



Foreword

In order to resolve environmental issues that are increasingly complicated and diverse, it is crucial that a whole society make a concerted effort to improve and create a new society based on waste recycling and impact reduction. Tohoku Electric Power Co., Inc. (TohokuEPCO) recognizes that it is essential for business to conduct a wide range of environmental activities through communication with customers, as well as to reduce its own environmental impact.

TohokuEPCO has, since its establishment in 1951, earnestly endeavored to resolve environmental issues including pollution, global warming and waste management. In historic changes towards deregulation in electric power industries, TohokuEPCO formulated a new corporate vision in March of 2000, placing environmental issues atop the priority list of its management. TohokuEPCO, celebrated its 50th anniversary this year, defined new environmental policy and midterm environmental action plans in April of 2001, and put them into action.

TohokuEPCO's *Environmental Action Report 2001* provides information on our policy and significant results of our environmental activities during FY2000. It is our hope that the information in this brochure will help you appreciate our positive commitment to environmental issues, and that communication with our customers will guide further enhance and improve of our activities.

October, 2001

Tohoku Electric Power Co., Inc

Environmental Policy

Environmental problems have been identified as being among the top-priority management issues in Vision 2010, which was announced in March, 2000. In April of this year we reviewed and adapted our environmental policy in accordance with the vision newly set forth.

Vision 2010

- ideals : "Coexistence with the regional community "
"Creating new corporate values"
- Corporate group image :
"The multifaceted energy service company that is the choice of customers"
- Environmental problems are among our top-priority management issues.



Environmental Policy

TohokuEPCO shall collaborate with regional communities for the creation of a social and economic system that enables sustainable development.

[Guidelines]

TohokuEPCO commits itself to:

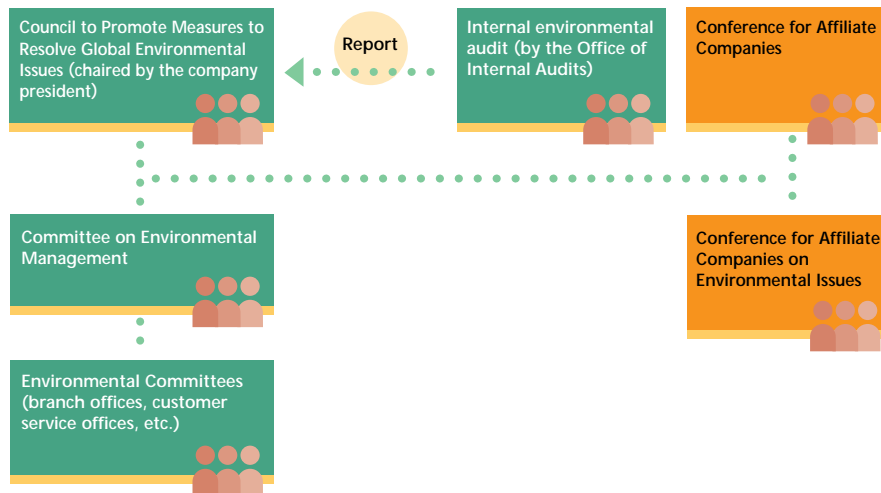
1. Striving to establish a highly efficient energy supply system that is stable, economical and environment-friendly.
2. Working with customers on behalf of more efficient energy usage.
3. Endeavoring to reduce greenhouse gas emissions and to perform a range of cooperative programs globally.
4. Promoting waste reduction, reuse and recycling in order to realize a recycling society.
5. Encouraging environmental awareness among employees and promoting environmental activities as a citizen of a community.
6. Fully complying with environmental laws, regulations and agreements, and striving to reduce environmental loading.
7. Setting objectives and targets for its environmental activities and reviewing them periodically for the sake of improvement.
8. Disclosing information on its environmental activities to the public and communicating with the community.

Environmental Management System

Task Force

In March of 1990, TohokuEPCO established task forces to deal with environmental issues.

