



# Environmental Management

We are pursuing Groupwide environmental management to help create a sustainable society.

## Kyushu Electric Group Environmental Charter

We created the Kyushu Electric Power Group Environmental Charter to clarify our commitment to environmental management.

### Kyushu Electric Power Group Environmental Charter

#### Pursuing environmentally friendly corporate activities

The Kyushu Electric Power Group undertakes initiatives to preserve and harmonize with the global environment to contribute to the development of sustainable society.

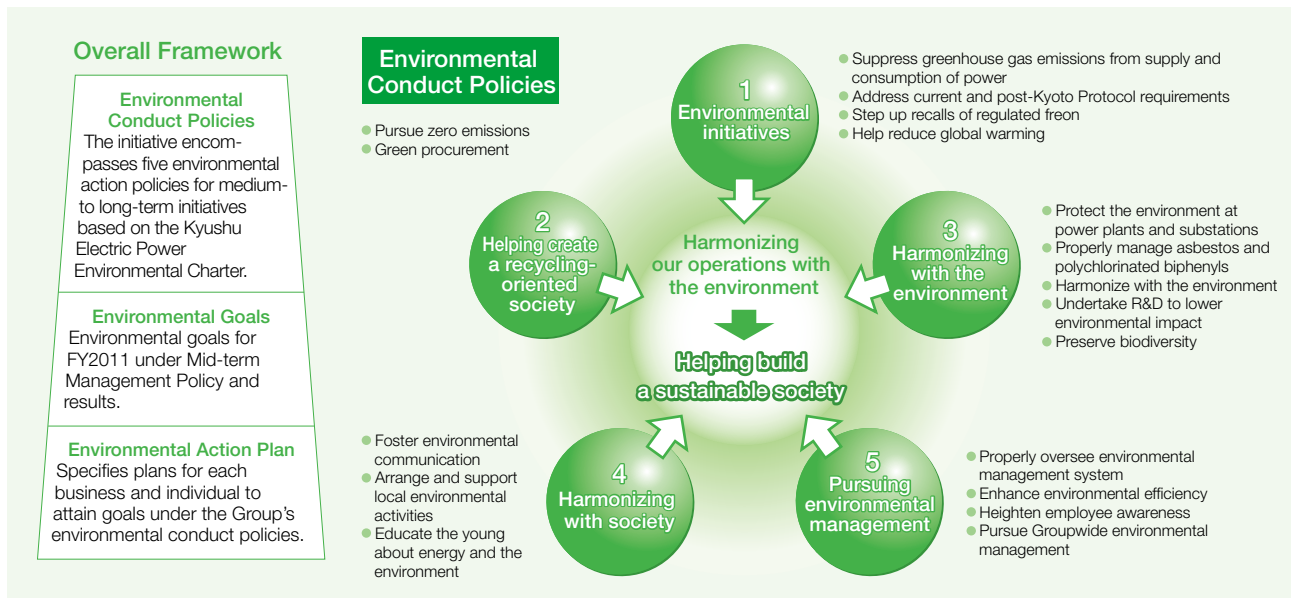
1. We strive to properly address environmental issues and use resources effectively while pursuing business activities that lead toward the future.
2. We work with society to engage in initiatives that enhance the environment.
3. We foster interest in conservation in keeping with our desire to earn customer trust for the Group.
4. We proactively disclose environmental information when communicating with society.

## Environmental Action Plan

We draw on our environmental charter to update our Environment Action Plan every year to encourage all employees to assist with environmental management.

Our annual Environmental Action Report assesses the achievements of Group companies.

## FY2009 Environment Action Plan



## My CSR Activities

### Helping Build a Sustainable Society through Corporate Activities that Benefit the Environment

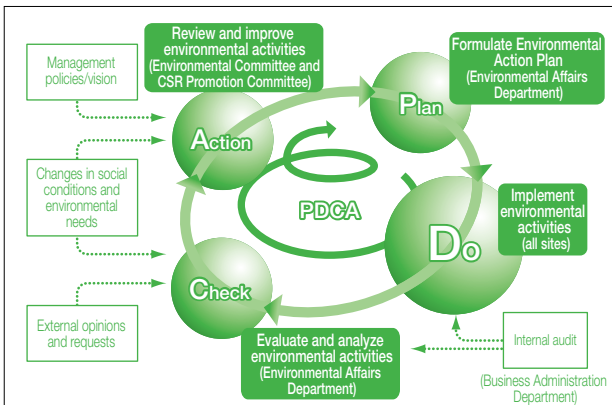
Kyushu Electric Power undertakes environmental activities as a Group. We aim to improve our efforts by communicating with many stakeholders through our Environmental Action Report, which summarizes Groupwide activities. The Environmental Affairs Department in which I work handles everything from daily energy-saving efforts to community tree plantings, waste management, environmental assessments and measures to combat global warming. Many operations require highly specialized knowledge. I would like to contribute to creating a sustainable society by becoming more experienced.



Environmental Planning Group,  
Environmental Affairs Department

Hiroko Sato

▼ Environmental PDCA Chart



**Kyushu Electric Power Group Action Plan**

We produce this plan every year in line with the social climate and in keeping with the Kyushu Electric Power Group Environmental Charter.

