(Revised on January 9, 2018)

Japan's National Greenhouse Gas Emissions in Fiscal Year 2016 (Preliminary Figures) <Executive Summary>

- Japan's total greenhouse gas emissions in fiscal year* (FY) 2016 were 1,322 million tonnes of carbon dioxide equivalents (Mt CO_2 eq.).
  - Total emissions decreased by 0.2% (3 Mt CO_2 eq.) when compared to those of FY2015 (1,325 Mt CO_2 eq.).
  - Total emissions decreased by 6.2% (87 Mt CO_2 eq.) when compared to those of FY2013 (1,409 Mt CO_2 eq.).
  - Total emissions decreased by 4.6% (63 Mt CO_2 eq.) when compared to those of FY2005 (1,386 Mt CO_2 eq.).

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

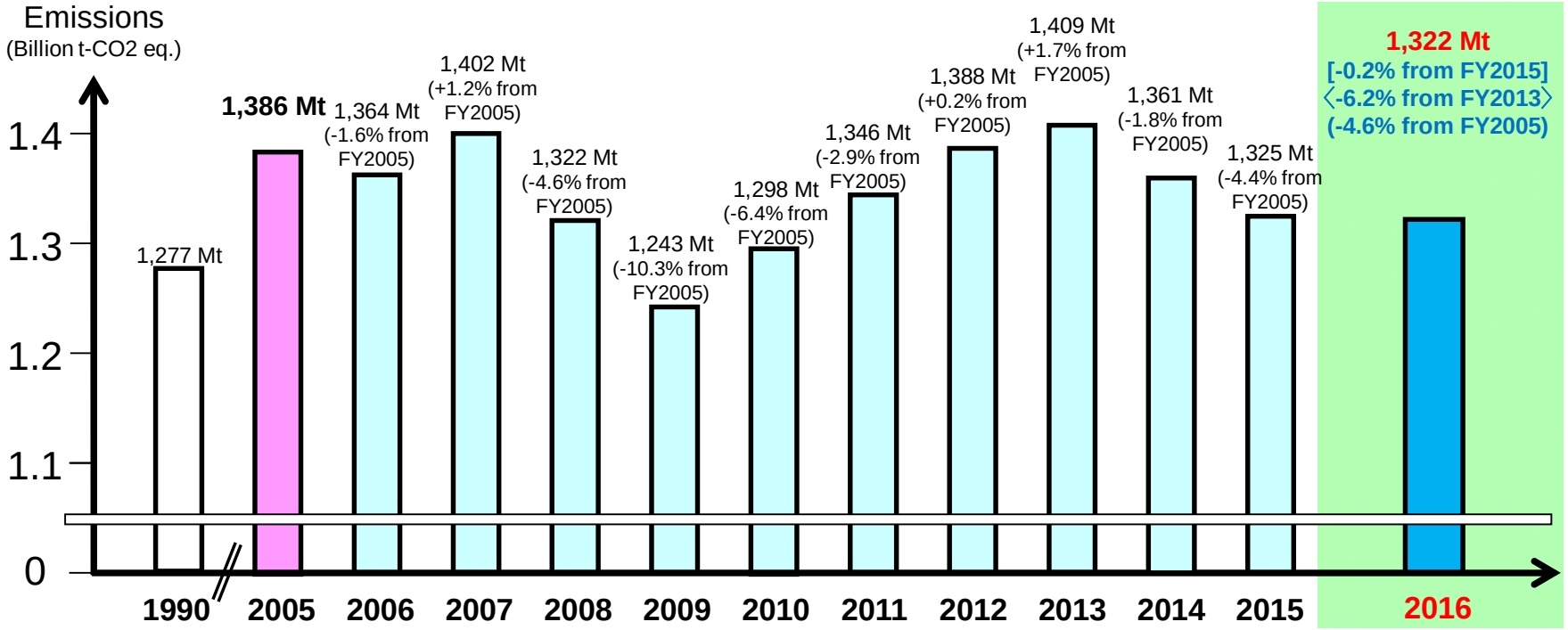
Note:

- The main factor for the lower emissions in FY2016 as compared to FY2015 and FY2013 is the decrease in energy-related CO_2 emissions due to wider adoption of renewable energy and resumption of nuclear power plant operation, despite the increase in hydrofluorocarbon emissions from refrigerants that substitute for ozone-depleting substances.
- The main factor for the drop in emissions in FY2016 as compared to FY2005 is the decrease in energy-related CO_2 emissions in industrial and transport sectors, despite the increase in hydrofluorocarbon emissions from refrigerants that substitute for ozone-depleting substances.

