

## Foundation for Creating Value (CSR)



ECO Points Program (Protecting loggerhead sea turtle through partnership with NPO)



Chuden Interpreters



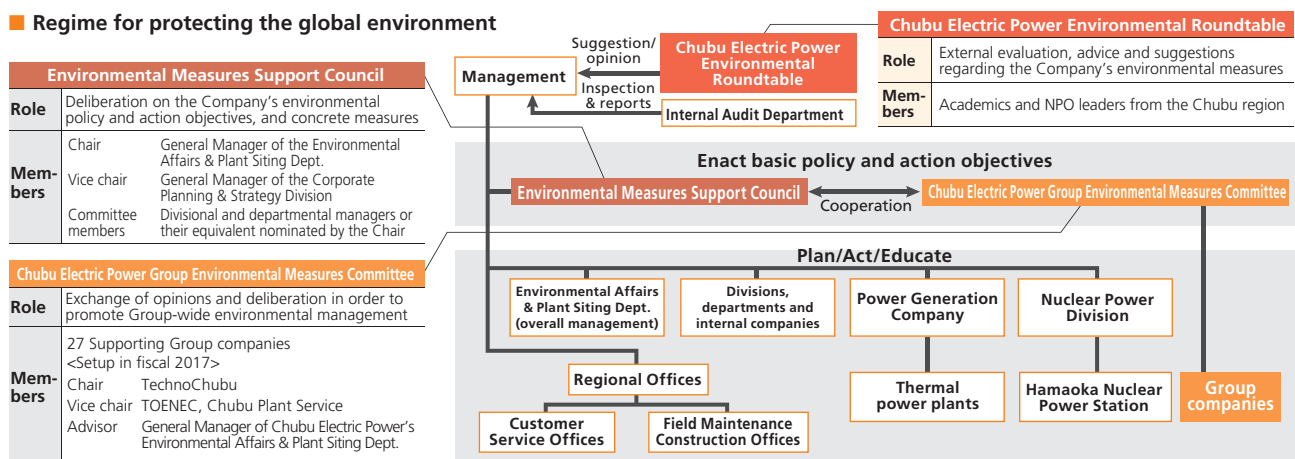
Eco Park of the Hekinan Thermal Power Station

# Commitment to Environmental Conservation

Chubu Electric Power positions environmental protection as one of the most important responsibilities of the entire Chubu Electric Power Company Group. This is made loud and clear in the group's Basic Environmental Policy where it states "as a member of the energy industry, the Chubu Electric Power Group practices responsible environmental management and contributes to the development of a sustainable society by working to protect the global environment with employees who act on their own initiative." Chubu Electric Power formulates action plans with concrete targets and promotes environmental management on the 4 pillar concepts espoused in the group's Basic Environmental Policy: "building a low-carbon society", "coexisting with nature", "creating a recycling society" and "interacting with local communities and the world at large".

Chubu Electric Power Group Basic Environmental Policy: <http://www.chuden.co.jp/kankyo/sengen/index.html>

