# **Environmental Loads Resulting from Business Operation**

**Main Business Operations** 



To further strengthen **competitiveness** and **flexibility** in **fuel procurement**, Kyushu Electric Power is engaged in **diversification of fuel procurement**, participation in **resource development and production projects** and the introduction of **fuel trading** (adjustment of fuel volume and price management). We strive for **cost reduction** in fuel transportation by using our **own LNG tanker** and chartered ships for shipping.

### Fuel Procurement Status (FY2017)



Power generation

In order to secure a stable supply of energy over the long term, counter global warming, and provide electric power at low cost, we generate power while taking the environment into account and using a balanced combination of various power sources. To this end, we employ a wide range of approaches, including promoting nuclear power predicated on safety, actively developing renewable energies such as solar, wind and geothermal power, using these renewables to the maximal extent, and improving the efficiency of thermal power.

Composition of Capacity for All Facilities (GW) (Including Power Purchased from Other Companies) (as of March 31, 2018)



(Note) Energy source composition for the company's own facilities. Please see the Kyushu Electric Power website for information about the retail power business guideline-based power supply structure for electricity sales volume.



## **Main Financial Indicators**

Sales (operating revenues)

¥1,960.3 billion







We deliver electricity by transmitting it at high voltage from power stations to substations, lowering the voltage at substations, and sending it along distribution lines to places such as homes and factories. To be able to **deliver a low-cost**, **stable electricity supply** to support Kyushu's industries and lifestyles, we **operate a stable electricity system** and **preserving steady transmission and distribution facilities**.

Power Transmission, Transformation and Distribution Equipment (as of March 31, 2018)

	Length of	10,773 km	
Transmission	Supporters	Steel towers	approx. 25,000
Trancinocion		Others (concrete poles, etc.)	approx. 42,000
	Number of substations		596
Transformation	Capacity		74,430,000 kVA
	Length of	141,730 km	
	Supporters	Concrete poles	approx. 2,411,000
Distribution		Others (steel towers, etc.)	approx. 42,000

We provide **various energy services** that respond to the diverse needs of customers, including proposals for rate plans and services meeting the requirements of household customers and **one-stop energy services** for corporate customers.

Energy services

#### Electricity Sales Volume



Note 1: Specified-Scale Demand is 6,000 V or higher at standard voltage and 50 kW or higher of contracted power Note 2: Display categories changed from fiscal 2017

Ratio of electricity business in sales



#### (Includes intra-company transactions) IT and Other 0/ Telecommunications 1.2% 5.0% Energy-related Operating Business Revenues 9.0% Electric ¥**2,132** billion Power (As of March, 2018) 84.8%

#### 6

### Kyushu Electric Power

The following diagram shows environmental loads resulting from business operations of Kyushu Electric Power, and emissions of greenhouse gases throughout the overall supply chain.



(Note) See the section on environmental data (p. 48) for details on calculation methods and supplementary explanations.



(Note) See the section on greenhouse gas emissions for the entire supply chain (p. 28) for details on supply chain CO<sub>2</sub> emissions.

#### Group Companies

The following diagram shows what sort of environmental loads are produced as a result of business operations from inputs of resources and materials to 52 companies, of a total of 89 companies in the Kyuden Group that are members of the organization for promoting group-wide environmental management (Group Environmental Management Promotion Subcommittee). Going forward, we will take current conditions into account, and continue our strenuous efforts to further reduce environmental loads.

#### INPUT

- Power generated\*1 ..... 251.3 million kWh
- Fuel\*2
- Water ····· 7.3 million t
- Copy paper ····· 133.8 million sheets
- Volume of chemicals designated under the PRTR system

#### **Environmental Load Reduction**

- Reduction in greenhouse gas emissions\*<sup>3</sup> ······ 22,400 t-CO<sub>2</sub>
- · Recovery rate for regulated fluorocarbons\*4 ..... 100 %
- Industrial waste recycling
- Reduction in SO<sub>x</sub> emissions\*5 ..... 13,100 t
- Reduction in NO<sub>x</sub> emissions\*6 ..... 3,100 t

#### **Business Operations**



IT and telecommunications (5 companies) Environment and recycling

Lifestyle-oriented services (16 companies)

#### **Environmental Activities**

- · Environmental target management
- · Promoting energy and resource conservation
- Promoting recycling
- · Promoting green procurement
- · Curbing emissions of greenhouse gases
- Curbing emissions of regulated fluorocarbons
- · Curbing emissions of air pollutants
- · Providing environmental education

