

2. Measures for Global Environmental Issues

(1) Measures for greenhouse gas reduction taken on the power supply side

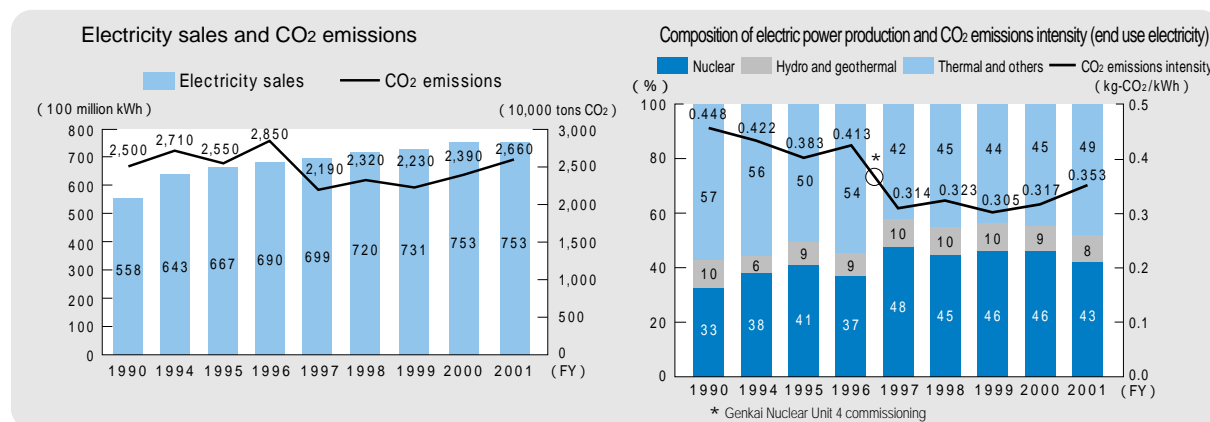
CO₂ comprises 90% of the greenhouse gases emitted in Japan, and approximately 25% of this is attributable to the electric power industry.

Kyushu Electric Power's CO₂ emissions in fiscal 2001 amounted to 26.6 million tons CO₂ or 2% of the total in Japan.

During the 11 years from fiscal 1990, Kyushu Electric Power's electricity sales increased 1.4 times; however, CO₂ emissions have remained around 106%. This was mainly due to the development of two nuclear power stations (2.36 million kW).

Other indices show that CO₂ emissions per kWh consumed by customers, i.e. CO₂ emissions intensity (end use electricity), decreased to 79%. This means that CO₂ emissions attributable to power consumed by customers in regular households were reduced by approximately 27kg-CO₂ per month from the fiscal 1990 value.

(N.B. the above figure is estimated on the assumption that Kyushu's average power consumption of 284 kWh/month (FY2001 records) under lighting contracts (Residential Lighting A and B) equals the electric consumption of regular households.



Promotion of nuclear power

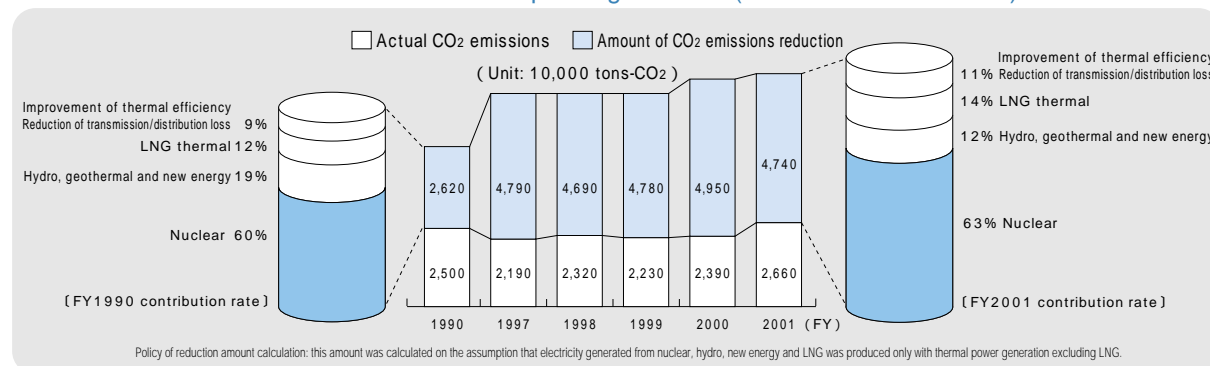
Kyushu Electric Power is committed to developing and utilizing nuclear power, while placing the utmost emphasis on safety, and with the understanding and cooperation of the public. (See Related Information II.1. (p.52) and II.2. (p.53) for details of constant operation at a rated thermal power, as well as the Plutonium-Thermal (Plu-Thermal; Plutonium utilization in light water reactors) Project.)