**FY2009 Kyushu Electric Power Group Environmental Action Plan**

- 1 Tackling environmental issues**
  - 1 Suppress greenhouse gas emissions
  - 2 Protect the ozone layer
- 2 Taking steps to create a recycling-oriented society**
  - 1 Promote the 3Rs
  - 2 Engage in green procurement
- 3 Harmonizing with the environment**
  - 1 Protect the environment
- 4 Harmonizing with society**
  - 1 Disseminate environmental information
  - 2 Undertake local environmental activities
- 5 Promoting environmental management**
  - 1 Operate environmental management system
  - 2 Strengthen environmental compliance
  - 3 Assess environmental data and ensure objective management
  - 4 Provide environmental education and share environmental information

**Promotion System**

We established a framework that ties directly to management and created an evaluation body of external experts.

**Environmental Committee**

This committee comprehensively deliberates on and determines Groupwide environmental action strategies.

- Membership: Executive vice president in charge of environment  
 Chairperson: Executive vice president or executive officer appointed by the president  
 Vice chairperson: Relevant executive vice presidents, executive officers, and office and departmental heads appointed by the chairperson  
 Members:

**Group Environmental Management Subcommittee**

The committee deliberates on and determines specific initiatives to foster Group environmental management.

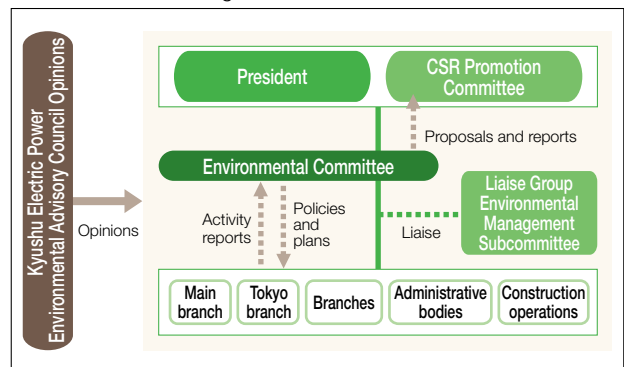
- Membership: General manager of Environmental Affairs Department  
 Chairperson: General manager of Environmental Affairs Department  
 Membership: 50 companies as of the end of May 2009

**Kyushu Electric Environmental Advisory Council**

The council independently reviews Group environmental management efforts.

- Membership: 10 external experts from industries throughout Kyushu

▼ Environmental Management Structure



**Key opinions on activities and responses at the meeting of Kyushu Electric Power Environmental Advisory Council**

■ Date: Tuesday, May 19, 2009

Opinions	Responses
<p><b>Promoting nuclear power</b></p> <p>○ The Group should continue to deepen understanding of nuclear power among young people and their parents</p>	<p>○ We will to promote understanding by drawing on numerous tools, including <i>Loving the Earth More</i>, an ecology book issued in 2008, visits to hold classes, our EneEco public relations magazine for children and their parents, and lecture meetings</p>
<p><b>Suppressing CO<sub>2</sub> emissions from power consumption</b></p> <p>The Group should more actively reduce power consumption in offices, such as by introducing high-efficiency lighting</p>	<p>○ In FY2009 we targeted a 1% annual reduction in office power consumption. We completed lighting surveys at all offices in FY2008, and plan to install high-efficiency lighting fixtures from FY2009</p>
<p><b>Energy and environmental education for the young</b></p> <p>○ The Group should hold energy and environmental classes for high-school and university students</p>	<p>○ We educate high-school and university students on energy and the environment by visiting these institutions to hold classes, convening lectures and providing environmental education support through Field Girl's Forest. We will step up efforts and continue to pursue proactive public relations</p>

# Tackling Global Environmental Issues

We aim to suppress greenhouse gas emissions through supply-side initiatives while working with customers to reducing their power consumption and employing the Kyoto Mechanisms.

## Suppressing greenhouse gas emissions

**Goal** Cut average emissions intensity (see note) for 2008 through 2012 by around 20% from 1990 levels (reduce to around 0.348kg-CO<sub>2</sub>/kWh)

