2 Reduction Demonstration Project was added to the target projects of the Demonstration Project for the Construction of Resource Recycling Systems Such as Plastics to Support a Decarbonized Society, and material recycling of solvents will be continued to be promoted.
				Expected level										560	580	599	619	638	658	677	696	716		
		Emissions reduction	10^4 t-CO_2	Actual result	0	7	7	0	7	10	5	-1	14										C	
				Expected level										22	28	34	40	46	52	58	64	70		
53.Measures to reduce greenhouse gas emissions related to agricultural soil (reduction of methane emissions in paddy fields)	Measure to reduce GHG emissions in agricultural soils (CH4 emission reduction from rice cultivation)	Measure evaluation indicator [Reference indicator] Rate of widespread use of the extension of the mid-drying period	%	Actual result	-	-	-	-	-	-	-	0.9	1.0										D	The rate of widespread use of the extension of the mid-season drainage period and the reduction of methane emissions from paddy fields are currently below the target level. In order to achieve the target level in FY 2030, it is necessary to further expand efforts that contribute to the reduction of methane emissions from paddy fields, such as extending the mid-season drainage period, while also promoting the use of the J-Credit Scheme, which has been newly targeted.
				Expected level										-	-	-	-	-	-	-	-	30		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-2	14	-5	0	8	15	12	14										D	
				Expected level										-	-	-	-	-	-	-	-	104		
54.Reduction of final waste disposal	Reduction of final waste disposal	Measure evaluation indicator Final disposal amount of organic municipal waste (based on dry weight)	1,000 t	Actual result	325	238	189	170	138	147	99	87											C	As a result of progress in efforts to reduce the amount of final waste disposal by reducing the amount of waste generated, etc., the amount of final waste disposal of organic waste, which is a measure evaluation indicator, has decreased from 325,000 tons (the confirmed figure in FY 2013) to 87,000 tons (in FY 2020), and the amount of emission reduction was 191,000 tons-CO_2. The measure evaluation indicator and emission reduction are generally progressing steadily. In order to achieve the final waste disposal reduction target stated in the Basic Policy for Comprehensive and Systematic Promotion of Measures on Waste Reduction and Other Proper Waste Management, continuous efforts will be made to reduce the final waste disposal volume by reducing the amount of waste generated by promoting charges for waste, etc.
				Expected level		300	266	233	200	166	135	105	75	47	28	24	20	18	16	14	12	10		
		Emissions reduction	10^4 t-CO_2	Actual result	-	0.6	2.8	5.8	9.1	12.7	15.5	19.1											C	
				Expected level		0.0	1.7	4.0	6.9	10	14	18	22	26	31	35	39	42	45	48	50	52		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
55.Adoption of semi-aerobic landfill structures in final waste disposal sites	Adoption of semi-aerobic landfill structures in municipal waste disposal sites	Measure evaluation indicator Percentage of quasi-aerobic landfill disposal volume	%	Actual result	60	72	71	71	65	69	68.2	68.2											C	Global warming countermeasures in municipal waste treatment have been promoted. With regard to the measure evaluation indicator, etc., the percentage of quasi-aerobic landfill disposal volume at final municipal waste disposal sites increased from 60% (in FY 2013) to 71% (in FY 2016), and the amount of final disposal at quasi-aerobic final waste disposal sites progressed, and has remained around 65 to 70% thereafter. The amount of emission reduction was 7,000 tons-CO_2 (FY 2020), which is generally steady. Efforts will be made to increase the percentage of quasi-aerobic landfill disposal volume at final municipal waste disposal sites from now on.
				Expected level		62	64	66	67	69	71	73	73	74	74	75	75	75	76	76	77	77		
		Emissions reduction	10^4 t-CO_2	Actual result	-	0.0	0.3	0.5	0.6	0.6	0.7	0.7											C	
				Expected level		0.0	0.1	0.3	0.6	0.9	1.3	1.8	2.3	2.7	3.1	3.5	3.9	4.2	4.6	4.9	5.1	5.4		
	Adoption of semi-aerobic landfill structures in industrial waste disposal sites	Measure evaluation indicator Percentage of quasi-aerobic landfill disposal volume at final industrial waste disposal sites	%	Actual result	70	65	62	67	71	76	76	76											D	The percentage of quasi-aerobic landfill disposal volume at final industrial waste disposal sites, which is a measure evaluation indicator, increased from 70% (in FY 2013) to 75.7% (in FY 2016), and the amount of emission reduction was 1,000 tons-CO_2. Continuous efforts will be made to thoroughly establish and maintain facilities based on technical standards for final industrial waste disposal sites, and quasi-aerobic landfills will be publicized.
				Expected level								72					74					76		
		Emissions reduction	10^4 t-CO_2	Actual result	-	0	-0.1	-0.3	-0.3	-0.2	-0.1	0.1											D	
				Expected level								0.1					0.2					0.4		
56.Measures to reduce greenhouse gas emissions related to agricultural soil (reduction of nitric oxide associated with fertilization)	N2O emission reduction associated with fertilizer application	Measure evaluation indicator Demand for chemical fertilizers	1,000 tons N	Actual result	410	395	372	380	436	432	398	390	417										C	The measure evaluation indicator (demand for chemical fertilizers) in FY 2021 was 417,000 t-N, 18,000 t-N more than the expected reduction in FY 2021 (399,000 t-N). In FY 2021, the result of emissions reduction was 83,000 tons-CO_2, which was 169,000 tons-CO_2 down from 86,000 tons-CO_2, which was set as the reduction estimate, thereby failing to reach the forecast level. It is necessary to further reduce the amount of fertilizer applied by introducing and practicing fertilizer reduction technology using local fertilizer application technology and sensing data, and promoting appropriate fertilizer application based on soil diagnosis.