In fiscal 2001, the reactor vessel head and steam generator for Genkai Nuclear Unit 1 and 2 were replaced to further improve the reliability of components and reduce the dose of radiation exposure to workers during inspections (See Related Information II.3. (p.54) for details).

This procedure extended the inspection period, resulting in a lower nuclear power capacity factor of 79.7%, or 6.1% lower than in fiscal 2000.

In the case of Kyushu Electric Power, a one-point increase in the nuclear power capacity factor leads to a reduction of approximately 400,000 tons of CO₂ emissions annually. The lower capacity factor is the major cause of the CO₂ emissions increase in fiscal 2001.

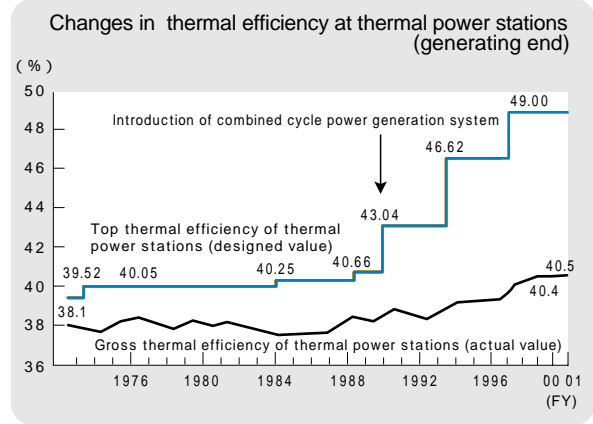
CO₂ emissions reduction effects of nuclear power generation (contribution rate of 63%)



Improvement of power generation facility efficiency

Kyushu Electric Power strives to improve thermal efficiency of thermal power stations in order to effectively use energy resources.

- The thermal efficiency improvement of thermal power stations decreases the amount of fuel consumption, resulting in a reduction of CO₂, SO_x and NO_x emissions.
- The gross thermal efficiency for thermal power stations in fiscal 2001 was 40.5%, the highest level ever. This is attributed to greater use of power stations with high thermal efficiency such as the Shin-Oita Power Station, which features the combined cycle power generation system.
- If the gross thermal efficiency at Kyushu Electric Power's thermal power stations improves by 1 point, the company's annual emissions can be reduced by about 550,000 tons of CO₂ equivalent.



(2) Promotion of new energy sources (wind, photovoltaic powers, etc.)

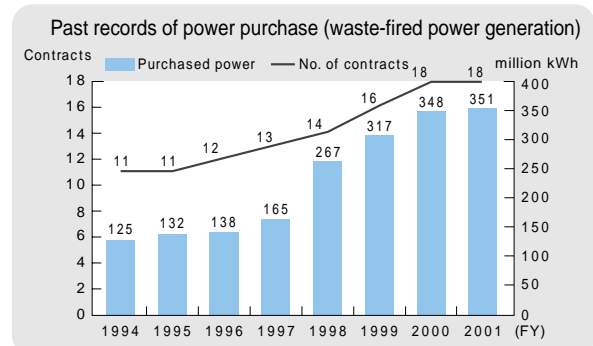
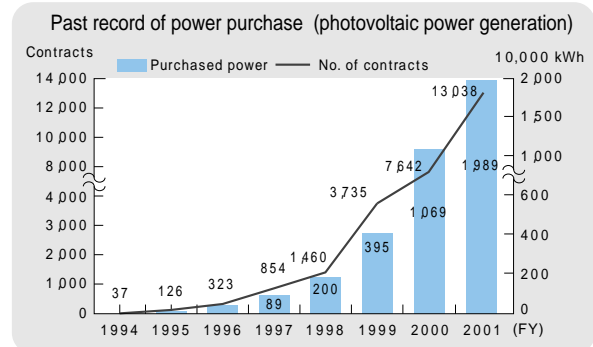
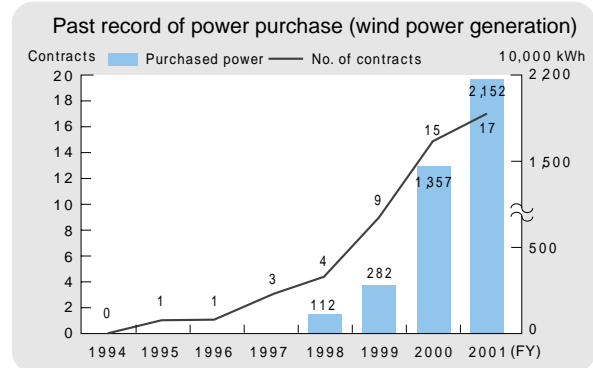
New energy sources such as wind and photovoltaic power are clean and inexhaustible energy, although there are still hurdles to be cleared. Obstacles include high weather dependence; low energy density; and high generation costs. Kyushu Electric Power has systematically installed new energy facilities company-wide. The company also purchases electricity generated by such energy sources, and offers subsidies to people who install new energy facilities at home. (See Related Information II4. (p.56) for features of the new energy sources.)

