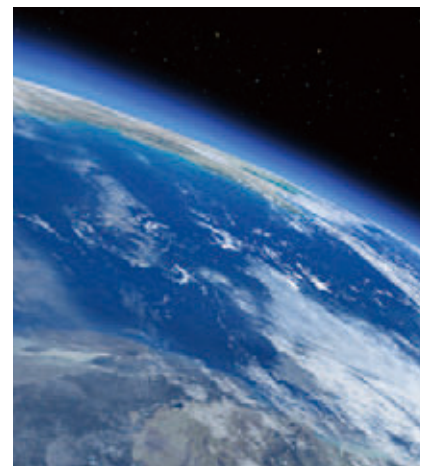


# ANNUAL REPORT

J-POWER Group  
Annual Report 2018  
Environment Social Governance Finance



Since its establishment by the government in 1952 to overcome the power shortages in postwar Japan, J-POWER (Electric Power Development Co., Ltd.) has developed its business in the wholesale supply of hydroelectric and thermal power, conducted a power transmission business through its trunk transmission lines that connect each domestic region, and contributed to the stable supply of electric power in Japan.

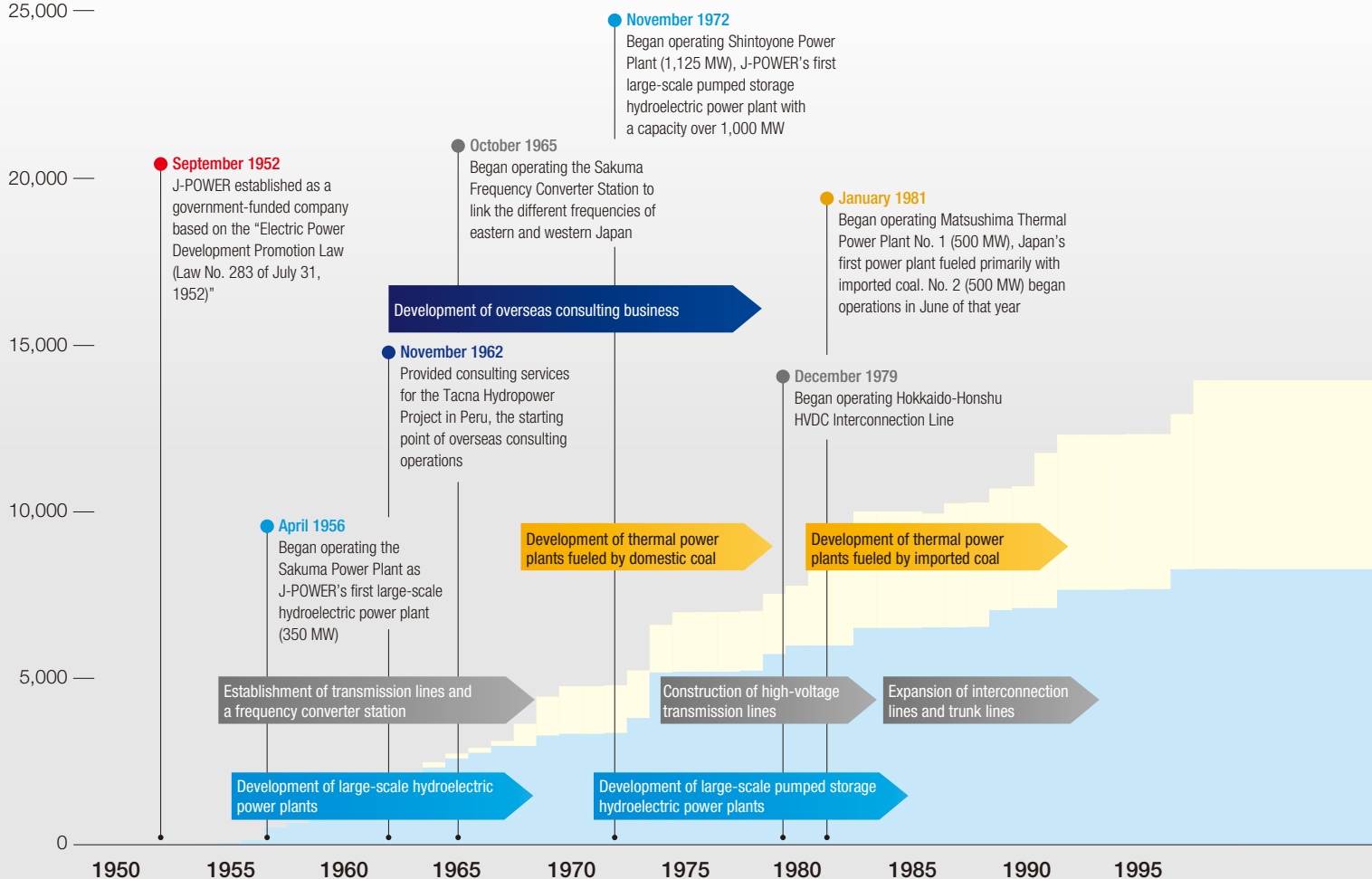
Listed on the Tokyo Stock Exchange's First Section and thus becoming fully privatized in 2004, J-POWER has been developing new businesses, including electric power generation businesses in foreign countries where growth is expected, and renewable energy, such as wind and geothermal power.

Currently, Japanese power companies are facing a variety of changes in the business environment, including electricity system reform. By making the most of its expertise regarding leading-edge technologies developed throughout the world and its proven record of trustworthy performance, J-POWER is making steady and farsighted progress on the basis of its "coexistence of energy and the environment" concept.

## J-POWER's History

Power Generation Capacity (MW)

25,000 —



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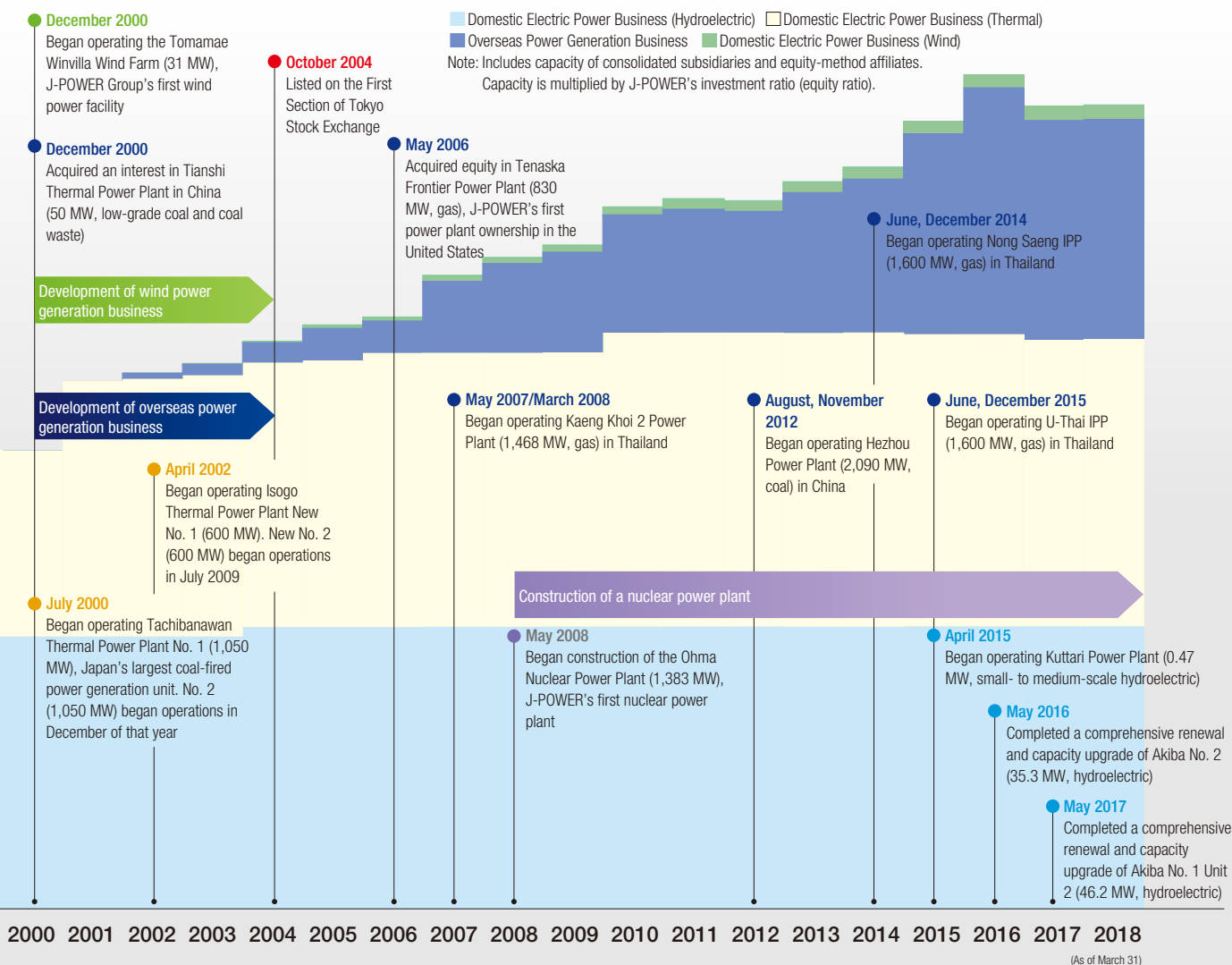
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## Our mission

We will meet people's needs for energy without fail, and play our part for the sustainable development of Japan and the rest of the world.

## Our Credo

We value integrity and pride, which drive everything we do.  
 We pursue harmony with the environment, and thrive in the trust of communities where we live and work.  
 We regard profits as the source of our growth, and share the fruits with the society.  
 We refine our knowledge constantly, to be the pioneering leader in technologies and wisdom.  
 We unite diverse personalities and passions as one, and dare create a better tomorrow.



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### Forward-Looking Statements

Statements in this annual report, other than those of historical fact, are forward-looking statements about the future performance of J-POWER that are based on management's assumptions and beliefs in light of information currently available, and involve both known and unknown risks and other uncertainties. Actual events and results may differ materially from those anticipated in these statements.

### Presentation of Monetary Amounts and Other Figures

For monetary amounts and electric power sales, figures less than the indicated unit are rounded down. For other amounts, figures less than the indicated unit are rounded to the nearest unit unless otherwise mentioned.

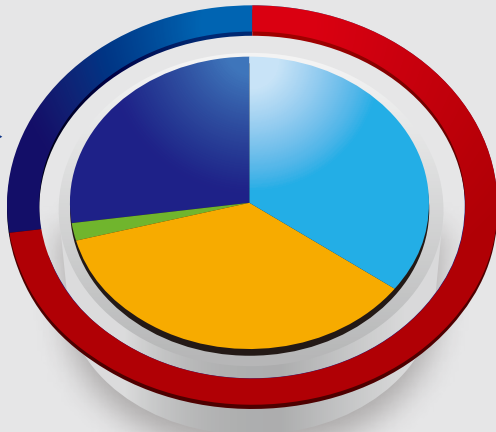
## Consolidated Power Generation Capacity in Operation (Owned Capacity Basis)

(As of April 30, 2018)

Note: Includes capacity of consolidated subsidiaries and equity-method affiliates.

Owned capacity is calculated by multiplying the capacity of each facility by J-POWER's equity ratio.

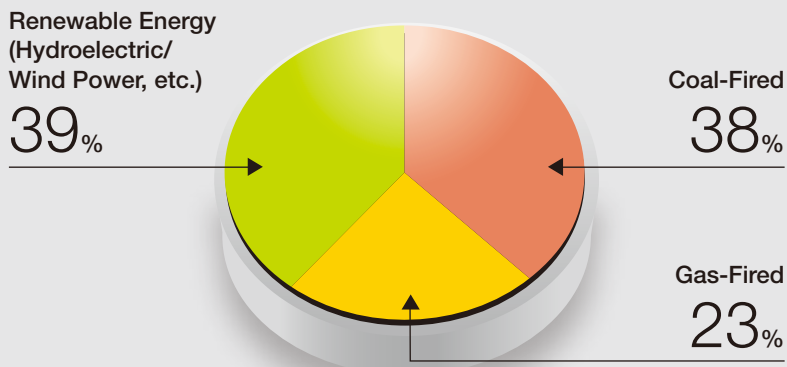
<b>Domestic</b>	<b>73%</b>	<b>17,652</b>	<b>MW</b>
Hydroelectric Power		8,572 MW	35%
Thermal Power		8,640 MW	36%
Wind Power		439 MW	2%



**Overseas** **27%** **6,685** MW

Thailand	3,300 MW
United States	1,785 MW
China	944 MW
Other areas	656 MW

## Composition of J-POWER Group Electric Power Generation Assets in Japan and Overseas by Type



(As of April 30, 2018)

## J-POWER Group's Electric Power Business— Supporting the Stable Supply of Electric Power in Japan

### Domestic

J-POWER's core business is its electric power generation business, comprising the power plants it owns and operates throughout Japan that supply electricity to electric power retailers based on contracts that set out the generating capacity/electric power and fees for each retailer. We also employ our transmission and transforming facilities to provide transmission services based on contracts with each company.

Isogo Thermal Power Plant (Kanagawa Prefecture)



## Global Business Development

### Overseas

J-POWER is leveraging its more than 50 years of overseas achievements and know-how as it engages in its overseas power generation business and overseas consulting business. J-POWER is contributing to the stable supply of electric power and sustainable development throughout the world.

U-Thai IPP (Thailand)



## Electric Power Business

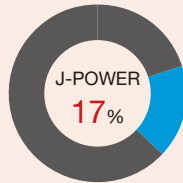
### Hydroelectric Power

#### Purely Domestic, CO<sub>2</sub>-Free Energy

J-POWER owns 61 hydroelectric power plants with a total capacity of 8,572 MW, making it Japan's second-ranked company in terms of hydropower generation capacity. Hydroelectric power represents a valuable purely domestic energy resource and, as a CO<sub>2</sub>-free power source, plays a central role in renewable energy.

#### Share of Hydroelectric Power Generation Capacity in Japan

(As of March 31, 2018)



Sources: Compiled from Electric Power Survey Statistics (Agency for Natural Resources and Energy) and other sources

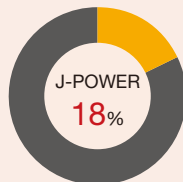
### Thermal Power

#### Highly Economical Base Energy Source

J-POWER owns thermal power generation facilities with a total capacity of 8,640 MW, including the top share of coal-fired thermal power generation capacity in Japan (an owned capacity of 8,416 MW). Coal-fired thermal power generation is distinguished by its lower cost per calorie compared with power generation by crude oil, LNG, and other fossil fuels. Reflecting the use of coal-fired facilities to meet base demand, they have high load factors and can be said to be outstanding sources of power in terms of economy.

#### Share of Coal-Fired Power Generation Capacity in Japan

(As of March 31, 2018)



Sources: Compiled from Electric Power Survey Statistics (Agency for Natural Resources and Energy) and other sources

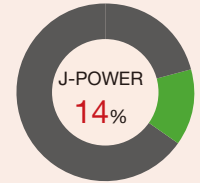
### Wind Power

#### Power Generation Business for a Low-Carbon Society

J-POWER owns 22 wind power facilities with a total capacity of 439 MW, making it Japan's second-ranked company in terms of wind power generation capacity. Because wind power is a clean, CO<sub>2</sub>-free power source and a form of renewable energy, J-POWER will continue promoting new wind power development going forward.

#### Share of Wind Power Generation Capacity in Japan

(As of March 31, 2018)



Sources: Compiled from Electric Power Survey Statistics (Agency for Natural Resources and Energy) and other sources

### Transmission/Transformation

#### Core Infrastructure Supporting Japan's Electric Power Network

J-POWER has major transmission lines with a total length of approximately 2,400 km, including trunk lines that connect Honshu with Hokkaido, Shikoku, and Kyushu. We also own a frequency converter station that links the different frequencies of eastern and western Japan. These facilities are key infrastructure elements that play extremely important roles in the comprehensive management of Japan's nationwide power grid.

## Overseas Power Generation Business

Since the late 1990s, J-POWER has been working on its overseas power generation business, which invests the Company's funds and technology in electric power generation projects. As of April 30, 2018, the J-POWER Group owns power generation facilities that are in operation in six countries and regions, including Thailand, the United States, and China. These facilities have a total capacity of 6,677 MW (owned capacity basis). Furthermore, the Company is advancing greenfield projects in Indonesia (total output of 2,000 MW, planned for completion in 2020) and the United States (total output of 926 MW, planned for completion in 2018).

## Overseas Consulting Business

J-POWER has conducted its overseas consulting business, which involves technical cooperation related to electric power development and environmental preservation, since the 1960s. As of April 30, 2018, the Company has executed a cumulative total of 357 projects in 64 countries and regions.

