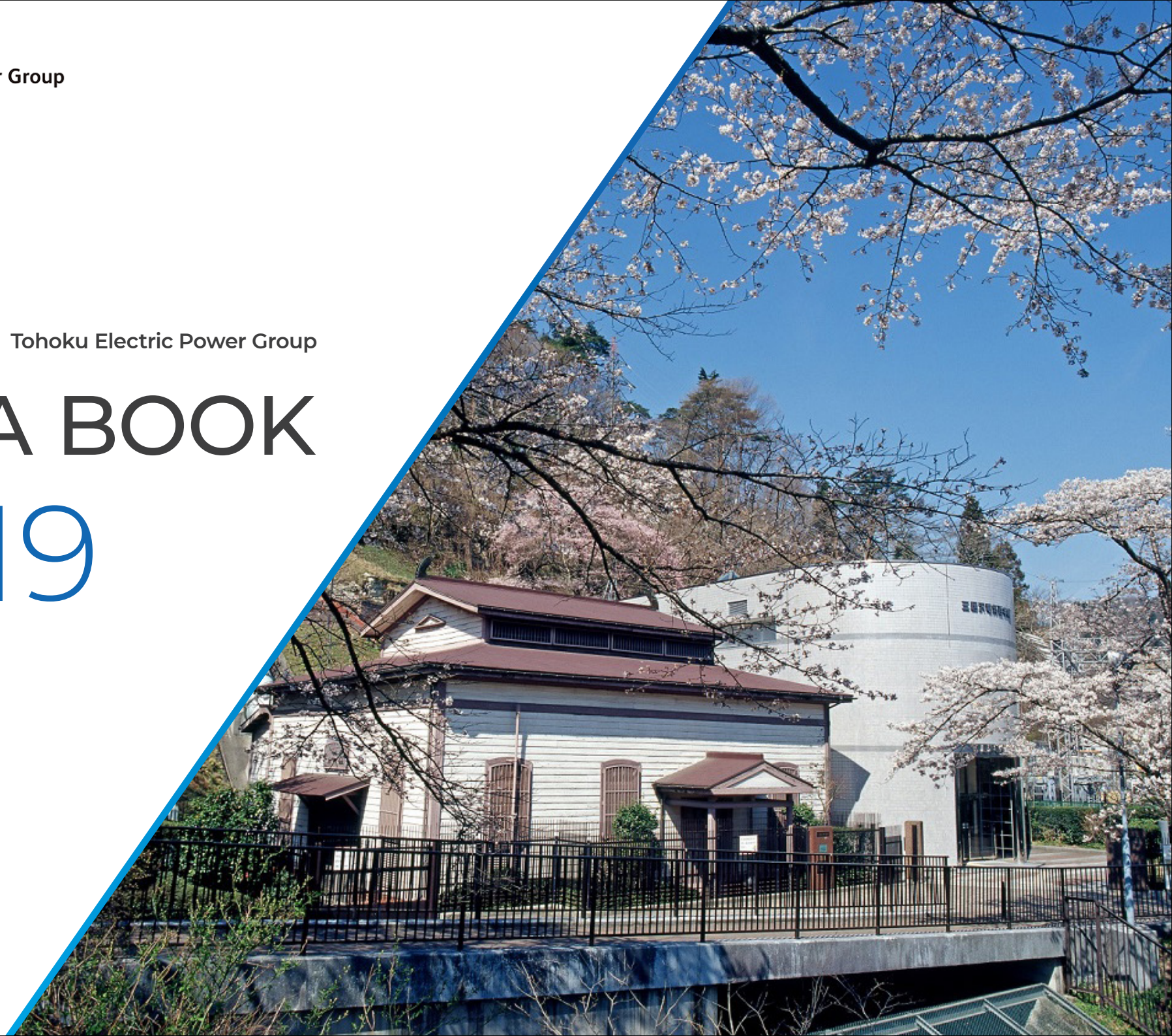


# ESG Tohoku Electric Power Group DATA BOOK 2019





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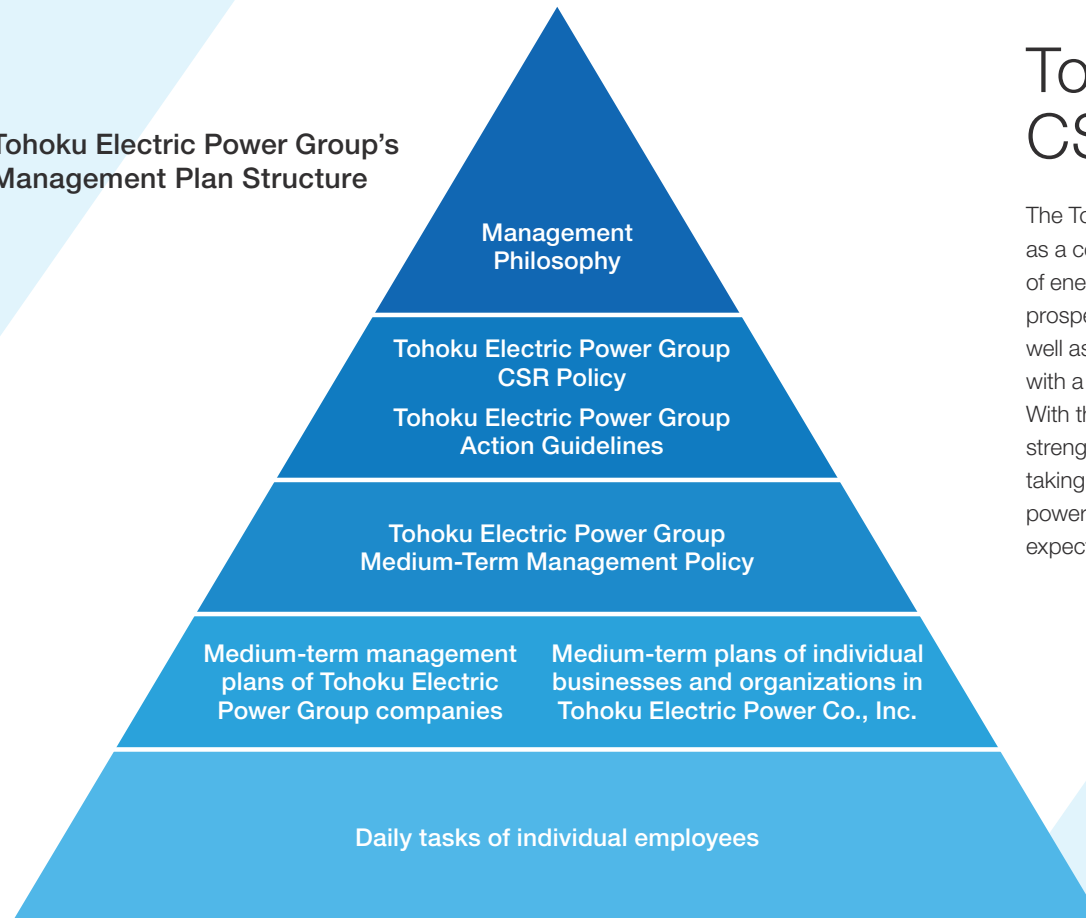
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**Tohoku Electric Power Group's Management Plan Structure**



# Tohoku Electric Power Group CSR Policy

The Tohoku Electric Power Group views its corporate social responsibility (CSR) as a commitment to the expansion of its business activities, including the provision of energy and other services in accordance with its management philosophy of prospering with the local community and using creativity in business management, as well as group-wide efforts to resolve issues that face local communities and society with a view toward the continuous growth of society and the corporate group. With the aim of fulfilling its CSR, the Tohoku Electric Power Group will display its overall strength based on its efforts to carry out sincere and fair business activities while taking advantage of the unique features of individual group companies, providing powerful support for the value chain of business activities and thereby meeting the expectations of its valuable stakeholders.



## Tohoku Electric Power Group CSR Policy

The Tohoku Electric Power Group defines customers, local communities, shareholders and investors, business partners and employees as its key stakeholders. It will continue and enhance its wide range of activities through two-way communication to ensure safety, considering the environment, and complying with laws, regulations and corporate ethics. All Group companies will work together to address CSR actions.

### Tohoku Electric Power Group's Relationships with Stakeholders

#### With shareholders and investors

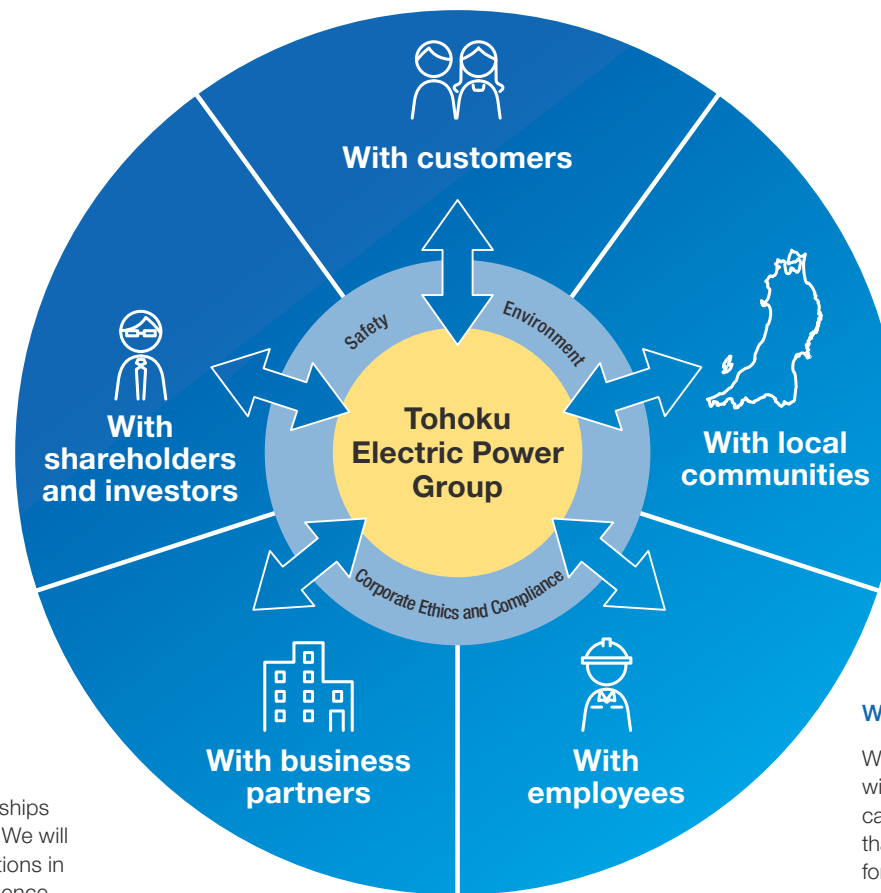
We will enhance information disclosure and corporate governance to boost management transparency. We will also enhance communication with shareholders and investors to increase corporate value.

#### With business partners

We will engage in fair and sound transactions to build strong relationships of trust with our business partners. We will bolster the transparency of transactions in an effort to strengthen social confidence.

#### With customers

We will address a wide variety of customer needs and consistently offer low-cost energy and services that will be selected by customers in a bid to continually increase their satisfaction.



#### With local communities

We will ensure that our employees constantly communicate to attain a consensus with local communities and build relationships of trust. We will engage in community-based activities and collaboration with local residents to contribute to local revitalization.






#### With employees

We will respect the personality of our employees with their diverse backgrounds to ensure that they can fully showcase their skills and motivation and that they find it comfortable and rewarding to work for us. We will also offer development opportunities to assist employees in building rich and healthy lives.

# Tohoku Electric Power Group's Relationships with Stakeholders

The Tohoku Electric Power Group will continue and enhance its wide range of activities through two-way communication with many different stakeholders. All Group companies will work together to address CSR actions.

## Main opportunities for dialogues/Communication tools with stakeholders

	 <b>Customers</b>	 <b>Communities</b>	 <b>Shareholders and Investors</b>	 <b>Business Partners</b>	 <b>Employees</b>
Relationships with stakeholders	<p>The Tohoku Electric Power Group operates its businesses mainly in six prefectures in the Tohoku region and Niigata Prefecture. Customers vary from business to business. In our core electric power business, we have contracts with a broad range of customers, from general households to large factories.</p>	<p>The Tohoku Electric Power Group operates under the basic concept that its development is impossible without the prosperity of the Tohoku region. As a part of the local community, we will communicate closely with its members.</p>	<p>The Tohoku Electric Power Group has 171,598 shareholders. Many are institutional investors, financial institutions and private investors in Japan and overseas.</p>	<p>The Tohoku Electric Power Group has transactions with business partners not only in the six Tohoku prefectures and Niigata Prefecture but elsewhere in Japan and overseas.</p>	<p>The Tohoku Electric Power Group has 25,032 regular employees (consolidated) working for its companies. A large majority of them reside in the six Tohoku prefectures and Niigata Prefecture.</p>
Main opportunities for dialogues/Communication tools	<ul style="list-style-type: none"> <li>■ The Customer Center and the Network Call Center receive different kinds of requests, comments and inquiries.</li> <li>■ Everyday sales activities, including proposals of energy solution services</li> <li>■ Communication with customers near power stations (all household visit activities)</li> <li>■ Online publication of useful information for energy saving</li> <li>■ CSR surveys</li> <li>■ Facilities tours, including those near power stations</li> </ul>	<ul style="list-style-type: none"> <li>■ Actions for local collaboration</li> <li>■ Actions of social contribution</li> <li>■ Support for local revitalization</li> <li>■ Facilitation of international cooperation and exchange activities</li> </ul>	<ul style="list-style-type: none"> <li>■ General meetings of shareholders</li> <li>■ Briefings for investors</li> <li>■ Visits to institutional investors</li> <li>■ Facilities tours</li> <li>■ Business reports</li> <li>■ Webpages for shareholders and investors</li> </ul>	<ul style="list-style-type: none"> <li>■ Disclosure of the Basic Policy of Procurement and other materials for offering fair and rightful trading opportunities</li> <li>■ Day-to-day procurement activities</li> <li>■ Briefings for business partners</li> <li>■ Surveys of business partners</li> <li>■ Dialogues with business partners</li> <li>■ Workshops and safety patrols</li> </ul>	<ul style="list-style-type: none"> <li>■ Management team members' visits to offices</li> <li>■ Diversity-related seminars</li> <li>■ Periodic dialogues with supervisors</li> <li>■ Discussions with the labor union</li> <li>■ Consulting services (on compliance and other matters)</li> <li>■ Interactive Intranet</li> <li>■ In-house newsletters</li> </ul>



