Environmental Activities in Factories

We work to comprehensively lower the environmental burden of factories making products for the Fujitsu Group.

Approach to Reducing Burdens at the Factory

The Fujitsu Group continually strives to reduce the quantities of materials, water resources, and energy used at its factories, as well as the amounts of chemicals and waste materials generated and atmospheric pollutants emitted, while trying to minimize manufacturing costs. It also takes a rigorous approach to complying with laws and regulations and eliminating environmental risks.

Development of Green Production Technology

Assembly, processing and other production-related processes and equipment account for roughly 40% of overall CO2 emissions at Fujitsu factories. In a move to cut energy consumption associated with production, we are working to visualize power usage particularly around surface mount technology (SMT), assembly and testing processes. Improvements are then implemented beginning with processes and facilities where the most efficient reductions in power consumption are possible.

Case Study

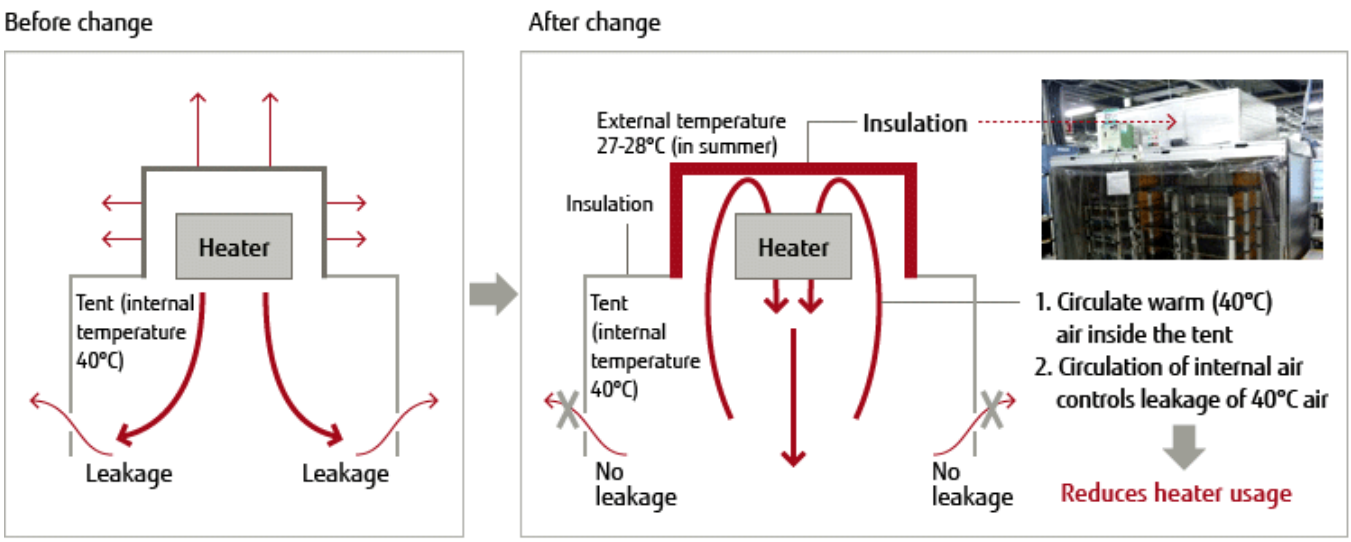
Cutting Electricity Consumption by Insulating Electric Heaters

PFU TechnoWise Limited, a manufacturer of scanners and information kiosk terminals for the Fujitsu Group, works with Fujitsu's Monozukuri Development Unit(Production Promotion Unit) to develop green manufacturing technologies, including ones that reduce electricity usage, for saving energy. In May 2012, they came up with a way to greatly reduce the amount of electricity used by aging tents, which are used in the manufacturing of information kiosk terminals and evaluate the reliability of products under high heat.

In a traditional aging tent, an electric heater positioned at the top takes in and heats outside air to keep the inside of the tent at 40℃. Air pressure inside the tent, therefore, is higher than outside, and warm air leaks from the bottom and sides. That the heater must replace the amount of warm air leaked means energy efficiency is very bad. To improve upon this situation, the electric heater was covered with an insulated box, causing the warm air inside the tent to recirculate through the heater. This relieved the difference in air pressure, eliminating the warm air leakage, and, because the recirculation of warm air improved the operating efficiency of the heater, the amount of electricity needed to keep the redesigned tent at 40℃ was reduced. Measurements show that an improved aging tent uses only 0.325kWh, less than a quarter (more specifically, a 76.7% savings) of the 1.4kWh used by a traditional model. In February 2013, this initiative was one of 60 energy-saving activities that were recognized with an award for outstanding energy management at the 2012 Ishikawa Energy-Saving promotion convention.

Moving forward, we will continue with efforts to steadily save energy with changes to air conditioning facilities, exhaust ducts, and other improvements within manufacturing plants.

Environmental Activities in Factories



Front of aging tent

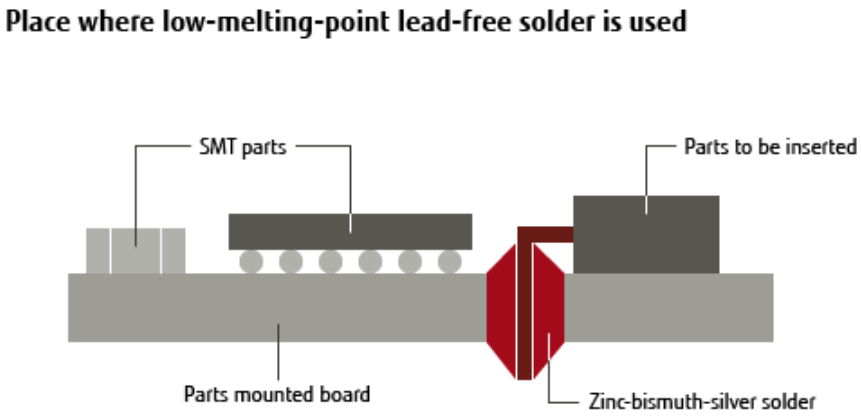
Back of aging tent

Case Study

Low-Melting-Point Lead-Free Solder for Environmentally Friendly Product Manufacturing

Fujitsu IT Products Limited, which makes server products, had adopted the use of lead-free solder to comply with the RoHS Directive for UNIX servers. The solder, however, had a high melting point of over 200℃, meaning that the heater for the solder furnace had to be kept at a high temperature and large amounts of electricity were consumed.

