

## Japan's National Greenhouse Gas Emissions in Fiscal Year 2018 (Preliminary Figures) <Executive Summary>

- Japan's total greenhouse gas emissions in fiscal year\* (FY) 2018 were 1,244 million tonnes of carbon dioxide equivalents (Mt CO<sub>2</sub> eq.).
  - Total emissions decreased by 3.6% (47 Mt CO<sub>2</sub> eq.) compared to those of FY2017 (1,291 Mt CO<sub>2</sub> eq.).
  - Total emissions decreased by 11.8% (166 Mt CO<sub>2</sub> eq.) compared to those of FY2013 (1,410 Mt CO<sub>2</sub> eq.).
  - Total emissions decreased by 10.0% (138 Mt CO<sub>2</sub> eq.) compared to those of FY2005 (1,382 Mt CO<sub>2</sub> eq.).

\* Japan's fiscal year is from April 1 to March 31.

### Note:

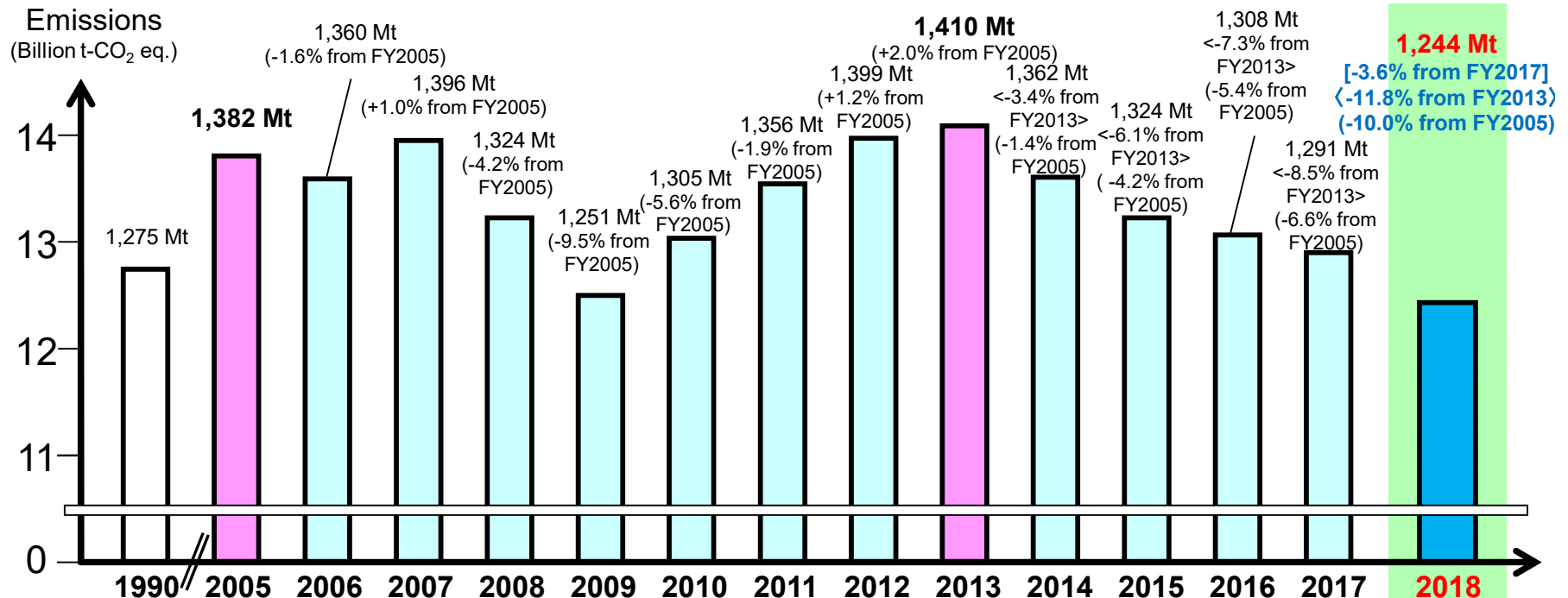
- Total greenhouse gas emissions have decreased for the fifth consecutive year since 2014. The total greenhouse gas emissions per unit of real GDP have decreased for the sixth consecutive year since 2013.
- The main factor for the decrease in emissions in FY2018 as compared to FY2017 and FY2013 is the decrease in energy-related CO<sub>2</sub> emissions due to the reduction in electricity-origin CO<sub>2</sub> emissions as a result of low-carbon electricity, and reduced energy consumption (energy conservation, warmer winter).
- The main factor for the decrease in emissions in FY2018 as compared to FY2005 is the decrease in energy-related CO<sub>2</sub> emissions due to reduced energy consumption (energy conservation).
- In contrast to the decrease in total emissions, hydrofluorocarbon emissions from refrigerants that substitute for ozone-depleting substances are increasing every year.