### Regime for protecting the global environment



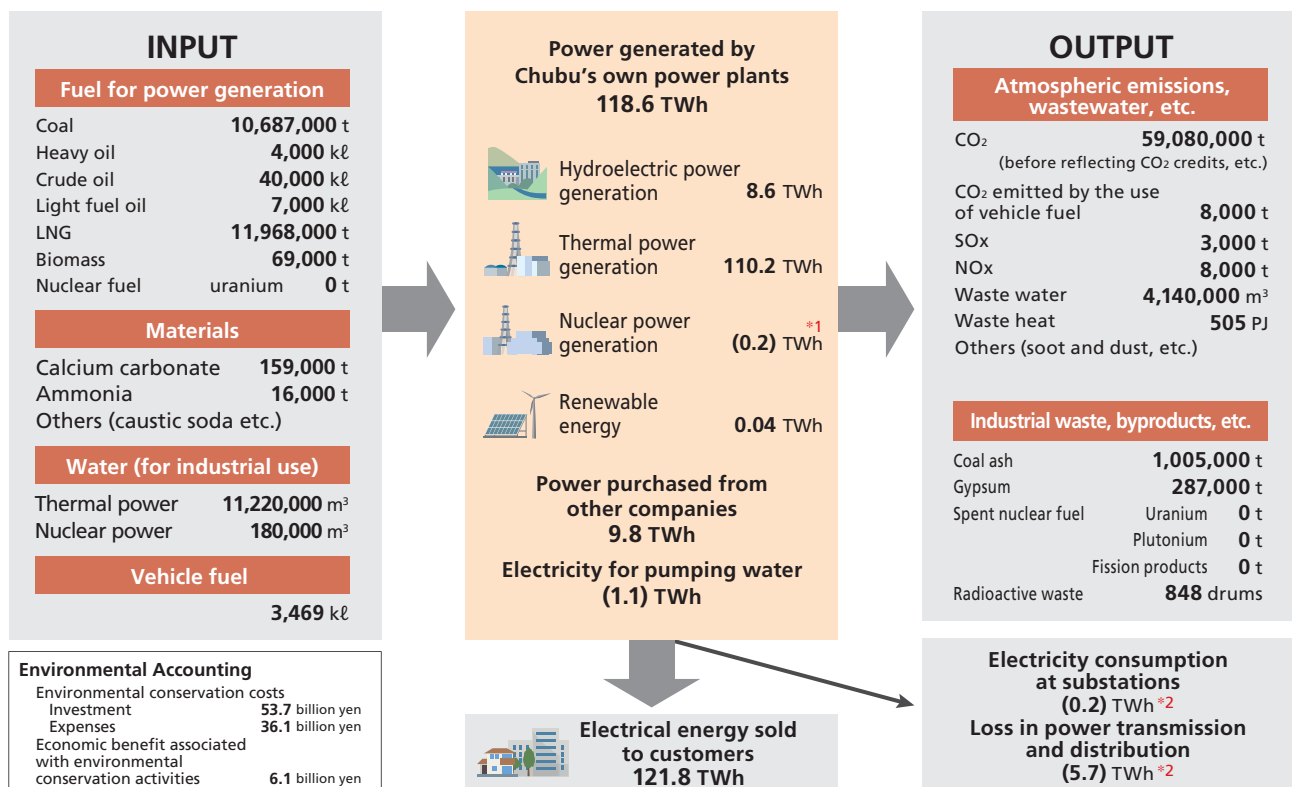
### Main activities in fiscal 2017

<b>Building a Low-Carbon Society</b> See pages 44 and 47	<ul style="list-style-type: none"> <li>● Increase gross thermal efficiency of thermal power plants.</li> <li>● Expand the use of renewable energy.</li> <li>● Strictly implement measures to enhance safety at the Hamaoka Nuclear Power Station.</li> </ul>
<b>Coexisting with nature</b> See page 78	<ul style="list-style-type: none"> <li>● Reduce SOx and NOx emissions per unit of generated thermal power.</li> <li>● Take measures to protect biodiversity.</li> </ul>
<b>Creating a recycling society</b> See page 78	<ul style="list-style-type: none"> <li>● Promote the 3Rs in consideration of the economical benefits of reducing waste destined for outside disposal sites.</li> </ul>
<b>Interacting with local communities and the world at large</b> See page 79	<ul style="list-style-type: none"> <li>● Implement the ECO Points program across the Chubu Electric Power Group.</li> <li>● Encourage employees to become Chuden Foresters and Chuden Interpreters, and engage in activities.</li> <li>● Enhance education on energy and the environment in collaboration with local communities.</li> <li>● Conduct environmental activities actively for local communities.</li> </ul>

# Promoting Environmental Management

Chubu Electric Power works hard to reduce the environmental load of its business activities by identifying the amount of fuel and materials it inputs into its operations and the amount of CO<sub>2</sub>, wastewater, and waste it generates from that. Chubu Electric Power also develops self-declared environmental management activities based on ISO14001 (2004).

## Environmental inputs and outputs across our business / environmental accounting



Note: Some numbers may not add up due to rounding.

\*1 Though nuclear power stations have been shut down, electric power from off-site sources is being consumed on the premises, therefore a negative value is shown on the transmission end.  
\*2 Indicated values are for the Chubu area.

## TOPICS

### The 16th Chubu Electric Power Environmental Roundtable Meeting

Chubu Electric Power holds an "environmental roundtable" meeting to hear advice and proposals of outside experts with regard to the company's environmental policy and measures. The 16th meeting took place at the Hamaoka Nuclear Power Station in February 2017.