				Expected level		407	405	402	399	400	402	403	399	394	390	385	380	376	371	367	362	358		
		Emissions reduction	10^4 t-CO_2	Actual result	-	5.1	12.3	9.3	-9.2	-9.5	-0.4	1.0	-8.3										D	
				Expected level		1.5	3.1	4.7	6.3	6.6	6.9	7	8.6	10.3	12.1	13.9	16	17.4	19.2	20.9	22.7	24		
57.Advancement of incineration at sewage sludge incineration facilities	Advancement of incineration at sewage sludge incineration facilities	Measure evaluation indicator High temperature incineration rate	%	Actual result	63	67	57	69	62	57	73	77											C	The number of new type furnaces and solid fuel conversion furnaces installed has been spreading earlier than expected in 2016, and the result has exceeded the target. Furthermore, in FY 2022, the Sewerage Decarbonization Promotion Project was established as an individual subsidy, and intensive support has been started for advanced energy creation projects and nitric oxide (N_2O) countermeasures projects that contribute to the reduction of greenhouse gases. In the future, the introduction of a solid fuel conversion facility and a new type furnace is expected in line with the renovation and renewal of facilities. Regarding the advancement rate of sewage sludge incineration, measures were further strengthened by making efforts mandatory in the revision of the Sewerage Act in 2015, requiring the introduction of N_2O emissions reduction technology to become eligible for subsidies in the installation and renewal of sewage sludge incineration facilities in FY 2017, and adding items related to new type of furnaces to reduce N_2O emissions in the planning, design guidelines and explanations for sewage facilities in 2019. Steady efforts will be made while following up on the status of incineration. As a result of the above initiatives, the amount of emissions reduction is expected to increase.
				Expected level		66	70	73	76	80	83	84	85	86	87	88	90	92	94	96	98	100		
		Measure evaluation indicator Number of new type furnaces and solid fuel conversion furnaces installed	Unit/year	Actual result	-	4	7	3	4	2	2	4											C	
				Expected level		2.0	2.0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
		Emissions reduction	10^4 t-CO_2	Actual result	-	10	4	14.5	3.5	2	25	33											C	
				Expected level		9	15	23	30	37	44	48	51	53	57	59	63	66	70	72	76	78		
	Promotion of non-fluorocarbons and low GWP products in gas and manufacturing sector	Measure evaluation indicator Rate of introduction and widespread use of fluorocarbon-free and low GWP designated products	%	Actual result	7	33	46	50	53	57	69	80	85										C	Regarding the measure evaluation indicator (Percentage of non-fluorocarbon and low-GWP designated products installed and diffused), steady progress is expected because the Fluorocarbon Emissions Control Act designates average GWP values targets for individual products to achieve by specific years that are to be used as the criteria for the production of designated products and imposes on manufacturers the obligation to make efforts to reduce the environmental impact of fluorocarbons based on these criteria, although the progress may be affected by external factors such as economic fluctuations. Ministry of Economy, Trade and Industry will follow up on the status of initiatives every year in the Industrial Structure Council, aiming at achieving the targets while providing guidance, etc. as necessary. Regarding the measure evaluation indicator (Cumulative number of equipment using natural refrigerants installed), the FY 2020 target was achieved ahead of schedule due to direct and ripple effects from the introduction assistance program. Regarding the emission reductions, steady progress is expected toward the target for FY 2030 because the Fluorocarbon Emissions Control Act designates average GWP values targets for individual products to achieve by specific years that are to be used as the criteria for the production of designated products and imposes on manufacturers the obligation to make efforts to reduce the environmental impact of fluorocarbons based on these criteria, and non-fluorocarbon and low-GWP designated products will be introduced and diffused, although the progress may be affected by external factors such as economic fluctuations. Thus, it is expected to make steady progress toward the target for FY 2030.
				Expected level								85					95					100		
		Measure evaluation indicator Cumulative number of natural refrigerant equipment introduced	1,000 cases	Actual result	-	4.5	9.8	15.2	16.4	47.1	53.9	57.8	68.5										B	
				Expected level								31					190					370		
		Emissions reduction	10^4 t-CO_2	Actual result	-	14.8	14.1	54.7	55.1	131.7	175.5	305.9	454.8										C	
				Expected level								350					891					1463		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
58.Fluorinated Gases: (HFCs, PFCs, SF6, NF3)	Preventing leakage of fluorocarbons from the use of refrigeration and air-conditioning equipment for business use	Measure evaluation indicator Reduction rate of leakage rate when using equipment 7.5 kW or more	%	Actual result	-	-	-	-	-	-	-	-	-										E	The survey on the leakage rate at the time of use is ongoing, and the actual situation will be grasped after the completion. In addition, a system for reporting and publishing the leakage amount of fluorocarbons calculation was started in FY 2015. Reports were received from businesses that have leaked more than a certain level of fluorocarbons, and the aggregation results were announced. The amount of leakage in FY 2015 was 2.36 million tons-CO_2, the amount of leakage in FY 2016 was 2.2 million tons-CO_2, the amount of leakage in FY 2017 was approximately 2.29 million tons-CO_2, the amount of leakage in FY 2018 was 2.36 million tons-CO_2, the amount of leakage in FY 2019 was 2.29 million tons-CO_2, and the amount of leakage in FY 2020 was approximately 2.2 million tons-CO_2.