#### OUTPUT

- Greenhouse gas emissions\*2 ..... 143.200 t-CO2
- Ozone-depleting substance emissions\*7 ..... 0.01 ODP t
- SO<sub>x</sub> emissions ..... 4.200 t
- NO<sub>x</sub> emissions ..... 2,900 t
- Volume of chemicals designated 7.9 t under the PRTR system (air) .....
- Industrial waste disposal
- Waste paper disposal ······ 70 t
- \*1: Total amount of purchased electric power, excluding in-station power at power plants, etc.
- \*2: Excludes power sold to power companies, etc. (fuel for power generation and emissions stemming from that fuel).
- \*3: For group company sites with solar power generation equipment or similar installed, actual results are calculated using sites without such equipment installed as a baseline.
- \*4: Percentage of equipment for which gas recovery was carried out to the legal standard level at inspection (statutory pressure at time of removal).
- \*5: For smoke and soot producing facilities (such as boilers) with desulfurization measures, or using low-sulfur fuel, results are calculated using sites without such measures or fuel as a baseline.
- \*6: For smoke and soot producing facilities (such as boilers) with denitration measures, results are calculated using sites without such measures as a baseline.
- \*7: Converted to CFC-11 mass equivalent using the ozone depletion potential of each fluorocarbon.

Note: t = metric ton (tonne)

## Medium-to-Long-Term Environmental Targets (FY2018 and Beyond)

## **Priority Issue Identification**

The Paris Agreement adopted at the 21st Conference of Parties (COP21) has come into effect, and there is a worldwide trend toward low-carbon societies. Against this backdrop, customers, shareholders, investors and other stakeholders have high expectations for companies that focus not only on financial factors, but also emphasize ESG (environmental, social and corporate governance) perspectives.

Thus far, we have steadily implemented "environmental management" to balance our business operations with environmental preservation based on the Kyuden Group Environmental Action Plan. However, market competition is intensifying due to full liberalization of the retail markets for electric power and natural gas, and under these conditions, there is a need to further improve efficiency and effectiveness of environmental management in order to aptly respond to the environmental commitment of all our stakeholders.

Therefore, we carried out a wide-ranging review of our Environmental Action Plan in FY2017, and determined the priority initiatives we will tackle with the greatest urgency during FY2018 and beyond.

#### Priority Issue Identification Process

STEP 1 Issue Identification	We base our identification of issues regarding the environment on our established Kyuden Group Environmental Action Plan. In doing so we also take into consideration modern societal demands, such as sustainable developments goals (SDGs); external evaluation regarding environmental, social and corporate governance (ESG); and reporting guidelines including the Global Reporting Initiative (G4).
STEP 2 Selection of Priority Issues	The topics identified in STEP 1 are evaluated from two perspectives: impact on stakeholders, and importance for our business. Priority issues are selected by taking into account the degree to which countermeasures have been established throughout the company due to previous efforts.
STEP 3 Confirming Validity	Validity of the issues selected as important in STEP 2 is checked through approaches such as dialog with outside experts through the Environmental Advisory Council, an outside evaluation body focused on our environmental management.
STEP 4 Determination of Priority Initiatives	Based on the results of the check of validity in STEP 3, and in coordination with related divisions in the company, future targets are set for the entire company by our in-house Environmental Committee, and priority initiatives to be addressed with the greatest urgency are decided upon.

#### Dual-perspective evaluation for STEP 2 (selection of important issues)



Low

Importance for our business

(Note 1) Specified priority issues are evaluated based on their importance for our business and their effect on stakeholders, and issues that are further to the upper right are considered to have greater importance.

High

(Note 2) Priority initiatives are indicated by a double circle mark, . Those issues without the . mark are also important, but efforts to address them are already well-established throughout the company, so these are listed as routine management items for which we are continuing to take the proper measures in each division and at each business site.

Separating Priority Initiatives and Routine Management Points

Our company's environmental activities are divided into priority initiatives and routine management items. For priority initiatives, we set targets and formulate specific action plans for the entire company.



## Priority Initiatives and Environmental Targets

Each of the priority initiatives consist of two parts: a "result" that we hope to achieve, and an "initiative," the process by which we plan on achieving that goal.