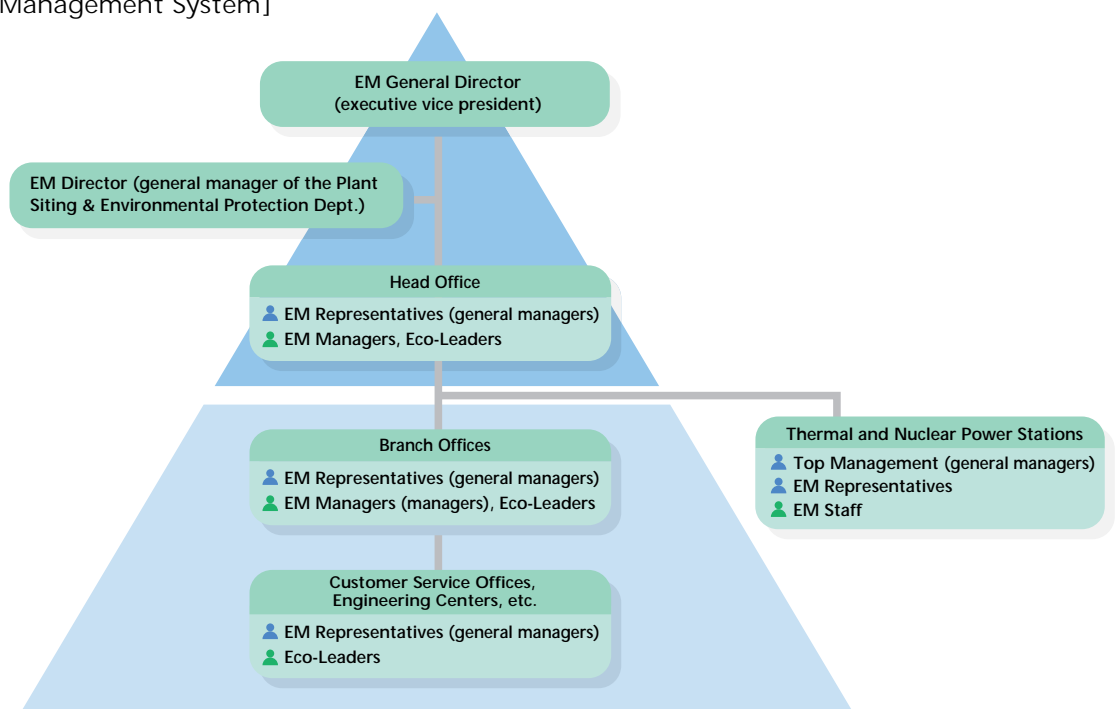
[Task Force]



Lines of Accountability

TohokuEPCO has clearly defined the lines of accountability. The vice president and general managers are in charge of environmental management at the company level and at each department or office, respectively. In addition, EM managers and eco-leaders are promoting individual activity. At all of our thermal and nuclear power stations, the ISO14001 standard is being implemented.

[Environmental Management System]



Major Results of the Action for FY2000

TohokuEPCO has since FY1992 developed a Global Environment Action Plan throughout its business operations. Following are the major results of our activities in FY2000:

Prevention of global warming	<ul style="list-style-type: none"> Reduced CO₂ emission intensity by approximately 3% Established the Tohoku Green Power Fund to encourage the installation of solar and wind power generators Started a bid on large-scale wind-power generation projects Newly implemented feasibility studies of a CO₂ emission-reduction project in Kazakhstan
Resource conservation and recycling	<ul style="list-style-type: none"> Grew the amount of waste recycling by 50,000 tons Increased the waste-recycling ratio approximately eight points from 75.1% to 82.8%, and reduced the amount of waste disposal approximately 34% from 289,000 tons to 192,000 tons
Protection of the regional environment	<ul style="list-style-type: none"> Faithfully observed the relevant legal regulations and agreements
Environmental communications	<ul style="list-style-type: none"> Implemented nearly 150 activities with customers or regional communities Continuously supported environmental education for succeeding generations
Environmental management	<ul style="list-style-type: none"> Newly obtained ISO14001 certification at five power stations (All of our thermal and nuclear power stations were certified to ISO14001.) Introduced EMS, based on ISO requirements, to all our offices (other than thermal and nuclear power stations)

Compliance of Legal Regulations and Other Requirements

TohokuEPCO is operating thermal, nuclear and geothermal power stations under legal regulations, and through voluntary agreements that call for environmental pollution control (thermal and geothermal power stations) or environmental protection and safety (nuclear power stations) with the respective local public governments. TohokuEPCO was not involved in any environmental lawsuits during FY2000.

Environmental Accounting

Environmental accounting is a means for cost estimation and a cost-benefit analysis on environmental activities. To promote environmental activities more effectively, TohokuEPCO is continuously reviewing and improving the accuracy of its environmental accounting.

[Results for FY2000]

Category	Principal Measures	Costs (billion yen)	Benefits
Prevention of global warming	Purchase of renewable energies; Introduction of low-loss equipment, etc.	0.94	Reduction: 350,000 tons-CO ₂
	Power production via nuclear, hydroelectric, geothermal, LNG-fired thermal and other power generations	- (*1)	Reduction: 32.7 million tons-CO ₂
Waste disposal and recycling	Disposal, recycling and reuse of general, industrial and radioactive waste	13.4	Recycled industrial waste: 923,000 tons (industrial-waste recycling ratio: approx. 83%)
Protection of the regional environment	Preservation of air quality (reduction of SO _x , NO _x and soot), urban landscaping measures, environmental inquiries, etc.	34.9	Reduction of SO _x : 114,000 tons Reduction of NO _x : 38,000 tons Reduction of soot: 740,000 tons
Other	Environmental activities for the regional community, environmental management, environment-related R&D, etc.	2.9	
Total		52.0 (*2)	

(*1) Costs required for the reduction of CO₂ emissions by nuclear, hydroelectric, geothermal and LNG-fired thermal power stations are not included because of difficulties in identifying specific costs.

