Japan's National Greenhouse Gas Emissions in Fiscal Year 2009 (The Preliminary Figures) <Executive Summary>

Concerning the estimation of the preliminary figures: The estimation of the greenhouse gas emissions is based on annual data from a variety of statistics; however, some of these data are not yet available. For those data, which FY 2009 values are not available, the FY 2008 values were used to estimate the preliminary figures. Therefore, there may be some errors in the preliminary figures reported here compared to the final figures to be reported in April 2011.

- Japan's total greenhouse gas emissions in FY 2009 were 1,209 million tonnes of carbon dioxide equivalents.
- Total emissions decreased by 4.1% compared to those of the base year under the Kyoto Protocol (FY 1990 for CO_2, CH_4, N_2O and calendar year (CY) 1995 for HFCs, PFCs, SF_6) as a result of decreased CO_2 emissions within the Industries sector.
- Total emissions decreased by 5.7% compared to the previous year as a result of decreased energy-origin CO_2 emissions within all the sectors including the Industries sector.

(Reference)

- The primary reason for the emission reduction in FY 2009 as compared to FY 2008 was the drop in energy demand within all the sectors including the Industries sector as the result of the severe economic recession induced by the financial crisis and of the reduction of CO_2 emissions intensity of electric power generation because of the increase in the equipment utilization rate for nuclear power plants.
- If the equipment utilization rate for nuclear power plants in FY 2009 was at the same level as prior to their long-term shutdown (i.e., at the level of FY 1998), the total emissions in FY 2009 would be 7.8% lower than those of the base year.

Japan's National Greenhouse Gas Emissions

Japan's national greenhouse gas emissions in FY 2009 were
-4.1% compared to the base year and -5.7% compared to the previous year.
(If the rate of operation of nuclear power plants was 84.2%, its emissions are -7.8% compared to the base year.)