Note: CO<sub>2</sub> emissions per kWh of electricity sold

### ● CO<sub>2</sub> Emissions from Power Generation

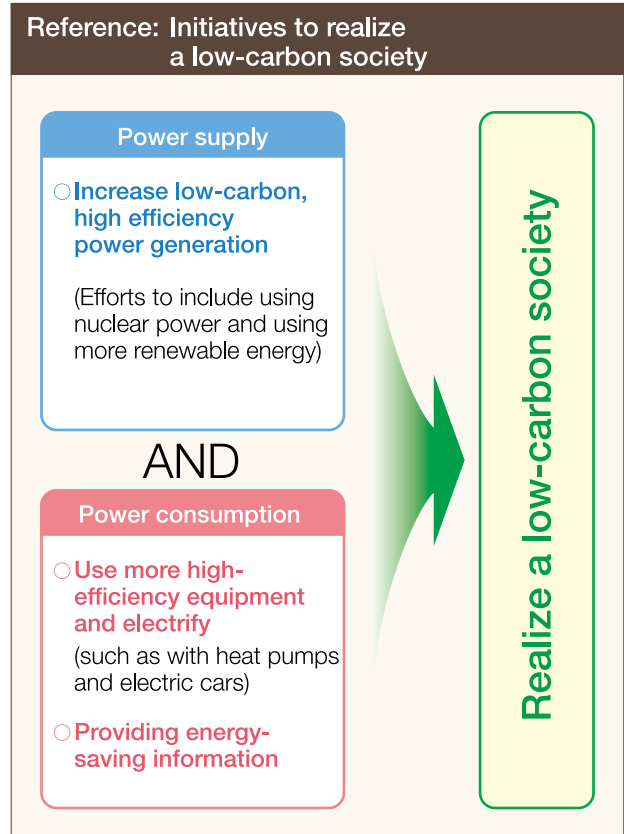
In FY2008, our CO<sub>2</sub> emissions intensity was 0.37 kg per kilowatt-hour (see note below), down 14% from FY1990.

We have reduced our CO<sub>2</sub> emissions by 6%, or 2 million metric tons, since FY2007, reflecting lower fossil fuel consumption as power sales dropped, as well as intensive efforts to ensure high, safe and stable usage of nuclear power, maintain and improve overall thermal efficiency, and deploy more recyclable energy. Our CO<sub>2</sub> emissions intensity was down 3%, or 0.013kg per kilowatt-hour.

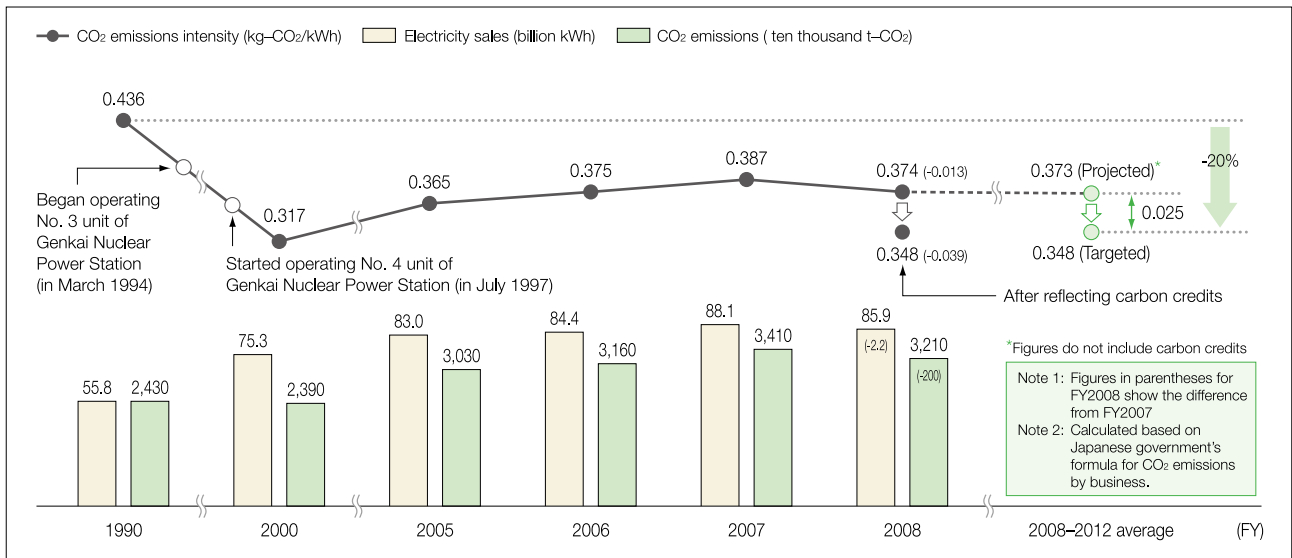
After factoring in carbon credits, our FY2008 CO<sub>2</sub> emissions were 0.348 kg per kilowatt-hour. Therefore, we have already achieved our voluntary goal of reducing emissions 20% from 1990 levels.

For FY2008 through 2012, we forecast an average CO<sub>2</sub> emission intensity that would be 0.025kg per kilowatt-hour less than targeted. We will thus endeavor to improve our average, partly through more carbon credits.

Note: This is an estimate; The Japanese government will announce the official figure based on the Act on Promotion of Global Warming Countermeasures.



### ▼ End-use CO<sub>2</sub> emissions intensity and emissions



## Energy and Resource Conservation in Offices

### ● Suppressing In-house CO<sub>2</sub> Emissions

We set overall in-house power consumption goals that include constructing power stations and other facilities, as well as consumption at head office, branch offices and customer service offices.

In FY2009, we established goals for office power consumption.

We plan to further reduce office power consumption by stepping up daily energy-saving efforts, and installing more high-efficient lighting fixtures and saving more energy.

## Suppressing CO<sub>2</sub> Emissions from Our Vehicle Fleet

### ● Deploying Electric Cars

We will have around 1,000 electric cars in service by 2020.

We plan to put around 1,000 electric cars (including plug-in hybrid models) into service by 2020. Customer service offices will use another 131 electric cars by FY2011.