(*2) Due to the treatment of fractions, the total amount doesn't agree with the sum of individual costs.

We will continue our study and review process on environmental accounting in order to ensure greater accuracy in calculation and more effective use of the results.

Midterm Environmental Action Plan

To realize the environmental policy, TohokuEPCO has established the Midterm Environmental Action Plan, which covers FY2001–2003 and was set in force in April of 2001.

Midterm Environmental Action Plan

<Key objectives>

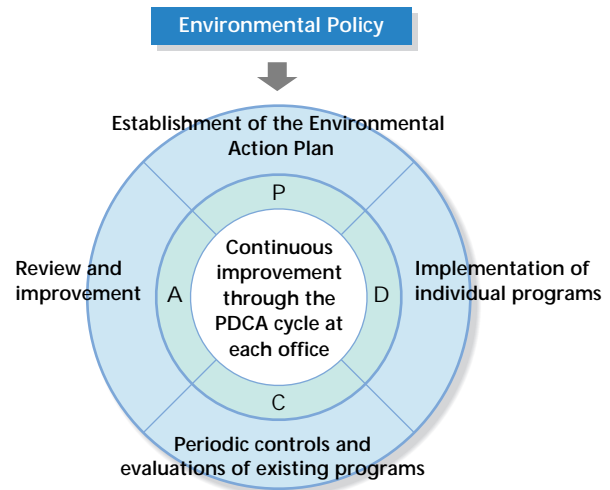
Prevention of global warming

Resource conservation and recycling

Protection of the regional environment

Environmental communications

Environmental management



Major Indicators and Targets

[]: Estimates based on FY2001 supply plan

Environmental Indicators	Targets/projections for FY2003	<Reference> Results for FY2000
CO ₂ emission intensity (end-use electricity)	[0.38 kg –CO ₂ /kWh]	0.425 kg –CO ₂ /kWh
Thermal efficiency at thermal power stations	[40% minimum]	40.6%
Nuclear power station capacity factor	[80% minimum]	90.3%
Transmission and distribution losses	Reduce to a minimal level	5.8%
SF ₆ recovery	90% minimum	98.3%
Specified CFCs consumption	Reduce to a minimal level	0.57 tons
Specific halon consumption	Reduce to a minimal level	0.18 tons
Waste recycling (Disposal amounts)	90% minimum (170,000 tons or less)	82.8% (192,000 tons)
Coal ash recycling	[90% minimum]	78.3%
Gypsum recycling	[100%]	100%
SO _x emission intensity (at thermal power stations)	Reduce to a minimal level	0.26 g/kWh
NO _x emission intensity (at thermal power stations)	Reduce to a minimal level	0.38 g/kWh

Environmental Impact of Operations

(Statistical data for FY2000)

Input

Fuel consumption by power station

Coal	7,750,000 tons
Heavy oil	930,000 kilo liters
Crude oil	550,000 kilo liters
Natural gas	320 million normal cubic meters
LNG	3.51 million tons
Total (measured in units of heavy oil)	11.44 million kilo liters

Nuclear fuel	1,318 kg
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TohokuEPCO

Net electric power generated

Hydroelectric power	9.3 billion kWh
Thermal power	54 billion kWh
(Geothermal power)	1.3 billion kWh
Nuclear power	10.7 billion kWh
Purchased electric power	8.4 billion kWh
(Solar power)	3 million kWh
(Wind power)	27 million kWh
(Waste-to-energy)	77 million kWh
(Cogeneration and other forms of self-generation)	14 million kWh

Internal power consumption and loss

Pumping energy for pumped-storage hydroelectric power	(-0.3 billion kWh)
Internal power consumption at power stations	(-3 billion kWh)
Transmission, distribution and transformation losses	(-4.7 billion kWh)

Electricity consumption in offices

0.11 billion kWh



Output

Electricity sales

74.5 billion kWh

Atmospheric emissions

CO ₂	31.7 million tons
SO _x	14,000 tons
NO _x	20,000 tons

Waste

Industrial waste	1,115,000 tons
(Coal ash)	833,000 tons
(Heavy and crude-oil ash)	2,200 tons
(Gypsum)	215,000 tons
(Sludge)	3,700 tons