#### <Important opinions obtained from participants>

- Energy problems should be addressed from a broad perspective that includes industry rather than just one's immediate surroundings.
- Repeated discussion promotes understanding, though it is difficult to guarantee absolute safety.

#### Members of the Chubu Electric Power Environmental Roundtable (honorifics omitted, in no particular order)

<b>Ichiro Yamamoto (Chair)</b>	Advisor of the President, Professor of School of Human Care Studies, Nagoya University of Arts and Sciences	<b>Keiko Kunimura</b>	Director, Nagoya City Waterside Research Group
<b>Tadashi Aburaya</b>	Former Chairman, Mie Prefecture Environmental Conservation Agency	<b>Noriyuki Kobayashi</b>	Associate Professor, Graduate School of Engineering, Nagoya University
<b>Masayo Kishida</b>	President, NPO Partnership Support Center	<b>Atsuko Hayakawa (Absent)</b>	NPO Weather Caster Network
<b>Toshihiro Kitada</b>	Special Appointed Professor and Professor Emeritus, Toyohashi University of Technology	<b>Susumu Hayashi</b>	Professor Emeritus, Gifu University



## Building a Low-Carbon Society

### Reduction of CO<sub>2</sub> emissions

Chubu Electric Power is committed to combating global warming by taking a holistic approach, which includes the utilization of nuclear power with the highest priority placed on ensuring the safety of and building trust with local communities, as well as the development of high-efficiency thermal power generators and renewable energy sources.

Our CO<sub>2</sub> emission intensity (CO<sub>2</sub> emissions per kWh of electricity produced) in fiscal 2016 was 0.485 kg-CO<sub>2</sub>/kWh (actual emission intensity\*).

Since the suspension of operations at the Hamaoka Nuclear Power Station following the Great East Japan Earthquake in 2011, thermal power generation has increased to replace nuclear power generation, resulting in a significant rise in CO<sub>2</sub> emission intensity. However, CO<sub>2</sub> emission intensity has been brought down year after year thanks to the development of high efficiency thermal power generators, greater use of renewable energy and other factors.

To further reduce the CO<sub>2</sub> emission intensity of the company as a whole, we will continue to use nuclear power,

which generates electricity without emitting CO<sub>2</sub> and therefore is an effective way to combat global warming; increase the use of renewable energy; install the world's highest efficiency LNG-fired generator at the Nishi-Nagoya Thermal Power Station Unit No. 7 (currently under construction); and install leading-edge power generation facilities at the Taketoyo Thermal Power Station and the Abekawa Hydroelectric Power Station (currently in the planning stage).

Additionally, Chubu Electric Power established the Electric Power Council for a Low Carbon Society (ELCS) along with 41 other electric power companies to continue to promote comprehensive measures for reducing CO<sub>2</sub> emissions. ELCS aims to achieve the target set by the entire electric power industry, i.e., CO<sub>2</sub> emission intensity of 0.37 kg-CO<sub>2</sub>/kWh by fiscal 2030.

\* The CO<sub>2</sub> emission intensities that reflect credits obtained from the methods stipulated in the Act on Promotion of Global Warming Countermeasures and that are adjusted based on the feed-in tariff scheme for renewable energy are yet to be determined. The data will be announced at the earliest possible opportunity after they have been established.

### Calculation of supply-chain emissions

Chubu Electric Power calculates CO<sub>2</sub> emissions throughout its supply chain\*.

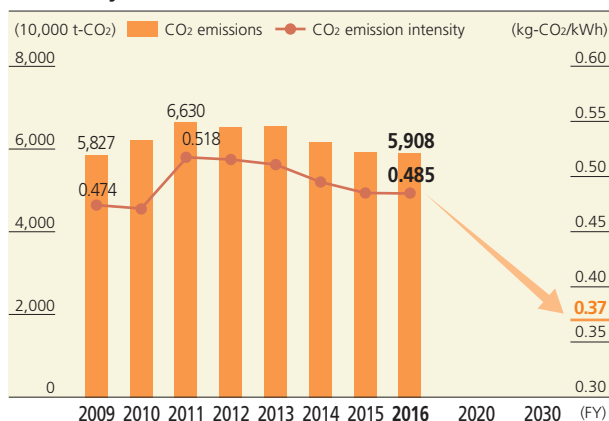
Based on the Mandatory Greenhouse Gas Accounting and Reporting System, the company has calculated CO<sub>2</sub> emissions and emission intensity associated with its electricity generation and reported them to the national government.