To improve upon this situation, the lead-free solder was fundamentally changed to a low-melting-point solder composed of zinc, bismuth, and silver. With this newsolder, which has a melting point of only 139℃, the solder furnace can be kept at a lower temperature and electricity consumption for the furnace heater has been reduced by 39%. That means an annual energy cost saving of about 740,000 yen and CO2 reduction of around 14 tons. This low-melting-point lead-free solder is now being planned for use on IA servers and mainframes.



- Development of Green Production Technology : Case Study Archives

Reducing the Amount of Waste Generated

Basic Approach

Working towards a recycling-minded society, our 3R*1 policy encourages all employees to separate waste materials into different categories for effective recycling.

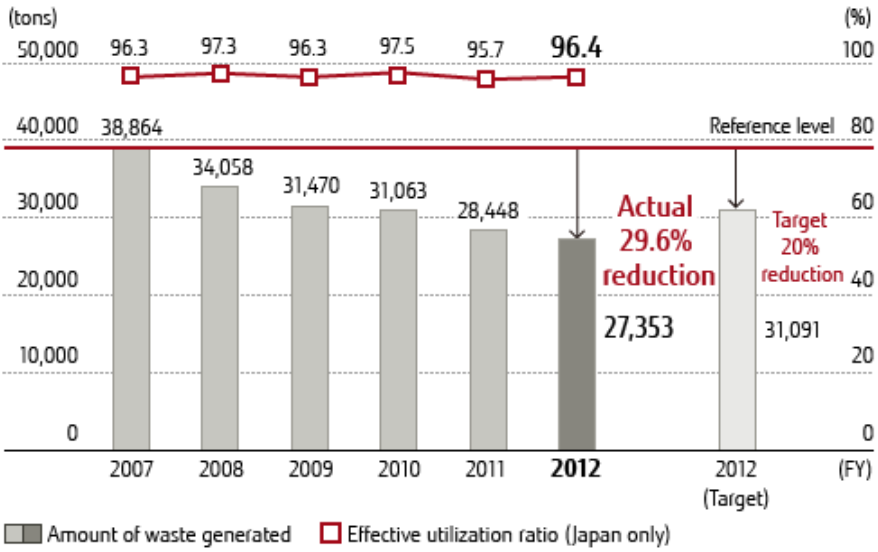
*1 3R:
Reduce, Reuse, and Recycle

FY 2012 Performance

In the Fujitsu Group Environmental Protection Program (Stage VI), we set the goal of reducing the amount of waste business operations generated by 20% compared to FY 2007 levels by the end of FY 2012.

We generated 27,353 tons of waste (per unit of actual sales: 6.2 tons/billion yen) in FY 2012, which was a 3.8% reduction from the previous fiscal year's level and a 29.6% reduction from the FY 2007 level. The Fujitsu Group Environmental Protection Program (Stage VI) target of a 20% reduction from the FY 2007 level, therefore, was achieved. The reasons for these reductions include the conversion of waste paper and cardboard to valuable materials, and the partial introduction of in-house processing of flux cleaning solvent.

Trends in Amount of Waste Generated and Effective Utilization Ratio



Breakdown of Waste Generated, Effective Utilization, and Final Disposal (t)

Waste Type	Waste Generated	Effective Utilization	Final Disposal
Sludge	4,377	4,298	79
Waste oil	1,863	1,862	0.4
Waste acid	3,728	3,725	3
Waste alkali	3,388	3,386	2
Waste plastic	4,046	3,955	91
Waste wood	1,306	1,306	0
Metal waste	517	515	2
Glass/ceramic waste	288	288	0
Other *2	7,839	6,010	1,829
Total	27,353	25,346	2,007

*2 Other:
Other includes general waste, paper waste, septic tank sludge, residues, rubble, textile waste, animal and plant residue, and infectious waste.

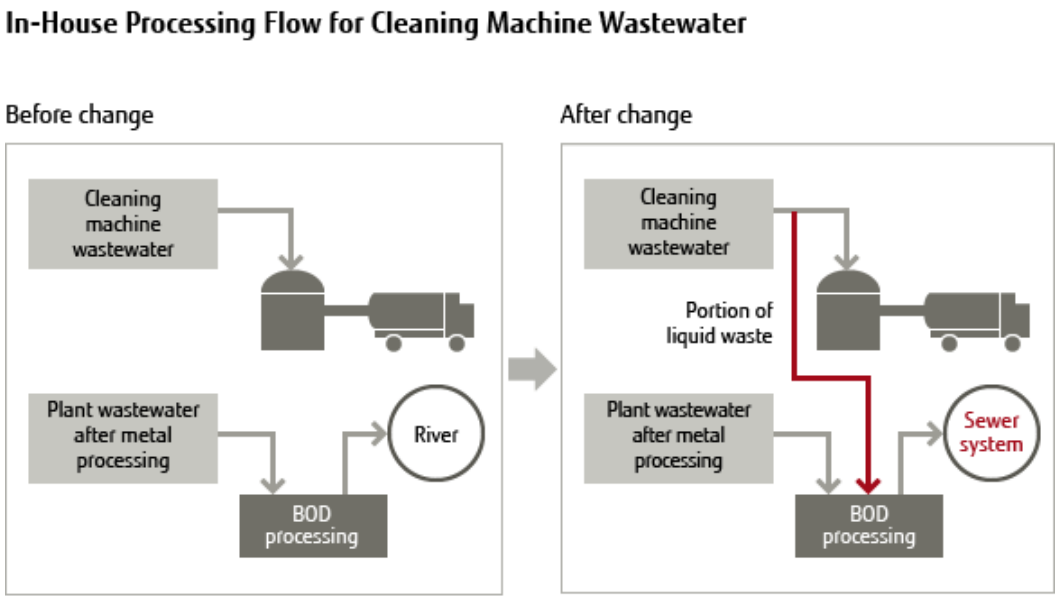
Case Study

Partial Introduction of In-House Processing of Flux Cleaning Solvent

At Shinko Electric Industries Co. Ltd., the cleaning fluid (type of ethylene glycol) used in a cleaning process to remove flux from products was being disposed of as industrial waste.

Switching the discharge destination of industrial wastewater to the sewer system from a river made it possible to process a portion (47%) of the liquid waste in-house and reduce industrial waste discharges by approximately 300 tons per year.

Annual savings in processing expense, meanwhile, came to about 3.4 million yen.