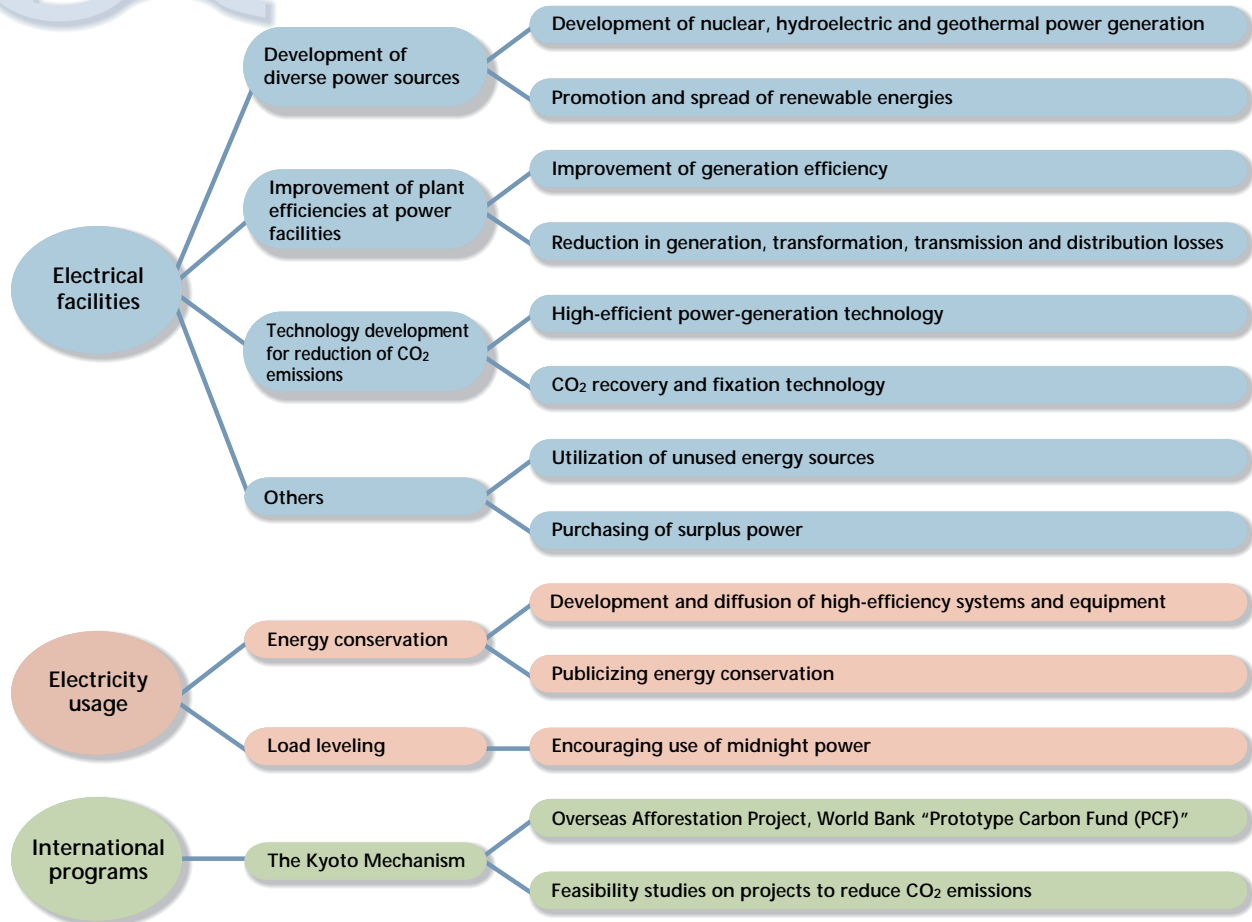
Radioactive waste (drums)	2,124 drums
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Final disposal 192,000 tons

1. Prevention of Global Warming

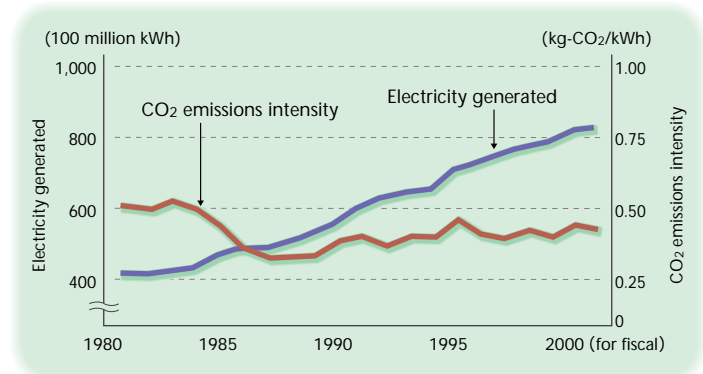
TohokuEPCO has endeavored for years to reduce CO₂ emission intensity, as follows:

[Measures for reduction of CO₂ emissions]



The total emissions of CO₂ and CO₂ emission intensity for FY2000 were 31.7 million tons and 0.425 kg-CO₂/kWh, respectively. While total emissions of CO₂ has increased by 260,000 tons over the previous year—a result of greater demand—CO₂ emission intensity has decreased by about three percent by improving and/or maintaining consistent levels of the operating ratio of a nuclear facility and thermal efficiency at thermal power stations.