In-house installation of power generation facilities utilizing new energy sources

Kyushu Electric Power has installed power generation facilities utilizing new energy sources within its premises. The total capacity at all facilities reached 2,125 kW by the end of fiscal 2001. This sum includes 1,750 kW from six units of wind power facilities, 325 kW from 21 photovoltaic power facilities and 50 kW from a fuel cell facility.

Purchase of power from customers

- Kyushu Electric Power purchases surplus power generated at customers' wind or photovoltaic power generation facilities at the same unit price as Kyushu Electric Power's power supply. In the case of commercial wind power generation, amounts of power below 2,000 kW are purchased at the long-term contract price, and those 2,000 kW or more are purchased by bidding. Meanwhile, power generated from the heat exhaust of waste incineration facilities is purchased at the unit price shown in the purchasing lineup.
- In fiscal 2001, Kyushu Electric Power purchased 21.52 million kWh generated by wind (17 contracts), 19.89 million kWh generated by photovoltaic methods (13,038 contracts) and 351 million kWh generated by waste-fired power generation (18 contracts).



Support and subsidy for wind and photovoltaic power generation

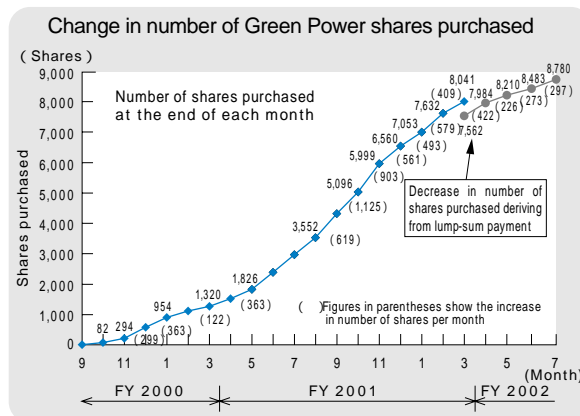
Green Electric Power System (introduced in October 2000)

This system enables customers to participate in the Kyushu Green Power Fund together with Kyushu Electric Power, thus contributing to the promotion of natural energy. Subsidies from the fund are offered to facilities employing photovoltaic or wind power generation, thereby encouraging further use of natural energy.

The fund is managed by the Kyushu Industrial Advancement Center (KIAC) to ensure transparency of administration and operations.

Kyushu Electric Power donates an amount equal to customer contributions (one share: 500 yen/month) in addition to promoting the system, receiving applications and drawing contributions from customer's bank accounts on behalf of KIAC.

The system attracted 8,780 shares by the end of July 2002.



Photovoltaic power generation monitoring panel
Neijme Junior High School (Kagoshima Pref.)

Record of subsidy in FY2001

	Photovoltaic power generation	Wind power generation
Subsidy recipient	11 institutions (Public institutions including elementary and junior high schools)	2 companies* (Japan Wind Development Co., Ltd., Minami-Kyushu Wind Power Corp.)
Total generation capacity	281kW	28 000kW*
Subsidy amount	14.1 million yen (Unit price: 100,000 yen/kW Limit: 20 kW/recipient)	For 3 years after the start of electric supply, each kWh supplied to Kyushu Electric Power multiplied by 0.05 yen.

* Originally planned for 3 recipients of 49,750 kW (Oshima Village withdrew its grant application after abandoning the plan.)

Subsidy plan for FY2002

	Photovoltaic power generation		Wind power generation
	General recipient	Special recipient	
Subsidy recipient	22 institutions (Public institutions including elementary and junior high schools)	4 institutions (Facilities to be installed at public institutions with the cooperation of civil groups and public institute.)	3 companies (Windtech Corp., Tomen Power Kihoku Corp. Minami-Kyushu Wind Power Corp.)
Total generation capacity	323 kW	15 kW	51,300 kW
Subsidy amount	23.85 million yen (Unit price: 100,000yen/kW Limit: 15 kW/recipient)	7.995 million yen (Unit price: 2 million yen/recipient)	For 3 years after the start of electric supply, each kWh supplied to Kyushu Electric Power multiplied by 0.1yen.