				Expected level								27					54					83		
		Measure evaluation indicator Reduction rate of leakage rate when using equipment less than 7.5 kW (separate SC)	%	Actual result	-	-	-	-	-	-	-	-	-										E	
				Expected level								16					32					50		
		Measure evaluation indicator Reduction rate of leakage rate when using equipment less than 7.5 kW (other than separate SC)	%	Actual result	-	-	-	-	-	-	-	-	-										E	
				Expected level								3					6					10		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-										E	
				Expected level								650					1330					2150		
	Recovery of fluorocarbons from commercial refrigeration and air-conditioning equipment waste	Measure evaluation indicator Recovery rate of HFC during disposal	%	Actual result	34	32	38	39	38	39	38	41	40										D	In order to improve the sluggish recovery rate of fluorocarbons from refrigeration and air-conditioning equipment in commercial sector at the time of disposal, the Fluorocarbons Emission Control Act was revised in 2019 and came into effect in April 2020. The revised Act establishes a framework that will prevent uncollected fluorocarbons through mutual cooperation among related businesses through the introduction of direct penalties for violating the obligation to deliver fluorocarbons to equipment users at the time of disposal, and that will ensure the recovery of fluorocarbons at the time of equipment disposal, thereby improving the effectiveness of guidance and supervision by prefectures. The collection rate at the time of disposal was about 40% in FY 2021.
				Expected level								50					60					75		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-1.9	-32.7	-28.8	1.2	3.2	-5.4	-20.8	-39.5										D	In addition, in FY 2021, the roles of related parties under the revised Fluorocarbons Emission Control Act were publicized through briefings for users of commercial refrigeration and air-conditioning equipment in commercial sector and briefings for building demolition companies and waste and recycling companies. Furthermore, in order to improve the recovery rate at the time of disposal, in addition to increasing the number of equipment recovered, it is important to take measures to prevent fluorocarbons left behind in the equipment collection process. Thus, a demonstration test of recovery technology was conducted using an actual facilities (multi air conditioner for buildings). In FY 2022, these outcomes will be summarized as a guidebook, which is scheduled to be disseminated. While raising awareness of the revised Act, necessary support will be provided to prefectures in order to improve the recovery rate at the time of disposal.
				Expected level								790					1350					1690		
	Recovery and proper processing of fluorocarbons from the disposal of household air conditioners	Measure evaluation indicator Reduction of discarded household air conditioners that are not properly disposed of	10^4 units	Actual result	-	-	-	-	-	-	0	-25											D	The reason why the number of discarded household air conditioners that are not properly disposed of fell below the target level was that the number of discarded household air conditioners collected by waste collectors in FY 2020 increased from 1.05 million units in FY 2019 to 1.83 million units. On the other hand, the number of units handed over to home appliance recycling routes from retailers, moving companies, construction demolition companies, and local governments has increased from 3,515 million units in FY 2019 to 3,776 million units. In view of the fact, the recovery of air conditioners is evaluated to have progressed to a certain extent. To further improve the collection of air conditioners to appropriate routes, the Report on Evaluation and Study of the Implementation Status of the Home Appliance Recycling System compiled in June 2022 states that in order to improve the collection rate of air conditioners, it is necessary to eliminate inappropriate collection and disposal by illegal collectors and yard collectors. Based on this, a study group was established in 2022 to identify and sequentially introduce measures to strengthen countermeasures for illegal collectors and awareness-raising among consumers in cooperation with local governments.
				Expected level								14	28	42	56	70	84	98	112	127	142	156		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	0	-15											D	
				Expected level								10	21	31	41	51	62	72	82	92	103	113		
	Promotion of voluntary initiatives by industry	Measure evaluation indicator Number of organizations that achieved the target	%	Actual result	100	100	100	64	64	64	64	71	71										C	Based on the voluntary action plan prepared by each industry association, efforts are being made to achieve the reduction target for FY 2030. Ministry of Economy, Trade and Industry will follow up every fiscal year in the Working Group on Fluorocarbons Countermeasures of the Industrial Structure Council so that each organization can achieve the reduction target, leading to the achievement of the reduction target in the future. With regard to the measure evaluation indicator (the number of organizations that achieved the target), based on the voluntary action plan prepared by each organization, efforts are being made to achieve the reduction target for FY 2030.
				Expected level								100					100					100		
		Emissions reductions	10^4 t-CO_2	Actual result	-	24.4	17.9	19.3	22.1	22.3	22.1	20.6	23.6										C	The actual value for FY 2021 were the same as the previous fiscal year, but are expected to gradually change up to FY 2030. Until FY 2015, the calculation was based on the assumption that each organization had achieved its target based on the voluntary action plan. Since FY 2016, the calculation has been based on the results submitted by each organization, so the results have been lower. The amount of emissions reduction is expected to be gradually advanced toward the FY 2030 target, although there is a possibility that it will be affected by external factors such as changes in demand for the four gases including HFCs due to economic fluctuations and the operating status of facilities. Ministry of Economy, Trade and Industry will continue to follow up every fiscal year in the Working Group on Fluorocarbons Countermeasures of the Industrial Structure Council so that each organization can achieve the reduction target.