		Environmental targets						
Priority initiatives			Priority initiatives	Single fiscal year (FY2018)	Med (20	ium–long-term )20 and after)	Related SDGs	
Initiatives to Address Global	Result	Reduc	tion of CO2 emissions factor			Target of the Electric Power Council for a Low Carbon Society About 0.37kg-C02/kWh* [FY2030]		7 AFFORDABLE AND CLEAN DERROY
	s	Enviro (electi [FY19	Environmental efficiency (electricity sales ÷ CO <sub>2</sub> emissions) [FY1995 is set to 100 as the standard for comparison]		Promotion of PDCA to achieve the medium- to long-term targets (FY2030) of the Energy Conservation Law and the Act on Sophisticated Methods of Energy Supply Structures	95 or higher [FY2030]		8 DECENT WORK AND
		S	Achievement of benchmark indicators in the Energy Conservation Law (including BAT)			Targe Cor - A indic - B indica [FY2	ets in the Energy iservation Law cator: 1.0 or higher tor: 44.3% or higher 2030] (See p. 30)	
		supply side	Achievement of target for non- fossil power sources (including nuclear power and renewable	Non-fossil power source ratio		Targets in th Methods of E 4 [FY2	ne Act on Sophisticated nergy Supply Structures 4% or higher 2030] (See p. 30)	
Environn	Initia		energy)	Amount of renewable energy developed	Steady implementation of renewable energy development plans	4 million kW [FY2030]		12 RESPONSIBLE CONSUMPTION AND PRODUCTION
nental Is	tives		Reduction in energy consumption in Energy Conservation Law	ensity based on the	–1% per year or higher	Average of	–1% per year or higher	
ssues		Use side	Expansion of services that contribute to energy conservation and CO <sub>2</sub> emissions reduction, etc.		Examination of new services to help conserve energy, reduce CO <sub>2</sub> , etc.	Offering customers services, etc.		13 ACTION The second s
		Enviro renew	Environment-related research and technological development for renewable energy, etc.		Steady implementation of research and technological development (Number of plans for FY2018: 4)		<b>&amp;</b>	
		Thorough management of specified fluorocarbons and alternative fluorocarbons		Recovery rate: 100%	Recovery rate: 100%			
	Re	Economic efficiency (sale of unneeded items with value, etc.)		6.7 billion yen or more	7.0 billion yen or more			
Initiatives to Establish a Recycling Society	sults	Environmental efficiency (electricity sales ÷ amount of industrial waste produced) [FY2008 is set to 100 as the standard for comparison]			99 or higher	110 or higher		9 NOUSTRY ENNOVATION ANDINFRASTRUCTURE
		Proper management and disposal of industrial waste		Coal ash recycling rate: 100% Recycling rate other than coal ash: 98%	Coal ash recycling rate: 100% Recycling rate other than coal ash: 98%			
	Initiatives	Plann	Planned and proper disposal of PCB waste		Plan-based proper disposal	High concentration	Disposal finished by statutory disposal deadlines	
						Trace	Disposal finished by the end of FY2025	
		Findin resou	Finding new environmental preservation activities using local resources (scenic views, ecosystems, etc.)		Review with the aim of planning environmental preservation activities in line with community needs		4 ensures	
Colla Con	Ξ	Environmental education in the Kuju Kyuden Forest Continuation of Kyuden "Play Forest" events		Forest	Satisfaction of participants indicated by questionnaires: 90%		6 CLEANWOITHE AND SAND LIVER	
porat	tiativ				Number of visitors: 8,000 or more (FY2018)		12 HERMENI	
ing v	les	Continuation of Eco-mother Activities		Number of times held: 200 (FY2018)				
vith		Promotion of environmental education in cooperation with education institutions (schools, boards of education, etc.) such as visiting schools to offer classes		Actively holding classes at schools, etc.		15 III.aco		
Prom	Results	Awards that help to improve corporate value, etc.		Receiving 2 awards	Receiving 10 or more awards (Cumulative to FY2025)		4 multr Heartha	
oting I Nanag		Efforts to improve outside evaluation in terms of the environment		Acquisition of high evaluation (A- or higher) in CDP		12 ESPONENCE CONSUMPTION AND PROCEEDING		
Environm ement	Initiative	Full co regula	Full commitment to preventing violations of environmental laws or regulations and environmental accidents		- Zero violations - Full and consistent compliance with agreements (except in irregular situations)		13 CLMARE	
ental	Sé	Developing specialized skills relating to the environment		Bolstering of training for improving employee understanding (Number of environment supervisors who underwent training in FY2017: 114)				

\*The aim is to achieve this target through the cooperation of the member companies of the Electric Power Council for a Low Carbon Society.