#### Overseas power generation business (As of April 30, 2018)

● In operation	6 countries/ regions	36 projects	Owned capacity 6,685 MW
○ Under construction/ planned	2 countries	2 projects	Owned capacity 912 MW

#### Overseas consulting service projects (Cumulative, as of April 30, 2018)

64 countries/ regions 357 projects

#### Europe

##### Overseas power generation business

**In operation**  
1 country; 24 MW

**Consulting service projects**  
14 countries; 20 projects

#### Middle East/Africa

**Consulting service projects**  
15 countries; 42 projects

#### Asia

##### Overseas power generation business

**In operation**  
4 countries/regions;  
4,876 MW

**Under construction/planned**  
1 country; 1 project  
680 MW

**Consulting service projects**  
21 countries/regions;  
245 projects

#### North America

##### Overseas power generation business

**In operation**  
1 country; 1,785 MW

**Under construction**  
1 country; 1 project  
232 MW

**Consulting service projects**  
1 country; 1 project

#### Central and South America

**Consulting service projects**  
13 countries; 49 projects



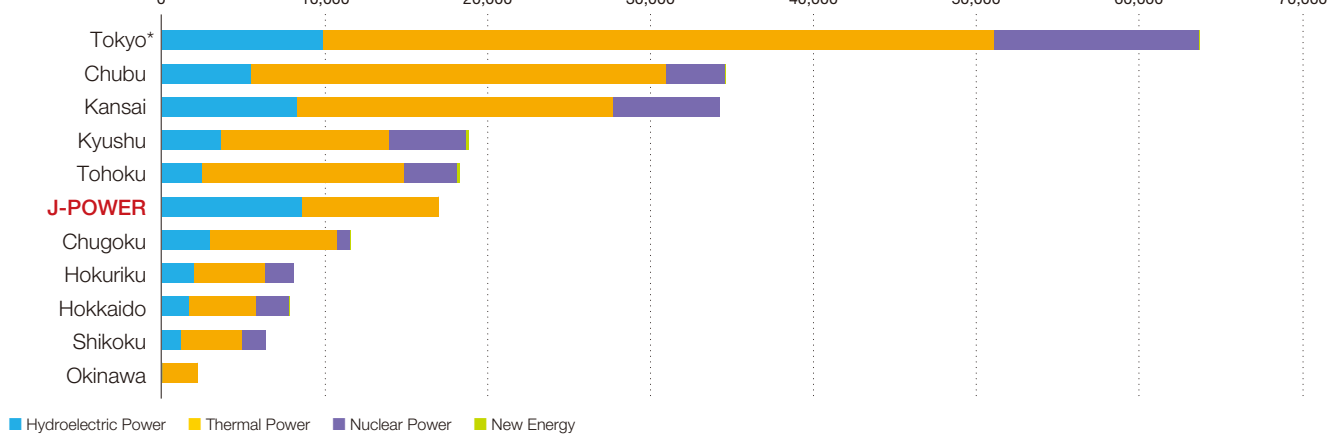
## Domestic Electric Power Business Facilities (In Operation)

(As of April 30, 2018)

J-POWER Facilities	No. of Facilities	
<b>Power generation facilities</b>		
Hydroelectric power plants	61	8,572 MW
Thermal power plants*	12	8,928 MW
Wind power farms/plants*	22	443 MW
Other power generation facilities	2	32 MW
<b>Total</b>	<b>97</b>	<b>17,977 MW</b>
<b>Transmission lines</b>		
AC power transmission lines		2,410.2 km
DC power transmission lines		267.2 km
<b>Substations</b>	<b>4</b>	<b>4,301 MVA</b>
<b>Frequency converter station</b>	<b>1</b>	<b>300 MW</b>
<b>AC/DC converter stations</b>	<b>4</b>	<b>2,000 MW</b>
<b>Wireless communication facilities (circuit length)</b>		<b>5,904 km</b>

\* Not taking investment ratio (equity ratio) into account

## Power Generating Capacity of J-POWER and 10 Electric Power Companies (EPCOs) (March 2018)

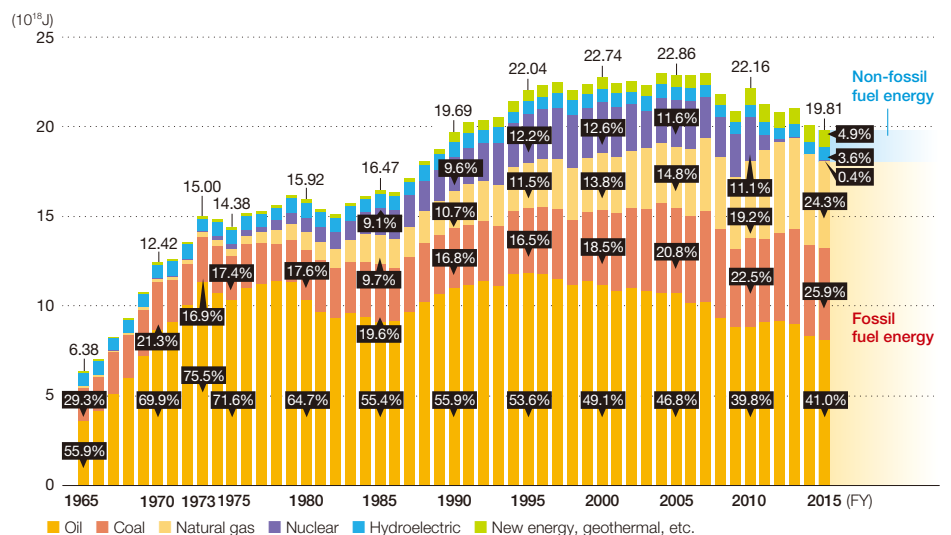


Sources: Compiled from Electric Power Survey Statistics (Agency for Natural Resources and Energy)

\*Total of Tokyo HD, Tokyo FP, Tokyo PG, and Tokyo EP

## Power Generation by Power Source in Japan

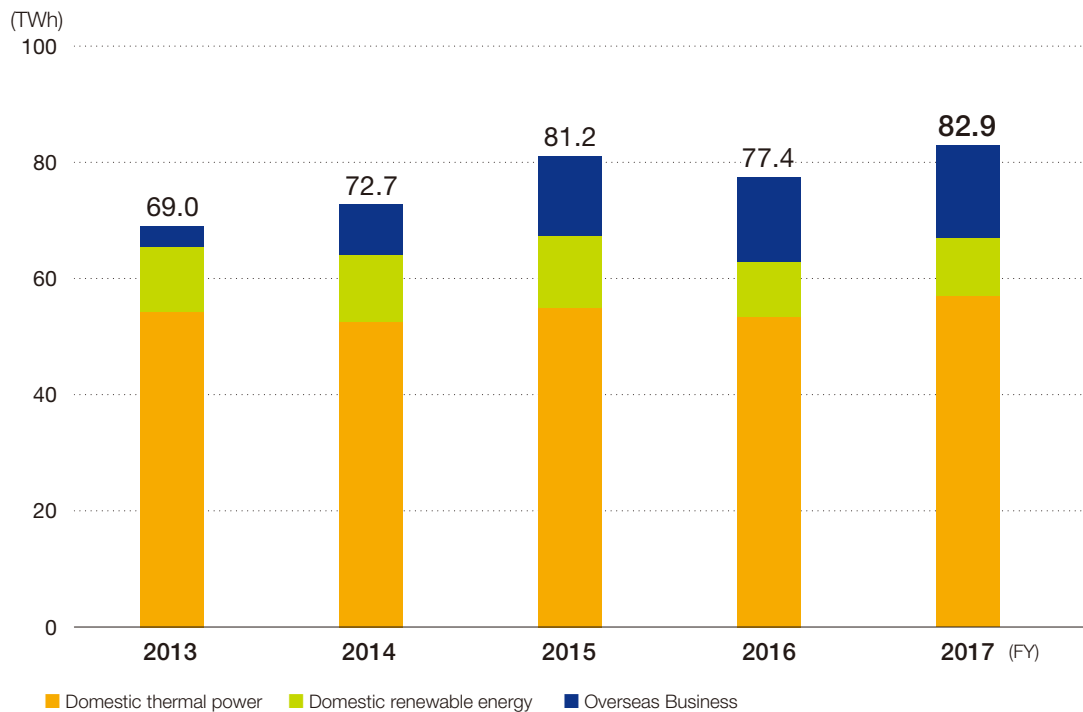
While hydroelectric power once accounted for the bulk of electric power generating capacity in Japan, there later came a shift to the use of thermal power fueled by abundant and inexpensive oil. Since the oil shocks, the development of coal-fired and natural gas-fired thermal power generation as well as nuclear power has advanced in order to diversify power generation methods. The operation of nuclear power plants in Japan was suspended for a long time after the accident at the Fukushima Daiichi Nuclear Power Plant in 2011. Although the gradual recommencement of nuclear power plant operations has begun, coal and gas-fired thermal power remains the main pillar of electricity supply in Japan.



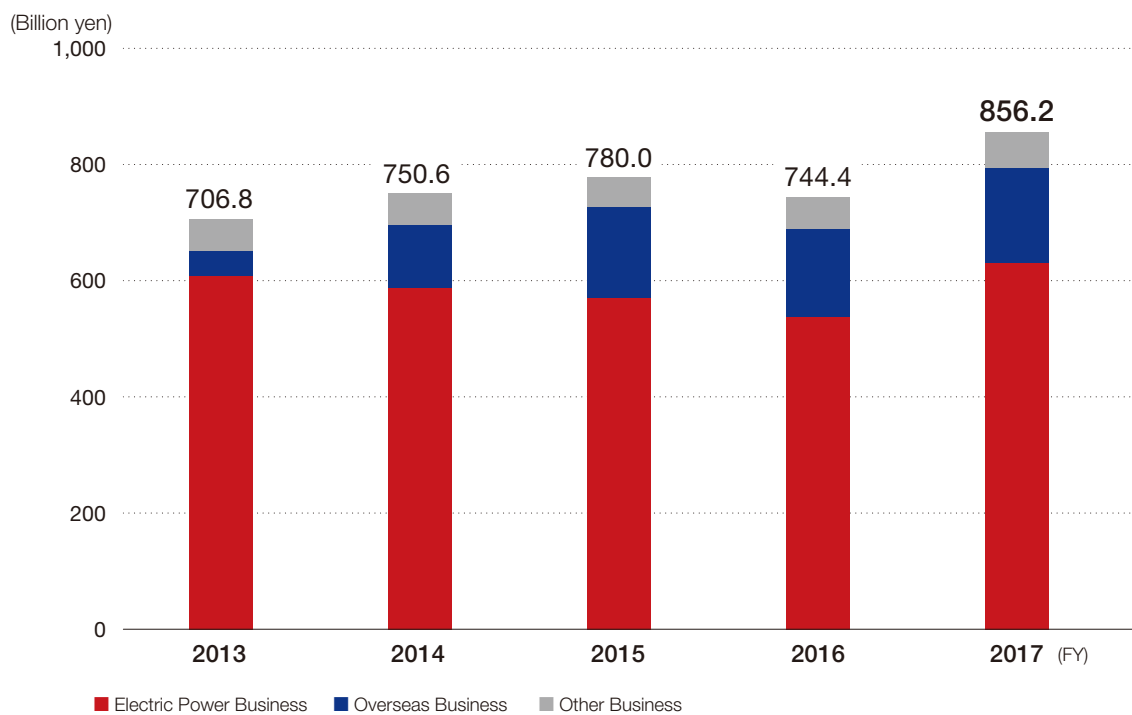
Source: Compiled from "Comprehensive Energy Statistics," Agency for Natural Resources and Energy

Notes: 1. The methods of calculation used in "Comprehensive Energy Statistics" from the 1990s onward differ from those used before.  
2. "New energy, geothermal, etc." includes solar, wind, biomass, and geothermal energy. The same applies throughout this report.

Electric Power Sales

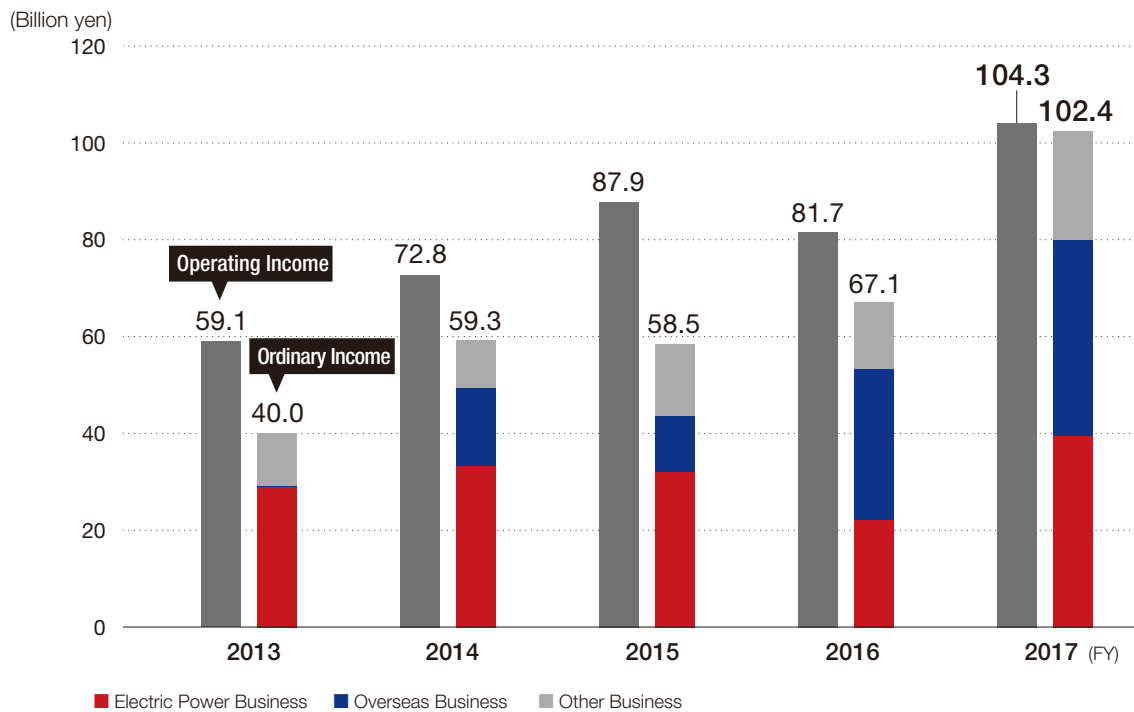


Operating Revenue (By Segment)

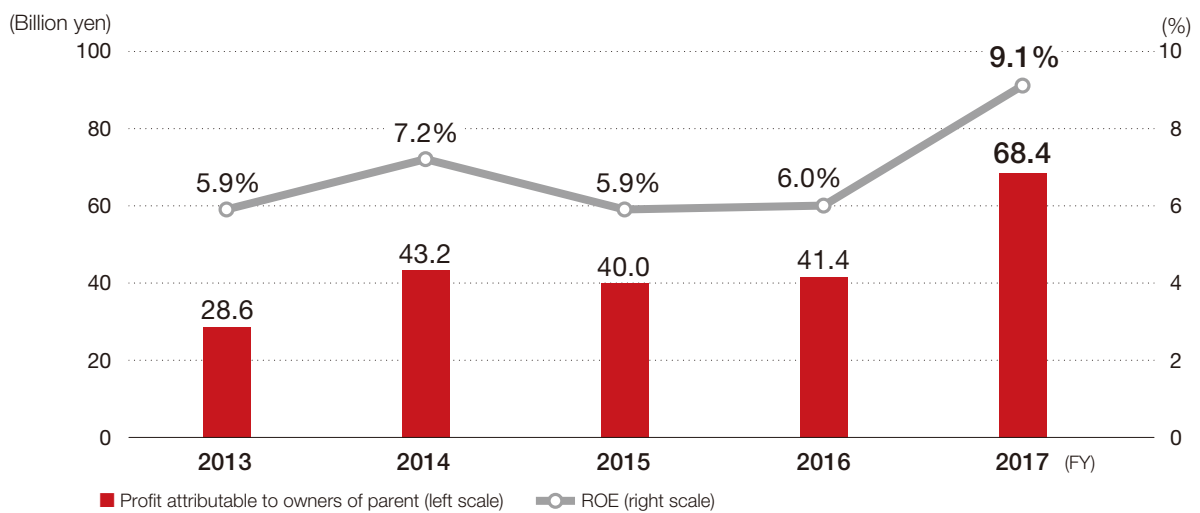




## Operating Income and Ordinary Income



## Profit Attributable to Owners of Parent and ROE



## Dividends Per Share

Fiscal year	2013	2014	2015	2016	2017
Dividends per share (yen)	70	70	70	70	75

## 1. The J-POWER Group Medium-Term Management Plan

The J-POWER Group established a Medium-Term Management Plan in July 2015 to address the challenge of achieving further growth over the next decade by leveraging the increase in capital carried out in March 2015.

