

Japan's National Greenhouse Gas Emissions in Fiscal Year 2018 (Final Figures¹) <Executive Summary>

- Japan's total greenhouse gas emissions² in fiscal year* (FY) 2018 were 1,240 million tonnes of carbon dioxide equivalents (Mt CO₂ eq.).
 - Total emissions decreased by 3.9% (51 Mt CO₂ eq.) compared to those of FY2017 (1,291 Mt CO₂ eq.).
 - Total emissions decreased by 12.0% (170 Mt CO₂ eq.) compared to those of FY2013 (1,410 Mt CO₂ eq.).
 - Total emissions decreased by 10.2% (142 Mt CO₂ eq.) compared to those of FY2005 (1,382 Mt CO₂ 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. This is the lowest since 1990 when emission estimation started. 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 CO₂ emissions due to the reduction in electricity-origin CO₂ 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 CO₂ 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.
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- Removals by forest and other carbon sinks from activities under the Kyoto Protocol³ in FY 2018 were 55.9 Mt CO₂ eq., consisting of 47.0 Mt CO₂ eq. by forest carbon sinks and 8.8 Mt CO₂ eq. by cropland management, grazing land management, and urban revegetation.

Footnote:

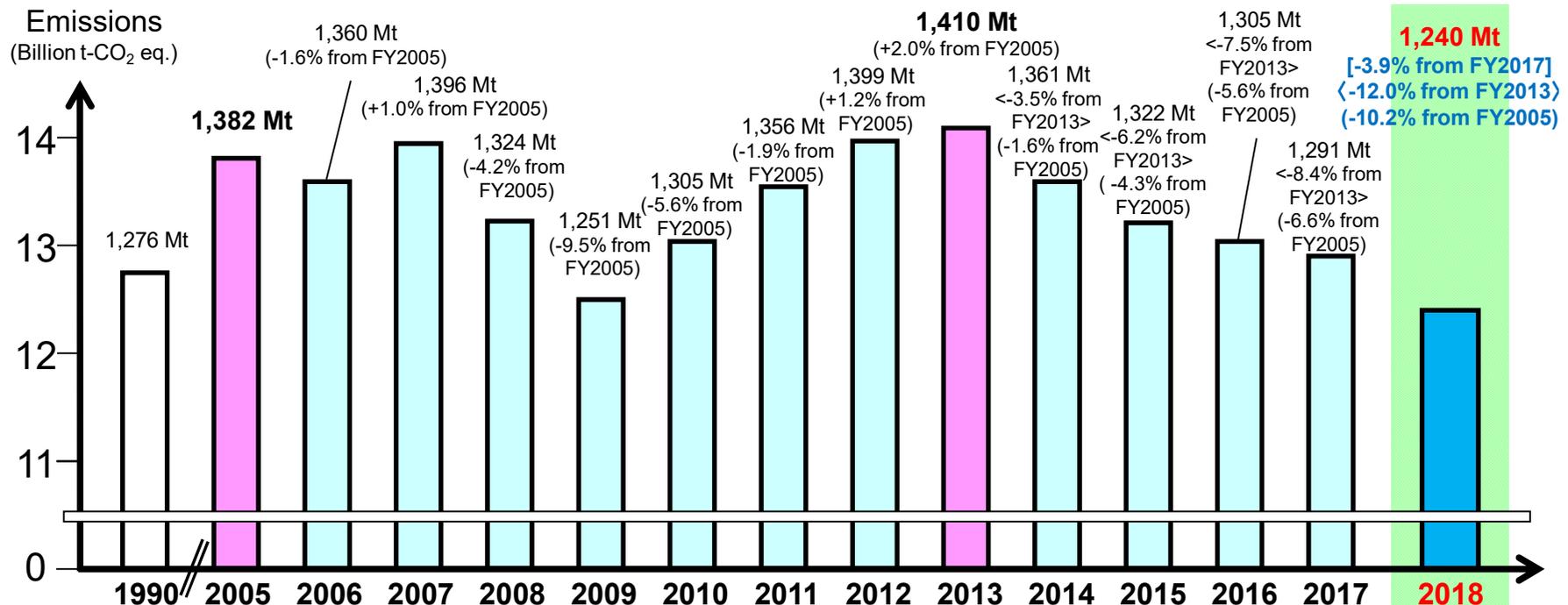
- ¹. "Final figures" means the figures officially submitted to the Secretariat of the United Nations Framework Convention on Climate Change (hereinafter, Convention) as Japan's GHG emissions and removals in the national GHG inventory. The final figures compiled this time may be recalculated when annual values in statistical data are updated, and/or estimation methods are revised.