[CO₂ emission intensity and amount of electricity generated]



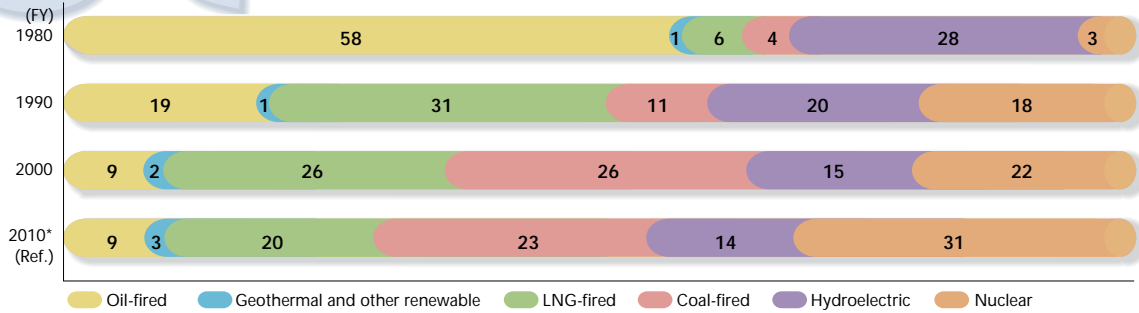
Electrical Facilities

(1) Development of Diverse Power Sources

TohokuEPCO is developing a well-balanced system centering on nuclear power generation. The system is to realize environmental and economical performances, stable supply and operability.

[Electricity generated by diverse power source (%)]

* Figures for FY2010 are based on the FY2001 supply plan.

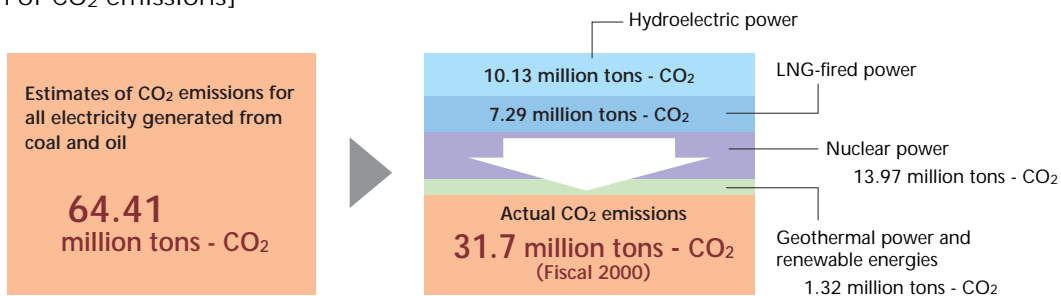


Nuclear power is essential for the prevention of global warming, because it does not emit CO₂ during the generation of power. TohokuEPCO is doing its best to ensure the safe, stable operation of nuclear power plants at Onagawa Nos. 1 and 2, while newly constructing two nuclear power stations, Onagawa No. 3 (capacity: 825 MW, scheduled for launch in FY2001) and Higashidori No. 1 (capacity: 1,100 MW, scheduled for launch in FY2005).

Additionally, TohokuEPCO is trying to reduce CO₂ emissions from thermal power stations through the development and installation of the most advanced LNG-fired power plant (whose thermal efficiency is the highest in the world), and highly efficient coal-fired plants, as well as utilizing hydroelectric, geothermal and other natural power sources.

The installation of a combination of hydroelectric, LNG-fired and nuclear power generation systems has resulted in the reduction of CO₂ emissions by half in FY2000, as compared with electricity generated by all coal-fired or oil-fired power stations.

[Reduction of CO₂ emissions]



Higashidori Nuclear Power Station (under construction)

(2) Improvement of Plant Efficiency

Higashi Niigata Unit 4-1 system (capacity: 805 MW, LNG combined-cycle power plant) has attained a thermal efficiency of 50.6%, the highest level in the world, by developing and adopting new technologies. Moreover, the latest type of coal-fired power plant, Haramachi No.2 (capacity: 1,000 MW), achieved high thermal efficiency, in excess of 44 percent. TohokuEPCO is striving to maintain thermal efficiency of over 40 percent by utilizing these new power plants.