				Expected level								55					88					122		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
59.Policies and measures for forest removals	Policies and measures for forest removals	Measure evaluation indicator Area of forest management practices	10^4 ha	Actual result	83	77	70	61	58	54	53	53	54										C	The measure evaluation indicator (the area of forest management practices, such as thinning and reforestation) has been below the target due to the following factors: (i) There are forests that are not managed due to a decrease in the motivation of forest owners, etc.; (ii) There are cases where reforestation after final cutting is not carried out due to issues such as the profitability of forestry; (iii) Although efforts have been made to secure the national budget for forest maintenance, there have been issues related to project promotion such as increasing costs due to the inner location of the work site and the increase in the unit price of labor costs, etc. Thus, the budget was not sufficient for the area of forest management practices. For this reason, efforts are being made to aim at achieving the target level of measure evaluation indicator for FY 2030 through the following measures: (i) With regard to forests that have not been adequately maintained by owners, etc., the management of the forest will be consolidated or integrated through the forest management system, and forest improvement will be promoted while utilizing the forest environment transfer tax; (ii) Based on the Basic Plan for Forests and Forestry, efforts will be made to realize a "new forestry" that turns the balance from logging to reforestation to shift to a positive stance through the development of forestry innovation utilizing elite trees and ICT, etc.; (iii) While working to secure the budget necessary for the implementation of thinning and reforestation, efforts will be made to reduce the cost of forest maintenance, such as by strengthening support for labor-saving and cost-saving operations (reduction in the number of plants and the number of times to cut underneath). By collecting and evaluating information on the progress of prefectures, etc., the dissemination of advanced cases will be promoted horizontally. In addition to steadily implementing forest maintenance through these initiatives, efforts will be made to promote the use of domestically produced timber in view of the Urban (Town) Wood Construction Promotion Act enacted in October 2021, and expand the carbon storage amount of harvested wood products (HWPs), which are included in forest absorption. By doing so, it is thought that the target level for forest absorption will be achieved by FY 2030. The amount of forest absorption (42.6 million tons-CO_2) in FY2021 increased from the amount of forest absorption (41.54 million tons-CO_2) in FY 2020.
				Expected level		81	81	81	81	81	81	81	70	70	70	70	70	70	70	70	70	70		
		Absorption	10^4 t-CO_2	Actual result	5172	5533	5164	4954	4943	4819	4409	4154	4260										C	
				Expected level								3800					-				Approximately 38			
60.Policies and measures to increase carbon removals in agricultural soils	Policies and measures to increase carbon removals in agricultural soils	Measure evaluation indicator Soil carbon storage amount (mineral soil)	10^4 t-CO_2	Actual result	145	13	95	149	246	331	250	271	329										C	Since FY 2013, although there have been increases and decreases in the soil carbon removal amount due to changes in weather conditions such as temperature, it has remained at a level below the target level. If the upward trend in the past year continues, it is expected to be about the same as the target level in FY 2030. Soil creation will continue to be promoted by applying organic substances such as compost and green manure.
				Expected level										-	-	-	-	-	-	-	-	850		
		Absorption	10^4 t-CO_2	Actual result	145	13	95	149	246	331	250	271	329										C	
				Expected level										-	-	-	-	-	-	-	-	850		
61.Promotion of urban greening	Promotion of urban greening	Measure evaluation indicator Maintenance area	1,000 ha	Actual result	77	79	80	81	82	83	83	84	111										A	Regarding the measure evaluation indicator, the maintenance area of urban greening that contributes to greenhouse gas removal was about 111,000 ha, an increase of about 34,000 ha compared to FY 2013. As a result, the amount of absorption (actual value) in FY 2021 was approximately 1.55 million tons-CO_2, exceeding the expected value. Urban greening will be promoted continuously.
				Expected level		77	78	78	79	80	81	81	82	82	83	83	83	84	84	84	84	85		
		Absorption	10^4 t-CO_2	Actual result	115	117	119	121	123	124	127	128	155										A	
				Expected level		112	113	115	116	117	118	119	119	120	121	121	122	122	123	123	123	124		
62.Activation of J-Credit Scheme	Revitalization of the J-Credit Scheme	Measure evaluation indicator J-Credit certified amount	10^4 t-CO_2	Actual result	3	63	103	242	342	471	585	697	806										C	The cumulative J-Credit certified amount, which is a measure evaluation indicator and emission reduction, is 8.06 million tons-CO_2, and the amount has risen significantly (1.09 million tons-CO_2 increase). By continuing to implement related measures to stimulate credit demand, the amount is expected to be the same level as the FY 2025 target (11 million tons-CO_2) and FY 2030 target (15 million tons-CO_2) depending on the projects registered to date and projected. Thus, it was rated as C.