We plan to install eight more rapid chargers in FY2009.

Introducing 1,000 electric cars translate would cut our CO<sub>2</sub> emissions by around 1,400 metric tons (see note below) annually.

*Note: The basis is that these would be company vehicles. We used our FY2007 CO<sub>2</sub> emissions intensity (an average for all electric power sources) to calculate the CO<sub>2</sub> emission reductions.*

## Harnessing the Kyoto Mechanisms to Control Greenhouse Gas Emissions

We help prevent global warming by harnessing the Kyoto Mechanism, investing in the World Bank's Prototype Carbon Fund and the Japan Greenhouse Gas Reduction Fund, and buying carbon credits from individual projects.

## Participation in the Trial of Integrated Domestic Market for CO<sub>2</sub> Emissions Trading

We participated in an emissions trading trial that started in Japan in FY2008. Through our involvement, we voluntarily aim to reduce our average end-use CO<sub>2</sub> emissions intensity from FY2008 through 2012 by around 20% from FY1990 levels, to around 0.348 kg per kilowatt-hour.

In FY2008, we used the Kyoto Mechanisms to achieve our target of 0.348 kg per kilowatt-hour.

We are also participating in an experimental carbon credit system in Japan as a buyer of credits from domestic emissions reduction businesses that use forestry biomass.

### ▼ Participation in domestic carbon credit system

Emissions reduction businesses	Seiryu	Bengara-mura
Overview	These businesses converted heavy oil boilers for hot springs into wood biomass boilers, reducing heavy oil consumption and CO <sub>2</sub> emissions. They also harness local forestry biomass resources.	
Emissions reduction operator	Kitayama Co. Ltd.	Chiiki Chuo Kaihatsu Co., Ltd.
Implementation	Kyushu Electric Power and Mitsubishi Corporation	
Annual savings	Around 950 metric tons	Around 610 metric tons
Operating term	April 2009 to March 2013	March 2009 to March 2013

## Participating in the Asia-Pacific Partnership on Clean Development and Climate

### ● APP

The Asia-Pacific Partnership, which comprises Japan, Australia, Canada, China, India, the Republic of Korea and the United States, is a framework for preventing global warming from major CO<sub>2</sub> producers China, India and the United States. There is global interest in the potential achievements of that organization. Part of the focus of this partnership is peer review initiatives among power industry participants to maintain and improve the thermal efficiencies of aging coal-fired thermal power stations. We have sent 10 employees to every peer review, to provide our knowledge and expertise in thermal power technology. We will continue to actively transfer, develop and improve technologies to help combat global warming.

### ▼ Asia-Pacific Partnership peer reviews to date

	Country	Timing
No. 1	Japan	April 2007
No. 2	India	February 2008
No. 3	United States	April 2008
No. 4	Australia	June 2008



Confirming operations and performance management at Loy Yang Power Station in Victoria, Australia

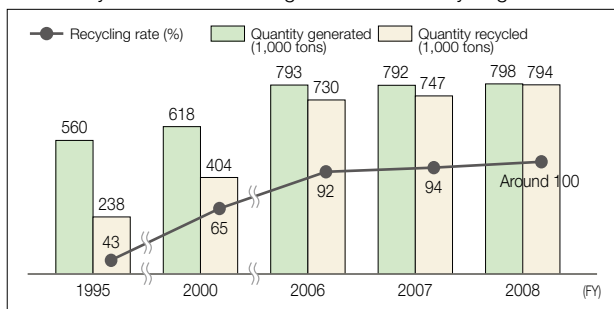
## Creating a Recycling-Oriented Society

Kyushu Electric Power targets zero emissions of final waste from its business activities, and is properly managing and treating industrial and general waste.

### Industrial Waste

Our industrial waste includes coal ash and gypsum from thermal power operations and materials we remove from construction work. We are practicing the 3Rs (Reduce, Reuse and Recycle) to minimize such wastes.

▼ Quantity of industrial waste generation and recycling rates



### Recycling

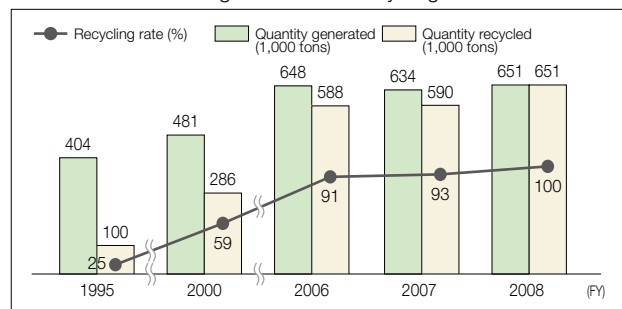
We aim to recycle 100% of our industrial waste.

In FY2008, we recycled nearly 100% of our roughly 800,000 metric tons of industrial waste.

Coal ash accounts for most of this waste, and we recycle all of this ash in concrete.

We will continue to maintain and improve our recycling rates for a recycling-oriented society.

▼ Amount of coal ash generated and recycling rates



### Reducing

Our power stations suppress waste by taking steps to ensure that they undertake construction work properly and at the right times.

### Reusing

We reuse the materials we remove from work on distribution and other facilities after evaluating whether the materials satisfy our functionality and quality standards.

