

# Japan's National Greenhouse Gas Emissions in Fiscal Year\* 2015 (Final Figures<sup>1</sup>) <Executive Summary>

- Japan's total greenhouse gas (GHG) emissions<sup>2</sup> in fiscal year (FY) 2015 were 1,325 million tonnes of carbon dioxide equivalents (Mt CO<sub>2</sub> eq.).
  - Total emissions decreased by 2.9% (39 Mt CO<sub>2</sub> eq.) when compared to those of FY2014. (1,364 Mt CO<sub>2</sub> eq.).
  - Total emissions decreased by 6.0% (84 Mt CO<sub>2</sub> eq.) when compared to those of FY2013. (1,409 Mt CO<sub>2</sub> eq.).
  - Total emissions decreased by 5.3% (74 Mt CO<sub>2</sub> eq.) when compared to those of FY2005. (1,399 Mt CO<sub>2</sub> eq.).

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

## Note:

- The main factor in the drop in emissions in FY2015 as compared to FY2014 and FY2013 is the decreased energy-related CO<sub>2</sub> emissions owing to lowered CO<sub>2</sub> emissions from power generation, as a result of decreased electricity consumption (due to energy conservation, cool summer and mild winter, etc.) and the improvement of carbon intensity in power generation (due to greater adoption of renewable energy, resuming nuclear power operation, etc.).
- The main factor in the drop in emissions in FY2015 as compared to FY2005 is the decreased energy-related CO<sub>2</sub> emissions in the industrial and transport sectors, despite the increase in hydrofluorocarbon (HFC) emissions from refrigerants following their substitution in place of ozone-depleting substances.
- Removals by forest and other carbon sinks<sup>3</sup> under the Kyoto Protocol in FY 2015 were 58.8 Mt CO<sub>2</sub> eq., consisting of 50.1 Mt CO<sub>2</sub> eq. by forest carbon sinks and 8.6 Mt CO<sub>2</sub> eq. by cropland management, grazing land management, and urban revegetation.

## Footnote:

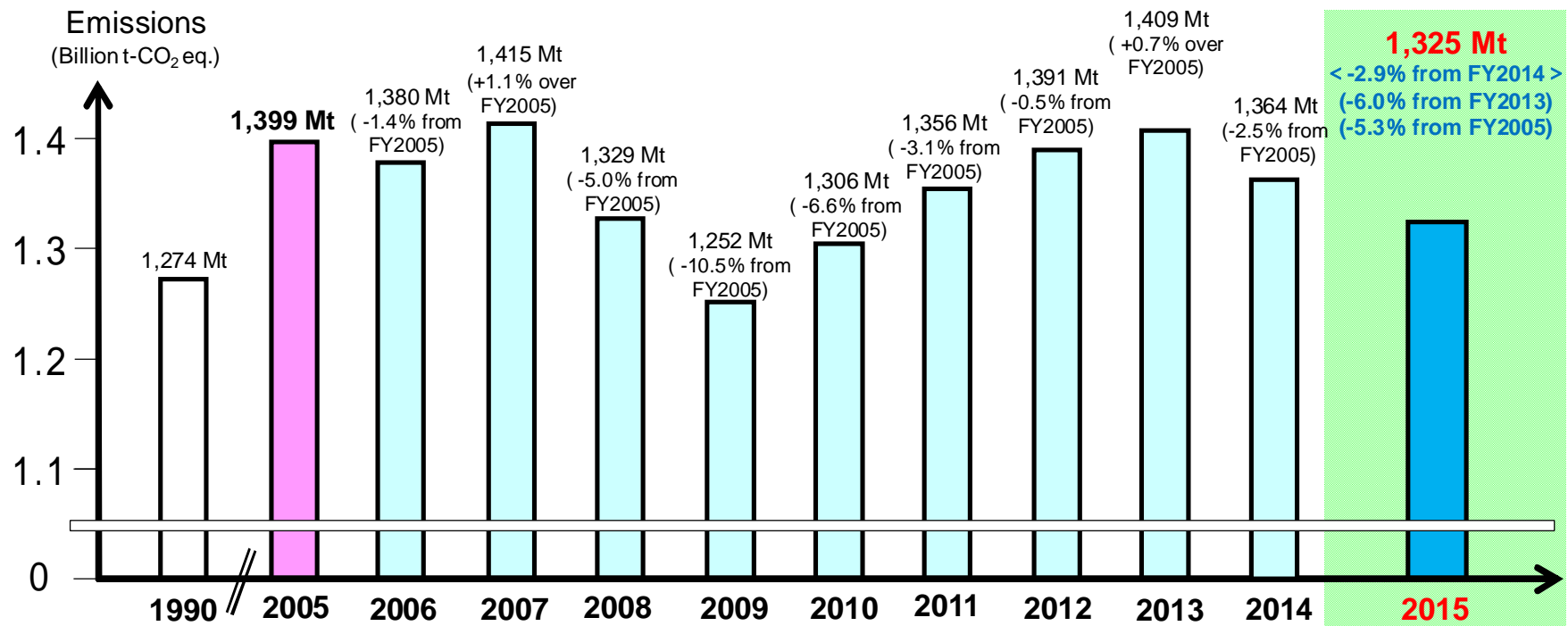
1. "Final figures" means the figures officially submitted to the Secretariat of the United Nations Framework Convention on Climate Change (hereinafter, Convention) as Japan's GHG emissions and removals in a national GHG inventory. The final figures compiled this time will be recalculated when annual 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 preliminary figures released on December 6<sup>th</sup>, 2016, because some estimation methods were revised for a more accurate estimation, and some recalculation was conducted based on annual values in statistics and other data which were made available after the estimation of preliminary figures. The preliminary figures indicated that GHG emissions in FY2015 decreased by 3.0% compared to FY2014 (6.0% decrease and 5.2% 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 8<sup>th</sup> session of the Conference of the Parties serving as the meeting of the Kyoto Protocol.