# System for Learning about Local Communities' Views and Requests

## Surveys on Tohoku Electric Power's corporate activities and CSR actions

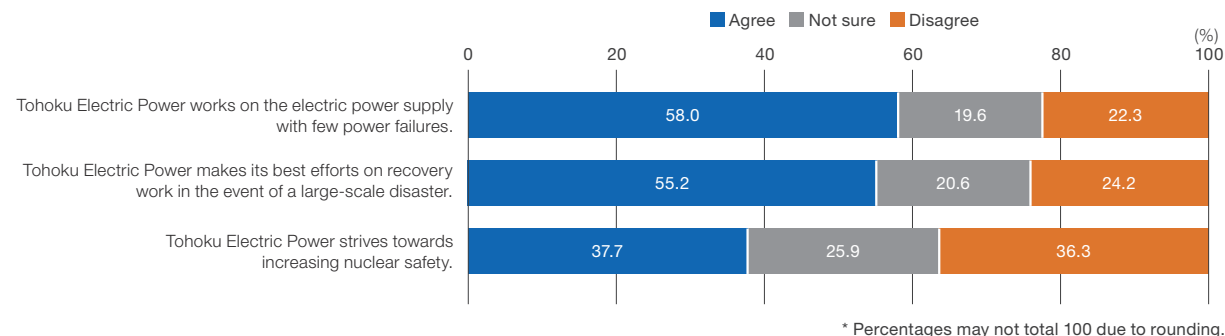
We conduct surveys on Tohoku Electric Power's corporate activities and CSR actions to learn about customers' perspectives on our different activities, CSR actions and the current energy situation that can be used as a guide when considering our future business activities and method of communication with local communities. This section shows an example of the results of the survey on our activities conducted in 2018.

**Online survey of Tohoku Electric Power's corporate activities and CSR actions**

<b>Date</b>	July 25, 2018 – August 3, 2018
<b>Subjects</b>	2,386 males and females living in the six Tohoku prefectures and Niigata Prefecture

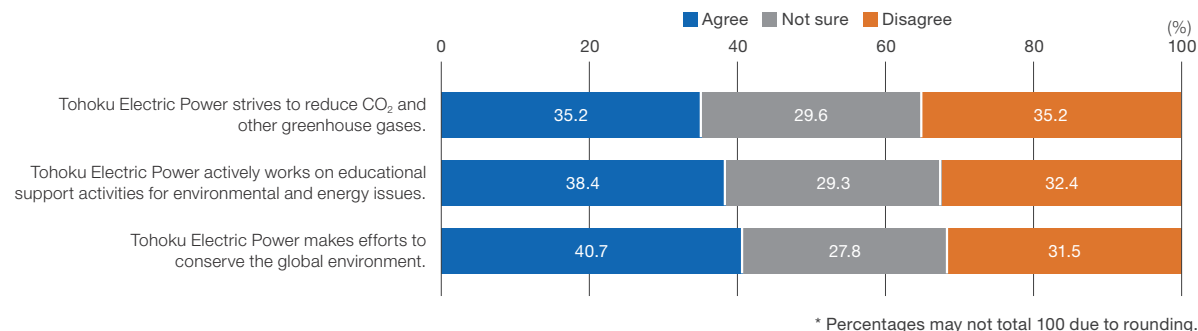
### Views on our actions to address the stable supply of electric power and others

The majority of customer responses offer positive feedback on our actions towards the stable supply of electric power, including electric power supply with few power failures and recovery work in the wake of large-scale disaster. We will continue to carry out construction, maintenance and operation of power transmission and distribution facilities and drills for earthquakes, typhoons and other hazards aimed at enhancing response capabilities to major disasters to ensure that customers can use electric power confidently.



### Views on environmental actions

We aim to reduce carbon dioxide and other greenhouse gas emissions and expand the introduction of solar, wind, geothermal, hydraulic and other renewable sources of energy. We will continue our actions towards stopping global warming, our support for customers' energy conservation and our education support activities with a focus on environmental and energy issues.

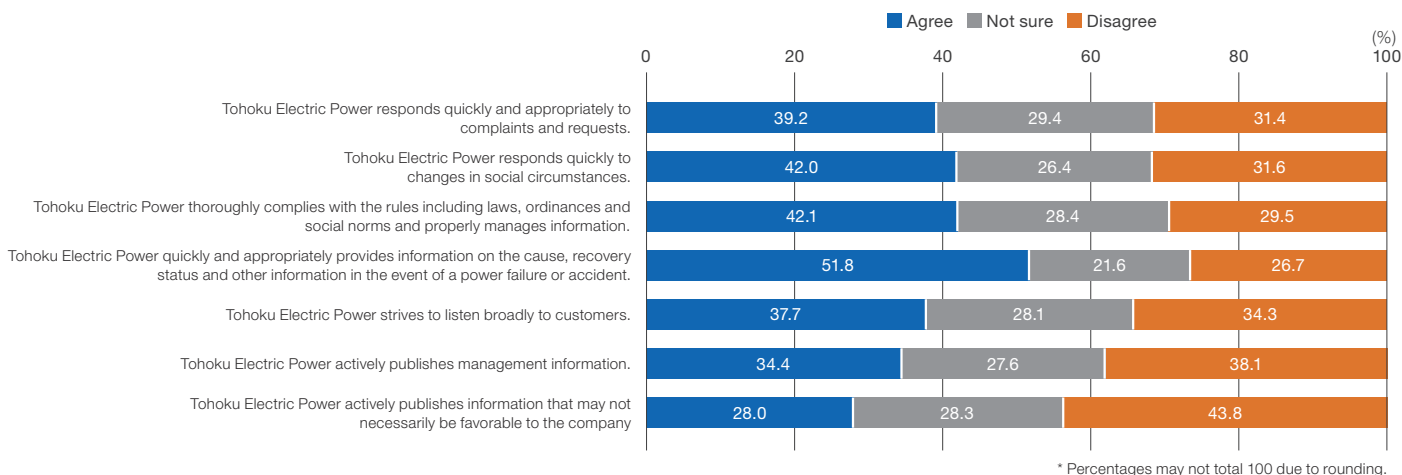




## Surveys on Tohoku Electric Power's corporate activities and CSR actions

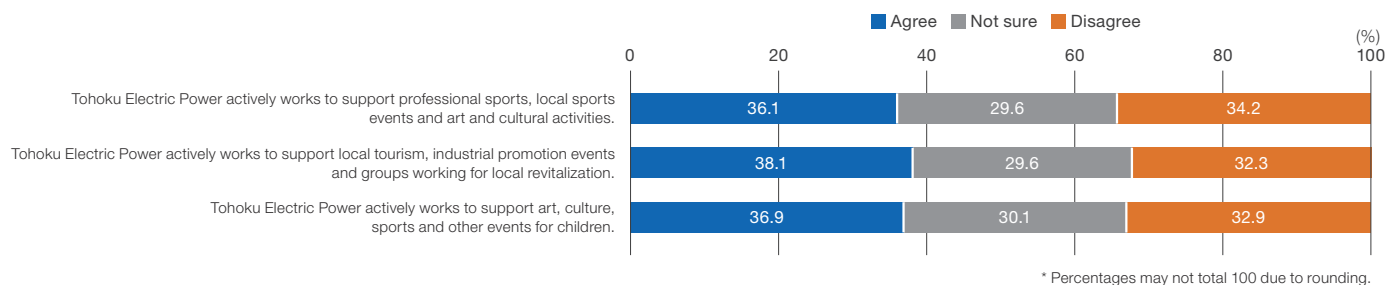
### Views on customer service and information provision

We are working to enhance customer service and provide different kinds of information through press releases and publications on our website. We believe that we need to continue our efforts to meet different customers' needs and promptly deliver accurate information to boost customer satisfaction.



### Views on social contribution activities

With the management philosophy of prospering with the local community, we emphasize close communication with local communities. Individual offices play central roles to engage in communication activities close to local communities. We will fulfill our responsibilities and roles as part of local communities and endeavor to build mutual relationships of trust with them.



### Summary

The views of regional customers on our corporate activities became considerably negative after the Great East Japan Earthquake, but we have observed that positive views are increasing year after year.

Specifically, a higher percentage of respondents than in the previous fiscal year responded positively in all survey categories: our actions for stable electric power supply, our environmental actions, our customer service and information offering and our social contribution activities. We believe that this reflects the information we provide through press releases, on our website and by other means as well as our employees' sincere behavior towards local communities and stakeholders under the corporate slogan of *Yori, Sou, Chikara* (The Strength to Work Alongside).

Nonetheless, some respondents still remain unsure of our corporate activities. Although a majority of respondents were positive about our information provided during power outages and accidents, we find it necessary to enhance information provision and publicity activities concerning other business activities for stakeholders. In accordance with the Tohoku Electric Power Group CSR Policy and the Tohoku Electric Power Group Action Guidelines, we will continue to implement and enhance a wide range of activities through interactive communication with stakeholders to ensure that the Tohoku Electric Power Group will work as one to advance its CSR actions.

# Environment

## Environmental Management

### Tohoku Electric Power Group Environmental Policy

#### Basic stance

Through our environment-friendly energy service, we work together with the local communities and our customers, aiming for a sustainable society where future children can live safely and in peace.

We strive to ensure a stable supply of energy that is compatible with environmental conservation and economic efficiency, with the premise of ensuring safety as a corporate group aligned with the local communities. This is our mission, and it will not change in any way in the future.

We appreciate the earth and its bounty, and we respect the traditional values of the people of this region as they coexist with nature. We aim for sustainable growth along with the local communities and our customers. Through good and faithful communications with them, we take our commitment to environmental issues seriously and implement actions to achieve our goal.

#### Four environmental action principles

- 1 Appreciate the bounty of the earth and use its limited resources carefully
- 2 Minimize the environmental impact
- 3 Protect and coexist with the rich natural environment
- 4 Think and act with the local communities and our customers

### Environmental management system

#### Tohoku Electric Power Group Environmental Management System (T-EMS)

The Tohoku Electric Power Group Environmental Management System (T-EMS) is an original environmental management system intended for enhancing environmental activities throughout the Tohoku Electric Power Group. We operate it in accordance with the T-EMS Guidelines, which we have formulated in reference to the ISO 14001 international standard for environmental management systems and Eco-Action 21 run by the Ministry of the Environment. Our Group has qualified ISO 14001 auditors and internal auditors. They inspect T-EMS certified companies with respect to their environmental activities. They then deliver reports to the T-EMS Promotion Committee, an organization within the Tohoku Electric Power Group Environment

Committee, and evaluate the individual companies that have been inspected. The T-EMS certification is effective for three years from the date of registration. After the initial registration, certified companies are subject to maintenance or renewal reviews each year.

T-EMS is composed of predetermined requirements. It aims to continuously improve environmental activities by repeating the PDCA cycle, in which activities are Planned and Done and then Checked so that Actions for overall reviews and revision will be taken.

T-EMS certified firms' operating revenues for the fiscal year ended March 31, 2019 accounted for around 97% of our Group's consolidated operating revenues for the same fiscal year.

#### Comparison with different management systems

	T-EMS Guidelines	ISO 14001	Eco-Action 21
<b>Formulation body</b>	Tohoku Electric Power Group Environment Committee	International Organization for Standardization (ISO)	Ministry of the Environment
<b>Scope of application</b>	Companies in the Tohoku Electric Power Group	Organizations of any type or size	Small- and medium-sized enterprises
<b>Requirements</b>	<b>Check items on the check list</b> Step 1 16 items Steps 2 and 3 29 items	80 requirements	<b>Check items on the check list</b> 51 requirements in accordance with ISO 14001
<b>Characteristics</b>	They stipulate the requirements based on the Eco Action 21 and are easier to address than the Eco Action 21. They define three steps associated with different levels of difficulty.	Given that the requirements of this standard pertain solely to the framework of the environmental management system, companies must independently establish internal rules	It is easy to address since it provides for specific rules for the framework required by the ISO standard. On the other hand, it involves an obligation to prepare and publish environmental reports and a large number of items on the self-check sheet and others.



# Climate Change

## Toward the realization of a low-carbon society

### Scope 1, Scope 2 and Scope 3 (Category 3) greenhouse gas emissions

Unit: million tons-CO<sub>2</sub>

Scope	Emissions (FY2017)	Emissions (FY2018)
Scope 1	32.8	31.9
Scope 2	0	0
Scope 3 (Category 3)	10.4	9.1

#### Reporting boundary and calculation method

Scope 1 and Scope 2 emissions of greenhouse gases from Tohoku Electric Power's power stations, offices and other facilities are calculated in accordance with Japan's Act on Rationalizing Energy Use and Act on Promotion of Global Warming Countermeasures. Scope 3 emissions are calculated by multiplying the amount of electricity purchased from other companies by the 'alternative' CO<sub>2</sub> emission factor specified under the latter Act, specifically 0.000512 t-CO<sub>2</sub>/kWh for FY2017 and 0.000500 t-CO<sub>2</sub>/kWh for FY2018. They do not include the upstream emissions of purchased fuels.

Scope 1 emissions refer to greenhouse gas emissions directly from sources owned by Tohoku Electric Power, Scope 2 emissions refer to greenhouse gas emissions associated with the consumption of electricity and heat supplied by other companies, and Scope 3 (Category 3) emissions are those from fuels and energy-related activities not included in either Scope 1 or Scope 2.

### Emissions of greenhouse gases other than CO<sub>2</sub> for fiscal 2018

We are working to reduce emissions of greenhouse gases other than CO<sub>2</sub> that have significant impacts on global warming. One example is sulfur hexafluoride (SF<sub>6</sub>), which is used in gas circuit breakers and other electric power instruments in substations.