				Expected level													1100					1500		
		Emissions reduction	10^4 t-CO_2	Actual result	3	63	103	242	342	471	585	697	806										C	
				Expected level													1100					1500		
63.Promotion of Joint Crediting Mechanism (JCM)	Promotion of the Joint Crediting Mechanism (JCM)	Measure evaluation indicator Estimated cumulative emissions reductions and absorption through JCM financial support projects, etc.	10^4 t-CO_2	Actual result	0	0.2	1.5	5.2	55.2	278.8	508.5	790.2	1158.2										C	The actual value of the measure evaluation indicator in FY2021 increased from the previous fiscal year. In the Plan for Global Warming Countermeasures (Cabinet Decision on October 22, 2021), the JCM is positioned as "the goal of securing an international cumulative amount of emissions reduction and absorption of about 100 million tons-CO_2 by FY 2030 through public-private partnerships." Furthermore, in the Grand Design of New Capitalism and Action Plan and Follow-up (2022) (Cabinet Decision in June 2022), it is positioned as a mechanism that "accelerates consultations with relevant countries with the aim of expanding the Joint Crediting Mechanism (JCM) to around 30 partner countries by 2025, and formulates and disseminates guidance for the structuring of JCM projects centered on private funds in FY 2022." The number of JCM partner countries has increased by eight by the end of 2022, and as of February 2023, the JCM has been established with 25 countries. In addition, the FY2022 budget for JCM equipment subsidy projects (project assistance) has been increased, and the FY2022 supplementary budget has also increased for project formation through contributions to the Asian Development Bank (ADB) Trust Fund and the United Nations Industrial Development Organization (UNIDO). Regarding the JCM centered on private funds, Guidance for the Formation of JCM Projects Centered on Private Funds is scheduled to be released in March 2023. Regarding the negotiations on Article 6 (Market Mechanism) of the Paris Agreement, which also positions the JCM, the 26th United Nations Climate Change Conference (COP26) adopted the implementation rules of Article 6 of the Paris Agreement, and at COP27, detailed rules such as the reporting format required for implementation were adopted. At COP27, the Paris Agreement Article 6 Implementation Partnership (A6IP) was launched under the initiative of Japan in order to promote international collaboration for capacity building for implementing Article 6 of the Paris Agreement, share information on best practices, etc., and provide support for the establishment of a framework for implementation. (As of February 2023, more than 80 countries and organizations have participated.) As mentioned above, the JCM is being upgraded and expanded, so it was evaluated to be thought to reach about the same as the target level for FY 2030.
				Expected level	1.5	161.5	241.5	451.5	587.2	854.0	1207.4	1825.0	1863.0				-					10000		
		Emissions reduction and absorption	10^4 t-CO_2	Actual result	0	0	1.5	5.2	55.2	278.8	508.5	790.2	1158.2										C	
				Expected level	1.5	161.5	241.5	451.5	587.2	854.0	1207.4	1825.0	1863.0				-					10000		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
64.Decarbonization initiatives in national parks	Promotion of decarbonization efforts in national parks (Zero Carbon Park)	Measure evaluation indicator Number of areas where Zero Carbon Parks are registered	Location	Actual result	-	-	-	-	-	-	-	-	6										C	
				Expected level													10					20		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	This is because the number of municipalities wishing to engage in Zero Carbon Parks is increasing year by year, along with the declaration of Zero Carbon City.
				Expected level													-					-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level													-					-		
65.Proactive actions by the national government	Proactive actions by the national government	[Adjusted emission factor] Measure evaluation indicator Emissions reduction rate	%	Actual result	-	-	-	-1.7	-3.4	11.2	11.4	20.4	28.2										C	The total emissions of greenhouse gases emitted from government affairs and projects in FY 2021 are estimated to be [1,561,626 tons-CO_2] when calculated based on the adjusted emission factor. This is a 28.2% decrease from the estimate of total emissions (2,202,728 tons-CO_2) in FY 2013, the base year of the National Government Action Plan. The breakdown shows that the amount of fuel used by official vehicles decreased by 1.0%, the amount of electricity used by facilities increased by 0.4%, the amount of change in the emission factor due to an increase in the procurement ratio of renewable energy electricity, etc. decreased by 28.1%, and the amount of fuel used in facilities' energy supply facilities, etc. increased by 0.8%, Other items decreased by 0.2%. In October 2021, the target of the reduction rate relative to FY 2013 was raised from 40% to 50% as a result of the revision of the National Government Action Plan. However, the progress of the measure evaluation indicator, etc. remains rated as C in both the measures evaluation indicator and emission reduction. Regarding quantitative targets other than total greenhouse gas emissions, it has been confirmed that the ratio of electrified vehicles and the ratio of introduction of LED lighting increased from the base year. With regard to the introduction of solar power generation facilities, procurement of renewable energy, and conversion of new buildings to ZEB, new numerical targets have been set as a result of the revision of the National Government Action Plan. Thus, there are no past year values. In FY 2021, 70.5% of incorporated administrative agencies, etc. formulated plans for global warming countermeasures, and 12.9% of these plans were in line with the National Government Action Plan in terms of the emissions reduction target. * As a result of the revision of the National Government Action Plan in October 2021, it became possible to evaluate the total amount of greenhouse gas emissions calculated using not only the basic emission factor, but also the adjusted emission factor, so that efforts such as the procurement of renewable energy electricity can be reflected. In response to this, it has been revised to list both the adjusted emission factor and the basic emission factor in the "Results of measure evaluation indicator energy conservation and emissions reduction, estimates and forecasts" section, and the cases calculated using the adjusted emission factor in the "Assessment supplements and rationale" section. * The figures are preliminary and may change as a result of further investigation.