Higashi Niigata Thermal Power Station, Unit 4-1

(3) Promotion and Spread of Renewable Energies

Power generation systems using renewable energies, including solar power and wind power, are environmentally friendly because they emit no CO₂ during the generation of electricity. Although these systems have negative features, such as low energy density, dependence on weather conditions that can result in unstable output, and higher costs, these power sources are expected to be used more widely in the future.

TohokuEPCO is carefully analyzing costs and influence on electric networks, and is introducing renewable energies.

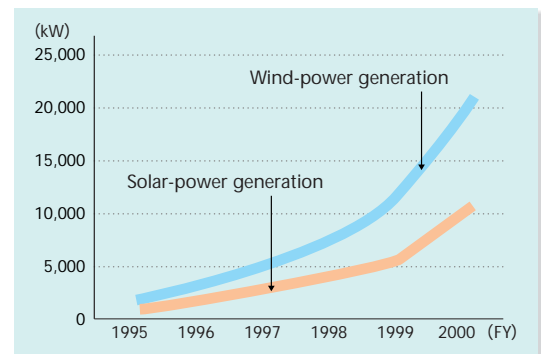
Purchasing Electric Power from Solar and Wind Power Generation

In order to help renewable energies develop further, TohokuEPCO has since FY1992 been purchasing surplus electricity from non-utility power producers and customers. In addition, we called for bids on large-scale wind-power generation projects and signed contracts to purchase nearly 100 MW.

The Tohoku Green Power Fund

The Tohoku Green Power Fund, established in October of 2000, has as its objective the further promotion of renewable energies. Using donations from advocates and TohokuEPCO, the Tohoku Green Power Fund offers financial support for the construction of solar and wind-power generation facilities.

[Electric power purchased from wind and solar power generation]



Tappi Wind Park

Electricity Usage

Recent trends in electrical demand show an increase in seasonal and hourly variations, thus impeding the efficient utilization of power supplies. In order to promote more effective use of energy and electrical facilities, TohokuEPCO is taking positive steps to achieve a more flexible electricity rate (e.g. time-of-use rate and midnight power rate options) and innovative marketing (e.g. electric kitchens and all-electric houses).

International Programs

TohokuEPCO promotes international programs that contribute to the prevention of global warming, such as the afforestation project in Australia, World Bank's Prototype Carbon Fund (PCF), and the feasibility studies on the overseas projects to reduce greenhouse gas (GHG) emissions, looking ahead to the possible use of the Kyoto Mechanisms provided in the Kyoto Protocol.

Investment in Afforestation Project in Australia

In 1999, TohokuEPCO joined the afforestation project operated by Albany Plantation Forest Company of Australia Pty. Ltd. (APFL), as one of the supplemental measures to reduce CO₂ emissions. APFL's afforestation project is going to keep planting and harvesting trees on a total land of 26,000 ha until 2022 to supply feedstock for the paper manufacturing industry. This project, in harmony with existing agriculture, helps make a great contribution to the conservation of natural environment by preserving forest resources and preventing the damage from salinity around the region.

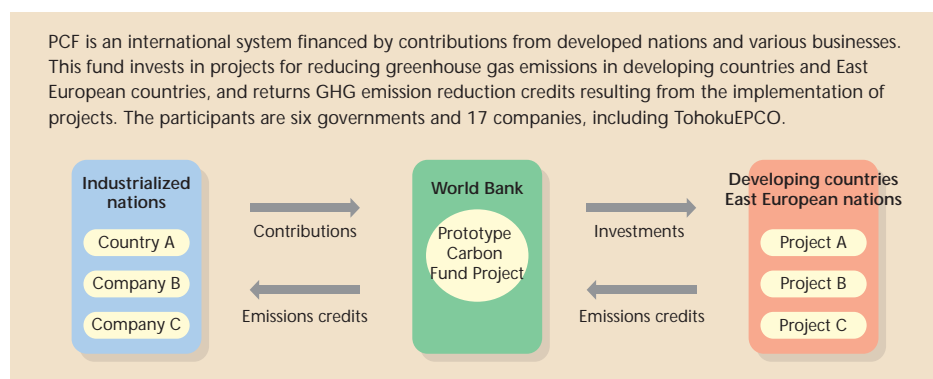


Afforestation project in Australia

Involvement in World Bank's "Prototype Carbon Fund (PCF)"

TohokuEPCO is involved in the World Bank's PCF in order to acquire know-how to explore new projects, of procedures to certify GHG emission reductions, and of the acquisition of GHG emission reduction credits. The PCF contributes to global efforts to prevent global warming through financial assistance and technology transfer to projects in developing countries and East European nations in order to reduce GHG emissions.