## Japan's total greenhouse gas emissions in fiscal year (FY) 2015 (Final figures)

Japan's total greenhouse gas (GHG) emissions in FY2015 were 1,325 Mt CO<sub>2</sub> eq. (2.9% decrease as compared to FY2014; 6.0% decrease from FY2013; and 5.3% decrease from FY2005 levels)

The main factor in the drop in emissions in FY2015 as compared to FY2014 and FY2013 is the decreased energy-related CO<sub>2</sub> emissions owing to lowered CO<sub>2</sub> emissions from power generation, as a result of decreased electricity consumption (due to energy conservation, cool summer and mild winter, etc.) and the improvement of carbon intensity in power generation (due to greater adoption of renewable energy, resuming nuclear operation, etc.).

The main factor in the drop in emissions in FY2015 as compared to FY2005 is the decreased energy-related CO<sub>2</sub> emissions in industrial and transport sectors, despite the increase in hydrofluorocarbon (HFC) emissions from refrigerants following their substitution in place of ozone-depleting substances.



1. "Final figures" means the figures officially submitted to the Secretariat of the Convention as Japan's GHG emissions and removals in a national GHG inventory. The final figures compiled this time will be recalculated when annual values in statistical data are updated, and/or estimation methods are revised.
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3. Total GHG emissions in each FY and percent changes from past year (such as changes from FY2005) 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 FY2015 (final figures)

Table 1 Japan's national greenhouse gas emissions,  
comparison with FY2005, FY2013 and the previous year

	FY1990 emissions [Share]	FY2005 emissions [Share]	FY2013 emissions [Share]	FY2014 emissions [Share]	FY2015			
					Emissions [Share]	(Compared to FY2005)	(Compared to FY2013)	(Compared to FY2014)
<b>Total</b>	1,274 [100%]	1,399 [100%]	1,409 [100%]	1,364 [100%]	1,325 [100%]	-5.3%	-6.0%	-2.9%
<b>Carbon Dioxide (CO<sub>2</sub>)</b>	1,162 [91.3%]	1,311 [93.7%]	1,316 [93.4%]	1,269 [93.0%]	1,227 [92.7%]	-6.4%	-6.7%	-3.3%
Energy-related Carbon Dioxide	1,067 [83.8%]	1,219 [87.1%]	1,235 [87.7%]	1,189 [87.2%]	1,149 [86.7%]	-5.7%	-7.0%	-3.4%
Non-energy-related Carbon Dioxide	95.6 [7.5%]	91.8 [6.6%]	80.8 [5.7%]	79.3 [5.8%]	78.4 [5.9%]	-14.5%	-3.0%	-1.1%
<b>Methane (CH<sub>4</sub>)</b>	44.2 [3.5%]	35.3 [2.5%]	32.7 [2.3%]	32.1 [2.4%]	31.3 [2.4%]	-11.3%	-4.2%	-2.4%
<b>Nitrous Oxide (N<sub>2</sub>O)</b>	31.5 [2.5%]	24.8 [1.8%]	21.4 [1.5%]	20.9 [1.5%]	20.8 [1.6%]	-16.1%	-2.7%	-0.6%
<b>F-gases</b>	35.4 [2.8%]	27.9 [2.0%]	39.1 [2.8%]	42.3 [3.1%]	45.2 [3.4%]	+61.8%	+15.6%	+6.8%
Hydrofluorocarbons (HFCs)	15.9 [1.3%]	12.8 [0.9%]	32.1 [2.3%]	35.8 [2.6%]	39.2 [3.0%]	+206.7%	+22.1%	+9.6%
Perfluorocarbons (PFCs)	6.5 [0.5%]	8.6 [0.6%]	3.3 [0.2%]	3.4 [0.2%]	3.3 [0.2%]	-61.6%	+0.9%	-1.6%
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%]	-58.0%	+1.0%	+2.7%
Nitrogen Trifluoride (NF <sub>3</sub> )	0.03 [0.003%]	1.5 [0.1%]	1.6 [0.1%]	1.1 [0.1%]	0.6 [0.04%]	-61.2%	-64.7%	-49.1%