- Reducing the Amount of Waste Generated : Case Study Archives

Achieving Zero Emissions at Domestic Group Companies

The Fujitsu Group promotes zero emissions*3 activities at Group companies in Japan. Zero emissions status was not achieved at some locations. We will continue considering ways to achieve zero emissions at these locations.

*3 Zero emissions:
Refers to effectively using 100% of waste and eliminating waste earmarked for landfills or simple incineration.

The Waste Targets of the Fujitsu Group Environmental Action Plan (Stage VII)

Fujitsu has already marked significant achievements in reducing waste. As ongoing management targets, therefore, we will work to reduce waste to less than the average level of 2007-2011 (31,134tons) and to continue zero emission activities among Japanese plants.

Effective Use of Water Resources

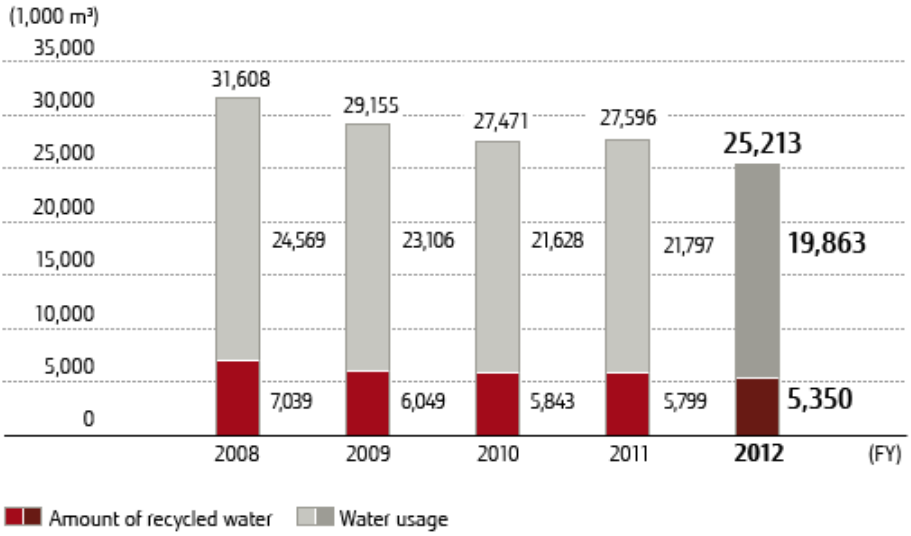
Basic Approach

We are continuously working to recirculate and reuse industrial water through approaches such as pure water recycling and rainwater use. In the Fujitsu Group Environmental Action Plan (Stage VII), which we have begun to implement in FY 2013, we have established effective water usage as a new goal and have taken steps like having overseas sites set their own quantitative targets for reducing water usage in an effort to do even more than we have in the past to use water effectively.

Results for FY 2012

Our water use for FY 2012 was 19,863 thousand cubic meters (per unit of actual sales: 4,530cubic meters/billion yen). This was 8.9% lower than FY 2011 and 8.2% lower than FY 2010. The ratio of recycled water to water use was 26.9% in FY 2012, which was about the same level as the 26.6% ratio in FY 2011.

Trends in Water Usage and Amount of Recycled Water



The Water Resource Targets of the Fujitsu Group Environmental Action Plan (Stage VII)

Fujitsu has traditionally and consistently pursued the effective use of water resources. However, with rising international interest in water resources, we decided that it was necessary to take our activities to an even higher level. Working toward the objective of efficient use of water resources, through approaches like water recycling and water saving, we are working to achieve an even higher level of effective water use.

Case Study

Reduced Water Use at Fujitsu Australia

In Australia, the driest inhabited area of the earth, climate change has given rise to severe drought and other problems making water use a critical issue in realizing a sustainable society.

Though ICT industries do not use extremely large volumes of water, they must still endeavour to use water efficiently. At Fujitsu Australia, the datacenter is the primary consumer of water, over half of which is used for cooling. Since energy and water usage are correlated, increasing the datacenter's energy efficiency resulted in reduced water consumption. Fujitsu Australia is also using rainwater collected from its grounds to water its property and gardens, flush toilets, and provide cooling in its datacenter's closed-loop cooling system.

At The Gauge, a building housing Fujitsu Australia offices, 2.4 million liters of water from a sewage treatment system are reused annually. The building is equipped with many other environmentally friendly features and has won a six-star Green Star rating, the highest available in this Australian environmental architecture rating system.

Chemical Substances Management

Basic Approach

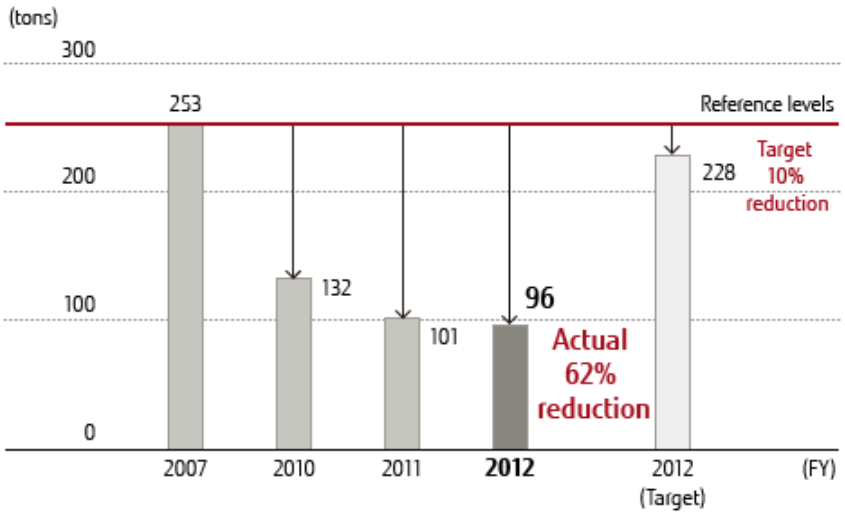
Prevention of environmental risks that could lead to environmental pollution or adverse health effects due to the use of harmful chemical substances has been established as our basic policy for chemical substances management. We manage the amounts used for about 1,300 chemicals, and we work to reduce the amount discharged and implement appropriate management at every business site.

Results for FY 2012

We set the goal of reducing emissions of specific chemical substances by 10% compared to FY 2007 by FY 2012 in the Fujitsu Group Environmental Protection Program (Stage VI).

Emissions of specific chemical substances by the whole Fujitsu Group in Japan in FY 2012 were 96 tons (4.7% reduction from FY 2011), which was a 62% reduction compared to the FY 2007 reference year. The goal of achieving a 10% reduction compared to FY 2007, therefore, was achieved.