The company has also calculated indirect emissions arising from the supply chain of its electric power business (scope 3: associated with purchase of capital goods, extraction and transportation of fuels for power generation, investment in overseas power generation projects, etc.), which are not included in the values reported to the national government, according to the "Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain" issued by the Ministry of the Environment and the Ministry of Economy, Trade and Industry of Japan.

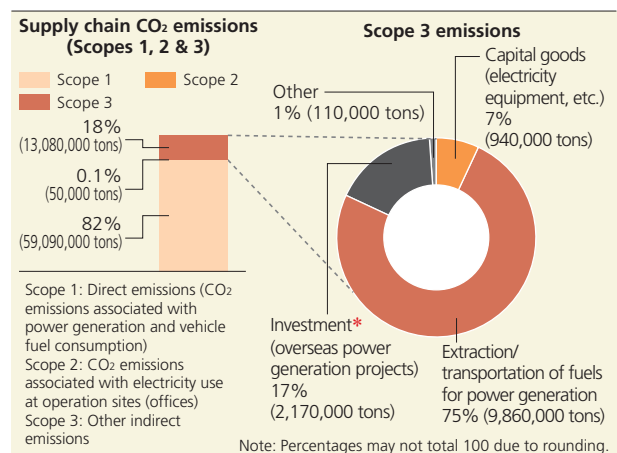
To promote measures for combating global warming, we will make continued efforts to measure emissions throughout our supply chain.

\* Emissions from Chubu Electric Power only, not including consolidated subsidiaries.

### Trends and outlook of CO<sub>2</sub> emissions and CO<sub>2</sub> emission intensity (actual emission basis)



### Supply chain CO<sub>2</sub> emissions (fiscal 2016)



\* Investments in overseas power generation are normally calculated for the entire calendar year, but because international business switched over to JERA in July 2016, the shown 2016 data is for January to June only.

## Coexisting with Nature

### Local environmental conservation measures

For conserving the environment of the surrounding areas, Chubu Electric Power implements a variety of measures based on agreements with local governments for environmental preservation and pollution control. We also conduct monitoring surveys of the surrounding areas to verify that there is no ongoing impact on the local environment resulting from our operation.

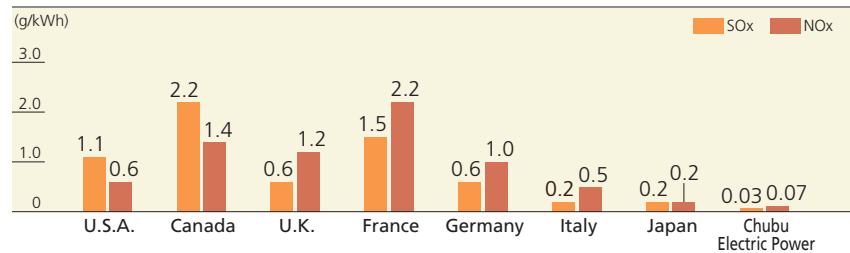
No violation was identified in the Chubu Electric Power Group for compliance with environmental laws and regulations during fiscal 2016.

### Air pollution measures

Chubu Electric Power's emissions of SOx (sulfur oxides) and NOx (nitrogen oxides) per unit of generated thermal power are amongst the lowest in the world due to the company's expanded

use of LNG that does not generate SOx when burned, use of low-sulfur fuel oil, use of burners that reduce NOx generation, use of flue gas desulfurizing/denitrification units, etc.