* Emissions are estimated based on annual figures in various statistics. As for the preliminary figures in FY2016, some annual figures from FY2015 were temporarily used in place of FY2016 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 2018 are likely to 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 final figures.

Japan's total greenhouse gas emissions in fiscal year (FY) 2016 (Preliminary Figures)

- **Japan's total greenhouse gas (GHG) emissions in FY2016 (preliminary figures) were 1,322 Mt CO_2 eq.** (0.2% decrease as compared to FY2015; 6.2% decrease from FY2013; and 4.6% decrease from FY2005 levels).
- The main factor for the lower emissions in FY2016 as compared to FY2015 and FY2013 is the decrease in energy-related CO_2 emissions due to wider adoption of renewable energy and resumption of nuclear power plant operation, despite the increase in hydrofluorocarbon emissions from refrigerants that substitute for ozone-depleting substances.
- The main factor for the drop in emissions in FY2016 as compared to FY2005 is the decrease in energy-related CO_2 emissions in the industrial and transport sectors, despite the increase in hydrofluorocarbon emissions from refrigerants that substitute for ozone-depleting substances.



1. Emissions are estimated based on annual figures in various statistics. As for the preliminary figures in FY2016, some annual figures from FY2015 were temporarily used in place of FY2016 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 2018 are likely to 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 final figures.
2. Total GHG emissions in each FY and percent changes from previous years (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 FY2016 (preliminary figures)

Table 1　Japan's national greenhouse gas emissions by gas (comparison with FY2005, FY2013, and FY2015)

	FY1990 emissions [Share]	FY2005 emissions [Share]	FY2013 emissions [Share]	FY2015 emissions [Share]	FY2016 (Preliminary figures)			
					Emissions [Share]	(Compared to FY2005)	(Compared to FY2013)	(Compared to FY2015)
Total	1,277 **[100%]**	1,386 **[100%]**	1,409 **[100%]**	1,325 **[100%]**	1,322 〔100%〕	**-4.6%**	**-6.2%**	**-0.2%**
Carbon Dioxide (CO_2)	1,166 [91.3%]	1,297 [93.6%]	1,316 [93.4%]	1,228 [92.7%]	1,222 [92.4%]	**-5.9%**	**-7.2%**	**-0.5%**
Energy-related Carbon Dioxide	1,070 [83.8%]	1,206 [87.0%]	1,235 [87.7%]	1,150 [86.8%]	1,144 [86.5%]	**-5.2%**	**-7.4%**	**-0.5%**
Non-energy-related Carbon Dioxide	95.6 [7.5%]	91.8 [6.6%]	80.9 [5.7%]	78.3 [5.9%]	78.0 [5.9%]	**-15.0%**	**-3.6%**	**-0.4%**
Methane (CH_4)	44.2 [3.5%]	35.5 [2.6%]	32.5 [2.3%]	31.1 [2.3%]	30.7 [2.3%]	**-13.6%**	**-5.6%**	**-1.4%**
Nitrous Oxide (N_2O)	31.5 [2.5%]	24.8 [1.8%]	21.4 [1.5%]	20.6 [1.6%]	20.6 [1.6%]	**-17.1%**	**-4.0%**	**-0.2%**
F-gases	35.4 [2.8%]	27.9 [2.0%]	39.1 [2.8%]	45.2 [3.4%]	49.5 [3.7%]	**+77.3%**	**+26.7%**	**+9.5%**
Hydrofluorocarbons (HFCs)	15.9 [1.2%]	12.8 [0.9%]	32.1 [2.3%]	39.2 [3.0%]	43.3 [3.3%]	**+238.4%**	**+34.8%**	**+10.3%**
Perfluorocarbons (PFCs)	6.5 [0.5%]	8.6 [0.6%]	3.3 [0.2%]	3.3 [0.2%]	3.4 [0.3%]	**-60.9%**	**+2.9%**	**+2.0%**
Sulfur Hexafluoride (SF_6)	12.9 [1.0%]	5.1 [0.4%]	2.1 [0.1%]	2.2 [0.2%]	2.3 [0.2%]	**-55.4%**	**+7.2%**	**+4.7%**
Nitrogen Trifluoride (NF_3)	0.03 [0.003%]	1.5 [0.1%]	1.6 [0.1%]	0.6 [0.0%]	0.6 [0.05%]	**-56.9%**	**-60.8%**	**+11.1%**

(Unit: Mt-CO_2 eq.)