				Expected level																		50		
		[Adjusted emission factor] Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-3.7	-7.4	24.7	25.1	44.9	62.1										C	
				Expected level																		110.1		
		[Basic emission factor] Measure evaluation indicator Emissions reduction rate	%	Actual result	-	-	-	4.5	6.8	8.9	12.3	14.6	15.9										-		
				Expected level																		50		
		[Basic emission factor] Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	10.8	16.4	21.3	29.4	34.8	38.1										-		
				Expected level																		119.6		
66.Proactive actions by local governments and promotion by the national government	Initiatives led by local governments and promotion by the national government	Measure evaluation indicator Rate of formulation of action plans of local governments, the formulation and review, etc. of which are carried out by prefectures and municipalities	%	Actual result	-	-	-	82.6	83.9	85.8	88.6	90.1	89.8										C	In response to the Plan for Global Warming Countermeasures decided by the Cabinet on October 22, 2021 and the National Government Action Plan, it is believed that the formulation and revision of the Administrative Work Version will progress through the implementation of the revision of the manual for formulating and implementing the action plans of local governments (administrative work version) and simplified manuals, etc., and development and operation of an information system to improve the efficiency and sophistication of work related to the formulation, execution, evaluation, and support of action plans of local governments (a support system for formulation and management, etc. of action plans of local governments).
				Expected level													95					100		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level													-					-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level													-					-		
67.Promotion of initiatives based on the Local Government Action Plans for entire municipal jurisdictions	Promotion of efforts under the action plans of local governments (area measure version)	Measure evaluation indicator Rate of formulation of action plans of local governments	%	Actual result	-	94	97.4	99.3	100	100	100	100	100										A	
				Expected level					100	100	100	100	100	100			100					100		
		Energy conservation	10^4 kL	Actual result	-	-	-	-	-	-	-	-	-										-	The measure evaluation indicator achieved 100% in FY 2017. In the future, support will be given so as to improve the formulation rate in local governments that are not legally obligated to formulate the plans, and review and implement formulating organizations.
				Expected level								-					-					-		
		Emissions reduction	10^4 t-CO_2	Actual result	-	-	-	-	-	-	-	-	-										-	
				Expected level								-					-					-		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
68.Transition to a decarbonized lifestyle	Promotion of thorough implementation of Cool Biz and Warm Biz: Cool biz	Measure evaluation indicator Rate of implementation of Cool Biz (commercial)	%	Actual result	71.3	68.2	72.4	71.4	74.1	78.1	84.4	84.2	86.2										C	Recognition of Cool Biz has been firmly established, and Cool Biz in commercial sector have been on an upward trend in recent years. It is at the same level as expected. On the other hand, the implementation rate in residential sector has been in the 60-70% range, and the amount of energy conservation and emissions reduction have also been lower than expected. With regard to Cool Biz, a certain degree of progress has been made since 2005. It is an initiative that has been implemented continuously, and it is necessary for commercial sector to continuously disseminate information to further popularize and establish Cool Biz. For residential sector, the rate of implementation is calculated based on the temperature setting when air conditioning is used (whether the temperature setting is consciously set higher), and growth is sluggish from a certain number. However, various measures recommended under Cool Biz (light clothing in summer, wearing clothing made of highly breathable materials, hygroscopic and quick-drying high-performance materials, etc.) has been spreading to a certain extent, and continuous efforts will be made to raise public awareness. The recognition rate of Warm Biz is lower than that of Cool Biz, and the implementation rate is lower than expected both in commercial and residential sector. The amount of energy saving and emission reduction have also been lower than expected. Warm Biz has been implemented to a certain extent since 2005, and it is an initiative that has been implemented continuously. However, in commercial sector, it is expected that it will be difficult to clearly identify measures compared to Cool Biz, so efforts will be made to disseminate and raise public awareness about the contents and effects in a more comprehensible manner. For residential sector, the rate of implementation is calculated based on the temperature setting when a heater is used (whether the temperature setting is consciously set lower), and growth is sluggish from a certain number. However, various measures recommended under Warm Biz (use of throws and scarves, wearing clothes made of functional materials, etc.) has been spreading to a certain extent, and continuous efforts will be made to raise public awareness. In FY 2022, comprehensive demand-side measures starting from dissemination and public awareness-raising including Cool Biz and Warm Biz will be implemented, thereby focusing on promoting changes in citizen's behavior toward the realization of a decarbonized society.