▼ Reusage of distribution facility materials in FY2008

	Number of items removed (see note) A	Number of items reused B	Percentage reused B/A (%)
Transformers on utility poles	31,976	31,137	97.4
Gas-insulated switches on utility poles	1,316	1,304	99.1
Low-voltage meters	807,018	799,518	99.1
Concrete poles	7,406	7,406	100.0
Kilometers of high-voltage lines	872	866	99.3
Kilometers of low-voltage lines	2,002	2,002	100.0

Note: Numbers exclude items that cannot be reused.

### General Waste

We properly manage, process and practice the 3Rs for general waste, including the paper we use in our offices, shellfish from power plants and driftwood from dams.

▼ General waste produced in FY2008

	Amount created (metric tons)	Amount recycled (metric tons)	Recycling rate (%)	Major uses of recycled materials
Paper	1,534	1,534	100	Recycled paper
Shellfish	134	123	92	Fertilizer
Dam driftwood	1,729	1,722	99	Alternative litter

### Green Procurement

We launched our Green Procurement System in FY2002 to carefully consider the need for products before buying them and to purchase environment friendly offerings. We are working with vendors to purchase green products.



## Harmonizing with the Environment

We fully manage the chemical substances we produce as part of our efforts to minimize the environmental impact of our facilities.

### Air Pollution Measures

We have taken several steps to reduce emissions of sulfur oxides and other pollutants from our thermal power stations.

Measures to reduce sulfur oxides	<input type="checkbox"/> Use heavy and crude oil with low sulfur content <input type="checkbox"/> Use sulfur-free liquefied natural gas <input type="checkbox"/> Install desulfurization facilities that remove sulfur oxides from emissions <input type="checkbox"/> Adopt in-furnace desulfurization to remove sulfur oxides within boilers
Measures to reduce nitrogen oxides	<input type="checkbox"/> Improve boiler combustion ( <input type="checkbox"/> Use dual-stage combustion <input type="checkbox"/> Use exhaust gas recirculation combustion <input type="checkbox"/> Use low-nitrogen oxide burners and combustors                 ) <input type="checkbox"/> Install denitration facilities
Measures to reduce soot and dust	<input type="checkbox"/> Use liquefied natural gas that does not generate soot and dust <input type="checkbox"/> Install high-performance devices that remove soot and dust from exhaust gases

### Eliminating Utility Poles

We have been working closely with roads administrators and local officials since 1986 to eliminate utility poles in line with government plans, thus helping make urban areas more aesthetically pleasant and safer while increasing traffic space.

As of the end of March 2009, we had removed utility poles from around 683 kilometers of roads in our service area, mainly along urban thoroughfares.



(Before) (After)  
Before and after utility pole removal in Oita Prefecture

### Managing Chemical Substances

#### ● Polychlorinated Biphenyl

Japan Environmental Safety Corporation neutralizes transformers, capacitors and other waste equipment from our operations that contains polychlorinated biphenyls. We plan to complete treatment of all our polychlorinated biphenyls by the end of March 2014.

It is being discussed at government assessment committee and other parties on a basic policy for treating trace amounts of polychlorinated biphenyls that have for some reason contaminated the insulating oil in our transformers and other heavy electrical equipment.

#### ● Asbestos

Some of our buildings and facilities incorporate asbestos, although there is no risk of dispersal in most cases. In keeping with relevant laws and ordinances, we have properly replaced asbestos that could disperse. After asbestos was detected unexpectedly in some construction materials, in February 2008 we added the materials to our checklist.

We will recheck our structures by the end of March 2010 to confirm that they are asbestos-free, and will remove any such material.

When dismantling buildings and other facilities, we always take dispersal-prevention measure in keeping with the law and appropriately remove and treat the materials. We are replacing asbestos-containing substances with alternatives.

#### TOPIC

### Developing High-Performance Lithium-Ion Batteries

In FY2006, we partnered with Mitsubishi Heavy Industries, Ltd., to develop high-performance lithium-ion batteries for electric vehicles and plug-in hybrid cars that users can recharge from their homes. To help popularize electric vehicles, we are looking into creating a charging infrastructure using rapid recharging stands that we developed.

Our rapid charger development program aims to enable mass production and lower costs. We lent one of our rapid recharging stands to the Ministry of the Environment in May 2009 for its electric vehicle trial in Kitakyushu.

In addition, we are working on several products that can harness our lithium-ion batteries. These include a portable electrical power source that is free of gas and noise emissions, while storing electricity from solar and wind power stations, and power storage systems that can connect stably to the power grid.



Electric vehicle at a rapid recharging stand



Glossary

- Asbestos
- Desulfurization (denitration) facilities
- Furnace desulfurization
- Plug-in hybrid cars
- Lithium-ion batteries
- Liquefied natural gas
- Nitrogen oxides
- Polychlorinated biphenyls
- Sulfur oxides

## Harmonizing with Society

We aim to give back to society by running the Kyushu Homeland Forestation Program and by educating children about energy and the environment.

### Environment Month Initiatives

Environment Month is a nationwide program of events including those on Environment Day, which is on June 5.