Table 2　Energy-related CO_2 emissions from each sector

(CO_2 emissions from power and steam generation allocated to each final demand sector)

	FY1990 emissions [Share]	FY2005 emissions [Share]	FY2013 emissions [Share]	FY2015 emissions [Share]	FY2016 (Preliminary figures)			
					Emissions [Share]	(Compared to FY2005)	(Compared to FY2013)	(Compared to FY2015)
Total	**1,070 [100%]**	**1,206 [100%]**	**1,235 [100%]**	**1,150 [100%]**	**1,144 [100%]**	**-5.2%**	**-7.4%**	**-0.5%**
Industries (factories, etc.)	502 [46.9%]	468 [38.9%]	463 [37.4%]	435 [37.8%]	418 [36.5%]	**-10.8%**	**-9.7%**	**-4.0%**
Transport (cars, etc.)	207 [19.4%]	245 [20.3%]	224 [18.1%]	217 [18.9%]	215 [18.8%]	**-11.9%**	**-3.8%**	**-0.8%**
Commercial and other (commerce, service, office, etc.)	130 [12.2%]	217 [18.0%]	244 [19.7%]	231 [20.1%]	219 [19.1%]	**+0.8%**	**-10.2%**	**-5.3%**
Residential	131 [12.2%]	175 [14.5%]	205 [16.6%]	184 [16.0%]	179 [15.7%]	**+2.1%**	**-12.6%**	**-2.9%**
Energy Industries (power plants, etc.)	99.8 [9.3%]	100 [8.3%]	100 [8.1%]	82.0 [7.1%]	113 [9.8%]	**+12.4%**	**+12.3%**	**+37.3%**

(Unit: Mt-CO_2)

【Details of main increases/decreases in energy-related CO_2 emissions, as compared to FY2015】

○ Industries sector (factories, etc.): 17.3 million tonnes (4.0%) decrease

・Emissions from manufacturing decreased.

○ Transport sector (cars, etc.): 1.8 million tonnes (0.8%) decrease

・Emissions from freight transport decreased.

○ Commercial and other sector (commerce, services, office, etc.): 12.3 million tonnes (5.3%) decrease

・Emissions due to electricity consumption decreased.

○ Residential sector: 5.3 million tonnes (2.9%) decrease

・Emissions due to electricity consumption decreased.

○ Energy Industries sector (power plants, etc.): 30.6 million tonnes (37.3%) increase

・(The reasons for the change are currently being analyzed and will be announced at the time of the final figures.)

【Details of main increases/decreases in emissions other than energy-related CO_2 emissions, as compared to FY2015 (CO_2 eq.)】

○ Non-energy related CO_2 emissions: 0.3 million tonnes (0.4%) decrease

・Emissions from the Industrial Processes and Product Use sector decreased.

○ Methane (CH_4) emissions: 0.4 million tonnes (1.4%) decrease

・Emissions from the Agriculture sector (rice cultivation, etc.) and Waste sector decreased.

○ Nitrous Oxide (N_2O) emissions: 0.04 million tonnes (0.2%) decrease

・Emissions from the Industrial Processes and Product Use sector and Agriculture sector decreased.

○ Hydrofluorocarbon (HFC) emissions: 4.1 million tonnes (10.3%) increase

・Emissions from refrigerants increased.

○ Perfluorocarbon (PFC) emissions: 0.07 million tonnes (2.0%) increase

・Emissions from semiconductor and LCD manufacturing increased.

○ Sulfur Hexafluoride (SF_6) emissions: 0.1 million tonnes (4.7%) increase

・ Emissions from metal production increased.

○ Nitrogen Trifluoride (NF_3) emissions: 0.06 million tonnes (11.1%) increase

・ Emissions from semiconductor and LCD manufacturing increased.