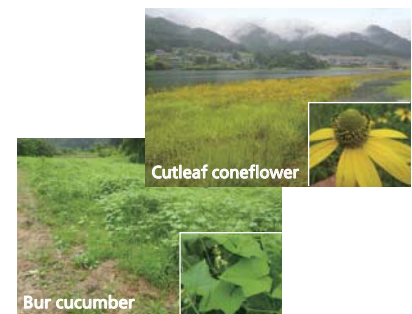
■ SOx and NOx emissions per kWh of electricity generated by thermal plants (international comparison)  
(Countries: 2014 data; Chubu Electric Power: fiscal 2016 data)



Source: Data for overseas: OECD Stat Extracts, IEA ENERGY BALANCES 2016; Data for Japan: Federation of Electric Power Companies of Japan

### Activities for protecting biodiversity

<b>Protection of endangered species</b>	For protecting endangered plant species that have been identified on the company's land and areas surrounding our electric power facilities, including sarumenebine ( <i>Calanthe tricarinata</i> , a variety of orchid), kyomarusyakunage ( <i>Rhododendron japonheptamerum</i> , a rhododendron found only in Japan), and tadesumire ( <i>Viola thibaudieri</i> , a type of violet), we have clarified the physiology and ecology of these scarce plants and established technologies for their reproduction.
<b>Eradication of identified invasive alien species</b>	We are promoting efforts to eradicate identified invasive alien species of plants that have infiltrated river management facilities and surrounding areas.
<b>Protection of birds of prey</b>	To protect birds of prey identified on and around the construction site of the Tokuyama Hydroelectric Power Station and transmission lines, we are conducting construction work in a manner that does not affect the life of the birds or their habitat, following instructions from experts mainly from the Japan Falconiformes Center.
<b>Eco Park of the Hekinan Thermal Power Station</b>	The Hekinan Thermal Power Station is located close to the estuary of the Yahagi River in Aichi Prefecture, to which sandpipers and plovers migrate. The Eco Park, created adjacent to the power plant, has a pond for wild birds and a circulating waterway that prevents the entry of predators to the park and contributes to the conservation of the habitats of wild birds in the area.



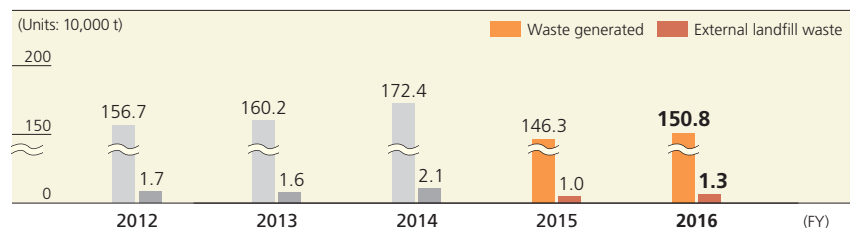
Identified invasive alien species of plants

## Creating a Recycling Society

In order to achieve our target of reducing our external landfill waste to less than 1%, we are working on 3R initiatives to reduce, reuse and recycle.

Waste generated by the Chubu Electric Power Group amounted to 1,508,000 tons in fiscal 2016, 13,000 tons of which was disposed of in external landfills.

### ■ Industrial waste, waste by-products and external landfill waste



## Interacting with Local Communities and the World at Large

### Human resource development

The Chubu Electric Power Company Group offers its employees training so that they can serve as “Chuden Foresters” or “Chuden Interpreters”. These former are skilled and knowledgeable of thinning techniques for planted forests, while these latter are versed in conveying the fun of the great outdoors to others.

So far to date, 250 Chuden Foresters and 135 Chuden Interpreters have successfully completed the program.

They take part in various environmental protection activities including thinning projects 15 times a year in Aichi, Mie, Gifu and Shizuoka in places like the Nagaragawa Community

Forest, and “forest experiences” (7 times a year, 340 participants) in the Nenoue Plateau, and Higashiyama Zoo and Botanical Gardens.

### Social contribution activities

#### Forest thinning (Morino Chonaikai Initiative)

Chubu Electric Power serves as the Chubu Region Office for forest preservation activities that are self-funded with proceeds earned from paper made from thinning operations.

About 80 companies have been collaborating since 2011 in thinning operations in Komagane City, Nagano Pref. Some 51 hectares of forest (10.5

times the size of the Nagoya Dome) have been thinned since the activity began.

#### Eco Points Program

The Chubu Electric Power Company Group’s “Eco Points Program” rewards group employees and their families with points for personal environmental preservation efforts such as conserving power and eco-friendly driving.

Earned points are then used to fund the social contribution activities of cooperating NPOs and other organizations shown in the table below. Employees and their families also partake in the activities.