#### Tohoku Electric Power's SF<sub>6</sub> recovery rate and HFC stockpile and emissions in FY2018

SF <sub>6</sub>	HFC	
<b>Recovery rate</b> 99.6%	<b>Stockpile</b> 53.3 tons	<b>Main application</b> Refrigerants for air conditioning equipment
<b>Main application</b> Insulators for gas circuit breakers and other electric power instruments	<b>Emissions</b> 1,522t-CO <sub>2</sub>	<b>Countermeasure</b> Efforts to prevent leakage, recover and reuse HFC at the time of installing or repairing equipment
<b>Countermeasure</b> Use of SF <sub>6</sub> gas recovery systems in an effort to prevent release into the atmosphere		

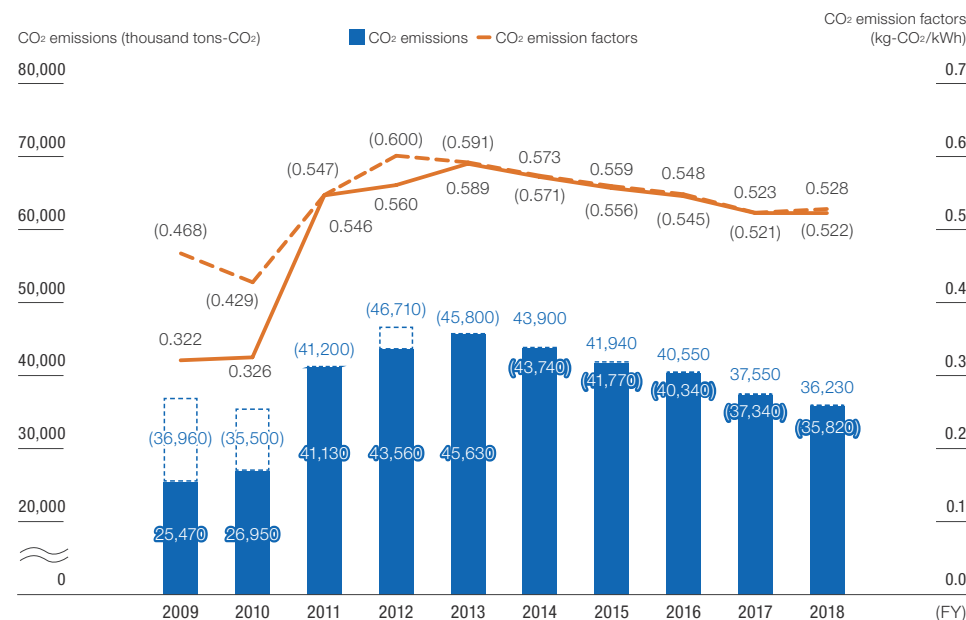
\* SF<sub>6</sub>: sulfur hexafluoride, HFC: hydrofluorocarbon

### CO<sub>2</sub> emissions for fiscal 2018

Our base CO<sub>2</sub> emissions before adjustments under the feed-in tariff (FIT) scheme for renewable energy dropped 4.1% from the previous year's level due to a decline in electricity generated thermally, while CO<sub>2</sub> emission factors stayed almost flat year on year (rose 0.2%) because of a slide in the electricity retail sales volume.

Meanwhile, after FIT adjustments, CO<sub>2</sub> emissions dropped 3.5% and CO<sub>2</sub> emission factors surged 1.0% from the previous year.

#### Trends in CO<sub>2</sub> emissions by year



\* Figures in parentheses ( ) represent basic CO<sub>2</sub> emissions and CO<sub>2</sub> emission factors that do not reflect adjustments under the feed-in tariff (FIT) scheme for renewable energy.

\* Figures for FY2016 and later years denote the relevant values concerned with the retail electric supply business, not including the portion concerned with general electricity transmission and distribution such as the isolated island service.

\* Figures for FY2018 are provisional values as of July 2019.

# Pollution Control and Effective Use of Resources

## Reduction of environmental impact and conservation of local environments

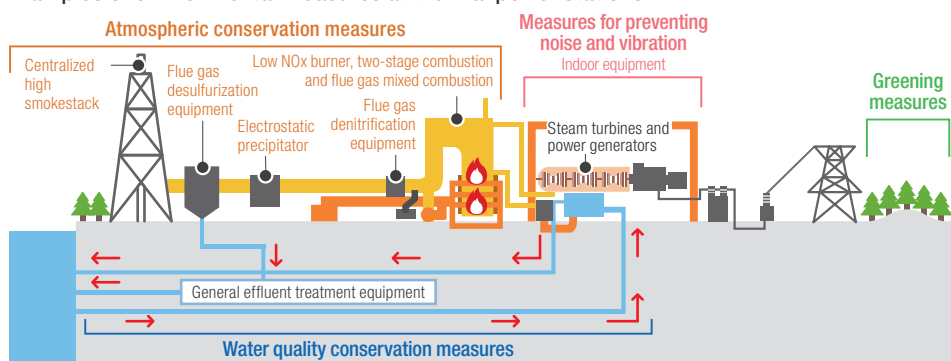
### Compliance with environmental laws and regulations and with pollution prevention agreements

We share the latest information about revisions to environmental laws and regulations among the companies in the Group to ensure thorough legal compliance.

Apart from compliance with the statutes for environmental conservation in operation, our thermal power stations and other facilities enter into pollution prevention agreements with related local governments in an effort to preserve the local environments.

Pollution prevention agreements provide for environmental conservation measures. In consideration of local peculiarities, they set allowable air quality, water quality, noise and other limits that are tougher than those in the national regulations. We periodically carry out environmental measurements and report their results to the relevant local governments.

### Examples of environmental measures at thermal power stations



### Environmental assessment

Prior to the construction of a power station, we conduct an environmental assessment and provide explanations to local governments and inhabitants. On the basis of its results, we implement numerous different measures that consider the atmosphere, water and natural environment in the surrounding area with a view to conserving the local environment. Even where no environmental assessment is required by law or by local ordinance, we implement it voluntarily prior to the construction of a power station or other facilities. The statutory environmental assessment for the Joetsu Thermal Power Station came to an end in 1996. However, given that the latest technologies are introduced to the plan for the construction of Unit 1, we carried out a voluntary study of the surrounding area, evaluated the expected environmental impacts of the power plant construction and provided explanations of them and our environmental conservation measures to the local communities in November 2018.

### Strict atmospheric conservation measures

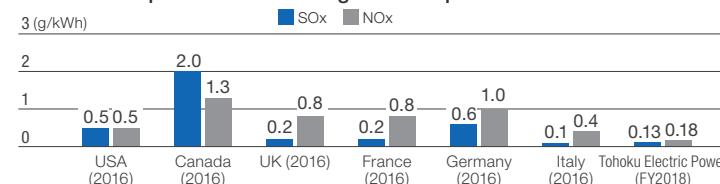
The main air pollutants emitted from thermal power stations include nitrogen oxides (NOx), sulfur oxides (SOx), soot and dust.

For the purpose of cutting the emissions of these substances, we install environmental equipment\* and implement operational measures including stringent combustion management aimed at preventing air pollution.

In fiscal 2018, we emitted 0.18 grams of NOx and 0.13 grams of SOx per kilowatt-hour of power generation. These figures are much lower than those of power producers in other countries.

\* Flue gas denitrification equipment, flue gas desulfurization equipment and electrostatic precipitator

### SOx and NOx emissions per unit amount of generated power



Sources: OECD StatExtracts, IEA World Energy Balances 2018

### Strict water quality conservation measures

We treat effluent from our thermal power stations by means of coagulating sedimentation, filtration and purification to ensure that it meets the discharge standards in an effort to prevent water pollution. We use seawater for cooling steam used in steam turbines in thermal power stations and elsewhere and discharge it as thermal effluent after heat exchange.

We discharge it in a manner suited to the characteristics of the sur-rounding sea zone and implement appropriate control of the temperature difference between the water taken and the water discharged in order to reduce the environmental impact.

In the reservoir of the pumped-storage power station, we conduct periodical water quality surveys and adjustment operations based on the turbidity monitoring results in a bid to maintain water quality.

### Results of analysis of effluent from thermal power stations in fiscal 2018

Measurement items	Hachinohe		Akita		Higashi-Niigata		Sendai		Shin-Sendai		Niigata		Noshiro		Haramachi	
	Agreed level	Maximum	Agreed level	Maximum	Agreed level	Maximum	Agreed level	Maximum	Agreed level	Maximum	Agreed level	Maximum	Agreed level	Maximum	Agreed level	Maximum
Hydrogen ion concentration [pH]	5.8-8.6	7.6	6.0-8.0	7.4	6.0-7.0	7.6	6.0-8.0	7.3	6.0-8.0	7.7	5.8-8.6	7.6	6.0-8.0	7.2	6.0-8.0	7.3
Chemical oxygen demand (COD) [mg/l] or less	40	5.5	20	4.7	15	3.8	15	1.8	15	4.1	15	3.4	15	4.8	15	7.2
Suspended solid [mg/l]	40	5	30	7	20	4	20	<1	20	3	20	<1	20	1	15	2
Normal hexane extract content [mg/l] or less	5	<0.5	2	<0.5	1.5	<0.5	1.5	<0.5	1.5	<0.5	1.5	<0.5	2	<0.5	1	<0.5

## Management of chemical substances

### Systematic removal of asbestos

We periodically monitor points sprayed with asbestos-containing materials in our own facilities and systematically implement removal work and measures that prevent the scattering of asbestos. Other products containing asbestos never cause scattering of asbestos in their normal states. They are successively replaced with asbestos-free products on the occasion of building removals and facility repair works.

### Management of release and transfer amounts of specific chemical substances

We monitor the release and other amounts of chemical substances used in power stations and other facilities and report them to the administrative authorities in accordance with the pollutant release and transfer register (PRTR) scheme\* and create and store records of the amounts purchased, consumed, stored and other aspects to ensure that they are under proper control and to minimize their release into the environment.

\* This scheme is intended to encourage businesses to make voluntary efforts to reduce the release of chemical substances. Business operators subject to this scheme are required to report data including amounts of possibly hazardous chemicals released into the environment to administrative authorities, which publish the reported data.

Release and transfer amounts of specific chemical substances in fiscal 2018 (tons)

Substance (main applications)	Release and transfer amounts*			
	Atmosphere	Water	Soil	Transfer
Asbestos (heat insulators)	0.0	0.0	0.0	8.5
Ethylbenzene (fuel for power generation and coating)	4.3	0.0	0.0	0.0
Xylene (fuel for power generation and coating)	6.0	0.0	0.0	0.0
HCFC-225 (dry cleaning)	3.7	0.0	0.0	0.0
Toluene (fuel for power generation and coating)	8.6	0.0	0.0	0.0
Hydrazine (treatment chemical for water supply)	0.0	0.1	0.0	0.0
Normal hexane (fuel for power generation)	0.4	0.0	0.0	0.0
Benzene (fuel for power generation)	0.1	0.0	0.0	0.0
Methylnaphthalene (fuel for power generation)	0.4	0.0	0.0	0.0

\* The data in this table cover the offices and facilities that meet the statutory conditions for the application of the reporting obligation

### Management and detoxification processing of PCB waste

We implement the appropriate management and detoxification processing of our polychlorinated biphenyl (PCB) waste in accordance with the applicable laws and regulations.

#### High level PCB waste

We outsource the treatment of high level PCB waste to Japan Environmental Storage & Safety Corporation (JESCO).

#### Low level PCB waste

We outsource the treatment of low level PCB waste including large transformers to processing facilities recognized by the national government. For the purpose of treatment, technologies appropriate to the items to be treated are utilized.

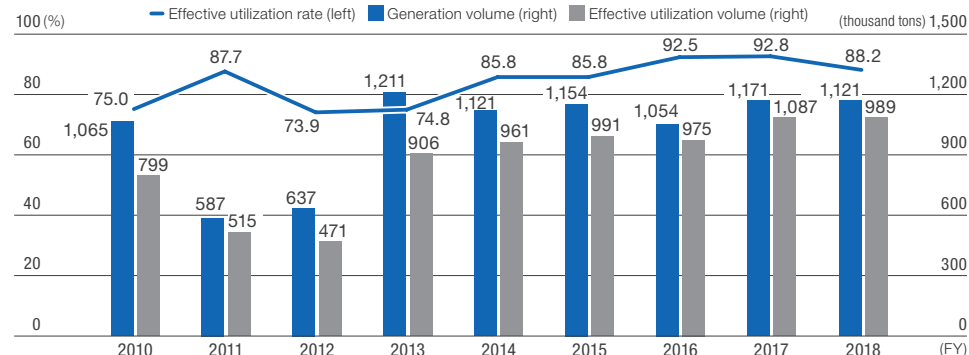
The detoxification processing of pole-mounted transformers with trace PCB contents was completed at our Sakata Recycling Center by March 2016.

## Effective utilization of resources

### Proper management and disposal of waste

At least 90% of our waste is coal ash and gypsum waste generated from coal-fired thermal power stations, and we make effective use of around 80% to 90% of this waste. In addition, we make effective use of the entire amount of rubble and almost all the amount of scrap metal. We have introduced a waste management system and an electronic manifest to dispose of this waste appropriately. We hold periodic meetings of the Study Group on 3R Waste Measures in a bid to further step up 3R practices, i.e. actions to reduce, reuse and recycle waste. For fiscal 2018, we actually made effective use of 88.2% of waste, while we had set a target of 90%. We have been maintaining the figure at around 90% after it temporarily fell below that level before and after the Great East Japan Earthquake.

### Waste generation volume and effective utilization



**Reduce-Reuse-Recycle (3R) practices in collaboration with group companies**

We are working with other companies in our Group to reduce, reuse and recycle used materials and equipment.

