

Efforts to Prevent Global Warming

We are examining all of our business operations in our efforts to reduce greenhouse gas emissions—not only factories and offices but also transportation and the products and services we provide.

Basic Approach

We are working to reduce emissions of greenhouse gases associated with all our Group business activities. These efforts include reducing emissions of CO₂ due to energy consumption and other greenhouse gases at our factories and offices and reducing emissions associated with transportation (see page 62).

Furthermore, we are working to prevent global warming throughout all areas of business activity by contributing to reduced emissions of greenhouse gases by our customers, industry, and society in general by developing Green Products and Super Green Products (see page 45) that contribute to reducing environmental burdens and by providing IT solutions (see page 51).

Preventing Global Warming from the Business Site Greenhouse Gas Emission Reduction Targets

We have set “reducing our total greenhouse gas emission by 6% by the end of FY 2012 compared with FY 1990 (the breakdown for total emissions is a 5% reduction in CO₂ due to energy consumption and a 20% reduction in gasses other than CO₂)” as a goal of the Fujitsu Group Environmental Protection Program (Stage VI).

Our actual total emissions for FY 2010 globally were about 1.185 million tons, which is a reduction of about 128 thousand tons from the previous fiscal year and an 11.7% reduction from FY 1990.

Reduction of CO₂ Emissions due to Energy Consumption

CO₂ emissions due to energy consumption are responsible for about 85% of the Fujitsu Group’s greenhouse gas emissions.

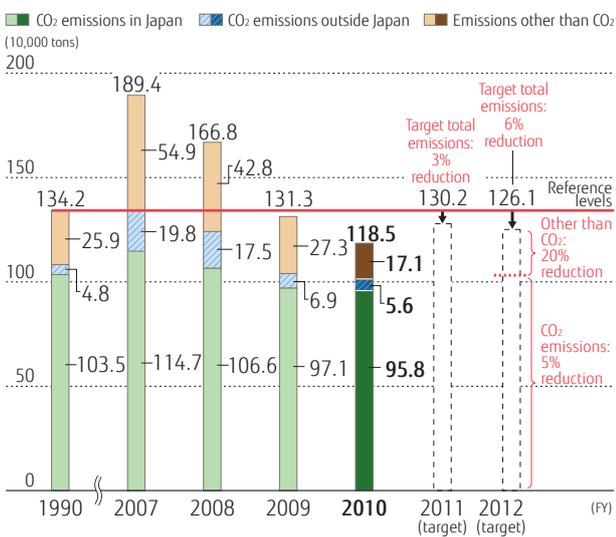
Therefore, we continuously work to improve the following energy-saving measures to reduce CO₂ emissions.

- Energy-saving equipment, focusing on motive-power facilities (introduction of free cooling, inverters, energy-saving facilities, fuel conversion, etc.)
- Increased efficiencies through revised manufacturing processes, accompanied by proper motive-power facility operation and improvement of management
- Adjusting appropriate room temperature for office air conditioning, saving electricity for lighting and office automation equipment
- Promotion of the measurement and visualization of energy consumption and proactive use of that data
- Use of natural energy sources such as solar power

Further, we set up a new Low Carbon Committee (see page 66) at the corporate level in September 2008, establishing reduction targets for each business unit. Stronger measures to achieve these targets follow reforms to processes and equipment (in mounting, assembly and testing) and the development of new technologies. Moreover, our Capital Investment Guidelines define the economic and environmental criteria for investment as we identify and urgently implement priority measures.

As a result, our actual energy-consumption CO₂ emissions for FY 2010 were about 1.014 million tons (958 thousand tons in Japan, 56 thousand tons outside Japan), which corresponds to a 27 thousand ton reduction from the previous fiscal year and a 6.4% reduction from FY 1990.

Trends in Total Greenhouse Gas Emissions (whole group and global)



* CO₂ conversion coefficient for purchased electric power: Calculations have been performed with a fixed value of 0.407 ton of CO₂ per MWh since FY 2002 for performance reports in our Environmental Protection Program.

* Greenhouse gases other than CO₂: These are converted to equivalent amounts of CO₂ using the global warming potential (GWP) of each gas. Our FY 1995 performance is taken to be the emissions in FY 1990.

Activities Example

Reducing CO₂ emissions with outside air cooling and the adoption of turbo cooling units for air conditioning

When we upgraded the aging water-cooled chillers at the Fujitsu Yatsuo Center, we reviewed the facility to determine an appropriate cooling capacity and upgraded to turbo cooling units with high energy efficiency. In contrast with the COP (energy consumption efficiency) value of 4.1 for the water-cooled chillers, the turbo cooling units have a COP value of 5.7* and achieve a reduction in CO₂ emissions due to energy savings.

Furthermore, we adopted equipment that draws in the cool, comparatively damp, outside air that is characteristic of Toyama Prefecture for server room air conditioning. We expect to save an amount of power roughly equal to that consumed by one server air conditioner during periods when outside air is used. We expect to achieve an annual CO₂ emissions reduction of 116 tons through these measures.

* The values shown here for the water cooled chillers and outside air cooling are based on actual operating performance and the values for the turbo cooling units are based on the manufacturer’s catalogs.

Reducing Emissions of Greenhouse Gases Other than CO₂

The semiconductor industry has established a voluntary action plan to reduce the emissions of PFC, HFC and SF₆, which are all greenhouse gases.