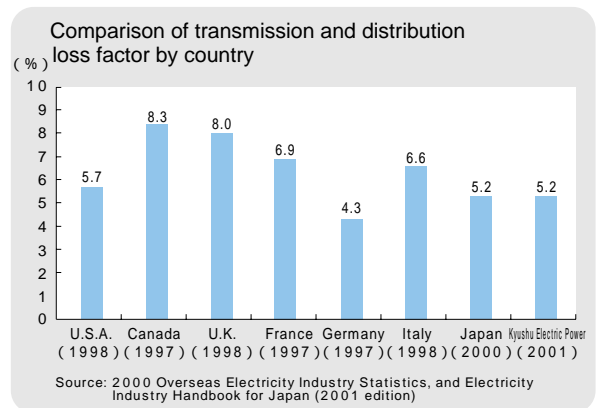
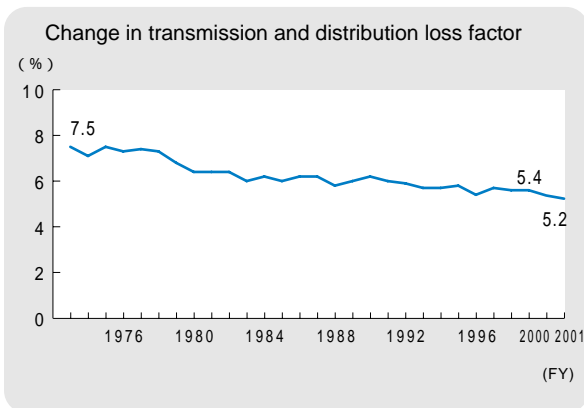
(3) Measures for energy conservation

Kyushu Electric Power believes that energy conservation is not simply a matter of making painful choices about energy reduction, but of using energy efficiently and without waste. The company works towards reducing environmental load by creating an efficient energy supply through reduction of transmission and distribution loss. It also encourages more efficient energy use by promoting heat storage systems and heat-pump water heaters, avoiding unnecessary lighting at offices, and by introducing low-emission vehicles.

Reduction of transmission and distribution loss

Kyushu Electric Power strives to conserve energy by reducing distribution and transmission loss, therefore efficiently supplying energy.

The transmission and distribution loss for fiscal 2001 was 5.2%, a 0.2-point improvement over fiscal 2000.

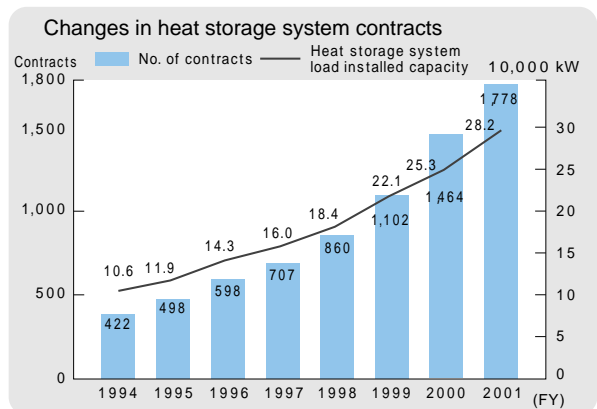


Promotion of heat storage system and heat-pump water heaters

Kyushu Electric Power encourages the use of heat storage systems and heat-pump water heaters to make more efficient energy use possible.

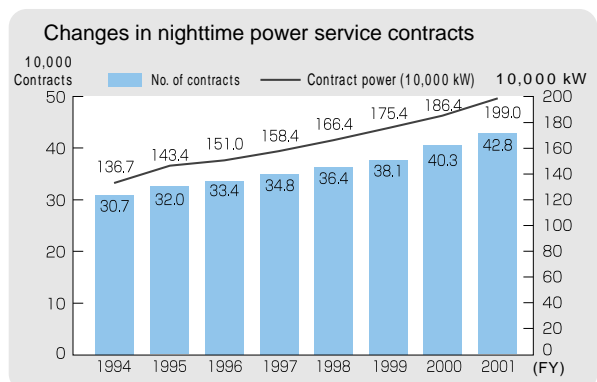
Heat storage system

Through heat storage systems, the cold and thermal energy necessary for air conditioning of buildings and factories is stored in a heat storage tank in the form of ice or warm water, and is used during the daytime. The number of contracts for such heat storage systems at the end of fiscal 2001 was 1,778, with a total load installed capacity of 282,000 kW.