[PCF profile]



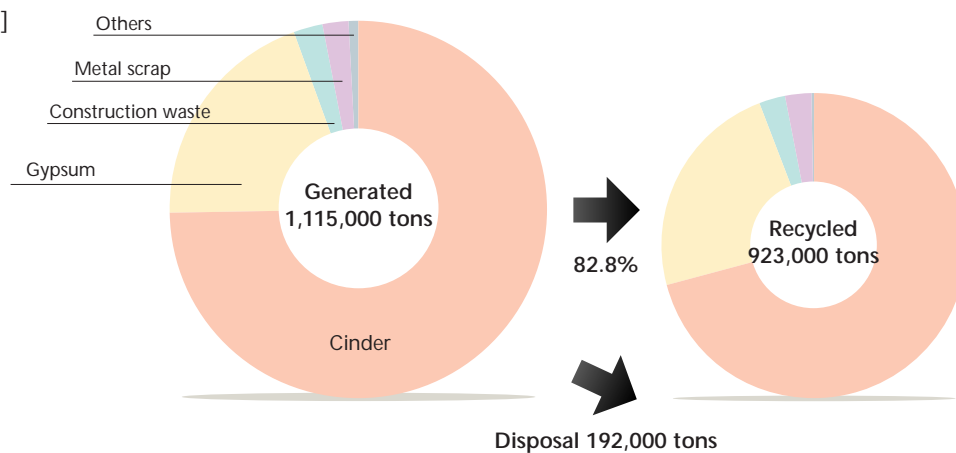
2. Resource Conservation and Recycling

TohokuEPCO is actively contributing to the creation of a resource-recycling society through proper management and promotion of the Three R's (reduction, reuse and recycling).

Management and Recycling of Industrial Waste

Industrial waste from TohokuEPCO include cinder (e.g., coal ash), sludge and gypsum. In FY2000, the recycled amount increased 50,000 tons through the effective use of waste. At the same time, the recycling ratio increased nearly eight point—from 75.1% to 82.8%—and final disposal decreased approximately 34 percent from 289,000 tons to 192,000 tons.

[Waste recycling]



[Examples of recycling]

Waste	Recycled usage
Cinders (coal ash, etc.)	Cement materials, cement admixtures, etc.
Gypsum	Gypsum board
Construction waste (concrete pillars, etc.)	Aggregates, road sub-base materials
Metal scrap (iron scrap, power-cable waste, etc.)	Power cables, metal products, etc.
Glass waste	Glass-block materials, etc.
Plastic waste	Plastic products
Shellfish in water channels	Fertilizer
Driftwood, trimmed wood, etc.	Fertilizers, charcoal, etc.

Management of Radioactive Waste

Radioactive wastes in a nuclear power station are separated from industrial waste and treated properly, according to the properties and types of radioactive material.

Conservation of Energy and Resource in the Office

To reduce environmental loading in office operations, TohokuEPCO has conducted the quantitative management of office resources (paper, electricity, etc.) and recycling of waste paper. In addition, we have adopted green purchasing for office supplies and introduced low-emission vehicles.

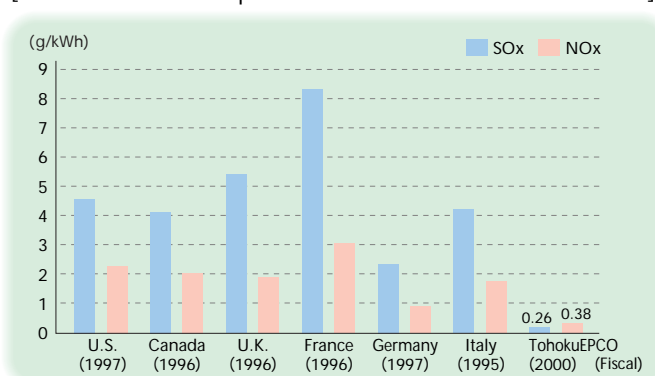
3. Protection of the Regional Environment

Besides complying legal regulations on the atmosphere and water, TohokuEPCO is making efforts to preserve the regional environment based on agreements with local municipalities. In FY2000, TohokuEPCO was not involved in any lawsuits.

Reduction of Pollutant Emissions

To reduce pollutant emissions from thermal power stations, high-quality fuels and control technologies are adopted. Through these measures, TohokuEPCO has attained a world-class level of performance in SOx and NOx emissions.

[International comparison of SOx and NOx emissions]



Ref. : OECD Environmental Data Compendium 1999
ENERGY BALANCES OF OECD COUNTRIES 1995-1996, 1996-1997

Safety Measures of Nuclear Power Station

Numerous measures, from planning to operations of nuclear power plants, are being adopted. Furthermore, TohokuEPCO is making efforts to minimize radiation levels by extensively controlling and monitoring the areas surrounding our plants, and to ensure the safety of neighboring environments.