<b>Reduce</b>	We carry out meticulous maintenance and inspection of electric power facilities with a view to prolonging their operating lives.
<b>Reuse</b>	Our collected watt-hour meters and pole-mounted transformers are repaired and reused at our group companies. We are striving to reuse breakers as well with the aim of utilizing resources effectively.
<b>Recycle</b>	We recycle waste copper derived from electric wires removed in power distribution line work into electric wires. Part of the polyvinyl chloride (PVC) coating is recycled into wire coating materials and resins. After nearly 40 years of use, utility poles are crushed and are then recycled into aggregate and reinforcing bar scrap at a rate of 100% for reuse in public works and for other purposes.



**Effective utilization of coal ash and gypsum from thermal power stations**

For the purpose of making effective use of coal ash generated from our coal-fired thermal power stations, we mix coal ash, or fly ash, that conforms to the Japanese Industrial Standards (JIS) into concrete to be used in the construction of Unit 3 at the Noshiro Thermal Power Station and external civil works. Gypsum is generated as a by-product from flue gas desulfurization equipment. It is also utilized effectively by being processed into plaster board and other products. We are currently investigating increasing the use of subbituminous coal and other low ash coal for the purpose of reducing the generation of coal ash in addition to the effective use of fuel resources.



JIS-compliant coal ash (fly ash)

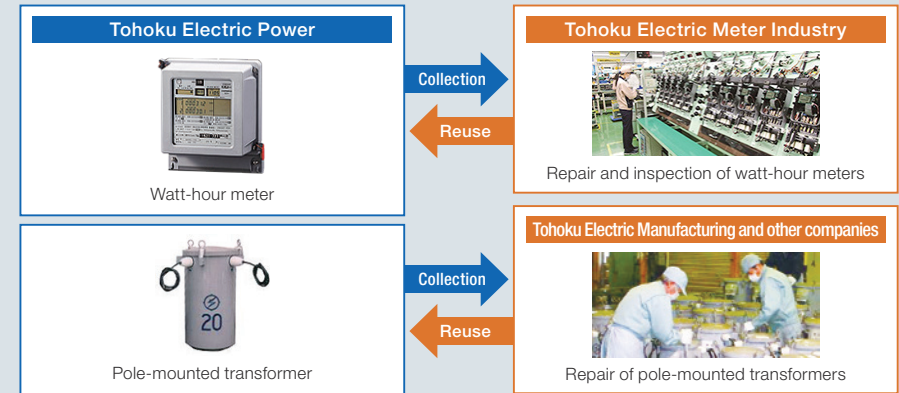


A view of massive concrete placement in the construction of foundations for Unit 3 at the Noshiro Thermal Power Station

**Green procurement**

We have formulated the Tohoku Electric Power Group Green Procurement Guidelines for the purposes of reducing the environmental impact by making use of environmentally friendly products and cooperating in the green shift of the market. In fiscal 2018, 98.6% of our purchases of fixtures, materials and equipment subject to green procurement met the guidelines.

**Actions for reuse**



**Actions for recycling**



# Biodiversity

## Consideration for biodiversity

### Coexistence with peregrine falcons, a rare wild animal species in Japan, at thermal power stations

Peregrine falcons live in the areas of the Sendai Thermal Power Station and the Shin-Sendai Thermal Power Station. They are a rare wild animal species in Japan. We are working to preserve their living habitat in consideration of biodiversity.

At the Sendai Thermal Power Station, we changed the schedule of the Unit 4 replacement work in order to prevent it from affecting their inhabitation. As a result, they now perch on a new stack, even after Unit 4 commenced operation. Visitors to the power station are happy to see peregrine falcons living there.

At the Shin-Sendai Thermal Power Station, we discovered that some peregrine falcons had built their nests on the centralized smokestacks of Units 1 and 2. When these were replaced with the Unit 3 system, artificial nests were placed on the new stacks of Unit 3 in 2015 to compensate for the removal of Units 1 and 2 in an effort to preserve their habitat.

We have observed peregrine falcons making their nests in the artificial nests, and some young birds have already hatched and left the nests.

We will continue to conserve their habitat.



A peregrine falcon seen on the premises (Sendai Thermal Power Station)



A young peregrine falcon observed in an artificial nest on a stack (Shin-Sendai Thermal Power Station)

### Creating a waterside environment on the premises of a thermal power station

The Sendai Thermal Power Station reconstructed a biotope around the reservoir on its premises after it was damaged in the 2011 Great East Japan Earthquake. This is part of our actions to conserve biodiversity.

In the Maejima Pond for Wild Birds at the center of the biotope, *Cercion sexlineatum*, *Oryzias* fish and other valuable living things can be found.



*Cercion sexlineatum*



The reservoir and the waterside environment on the premises of the Sendai Thermal Power Station



A greater scaup came flying to the waterside

### Preserving a wetland on the premises of a nuclear power station

A large number of rare animal and plant species have been found in the wetland on the premises of the Higashidori Nuclear Power Station. It is necessary to control the growth of reeds and other plants in order to protect them.

For this purpose, we carry out regular weeding to ensure that the habitat of the rare animals and plants remains unchanged.



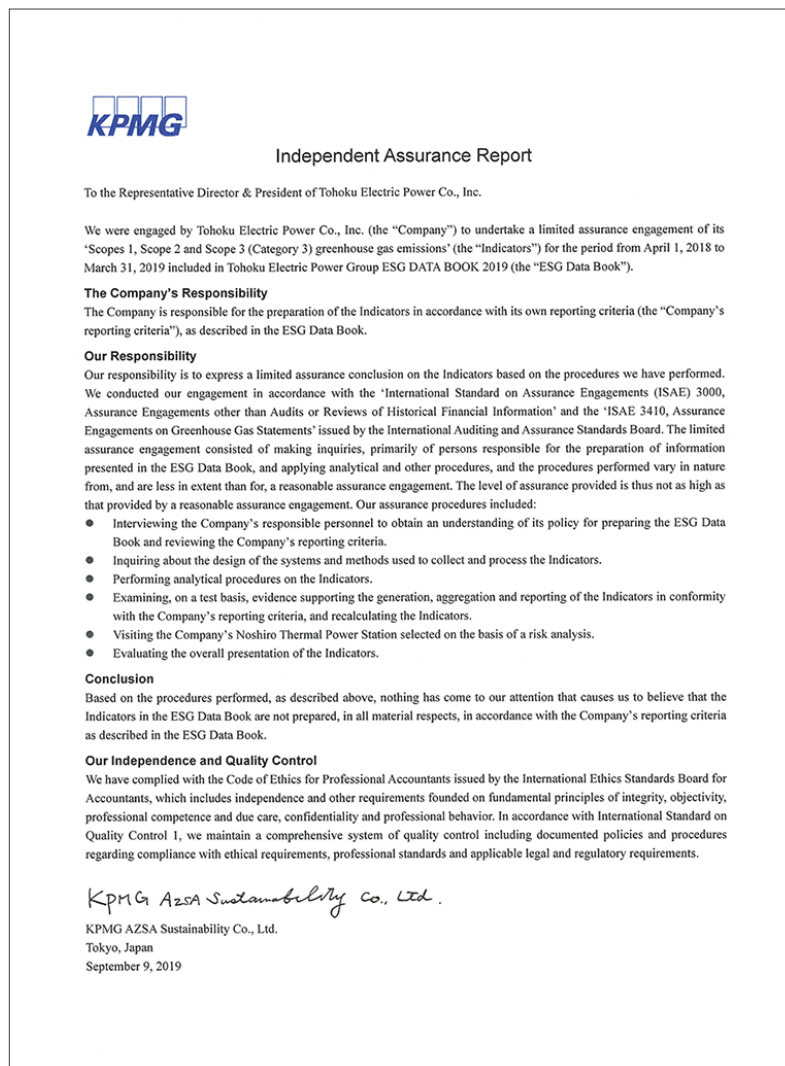
*Hemerocallis esculenta* in bloom in the wetland



*Maculinea teleius*, a rare butterfly species

## Independent third-party assurance report

We have secured third-party assurance for part of the data related to the environment included in this ESG DATA BOOK from KPMG AZSA Sustainability Co., Ltd. in a bid to heighten the credibility of the statements therein.



## Collection of environmental data

In addition to the information in this ESG data book, other data on the environment are available on our website.



Collection of data on the environment

<http://www.tohoku-epco.co.jp/enviro/envirodata/index.html>



# Product Liability

## Using customer feedback

We aim to improve our service by using customer feedback to meet their wide-ranging needs and to offer satisfactory service.

### Using customer feedback for improving operational quality and service

Our Customer Center is a help desk that receives applications for starting and discontinuing electricity contracts due to moving as well as inquiries on electricity billing plans and services over the phone, delivering timely and accurate responses. The Network Call Center receives urgent phone inquiries, such as those regarding power outages and electrical facilities, and strives to take actions that reassure customers.

These centers carry out daily analyses of their service over the phone to assess if they properly follow good telephone manners, answer phone inquiries and applications appropriately and if their actions comply with the operational rules for reception to discover issues to be addressed. We use customer comments and feedback to improve our operations. We will continue these efforts to enhance our reception skills and operational quality in an effort to offer services that satisfy communities.



Service at Our Customer Center

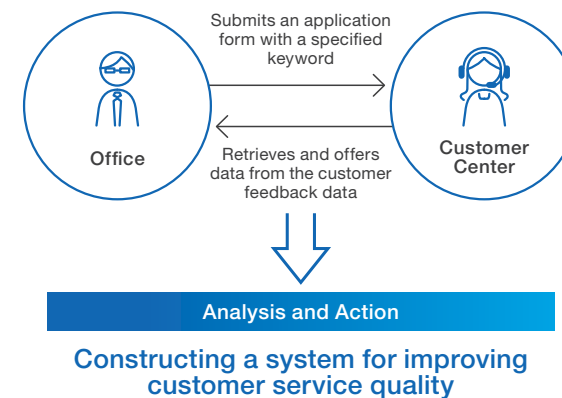
## TOPICS

### Actions to support analysis of customer feedback at individual offices (Customer Center)

Our Customer Center organizes customer comments into the monthly *VOC Report*\* and distributes it to all employees to aid local offices that are closest to customers and improve their customer service quality.

It is constructing a system under which phone reception data is retrieved by specified keywords, offered to local offices to be used for implementing remedial measures that meet actual local needs. We will continue to closely study customer comments and endeavor to fulfill their requests.

\* *VOC Report*: VOC means Voice Of Customer. It is a report that classifies and organizes customer comments received on the phone.



## Enhancing actions for increasing energy utilization efficiency of customers

We propose energy systems with superior environmental, energy-saving and safety features to help customers live comfortable lives through energy conservation.

### Encouraging energy saving in households

For household users, we offer information on ways to cut energy consumption without reducing comfort when using electrical systems in hot water supply, kitchens as well as heating, lighting and other general electrical appliances. To meet customer needs for shifting to electrical appliances, we propose the EcoCute, heat pump heating systems and other products with outstanding environmental and energy-saving features to support energy conservation in households. For households in the Tohoku region, hot water supply accounts for around 30% of their energy consumption and heating for approximately 40%. Achieving efficient energy use for these purposes is the key to energy conservation in households. We create proposals on super-insulated housing and energy-saving measures in addition to highly efficient hot water supply and heating systems that incorporate heat pumps to support safe and comfortable lives with high environmental and energy-efficient performance for buildings, household appliances and lifestyles.



Brochure on energy conservation



Sho-Ene Life (Energy Efficient Life) - Tohoku Electric Power's webpage offering different kinds of energy conservation

### Proposals on total energy solution services that resolve customer issues

For business customers, our employees, who are known as energy solution partners, propose the use of highly energy efficient heat pumps, other electrical systems and energy management systems to achieve energy conservation and cost cutting. Heat pump systems are not only environmentally friendly and energy efficient, but also boast superior safety because they are combustion free. They are electrical systems for business use, widely adopted in establishments such as in hospitals, welfare facilities, nursery schools, kindergartens, restaurants, cafes, agricultural facilities and other locations. We propose the introduction of electrical systems to the production process, factory operators and other business customers to help them attain both high economic efficiency and advanced environmental performance. In the energy-saving diagnosis service, our technical employees propose optimal solutions for customers based on the actual use of facilities and financial considerations, including subsidies and leasing.



Inspection of customer facilities



### Development of the HEATEDGE as an air-cooled heat pump heat source suitable for the Tohoku region

With a limited amount of energy input, air-cooled heat pump heat sources collect heat from the air and convert it into a large amount of thermal energy used for cooling and heating. They are so energy efficient that many relatively large factories, hospitals, commercial facilities and other facilities use them for air conditioning. Meanwhile, their heating performance is poorer under low outdoor temperature conditions. Customers in cold regions required enhanced heating performance. To meet customer needs and encourage the use of heat pump systems in such regions, we jointly developed the HEATEDGE with Toshiba Carrier Corporation. This air-cooled heat pump heat source features a higher heating performance during defrosting operation than conventional models. Introduction of the HEATEDGE will provide greater comfort for space heating, even when the outdoor temperature is low, as well as lower energy consumption for customers. The HEATEDGE received the 2017 Commendation for Global Warming Prevention Activity (in the technological development and commercialization categories) from the Minister of the Environment, and a prize from the Commissioner, Agency for Natural Resources and Energy in the 2017 Energy Conservation Grand Prize.

We will continue to collaboratively resolve customer energy issues while satisfying customer needs in the Tohoku region.



Exterior view of the HEATEDGE



## Operation of nuclear power generation without compromising safety

### Establishment and strengthening of systematic risk management

Tohoku Electric Power thinks that it is necessary to establish and strengthen its systematic and high-quality risk management to further improve nuclear safety. Accordingly, we are working to develop and strengthen our internal systems.

#### 1 Setup of the Nuclear Risk Investigation Commission

In consideration of the importance of nuclear risk management, we set up the Nuclear Risk Investigation Commission chaired by the President in July 2014 for the purpose of making senior executives more determined and more closely involved in nuclear risk management.

The duties of this commission include the analysis and evaluation of nuclear risks, deliberations on measures necessary for mitigating risks and approaches for communication with local communities and overall direction and management of our nuclear risk management.