This Eco Points Program marked its 10th year of activities in 2016.



Employees were encouraged to become Chuden Foresters



Tour of forest thinned by the Morino Chonaikai Initiative



Environmental education support for children in the Philippines



Our goal is to develop forests, train people and coexist with the natural environment as a business.

#### Beneficiaries of the Eco Points Program

<b>Activities in Japan</b>	<ul style="list-style-type: none"> <li>• Loggerhead turtle protection in the Nakatajima Dunes in Hamamatsu City</li> <li>• Environmental education on preserving the Mitakigawa River eco-system in Yokkaichi City</li> <li>• Environmental education for the next generation (Nakatsugawa City, Toyota City)</li> </ul>
<b>Activities outside Japan</b>	<ul style="list-style-type: none"> <li>• Mangrove planting in Ho Chi Minh City, Vietnam</li> <li>• Environmental education support for children in the Philippines</li> </ul>

### TOPICS

#### 10th anniversary of the Eco Points Program

Some 20 oak saplings were planted in the Nagaragawa Community Forest in Gifu City to commemorate the 10th anniversary of the Eco Points Program.

The event was attended by 33 people including the director of the Gifu Municipal Department of Agriculture and Forestry, 3 persons from that department’s Agriculture, Forestry and Landscaping Section, 23 Chubu Electric Power Company Group employees and their families, and 6 Chuden Foresters.



## Educational activities

### Energy and the Environment Education course

Chubu Electric Power has joined forces with the Nagoya Open University of the Environment to offer an “Energy and the Environment Education” course to college students and others who will lead the next generation. In fiscal 2016, a total of 61 people took the course.

The course deepens the students’ understanding of current environmental and energy issues, and environmental considerations shown by Chubu Electric Power through classroom lessons, opinion exchanges, and tours of power stations and other facilities that are rarely open to viewing.

### Cooperation with Mie University

Chubu Electric Power is cooperating with Mie University in the field of energy and environmental education based on a comprehensive agreement.

### Content covered in the fiscal 2016 Energy and the Environment Education course

<b>Day 1</b> 08/31 (Wed.)	Introductory presentation >> Tour of Central Load Dispatching Center >> Tour of Hekinan Thermal Power Station >> Tour of Kinuura Water Treatment Center (Sewerage-to-Fuel Carbonization Plant)
<b>Day 2</b> 09/07 (Wed.)	Tour of Hamaoka Nuclear Power Station >> Tour of Omaezaki Wind Power Station
<b>Day 3</b> 09/14 (Wed.)	Tour of Kawabe Hydroelectric Power Station >> Classroom lesson >> Group work >> Discussion



Courses open to the community at Nagoya Open University of the Environment; Energy and the Environment Education course



Results of energy and environmental education (Cooperative effort between Chubu Electric Power and Mie University) being reported

### Cooperative activities with other businesses

The Eco Partnership Club (EPOC) is an environment advocacy organization formed in 2000 around the Chubu Region’s industrial sector. There are about 280 companies participating in EPOC. Member companies plan and stage seminars, tours, and other activities conducive towards building a sustainable society and economy on a cooperative platform of industry, government and academia.

Since fiscal 2016, Chubu Electric Power has served as the representative chair of the organization.



Fiscal 2016 EPOC General Assembly



EPOC tour

### Message from General Manager of Environmental Affairs & Plant Siting Department



Masaya Hashimoto  
General Manager of  
Environmental Affairs &  
Plant Siting Department

### Engaged in environmental protection activities together with hosting communities

There is a general consensus that climate change and other environmental problems of global scale can be blamed on everyday socio-economic activity. Needless to say, correcting the problems will require all of mankind to get involved.

At Chubu Electric Power, we are of course taking steps to reduce the environmental load of our business activities, but we also view it as our responsibility to assist our hosting communities and international efforts in their environmental protection initiatives. So, we are engaged in developing human resources who can take the lead in environmental efforts, and social contributions and education activities related to energy and the environment. We have been strongly encouraged by the comments we have received from people who participated in these activities: “I want to apply what I have learned to environmental protection activities” and “This was a valuable experience.”

We could never conduct business without the trust of customers and hosting communities. Going forward, we will continue to engage in environmental protection activities together with hosting communities.