The basic direction of our efforts involves I. creating a platform for further growth in the domestic market as it undergoes liberalization and in order to win out over the competition in power generation by being cost-competitive; II. growing our overseas power generation business to contribute to sustainable development based on the energy circumstances in each region worldwide; and III. conducting business in Japan and abroad as a leading company in coal-fired thermal

power generation by accelerating the development of technology aimed at reducing the carbon emissions of coal-fired thermal power to adapt to measures addressing climate change.

Efforts aimed at further growth by building up the power generation business will require a growth cycle of at least 10 years, considering the period required for investment in construction after planning and environmental assessment. That is why we made efforts aimed at 2025 into the J-POWER Group's "Medium-Term Management Plan."

Three years have now passed since we formulated the plan. We have taken this opportunity to review the progress of our initiatives thus far and establish new targets and initiatives for the coming three years.

### Medium-Term Management Plan (Announced July 31, 2015)

#### Key Concepts of the Medium-Term Management Plan

- Realize growth in Japan by winning out over the competition in a liberalized market
- Enhance overseas business expansion
- Further low-carbon technologies enabling greater business growth globally

#### Growth and Soundness Targets

- Growth target: J-POWER EBITDA Increase to around 1.5 times the level of fiscal 2014 in fiscal 2025
- Soundness target: Interest-bearing debt/J-POWER EBITDA Improve from the level at the end of fiscal 2014 by the end of fiscal 2025

## 2. Initiatives Under the Medium-Term Management Plan So Far and Going Forward

Along with initiatives to maintain and improve the reliability and competitiveness of existing facilities, we are steadily advancing new projects and technological development, which are the foundation for future growth, on a global basis.

#### Key Domestic Greenfield Projects

- Construction work proceeded on Takehara Thermal Power Plant New Unit No.1 (coal-fired thermal power, start of operations scheduled for 2020) and Kashima Power (coal-fired thermal power, start of operations scheduled for 2020)
- Started demonstration testing of Osaki CoolGen Project (oxygen-blown IGCC)\*
- Started operations at three onshore wind farms (Setana-Ohsato, Kuzumaki No. 2, and Nikaho No. 2; in addition to these, construction is under way at three sites and preparations for construction are under way at several sites)
- Construction work proceeded on the Wasabizawa Geothermal Power Plant (start of operations scheduled for 2019), and an environmental assessment was conducted for the replacement of Onikobe Geothermal Power Station

\* Integrated coal gasification combined cycle (IGCC), a high-efficiency combined cycle power generation system that uses a gas turbine driven by the gas produced by gasifying coal and a steam turbine. Phase II of the demonstration, in which CO<sub>2</sub> separation and capture technologies are incorporated, is scheduled to start in fiscal 2019.

#### Key Overseas Greenfield Projects

- Construction work proceeded on Central Java IPP (Indonesia, coal-fired thermal power, start of operations scheduled for 2020)
- Acquired equity interest in Westmoreland (The United States, gas-fired thermal power, start of operations scheduled for 2018)

Intensifying market competition due to electricity system reform

Climate change (environmental regulations)

Uncertainty surrounding nuclear power policy

Robust growth in electric power demand, mainly in developing countries

Although our basic understanding of the business environment has not changed, the circumstances surrounding the J-POWER Group continue to undergo major changes at an accelerating pace. Focusing on the key concepts laid out in the Medium-Term Management Plan, we will respond more flexibly to achieve growth

### The J-POWER Group's Initiatives Going Forward

- Expansion of renewable energy

**Fiscal 2025 target: Approximately 1 GW in new development  
Increases of 0.3 TWh/year in hydroelectric and 2.5 TWh/year in wind and others\***

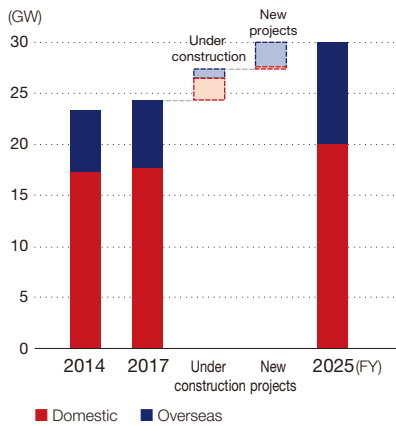
- Work toward carbon reduction and decarbonization in coal use
  - Promotion of the Ohma Nuclear Power Plant Project, with safety as a major prerequisite
  - Expansion of overseas business
  - Improvement of value of existing facilities
- \* Compared with fiscal 2017

### 3. Power Generation Assets

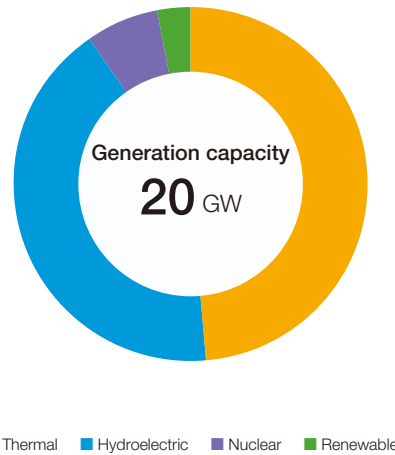
#### Growth of Power Generation Assets

Power generation capacity:

**30** GW (FY2025 target)

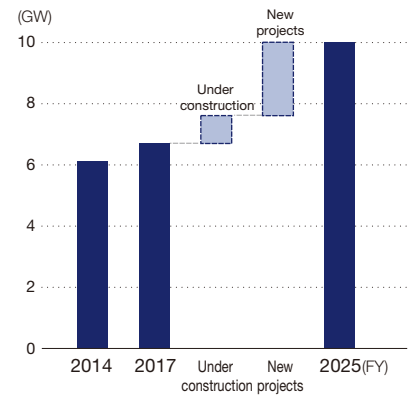


Composition of domestic power generation assets (FY2025 target)



Overseas owned capacity:

**10** GW (FY2025 target)



### 4. Growth and Soundness Indicators

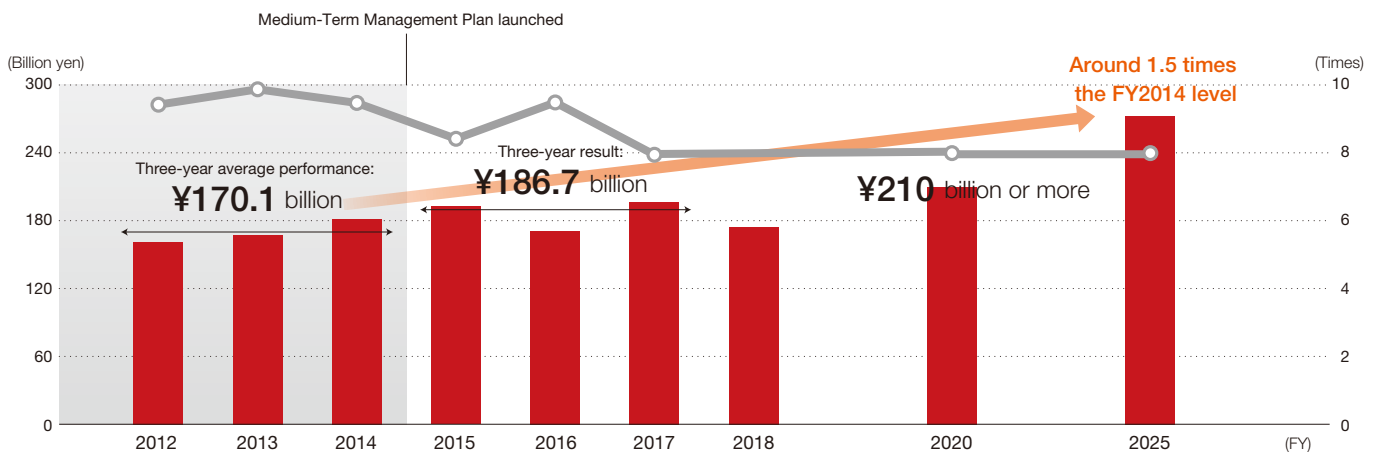
#### Three-Year Forecast (FY2018–FY2020)

Growth indicator: J-POWER EBITDA\*

➡ **¥210 billion or more in FY2020**

Soundness indicator: Interest-bearing debt / J-POWER EBITDA\*

➡ **Maintain the FY2017 year-end level (8.0 times) at the end of FY2020.**



■ J-POWER EBITDA    ● Soundness Indicators (right scale)

\* J-POWER EBITDA = Operating income + Depreciation and amortization + Equity in earnings of affiliates

#### Shareholder Returns

During the period leading up to fiscal 2020, in light of the significant changes to its business environment, J-POWER has been striving to ensure stable dividends while forming a competitive business asset portfolio and maintaining and improving its financial soundness. However, in anticipation of changes in its business environment, such as industry liberalization in Japan, the J-POWER Group has now formulated a new shareholder return policy. Under the new policy, we increased the per-share dividend in fiscal 2017, from ¥70 to ¥75.

#### Our Approach to Shareholder Returns

Taking into account such factors as the level of profit, earnings forecasts, and our financial condition, we strive to enhance stable, ongoing returns to shareholders in line with a consolidated payout ratio of around 30%, excluding factors causing short-term profit fluctuations.

Actively advancing initiatives toward the achievement of our Medium-Term Management Plan, we will ensure the further growth of the J-POWER Group.

Looking at Japan's electric power industry, in July 2015 the Japanese government published its *Long-term Energy Supply and Demand Outlook* and presented its energy mix targets for 2030. The government is also steadily advancing electricity system reform, including the full-scale liberalization of retail business and the abolishment of wholesale regulations from April 2016 as well as the unbundling of power generation and transmission scheduled for 2020. To address the wide range of issues arising as a result of this liberalization, the government has indicated that it will launch new markets, such as a baseload power market, capacity market, non-fossil value market, and supply-demand balancing market, and debate over the design of these markets continues. In addition, the Paris Agreement, an international agreement on mitigating climate change, has come into effect, and within Japan calls for the creation of a low-carbon society that is sustainable both economically and environmentally are increasing. Reflecting these and other factors, the business environment surrounding the J-POWER Group is undergoing significant change.

In light of such changes in its business environment and its own strengths, in July 2015, the J-POWER Group established a Medium-Term Management Plan to address the challenge of achieving further growth over the next decade. As for the direction of the plan, there are three concepts: "Realize growth in Japan by winning out over the competition in a liberalized market," "Enhance overseas business expansion," and "Further low-carbon technologies enabling greater business growth globally." We are actively promoting initiatives to give these concepts tangible form.

Specifically, we are advancing the construction of three wind power projects—Setana-Ohsato, Kuzumaki No. 2, and Nikaho No. 2—as well as the Wasabizawa Geothermal Power Plant. All of these represent renewable energy sources and are scheduled to begin operation in fiscal 2019. Furthermore, the Takehara Thermal Power Plant Unit New No. 1 (replacement) and Kashima Power projects in Japan and the Central Java Project overseas, all cutting-edge high-efficiency coal-fired thermal power projects, are on track to begin operations in fiscal 2020. These projects represent steady progress in efforts to form an asset portfolio that will serve as a foundation for future growth. In terms of technological development, we are working toward the



decarbonization of fossil fuel energy sources and advancing initiatives aimed at achieving zero emissions by the 2050s. These include efforts related to commercializing oxygen-blown integrated coal gasification combined cycle (IGCC) technology, carbon capture and storage (Osaki CoolGen), and hydrogen (a brown coal hydrogen demonstration project). In the years to come, we will ensure the ongoing growth of the J-POWER Group through the discovery and promotion of even more superior projects in Japan and abroad.

I believe that in times of major change, such as those we are in now, the J-POWER Group's unique strengths and heritage will allow it to flexibly adapt, contribute to society, and maintain a strong presence. We will continue to do our utmost under our Corporate Philosophy: "We will meet people's needs for energy without fail, and play our part for the sustainable development of Japan and the rest of the world."

We are grateful as always for your continued support and patronage.

A handwritten signature in black ink that reads "T. Watanabe". The signature is written in a cursive, flowing style.

Toshifumi Watanabe  
President  
September 2018

## The Current J-POWER

Q

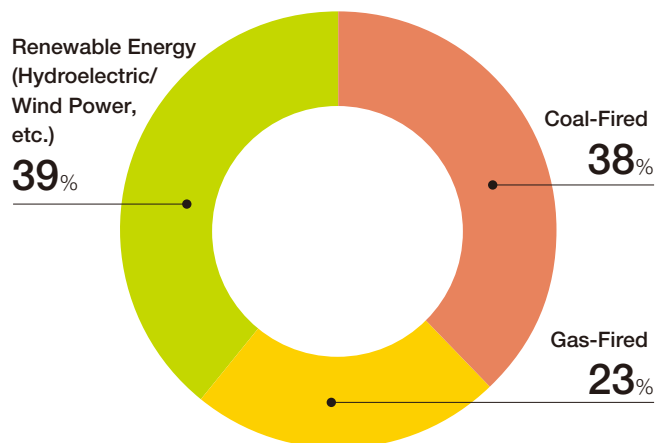
Could you please tell us what sets J-POWER apart in the industry today?

A

From its foundation in 1952 up to the present day, the J-POWER Group has been developing large-scale hydroelectric power plants and thermal power plants in Japan. In recent years, the Group has also actively engaged in overseas power generation and the renewable energy business, such as domestic wind power generation businesses. Currently, these power generation facilities have grown to approximately 25 GW in Japan and overseas, of which domestic power generation facilities account for around 18 GW. Half of this domestic capacity is renewable energy, namely, large-scale hydroelectric power generation and wind power generation, and the other half is coal-fired thermal power generation. Overseas power generation facilities are at around the 7 GW level and are owned in Asian countries, including Thailand, and the United States. Approximately 80% of our overseas capacity is gas-fired thermal power generation. In the power transmission business, we own cross-regional connecting lines that link Honshu with Hokkaido, Shikoku, and Kyushu, a frequency converter station connecting regions with different frequencies, and other such power grid facilities.

Domestic coal-fired thermal power and renewable energy, such as hydroelectric and wind power generation, and overseas gas-fired thermal power generation are our core businesses. I think that, in Japan and abroad, the J-POWER Group as a whole has a well-balanced power generation facility portfolio.

Composition of J-POWER Group Electric Power Generation Assets in Japan and Overseas by Type



## Response to Electricity System Reform

Q

Over two years have passed since the full-scale liberalization of retail business and wholesale regulations were abolished in April 2016. How will you adapt to the competitive environment that liberalization is bringing?

A

Market competition in the power generation business has been hastened by the electricity system reform, and J-POWER has to compete with and win out over other power generators. Coal-fired thermal power generation, which is less expensive and has a more stable fuel supply than oil or LNG (liquefied natural gas) power generation, and large-scale hydroelectric power generation, which is a form of renewable energy, account for the majority of the J-POWER Group's domestic power generation facilities. We thus possess sufficient cost-competitiveness, which is the key to surviving amid intensifying market competition. Furthermore, Japan will set up a baseload power market in fiscal 2020. The J-POWER Group will supply this market with about 6 TWh in its first year. As such, the J-POWER Group is expected to play a major role in enlivening the wholesale power market, which will be essential to creating market competitiveness. Amid intensifying market competition, the J-POWER Group is enhancing cost-competitiveness through such measures as strengthening its internal structures while maintaining the absolute prerequisites of stable supply and safety. At the same time, we are steadily developing new coal-fired thermal power plants, such as the Takehara Thermal Power Plant Unit New No. 1 replacement facility and Kashima Power.

Q

Please tell us about the importance of J-POWER's power distribution facilities in the context of the ongoing electricity system reform.

A

The robust competitive market that is the goal of the electricity system reform can only be realized if the wide-area power distribution network is functioning well. We work to maintain the sound function of our distribution facilities, including our cross-regional connecting lines and frequency converter station, which are the parts of the network for which we are responsible. Moreover, in recognition of our capabilities in maintaining such a network, we were selected in 2016 as the main contractor for increasing the capacity of the Sakuma frequency converter facility (from 300 MW to 600 MW) and related transmission lines. At present, we are conducting evaluations in preparation for construction.

## The J-POWER Group Medium-Term Management Plan

Q

Please tell us where the initiatives of the Medium-Term Management Plan formulated in 2015 stand.

A

The J-POWER Group established a Medium-Term Management Plan in July 2015 as a roadmap for ambitious efforts aimed at further growth in the decade leading up to 2025. The plan was built around three key concepts: “Realize growth in Japan by winning out over the competition in a liberalized market,” “Enhance overseas business expansion,” and “Further low-carbon technologies enabling greater business growth globally.” We have been implementing a wide range of concrete initiatives to realize these concepts. Three years have now passed since we formulated the plan. We have taken this opportunity to review the progress of our initiatives thus far and establish new targets and initiatives for the coming three years.

