

We are advancing with initiatives toward the preservation of the environment, and co-existence with local communities.

### Major Risk Scenario

It is the responsibility of companies with substantial emissions of greenhouse gases to take measures to reduce them, and if these measures are delayed, it may erode the confidence of the public in the Group, increase environmental costs, such as CO<sub>2</sub> credits, and have an impact on financial performance.

### Main Initiatives in Fiscal 2017

- Environmental initiatives
- Helping create a recycling oriented society
- Environmental protection
- Harmonizing with society
- Pursuing environmental management

### CO<sub>2</sub> Emissions per kWh of Electricity Sold

# 0.483 kg-CO<sub>2</sub>/kWh

[provisional value]

In fiscal 2016, CO<sub>2</sub> emissions were 37.5 million tons, and CO<sub>2</sub> emissions per kWh of electricity sold were 0.483 kg-CO<sub>2</sub>. This represented a decrease of about 10% compared to fiscal 2015. The decrease was due to factors including the stable operation of the Sendai Nuclear Power Station Units 1 and 2 throughout the year (except for regular inspection periods) and the increase in power generated by renewable energies.

## Examples of Specific Initiatives

### ■ Main Environmental Targets and Achievements

	Item	Unit	Fiscal 2016 target	Fiscal 2016 results	Fiscal 2017 target	
Environmental initiatives	CO <sub>2</sub> emissions per kWh of electricity sales volume	kg-CO <sub>2</sub> /kWh	Maximum possible reduction* <sup>1</sup>	0.483	Maximum possible reduction* <sup>1</sup>	
	Total thermal efficiency for thermal power stations on transmission end (higher heating value basis)	%	—* <sup>2</sup>	40.4	—* <sup>2</sup>	
	Office power usage	Million kWh	54 or less	57	54 or less	
Efforts to create a recycling society	Industrial waste recycling rate	%	99 or more	About 100	99 or more	
	Paper recycling rate	%	100	100	100	
	Green procurement rate	%	Maximum possible procurement* <sup>3</sup>	About 100	Maximum possible procurement* <sup>3</sup>	
Environmental protection	SO <sub>x</sub> emissions per unit of thermal power generation	g/kWh	Maximum possible reduction* <sup>4</sup>	0.19	Maximum possible reduction* <sup>4</sup>	
	NO <sub>x</sub> emissions per unit of thermal power generation	g/kWh	Maximum possible reduction* <sup>4</sup>	0.17	Maximum possible reduction* <sup>4</sup>	
	Dose evaluation for the public around the nuclear power station (per year)	Millisieverts	Under 0.001	Under 0.001	Under 0.001	
Harmonizing with society	Energy/ Environmental education	Play Forest Activities	No. of times held	—	8	12 or more
		Kuju Kyuden Forest Environmental Education Activities	No. of times held	—	19	20 or more
		Eco Mothers Activities	No. of times held	250 or more	253	200 or more
		Lectures	No. of times held	Held proactively	479	Held proactively

\*1 Maximum effort will be made to achieve the target set for all electricity providers (approx. 0.37 kg-CO<sub>2</sub>/kWh on the usage end in fiscal 2030).

\*2 Revisions, etc., to nuclear power in supply plans are unclear, so setting this target has been postponed.

\*3 A qualitative target has been set based on the fact that activities are nearly fully established, and other factors.

\*4 A qualitative target has been set because it fluctuates greatly depending on the usage rate of oil-fired thermal power stations.

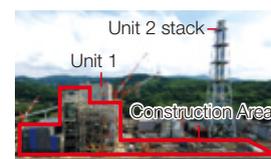
### ■ Environmental Initiatives

#### Increasing Efficiency of Thermal Power Generation

Kyushu Electric Power aims to maintain and improve overall thermal efficiency with the intention of reducing fuel consumption and curbing CO<sub>2</sub> emissions. In fiscal 2016, we maintained a high level of thermal efficiency (40.4% at the power transmission end) by keeping highly efficient LNG-fired and coal-fired thermal power plants operating at high levels, in addition to commencing in June the commercial operation of Shin-Oita Power Station Unit 3 (Turbine 4), a combined cycle power generation system boasting the highest efficiency in the world.