Trends in Emissions of Specific Chemical Substances



*Specific chemical substances: Of the substances that are the object of VOC and PRTR regulation, those for which the amount handled is at least 100 kg/year, and one substance selected from the top three substances in emission levels for the reference year.

The Chemical Substance Targets of the Fujitsu Group Environmental Action Plan (Stage VII)

Fujitsu has already marked significant achievements in reducing chemical emissions. As ongoing management targets, therefore, we will work to reduce chemical emissions to less than the average level of 2009-2011 (PRTR: 21t, VOC: 258t)

Compliance with the Revised Chemical Management Law

Following revisions to the Chemical Management Law*4, more chemical substances are now covered by the MSDS*5 system and the PRTR*6 system (revisions applied to the MSDS system from October 2009, and to the PRTR system from April 2010).

Responding to these revisions, the Fujitsu Group has asked its suppliers to cooperate in the delivery of chemicals, and based on the revised PRTR system it is carrying out initiatives to obtain an accurate grasp of the amounts of chemicals transported and emitted. In FY2012, emissions of chemical substances covered by the PRTR system were 22 tons, and per unit of actual sales were 5.0kg/billion yen).

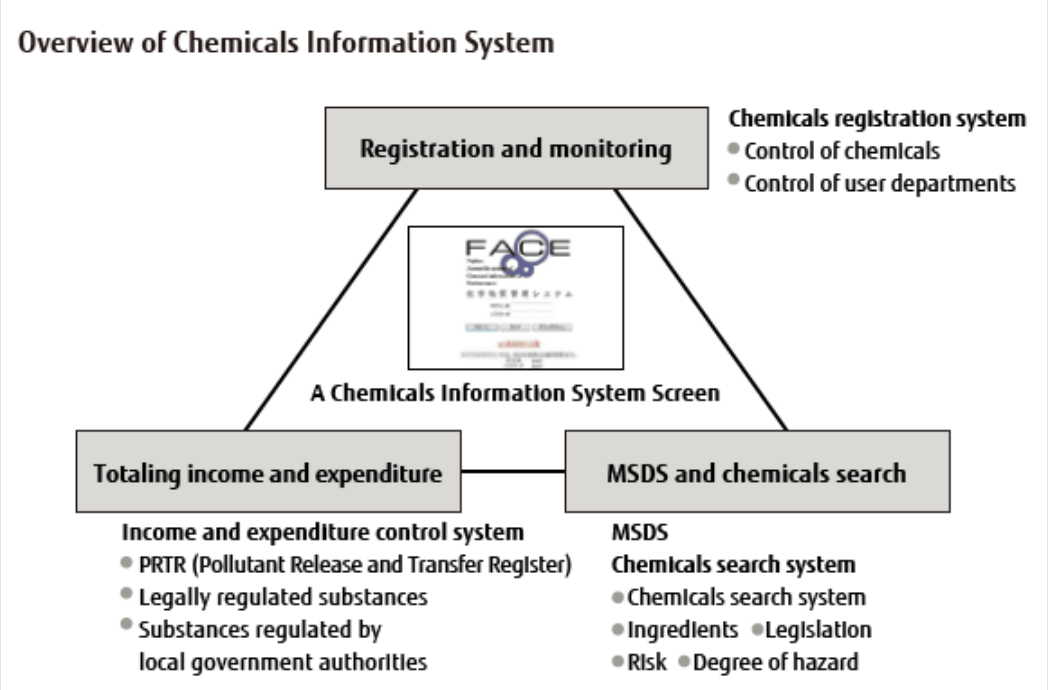
*4 Chemical Management Law:
A law to promote correct understanding, management, and reporting of amounts of designated chemicals emitted into the environment

*5 MSDS:
A system that requires attachment of a Material Safety Data Sheet to chemical deliveries

*6 PRTR:
Abbreviation of Pollutant Release and Transfer Register. This system requires the registration and reporting of data relating to the emission of harmful chemicals into the environment and volumes within transported waste.

Operation of "FACE," the Chemical Information System

The Fujitsu Group operates a Chemical Information System called "FACE." It can be used not only to register and monitor chemicals at every site but also to manage MSDS and control income and expenditure in conjunction with purchasing data and inventory data, FACE is helping the Group to strengthen its chemicals data and make it more efficient.



- Basic Policy for Chemical Substances Management : Case Study Archives

Preventing Air and Water Pollution

Preventing Air Pollution

We have set voluntary controls that are more stringent than emissions standards under related laws and ordinances in order to prevent air pollution and limit acid rain. Regular measurement and monitoring is conducted based on these controls. Efforts are made to appropriately process sulfur oxide, nitrogen oxide and other harmful substances and reduce emissions through measures such as controlling incineration at facilities that emit smoke, using fuels with low sulfur content, and managing operations at exhaust gas processing facilities. Furthermore, an absorption system using activated charcoal has been introduced to reduce the atmospheric discharge of organic solvent vapors containing substances like VOCs.

In addition, emission of dioxins has been prevented by suspending use of (completely phasing out) all in-house incineration facilities as of January 2000.

Preventing Water Pollution

In order to preserve the water quality of surrounding waterways, including rivers, groundwater and sewers, we have set voluntary controls that are even tougher than related laws and ordinances and conduct regular measurement and monitoring on this basis. We separately recover and recycle chemicals used in production processes, instead of discharging them into wastewater. And we are working to appropriately process harmful substances and other regulated substances (COD, BOD, etc.) and reduce discharges of them by ensuring appropriate chemical use, preventing chemical leaks and permeation, and properly managing the operations of water treatment and purification facilities, among other measures.

Preventing Ozone Layer Depletion

Elimination of Ozone-depleting Substances

The Fujitsu Group has completely eliminated use of ozone-depleting substances in manufacturing processes (parts cleaners and solvents) by utilizing precision aqueous cleaning systems and no-clean soldering technologies. Refrigerant CFCs used in air conditioning equipment (freezers, etc.) are being replaced with non-CFC refrigerants when equipment is upgraded, and measures are also taken to prevent leaks.

Achievements in Abolishing Ozone-depleting Substances

Ozone-depleting substance	Date of elimination
Cleaning freons (CFC-113, CFC-115)	End of 1992
Carbon tetrachloride	End of 1992
1,1,1-trichloroethane	End of October 1994
Substitute freons (HCFCs)	End of March 1999

Environmental Liabilities

The Fujitsu Group, in properly forecasting environmental liabilities and communicating our soundness and stance of not deferring environmental liabilities, has recorded a liability of 8.28 billion yen in soil-pollution cleanup costs, high-level polychlorinated biphenyl (PCB) waste disposal costs, and asbestos processing costs during facilities demolition. This total is the amount we calculate, as of the end of FY 2012, to be necessary for the Fujitsu Group in Japan to carry out these tasks.