Looking first at our efforts so far, along with initiatives to maintain and improve the reliability and competitiveness of existing facilities, we have been steadily advancing new projects and technological development, which constitute the foundation for future growth, on a global basis. Specifically, in Japan, we advanced the construction of Takehara Thermal Power Plant New Unit No. 1 (replacement), Kashima Power, three onshore wind farms (Setana-Ohsato, Kuzumaki No. 2, and Nikaho No. 2), and the Wasabizawa Geothermal Power Plant. We also conducted tests aimed at the commercialization of the offshore wind power project based in Kitakyushu City in Fukuoka Prefecture. Overseas, construction proceeded on the Central Java projects in Indonesia, and we acquired an equity interest in Westmoreland in the United States.

In terms of numerical targets, our growth indicator, J-POWER EBITDA, averaged ¥186.7 billion per year over the first three years of the plan (fiscal 2015 to fiscal 2017), driven by growth in overseas businesses, an area of focus over the past decade. Our soundness indicator, interest-bearing debt/J-POWER EBITDA, stood at 8.0 times as of the end of fiscal 2017. We thus achieved our Medium-Term Management Plan targets for both indicators.

Based on the results of our review of the past three years, we have designated the “Expansion of renewable energy,” “Work toward carbon reduction and decarbonization in coal use,” “Promotion of the Ohma Nuclear Power Plant Project, with safety as a major prerequisite,” “Expansion of overseas business,” and “Improvement of value of existing facilities” as our initiatives going forward. Responding flexibly to the major changes occurring in our business environment, we will

advance these initiatives with an eye toward 2025 to achieve growth. We have also established new numerical targets for the next three years. We will aim to achieve J-POWER EBITDA of ¥210 billion or more in fiscal 2020 while maintaining interest-bearing debt/J-POWER EBITDA at the fiscal 2017 year-end level of 8.0 times. The J-POWER Group will achieve these targets by steadily advancing the development of existing projects while diversifying sales methods to maximize the value of its highly cost-competitive power generating assets and cutting costs by strengthening its internal structures.

(Note) For an overview of the Medium-Term Management Plan, please refer to pages 8–9.

## Expanding Use of Renewable Energy

Q

You mentioned renewable energy; could you tell us about some of the specific initiatives J-POWER is advancing in this area?

A

We have for many years contributed to the realization of a low-carbon society by expanding the use of renewables as a leader in 100% domestically sourced CO<sub>2</sub>-free energy. In June 2018, we established a Department of Renewable Energy to further reinforce and accelerate initiatives in this area.

Furthermore, we established the new numerical target of approximately 1 GW in new renewable energy development by 2025.

The further development of large-scale, reservoir-type hydroelectric power stations, which J-POWER has been pursuing since its foundation, will be difficult in Japan going forward. In contrast, there are still ample opportunities to better utilize hydroelectric resources, which represent 100% domestically sourced, CO<sub>2</sub>-free energy, through the development of small- and medium-sized hydroelectric power generation projects that utilize untapped river flows and unused waterheads and by increasing the capacity of existing power plants. In fiscal 2017, we carried out the repowering of the Akiba No. 1 Unit 2 following the comprehensive renewal of its main facilities and installation of cutting-edge technologies to increase its capacity. Furthermore, in April 2018, we began construction of the Shinkatsurazawa hydroelectric plant.

In wind power generation, our domestic owned capacity has expanded to about 440 MW, making J-POWER the second-largest wind power producer in the country. In addition, we are advancing construction at the Setana-Ohsato, Kuzumaki No. 2, and Nikaho No. 2 sites, aiming to begin operations of a combined capacity of 136 MW at these sites in fiscal 2019. In addition, we are currently conducting environmental impact assessments for seven projects with a combined maximum capacity of 800 MW, including the Kitakyushu Hibikinada Offshore Wind Farm in Kitakyushu City in Fukuoka Prefecture.

The J-POWER Group has a track record of operating geothermal power plants that goes back more than 40 years. Construction work is proceeding smoothly on the Wasabizawa Geothermal Power Plant—a new development project jointly funded with Mitsubishi Materials Corporation and Mitsubishi Gas Chemical Company, Inc. Furthermore, we are advancing environmental assessment procedures in preparation for the replacement of the Onikobe Geothermal Power Station, which operated until March 2017.

We are also working to expand the use of biomass fuels to reduce CO<sub>2</sub> emissions by producing solid fuel from, for example, general waste, sewage sludge, and woodchips, and co-firing it with coal at coal-fired thermal power plants.

In such ways, the J-POWER Group continues to proactively develop renewable energy through its abundant operational experience and the adoption of the latest technologies.

## Business Development Based on Japan's Energy Mix

### Q

Coal-fired thermal power generation produces greater volumes of the carbon dioxide (CO<sub>2</sub>) emissions than other methods of power generation, and public opinion has sometimes been harsh with regard to coal both in Japan and abroad. Looking at Japan's current energy mix, how would you assess the future of coal-fired thermal power generation?

### A

Japan is mineral resource-poor, has an energy self-sufficiency rate of 7.0%,\* and relies on imports for most of its fossil fuels. It is therefore essential for Japan to utilize diverse sources of energy in a well-balanced manner. Even in the energy mix that Japan is targeting for fiscal 2030, it is assumed that the use of coal-fired thermal power generation will account for 26%. This is because, as a widely produced resource with extensive reserves throughout the world, coal presents the lowest geopolitical risk among fossil fuels and as such is an important resource in terms of Japan's energy security. Furthermore, as coal can be stably procured at the lowest prices among fossil fuels upon arrival in Japan, coal-fired thermal power generation serves as an excellent baseload power source. It is true, however, that coal produces a greater volume of CO<sub>2</sub>, a greenhouse gas, than other fossil fuels. The government's Long-Term Energy Supply and Demand Outlook says about fossil fuels that it will "Realize higher efficiency coal-fired and LNG-fired thermal power generation and promote their effective utilization while ensuring compatibility with the reduction of environmental load."

The electricity industry is building a voluntary framework so that the industry as a whole will be able to reach the government's CO<sub>2</sub> reduction

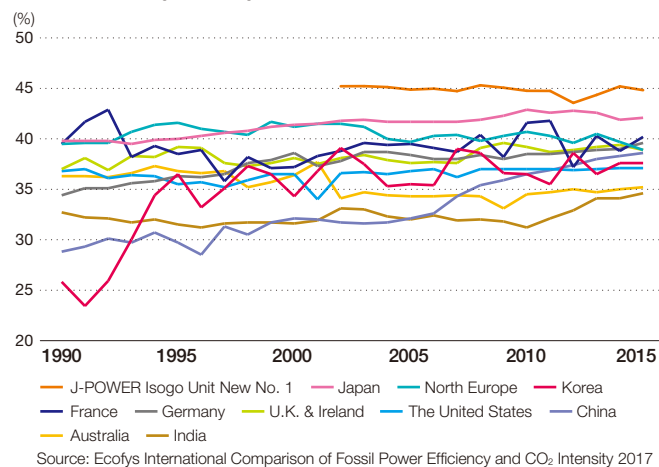
target for fiscal 2030. To support these efforts, the government is creating and adjusting legal rules for power generators and retailers with the aim of securing effectiveness and transparency. As part of the electricity industry, the J-POWER Group is working to fulfill its responsibilities under this framework.

In line with government policy, the J-POWER Group has constantly been at the forefront in adopting cutting-edge coal-fired thermal power generation technologies over the decades. As a result, we possess not only high-efficiency power generation technologies that emit less CO<sub>2</sub>, but also environmental technologies that reduce emissions of such atmospheric pollutants as sulfur oxides (SO<sub>x</sub>) and nitrogen oxides (NO<sub>x</sub>) to levels on par with gas-fired thermal power generation.

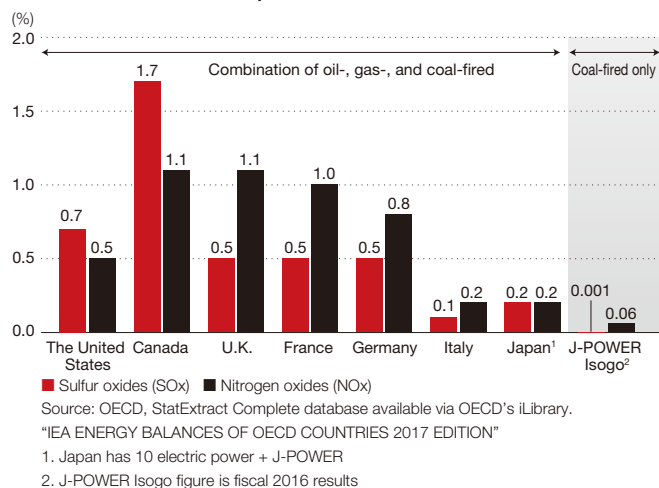
The J-POWER Group will continue to utilize coal, which represents a stable energy resource produced around the world, and contribute to the realization of a well-balanced energy mix. At the same time, we will ambitiously work toward the decarbonization of fossil energy sources, aiming to help solve global environmental problems.

\* Fiscal 2015 estimated value  
Source: Energy White Paper 2018 (Agency for Natural Resources and Energy)

Average Gross Thermal Efficiency (LHV) of Coal-Fired Thermal Power Plants by Country



SO<sub>x</sub> and NO<sub>x</sub> Emissions per Unit of Thermal Power Generation



**Q** \_\_\_\_\_  
**What specific efforts are you making toward carbon reduction and decarbonization in coal use?**

**A**  
 In our recent review of the Medium-Term Management Plan, we decided to work toward carbon reduction and even full decarbonization in coal use. Specifically, we are replacing old coal-fired thermal power generation facilities with high-efficiency coal-fired power generation facilities employing world-leading technologies and building new, high-efficiency coal-fired thermal power plants. Furthermore, we are working toward the use of mixed combustion with biomass fuels at coal-fired thermal power plants, aiming to realize up to 10% mixed combustion at the Takehara Thermal Power Plant Unit New No. 1, which is scheduled to commence operations in fiscal 2020. At the same time, we aim to reduce CO<sub>2</sub> emissions from coal use to zero by the 2050s. To this end, we are advancing R&D related to commercializing oxygen-blown integrated coal gasification combined cycle (IGCC) technology, carbon capture and storage (CCS), and technologies to manufacture and utilize forms of carbon-free energy, such as hydrogen, from low-grade coal.

(Note) For details on IGCC, CCS, hydrogen, and other technologies aimed at reducing carbon emissions, please refer to pages 39–42.

## The Ohma Nuclear Power Plant Project

**Q** \_\_\_\_\_  
**Could you please tell us about the situation with the Ohma Nuclear Power Plant Project?**

**A**  
 From the perspective of ensuring a stable supply of energy for mineral resource-poor Japan, nuclear power generation is an indispensable baseload power source. At the same time, nuclear power plants represent a power source that helps to address the issue of global warming, as their operation emits no CO<sub>2</sub>.

Some plutonium remains in the spent fuel from nuclear power plant operations. In principle, due to nuclear non-proliferation considerations, Japan does not hold surplus plutonium. For this reason and to use resources effectively, Japan promotes a nuclear fuel cycle in which spent fuel is reprocessed so that the plutonium and other useful materials are recovered and utilized.

The Ohma Nuclear Power Plant will be able to operate using only uranium-plutonium mixed oxide (MOX) fuel. Nuclear power plants are commonly able to use up to about one-third MOX fuel. As we are aiming

to use only MOX fuel at the Ohma Nuclear Power Plant, it will play an important role in the nuclear fuel cycle.

The Ohma Nuclear Power Plant is currently under construction and undergoing reviews of its compliance with new regulatory standards by the Nuclear Regulation Authority. In addition to appropriately responding to the results of reviews, we are advancing independent efforts and steadily implementing extensive safety measures, which are a necessary condition for commencing operations.



Construction status of the Ohma Nuclear Power Plant Project (as of June 2018)

## Overseas Business Development

**Q** \_\_\_\_\_  
**Could you please inform us about the state of progress of projects currently under development?**

**A**  
 In Thailand, Unit 2 of the U-Thai gas-fired thermal power plant came online in December 2015, wrapping up the new power generation projects that we had been advancing through our consolidated subsidiaries in the country. There are currently two more projects in development.

The first is a coal-fired thermal power generation project in Central Java, Indonesia, a country where electricity demand is expected to rise sharply going forward. The construction of the 2,000 MW high-efficiency coal-fired thermal power plant, which will be fueled by Indonesia's abundant coal reserves, is progressing smoothly toward the commencement of operations in 2020. The J-POWER Group's coal-fired thermal power generation technologies, which boast thermal efficiency that is among the highest in the world and cleanliness on par with gas-fired thermal power generation, have been adopted for this power plant. Through this project, we hope to help solve Indonesia's energy problems in a way that suits the country's circumstances.

Next, in January 2017, we newly acquired a partial interest in the natural gas-fired Westmoreland Power Plant, which will supply the PJM market, the most developed electricity market in the United States. This power plant is currently under construction and scheduled to start commercial operations in fiscal 2018.



## Q

**It appears that your overseas power generation business will continue to expand in the years ahead. Do you think you will achieve the 10 GW target for overseas owned capacity by fiscal 2025, as stated in the Medium-Term Management Plan?**

## A

In addition to the two projects under construction, we are also considering multiple other projects. Along with business expansion in Thailand, the United States, and China, where we already have established business platforms, we are working to find potential new green-field projects in countries where we have experience, such as Indonesia and Taiwan, as well as other new markets with robust energy demand. Furthermore, using the technological expertise we have developed in our domestic business, we hope to expand our overseas renewable energy businesses, including wind power and hydroelectric. Going forward, as we strengthen our asset portfolio and broaden our fields of activity, we aim to expand our overseas owned capacity to 10 GW by fiscal 2025.

## Returns to Shareholders

### Q

**J-POWER increased dividends in fiscal 2017. Why did you choose this time to change your shareholder return policy and increase dividends?**

### A

We established the Medium-Term Management Plan in July 2015 as a roadmap for ambitious efforts aimed at further growth over the next decade that would leverage the increase in capital carried out in March 2015. Under the plan, in light of the significant changes in the business environment in the period leading up to fiscal 2020, we have focused on ensuring stable dividends while forming a competitive business asset portfolio and maintaining and improving our financial soundness. This basic policy has not changed. However, having achieved increased profits in our overseas business, we are now able to confidently forecast a certain level of profit over the period leading to fiscal 2020. At the same time, I think that the certainty of medium-term profit growth, including further growth beyond fiscal 2020, has increased. This reflects such factors as the smooth progress of new development projects for completion in 2020 in Japan and overseas, including the Takehara Thermal Power Plant Unit New No. 1 (replacement), Kashima Power, and the Central Java project.

Although some uncertainties remain in the business environment, we decided to establish a new shareholder return policy in anticipation of

the coming changes in our earnings structure. Based on this new approach and in light of such factors as the level of profit, earnings forecasts, and our financial condition, we increased the per-share dividend in fiscal 2017, from ¥70 to ¥75. Going forward, we will continue working to achieve sustained improvement in corporate value and to enhance shareholder returns based on growth.

## Corporate Governance

### Q

**The Board of Directors includes three outside directors. Does it function effectively?**

### A

Every year, we analyze and assess the effectiveness of the Board of Directors. In 2018, we evaluated the Board's performance in fiscal 2017. Based on the status of initiatives implemented in response to the previous year's analysis and assessment as well as the results of interviews with members of the Board of Directors and Audit & Supervisory Board, mainly their respective outside members and chairpersons, the Board of Directors found that the effectiveness of the Board of Directors was sufficiently secured.

To enable the outside directors and Audit & Supervisory Board members to fulfill their duties, we provide them with information on the J-POWER Group's Corporate Philosophy, medium-term management plans, businesses, financial affairs, organizational structure, and other topics whenever needed, with the aim of deepening their understanding of said matters. Additionally, we provide opportunities, such as inspections of J-POWER Group facilities, for them to gain an even deeper understanding of our businesses.

Japan's Corporate Governance Code was revised in June 2018. We are currently considering measures to respond to these revisions.

Going forward, we will continue to make efforts to improve the effectiveness of the Board of Directors while enriching discussions based on changes in the business environment.



## Electricity System Reform

The electric power supply system currently comprises the traditional, vertically integrated electric power companies (EPCOs); wholesale power companies, including J-POWER, and wholesale suppliers (IPPs) that supply electricity to EPCOs; and power producers and suppliers (PPSs). Amid a trend toward enhanced electric power industry liberalization, the revision of the Electricity Business Act created systems that enabled the creation of IPPs and PPSs and allowed companies other than electric power companies to engage in the wholesale supply of power to electric power companies as well as the retail distribution of power from 1995 onward. Since 2005, some electric power transactions have been carried out on the Japan Electric Power Exchange (JEPX). Due in part to the Great East Japan Earthquake and the accident at TEPCO's Fukushima Daiichi Nuclear Power Plant, electricity generation costs have been rising, and the balance of electric power supply and demand in Japan is tightening. In response, the government is advancing electricity system reform as part of efforts to rebuild its energy policy.