2. There are some differences between the final figures compiled this time and the preliminary figures released on November 29, 2019, because some recalculation was conducted based on annual values in statistics and other data which were made available after the estimation of the preliminary figures, and some estimation methods were further revised. The preliminary figures for GHG emissions in FY2018 showed a 3.6% decrease compared to FY2018 (an 11.8% decrease and a 10.0% decrease when compared to FY2013 and FY2005, respectively).
3. The removals by forest and other carbon sinks reported this time were estimated by calculating emissions/removals from activities under the Kyoto Protocol, in accordance with the decision of the 8th session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol.

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

Japan's total greenhouse gas (GHG) emissions in FY2018 (final figures) were **1,240 Mt CO₂ eq.** (3.9% decrease as compared to FY2017; 12.0% decrease from FY2013; and 10.2% decrease from FY2005 levels)

- Total greenhouse gas emissions have decreased for the fifth consecutive year since 2014. This is the lowest since 1990 when emission estimation started. The total greenhouse gas emissions per unit of real GDP have decreased for the sixth consecutive year since 2013.
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3. Total GHG emissions in each FY and percentage 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 (final 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			
					Emissions [Share]	(Compared to FY2005)	(Compared to FY2013)	(Compared to FY2017)
Total	1,276 [100%]	1,382 [100%]	1,410 [100%]	1,291 [100%]	1,240 [100%]	-141.6 «-10.2%»	-169.6 «-12.0%»	-50.9 «-3.9%»
Carbon Dioxide (CO ₂)	1,164 [91.2%]	1,293 [93.6%]	1,317 [93.4%]	1,190 [92.1%]	1,138 [91.7%]	-155.5 «-12.0%»	-179.2 «-13.6%»	-52.0 «-4.4%»
Energy-related Carbon Dioxide	1,068 [83.7%]	1,201 [86.9%]	1,235 [87.6%]	1,110 [86.0%]	1,059 [85.4%]	-141.2 «-11.8%»	-176.0 «-14.2%»	-50.9 «-4.6%»
Carbon Dioxide not related to energy	96.3 [7.6%]	92.7 [6.7%]	81.7 [5.8%]	79.6 [6.2%]	78.5 [6.3%]	-14.3 «-15.4%»	-3.2 «-3.9%»	-1.1 «-1.4%»
Methane (CH ₄)	44.4 [3.5%]	35.8 [2.6%]	32.5 [2.3%]	30.2 [2.3%]	29.9 [2.4%]	-6.0 «-16.7%»	-2.7 «-8.2%»	-0.38 «-1.3%»
Nitrous Oxide (N ₂ O)	31.9 [2.5%]	25.0 [1.8%]	21.5 [1.5%]	20.4 [1.6%]	20.0 [1.6%]	-5.0 «-19.9%»	-1.5 «-7.0%»	-0.42 «-2.0%»
F-gases	35.4 [2.8%]	27.9 [2.0%]	39.1 [2.8%]	50.9 [3.9%]	52.8 [4.3%]	+24.9 «+89.2%»	+13.7 «+35.1%»	+1.9 «+3.7%»
Hydrofluorocarbons (HFCs)	15.9 [1.2%]	12.8 [0.9%]	32.1 [2.3%]	44.9 [3.5%]	47.0 [3.8%]	+34.2 «+267.5%»	+14.9 «+46.4%»	+2.1 «+4.7%»
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%»	+0.21 «+6.3%»	-0.03 «-0.7%»
Sulfur Hexafluoride (SF ₆)	12.9 [1.0%]	5.0 [0.4%]	2.1 [0.1%]	2.1 [0.2%]	2.0 [0.2%]	-3.0 «-59.4%»	-0.03 «-1.6%»	-0.03 «-1.3%»
Nitrogen Trifluoride (NF ₃)	0.03 [0.003%]	1.5 [0.1%]	1.6 [0.1%]	0.45 [0.03%]	0.28 [0.02%]	-1.2 «-80.8%»	-1.3 «-82.5%»	-0.17 «-37.2%»

(Unit: Mt-CO₂ eq.)