For processing waste with high levels of PCBs (transformers and capacitors), we have registered in advance with Japan Environmental Safety Corporation (JESCO), which processes PCB waste under Japanese government supervision, and perform this processing based on JESCO plans.

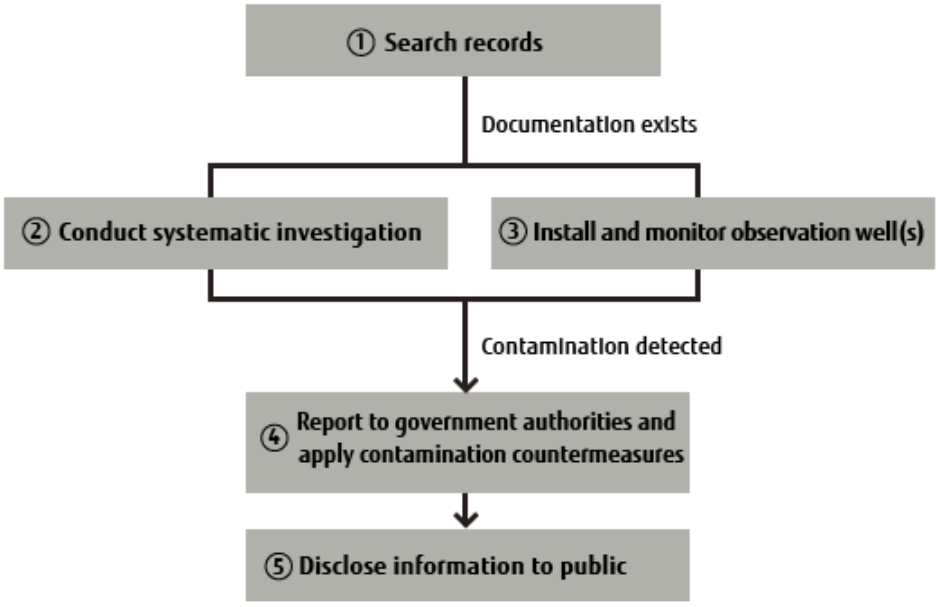
Preventing Soil and Groundwater Pollution

Fujitsu conducts soil and groundwater contamination surveys, implements countermeasures, and discloses the resulting data.

Our Approach

We review as necessary our internal rules established in FY 2006 in response to soil and groundwater problems, and will handle such problems based on these revised rules for soil and groundwater surveys, policies, and disclosure. In the future, in parallel with performing planned surveys and, if contamination is discovered, implementing cleanup operations and countermeasures appropriate for the conditions at each business site, we will also disclose relevant information in collaboration with administrative agency.

Monitoring the Impact of Groundwater Contamination Outside of Fujitsu Sites*



* We monitor groundwater contamination near our sites, which is the largest risk for soil and groundwater pollution.

Status of New Soil and Groundwater Pollution Measures Undertaken in FY 2012

A voluntary survey in FY 2012 revealed soil and groundwater contamination at two sites. We reported the state of contamination at this site and explained our countermeasures to administrative agency.

Measures to Clean Up Soil and Groundwater Pollution Due to Past Business Activities

We have dug wells to monitor groundwater contamination near our sites where soil or groundwater pollution has been found. We continuously monitored eight such sites in FY 2012.

The table below lists the largest of the most recent measurements for chemicals with levels recognized to have exceeded regulated levels in FY 2012 stemming from past business activities.

Business Sites Where Soil or Groundwater Contamination Has Been Found

Site Name	Location	Cleanup and Countermeasure status	Monitoring Well Maximum Value (mg/l)		Regulated Level (mg/l)
			Substance	Measured Value	
Kawasaki Plant	Kawasaki City, Kanagawa Prefecture	We are continuing to clean up VOCs by pumping and aeration.	Cis-1, 2-dichloroethylene	3.0	0.04
Oyama Plant	Oyama City, Tochigi Prefecture	We are continuing to clean up VOCs by pumping and aeration.	Cis-1, 2-dichloroethylene	4.275	0.04
			Trichloroethylene	0.048	0.03
			1,1- dichloroethylene	0.032	0.02
Nagano Plant	Nagano City, Nagano Prefecture	We are continuing to clean up VOCs by pumping and aeration.	Cis-1, 2-dichloroethylene	0.16	0.04
Suzaka Plant	Suzaka City, Nagano Prefecture	We have begun construction of an underground impervious wall and facilities for processing pumped water.	Polychlorinated biphenyl	0.021	Must not be detected
Fujitsu Interconnect Technologies Kurohime Office (Formerly Shinetsu Fujitsu)	Shinano machi, Kamiminochi Gun, Nagano Prefecture	We are continuing to clean up VOCs by pumping and aeration.	Cis-1, 2-dichloroethylene	0.12	0.04
Fujitsu Optical Components	Oyama City, Tochigi Prefecture	We are continuing to clean up VOCs by pumping and aeration.	Cis-1, 2-dichloroethylene	0.114	0.04
			Trichloroethylene	0.18	0.03

Site Name	Location	Cleanup and Countermeasure status	Monitoring Well Maximum Value (mg/l)		Regulated Level (mg/l)
			Substance	Measured Value	
FDK Sanyo plant	Sanyo-Onoda City, Yamaguchi Prefecture	We are continuing to clean up VOCs by pumping and aeration.	1, 2-dichloroethylene*1	0.11	0.04
			Cis-1, 2-dichloroethylene	0.053	0.04
			Trichloroethylene	0.090	0.03
FDK Energy (Formerly the FDK Washizu Plant)	Kosai City, Shizuoka Prefecture	We are continuing to clean up VOCs by pumping and aeration.	Trichloroethylene	0.35	0.03
			Tetrachloroethylene	0.41	0.01
			Cis-1, 2-dichloroethylene	0.71	0.04

*1 1, 2-dichloroethylene:
The analysis item was changed from "Cis-1, 2-dichloroethylene" to "1, 2-dichloroethylene" in accordance with the guidance of administrative agency in October.

Environmental Activities in Offices

We strictly observe all laws concerning the environment and also work to save energy and achieve zero waste emissions, not only at our production sites but also at all our business offices.