#### 2 Enhancement in risk communication

We are working on nuclear risk communication. This is an activity of holding dialogues with local communities on the basis of the risks involved in nuclear power generation. It is a communication approach that forges mutual understanding and builds trust towards risk reduction by sharing risk information while listening to their concerns and opinions about nuclear energy.

We have been continuously conducting all-household visit and dialogue activities and have organized power station tours. On these occasions, we will continue to give detailed explanations on nuclear risk information and our actions to lower them in an effort to maintain two-way communication with local communities.

In addition, we will incorporate opinions of outside experts and other stakeholders into our nuclear risk management. We will organize different risk information and develop personnel who will in the future take charge of risk communication. We will thus continue to enhance risk communication.

### Organization of meetings of the Expert Panel on Nuclear Energy

In October 2011, we established the Expert Panel on Nuclear Energy with the objective of receiving broad advice on matters related to nuclear energy from university professors, corporate representatives and other outside experts. It had held nine meetings before the meeting in March 2019 on the subject of maintaining and improving technical capabilities. At its latest meeting, we explained that we endeavored to maintain and improve our technical capabilities by conducting nuclear disaster drills and different kinds of training for the purpose of operating the Onagawa and Higashidori Nuclear Power Stations safely. This was followed by an active exchange of views. One panel member pointed out the importance of thinking about different levels of experience and organizational culture in addition to the organization of knowledge and technical capabilities for the purpose of passing down technologies to future generations. Another said that it was important to build up the communication techniques of technical staff to provide good explanations in addition to the technical capabilities displayed on site.

On the basis of comments and advice given in the meeting, we will work to continuously enhance and strengthen our actions for maintaining and improving technical capabilities.



Comments and advice were extensive, including new points of view and ideas for improvement based on expertise.

### All-household visit and dialogue activities for incorporating the wishes of local communities into power station operation

We think that it is indispensable in operating a business as a nuclear operator to listen to local communities in two-way communications. At the Onagawa Nuclear Power Station and the Higashidori Nuclear Power Station, staff members engage continuously in all-household visit activities and *Konnichiwa* visits. This face-to-face activity is intended to provide information about the power station to local residents and to collect their valuable opinions directly, for incorporation into the future operations of power stations.

In June 2019, Higashidori Nuclear Power Station staff visited around 2,800 households in the village of Higashidori. In July and August in the same year, Onagawa Nuclear Power Station staff visited approximately 3,900 households in the town of Onagawa and in part of the city of Ishinomaki on the Oshika Peninsula.

We will continue these activities in the future to operate locally based power stations that will earn the trust of local communities.

Higashidori Nuclear Power Station: All-household visit activities



Onagawa Nuclear Power Station: *Konnichiwa* visits

# Community

## Cooperation with the local community

Cooperation with the local community is based on an idea that we have had since the Company was established, according to which the Company and all of its employees will, as part of the local community, fulfill its roles and responsibilities and deepen mutual understanding with the local community to build stronger trust. The companies in our Group are actively working as one to take part in local events in each prefecture and to engage in clean-ups, planting and other environmental activities, as well as visits to welfare facilities and other activities.

### Policies for community cooperation activities (excerpt)

- 1 We will fulfill our roles and responsibilities as part of the local community to change the areas where we live and work for the better.
- 2 We will take different opportunities, including day-to-day business activities, to closely communicate with local community members.
- 3 We will remember the concept of cooperation with the local community and pass it on to future generations as the philosophy of our people.

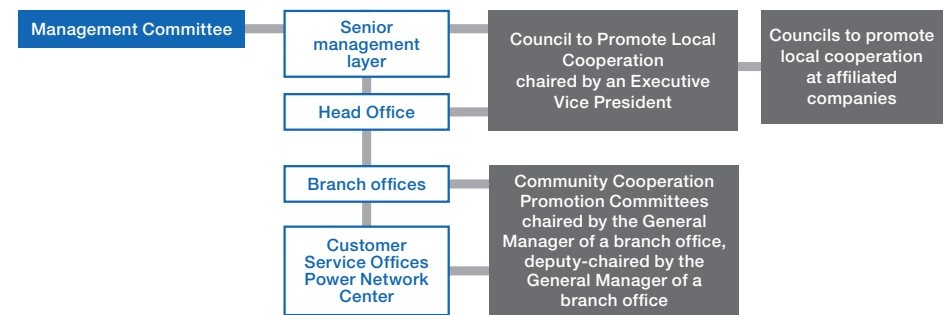
## Council to Promote Local Cooperation

We have established a Council to Promote Local Cooperation with a view to enhancing local cooperation activities.

Community Cooperation Promotion Committees in separate prefectures engage positively in actions that display their respective autonomy and local peculiarities based on their commitment to their respective regions.

We will continue to participate in local festivals and carry out clean-ups, planting, welfare and other activities close to the local community in a bid to satisfy their members.

### Structure of Council to Promote Local Cooperation



## CSR Actions by Tohoku Electric Power Group Companies

Tohoku Electric Power Group Companies engage in a variety of activities in collaboration with local communities and for social contribution.

### Yurtec Corporation

Clean-up of the venue for the Miyagino Festival



Yurtec Corporation conducts an annual clean-up of Tsutsujigaoka Park in Miyagino-ku, Sendai, before the Miyagino Festival, which is organized by the Miyagino-ku authorities and the Miyagino inhabitants' conference, and is held in the park every October. Under the slogan of serving the local community as a corporate citizen, Yurtec collects trash and fallen leaves in the park. The 12th clean-up was held in 2018 and Yurtec plans to continue this activity.

### Tohoku Electric Power Engineering & Construction Co., Inc.

Receiving a letter of appreciation for afforestation activities



Tohoku Electric Power Engineering & Construction Co., Inc. conducts annual environmental activities centering on tree planting in Tohatsu-no-Mori, approximately 1.8 ha of land in the forest owned by the Miyagi Prefectural Government in Rifu-cho, Miyagi Prefecture. Because these activities have continued for 10 years and were highly regarded, Tohoku Electric Power Engineering & Construction was awarded a letter of appreciation from the Governor of Miyagi Prefecture for outstanding contribution to forestry development in the Miyagi Tsunagaru Morigyo Koryusai Festival in November 2018.

### Kitanihon Electric Cable Co., Ltd.

Kitanihon Electric Cable school concerts



Kitanihon Electric Cable Co., Ltd. organizes annual string quartet concerts with members of the Sendai Philharmonic Orchestra, based in Sendai, Miyagi Prefecture, aspiring to provide locals with an opportunity to experience performances by professional musicians. Every year, two of the six elementary schools in Shibata-machi, home to its two works, take turns hosting the concerts in a three-year cycle.

### Tohoku Electric Manufacturing Co., Ltd.

Donation of reading record books



Tohoku Electric Manufacturing Co., Ltd. donated reading record books to Tagajo City Library in March 2019. The library adopted reading record books when it was founded in March 2016. Later that year, Tohoku Electric Manufacturing offered reading record books printed with the company name to elementary and junior high school students in the city. The most recent donation is Tohoku Electric Manufacturing's second donation, aiming to enrich the knowledge and sensibilities of children who will play central roles in the Reiwa era.

### Tohoku Electric Meter Industry Co., Inc.

Donation of books to local elementary and junior high schools



As part of the commemoration of the 50th anniversary of its foundation, Tohoku Electric Meter Industry Co., Inc. donated books to four local elementary schools and junior high schools in appreciation of local communities for their daily support. It hopes that the books will be used by students for a long time and will help develop the next generation. Currently, the books are effectively used at each school by students in their academic life.

### HNK Co., Inc.

Plastic bottle cap collection for charity



HNK Co., Inc. has collected plastic bottle caps from Tohoku Electric Power and other tenants including corporate groups in the Denryoku Building since June 2018 as a participant in an initiative of the Japan Committee, Vaccines for the World's Children, which offers vaccines to children in developing countries. It will continue this activity, which leads to the recycling of caps, environmental conservation and support for disability employment in the form of outsourcing cap cleaning.

### Tohoku Sustainable & Renewable Energy Co., Inc.

Visiting classes



Tohoku Sustainable & Renewable Energy Co., Inc. has been part of the Tohoku Wakuwaku School, an initiative organized by Tohoku Regional Advancement Center, since fiscal 2018. Accordingly, it holds classes at two elementary schools in Akita and Fukushima Prefectures. Aimed at providing a thorough understanding of local communities and industries for children, its classes were held using models and other tools under the subject of renewable energy.

### Nihonkai LNG Co., Ltd.

Release of young flatfish



As part of the 40th anniversary of its foundation, Nihonkai LNG Co., Ltd. released around 30,000 young flatfish, inviting children at local kindergartens and nursery schools to attend. This event has been around for over 40 years, organized by the town government of Seiro-machi, where Nihonkai LNG is based, and a local fishery cooperative to stabilize the operations of the fishery. With the participation of Nihonkai LNG, the recent event released more fish than usual, hoping that the flatfish will grow well to strengthen the natural resources.

# Communication with Business Partners

## Fair and equitable procurement

We are working to lower the procurement prices of materials and services without compromising stability in the procurement and quality. To win greater trust from business partners, we understand that it is vital to meet the social responsibilities expected from businesses when conducting procurement activities.

### Conducting fair and equitable procurement activities in accordance with the Basic Policy of Procurement

We ensure the transparency of our procurement activities through fair and impartial evaluation. Specific procurement procedures are disclosed on our website. We always receive product proposals from those who wish to trade with us. We are working to build a sound corporate culture for maintaining proper relationships with business partners. Specific actions include education for employees to impart corporate ethics and to strictly comply with laws and regulations along with compilation of a database of relevant laws and regulations using internal information systems. We will continue educational measures that help improve our corporate credibility and enhance employees' capabilities to implement their business duties.

#### Basic Policy of Procurement

##### 1 Openness

In addition to maintaining relationships with suppliers who have proven track records, the Company is always working to procure from new suppliers. The Company will keep its door wide open to companies inside and outside Japan and provide them with business opportunities.

##### 2 Fairness

The Company will select suppliers for procurement by considering overall quality, pricing, delivery time, supply stability, after-sales services, technical compatibility with existing equipment, transaction records, corporate stance and others based on a fair and impartial evaluation.

##### 3 Observance of Laws and Social Norms

The Company will respect human rights and all applicable laws and regulations where it conducts business activities in Japan and overseas as well as the spirit behind them in carrying out procurement operations. The Company firmly excludes anti-social forces that threaten the social order and safety and require all of its suppliers to do the same.

##### 4 Safety

The Company will observe laws and regulations related to safety in an effort to ensure safety and prevent accidents.

##### 5 Concern for the Environment

The Company will implement green procurement in consideration of environmental conservation, to effectively use resources and strive to build a resource recycling society.

##### 6 Proper Information Management

The Company will put confidential information, personal information and suchlike obtained through procurement under proper management and protection.

##### 7 Mutual Trust

The Company will seek to build favorable relationships of mutual trust with suppliers through fair procurement.

##### 8 Contribution to Society

The Company will contribute to society with suppliers through procurement.

## Fair and equitable procurement

### CSR surveys and briefing sessions for suppliers

We view our suppliers as partners and we will work with them to meet the social responsibility expected from businesses. For this purpose, we have defined seven items that we ask our suppliers to practice (Request to Material Suppliers), including the observance of all related laws and regulations in Japan and overseas and respect for human rights, and we will conduct surveys of major suppliers on their actions. We convert the survey results into numerical figures and report the strengths and weaknesses to suppliers. In fiscal 2018, we conducted CSR surveys of around 200 suppliers.

We are positively disclosing information to suppliers and enhancing communication with them. We organize annual briefing sessions for suppliers to offer explanations on our financial conditions and on the implementation of CSR actions, including compliance, and to provide information on purchases of goods and the commissioning of works. The session in fiscal 2019 had around 500 participants from approximately 330 suppliers. The session includes a questionnaire survey. We study the comments and requests received from participants through the surveys to improve our operations and enhance communication with suppliers. To build closer relationships of trust with our suppliers as partners, we have set up a helpdesk on material procurement. For details, please see our website.



### Request to Material Suppliers

#### 1 Observance of Laws and Social Norms

- Observance of all relevant laws and regulations, including civil laws, commercial laws, antitrust laws, subcontracting laws and equivalents as well as social norms where suppliers conduct business activities in Japan and overseas
- Respect for human rights, prohibition on child labor, forced labor and discrimination
- Exclusion of anti-social forces that threaten the social order and safety

#### 2 Safety

- Observance of laws and regulations pertaining to health and safety
- Maintenance of health and safety and prevention of accidents through proper management

#### 3 Environmental Consciousness

- Actions towards an environmental management system that complies with ISO 14001 and other standards
- Positive actions for eco-friendly manufacturing, such as the reduction of toxic chemical substances, and for green procurement
- Constructive approaches to the three Rs (reduce, reuse, and recycle)

#### 4 Fair Pricing and Quality Assurance

- Provision of materials at fair prices
- Continuous provision of materials that meet the quality and other standards demanded by the Company
- Continual improvement of technical capabilities

#### 5 After-Sales Service

- Cooperation in maintenance
- Appropriate measures and warranty against defects
- Response to disasters, accidents and other emergency situations

#### 6 Delivery System

- Unfailing observance of delivery dates and work deadlines
- Development of a stable supply system

#### 7 Proper Information Management

- Proper management of confidential, personal and other information



Procurement information

<http://www.tohoku-epco.co.jp/partne/sizai/index.html>

# Creation of a Working Environment with Respect for Diversity

## Improvement in awareness of human rights

### Actions for improving awareness of human rights

We understand that it is important to fully bring out the capabilities and qualities of diverse employees and thereby create new value to respond flexibly to changes in business circumstances.

The Tohoku Electric Power Group Action Guidelines prescribe respect for individuals, the prohibition of discrimination based on gender and other attributes, and the creation of an open and energetic corporate culture as well as an organizational culture that encourages improvements. To thoroughly address these targets, we have been organizing lectures and group education aimed at improving awareness of human rights since fiscal 1994 in a bid to build a working environment where diverse employees can display their strengths.