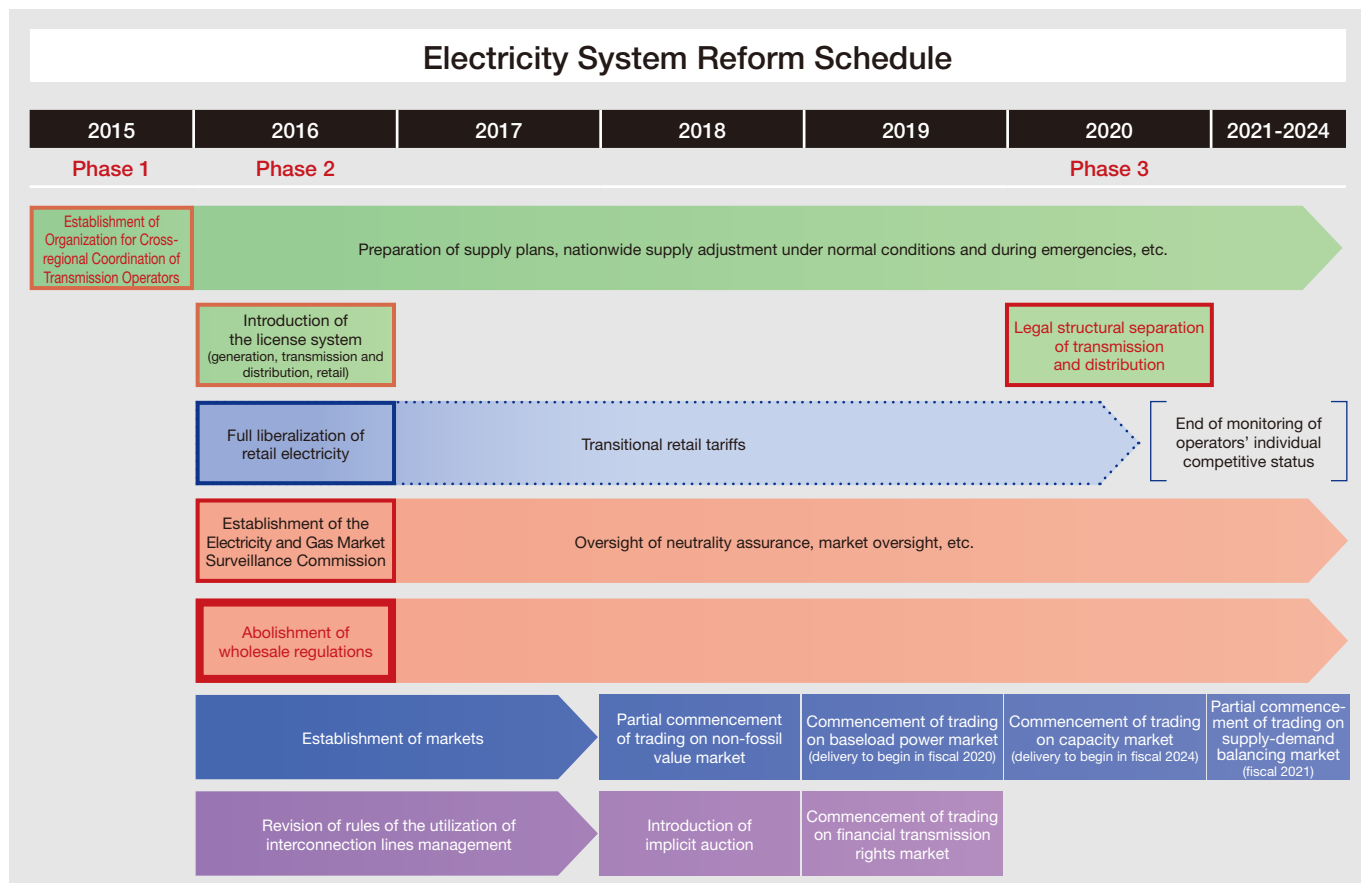
The three goals of the reform are securing a stable supply of electricity, keeping electricity rates as low as possible, and providing consumers with choices and business operators with opportunities to expand their businesses. To achieve these goals, electricity system reform is being implemented in three stages, namely expanding the operations of wide-area electricity grids, fully liberalizing the retail

market and power generation, and further securing the neutrality of the power transmission/distribution sector through legal unbundling.

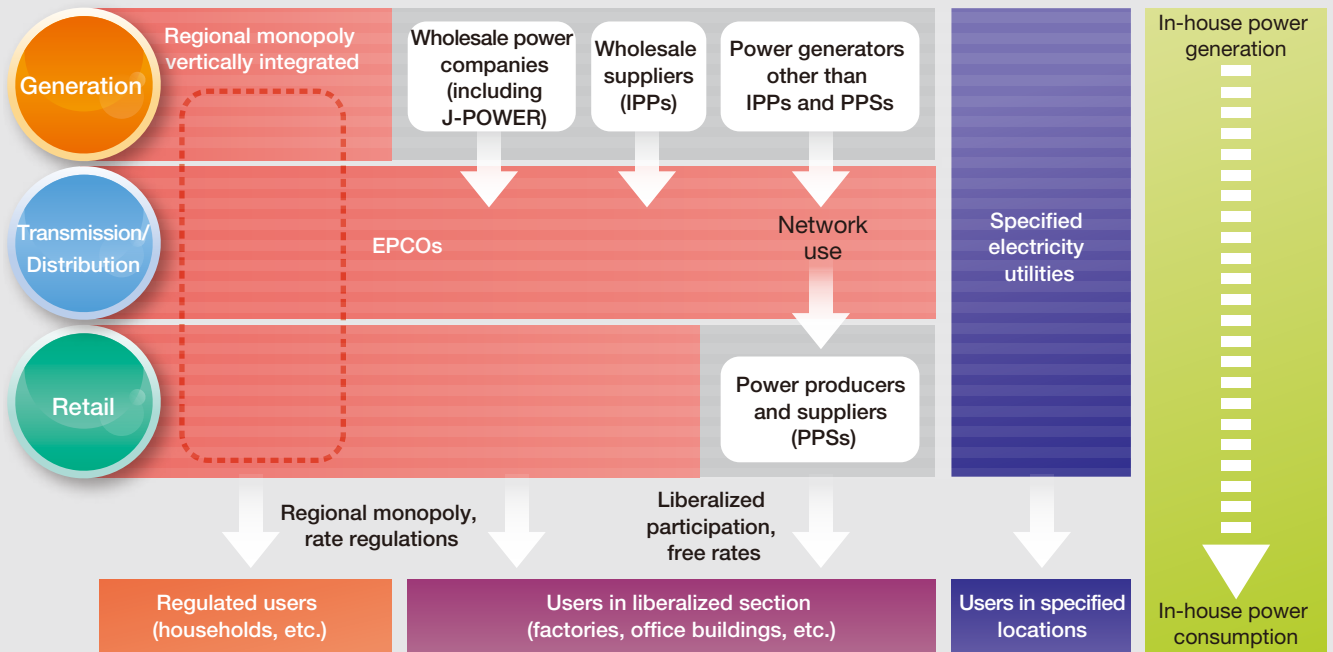
So far, based on the Policy on Electricity System Reform approved by the Cabinet in April 2013, the Electricity Business Act was amended in November 2013 and the Organization for Cross-regional Coordination of Transmission Operators (OCCTO) was established in April 2015. In line with the Electricity Business Act amendment of June 2014, entry into the retail market was fully liberalized and electricity wholesale regulations<sup>1</sup> abolished in April 2016. Furthermore, in June 2015, the Electricity Business Act was amended to include provisions for the legal unbundling of the transmission/distribution sector and the removal of transitional retail tariffs.<sup>2</sup>

Furthermore, the February 2017 Interim Report of the Policy Subcommittee for Acceleration of Electricity System Reform proposed the creation of a baseload power market to further stimulate competition and laid out basic revisions for interconnecting line usage rules. To help ensure consistency with energy policy and resolve public interest issues, the report also proposed the creation of new markets, including a capacity market, non-fossil value trading market, and supply-demand balancing market. The detailed design of these systems is now being worked out.

1. Rates for the supply of electricity to EPCOs in excess of set amounts or time frames were calculated on a cost basis and submitted to the Minister of Economy, Trade and Industry.  
 2. The full liberalization of retail rates for electricity will be implemented after the government has verified how much market competition has progressed.



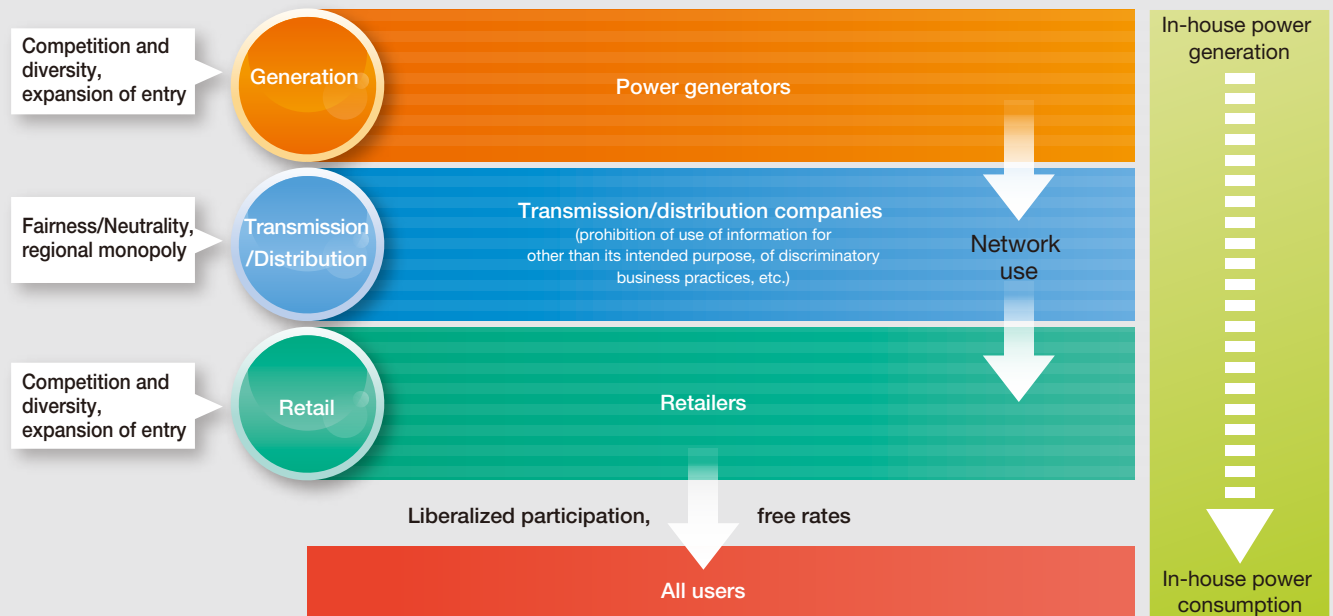
## Electric Power Supply System before April 2016



Source: "The Power Industry after Electricity System Reforms," Advisory Committee for Natural Resources and Energy



## Electricity Supply System after Reform



Source: "The Power Industry after Electricity System Reforms," Advisory Committee for Natural Resources and Energy

## Overview of the Ohma Nuclear Power Plant Construction Plans

Overview of the Ohma Nuclear Power Plant Plans	
Location	Ohma-machi, Shimokita-gun, Aomori Prefecture
Capacity	1,383 MW
Type of nuclear reactor	Advanced boiling water reactor (ABWR)
Fuel	Enriched uranium and uranium-plutonium mixed oxide (MOX)
Start of construction	May 2008
Start of operations	To be determined
Status	In December 2014, J-POWER submitted to the Nuclear Regulation Authority an application for permission to alter its reactor installment license as well as an application for construction plan approval in order to undergo a review of compliance with the new safety standards

## Measures to Design Basis Accidents

To confirm compliance with the new safety standards, in December 2014 J-POWER submitted an application for permission for alteration of the reactor installment license and an application for construction plan approval to the Nuclear Regulation Authority summarizing the details of measures to reinforce the safety of the Ohma Nuclear Power Plant.

We will implement all measures during construction to ensure that we build a safe power plant.

### 1. Measures to Design Basis Accidents

#### Earthquake Proofing

We adopted a new standard seismic motion based on the latest findings and other factors. The adopted standard seismic motion is a maximum acceleration of 650 cm/s<sup>2</sup> (previously 450 cm/s<sup>2</sup>). Earthquake-proof designs for buildings and other structures were adopted based on this standard seismic motion.

#### Tsunami Countermeasures

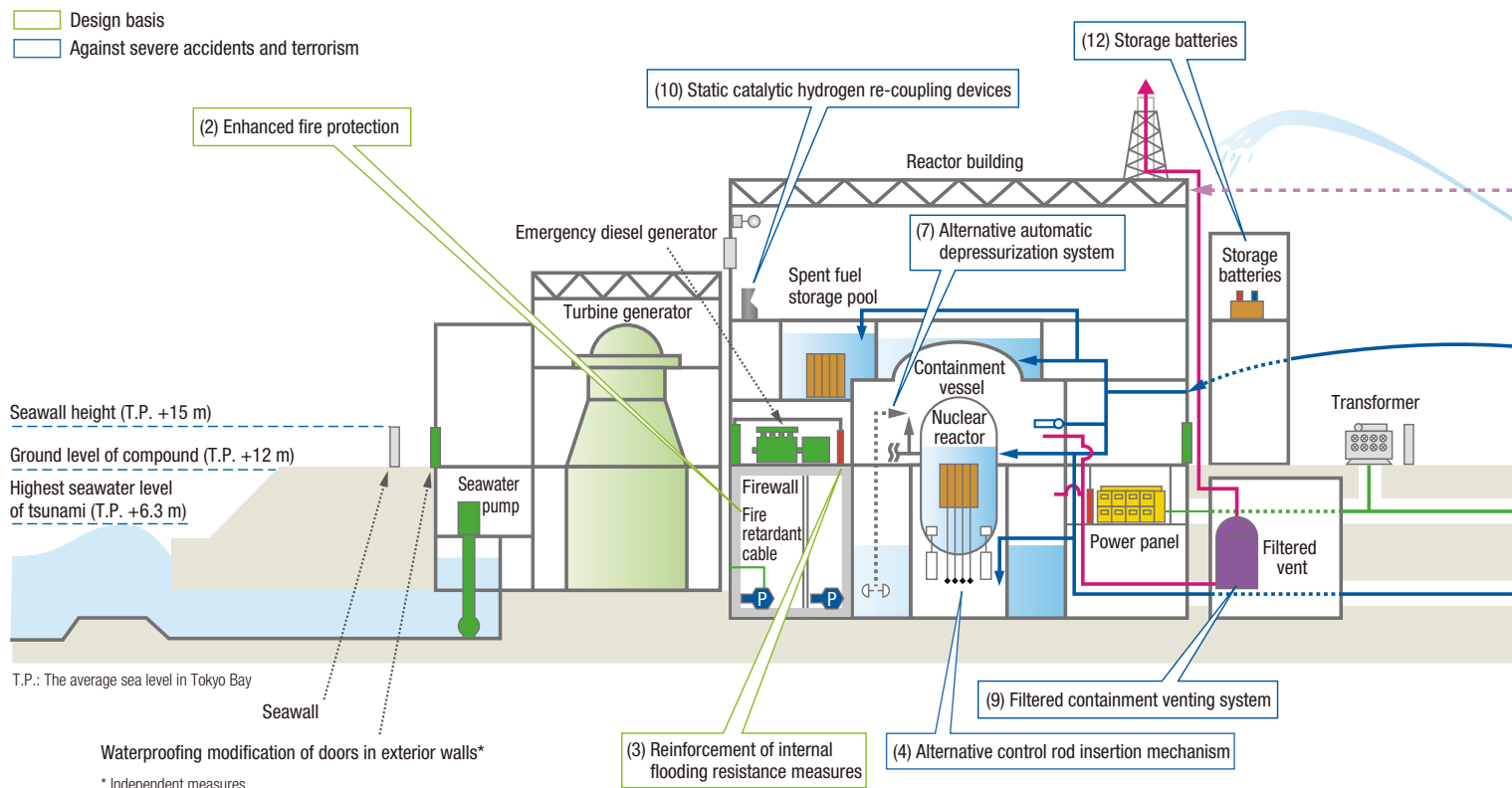
We also adopted the following design basis tsunami based on the latest findings. We estimated that the maximum height of a tsunami at the

site based on the following design basis tsunami is T.P. +6.3 m (previously +4.4 m), but the elevation of the power station site is T.P. +12 m, and consequently, there is no likelihood of a tsunami reaching and following into the site. From the perspective of enhancing confidence even further, we will implement independent measures including construction of seawalls and installation of waterproof exterior doors and so on.

#### Measures to Prevent Damage from External Impact

- (1) We assessed the impact of natural phenomena (volcanic eruptions, tornados, external fires, etc.) on the nuclear power station.