Management of Chemicals

Preparing to PRTR (Pollutant Release and Transfer Register) law official, TohokuEPCO is voluntarily working to control specific chemicals.

Environmental Consideration of Power Facilities

TohokuEPCO is considering affections of power facilities on natural environments or landscapes, and adopting environmentally friendly pylons and poles. At sanctuaries of migratory birds, Izunuma (Miyagi Prefecture) and the mouth of the Mogamigawa River (Yamagata Prefecture), we have placed fluorescent signal rings over power lines to prevent birds from colliding with the lines.



Fluorescent signal rings

4. Environmental Communications

Environmental Activities: Collaboration with the Regional Community

TohokuEPCO works together with the community to promote environmental activities, including tree planting, volunteer environmental cleanup efforts and resource recycling. In FY2000 nearly 150 environmental programs were carried out in June, which is officially designated as Environmental Awareness Month.

[Cleanup campaign]

Nearly 500 people from the TohokuEPCO Group companies and the regional community participated in the annual cleanup campaign. Two four-ton truckloads of driftwood, empty cans, paper waste and other trash were collected in the campaign for FY2000.



The cleanup campaign at Higashi Niigata Thermal Power Plant (Niigata Prefecture)

Programs to Support Environmental Education

TohokuEPCO is developing multimedia software along with teachers for practical application in the environmental education curriculum taught in elementary and junior high schools. For more interest and understanding about environmental issues, sales offices organize environmental education programs promoting hands-on experience.



Environmental education with multimedia software

International Contributions

TohokuEPCO is working jointly with Electricity of Vietnam on the electrification of a rural village in Vietnam. We have installed a hybrid energy system combining solar and wind-power generators with a storage battery, and we're collecting data on weather and power generation and evaluating the stability of the systems. We also conduct research on the application of renewable energies.



Solar/wind-power generation system with storage battery

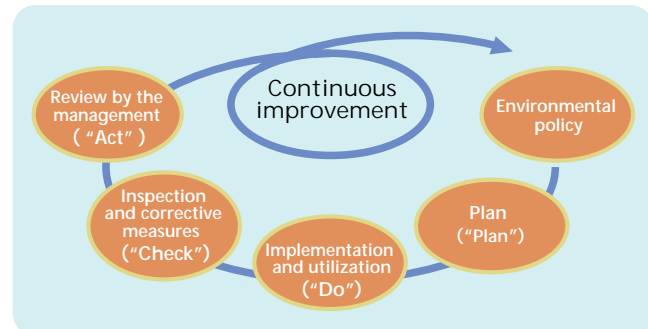
5. Environmental Management

TohokuEPCO has introduced a company-wide environmental management system during FY2000 in order to perform environmental protection and business profitability at the same time. Extensive environmental activities are being carried out through close collaboration with the TohokuEPCO Group companies.

Environmental Management System

To realize the Company's environmental policy, environmental management system is an essential tool in the development of a comprehensive plan of action, implementation, periodic review and upgrading.

As part of our efforts to introduce the environmental management, TohokuEPCO has obtained ISO14001 certification at all of its nuclear and thermal power stations (a total of nine).



Environmental Education

TohokuEPCO offers an environmental educational program designed to enhance the degree of environmental awareness among employees. Moreover, we encourage our employees to obtain environmental licenses.

Environmental Communications

TohokuEPCO has worked to promote interactive communication in FY2000, publishing 10,000 copies of its *Environmental Action Report* and distributing them among concerned parties. Additionally, we have conducted a thorough questionnaire survey. The comments and requests collected through communication are incorporated into specific environmental activities as much as possible. We're moving forward in our effort to promote environmental communications and to improve environmental activities.

Corporate Profile

Established: May 1, 1951

Capital: ¥251,441 million
(US\$2,029 million; US\$1.00=¥123.90)
as of March 31, 2001

Chairman of the Board: Toshiaki Yashima

President: Keiichi Makuta

Employees: 13,702 as of March 31, 2001

Revenues: ¥1,570,721 million
(US\$12,677 million; US\$1.00=¥123.90) as of March 31, 2001

Directory:

(Head office) 7-1, Ichibancho 3-chome, Aoba-ku, Sendai, Miyagi 980-8550, JAPAN
(Branch offices) Aomori, Iwate, Akita, Miyagi, Yamagata, Fukushima, Niigata, Tokyo
(Overseas office) New York

Web site: <http://www.tohoku-epco.co.jp/>

Number and maximum capacity of power stations
(end of FY2000)

		Number of power plants	Max. capacity (kW)
Hydroelectric		210	2,442,106
Steam	Thermal	8	11,120,000
	Geothermal	4	223,800
Nuclear		1	1,349,000
Internal combustion		5	85,740
Total		228	15,220,646