	FY2016	FY2017	FY2018
Number of participants in human rights education (companywide)	4,016	3,549	3,631

### Actions for preventing harassment

We publish the Handbook for a Comfortable Workplace on our internal bulletin board, give warnings and hold periodic dialogues, and offer training at different levels, from newcomers to managers.

We established an internal and external helpdesk to seriously solve problems. We aim to create a working environment that is free from harassment.

## Encouragement of diversity

### Viewpoint on the encouragement of diversity

To boost our ability to respond to the diverse needs of customers amid dramatic changes in business circumstances, we consider it important to create a working environment where diverse personnel of different genders, ages and duties can fully display their strengths. We are actively working to encourage the advancement of women and to employ people with disabilities.

### Encouragement of female empowerment

In accordance with the Act on Promotion of Women's Participation and Advancement in the Workplace in March 2016, we formulated a General Employers Action Plan and set the goal of doubling the number of women who hold the posts of managers and higher from the level at the beginning of fiscal 2015. We achieved it ahead of schedule in March 2018\*.

We offer unique training to female employees for increasing their awareness of career development and to management staff for raising their awareness of encouraging diversity.

As a result of these efforts, we were recognized on the gold list of companies utilizing women's power by the Miyagi Prefectural Government and as Iwate's female empowering company by the Iwate Prefectural Government in fiscal 2018. We will continue to support gender equality and help develop local personnel.

\* The number increased from 16 in fiscal 2015 to 32 in March 2018 (and to 40 as of March 2019).



Logo of the program by the Miyagi Prefectural Government for companies utilizing women's power



Logo of the program by the Iwate Prefectural Government to recognize companies and other female empowering organizations (Step 2)

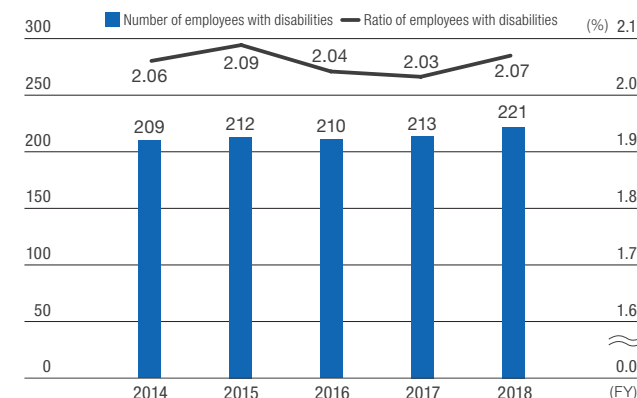
General Employers Action Plan of Tohoku Electric Power Co., Inc.  
[http://www.tohoku-epco.co.jp/information/\\_\\_\\_icsFiles/afidfile/2016/03/30/b.pdf](http://www.tohoku-epco.co.jp/information/___icsFiles/afidfile/2016/03/30/b.pdf)

### Actions for disability employment

In order to provide more options for people with disabilities and help them actively participate in society, we are conducting recruitment activities in collaboration with educational institutions, among others.

We assign more vocational and lifestyle counselors for people with disabilities to our offices than required by law. We will respond to individual working-life related inquiries and make efforts to upgrade the working environment, including renovations to make it barrier free for workers with disabilities. Tohoku-Electric Power Friendly Partners Co., Inc. was established in July 2018 to recruit more workers with disabilities. It embarked on the office support business to assist us with clerical operations. In May 2019, it was recognized as a special subsidiary company. Subsequently, our disability employment rate surpassed the legal requirement of 2.2%. We will continue to work with Tohoku-Electric Power Friendly Partners to create a working environment that is friendly for workers with disabilities and to positively expand disability employment.

### Numerical trends and ratio of employees with disabilities



## Work-life balance

### Viewpoint on work-life balance

We think it is important to achieve a work-life balance to ensure that all employees will vigorously address their duties to produce positive results while being fulfilled both physically and mentally. Work-style reform is one of the major actions to achieve this. We aim to introduce different systems and to properly manage working hours to create harmony between professional life and private life.

### Introduction of different systems to ensure a work-life balance

We have introduced several programs aimed at ensuring the work-life balance of employees. They include a childcare leave system that allows employees to take leave until their child turns 3, a care leave system that provides leave for up to two years, and a childcare-support working hours system and a care support working hours system that shorten working hours for up to three hours.

In addition, we have a volunteer leave system for helping employees with self fulfillment in various manners. According to this system, employees may take leave to participate in social welfare, social contribution or community-based activities.

We are striving to create a working environment that helps employees to raise their children without giving up their jobs. After reaching the goal set in the General Employers Action Plan pursuant to the Act for Measures to Support the Development of the Next Generation, we were recognized as a next-generation development support company by the Miyagi Labour Bureau in 2008 and in 2015.

In fiscal 2018, we introduced a teleworking system and a medical care support working hours system and expanded the scope of application of the flexible working hours system. We will continue our efforts toward diverse workstyles for employees.

### Proper management of working hours

We are working on the proper management of working hours in a bid to improve operational quality and to ensure employees' morale and vitality.

#### Examples of specific actions:

- Clarification of daily work schedules and goals to be met at start-of-day meetings
- Designation of one no-overtime day per week
- Efficient operation of meetings based on the clarification of its purpose, points of discussion and time
- Education for managers aimed at enhancing their skills in labor management and communication
- Appropriate staff assignment matched with workload



Kurumin certification as a childcare supporting company



Teleworking

### Systems for work-life balance and number of beneficiaries

	FY2016	FY2017	FY2018	
Childcare support systems	Childcare leave system (for women)	38	38	48
	Rate of beneficiaries	97.4%	97.4%	97.9%
	Childcare leave system (for men)	5	1	6
	Rate of beneficiaries	1.4%	0.3%	1.6%
	Childcare support working hours system	143	150	144
	Partner maternity leave system	308	308	327
Care support systems	Rate of beneficiaries	86.5%	86.0%	88.4%
	Child nursing leave system	350	446	446
	Care leave system	1	6	7
Volunteer leave system	Care support working hours system	1	3	3
	Family care leave system	152	189	185
	74	40	27	

### Sound labor-management relationship

All of our employees, excluding those representing our corporate interests, are members of Tohoku Electric Power's labor union. The management and the labor union concluded a Productivity Collective Contract in 1956, before other companies. The contract includes a provision in which both the management and workers will endeavor to boost productivity. In accordance with this contract, individual offices have Productivity Councils. They deliberate on business implementation plans and operations for the development of the Company's business and to facilitate its operation. They are working to deepen understanding and trust between the management and the union for pressing ahead with business operations.

# Recruitment and Development of Human Resources

## Development of human resources to drive growth

### Perspective on development of human resources

We think employees are a driving force of corporate growth. To strengthen our employees, we are taking diverse measures for human resources development. We believe that the development of individual employees will be helpful for corporate growth and social contribution through business operations.

### Constant recruitment of human resources and improvement of their motivation and vitality

On the verge of a major change in the electric utility business, it is important to secure and develop diverse personnel who will work on renovations from the perspective of total optimization and with flexible ideas to achieve full-scale competition and attain growth with the local community.

From the objective of helping reconstruct and develop the region through the stable supply of electric power and obtaining human resources who are capable of tackling new management challenges, we recruited 274 new employees in fiscal 2017 and 275 in fiscal 2018.

Also, we introduced a human resources and wage system based on appropriate promotion and pay increases, fair evaluation, job satisfaction and self fulfilment in various manners in 2005. We have been carrying out different measures aimed at boosting employee motivation and energy. Meanwhile, we must pass on the experience accumulated by employees internally to retain the technologies and expertise needed for business operations.

We have launched a system for re-employing those who have reached the age of retirement to positively utilize the skills of elderly personnel. We offer a wide variety of working opportunities that suit the needs of individual workers. In 2018, we newly employed 116 of such personnel. As of the end of the fiscal year, we have a total of 455 re-employed persons.

### Employment trends

		FY2017		FY2018	
Number of employees	Males	11,488 (93.3%)	11,350 (93.1%)		
	Females	828 (6.7%)	839 (6.9%)		
Number of management staff*1	Males	5,055 (98.4%)	5,011 (98.4%)		
	Females	81 (1.6%)	84 (1.6%)		
Number of newly recruited personnel	Males	245 (89.4%)	239 (86.9%)		
	Females	29 (10.6%)	36 (13.1%)		
		FY2017		FY2018	
Average age	Males	42.7	42.9		
	Females	39.7	39.6		
Average length of service (in years)	Males	22.5	22.6		
	Females	18.7	18.6		
Number of persons employed under the elderly re-employment system*2		139 (69.5%)	116 (61.7%)		

\*1 All management staff including managers and those at lower ranks

\*2 A figure in parentheses ( ) next to the number of persons employed under the elderly re-employment system represents the ratio of persons employed to those eligible for the system in the specified fiscal year.

### Skill development for human resources capable of working on renovations

The Vision 2020 for the Tohoku Electric Power Group has defined the development of human resources that support future growth as part of the business operation. Mutually and systematically combining three pillars of on-the-job training, off-the-job training and self-development, we will develop employees who are capable of working on renovations from the perspective of total optimization and flexible ideas and those with reliable techniques and skills to support a stable supply with a strong sense of duty.

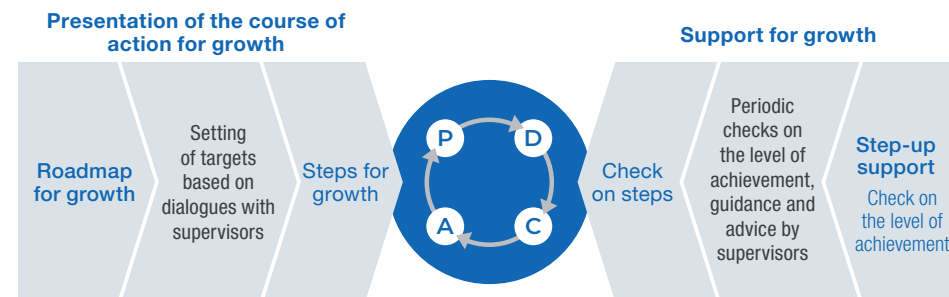
### Systematic human resources development with a variety of education and training inside and outside the workplace

#### On-the-job training

Our employees set their skill development targets based on dialogues with their supervisors using a roadmap for growth, which is a tool that specifies the knowledge, techniques, skills and experience to be acquired and their respective levels to be reached. They receive on-the-job training and group education to meet their targets.

Their supervisors provide step-up support, which includes monitoring the status of their efforts towards the targets through daily on-the-job training, periodic checks on their levels of achievement and guidance and advice for further growth. We implement the systematic development of human resources based on the PDCA cycle.

### Fundamental process flow of human resources development





### Off-the-job training

We offer a systematic lineup of various off-the-job training programs, including training for newly recruited employees, training for employees in their third year of service and other level-specific training, education for different types of jobs and dispatches overseas as well as domestic graduate schools and other educational institutions.

Diagram of common education in off-the-job training

Level	Main group training	Dispatch training		
Management level personnel	Training for the development of next-generation leaders (for nominated trainees)	Overseas study training	Domestic study training	Domestic dispatch training
	Training for front-line office general managers			
	New managerial staff training			
Mid-level personnel	Overseas business training (for trainees winning open competition)	Overseas study training	Domestic study training	Domestic dispatch training
	Advanced electric power specialist academy (for trainees winning open competition)			
	Training for building up self-reform skills			
Young personnel	Step-up training for young employees	Overseas study training	Domestic study training	Domestic dispatch training
	Introductory education for newly recruited employees			

### Job-specific departmental education and skills training

Job-specific departmental education is aimed at enhancing the technical knowledge and skills required to improve work quality in individual departments.

For the three departments of power dispatching, substation engineering and transmission engineering, an annual joint skills competition is held to transfer the techniques and skills and renew and build awareness of safety actions.

For fiscal 2018, the competition was held on the subjects of recovery from system failure using simulators for training (power dispatching), change in the current transformation ratio of the 66-kV vacuum circuit breaker (substation engineering), and electric wire extension and rescue of workers (transmission engineering).

The departments of distribution engineering, thermal power, civil and architectural engineering and others also carry out practical training and skills training periodically with a view to improve techniques and skills in day-to-day operations and response capabilities in the event of disasters. They thus transfer and refine their techniques and skills obtained through past experience.



General skills competition (transmission engineering)



Operational skills competition (thermal power)



Training on pole construction using drilling and pole construction vehicles

### Self-development support systems

We have instituted several different systems for supporting self-development. We are implementing a variety of measures to support the capacity development suited to the many different skills and needs of individual employees.

#### System of granting aid for acquisition of official certification

This system provides employees who acquire official certification related to corporate duties at their own expense with celebratory money in recognition of their self-development efforts.

#### System of granting aid for education by correspondence

This system covers part of the expenses after the completion of any educational correspondence course that the Company recommends and encourages employees to take.

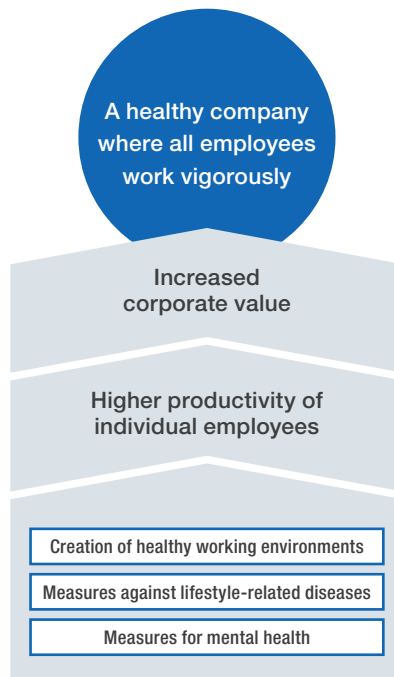
#### Subsidization for taking the TOEIC exam

This system covers all fees for taking the TOEIC exam and the transportation expenses to reach the test venue if it is taken by the annual due date designated by the Company.