### Image of Measures to Reinforce Safety at Ohma Nuclear Power Plant



## Fire Protection

- (2) We will enhance fire protection measures including use of fire resistant cables and construction of firewalls.

## Internal Flooding Resistance Measures

- (3) We will reinforce resistance measures against leaks to protect facility functions in anticipation of damage to pipes within the facility.

## 2. Against Severe Accidents and Terrorism

To prevent damage to the nuclear reactor and containment vessel, we will implement the following measures.

### Measures to Prevent Core Damage and Containment Vessel Failure

- (4) Even in the case where nuclear reactor emergency shutdown equipment does not operate, an alternative control rod insertion mechanism that can be operated by separate circuits or manually will be installed to enable shutdown of the nuclear reactor.
- (5) Permanent alternative water injection facilities will be installed to cool the nuclear reactor, containment vessel, and spent fuel storage pool.
- (6) Mobile alternative water injection pumps will be available to cool the nuclear reactor, containment vessel, and spent fuel storage pool.
- (7) An alternative automatic depressurization system will be installed to reduce pressure in the nuclear reactor.
- (8) Heat exchanger units will be installed to release generated heat.
- (9) A filtered containment venting system<sup>1</sup> will be installed to prevent damage from excess pressure in the containment vessel.
- (10) Static catalytic hydrogen re-coupling devices<sup>2</sup> will be installed to prevent damage from hydrogen explosions in the reactor building.

- (11) Water spraying facilities will be installed to control the dispersion of radioactive material outside the power station.

### Reinforcement of Power and Water supplies

- (12) To ensure power supplies, air-cooled emergency generators and gas turbine generators will be installed, the capacity of existing storage batteries will be increased, additional batteries will be installed, and a power supply vehicle will be made available.
- (13) Water storage tanks will be installed to secure a water source necessary for resolution of severe accidents.

### Ensuring Support Functions of the Control Room

- (14) An emergency response office will be created to respond to severe accidents.
- (15) Communications facilities will be reinforced to ensure communications with necessary locations inside and outside the power station.
- (16) Mobile monitoring posts will be established to monitor, measure and record the concentration and radio-activity of radioactive material in the vicinity of the power station.

### Countermeasures against Intentional Aircraft Crashes

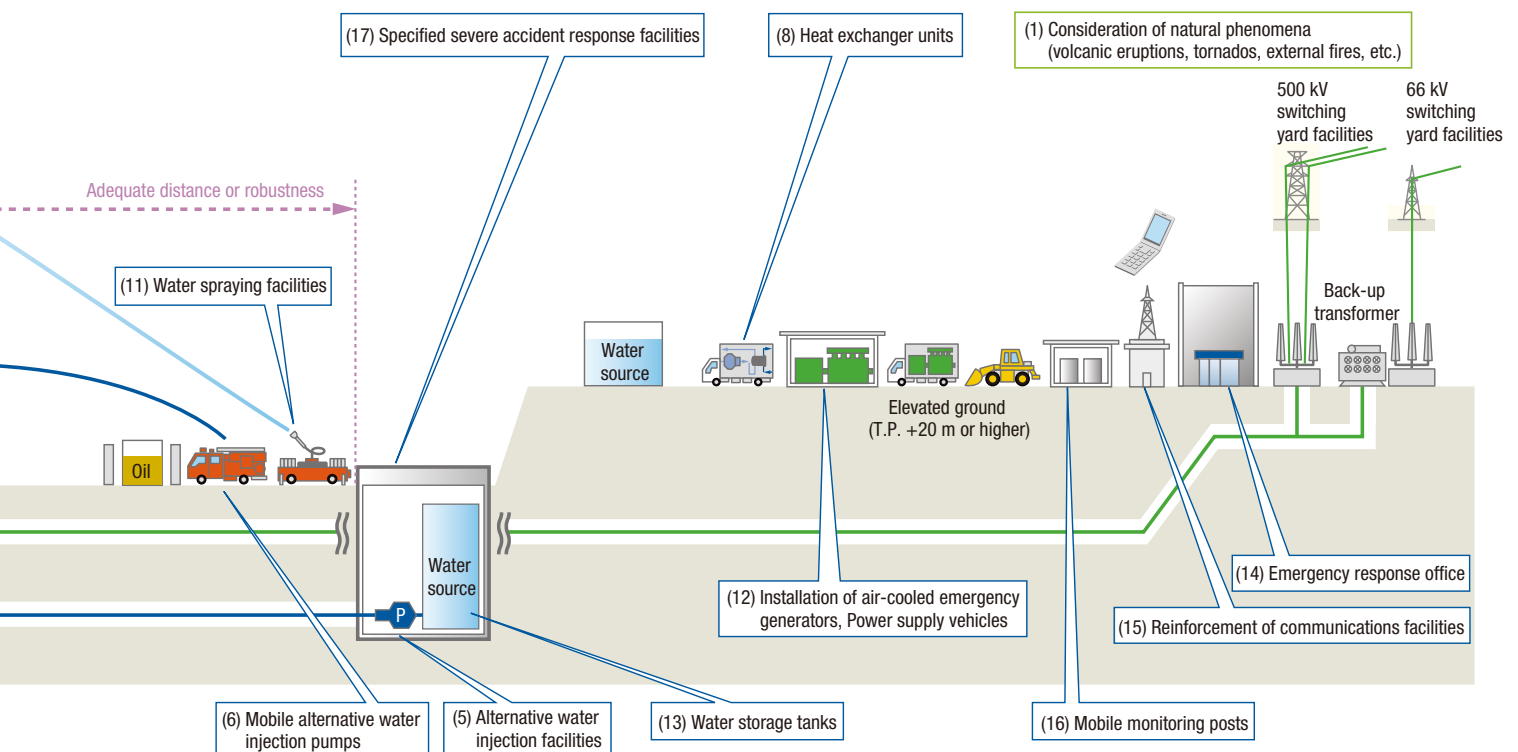
- (17) Specified severe accident response facilities will be established to control the abnormal external release of radioactive material in the event of the intentional crash of a large aircraft into the reactor buildings or other terrorist attacks.

#### 1. Filtered containment venting system:

A system that controls the release of radioactive material and releases steam from the containment vessel into the atmosphere in order to prevent damage to the containment vessel in the event of an excessive increase in pressure inside the nuclear reactor containment vessel.

#### 2. Static catalytic hydrogen re-coupling devices:

A system that uses a catalyst to cause a chemical reaction between hydrogen molecules and oxygen molecules to generate water vapor in order to prevent an increase in hydrogen concentration that could result in a hydrogen explosion in the event that damage to the reactor core occurs, causing hydrogen to leak inside the reactor building and the concentration of hydrogen to increase.



# Electric Power Business

## Renewable Energy (Hydroelectric Power)

### Overview of Operations and Salient Features

J-POWER boasts a track record in the building and operation of hydroelectric power plants that extends back more than half a century. Including the Sakuma Power Plant, which began operations in 1956 in a bid to solve postwar power shortages, J-POWER has developed many large-scale conventional hydroelectric power plants. Subsequently, from the 1970s onward, the Company developed large-scale pumped storage hydroelectric power plants, such as that at Shintoyone.

The salient features of hydroelectric power plants are that they are capable of changing output extremely quickly to respond to demand fluctuations and can cover peak demand in daily and seasonal supply-demand balancing in Japan's grid. Furthermore, for resource-poor Japan, hydroelectric power represents a valuable, purely domestic energy resource and, as a CO<sub>2</sub>-free power source, plays a central role in renewable energy.

In addition to continuing the efficient maintenance and management of existing hydroelectric power generation facilities, J-POWER is carrying out comprehensive renewals of its main power generating machinery to increase capacity and the power generated through optimal designs utilizing the latest technologies. J-POWER is also undertaking the development of small- to medium-scale hydroelectric power plants that utilize untapped hydroelectric resources in order to effectively utilize this precious resource to the maximum extent possible.



Sakuma Power Plant (Shizuoka Prefecture)

### Major Hydroelectric Power Plants (As of April 30, 2018)

Power Plants	Beginning of Operation	Location	Capacity (kW)	Type
Shimogo	1988	Fukushima Prefecture	1,000,000	Dam conduit type, pumped storage
Okutadami	1960	Fukushima Prefecture	560,000	Dam conduit type
Otori	1963	Fukushima Prefecture	182,000	Dam type
Tagokura	1959	Fukushima Prefecture	400,000	Dam type
Okukiyotsu	1978	Niigata Prefecture	1,000,000	Dam conduit type, pumped storage
Okukiyotsu No. 2	1996	Niigata Prefecture	600,000	Dam conduit type, pumped storage
Numappara	1973	Tochigi Prefecture	675,000	Dam conduit type, pumped storage
Shintoyone	1972	Aichi Prefecture	1,125,000	Dam conduit type, pumped storage
Sakuma	1956	Shizuoka Prefecture	350,000	Dam conduit type
Milboro	1961	Gifu Prefecture	215,000	Dam conduit type
Nagano	1968	Fukui Prefecture	220,000	Dam type, pumped storage
Tedorigawa No. 1	1979	Ishikawa Prefecture	250,000	Dam conduit type
Ikehara	1964	Nara Prefecture	350,000	Dam type, pumped storage
Sendaigawa No. 1	1965	Kagoshima Prefecture	120,000	Dam type

Note: Lists power plants with maximum output of 100,000 kW or more

### Major Hydroelectric Power Plant Projects

Project Name	Year Beginning Operation (Planned)	Location	Capacity (kW)
Shinkatsurazawa/Kumaoui	2022	Hokkaido Prefecture	21,900

## Renewable Energy (Geothermal)

### Overview of Operations and Salient Features

J-POWER is advancing the construction of new geothermal power plants. The Wasabizawa Geothermal Power Plant (capacity 42 MW) in Yuzawa City, Akita Prefecture, a joint venture with Mitsubishi Materials Corporation and Mitsubishi Gas Chemical Company, Inc., is currently under construction, and we are preparing to begin construction of the Appi Geothermal Power Plant (capacity 14.9 MW) in Hachimantai City, Iwate Prefecture. Operations are scheduled to commence at Wasabizawa Geothermal in May 2019 and at Appi Geothermal around the spring of 2024.

Furthermore, the Onikobe Geothermal Power Station, which had been in continuous operation for more than 40 years, was shut down on April 1, 2017, and an environmental assessment is currently being implemented for its intended 14.9 MW-class capacity replacement.



Appi Geothermal Power Plant (post-completion rendering)

## Renewable Energy (Wind Power)

### Overview of Operations and Salient Features

J-POWER is a pioneer in the wind power generation business, having commenced operations at its first wind farm in 2000. Since then, the Company has steadily expanded this business and, as of April 30, 2018, owns 22 wind farms (247 units) around the country, with a total output capacity of 444 MW (owned capacity: 439 MW), making it the second-largest wind power producer in the country. Drawing on its many years of experience, expertise, and technologies in the building, operation, and maintenance of power plants and transmission lines, the J-POWER Group has created a system that covers the full gamut of the wind power business, from surveys of wind conditions to wind farm design, construction, and operation and maintenance (O&M). Leveraging its diverse experience, J-POWER is making its O&M systems more efficient while working to improve utilization rates and enhance profitability. The feed-in tariff system took effect in 2012, and J-POWER has acquired facility accreditation under the system for both new and existing wind power facilities.

### New Site Development and Offshore Wind Power Initiatives

J-POWER is working toward the development of new capacity. J-POWER will continuously seek locations that possess wind conditions suitable for new facilities and steadily develop new projects in the years to come.

With regard to offshore wind power, a consortium that includes the Company has been selected as preferred bidder following a public tender for the installer and operator of the Hibikinada Offshore Wind Farm off the coast of Kitakyushu in Fukuoka Prefecture. In the years to come, we will be conducting surveys on the wind conditions and marine areas toward the commercialization of offshore wind power generation in Hibikinada.



Yurihonjo Bayside Wind Farm (Akita Prefecture)

### Wind Power Projects (As of April 30, 2018)

Wind Farms/Plants	Operating Companies	Location	(Number of Wind Turbines)	Capacity (kW)	Ownership	Beginning of Operation <sup>1</sup>
Sarakitomanai Wind Farm	J-Wind Co., Ltd.	Hokkaido Prefecture	(9)	14,850	100%	2001 (2009)
Tomamae Winvilla Wind Farm	J-Wind Co., Ltd.	Hokkaido Prefecture	(19)	30,600	100%	2000
Shimamaki Wind Farm	J-Wind Co., Ltd.	Hokkaido Prefecture	(6)	4,500	100%	2000 (2009)
Setana Seaside Wind Farm	J-Wind Co., Ltd.	Hokkaido Prefecture	(6)	12,000	100%	2005
Kaminokuni Wind Farm	J-Wind Co., Ltd.	Hokkaido Prefecture	(12)	28,000	100%	2014
Ohma Wind Farm	J-Wind Co., Ltd.	Aomori Prefecture	(9)	19,500	100%	2016
Green Power Kuzumaki Wind Farm	J-Wind Co., Ltd.	Iwate Prefecture	(12)	21,000	100%	2003
Yurihonjo Bayside Wind Farm	Yurihonjo Wind Power Co., Ltd.	Akita Prefecture	(7)	16,100	100%	2017
Nikaho Kogen Wind Farm	J-Wind Co., Ltd.	Akita Prefecture	(15)	24,750	100%	2001
Koriyama-Nunobiki Kogen Wind Farm	J-Wind Co., Ltd.	Fukushima Prefecture	(33)	65,980	100%	2007
Hiyama Kogen Wind Farm	J-Wind Co., Ltd.	Fukushima Prefecture	(14)	28,000	100%	2011
Tokyo Bayside Wind Power	J-Wind Co., Ltd.	Tokyo metropolitan area	(2)	1,700	100%	2003
Irouzaki Wind Farm	J-Wind Co., Ltd.	Shizuoka Prefecture	(17)	34,000	100%	2010
Tahara Bayside Wind Farm	J-Wind Co., Ltd.	Aichi Prefecture	(11)	22,000	100%	2005
Tahara Wind Farm	J-Wind Co., Ltd.	Aichi Prefecture	(1)	1,980	100%	2004
Awara-Kitagata Wind Farm	J-Wind Co., Ltd.	Fukui Prefecture	(10)	20,000	100%	2011
Yokihi no Sato Wind Park	J-Wind Co., Ltd.	Yamaguchi Prefecture	(3)	4,500	100%	2003 (2009)
Minami Ehime Wind Farm	J-Wind Co., Ltd.	Ehime Prefecture	(12)	28,500	100%	2015
Nagasaki-Shikamachi Wind Farm	Nagasaki-Shikamachi Wind Power Co., Ltd.	Nagasaki Prefecture	(15)	15,000	70%	2005
Aso-Nishihara Wind Farm	J-Wind Co., Ltd.	Kumamoto Prefecture	(10)	17,500	100%	2005
Aso-Oguni Wind Farm	J-Wind Co., Ltd.	Kumamoto Prefecture	(5)	8,500	100%	2007 (2009)
Minami Oosumi Wind Farm	Minami Kyushu Wind Power Co., Ltd.	Kagoshima Prefecture	(19)	24,700	99%	2003 (Nejime) (2009) 2004 (Sata) (2009)
<b>Domestic total</b>			<b>(247)</b>	<b>443,660</b>		
Zajaczkowo Wind Farm	Zajaczkowo Windfarm Sp. zo. o.	Poland	(24)	48,000	50%	2008
<b>Total including overseas</b>			<b>(271)</b>	<b>491,660</b>		

1. The year when J-POWER purchased its current holdings of shares from other companies.

## Thermal Power

### Overview of Operations and Salient Features

J-POWER's domestic thermal power operations center on coal-fired thermal power generation. In 1963, J-POWER's first coal-fired thermal power plant commenced operations in line with Japan's policy at the time of using domestically produced coal. Following the oil shocks of the 1970s, the Company responded to government plans to diversify the mix of power sources, which had been centered on oil-fired thermal power generation. In 1981, J-POWER began operations at the Matsushima Thermal Power Plant, the first in Japan fueled with imported coal. J-POWER went on to develop a series of large-scale coal-fired thermal power plants—such as those at Matsuura and Tachibanawan—that run on imported coal, increasing the scale of its business. The Company has continued to improve power generation efficiency by enhancing steam conditions and scaling up plants in its efforts to improve competitiveness and decrease environmental impact. Providing an economical and stable baseload source of electricity, J-POWER's coal-fired thermal power plants maintain high load factors.