Green Office System

The Fujitsu Group's Green Office system comprehensively evaluates the environmental consciousness and independent environmental initiatives undertaken by individual offices and produces visual representations of the results. The Green Office system was launched in FY 2007 for offices in Japan and, by FY2009, all of the Group's 371 offices (the total at the time) had achieved 3-star ratings and zero waste emissions*1.

In FY 2010, we established the goal of achieving ratings of 4 stars or higher for all of our offices in Japan by the end of FY 2012 as part of the Fujitsu Group Environmental Protection Program (Stage VI). Achieving this goal meant, in addition to satisfying the conditions for three stars, undertaking biodiversity conservation activities, disclosing environmental information to stakeholders, and unifying industrial waste processing for office emissions. The first two of these goals were achieved through application of the "Act-Local-System" social contribution activity database. As for the third, we introduced the first system for unifying the processing of industrial waste*2 in Japan and did so by the end of FY 2012, bringing all of our offices in Japan up to the 4-star rating and achieving our goal.

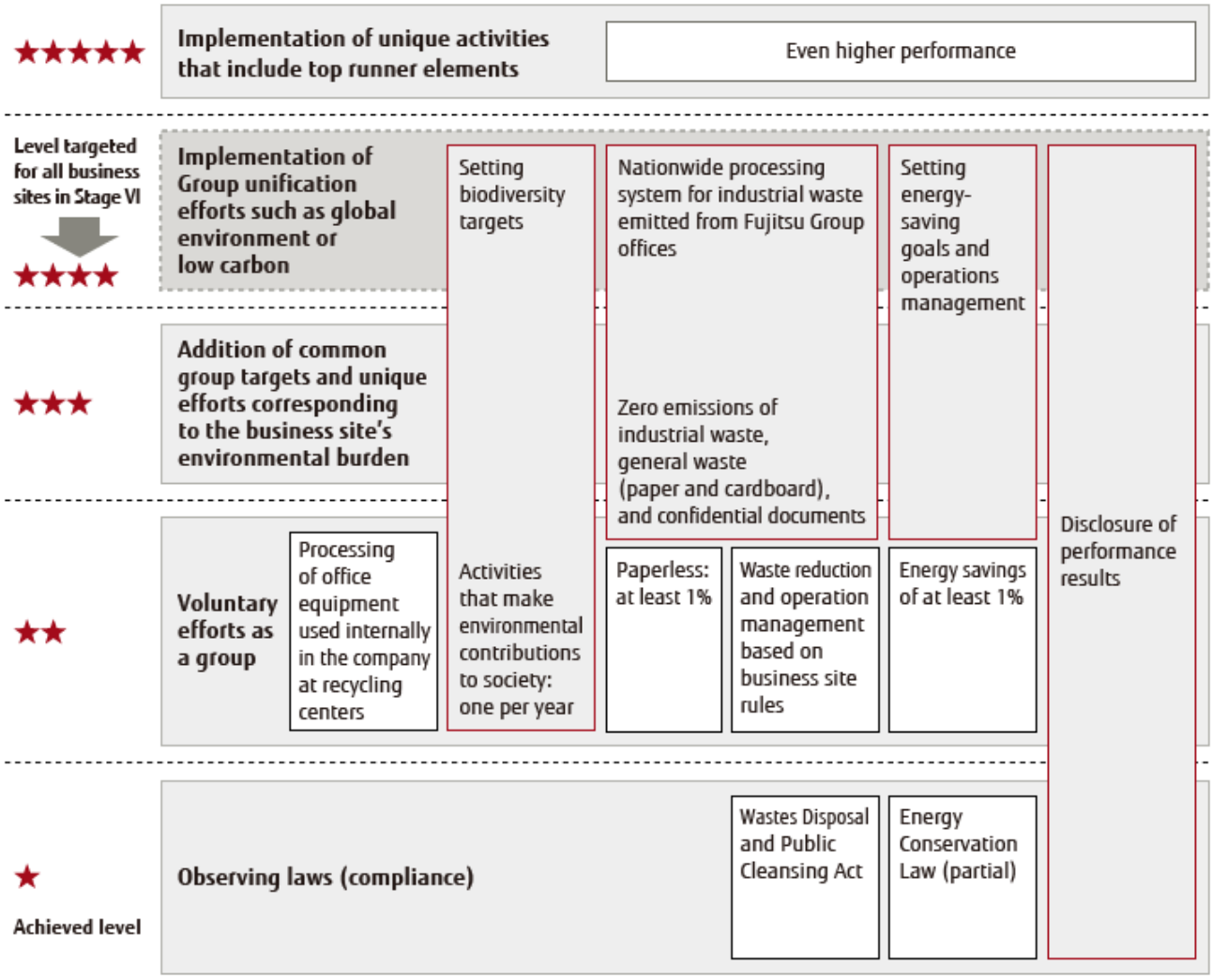
For our overseas sites, we prepared draft standards and began applying them on a trial basis in FY 2012. As results come in, we will examine them and consider steps going forward.

In Japan, we aim to further refine the Green Office system and are considering incorporating ISO14031-compliant environmental performance evaluations toward that end. By continuing with the Green Office system, making visible the details of the activities carried out by individual offices, and building a database for sharing information on and expanding activities among our offices, we will continue to raise the level of environmental activities throughout the Fujitsu Group.

*1 Zero waste emissions:
For simple calculations of emissions from the incineration or landfill disposal of industrial waste and paper waste

*2 System for unifying the processing of industrial waste:
Under this system, we have used certain criteria to select waste processing companies on a regional basis, and have them regularly collect industrial waste from our offices.

Overview of the Green Office Evaluation System



Creating a Database of Environmental Activity Measures, and Utilizing Checklists

Through Green Office system implementation, we check and create a database of the progress and status of measures targeting energy efficiency, waste reduction, paperless operations and other goals at all applicable offices, and produce a checklist of key measures. These checklists are proving useful not only as a reference for potential measures to adopt when offices set their environmental objectives and targets, but also for invigorating and enhancing activities by making visible operational improvement issues and measures that require investment.

Reducing Waste from Offices

On-Site Waste Disposal Auditing

To confirm that ICT equipment and other types of industrial waste are being properly dealt with, the Fujitsu Group has developed and operates a structure under which Fujitsu Recycling Centers, as waste processing specialists for in-house ICT equipment, have been established wherever Group companies operate. Under this framework, we perform standardized Group-level checks through periodic, on-site audits. Specifically, a member of the Fujitsu Corporate Environmental Strategy Unit visits the recycling centers once a year with the person in charge of waste disposal from the relevant office, using a standardized checklist to check the documentation and the onsite disposal operation itself.