## Actions for health management

### The practice of health management based on maintaining the mental and physical health of individual employees

We implement health management to be a healthy company where all employees work vigorously, in good health, by enhancing early actions for preventing and curing illnesses. In particular, we formulate a basic health promotion policy for each fiscal year to take actions that encourage the creation of a healthy working environment and maintaining the mental and physical health of all employees. We practice health management to improve employees' mental and physical health to increase productivity and corporate value.



### Actions for creating a healthy working environment

To ensure that our employees can work in good health and without worry, we endeavor to maintain and improve the working environment based on the results of sanitation patrols and workplace environment measurements performed by industrial physicians and hygiene managers.

We have been constantly taking anti-smoking measures. They include the separation of smoking areas to prevent second-hand smoke, which was completed by fiscal 2006, and the reduction of smoking areas based on the introduction of smoking bans in whole buildings in an effort to decrease the number of smokers. Since fiscal 2010, we have been continuously working on smoking rate reduction by providing seminars and counseling to quit smoking. Consequently, the smoking rate fell by 19 percentage points, from 44.3% in fiscal 2004, when the anti-smoking measures guidelines were formulated, to 25.3% in fiscal 2018.

### Encouraging individual employees to maintain mental and physical health

We are actively taking measures against lifestyle-related diseases and those for mental health in a bid to improve the level of health management. With two pillars of line management by management staff and self-control by employees, specific actions include guidance from industrial physicians and health promotion staff to individual employees and the organization of internal seminars for raising health awareness among management staff and employees.

To enhance the health of individual employees, we will unflinchingly run the overall PDCA cycle to make steady progress on continued improvement.

#### Measures against lifestyle-related diseases

Based on the results of annual health checkups, we offer health guidance with a focus on lifestyle improvement. For those aged 40 and older who are diagnosed with metabolic syndrome, we provide specified health checks, specified health guidance and suchlike in collaboration with the health insurance society. We place emphasis on offering personal guidance to young employees who need to develop prevention awareness.

During the campaigns for National Occupational Health Week by the Ministry of Health, Labour and Welfare and Health Emphasis Month by the National Federation of Health Insurance Societies, we hold health promotion campaigns to conduct activities that will inspire employees to change their lifestyles and to start exercising on a daily basis.



Practice-based health workshop

#### Measures for mental health

For the purpose of keeping our employees mentally healthy, we are working to prevent and discover at an early stage mental health issues through four mental healthcare actions, namely self-care, line care, staff care and external care, in accordance with the Guidelines for Maintaining and Promoting the Mental Health of Workers established by the Ministry of Health, Labour and Welfare. Specific actions include seminars on communication and other skills, training for newly appointed management staff on line management, training for newly recruited employees and other young staff on the discovery of and response to stress, counseling for employees facing a change in the working environment due to personnel transfers, and the utilization of counseling by outside specialist organizations. These actions will continue.

Under the stress check system, we urge employees to recognize their own health and try to improve the working environment based on the group analysis results in a bid to provide employee-friendly workplaces.

# Safety

Tohoku Electric Power creates the policies presented below in accordance with the Safety and Security Policy and the Quality Policies for Nuclear Safety and determines more specific actions.

## Basic Policy for Safety Promotion

We implement safety activities to completely prevent fatal accidents, electric shock accidents and fall accidents under the strong leadership of office general managers. For this purpose, the head office, branch offices, Power Network Company branch offices, and front-line offices work together and management staff and employees communicate effectively.

### Basic Policy for Safety Promotion in FY2019

**In fiscal 2019, we will implement safety activities with a focus on reinforcing behavior that is in compliance with the Safety and Security Policy among individual employees.**

#### I. Implementation of safety activities based on the Safety and Security Policy

- Office general managers will be aware of the rules as general safety and health managers and take the lead in building safety-first awareness among the employees in their office.
- At individual offices, based on line management and self-management, everyone will carry out the actions stated in the items below with an awareness of their own roles and responsibilities.
  - Heads of departments will repeat guidance and advice to employees for different situations, such as commuting, working in offices and driving vehicles.
  - Heads of departments will give prompt reports on accidents and other safety-related information to employees as appropriate during morning and evening meetings and on other occasions to raise safety awareness.
  - Employees of departments will understand the association between examples of accidents and the Safety and Security Policy and accordingly take actions for their own safety.

#### II. Safety activities jointly conducted with contractors

- Creation of specific measures for action items from the perspective of the reconstruction of a safety culture for fiscal 2019 to be practiced.
  - Sharing of the safety-first principle, including contractors.
  - Practice of speaking to other workers and speaking aloud.
  - Enhancement of actions for increasing sensitivity to hazards.
  - Enhancement in actions for strengthening teamwork.
  - Enhancement of two-way communication with contractors.

#### III. Implementation of safety promotion campaigns aimed at preventing seasonal industrial accidents

- Offices will run timely and effective campaigns in line with national campaigns and other ones. In particular, group companies will work together for safety promotion campaigns in the summer and winter.
  - Summer labor safety promotion campaign: July 1 to September 30
  - Winter labor safety promotion campaign: December 1 to February 28

## Policy for the development of a safety culture and compliance with relevant laws

When revising the Quality Policies for Nuclear Safety in April 2017, we incorporated a policy for the development of a safety culture and compliance with relevant laws.

## Policy for the Maintenance and Management of Nuclear Power Stations

In accordance with the Quality Policies for Nuclear Safety, we have formulated a policy for the maintenance and management of nuclear power stations to stably maintain and manage nuclear power stations and thereby ensure their safety.

### Policy for the Maintenance and Management of Nuclear Power Stations

**For the purpose of ensuring the safety of nuclear power stations, it is important to carry out maintenance and management.**

**To ensure maintenance and management pursuant to the Quality Policies for Nuclear Safety, the policy for maintenance and management of nuclear power stations has been established as follows from the perspective of the current status in which the plants are suspended.**

1. Check on the soundness of facilities after an earthquake and unfailingly implement the restoration
2. Unfailingly implement facility maintenance and inspections during the suspension period
3. Implement safety measures that actively incorporate new findings
4. Unfailingly implement maintenance based on the long-term maintenance and management policy
5. Renewed awareness of the importance of inspection records and checks without omission
6. Capacity improvement through the transfer of techniques

Based on the actions mentioned above, we will develop a sense of ownership about the power stations and implement persistent PDCA activities in an effort to continuously improve maintenance and management.

# Governance

## Compliance

### Strictly observing corporate ethics and applicable laws and regulations

#### Education, awareness-raising and monitoring activities

For the purpose of enhancing knowledge and awareness as the foundation of ethical behavior and encouraging self-discipline, we regularly conduct awareness-raising activities to strengthen compliance with corporate ethics and applicable laws and regulations. We also carry out monitoring and other activities to see how ethical behavior is practiced. Through these activities, we are working to improve our organizational self-discipline.

#### Providing appropriate education for different ranks

Our induction education for new employees focuses on the need to comply with corporate ethics and applicable laws and regulations and the basics, whereas training for newly appointed managers focuses on points to note in management. In top seminars for the management team members, lectures are given by invited outside experts in addition to opinion exchange sessions. We thus provide suitable, target-focused education for trainees to reinforce their knowledge and awareness as a foundation for ethical behavior.

#### Implementing the Tohoku Electric Power Group Corporate Ethics Month

We define October as the Tohoku Electric Power Group Corporate Ethics Month. During this month, the president delivers a message to all employees in the Group, a top seminar is held and workplace discussions are conducted based on case methods. The discussions are aimed at raising the awareness of observing corporate ethics and applicable laws and regulations and strengthening it in the corporate culture.

#### Surveys of employees on the observance of corporate ethics and applicable laws and regulations

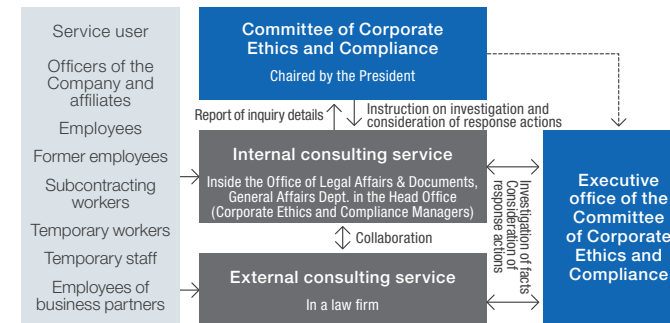
We have been conducting surveys of employees on the observance of corporate ethics and applicable laws and regulations since fiscal 2017. They monitor the current status of employees' perception regarding the observance of corporate ethics and applicable laws and regulations and about the organizational culture as well as their changes to check, assess and improve actions concerning the observance of corporate ethics and applicable laws and regulations.

### Appropriate operation of consulting services

We have been operating Corporate Ethics Consulting Services inside and outside the Company since April 2003. They receive inquiries and reports about the Company's operation and management, any conduct of an employee or other worker or practice in a workplace that violates or may violate corporate ethics or any applicable law or regulation, including dishonest and inappropriate operational processing.

Upon receipt of any such inquiry or report from an employee of the Company or any of its affiliates, consulting services carry out an investigation and take corrective action and recurrence prevention measures as needed. The Company also strives to ensure appropriate operation of consulting services, including carrying out strict management of personal information and the prohibition of disadvantageous treatment of any person using the service.

#### System for operation of the Corporate Ethics Consulting Services



#### Number of inquiries to the Corporate Ethics Consulting Services

FY2016	5
FY2017	7
FY2018	8

In fiscal 2018, the Corporate Ethics Consulting Services received one inquiry on inappropriate operational processing and seven other inquiries.

### Actions to ensure fair competition

To create new value through market competition and be continuously chosen by customers, it is important to ensure fair competition, a basic rule of market competition.

We have therefore prepared the Antitrust Compliance Manual and a resource for the Guidelines for Correct Power Trading. We are making them familiar to all employees to deepen understanding of the related laws and regulations.

# Risk Management


## Actions for information security

Tohoku Electric Power works to maintain and improve the security of its corporate group and properly control the personal information of its customers in accordance with related laws and regulations.

We implement technical measures and construct a system for protection from the latest cyberattacks.

### Tohoku Electric Power Group's actions for maintaining and improving security

We implement technical and organizational measures to maintain and improve security in accordance with the Tohoku Electric Power Group Information Security Fundamental Policies. Technical measures include steps to prevent unauthorized access, data leakage and falsification. Organizational measures include the development of internal standards for information security, construction of a management system under which the management assumes responsibility, awareness-raising activities for employees and information management, including contractors.

 **Tohoku Electric Power Group Information Security Fundamental Policies.**  
<http://www.tohoku-epco.co.jp/privacy/security.html>

### Proper management of personal information in accordance with laws and regulations concerning the protection of personal information

In compliance with the Act on the Protection of Personal Information and the Act on the Use of Numbers to Identify a Specific Individual in Administrative Procedures, we have formulated the Standards of Personal Information Protection and the Standards for Handling of Personal Information to properly manage the personal information of customers, shareholders and business partners.

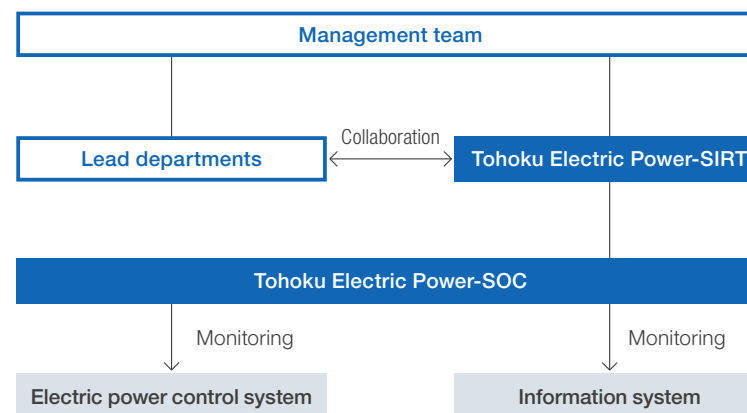
 **Standards of Personal Information Protection**  
<http://www.tohoku-epco.co.jp/privacy/index.html>

### Technical measures and the construction of a system for protection from the latest cyberattacks

We implement the latest technical measures to address increasingly sophisticated cyberattacks, including those to prevent computer viruses and for blocking unauthorized access.

We have established the Tohoku Electric Power Security Incident Response Team (SIRT) as a system for security crisis management and the Tohoku Electric Power Security Operation Center (SOC) for 24-hour security monitoring operations. We are thus working to prevent security incidents and to minimize damage in the event of an occurrence.

Security implementation system



# Actions for Cost Reduction

## Cost structural reforms premised on ensuring safety and stable supply

### Management efficiency improvement in fiscal 2018

When applying for approval to raise the electric power rates in 2013, we took into account our actions for reducing cost by ¥113.9 billion on average during the cost calculation period, fiscal 2013 to fiscal 2015, in a bid to reduce customers' burdens as much as possible. In fiscal 2018, we accelerated our actions to cut fuel costs and other structural costs in the overall business management based on ensuring safety and stable supply. As a result, we achieved cost reduction of ¥157.3 billion. This surpassed the amount envisioned at the time of application for approval for an electricity rate increase.