Tachibana Thermal Power Plant

### Coal-Fired Thermal Power Plants (As of April 30, 2018)

Plant Name		Beginning of Operation	Location	Capacity (kW)
Isogo	New No. 1	2002	Kanagawa Prefecture	600,000
	New No. 2	2009		600,000
Takasago	No. 1	1968	Hyogo Prefecture	250,000
	No. 2	1969		250,000
Takehara	No. 2	1974*	Hiroshima Prefecture	350,000
	No. 3	1983		700,000
Tachibanawan	No. 1	2000	Tokushima Prefecture	1,050,000
	No. 2	2000		1,050,000
Matsushima	No. 1	1981	Nagasaki Prefecture	500,000
	No. 2	1981		500,000
Matsuura	No. 1	1990	Nagasaki Prefecture	1,000,000
	No. 2	1997		1,000,000
Ishikawa Coal	No. 1	1986	Okinawa Prefecture	156,000
	No. 2	1987		156,000
<b>Total</b>				<b>8,162,000</b>

\*Converted from heavy oil-fueled boiler to coal-fueled fluidized boiler in 1995

### Other J-POWER Thermal Power Plants (As of April 30, 2018)

Plant Name	Operating Companies	Location	Capacity (kW)	Fuel Type	Ownership	Beginning of Operation
Bayside Energy Ichihara	Bay Side Energy Co., Ltd.	Chiba Prefecture	107,650	Gas <sup>1</sup>	100%	2005
Mihama Seaside Power Shinminato	Mihama Seaside Power Co., Ltd.	Chiba Prefecture	104,770	Gas <sup>1</sup>	100%	2005
Itoigawa	ITOIGAWA POWER Inc.	Niigata Prefecture	149,000	Coal	64% TAIHEIYO CEMENT CORPORATION <sup>2</sup>	2001 (2003) <sup>3</sup>
Tosa	TOSA POWER Inc. <sup>4</sup>	Kochi Prefecture	167,000	Coal	45% Shikoku Electric Power Co., Inc. 35% <sup>2</sup> TAIHEIYO CEMENT CORPORATION 20% <sup>2</sup>	2005
Genex Mizue	GENEX Co., Ltd. <sup>4</sup>	Kanagawa Prefecture	238,000	Gas Oil Residue	40% TOA Oil Co., Ltd. <sup>2</sup>	2003
<b>Subtotal</b>			<b>766,420</b>			

1. Generation method: combined cycle 2. Partners 3. Date of investment participation by J-POWER 4. Equity-method affiliates



## Replacement and New Capacity Projects

To contribute to the stable supply of electricity in Japan over the medium-to-long term, J-POWER is promoting new coal-fired thermal power projects to replace aging thermal power plants and develop new power plants. These projects will commence operations after the abolition of wholesale regulations that has been implemented as part of

Japan's electricity system reform. As a result, unlike the coal-fired thermal power plants J-POWER has developed in the past, the terms of their business contracts, such as who they sell to and at what rates, will not be restricted by said regulations.

### New Coal-Fired Power Projects in Japan

#### Takehara Thermal Power Plant Unit New No. 1 (Replacement)

Location	Takehara City, Hiroshima Prefecture
Status	Under construction for replacement
Start of operations	Scheduled for June 2020
Capacity	600 MW → 600 MW (Replacement at the same capacity)
Steam conditions	Sub-critical → Ultra-supercritical



Takehara Thermal Power Plant Unit New No. 1 (post-completion rendering)

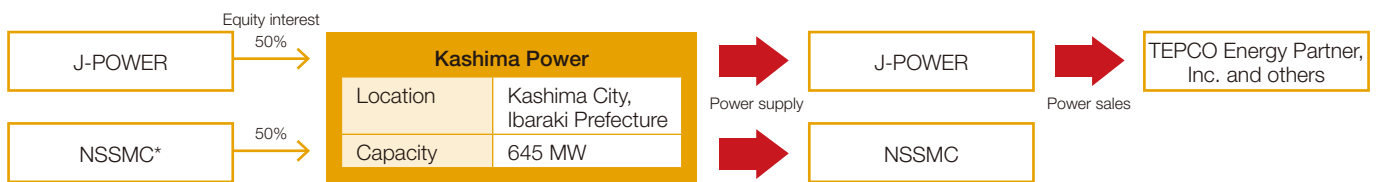


Under construction for replacement

#### Kashima Power (New Capacity)

✓ Status: Under construction (construction started November 2016)

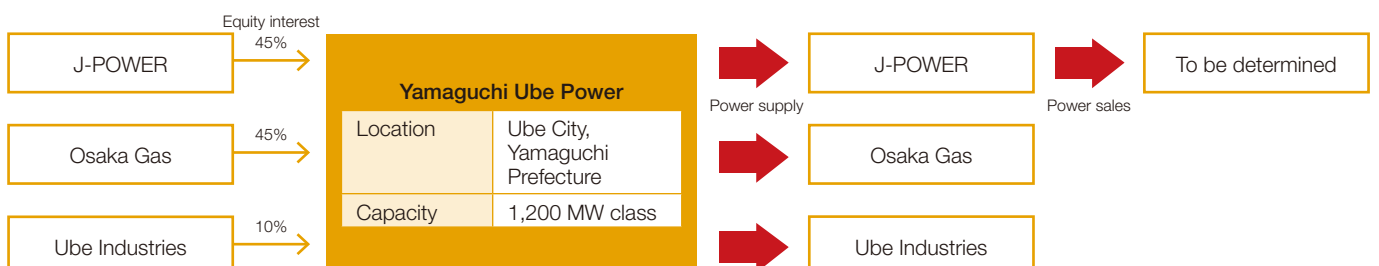
✓ Start of operation scheduled for July 2020



\* Nippon Steel & Sumitomo Metal Corporation

#### Yamaguchi Ube Power (New Capacity)

✓ Status: Implementing environmental assessment



# Electric Power Business

## Transmission/Transformation

### Overview of Operations and Salient Features

J-POWER is an electricity transmission utility that owns and operates approximately 2,400 km of transmission lines and nine substations and converter stations throughout Japan. In addition to transmitting electric power generated by its own power plants to demand areas, J-POWER provides sections of the grids of the electric power companies and connects them to one another, fulfilling a major role in the nationwide operation of Japan's overall power grid.

In particular, we operate critical facilities that support wide-area power interchange in Japan, such as interconnection lines (Hokkaido-Honshu HVDC Interconnection Line, Honshu-Shikoku Interconnection Line, Kii Channel HVDC Interconnection Line and Kanmon Interconnection Line) connecting Honshu with Hokkaido, Shikoku, and Kyushu as well as the Sakuma Frequency Converter Station, which connects the different frequencies of eastern Japan (50 Hz) and western Japan (60 Hz). J-POWER's transmission/transformation facilities helped alleviate the strained regional electricity supply conditions that followed the Great East Japan Earthquake. The Company will maintain the reliability of facilities and focus efforts on ensuring stable operations. J-POWER also maintains

a communications network throughout Japan that is used for facility protection, monitoring, and control as well as operational management to contribute to the operation of the power plants and the power grid.

Furthermore, in June 2016, the Organization for Cross-regional Coordination of Transmission Operators published its Cross-Regional Network Development Plan, which includes plans for increasing the capacity of the Sakuma Frequency Converter Station. J-POWER has been chosen to implement this plan. Accordingly, in line with government policy requirements and the purpose of the plan—to ensure the stable supply of electric power—the Company is advancing detailed examinations in preparation for construction.



Sakuma Frequency Converter Station

### Major Transmission Lines (As of April 30, 2018)

Major Transmission Lines	Beginning of Operation	Location	Distance	Voltage
Tokachi Trunk Line	1956	Hokkaido Prefecture	214.4 km	187 kV
Hokkaido-Honshu HVDC Interconnection Line	1979	Hokkaido Prefecture – Aomori Prefecture	167.4 km	DC±250 kV
Tadami Trunk Line	1959	Fukushima Prefecture – Tokyo metropolitan area	216.2 km	275kV-500 kV
Sakuma East Trunk Line	1956	Shizuoka Prefecture – Tokyo metropolitan area	197.2 km	275 kV
Sakuma West Trunk Line	1956	Shizuoka Prefecture – Aichi Prefecture	107.7 km	275 kV
Miboro Trunk Line	1960	Gifu Prefecture – Aichi Prefecture	108.6 km	275 kV
Honshu-Shikoku Interconnection Line	1994	Kagawa Prefecture – Okayama Prefecture	127.0 km	500 kV
Kii Channel HVDC Interconnection Line	2000	Tokushima Prefecture – Wakayama Prefecture	99.8 km	DC±250 kV
Nahari Trunk Line	1960	Kochi Prefecture – Ehime Prefecture	120.0 km	187 kV
Kanmon Interconnection Line	1980	Fukuoka Prefecture – Yamaguchi Prefecture	64.2 km	500 kV

### Substations (As of April 30, 2018)

Substations	Beginning of Operation	Location	Output
Isawa	2012	Iwate Prefecture	9,000 kVA
Minami Kawagoe	1959	Saitama Prefecture	1,542,000 kVA
Nishi Tokyo	1956	Tokyo metropolitan area	1,350,000 kVA
Nagoya	1956	Aichi Prefecture	1,400,000 kVA

### Frequency Converter Station (As of April 30, 2018)

Frequency Converter Station	Beginning of Operation	Location	Output
Sakuma	1965	Shizuoka Prefecture	300,000 kW

### AC/DC Converter Stations (As of April 30, 2018)

AC/DC Converter Stations	Beginning of Operation	Location	Output
Hakodate	1979	Hokkaido Prefecture	600,000 kW
Kamikita	1979	Aomori Prefecture	600,000 kW
Kihoku	2000	Wakayama Prefecture	1,400,000 kW
Anan	2000	Tokushima Prefecture	1,400,000 kW

# Electric Power-Related Business

## Overview of Operations and Salient Features

J-POWER operates electric power-related businesses that support the smooth and efficient implementation of its electric power business. Specifically, these businesses are required for the operation of power generation, transmission, and transformation facilities and include the

design, construction, inspection, and maintenance of said facilities as well as the import of coal. J-POWER maintains the power generation facilities of its domestic wholesale electric power business in close partnership with its subsidiaries.

## Coal Procurement

J-POWER procures fuel coal primarily from Australia and Indonesia. In Australia, the Company owns interests in three coal mining projects through subsidiaries.

Global supply and demand in the coal market can vary greatly due to demand from developing countries, including China and India, trends related to energy resources other than coal, such as liquefied

natural gas (LNG), and other geopolitical factors. In view of this, J-POWER maintains an upstream presence, namely the ownership of coal mines, and secures diversified procurement sources, thereby ensuring the stable procurement of coal as fuel for thermal power generation over the long term.



## Coal Mining Projects (As of April 30, 2018)

Mine Name	Location	Loading Port	2017 Production Volume <sup>1</sup>	Investment Ratio <sup>2</sup>	Beginning of Commercial Production
Clermont	Queensland	Dalrymple Bay	11.37 million t	15%	2010
Narrabri	New South Wales	Newcastle	6.64 million t	7.5%	2012
Maules Creek	New South Wales	Newcastle	9.22 million t (Approx. 10.7 million t/yr)	10%	2014

1. The production volume in parentheses is the figure for anticipated peak production.  
 2. Investment through a subsidiary, J-POWER AUSTRALIA PTY. LTD.

# Overseas Business

## Overview of Operations and Salient Features

Since 1960, J-POWER has undertaken consulting business around the world, including work related to environmental impact assessments, the adoption of desulfurization, denitrification, and other environmental technologies in coal-fired thermal power generation, and the planning, design, and construction supervision of thermal and hydroelectric power and transmission and transformation projects. In 1997, amid the ongoing deregulation of electric power industries around the world, J-POWER established a dedicated in-house organization and commenced activities that led to the development of an overseas power generation business that participates in projects by investing capital and technologies in overseas markets where strong demand growth is expected.

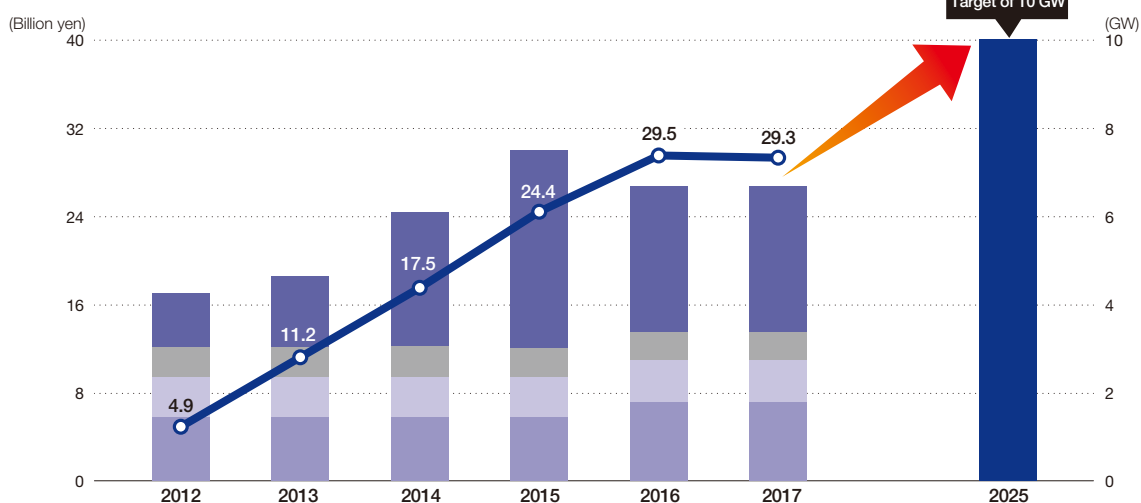
At first, the focus of this business was on participation based on a model of partial involvement in the building and operation of power plants through comparatively small-scale capital investment. Operating

in an intensely competitive environment, the Company steadily built up its experience and track record and expanded its business participation to major capital investment and greenfield projects. In Thailand, J-POWER initiated business participation in 2000, and operations at the large-scale gas combined cycle Kaeng Khoi 2 Power Plant commenced in 2007. Furthermore, beginning in 2013, gas-fired thermal power plants came on stream as SPP\* and IPP projects through Thai consolidated subsidiaries in which J-POWER is the major investor.

In addition, having launched a local subsidiary and started full-scale business development in the United States in 2005, J-POWER commenced its first commercial operations of a U.S. greenfield project, the Orange Grove Power Plant, in 2010.

\* SPP (Small Power Producers) program: A long-term power purchase scheme established by the Thai government. This scheme promotes cogeneration systems, renewable energy, and similar technologies, and is aimed at reducing the import and use of fuel oil. EGAT guarantees the purchase of electricity generated from eligible suppliers up to 90 MW of capacity.

### Track Record in Overseas Business



Owned capacity<sup>1</sup> (right scale) ■ The United States ■ China ■ Other ■ Thailand ● Segment Income<sup>2</sup> (left scale)  
 1. Owned capacity is calculated by multiplying the capacity of the facility by J-POWER's investment ratio.  
 2. To better indicate the actual status of segment income, foreign exchange gains and losses are excluded from figures for the Overseas business (overseas power generation business, etc.).

## Project Development and New Development Projects at Consolidated Subsidiaries in Thailand

Through its Thai consolidated subsidiaries, J-POWER has significantly expanded the scale of its overseas power generation assets by completing several large-scale gas-fired thermal projects. These projects included seven 100 MW class gas-fired thermal power projects (7 SPP projects) completed in line with the Thai government's SPP program and two large-scale, gas fired IPP projects (1,600 MW each).

Currently, J-POWER is working on the Central Java Project (2,000 MW) in Indonesia, and construction is proceeding smoothly toward the

start of operations in 2020. In the United States, in addition to acquiring an additional interest in the Elwood Energy Project (1,350 MW) in November 2016 (owned capacity increased from 25% to 50%), the Company acquired a new interest in the Tenaska Westmoreland thermal power plant project that is currently under construction. Going forward, we will aggressively promote our overseas power generation business with the aim of realizing overseas owned capacity of 10 GW in 2025, a target under the Medium-Term Management Plan.

## Current Status of New Projects

With the completion of multiple large-scale gas-fired projects in Thailand, the overseas power generation business has expanded greatly over the past several years.

Currently, construction of the Central Java project in Indonesia is progressing smoothly, and we expect to begin operations in 2020.

In the United States, we made two equity interest acquisitions in fiscal 2017. The first was an additional interest in the gas-fired Elwood

Energy Power Plant, located in the PJM market, the most developed electricity market in the country. The second was an equity interest in the gas-fired Westmoreland Power Plant, which is under construction and scheduled to commence operations in 2018.

In addition to the above, J-POWER is considering a number of other opportunities, working to quickly move forward with high-quality projects as it aims for 10 GW in overseas capacity.