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

Table 2 Energy-related CO<sub>2</sub> emissions from each sector

(With allocation of CO<sub>2</sub> emissions from power generation and steam generation to each final demand sector)

	FY1990 emissions [Share]	FY2005 emissions [Share]	FY2013 emissions [Share]	FY2014 emissions [Share]	FY2015			
					Emissions [Share]	(Compared to FY2005)	(Compared to FY2013)	(Compared to FY2014)
<b>Total</b>	1,067 [100%]	1,219 [100%]	1,235 [100%]	1,189 [100%]	1,149 [100%]	-5.7%	-7.0%	-3.4%
Industries (factories, etc.)	502 [47.0%]	457 [37.5%]	432 [35.0%]	424 [35.7%]	411 [35.8%]	-10.0%	-4.8%	-3.1%
Transport (cars, etc.)	206 [19.3%]	240 [19.7%]	225 [18.2%]	217 [18.3%]	213 [18.6%]	-11.0%	-5.0%	-1.7%
Commercial and other (commerce, service, office, etc.)	137 [12.8%]	239 [19.6%]	278 [22.5%]	274 [23.0%]	265 [23.1%]	+11.1%	-4.6%	-3.1%
Residential	131 [12.2%]	180 [14.8%]	201 [16.3%]	189 [15.9%]	179 [15.6%]	-0.2%	-10.9%	-5.1%
Energy Industries (power plants, etc.)	91.1 [8.5%]	104 [8.5%]	98.9 [8.0%]	85.0 [7.1%]	79.5 [6.9%]	-23.3%	-19.5%	-6.4%

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

**[Details of the main increase/decrease in energy-related CO<sub>2</sub> emissions compared to FY2014]**

Industries sector (factories, etc.): 13.0 million tonnes (3.1%) decrease

- Emissions from manufacturing (metal industry) decreased.

Transport sector (cars, etc.): 3.7 million tonnes (1.7%) decrease

- Emissions from freight and passenger transport decreased.

Commercial and other sector (commerce, service, office, etc.): 8.6 million tonnes (3.1%) decrease

- Emissions due to electricity consumption decreased.

Residential sector: 9.7 million tonnes (5.1%) decrease

- Emissions due to electricity consumption decreased.

Energy Industries sector (power plants, etc.): 5.5 million tonnes (6.4%) decrease

- Emissions from utility power generation and manufacture of coal products decreased.

**[Details of the main increase/decrease in greenhouse gas emissions other than those of energy-related CO<sub>2</sub> emissions compared to FY2014 (CO<sub>2</sub> eq.)]**

Non-energy-related CO<sub>2</sub> emissions: 0.9 million tonnes (1.1%) decrease

- Emissions from Industrial Processes and Product Use Sector (cement manufacturing, etc.) decreased.

Methane (CH<sub>4</sub>) emissions: 0.8 million tonnes (2.4%) decrease

- Emissions from Agriculture sector (rice cultivation, etc.) decreased.

Nitrous Oxide (N<sub>2</sub>O) emissions: 0.1 million tonnes (0.6%) decrease

- Emissions from the Industrial Processes and Product Use Sector decreased.

Hydrofluorocarbon (HFC) emissions: 3.4 million tonnes (9.6%) increase

- Emissions from refrigerants increased.

Perfluorocarbon (PFC) emissions: 0.05 million tonnes (1.6%) decrease

- Emissions from semiconductor and LCD manufacturing decreased.

Sulfur Hexafluoride (SF<sub>6</sub>) emissions: 0.06 million tonnes (2.7%) increase

- Emissions from metal productions increased.

Nitrogen trifluoride (NF<sub>3</sub>) emissions: 0.6 million tonnes (49.1%) decrease

- Fugitive emissions during NF<sub>3</sub> manufacturing decreased.