Work to upgrade the Shin-Oita Power Station Unit 1 to high-efficiency gas turbines has been completed for five of the six turbines as of February 2017. The final turbine is scheduled to be completed during fiscal 2017.

Moreover, construction work on Matsuura Power Station Unit 2, a high-efficiency pulverized coal-fired unit, is on schedule for the commencement of commercial operations in December 2019. Kyushu Electric Power will continue to improve the efficiency of its thermal power plants.



State of construction at Unit 2 at Matsuura Power Station (as of July 2017)

### Proactive Development and Introduction of Renewable Energy Sources

Kyushu Electric Power is proactively developing renewable energy sources, including geothermal power, hydroelectric power, biomass, wind power and solar power. The entire Group worked on development and together with local communities to promote renewable energy, as it is an excellent power source for combating global warming and encourages the effective use of domestically produced energy.

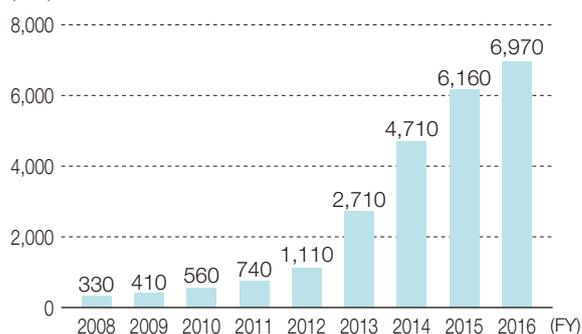
The introduction of the renewable energy feed-in tariff (FIT) system accelerated the proliferation of solar power generation, but it also created problems, such as the unbalanced installation of solar power facilities with other power sources, and burden placed on Japanese citizens. This led to the enactment of revised FIT legislation on April 1, 2017, with changes to the facility certification system and measures to enhance cost efficiency.

In light of these changes to the legal system, Kyushu Electric Power plans to maximize the use of renewable energy, as long as it does not destabilize the supply of electric power. Along with Group companies, Kyushu Electric Power is proactively developing renewable energy while leveraging the characteristics of each type of renewable energy, even outside the Kyushu region and overseas.

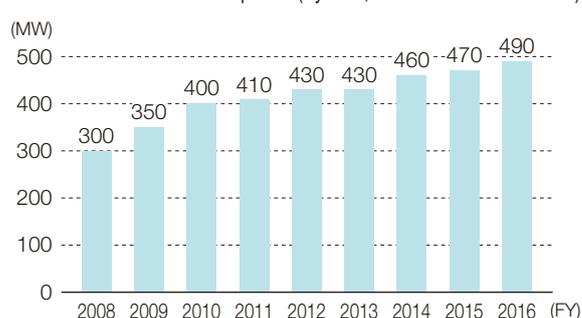
In the renewable energy business, a global growth market, the Company is leveraging the technologies and know-how we have accumulated over the years both in Japan and overseas. We are also working on offshore wind power, which has latent potential, based on advances in technology and development.

[2030 Development Goal: 4,000 MW (+2,200 MW)]

Amount of connected solar power (Kyushu, excludes remote islands) (MW)



Amount of connected wind power (Kyushu, excludes remote islands) (MW)



▶ For more details about the development and deployment of renewable energy, please refer to page 28 "Renewable Energy Business Efforts"

### Expanding the Use of Renewable Energy R&D Project for Power Grid Output Variation Technologies

In fiscal 2016, Kyushu Electric Power was chosen by the New Energy and Industrial Technology Development Organization (NEDO) to participate in its R&D project for technologies to deal with output variation on power grids, with the aim of advancing measures to expand the inclusion of renewable energy on power grid systems. A number of R&D projects and field tests are underway with the goal of establishing output control technologies so that a maximum amount of renewable energy can be tied into power grids. (Project timeline: fiscal 2016–2018)

In the current fiscal year as well, we are continuing work on establishing finely tuned output control technologies for solar power generation that include demand forecasting and power generation prediction systems.