Table 2 Energy-related CO₂ emissions from each sector
(after allocation of power and heat)

	FY1990 emissions [Share]	FY2005 emissions [Share]	FY2013 emissions [Share]	FY2017 emissions [Share]	FY2018			
					Emissions [Share]	(Compared to FY2005)	(Compared to FY2013)	(Compared to FY2017)
Total	1,068 [100%]	1,201 [100%]	1,235 [100%]	1,110 [100%]	1,059 [100%]	-141.2 «-11.8%»	-176.0 «-14.2%»	-50.9 «-4.6%»
Industry (factories, etc.)	503 [47.2%]	467 [38.9%]	463 [37.5%]	410 [36.9%]	398 [37.6%]	-69.5 «-14.9%»	-65.0 «-14.0%»	-11.9 «-2.9%»
Transport (cars, etc.)	207 [19.4%]	244 [20.3%]	224 [18.2%]	213 [19.2%]	210 [19.9%]	-33.7 «-13.8%»	-13.8 «-6.2%»	-3.0 «-1.4%»
Commercial and other (commerce, service, office, etc.)	130 [12.2%]	220 [18.4%]	238 [19.2%]	210 [18.9%]	196 [18.5%]	-24.5 «-11.1%»	-41.7 «-17.6%»	-13.8 «-6.6%»
Residential	131 [12.2%]	170 [14.2%]	208 [16.8%]	186 [16.8%]	166 [15.6%]	-4.8 «-2.8%»	-42.1 «-20.3%»	-20.7 «-11.1%»
Energy transformation	96.2 [9.0%]	98.0 [8.2%]	103 [8.3%]	90.8 [8.2%]	89.4 [8.4%]	-	-	-
Oil refineries, power plants, etc.	96.2 [9.0%]	102 [8.5%]	106 [8.6%]	95.8 [8.6%]	95.1 [9.0%]	-7.4 «-7.2%»	-11.1 «-10.5%»	-0.72 «-0.8%»
Statistical discrepancy from power and heat allocation	-0.007 [-0.0006%]	-4.4 [-0.4%]	-3.5 [-0.3%]	-4.9 [-0.4%]	-5.7 [-0.5%]	-	-	-

(Unit: Mt)

Note: "After allocation of power and heat" means that energy-related CO₂ emissions from power and heat generation are allocated to each sector based on the consumption of power and heat.

【Details of main increases/decreases in energy-related CO₂ emissions (after allocation of power and heat), as compared to FY2017】

- Industry sector (factories, etc.): 11.9 million tonnes (2.9%) decrease
 - The CO₂ emission intensity of electricity (CO₂ emissions per electricity consumption) improved.
- Transport sector (cars, etc.): 3.0 million tonnes (1.4%) decrease
 - Emissions from passenger road transport especially decreased due to the improvement of fuel efficiency.
- Commercial and other sector (commerce, services, office, etc.): 13.8 million tonnes (6.6%) decrease
 - The CO₂ emission intensity of electricity and energy consumption intensity (energy consumption per Tertiary Industry Activity Index) improved.
- Residential sector: 20.7 million tonnes (11.1%) decrease
 - Energy consumption decreased due to much higher winter temperatures nationwide compared to the previous year, and the improvement in the CO₂ emission intensity of electricity.
- Energy transformation sector (oil refineries, power plants, etc.) (excluding statistical discrepancy from power and heat allocation): 0.72 million tonnes (0.8%) decrease
 - Emissions from utility power producers' own use decreased.

【Details of main increases/decreases in emissions other than energy-related CO₂ emissions, as compared to FY2017 (CO₂ eq.)】

- CO₂ emissions not related to energy: 1.1 million tonnes (1.4%) decrease
 - Emissions from the Industrial Processes and Product Use sector decreased.
- Methane (CH₄) emissions: 0.38 million tonnes (1.3%) decrease
 - Emissions from the Waste sector decreased.
- Nitrous Oxide (N₂O) emissions: 0.42 million tonnes (2.0%) decrease
 - Emissions from fuel combustion/fugitives and the Industrial Processes and Product Use sector decreased.
- Hydrofluorocarbon (HFC) emissions: 2.1 million tonnes (4.7%) 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 (SF₆) emissions: 0.03 million tonnes (1.3%) decrease
 - Emissions from gas-insulated electrical equipment decreased.
- Nitrogen Trifluoride (NF₃) emissions: 0.17 million tonnes (37.2%) decrease
 - Fugitive emissions from NF₃ production decreased.