\*\* These preliminary figures for FY2018 were estimated based on annual figures in various statistics. Some annual figures from FY2017 were temporarily used in place of FY2018 figures that have yet to be released. Moreover, some estimation methodologies are currently being reconsidered in order to make more accurate estimations of emissions. As such, the final figures to be released in April 2020 may differ from the preliminary figures in this summary. Removals by forest and other carbon sinks will also be estimated and announced at the time of the release of the final figures.

# Japan's total greenhouse gas emissions in fiscal year (FY) 2018 (Preliminary figures)

**Japan's total greenhouse gas (GHG) emissions in FY2018 (preliminary figures) were 1,244 Mt CO<sub>2</sub> eq.** (3.6% decrease as compared to FY2017; 11.8% decrease from FY2013; and 10.0% decrease from FY2005 levels)

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1. "These preliminary figures for FY2018 were estimated based on annual figures in various statistics. Some annual figures from FY2017 were temporarily used in place of FY2018 figures that have yet to be released. Moreover, some estimation methodologies are currently being reconsidered in order to make more accurate estimations of emissions. As such, the final figures to be released in April 2020 may differ from the preliminary figures in this summary. Removals by forest and other carbon sinks will also be estimated and announced at the time of the release of the final figures.
2. Total GHG emissions in each FY and percent changes from previous years (such as changes from FY2013) do not include removals by forest and other carbon sinks from activities under the Kyoto Protocol.

Figure 1 Japan's national greenhouse gas emissions in FY2018 (preliminary figures)

Table 1 Japan's national greenhouse gas emissions by gas  
(compared to FY2005, FY2013, and FY2017)

	FY1990 emissions [Share]	FY2005 emissions [Share]	FY2013 emissions [Share]	FY2017 emissions [Share]	FY2018 (Preliminary figures)			
					Emissions [Share]	(Compared to FY2005)	(Compared to FY2013)	(Compared to FY2017)
Total	1,275 [100%]	1,382 [100%]	1,410 [100%]	1,291 [100%]	1,244 [100%]	-138.0 《-10.0%》	-166.2 《-11.8%》	-46.9 《-3.6%》
Carbon Dioxide (CO <sub>2</sub> )	1,164 [91.3%]	1,293 [93.6%]	1,317 [93.4%]	1,189 [92.1%]	1,139 [91.6%]	-154.3 《-11.9%》	-178.1 《-13.5%》	-50.2 《-4.2%》
Energy-related Carbon Dioxide	1,068 [83.7%]	1,201 [86.9%]	1,235 [87.6%]	1,110 [86.0%]	1,060 [85.2%]	-140.4 《-11.7%》	-175.1 《-14.2%》	-50.0 《-4.5%》
Carbon Dioxide not related to energy	96.3 [7.6%]	92.9 [6.7%]	82.1 [5.8%]	79.2 [6.1%]	79.0 [6.3%]	-13.9 《-15.0%》	-3.1 《-3.8%》	-0.2 《-0.3%》
Methane (CH <sub>4</sub> )	44.3 [3.5%]	35.7 [2.6%]	32.3 [2.3%]	30.0 [2.3%]	29.7 [2.4%]	-6.0 《-16.7%》	-2.6 《-8.0%》	-0.3 《-1.1%》
Nitrous Oxide (N <sub>2</sub> O)	31.8 [2.5%]	25.0 [1.8%]	21.6 [1.5%]	20.5 [1.6%]	20.2 [1.6%]	-4.8 《-19.2%》	-1.3 《-6.2%》	-0.3 《-1.3%》
F-gases	35.4 [2.8%]	27.9 [2.0%]	39.1 [2.8%]	51.0 [4.0%]	55.0 [4.4%]	+27.1 《+96.9%》	+15.9 《+40.6%》	+4.0 《+7.8%》
Hydrofluorocarbons (HFCs)	15.9 [1.2%]	12.8 [0.9%]	32.1 [2.3%]	44.9 [3.5%]	49.1 [3.9%]	+36.3 《+284.0%》	+17.0 《+52.9%》	+4.2 《+9.4%》
Perfluorocarbons (PFCs)	6.5 [0.5%]	8.6 [0.6%]	3.3 [0.2%]	3.5 [0.3%]	3.5 [0.3%]	-5.1 《-59.6%》	+0.2 《+6.3%》	-0.0 《-0.7%》
Sulfur Hexafluoride (SF <sub>6</sub> )	12.9 [1.0%]	5.1 [0.4%]	2.1 [0.1%]	2.1 [0.2%]	2.1 [0.2%]	-2.9 《-58.0%》	+0.02 《+0.9%》	-0.0 《-1.3%》
Nitrogen Trifluoride (NF <sub>3</sub> )	0.03 [0.003%]	1.5 [0.1%]	1.6 [0.1%]	0.45 [0.03%]	0.28 [0.02%]	-1.19 《-80.8%》	-1.33 《-82.5%》	-0.17 《-37.2%》

(Unit: Mt-CO<sub>2</sub> eq.)