During that time, we conduct greenery activities, seminars, cleanups and the release of fry young fish, to raise internal and external awareness of such environmental issues as global warming and to interact with customers.



Releasing fry young fish at Hyuuga Power System Maintenance Office

### Kyushu Homeland Forestation Program

Planting 900,000 trees to date

We commemorated our 50th anniversary in FY2001 by launching the Kyushu Homeland Forestation Program. We are working with regional residents through this initiative to plan one million trees in 10 years.

In FY2008, we planted about 110,000 trees under the program in 48 locations.



Volunteers planting trees in the Unzen Fugendake area near Shimabara, Nagasaki Prefecture

### Educating Children about Energy and the Environment

We conduct various activities to educate children about energy and the environment.

#### ● Eco Mothers Activities

So far, 85,000 people have participated

We initiated Eco Mothers Activities in FY2003 to help educate children about the environment and provide parents with information so that they can enlighten their children at home.

Under this program, Eco Mothers visit kindergartens and other facilities around Kyushu to perform and show pictures that raise awareness of environmental issues and explain the need to protect the environment in ways that even the youngest can understand.

Eco Mothers are raising their own children, and they are a link to our customers.

We gather parents' opinions and requests about our environmental activities through this program.

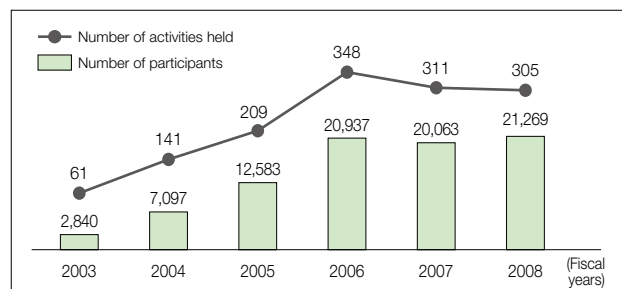


Eco Mothers Activities at Dialand kindergarten in Nagasaki, Nagasaki Prefecture



Eco Mothers activity materials

#### ▼ Eco Mothers Activities



● **Supporting Environmental Education Activities**

We use some of our properties to assist the education efforts of citizens and schools. Locations include the Onagohata Recreation Forest in Hita, Oita Prefecture, the area near the dam of our Onagohata Power Station, as well as another forest near Yamashitaike in Yufu, Oita Prefecture. We collaborate

with citizens' groups to hold nature walks, forestry classes and energy seminars at our hydroelectric power stations.

In FY2008, we accommodated 397 participants from nine groups. As of the end of March 2009, we had served 2,302 participants from 68 groups since our program started.



Nature walk group



Introductory booklet for Onagohata Recreation Forest (left) and Field Guides (center and right)

**Pursuing Environmental Management**

All our business sites have created and deployed environmental management systems based on the ISO 14001 standard to ensure that we consistently comply with environmental requirements and reduce environmental load.

**Environmental Management Systems**

In keeping with our Companywide Environmental Action Plan, our business sites establish and pursue energy and resource conservation goals. They also assess environmental compliance and conduct emergency drills to manage environmental risks.

● **Activities to Improve Operational Standards of Our Environmental Management Systems**

Our Environmental Affairs Department offers ongoing support to business sites. This assistance includes explaining procedures for internal environmental audits and advising on managing environmental system operations, providing specialized training for environmental management officers and administrative offices and offering training for internal environmental auditors.

Since FY2006, the Environmental Affairs Department has improved the standards of our internal environmental auditing bodies by being present during site audits to verify procedures and checks.



Training for internal environmental auditors

▼ Results of FY2008 Initiatives to Improve Environmental Management System Operations

Initiatives	Results
Environmental Affairs Department support for business sites	88 sites assisted
Specialized environmental management systems training	105 participants
Training for internal environmental auditors	123 participants

**Compliance with Laws and Ordinances**

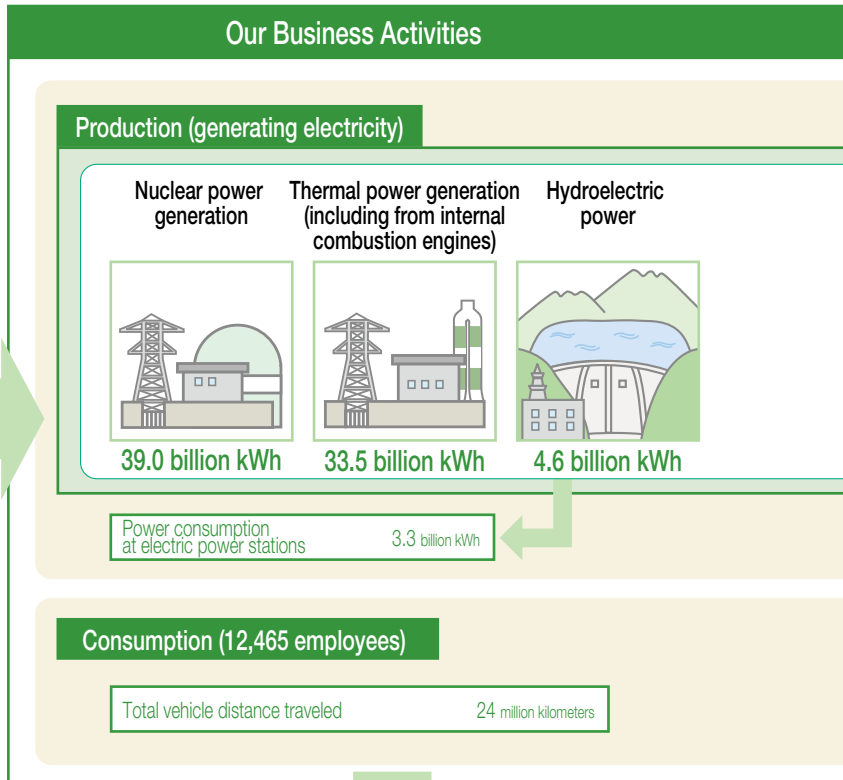
We have never received improvement warnings, summary orders or penalties under key environmental laws and ordinances, and are not subject to any environmental litigation.