				Expected level		73.0	74.7	76.4	78.1	79.7	81.4	83.1	84.8	86.5	88.2	89.9	91.6	93.2	94.9	96.6	98.3	100		
		Energy conservation	10^4 kL	Actual result	-0.5	-0.9	-0.3	-0.5	-0.1	0.4	1.2	1.2	1.5										C	
				Expected level		-0.2	0.0	0.2	0.4	0.6	0.8	1.1	1.3	1.5	1.7	1.9	2.2	2.4	2.6	2.8	3.0	3.2		
		Emissions reduction	10^4 t-CO_2	Actual result	-2.9	-5.3	-2.0	-2.8	-0.6	2.5	7.5	7.4	9.0										C	
				Expected level		-1.5	-0.2	1.2	2.5	3.8	5.1	6.5	7.8	9.2	10.5	11.9	13.2	14.5	15.8	17.2	18.5	8.7		
		Measure evaluation indicator Rate of implementation of Warm Biz (Household)	%	Actual result	77.0	73.9	72.2	72.9	71.2	66.6	68.8	74.7	77.9										D	
				Expected level		78.4	79.7	81.1	82.4	83.8	85.1	86.5	87.8	89.2	90.5	91.9	93.2	94.6	95.9	97.3	98.6	100		
		Energy conservation	10^4 kL	Actual result	-0.3	-0.6	-0.8	-0.7	-0.9	-1.4	-1.2	-0.5	-0.2										D	
				Expected level		-0.1	0.0	0.1	0.3	0.4	0.6	0.7	0.9	1.0	1.2	1.3	1.4	1.6	1.7	1.9	2.0	2.2		
		Emissions reduction	10^4 t-CO_2	Actual result	-1.8	-3.8	-4.9	-4.5	-5.6	-9	-7.2	-3.3	-1.2										D	
				Expected level		-0.9	0.0	0.9	1.8	2.7	3.5	4.5	5.3	6.2	7.1	8.0	8.9	9.8	10.6	11.6	12.4	5.8		
		Measure evaluation indicator Rate of implementation of Warm Biz (commercial)	%	Actual result	71.0	66.2	68.4	62.9	59.4	60.6	71.1	69.5	72.0										D	
				Expected level		72.7	74.4	76.1	77.8	79.5	81.2	82.9	84.6	86.4	88.1	89.8	91.5	93.2	94.9	96.6	98.3	100		
		Energy conservation	10^4 kL	Actual result	0.1	-0.2	-0.1	-0.4	-0.6	-0.6	0.1	0.0	0.1										D	
				Expected level		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8		
		Emissions reduction	10^4 t-CO_2	Actual result	0.3	-1.4	-0.6	-2.7	-4.0	-3.5	0.4	-0.2	0.7										D	
				Expected level		1.0	1.6	2.2	2.8	3.5	4.1	4.7	5.4	6.0	6.7	7.3	7.9	8.5	9.2	9.8	10.4	4.9		
		Measure evaluation indicator Rate of implementation of Warm Biz (household)	%	Actual result	81.2	77.1	77.1	76.3	70.5	65.1	67.5	72.5	82.6										D	
				Expected level		82.3	83.4	84.5	85.6	86.7	87.8	88.9	90.0	91.2	92.3	93.4	94.5	95.6	96.7	97.8	98.9	100		
		Energy conservation	10^4 kL	Actual result	0.2	-3.0	-3.0	-3.6	-8.0	-12.1	-10.2	-6.5	1.2										D	
				Expected level		1.0	1.8	2.7	3.5	4.3	5.2	6.0	6.8	7.7	8.6	9.4	10.2	11.1	11.9	12.8	13.6	14.4		
		Emissions reduction	10^4 t-CO_2	Actual result	0.7	-12.8	-12.8	-15.4	-34.4	-52.0	-44.2	-27.8	5.2										D	
				Expected level		4.3	7.9	11.5	15.1	18.7	22.3	25.9	29.5	33.4	37.0	40.6	44.2	47.8	51.4	55.0	58.6	35.9		
	Home Eco-Diagnosis	Measure evaluation indicator Cumulative number of households diagnosed	1,000 households	Actual result	31	44.6	61.8	80.4	90.4	98.7	103.3	106.3	111.8										D	The measure evaluation indicator is the cumulative number of households diagnosed with household eco-diagnosis and the implementation rate. The number of diagnoses, the amount of energy conservation, and the amount of emissions reduction have remained lower than expected. In addition to disseminating information through online diagnosis and various events, continuous efforts will be made to expand the number of households diagnosed by expanding the recommendation of diagnosis by local governments that declared to be a Zero Carbon City and private businesses, etc., and by collaborating with similar initiatives provided by these parties. In FY 2022, comprehensive demand-side measures starting from dissemination and public awareness-raising including home eco-diagnosis will be implemented, thereby focusing on promoting changes in citizen's behavior toward the realization of a decarbonized society.
				Expected level		45	67	100	142	194	251	314	396	486	593	708	830	960	1098	1242	1395	1555		
		Measure evaluation indicator Implementation rate	%	Actual result	0.1	0.08	0.11	0.14	0.16	0.17	0.17	0.2	0.19										D	
				Expected level		0.10	0.10	0.20	0.3	0.3	0.5	0.6	0.7	0.9	1.1	1.3	1.5	1.8	2.0	2.3	2.6	2.9		
		Energy conservation	10^4 kL	Actual result	0.0	0.06	0.08	0.10	0.12	0.12	0.13	0.13	0.14										D	
				Expected level		0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.7	0.8	1.0	1.1	1.3	1.5	1.7	1.9	2.2		
		Emissions reduction	10^4 t-CO_2	Actual result	0.1	0.13	0.18	0.23	0.26	0.28	0.29	0.30	0.31										D	
				Expected level		0.2	0.2	0.3	0.4	0.6	0.76	0.9	1.2	1.5	1.8	2.2	2.6	3.0	3.4	3.9	4.4	4.9		
	Eco-driving	Measure evaluation indicator Implementation rate of eco-driving (passenger cars)	%	Actual result	6	-	-	-	-	-	50.8	64.6	64.0										B	By establishing a method for estimating the eco-driving implementation rate in line with the actual situation, it has become possible to grasp the various forms of eco-driving behavior compared to the estimation at the time of formulating the plan, resulting in a high implementation rate. In FY 2022, comprehensive demand-side measures starting from dissemination and public awareness-raising including eco-driving will be implemented, thereby focusing on promoting changes in citizen's behavior toward the realization of a decarbonized society.