In addition, to sustain and improve security levels with respect to confidential document disposal, we implement on-site validation once a year of Japan Security and Recycle Network, a company that processes confidential documents based on a nationwide paper recycling system created in FY 2009.

- Reducing the Waste Generated in Office : Case Study Archives

Reducing CO2 Emissions in Offices

Efforts by the Fujitsu Group to reduce CO2 emissions are guided mainly by promotion of the measures detailed below.

- Energy-saving equipment measures (for Group-owned buildings)
- Adjust appropriate room temperature for office air conditioning (28℃ in summer and 20℃ in winter)
- Extinguish unnecessary lighting, shorten air-conditioner use outside of regular work hours (uniform quitting time, etc.)
- Set energy-saving mode for PCs, turn off display when away from desk
- Turn off standby mode power in AC adapters, use smart power sockets
- Implement nighttime operation control for PCs, shared terminals, development terminals and other equipment
- Consolidated access points
- Perform in-house and request external evaluations of energy efficiency
- Install green curtains (including at some leased offices)
- Transition to energy-saving vending machines
- Introduce LED lighting and transition to switches that adjust lighting to activity levels
- Introduce hybrid cars

For more information on CO2 emission reductions at our business sites, including some leased offices, in Japan, please refer to the following webpage.

- Efforts to Prevent Global Warming
- Reducing CO2 Emission in Offices : Case Study Archives

Environmental Activities in Datacenters

Fujitsu promotes the construction of environmentally conscious datacenters, and aims to help realize low-carbon, sustainable societies by contributing to greater productivity for customers, and lowering the burden on the environment.

Promoting Environmentally Conscious Datacenters

Fujitsu's environmentally conscious datacenters, which have as their top priority the provision of high-quality service to customers, are characterized not only by their energy efficiency but also by their emphasis on reliability and safety. In addition, by visually communicating energy usage, they enable continuous PDCA cycles for identifying issues, taking action, and checking results, and make clear the environmental contribution effects of using a Fujitsu datacenter.

Fujitsu has identified seven categories of technical aspects that merit consideration when constructing an environmentally conscious datacenter. The Fujitsu Group has accumulated technology and know-how in conformity with this framework and applies it in constructing or refurbishing datacenters inside and outside of Japan.

Framework for Considering Technology for Constructing an Environmentally Conscious Datacenter

- **Visual Representation**
  Monitoring electricity consumption, temperature, and humidity to analyze and evaluate energy usage.
- **Power Distribution Innovation (Optimal Energy Usage)**
  Our goal is to achieve high reliability and rationality in the distribution of electric power to ICT equipment, and do so from the perspectives of stable operation, business continuity, and energy efficiency. We are also working with suppliers to achieve technological improvements and innovations in battery materials for uninterruptible power supplies (UPS) and in other individual devices and facilities.
- **Ultra-High Efficiency Air Conditioning (Optimal Air Conditioning)**
  We work to make air conditioning, which is critical to saving energy, more efficient. Our aim is to achieve air conditioning that relies 100% on external air and is optimized for the climatic and geographic conditions of each datacenter.
- **Green Energy**
  We continue to seek ways to use solar power and other renewable forms of energy.
- **Facility Delivery Innovations (Housing Innovations)**
  We provide datacenters from the very largest to the very smallest and of various specifications to match customer needs. Working from a modular datacenter concept, rapid delivery of high-quality datacenters matching customer needs is our goal.
- **ICT Platforms**
  The ICT equipment for installation in datacenters is constantly evolving. But it is not enough to simply use the latest, most efficient equipment; we search for equipment best suited for use in a datacenter and work with our ICT Equipment Unit to offer datacenters with the best overall efficiency.
- **Energy Procurement Innovation (Energy links between facilities)**
  To maintain business continuity, we aim to create datacenters with high energy source independence. We, therefore, seek to ensure a stable supply of power and we consider a variety of energy procurement possibilities, including on-site and nearby facilities.

Initiatives in FY 2012

Contributions to Industry Organizations

Concentrating a customer's ICT assets in a datacenter also contributes as an energy-saving benefit for society as a whole. By actively being involved in working group activities in the various industry organizations related to datacenters, Fujitsu helps to enhance the value of datacenters to society. Citing one example, in particular, Fujitsu is leading efforts to devise and promote the use of PUE (Power Usage Effectiveness) measurement and calculation methods as an industry representative to the Japan Data Center Council (JDCC).

Visualization of Effects

Fujitsu has won approval from the Ministry of Economy, Trade and Industry's J-Credit Scheme (for reduction of CO2 emissions in Japan) for a method for calculating CO2 reductions achieved by switching to a Fujitsu datacenter and for a scheme that will actually issue credits. This makes it possible to visualize a customer's environmental contribution from outsourcing datacenter services to Fujitsu and to credit the customer for that contribution.