We will continue to ensure compliance management by conducting fair and ethical business activities. While adhering to laws and ordinance, we will continue to fulfill the environmental preservation agreements that we concluded with local governments.



# Business and Environmental Activity Achievements and Environmental Impact in FY2008

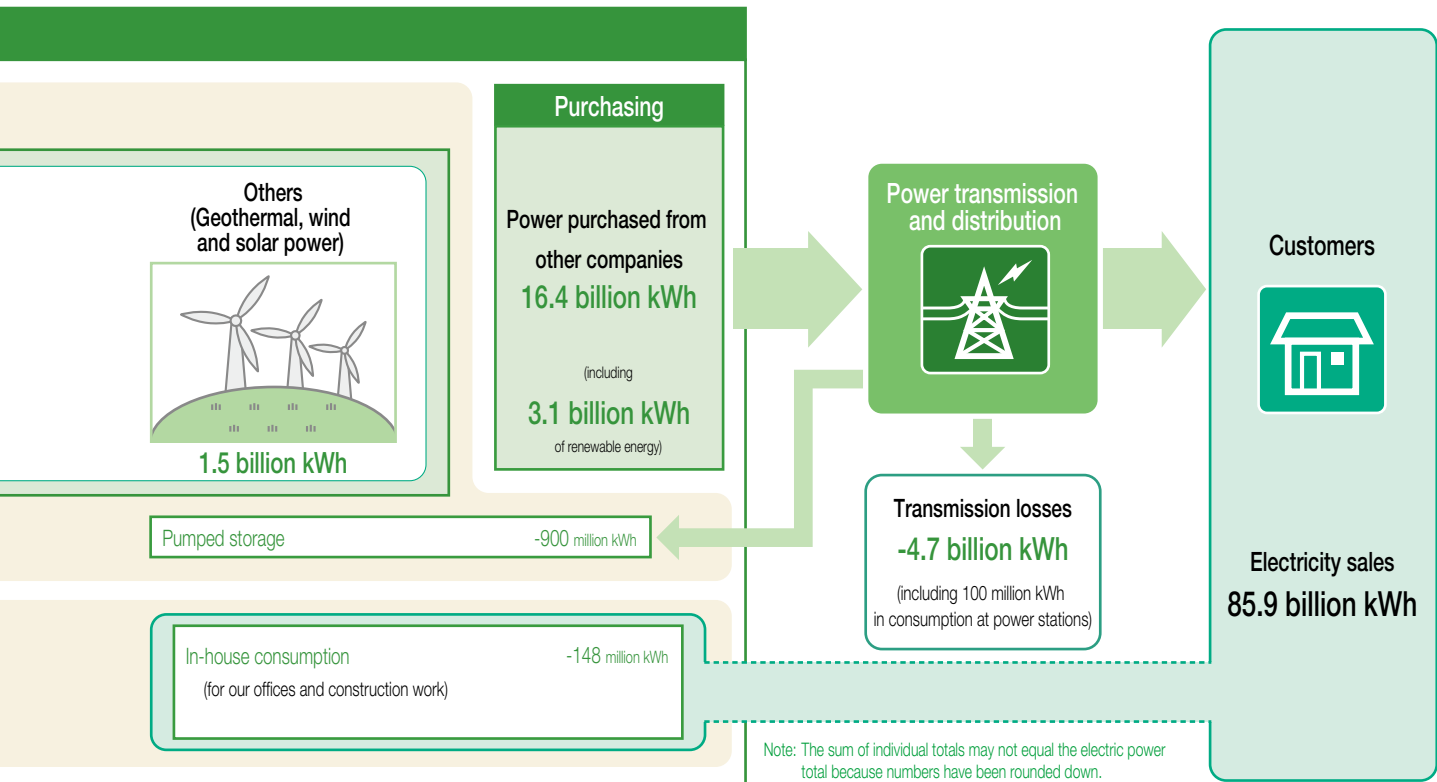
Resource Inputs		
Generating facilities		
Thermal power fuels	Coal	5.56 million metric tons
	Heavy oil	440,000 kiloliters
	Crude oil	130,000 kiloliters
	LNG	2.41 million metric tons
	Light oil	26,000 kiloliters
Nuclear fuels	Nuclear fuel	102 metric tons (uranium)
Water for generating power		6.08 million metric tons
<small>(Water used to generate electricity at thermal and nuclear power stations; does not include seawater used as coolant)</small>		
Materials	Ammonia	7,000 metric tons
	Limestone	100,000 metric tons
Offices		
Fuel for vehicles	Gasoline and light oil	22,000 kiloliters
Consumables	Photocopy paper purchases	545 metric tons
	Water consumption	403,000 metric tons