				Expected level		8	10	12	14	16	45	48	50	53	56	58	60	62	63	65	66	67		
		Measure evaluation indicator Implementation rate of eco-driving (private freight cars)	%	Actual result	9	-	-	-	-	-	40.7	46.2	47.3										B	
				Expected level		12	15	18	21	24	38	41	43	46	49	51	53	55	56	58	59	60		
		Energy conservation	10^4 kL	Actual result	10	-	-	-	-	-	176.4	221.8	221.7										B	
				Expected level		19	29	39	48	58	157	168	179	190	200	210	219	226	233	239	244	248		
		Emissions reduction	10^4 t-CO_2	Actual result	26	-	-	-	-	-	468.0	588.4	588.2										B	
				Expected level		51	77	103	128	154	416	446	476	505	532	557	580	600	619	634	647	657		
	Car sharing	Measure evaluation indicator Implementation rate of car sharing	%	Actual result	0.23	0.36	0.53	0.66	0.85	1.04	1.29	1.62	1.79										C	As the number of car-sharing members is growing rapidly, the implementation rate has been making progress with significantly larger emission reduction than expected. This is mainly attributable to increasing social needs and efforts by companies and industry associations. In FY 2022, comprehensive demand-side measures starting from dissemination and awareness-raising including car sharing will be implemented, thereby focusing on promoting changes in citizen's behavior toward the realization of a decarbonized society.
				Expected level		0.30	0.37	0.44	0.51	0.59	0.66	1.53	1.69	1.88	2.07	2.27	2.46	2.65	2.84	3.03	3.23	3.42		
		Energy conservation	10^4 kL	Actual result	2.8	7.0	12.0	15.9	21.6	27.2	34.8	32.5	36.1										C	
				Expected level		5.0	7.2	9.4	11.5	13.7	15.9	33	34	39	43	47	51	56	60	64	68	73		
		Emissions reduction	10^4 t-CO_2	Actual result	7	16.7	29.2	38.8	52.9	67.4	85.3	72.6	80.6										C	
				Expected level		12	17	22	28	33	38	75	79	88	98	108	117	127	137	146	156	192		

Name of mitigation action	Objective and/or activity affected	Measure evaluation indicator, etc.	Units		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Progress in the emission reductions	Supplement to the progress assessment and reasons
	Reduction of food loss in households	Measure evaluation indicator Amount of food loss generated from households	10^4 tons	Actual result	302	282	289	291	284	276	261	247											B	In FY 2020, the reduction of food loss from households exceeded the target. In accordance with the Food Loss Reduction Promotion Act that came into effect in 2019, continuous efforts will be made in cooperation with relevant ministries and agencies to reduce food loss as a national movement, such as the promotion of mottECO, Temaedori (buying items from the front of the shelf with an earlier expiration date), and food drives. In FY 2022, comprehensive demand-side measures starting from dissemination and public awareness-raising including the reduction of food loss at home will be implemented, thereby focusing on promoting changes in citizen's behavior toward the realization of a decarbonized society.
				Expected level							271	266	261	256	251	246	241	236	231	226	221	216		
		Energy conservation	10^4 kL	Actual result	0	3.5	2.3	1.9	3.1	4.5	7.1	9.5											B	
				Expected level							5.4	6.2	7.1	8.0	8.9	9.7	10.6	11.5	12.3	13.2	14.1	14.9		
		Emissions reduction	10^4 t-CO_2	Actual result	0	9.2	6.0	5.1	8.3	12.0	18.9	25.3											B	
				Expected level							14.3	16.6	18.9	21.2	23.5	25.8	28.1	30.4	32.7	35.0	37.3	39.6		

* Figures in parentheses in the table are estimates based on actual results and progress of policies and measures

1. "Steady implementation, assessment and verification of the Action Plan for Achieving a Low-carbon Society": The meanings of A through E of the "Progress in the emission reductions " section are as follows:
A : Performance in FY2021 already exceeded the FY2030 target level
B : Performance in FY2021 exceeded the level of reference year/BAU, but fell below the FY2030 target level
C : Performance in FY2021 fell below the FY2030 target level and increased compared to the reference year/BAU
D :Data not compiled (newly established / change in target levels / revisions to calculation methodology / etc.)
E : Targets not set

* Select and enter one of the following assessments from A to E based on the estimated values of Measure evaluation indicator, etc. from FY2021 to FY2030 based on actual results, etc. up to FY2021 (if estimated values cannot be indicated, qualitative forecasts from FY2021 to FY2030).
A : Measure evaluation indicator is expected to exceed the target level in FY2030 if efforts are continued, and performance in FY2021 already exceeded the FY2030 target (Projected to exceed FY2030 target level and already exceeded FY2030 target level in FY2021)
B : Measure evaluation indicator is expected to exceed the target level in FY2030 if efforts are continued, (excluding A) (Projected to exceed FY2030 target level)
C :Measure evaluation indicator is expected to reach the same level as the target in FY2030 if efforts are continued (Projected to meet FY2030 target level)
D : Measure evaluation indicator is expected to fall below the target level in FY2030 if efforts remain unchanged (Projected to fall below FY2030 target level)
E : Quantitative data are not available, etc.