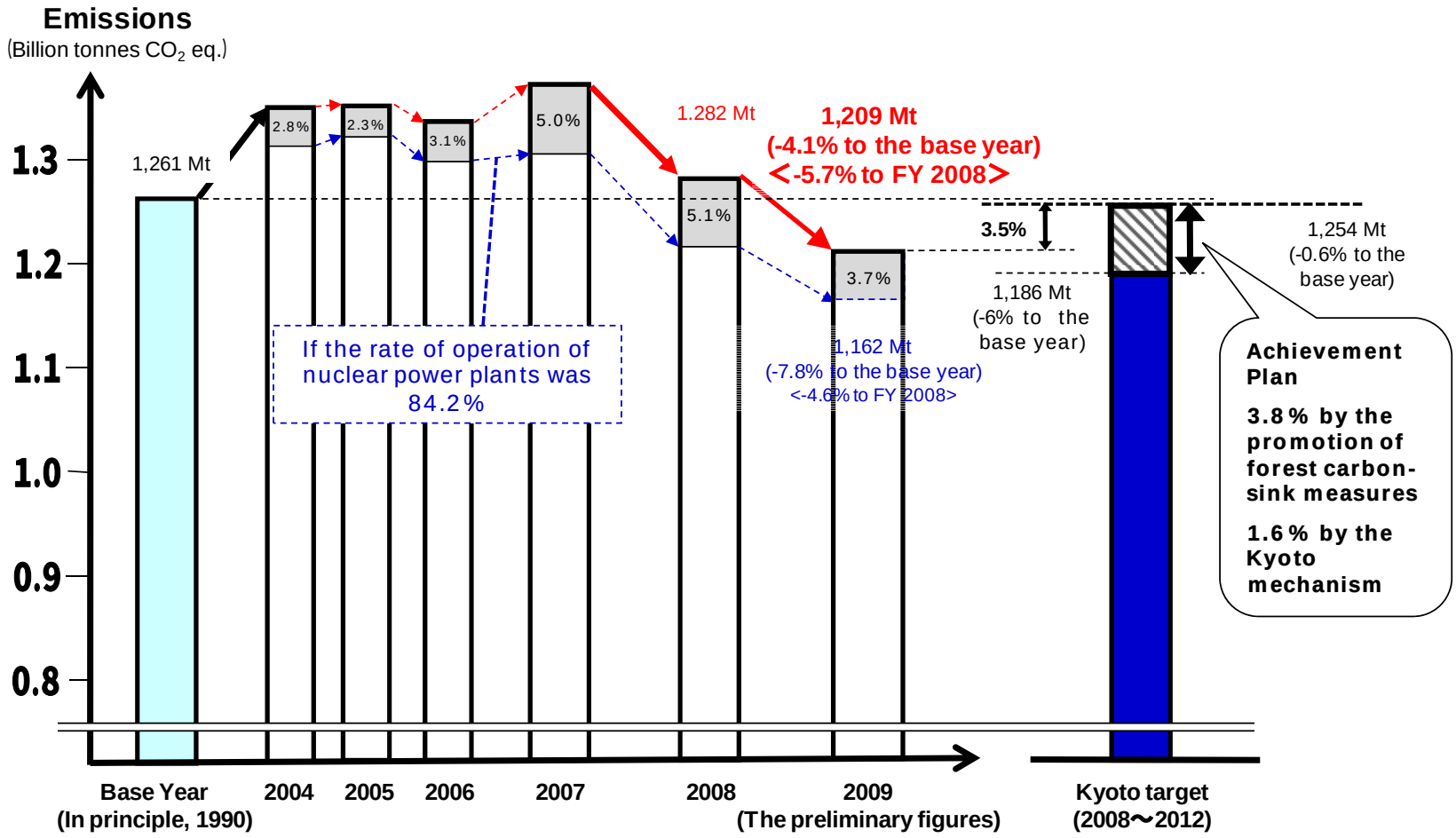

Figure 1 Japan's national greenhouse gas emissions

Table 1　Japan's national greenhouse gas emissions

	Base year under Kyoto Protocol (Share)	FY2008 (Compared to base year)	Changes from FY2008	FY2009 (Compared to base year)
Total	**1,261 (100%)**	**1,282 (+1.6%)**	→ **<-5.7%>** →	**1,209 (-4.1%)**
Carbon Dioxide (CO_2)	1,144 (90.7%)	1,215 (+6.2%)	→ **<-5.8%>** →	**1,145 (+0.03%)**
Energy-origin Carbon Dioxide	1,059 (84.0%)	1,138 (+7.5%)	→ **<-5.6%>** →	**1,075 (+1.5%)**
Non-Energy-origin Carbon Dioxide	85.1 (6.7%)	76.2 (-10.4%)	→ **<-9.1%>** →	**69.3 (-18.5%)**
Methane (CH_4)	33.4 (2.6%)	21.2 (-36.5%)	→ **<-2.1%>** →	**20.8 (-37.8%)**
Nitrous Oxide (N_2O)	32.6 (2.6%)	22.3 (-31.6%)	→ **<-0.4%>** →	**22.2 (-31.9%)**
F-gases	51.2 (4.1%)	23.7 (-53.7%)	→ **<-7.7%>** →	**21.8 (-57.3%)**
Hydrofluorocarbons (HFCs)	20.2 (1.6%)	15.3 (-24.3%)	→ **<+10.2%>** →	**16.9 (-16.6%)**
Perfluorocarbons (PFCs)	14.0 (1.1%)	4.6 (-67.1%)	→ **<-29.0%>** →	**3.3 (-76.7%)**
Sulfur Hexafluoride (SF_6)	16.9 (1.3%)	3.8 (-77.8%)	→ **<-54.8%>** →	**1.7 (-90.0%)**

(Unit: Mt-CO_2 eq.)

Table 2　Energy-origin CO_2 emissions within each sector
(With allocating CO_2 emissions from power generation and steam generation in each final demand sector)

	Base year under Kyoto Protocol (Share)	FY2008 (Compared to the base year)	Changes from FY2008	FY2009 (Compared to base year)
Total	**1,059 (100.0%)**	**1,138 (+7.5%)**	→ **<-5.6%>** →	**1,075 (+1.5%)**
Industries (factories, etc)	482 (45.5%)	419 (-13.1%)	→ **<-7.9%>** →	**386 (-19.9%)**
Transport (cars, ships, etc)	217 (20.5%)	235 (+8.1%)	→ **<-2.5%>** →	**229 (+5.4%)**
Commercial and Other (commerce, service, office, etc)	164 (15.5%)	235 (+43.0%)	→ **<-6.6%>** →	**220 (+33.6%)**
Residential	127 (12.0%)	171 (+34.2%)	→ **<-5.5%>** →	**162 (+26.9%)**
Energy Industries (power plants, etc)	67.9 (6.4%)	78.3 (+15.4%)	→ **<+0.7%>** →	**78.8 (+16.2%)**

(Unit: Mt-CO_2)

【Details of increase/decrease in energy-origin CO_2 emissions compared to FY 2008】

○ Industries sector (factories, etc.): 33.1 million tonnes (7.9%) decreased
  ・Emissions from manufacturing and others decreased by the decrease of production as the result of economic recession.
○ Transport sector (cars, ships, etc.): 5.9 million tonnes (2.5%) decreased
  ・Emissions from trucks/lorries decreased by the decrease of volume of freight transportation.
○ Commercial and Other sectors (commerce, service, office, etc.): 15.4 million tonnes（6.6%) decreased
  ・Emissions decreased, as CO_2 emissions intensity of electric power generation improved, and emissions associated with consumption of oil products (e.g., fuel oil) decreased.
○ Residential sector: 9.3 million tonnes (5.5%) decreased
  ・Emissions decreased, as CO_2 emissions intensity of electric power generation improved.
○ Energy Industries sector (power plants, etc.): 0.5 million tonnes (0.7%) increased

【Details of increase/decrease in greenhouse gas emissions other than energy-origin CO_2 emissions compared to FY 2008 (CO_2 equivalents)】

○ Non-energy origin CO_2 emissions: 6.9 million tonnes (9.1%) decreased
  ・Emissions from the Industrial Processes sector (e.g., cement production) decreased.
○ Methane (CH_4) emissions: 0.4 million tonnes (2.1%) decreased
  ・Emissions from the Waste sector (e.g., solid waste disposal on land) decreased.
○ Nitrous Oxide (N_2O) emissions: 0.1 million tonnes (0.4%) decreased
  ・Emissions from the Agriculture sector (e.g., Agricultural Soils) and from the Fuel Combustion category decreased.
○ Hydrofluorocarbons (HFCs): 1.6 million tonnes (10.2%) increased
  ・Emissions from refrigeration increased as a result of substitution of HCFC, which is an ozone depleting substance, with HFC.
○ Perfluorocarbons (PFCs): 1.3 million tonnes (29.0%) decreased
  ・Emissions from semiconductor manufacturing decreased.
○ Sulfur Hexafluoride (SF_6): 2.1 million tonnes (54.8%) decreased
  ・Fugitive emissions of SF_6 during its production decreased.