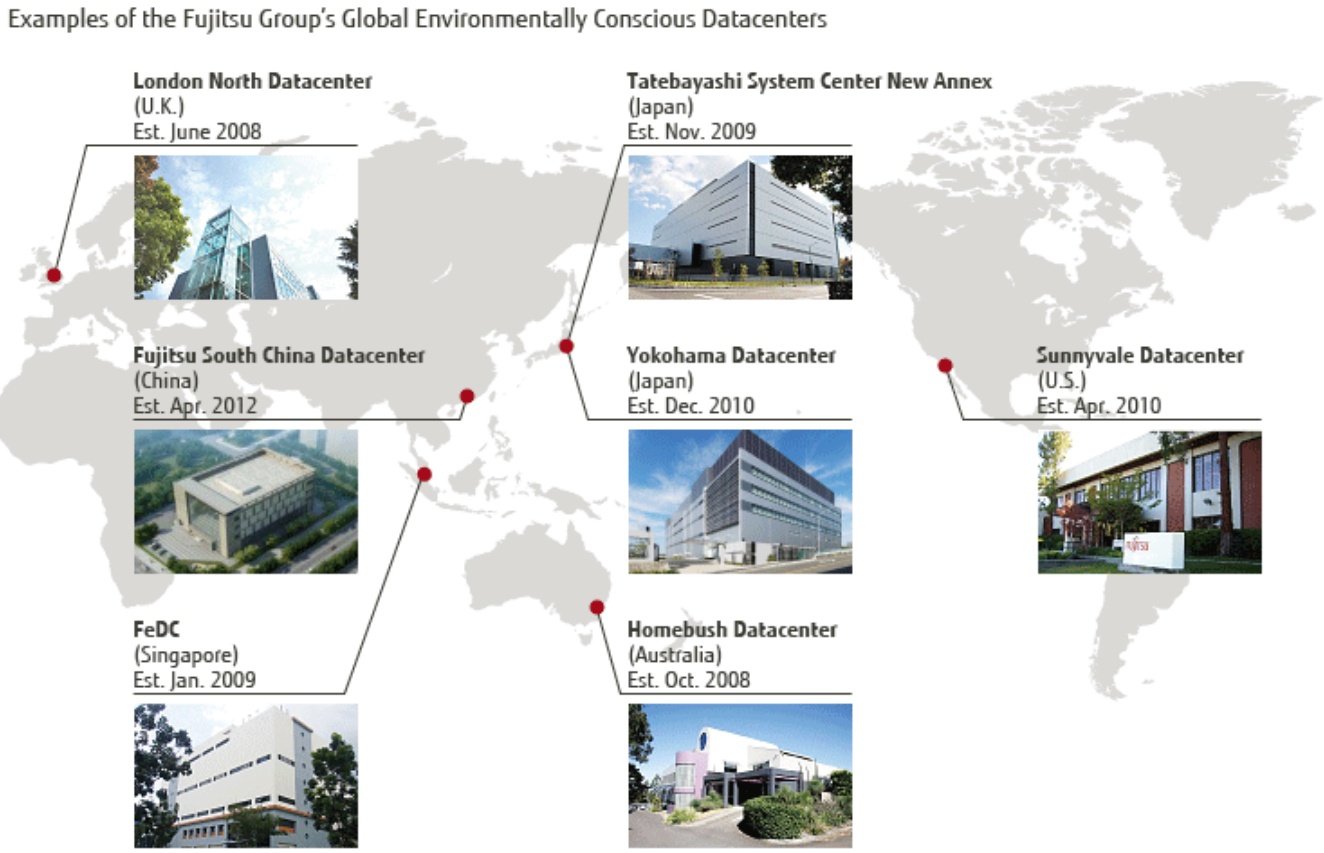
Datacenter Solution wins 2013 Datacenter Management and Automation Award in Germany

Fujitsu datacenter solutions won the 2013 Datacenter Management and Automation Award sponsored by Germany's Club Gala. This prize is presented to the datacenter implementation with high energy efficiency and the most outstanding environmental performance.

Fujitsu's datacenter solutions are provided to customers as cloud-based ITMaaS (IT Management as a Service). In providing these solutions, we identify inefficient energy usage at customer datacenters, recommend actions for reducing operating costs and improving energy efficiency, and offer customers cost and energy savings through the automation of their datacenter operations.

Example of the Fujitsu Group's Global Environmentally Conscious Datacenters

The Fujitsu Group has datacenters in over 100 locations across the globe and is vigorously moving forward with the introduction of technologies and facilities that are good for the environment.



Fujitsu South China Datacenter (China) Est. Apr. 2012

The Fujitsu South China Datacenter is the first datacenter established and owned by the Fujitsu Group in China. Based on the latest technology, this datacenter offers quality equal to the world's highest standards and is equipped with state-of-the-art technologies for energy efficiency. Equipped with an efficient power plant featuring a rotary UPS (Uninterruptible Power Supply), an energy management system that monitors temperature and individual server rack electricity consumption 24/7, an air-conditioning system with geothermal features, a lighting control system, and other energy efficiency innovations, we have done everything practicable to minimize this datacenter's electricity consumption.

Yokohama Datacenter (Japan) Est. Dec. 2010

In establishing the Yokohama Datacenter, we not only equipped it with all of the latest energy-efficient facilities and energy-efficiency management systems; we also used a design that uses server room waste heat to warm office space, uses rainwater to flush toilets, and took other proactive steps as well to help realize a recycling-based society. In recognizing the value of our efforts, the City of Yokohama's Comprehensive Assessment System for Building Environment Efficiency (CASBEE) awarded the Yokohama Datacenter its highest, S, rank. In FY 2012, it also won the Kanagawa Prefecture's 2nd Kanagawa Global Warming Prevention Award in the greenhouse gas reduction performance category.

London North Datacenter (U.K.) Est. June 2008

At the London North Datacenter, in the U.K., we have deployed energy use simulation technology designed to optimize datacenter facility and ICT equipment operations. We have also installed free cooling, high-efficiency UPS, and other technologies to cut facility-related CO2 emissions by about 3,000 tons per year, compared to a conventional datacenter.

Homebush Datacenter (Australia) Est. Oct. 2008

For our Homebush Datacenter, in Australia, we employed a cooling system that combines the reuse of cooling water and a layout optimized for heat flow, and achieved an 80% reduction in water usage and up to a 32% reduction in energy usage, compared to conventional systems. In addition, we reduced energy consumption by up to 60% through the use of centralized equipment controls and sensor-equipped lighting.

Sunnyvale Datacenter (U.S.) Est. Apr. 2010

At our Sunnyvale Datacenter in the U.S., we have taken energy-saving steps like installing an on-site power generation facility that uses hydrogen fuel cells and biofuels.

FeDC (Singapore) Est. Jan. 2009

At the FeDC in Singapore, we have installed a high-efficiency power plant, temperature monitoring system, lighting control system, and other technology to make this facility energy efficient.

Indirect Air Cooling Container Datacenters

With the rapid adoption of ICT and cloud computing in particular, the datacenters that underlie it all are taking on even greater importance. As a new form of datacenter, Fujitsu began in October 2012 to provide "container" datacenters that can be constructed in a short time and used to start operations at a small scale. Because they are relatively small and can be cooled without waste, container datacenters operate with only a small amount of electric power and have low operating costs.

Container datacenter

Our container datacenters employ indirect air cooling that takes external air into a heat exchanger and expels air warmed by the ICT equipment. The use of external air reduces the amount of energy needed for air conditioning and eliminates the need to install the external water-cooling equipment required for a water-cooled system. A key characteristic of our container datacenters, therefore, is that they can be installed in any environment or location. In addition, because external air is not taken into the container directly, the system is one that does not require adjustments of humidity and is not subject to the effects of dust or insects.

The ICT equipment and facilities installed in the container are controlled by Fujitsu's own operating and management software. And electricity consumption is minimized through the deployment of electrical system control technology developed by Fujitsu Laboratories Ltd.

Indirect external air cooling system