Environmental Impact Reductions	
Estimated reductions <sup>*1</sup>	
CO <sub>2</sub> reductions (including use of nuclear and renewable energy)	34.4 million metric tons CO <sub>2</sub>
SFs collections	740,000 metric tons CO <sub>2</sub> 99% recovery rate
CO <sub>2</sub> reductions through office energy conservation	157 metric tons CO <sub>2</sub>
Cuts from use of low-emission company vehicles	245 metric tons CO <sub>2</sub>
SO <sub>x</sub> reductions	58,000 metric tons
NO <sub>x</sub> reductions	16,000 metric tons
Actual reductions	
Forest absorption of CO <sub>2</sub> <sup>*2</sup>	15,000 metric tons CO <sub>2</sub>
Industrial waste recycled	790,000 metric tons 100% recycling rate
Reduction in low-level radioactive waste (each equivalent to one 200-liter oil drum)	869 containers
Volume of paper recycled (including copy paper, newspapers, magazines, cardboard containers and confidential documents)	1,534 metric tons 100% recycling rate
Ground and rainwater consumption	33,000 metric tons

Environmental Loads		
Generating facilities		
Greenhouse gas emissions	CO <sub>2</sub>	32.1 million metric tons CO <sub>2</sub> <small>(in-house power consumption was 55,000 metric tons of CO<sub>2</sub>; including power purchased from other companies)</small>
	N <sub>2</sub> O	46,000 metric tons CO <sub>2</sub>
	SF <sub>6</sub>	40,000 metric tons CO <sub>2</sub>
	HFC	1,700 metric tons CO <sub>2</sub>
Ozone-depleting emissions		1.0 chemical oxygen demand metric ton
Air pollutant emissions	SO <sub>x</sub>	14,000 metric tons
	NO <sub>x</sub>	25,000 metric tons
Waste water		77 metric tons
Chemical oxide demand emissions		7 metric tons
Industrial waste disposed		3,000 metric tons
Increase in low-level radioactive waste (each equivalent to one 200-liter oil drum)		5,882 containers
Offices		
CO <sub>2</sub> emissions from vehicles		5,000 metric tons CO <sub>2</sub>
Waste paper		None
Clean water consumed		369,000 metric tons

Notes: <sup>\*1</sup> In calculating differences from actual environmental impact levels, we assumed a baseline of impact levels that would reflect no operational efforts to lower environmental impact.  
<sup>\*2</sup> We used Japan's National Greenhouse Gas Inventory formula in calculating our total based on forest surveys.



### Environmental targets and loads

		Results		Targets	
		FY2007	FY2008	FY2008	
Environmental initiatives	Supply	End-use intensity of CO <sub>2</sub> emissions (kg-CO <sub>2</sub> /kWh) (See note 1 below)	0.387	0.374 (see note 2 below) (0.348)	-
		CO <sub>2</sub> emissions (millions of metric tons)	34.1	32.1	-
		Nuclear power usage rates (%)	85.8	84.6	More than 83.0
		Thermal efficiency of thermal power stations (on a higher heating value basis) (%)	39.1	39.2	More than 39.1
		Power from new energy sources (billions of kWh)	More than 0.63	More than 0.75	More than 0.75
		Transmission losses (%)	4.9	5.2	Less than 5.3
		Consumption	Conserving energy and resources at business sites	In-house power consumption (millions of kWh)	151
Paper purchased (metric tons)	568			545	Less than 600
Clean water used (m <sup>3</sup> /person)	35			32	Less than 36
Fuel for regular vehicles consumed (km/l)	12.9		12.2	More than 12.1	
Percentage of SF <sub>6</sub> recovered during equipment checks	99		99	More than 98	
Percentage of regulated freon recovered during equipment checks	100		100	100	

		Results		Targets
		FY2007	FY2008	FY2008
Recycling initiatives	Percentage of industrial waste recycled	94	Around 100	More than 99
	Percentage of coal ash recycled	93	100	100
	Percentage of other waste recycled	99	98	More than 98
	Industrial waste put in landfill outside company premises (metric tons)	220	349	Less than 500
	Percentage of used paper recycled	100	100	100
Harmonizing with environment	SO <sub>x</sub> emissions intensity (g) per kWh	0.31	0.20	Around 0.2
	NO <sub>x</sub> emissions intensity (g) per kWh	0.23	0.20	Around 0.2
	Per capita millisieverts of annual radiation exposure for people living near nuclear power stations	Less than 0.001	Less than 0.001	Less than 0.001

Notes: 1. See page 33  
2. This is an estimate; national government formally disclose actual figures based on the Act on Promotion of Global Warming Countermeasures