Status of cost reduction in FY2018

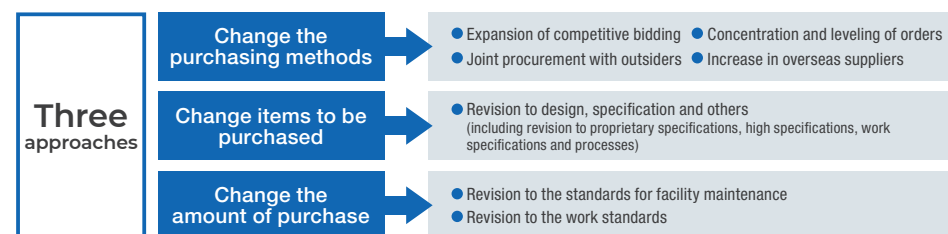
(¥ billion)

Item	Cost reduction achieved in FY2018	[Reference] Cost reduction envisioned during electricity rate increase	Specific actions for cost reduction
Personnel expenses	17.6	40.3	Reduction of wages and allowances for employees, reduction of recruitment for cutting personnel expenses and revision to welfare programs
Fuel cost and purchased electricity cost	78.6	31.6	Short-term and spot purchase contracts for LNG, increase in coal procurement from short distance sources, continued procurement of coal with high economic efficiency and increase in operation of high efficiency thermal power generation facilities
Expenses related to capital investment	18.0	9.5	Introduction of new technologies, close monitoring of the scope of work for rationalizing work specifications and methods, studies on machinery deterioration to optimize timing of replacement
Repair expenses	24.0	13.5	Close monitoring of the scope of repair work based on strict reviews of facility deterioration, revision of work and inspection cycles and rationalization of work specifications
Other expenses	19.1	19.0	Revision of details and specifications, and reduction of prices for procurement from affiliates and other business partners
<b>Total</b>	<b>157.3</b>	<b>113.9</b>	

\* On average during the cost calculation period (FY2013 to FY2015)

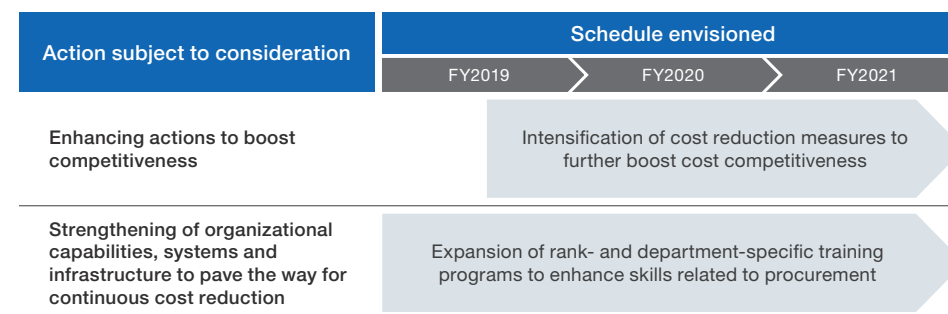
### Actions for procurement reforms

Reduction of procurement prices for materials and services is a principal pillar in the cost structural reforms. Therefore, we established a Procurement Reform Committee to be chaired by the executive officer in charge of planning. We carry out different measures based on the three approaches explained below.



The Procurement Reform Committee worked to lower procurement prices and expand competitive bidding to proceed with structural cost reduction from June 2016 to the end of May 2019, defined as the second phase.

In light of the intensifying competition following the progress on full deregulation of the retail electric supply market, we embarked on actions for the third phase in June 2019, aiming for continued cost reduction and boosting competitiveness. For the third phase, we will consider taking the actions mentioned below with a view towards greater cost reduction than was achieved through our past actions, while maintaining safety and a stable supply.



## Performance Data

Category	Item	2014	2015	2016	2017	2018 (FY)	
Facilities	Number of hydraulic power stations	211	208	209	209	209	
	Hydraulic power generation output (MW)	2,440	2,430	2,440	2,450	2,450	
	Number of thermal power stations	12	12	12	12	12	
	Thermal power generation output (MW)	11,860	12,030	12,270	12,350	11,430	
	Number of geothermal power stations	4	4	4	4	4	
	Geothermal power generation output (MW)	220	220	220	190	190	
	Number of nuclear power stations	2	2	2	2	2	
	Nuclear power generation output (MW)	3,270	3,270	3,270	3,270	2,750	
	Number of solar power stations	3	4	4	4	4	
	Solar power generation output (MW)	4.5	4.8	4.8	4.8	4.8	
	Total number of power stations	232	230	231	231	231	
	Total power generation output (MW)	17,810	17,960	18,210	18,270	16,820	
	Route distance of transmission facilities (km)	15,181	15,212	15,190	15,281	15,330	
	Circuit length of transmission facilities (km)	24,693	24,794	24,797	24,945	24,996	
	Number of supports for transmission facilities	58,304	58,229	58,074	58,307	58,457	
	Number of substations	624	627	628	630	630	
	Substation output (MVA)	74,310	75,210	75,710	76,820	78,380	
	Route distance of power distribution facilities (km)	145,943	146,550	147,078	147,583	147,934	
	Extended wire distance of power distribution facilities (km)	580,893	583,092	585,150	586,638	587,638	
	Number of supports for power distribution facilities	3,074,234	3,088,541	3,108,453	3,116,413	3,126,235	
Power outage frequency and duration	Average power outage frequency per customer house (no. of times)	0.12	0.08	0.11	0.13	0.08	
	Average power outage duration per customer house (minutes)	9	11	24	10	7	
Regional characteristics and load density in Tohoku	Population density (per km <sup>2</sup> )	143	142	142	142	142	
	Electricity sales per unit area (MWh per km <sup>2</sup> )	960	940	930	910	870	
Facility construction costs	Power sources (billion yen)	111.1	130.4	111.8	105.3	100.8	
	Distribution (billion yen)	103.0	127.9	126.9	127.7	116.9	
	Other (billion yen)	21.8	32.5	32.5	41.4	38.1	
	Total (billion yen)	235.9	290.9	271.3	274.4	255.9	
Nuclear power station facilities utilization	Nuclear power station facilities rate of utilization (%)	0.0	0.0	0.0	0.0	0.0	
Average radiation dose per worker	at the Onagawa Nuclear Power Station (mSv)	0.1	0.1	0.1	0.2	0.1	
	at the Higashidori Nuclear Power Station (mSv)	0.1	0.1	0.0	0.1	0.4	
Solid waste at the Onagawa Nuclear Power Station	Generation (drums equivalent)	2,232	2,268	2,244	3,140	3,064	
	Volume reduction (drums equivalent)	1,108	648	756	2,272	1,724	
	Storage accumulative total (drums equivalent)	28,656	30,276	31,764	32,632	33,972	
	Storage capacity (drums equivalent)	55,488	55,488	55,488	55,488	55,488	
Solid waste at the Higashidori Nuclear Power Station	Generation (drums equivalent)	576	668	456	488	656	
	Volume reduction (drums equivalent)	0	0	0	0	0	
	Storage accumulative total (drums equivalent)	10,980	11,648	12,104	12,592	13,248	
	Storage capacity (drums equivalent)	18,360	18,360	18,360	18,360	18,360	
Shareholders and investors	Percentage of ownership	National and local governments (%)	4.1	4.1	4.0	4.1	4.1
		Financial institutions (%)	30.0	30.9	33.3	33.6	33.4
		Other corporations (%)	6.2	5.7	5.8	5.8	6.0
		Foreigners (%)	22.5	24.1	22.4	22.7	23.7
		Individuals and others (%)	37.2	35.2	34.5	33.8	32.8
		Total number of issued shares	502,882,585	502,882,585	502,882,585	502,882,585	502,882,585
		Number of shareholders	203,116	195,215	181,989	177,023	171,598
		Major achievements of investor relations activities	Number of participants in financial results briefings	203	211	176	174
	Number of institutional investors visited	141	138	116	109	102	

## Performance Data

Category	Item	2014	2015	2016	2017	2018 (FY)
Number of employees	Male	11,740	11,592	11,576	11,488	11,350
	Female	837	829	823	828	839
Number of management staff (executives)	Male	4,945	4,985	4,998	5,022	5,011
	Female	68	78	79	81	84
Number of new employees recruited	Male	200	197	239	245	239
	Female	15	20	28	29	36
Average age	Male	42.4	42.2	42.6	42.7	42.9
	Female	40.6	40.3	39.8	39.7	39.6
Average length of work	Male (years)	21.1	21.3	22.4	22.5	22.6
	Female (years)	18.3	17.5	18.9	18.7	18.6
Personnel re-employed under the re-employment system for the elderly	Number of personnel re-employed	88	110	107	139	116
	Ratio of personnel re-employed to those eligible for the system for the fiscal year (%)	64.2	64.0	67.7	69.5	61.7
Training costs per employee and total number of people attending training classes	Training costs per employee (thousand yen)	93	100	107	113	116
	Total number of people attending training classes (hundred)	175	187	180	172	175
Working hours	Total number of working hours (Excluding night duty etc)	1,952	1,965	1,975	1,968	1,969
	Number of overtime labor hours (Excluding night duty etc)	259	277	285	278	282
Paid leave	Number of average days taken as paid leave	13.3	13.3	13.1	13.1	13.4
	Number of beneficiaries of the childcare leave system	35	28	43	39	54
Systems for work-life balance and number of beneficiaries	Number of beneficiaries of the childcare support working hours system	169	140	143	150	144
	Number of beneficiaries of the partner maternity leave system	307	310	308	308	327
	Number of beneficiaries of the child nursing leave system (special leave)	244	257	350	446	446
	Number of beneficiaries of the care leave system	2	2	1	6	7
	Number of beneficiaries of the care support working hours system	1	1	1	3	3
	Number of beneficiaries of the family care leave system	174	145	152	68	185
	Number of beneficiaries of the staggered working hours system for employees living away from their families	373	351	249	135	127
	Number of beneficiaries of the volunteer leave system	258	35	74	40	27
Disability employment	Number of employees with disabilities	209	212	210	213	221
	Disabled person employment rate (%)	2.06	2.09	2.04	2.03	2.07
Participation in human rights-related education	Number of participants	4,186	4,414	4,016	3,549	3,631
Labor safety and health	Frequency rate	0.17	0.21	0.17	0.25	0.20
	Severity rate	0.0015	0.0076	0.0039	0.0060	0.0041
Actions for cooperation with local communities	Frequency of internal communication activities (no. of times)	117	123	95	99	73
	Frequency of participation in local events (no. of times)	1,419	1,549	1,294	1,499	1,328
Energy communication activities	Frequency of events such as facilities tours, lectures and briefings on energy and the environment (no. of times)	3,346	3,544	3,249	3,221	2,358



## Performance Data

Category	Item	2014	2015	2016	2017	2018	(FY)
Electricity generated	Nuclear (TWh)	0	0	0	0	0	0
	Thermal (TWh)	56.6	57.2	56.3	56.5	56.1	
	Hydraulic (TWh)	8.2	7.9	6.9	8.4	7.4	
	New energy and others (TWh)	0.9	0.9	0.9	0.8	0.8	
Purchased electricity	Power received from other companies (TWh)	18.1	16.2	16.9	12.7	11.0	
Electric power consumption and loss	Power consumed at power stations (TWh)	2.6	2.7	2.6	2.7	2.6	
	Power consumed for water pumping (TWh)	0.06	0.06	0.05	0.09	0.09	
	Power consumed at internal offices (TWh)	0.13	0.13	0.10	0.09	0.09	
	Transmission, distribution and transformation loss (TWh)	4.6	4.5	4.2	3.7	3.7	
Electric power sales	Electric power sales (GWh)	76,623	75,057	74,258	72,003	68,876	
Fuel consumption for power generation	Coal (thousand tons)	7,710	8,140	7,310	8,140	7,990	
	Heavy oil (thousand kl)	890	430	540	400	270	
	Crude oil (thousand kl)	310	330	300	220	80	
	Natural gas (billion Nm <sup>3</sup> )	0.24	0.24	0.24	0.24	0.18	
	LNG (thousand tons)	4,080	4,320	4,380	4,170	4,380	
	Nuclear fuel (tons)	0	0	0	0	0	
Water consumption	Industrial water (thousand tons)	11,740	11,110	10,690	10,410	10,400	
Vehicle fuel consumption	Gasoline (kl)	2,397	2,541	2,442	2,376	2,222	
	Diesel oil (kl)	672	656	634	621	583	
Consumption of other materials	Limestone (thousand tons)	100	120	100	120	100	
	Ammonia (thousand tons)	10	10	10	10	10	
CO <sub>2</sub> emissions*	CO <sub>2</sub> emissions (thousand tons-CO <sub>2</sub> )	43,900 (43,740)	41,940 (41,770)	40,550 (40,340)	37,550 (37,340)	36,230 (35,820)	
	CO <sub>2</sub> emission factors (kg-CO <sub>2</sub> /kWh)	0.573 (0.571)	0.559 (0.556)	0.548 (0.545)	0.523 (0.521)	0.528 (0.522)	
Emissions of greenhouse gases other than CO <sub>2</sub>	SF <sub>6</sub> recovery rate (%)	99.3	99.4	99.6	99.8	99.6	
	HFC holding capacity (tons)	47.7	52.6	51.7	51.2	53.3	
	HFC emissions (tons-CO <sub>2</sub> )	563	1,349	538	947	1,522	
Waste	Waste generation (thousand tons)	1,121	1,154	1,054	1,171	1,121	
	Waste final disposal amount (thousand tons)	159	164	79	84	132	
	Industrial waste recycling amount (thousand tons)	961	991	975	1,087	989	
	Waste effective utilization rate (%)	85.8	85.8	92.5	92.8	88.2	
Other emissions	SOx emissions (thousand tons)	12	10	10	10	7	
	SOx emission intensity (g/kWh)	0.21	0.17	0.18	0.17	0.13	
	NOx emissions (thousand tons)	15	14	13	12	10	
	NOx emission intensity (g/kWh)	0.27	0.25	0.24	0.21	0.18	
	Water discharge (thousand tons)	3,260	3,320	3,320	3,000	2,880	
	CO <sub>2</sub> emitted by vehicles (thousand tons-CO <sub>2</sub> )	7	8	7	7	7	
Prevention of global warming	Total thermal power integrated efficiency (low calorific value standard) (%)	45.3	45.6	46.3	46.2	46.7	
	Electricity purchase from solar power generation (MW)	1,529	2,454	3,205	4,021	4,757	
	Transmission and distribution loss rates (%)	5.5	5.5	5.2	4.8	5.0	
	Cumulative total number of Eco Cute units sold in the region served by Tohoku Electric Power	332,474	367,757	405,660	443,212	481,537	

\* Figures in parentheses ( ) represent basic CO<sub>2</sub> emissions and CO<sub>2</sub> emission factors that do not reflect adjustments under the feed-in tariff (FIT) scheme for renewable energy. Figures for FY2016 and later years denote relevant values associated with the retail electric supply business, not including the portion concerned with general electricity transmission and distribution such as isolated island service. Figures for FY2018 are provisional values as of July 2019 and are subject to change prior to publication by the national government.