Table 2 Energy-related CO<sub>2</sub> emissions from each sector  
(after allocation of power and heat)

	FY1990 emissions [Share]	FY2005 emissions [Share]	FY2013 emissions [Share]	FY2017 emissions [Share]	FY2018 (Preliminary figures)			
					Emissions [Share]	(Compared to FY2005)	(Compared to FY2013)	(Compared to FY2017)
Total	1,068 [100%]	1,201 [100%]	1,235 [100%]	1,110 [100%]	1,060 [100%]	-140.4 《-11.7%》	-175.1 《-14.2%》	-50.0 《-4.5%》
Industries (factories, etc.)	503 [47.2%]	467 [38.9%]	465 [37.6%]	411 [37.0%]	396 [37.4%]	-71.0 《-15.2%》	-68.4 《-14.7%》	-14.4 《-3.5%》
Transport (cars, etc.)	207 [19.4%]	244 [20.3%]	224 [18.2%]	213 [19.2%]	210 [19.8%]	-33.8 《-13.8%》	-13.9 《-6.2%》	-3.0 《-1.4%》
Commercial and other (commerce, service, office, etc.)	130 [12.2%]	220 [18.4%]	236 [19.1%]	208 [18.8%]	197 [18.5%]	-23.8 《-10.8%》	-39.8 《-16.8%》	-11.6 《-5.6%》
Residential	131 [12.2%]	170 [14.2%]	208 [16.8%]	186 [16.8%]	166 [15.6%]	-4.6 《-2.7%》	-42.0 《-20.2%》	-20.6 《-11.1%》
Energy transformation	96.2 [9.0%]	98.0 [8.2%]	102 [8.3%]	91.3 [8.2%]	90.9 [8.6%]	-	-	-
Oil refineries, power plants, etc.	96.2 [9.0%]	102 [8.5%]	105 [8.5%]	95.8 [8.6%]	95.0 [9.0%]	-7.4 《-7.3%》	-10.1 《-9.6%》	-0.85 《-0.9%》
Statistical discrepancy from power and heat allocation	-0.007 [-0.0006%]	-4.4 [-0.4%]	-3.1 [-0.3%]	-4.5 [-0.4%]	-4.1 [-0.4%]	-	-	-

(Unit: Mt-CO<sub>2</sub>)

**【Details of main increases/decreases in energy-related CO<sub>2</sub> emissions (after allocation of power and heat), as compared to FY2017】**

- Industries sector (factories, etc.): 14.4 million tonnes (3.5%) decrease
  - Energy consumption decreased.
- Transport sector (cars, etc.): 3.0 million tonnes (1.4%) decrease
  - The energy consumption intensity (energy consumption per unit transportation amount) further improved due to improvement of fuel efficiency in passenger transport.
- Commercial and other sector (commerce, services, office, etc.): 11.6 million tonnes (5.6%) decrease
  - The CO<sub>2</sub> emission intensity of electricity and energy consumption intensity (energy consumption per Tertiary Industry Activity Index) improved.
- Residential sector: 20.6 million tonnes (11.1%) decrease
  - The CO<sub>2</sub> emission intensity of electricity improved and kerosene consumption decreased.
- Energy transformation sector (oil refineries, power plants, etc.) (excluding statistical discrepancy from power and heat allocation): 0.85 million tonnes (0.9%) decrease
  - Emissions from utility power producers' own use decreased.

**【Details of main increases/decreases in emissions other than energy-related CO<sub>2</sub> emissions, as compared to FY2017 (CO<sub>2</sub> eq.)】**

- CO<sub>2</sub> emissions not related to energy: 0.24 million tonnes (0.3%) decrease
  - Emissions from the Industrial Processes and Product Use sector decreased.
- Methane (CH<sub>4</sub>) emissions: 0.34 million tonnes (1.1%) decrease
  - Emissions from the Waste sector decreased.
- Nitrous Oxide (N<sub>2</sub>O) emissions: 0.27 million tonnes (1.3%) decrease
  - Emissions from the Industrial Processes and Product Use sector decreased.
- Hydrofluorocarbon (HFC) emissions: 4.2 million tonnes (9.4%) increase
  - Emissions from refrigerants increased.
- Perfluorocarbon (PFC) emissions: 0.03 million tonnes (0.7%) decrease
  - Emissions from semiconductor and liquid crystal display (LCD) manufacturing decreased.
- Sulfur Hexafluoride (SF<sub>6</sub>) emissions: 0.03 million tonnes (1.3%) decrease
  - Emissions from gas-insulated electrical equipment decreased.
- Nitrogen Trifluoride (NF<sub>3</sub>) emissions: 0.17 million tonnes (37.2%) decrease
  - Fugitive emissions from NF<sub>3</sub> production decreased.