We in the Fujitsu Group have set a target of reducing emissions by 10% relative to FY 1995 levels by the end of FY 2010, which is the industry target, and furthermore have set a target of a 20% reduction by the end of FY 2012 for the Fujitsu Group Environmental Protection Program (Stage VI). In our semiconductor divisions, we have changed to gases with a lower global warming potential and, for example, continue to install equipment to extract harmful materials in new and existing fabrication lines.

In FY 2010, we reduced the amount of these emissions measured in global warming potential (GWP) equivalent by 101 thousand tons to about 171 thousand tons by changing gases used and other measures as well as installing 15 new harmful materials extraction units. Since this corresponds to a 33.9% reduction compared to FY 1995, we succeeded in achieving the industry target.

Promoting the Use of Renewable Energy

Although we have adopted renewable energy sources such as solar generation at some of our business sites, in the Fujitsu Group Environmental Protection Program (Stage VI), we have set increased use of renewable energy as a new goal, and introduced the target of installing three times as much capacity by the end of FY 2012 as we had in FY 2007.

In FY 2010, we installed 30 kW of solar generating capacity in the Fujitsu FIP data center, which opened in December, and 120 kW at FDK TWICELL. This resulted in a total installed capacity of solar generating equipment of 265 kW at the end of FY 2010, which is 4.8 times that of FY 2007.

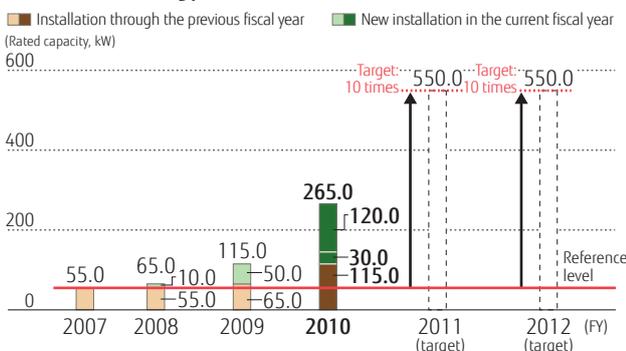
Additionally, we increased our target value to 10 times the FY 2007 level by the end of FY 2012, based on our current installation plans.

FDK TWICELL manufactures rechargeable batteries and has implemented a mechanism in which solar generated electricity is used for initial charging of batteries before shipment.



Solar panels at FDK TWICELL

Cumulative Total of Installed Solar Generation (renewable energy*)



* **Renewable energy utilization ratio:** Calculated based on the rated capacity of solar generation equipment installed at Fujitsu business sites.

Responding to the Japanese Revised Energy Conservation Law

As a result of the revisions to and enforcement of the Japanese Energy Conservation Law*¹, business operators are now required to grasp their annual energy usage at all their business sites in Japan.

In the Fujitsu Group, we use a system (Fujitsu FIP's SLIMOFFICE) that grasps and tabulates the amount of energy we used in all of Japan, include the office space we rent, and manages the amount used by each company in the Group. Note that the Fujitsu Group includes 26 companies that fall within the class of Specified Business Operators (businesses whose annual energy usage is in excess of 1,500 kl when converted to a crude oil equivalent value) newly stipulated in the revised law.

Also, the amount of energy used by the Group within Japan under the Energy Conservation Law in FY 2010 was 618 thousand kl, and that corresponds to CO₂ emissions of about 1.096 million tons*² based on the Law Concerning the Promotion of Global Warming Countermeasures*³, which was also revised.

*¹ **Energy Conservation Law (abbrev.):** the Law Concerning the Rational Use of Energy.

*² **About 1.096 million tons:** There are differences in ranges for tabulation that include tenants and calculations based on CO₂ conversion coefficients for each electric power company for results reporting under our Environmental Protection Program.

*³ A system for calculating, reporting, and disclosing the amount of greenhouse gas emissions stipulated by Japan's Law Concerning the Promotion of Global Warming Countermeasures.

Participating in a Trial Emission Trading Scheme

We participated from FY 2008 until FY 2010 in the Japanese government's domestic emissions trading scheme pilot project, launched in FY 2008 with the aim of examining further global warming countermeasures based on a medium to long term viewpoint.

Continuing in FY 2010, we were validated by an external institution according to the trial emissions trading scheme* pilot project, our emissions level for FY 2009 was verified, and we achieved our targets for the FY 2008 to FY 2009 period.

* **Trial emissions trading scheme:** The principal framework for the trial implementation of an integrated emissions trading market in Japan. Participants voluntarily establish emission reduction targets and are allowed to supplement their own reduction efforts by trading emission allowances and credits.

Efforts Related to Scope 3

We have disclosed greenhouse gas emissions due to corporate activities through the Carbon Disclosure Project (CDP)* for many years and we are also working to calculate our emissions of greenhouse gases including those of the supply chain.

Currently, the Scope 3 Accounting and Reporting Standard for calculating emissions from the whole supply chain is being studied for standardization in fall 2011 under the GHG Protocol, which is an international guideline for calculating and reporting greenhouse gas emissions. Also, in Japan, the Ministry of the Environment held an investigative commission on methods for calculating greenhouse gas emissions in the supply chain starting in July 2010. As a member of the subcommittee on product systems of that commission, we collected and assessed the data, and analyzed the precision and completeness of the calculated values. Based on the results of this case study, we are working towards methods for calculating the Scope 3 emissions internally.

* **Carbon Disclosure Project (CDP):** A project in which institutional investors and others cooperate to request disclosure of information concerning climate change strategy and greenhouse gas emissions from the world's leading corporations.