Heat-pump water heater and other equipment

The wide range of electric water heaters currently on the market include improved models such as heat-pump types with three times better efficiency than conventional heaters, and multi-functional heat-pump types, in addition to conventional models using electric heaters. The number of contracts for electric water heaters as of the end of fiscal 2001 was 428,000, with a total contract power of 1.99 million kW.



Conserving energy in everyday business operations

As their contribution to reducing CO₂ emissions, all employees at Kyushu Electric Power practice energy saving in their everyday work dealings.

Reducing power consumption in offices

Energy conservation activities include switching off unnecessary lights as well as improving office facilities to reduce energy consumption.

Kyushu Electric Power has set energy savings targets for the end of fiscal 2006 (with an annual reduction of 1%), and is working towards achieving those targets.

Office energy consumption in fiscal 2001 was 108 million kWh, approximately the same level as the previous year.

As of fiscal 2002, offices implemented measures to reduce energy consumption wherever possible. Such measures include the use of fluorescent lighting, modification of air-conditioning equipment, and more energy-conscious use of air-conditioning.

Introduction of low-emission vehicles

Kyushu Electric Power encourages reductions in vehicle fuel consumption by introducing clean-energy and fuel-efficient vehicles.

Kyushu Electric Power plans to replace all general use vehicles with fuel-efficient vehicles that feature both fuel savings and low emissions, by the end of fiscal 2010. Approximately 5% of all vehicles will be clean-energy vehicles such as electric vehicles and hybrid gas-and-electric powered vehicles.

The company has promoted the development and adoption of electric vehicles since 1986. So far, a total of 60 electric vehicles have been introduced within the company. Among these, an electric bus designated for power station tours developed in 1999 is one of the largest electric buses in Japan.

The company will introduce 10 hybrid vehicles in fiscal 2002 and examine CO₂ emissions reductions in a variety of running conditions, such as urban and mountainous areas. During the examinations, operation and charging capacity of electric-powered vehicles will also be studied. Based on the data obtained, an effective introductory plan for clean-energy vehicles will be drafted in fiscal 2003.

(4) Reduction of SF₆ (sulfur hexafluoride) gas emissions

Kyushu Electric Power uses the greenhouse gas SF₆ for insulation in some of its electric equipment, and takes care not to release this gas into the atmosphere when the equipment is overhauled.

The use of SF₆, which provides excellent insulation, is essential because there are no effective insulating gases that can be used as a substitute.

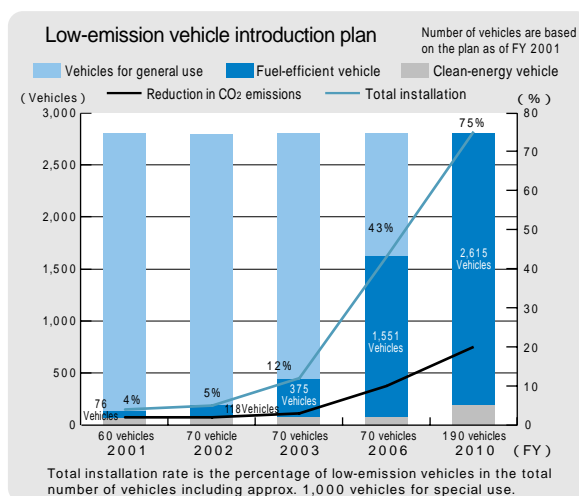
Thanks to the introduction of gas recovery equipment, the SF₆ gas recovery rate (reutilization rate) during overhauls improved from 40% in fiscal 1997 to 98% in fiscal 2001. In fiscal 2001, 22.33 tons of SF₆ (the equivalent of 534,000 tons of CO₂) were recovered.

(5) Towards Kyoto Mechanism utilization

The Kyoto Mechanism is expected to complement greenhouse gas reduction measures in Japan. Kyushu Electric Power has joined the World Bank's Prototype Carbon Fund, aiming to obtain expertise in the use of the Kyoto Mechanism in advance. (See Related Information I6. (P42) for details.)



Electric vehicle (Nissan Hypermini)



SF₆ gas recovery during overhauls (CO₂ equivalent*)

Total SF ₆ gas (CO ₂ equivalent)	Recovered SF ₆ gas (CO ₂ equivalent)	Recovery rate
22.86 tons (546,000 tons)	22.33 tons (534,000 tons)	98%

* Figures are obtained by converting the weight of SF₆ gas to the weight of CO₂, which causes an equivalent level of greenhouse effect. In addition, an extra 29,000 tons of SF₆ (CO₂ equivalent), with a recovery rate of 95%, were recovered upon dismantlement of relevant equipment.