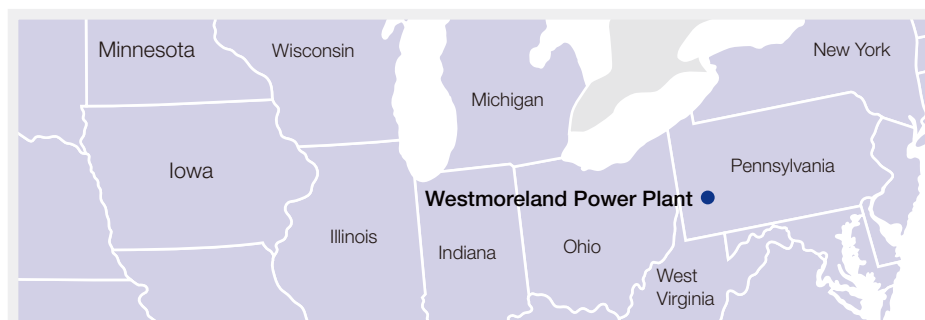
### Central Java (Indonesia)

Capacity:	2,000 MW (1,000 MW x 2)
Type:	Coal (USC)
Ownership:	34%
Status:	Under construction
Start of operation No. 1:	Jun. 2020
No. 2:	Dec. 2020



### Westmoreland (The United States)

Capacity:	926 MW
Type:	CCGT*
Ownership:	25%
Status:	Under construction
Start of operation:	2018



\* CCGT: Combined Cycle Gas Turbine

## Entering the Overseas Offshore Wind Power Generation Business

J-POWER will acquire 25% of the shares in Triton Knoll HoldCo Ltd., a U.K.-based offshore wind power business holding company wholly owned by Innogy Renewables UK Ltd., which is itself a wholly owned subsidiary of Innogy SE, a German company engaged in renewable energy and electric power distribution businesses. Through this acquisition, J-POWER will take part in an overseas offshore wind power generation project from the construction phase onward, engaging in the

construction, operation, and maintenance of the Triton Knoll offshore wind power farm in the North Sea off the east coast of England.

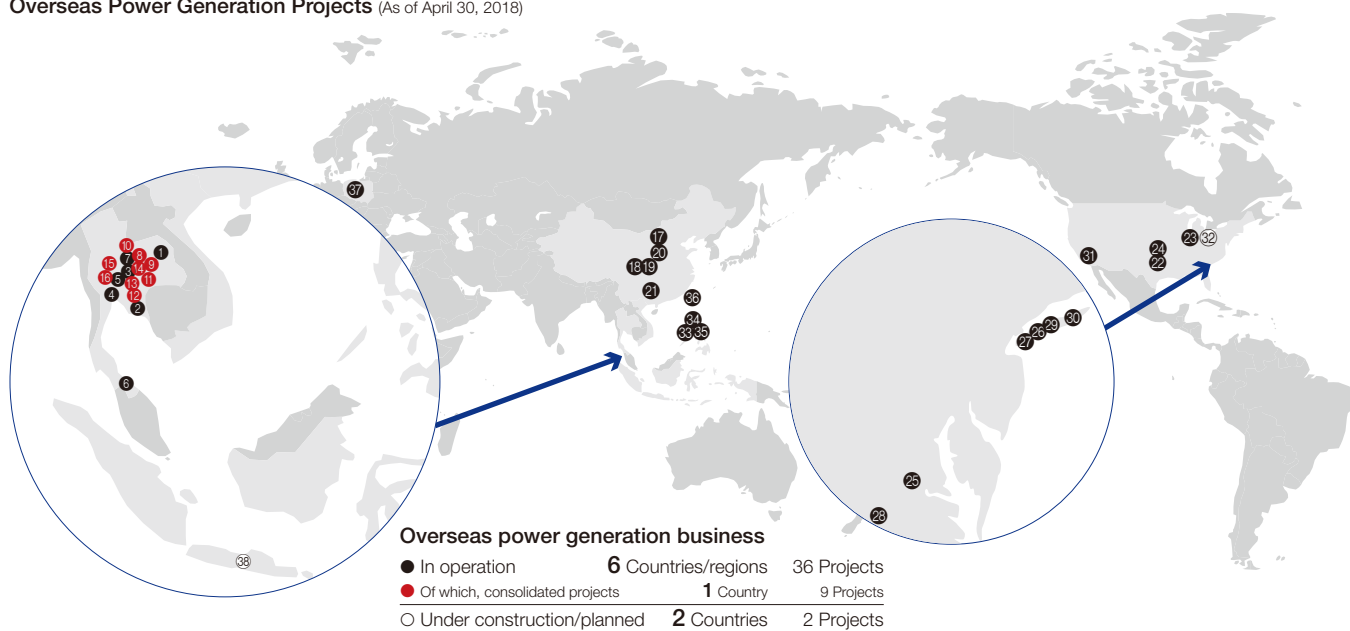
J-POWER believes that its participation in this project will provide it with expertise in the construction, maintenance, and operation of offshore wind power farms. Leveraging this expertise, J-POWER will accelerate its renewable energy initiatives in Japan and around the world.

### Triton Knoll Offshore Wind Power Farm (United Kingdom)

Capacity:	860 MW (9.5 MW x 90)
Type:	Offshore wind power
Ownership:	25%
Status:	Under construction
Start of operation :	2021



Overseas Power Generation Projects (As of April 30, 2018)



Current Status	Project Name	Generation Type	Capacity (MW)	Ownership	Power Purchaser	Validity of PPA		
<b>Thailand</b>								
Non-Consolidated	1	Roi-Et	Biomass (Chaff)	10	24.7%	Electricity Generating Authority of Thailand	Valid to 2024	
	2	Rayong	Gas (Combined Cycle) <sup>1</sup>	112	20%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2024	
	3	Gulf Cogeneration (Kaeng Khoi)	Gas (Combined Cycle) <sup>1</sup>	110	49%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2019	
	4	Samutprakarn	Gas (Combined Cycle) <sup>1</sup>	117	49%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2020	
	5	Nong Khae	Gas (Combined Cycle) <sup>1</sup>	120	49%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2021	
	6	Yala	Biomass (Rubber Wood Waste)	20	49%	Electricity Generating Authority of Thailand	Valid to 2031	
	7	Kaeng Khoi 2	Gas (Combined Cycle) <sup>1</sup>	1,468	49%	Electricity Generating Authority of Thailand	Valid to 2033	
<b>Subtotal 7 projects</b>			<b>1,957 (Owned capacity: 924 MW)</b>					
In operation	Consolidated	8	KP1 <sup>2</sup>	Gas (Combined Cycle) <sup>1</sup>	110	60%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2038
		9	KP2 <sup>2</sup>	Gas (Combined Cycle) <sup>1</sup>	110	60%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2038
		10	TLC <sup>2</sup>	Gas (Combined Cycle) <sup>1</sup>	110	60%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2038
		11	NNK <sup>2</sup>	Gas (Combined Cycle) <sup>1</sup>	110	60%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2038
		12	NLL <sup>2</sup>	Gas (Combined Cycle) <sup>1</sup>	120	45%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2038
		13	CRN <sup>2</sup>	Gas (Combined Cycle) <sup>1</sup>	110	60%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2038
		14	NK2 <sup>2</sup>	Gas (Combined Cycle) <sup>1</sup>	120	60%	Electricity Generating Authority of Thailand/ Companies in the industrial park	Valid to 2038
		15	Nong Saeng	Gas (Combined Cycle) <sup>1</sup>	1,600	60%	Electricity Generating Authority of Thailand	Valid to 2039
		16	U-Thai	Gas (Combined Cycle) <sup>1</sup>	1,600	60%	Electricity Generating Authority of Thailand	Valid to 2040
<b>Subtotal 9 projects</b>			<b>3,990 (Owned capacity: 2,376 MW)</b>					
<b>Thailand Total 16 projects</b>			<b>5,947 (Owned capacity: 3,300 MW)</b>					

1. Combined cycle generating system which uses a gas turbine and a steam turbine driven by the exhaust gas from the gas turbine.  
 2. 7 SPPs project commenced operation in 2013.



Nong Saeng (Thailand)



Green Country (USA)

Current Status	Project Name	Generation Type	Capacity (MW)	Ownership	Power Purchaser	Validity of PPA	
<b>China</b>							
In operation	17	Tianshi	Low-Grade Coal Coal Waste	50	24%	Shanxi Province Power Corporation	Renewed every year <sup>4</sup>
	18-19	Hanjiang (Xihe/Shuhe)	Hydroelectric	450	27%	Shaanxi Electric Power Company	Renewed every year <sup>4</sup>
	20	Gemeng <sup>3</sup>	Mainly Coal	6,504	7%	Shanxi Province Power Corporation	—
	21	Hezhou	Coal	2,090	17%	Guangxi Power Grid Co.	Renewed every year <sup>4</sup>
	<b>Subtotal 5 projects</b>			<b>9,094 (Owned capacity: 944 MW)</b>			
<b>The United States</b>							
In operation	22	Tenaska Frontier	Gas (Combined Cycle) <sup>1</sup>	830	31%	Exelon Generation Company, LLC	Valid to 2020
	23	Elwood Energy	Gas (Simple Cycle)	1,350	50%	PJM market	—
	24	Green Country	Gas (Combined Cycle) <sup>1</sup>	795	50%	Exelon Generation Company, LLC	Valid to 2022
	25	Birchwood	Coal	242	50%	Virginia Electric and Power Company	Valid to 2021
	26	Pinelawn	Gas (Combined Cycle) <sup>1</sup>	80	50%	Long Island Power Authority	Valid to 2025
	27	Equus	Gas (Simple Cycle)	48	50%	NYISO Market	—
	28	Fluvanna	Gas (Combined Cycle) <sup>1</sup>	885	15%	Shell Energy North America	Valid to 2024
	29	Edgewood	Gas (Simple Cycle)	88	50%	Long Island Power Authority	Valid to 2018
	30	Shoreham	Jet Fuel (Simple Cycle)	90	50%	Long Island Power Authority	Valid to 2020
	31	Orange Grove	Gas (Simple Cycle)	96	50%	San Diego Gas & Electric	Valid to 2035
<b>Subtotal 10 projects</b>			<b>4,504 (Owned capacity: 1,785 MW)</b>				
Under construction	32	Westmoreland	Gas (Combined Cycle) <sup>1</sup>	926	25%	PJM market	
<b>Other Countries/Region</b>							
In operation	33-35	CBK (Philippines) (3 projects)	Hydroelectric	728	50%	National Power Corporation	Valid to 2026
	36	Chiahui (Taiwan)	Gas (Combined Cycle) <sup>1</sup>	670	40%	Taiwan Power Company	Valid to 2028
	37	Zajaczkowo (Poland)	Wind Power	48	50%	ENERGA OBROT S.A.	Valid to 2023
<b>Subtotal 5 projects</b>			<b>1,446 (Owned capacity: 656 MW)</b>				
Under construction	38	Central Java (Indonesia)	Coal	2,000	34%	PT PLN	25 years

3. Gemeng International Energy Co., Ltd., is an electric power company that owns 14 power generation companies.

4. Although power purchase agreements are renewed every year, J-POWER makes other agreements with power purchasers for continuous power purchase during operations.

# Other Business

## Overview of Operations and Salient Features

Aiming to fully utilize the management resources and know-how at its disposal, J-POWER operates multifaceted businesses, including environment-related businesses involving the production of solid fuel from sewage sludge for use as biomass fuel at coal-fired thermal power

plants. In addition, J-POWER is active in innovative power businesses, such as waste power generation and cogeneration systems, and provides technical consulting services in Japan.

### Main Projects under Other Business (As of April 30, 2018)

Project Name	Location	Business	Ownership (%)	Year Operation Commenced
Kanamachi Filtration Plant PFI <sup>1</sup> Business	Tokyo metropolitan area	Cogeneration at Kanamachi Filtration Plant of Tokyo metropolitan government's bureau (Gas turbine generator, capacity: 12.28 MW)	20%	2000
Narumi Plant PFI <sup>1</sup> Business	Aichi Prefecture	Maintenance and operation at Narumi Plant in Nagoya (General waste processing capacity: 530 t/day)	11%	2009
Miyazaki Wood Pellet Project	Miyazaki Prefecture	Demonstration business of an integrated system from manufacturing wood pellets from unused forest offcut, including construction of manufacturing facilities, up to the use of pellets for mixed combustion in J-POWER's coal-fired thermal power plants (Pellet production capacity: 25,000 t/year)	98.3%	2011
Hiroshima City Seibu Water Reclamation Center/Sewage Sludge Fuel Project	Hiroshima Prefecture	Integrated DBO-type <sup>2</sup> sewage sludge-based biofuels recycling project, from the construction of biofuel manufacturing facilities to mixed combustion in J-POWER's coal-fired thermal power plants (Sludge processing capacity: 100 t/day)	33.8%	2012
Kumamoto Sewage Sludge Solid Fuel Project	Kumamoto Prefecture	Integrated DBO-type <sup>2</sup> sewage sludge-based biofuels recycling project, from the construction of biofuel manufacturing facilities to mixed combustion in J-POWER's coal-fired thermal power plants and others (Sludge processing capacity: 50 t/day)	44%	2013
Osaka City Hirano Sewage Treatment Plant/Sludge Solid Fuel Project	Osaka Prefecture	Integrated PFI-type <sup>1</sup> sewage sludge-based biofuels recycling project, from the construction of biofuel manufacturing facilities to mixed combustion in J-POWER's coal-fired thermal power plants and others (Sludge processing capacity: 150 t/day)	60%	2014
Omuta Waste-Fueled Power Plant	Fukuoka Prefecture	Recycling power generation using solid fuel (RDF: Refuse derived fuel) made by compressing and forming general waste (Generating capacity: 20.6 MW, RDF processing capacity: 315 t/day)	45.2%	2002
Katsuragawa Right Bank Regional Sewerage/Rakusai Sewage Treatment Plant/Sewage Sludge Solid Fuel Project	Kyoto Prefecture	Integrated DBO-type <sup>2</sup> sewage sludge-based biofuels recycling project, from the construction of biofuel manufacturing facilities to mixed combustion in J-POWER's coal-fired thermal power plants and others (Sludge processing capacity: 50 t/day)	49%	2017
Mikasagawa-Nakagawa Regional Sewerage/Mikasagawa Sewage Treatment Plant/Sewage Sludge Solid Fuel Project	Fukuoka Prefecture	Integrated DBO-type <sup>2</sup> sewage sludge-based biofuels recycling project, from the construction of biofuel manufacturing facilities to mixed combustion in J-POWER's coal-fired thermal power plants and others (Sludge processing capacity: 100 t/day)	—	2019 (Planned)

1. PFI (Private Finance Initiative): The method of conducting public-sector projects from construction through the operating stages by drawing on private-sector funding, management know-how, technology, and other resources

2. DBO (Design, Build, Operate): A system whereby the public sector finances projects and then commissions the private sector to undertake their design, building, and operation



**E**nvironmental

**S**ocial

**G**overnance

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Based on our Corporate Philosophy—"We will meet people's needs for energy without fail, and play our part for the sustainable development of Japan and the rest of the world"—the J-POWER Group engages in business conduct aimed at harmonizing energy supply and the environment.

Specifically, under our Corporate Conduct Rules and the J-POWER Group Environmental Management Vision, we regard contribution to the reduction of CO<sub>2</sub> emissions on a global scale and the preservation of local environments as important issues.

The J-POWER Group is implementing a medium-term management plan for the period leading up to 2025. Initiatives going forward under this plan include the expansion of renewable energy and strive toward carbon reduction and decarbonization in coal use as well as the promotion of the Ohma Nuclear Power Plant Project with safety as a major prerequisite.

In line with these policies, the J-POWER Group is promoting specific initiatives that address global environmental issues, including those concerning climate change, as well as initiatives directed at coexistence with the local environment.

### J-POWER Group Environmental Management Vision

The J-POWER Group has established the J-POWER Group Environmental Management Vision, comprising the J-POWER Group Environmental Management Vision Basic Policy and Action Programs. The Action Programs are made up of Corporate Targets and Segment Targets as well as the J-POWER Group Environmental Action Guidelines formulated each year.

These are deliberated on at the Environmental Management Promotion Board (and deliberated on by the Executive Committee\* as required) and decided on by the President.

\* Executive Committee: Please refer to page 57.



### Environmental Management Promotion Structures

An Executive Vice President serves as the person responsible for environmental management promotion. In addition to establishing the Environmental Management Promotion Board, we have established the

J-POWER Group Environmental Management Promotion Conference to promote environmental management at the group-wide level.

### J-POWER Group Environmental Management Vision Basic Policy (Revised on July 1, 2011)

The J-POWER Group adheres to the following Basic Policy.

**Basic Stance**

As an energy supplier, we will contribute to the sustainable development of Japan and the rest of the world by harmonizing our operations with the environment and ensuring the constant supply of energy essential to human life and economic activity.

**Addressing Global Environmental Issues**

Directing our most intensive efforts toward ensuring a stable energy supply, we will also steadily advance initiatives toward lower carbon emissions both domestically and internationally and will contribute to the reduction of CO<sub>2</sub> emissions on a global scale.

To that end, we will work from medium- and long-term perspectives with technologies as our central focus to realize a stable energy supply and reduction in CO<sub>2</sub> emissions domestically and internationally through measures

including carbon reduction in coal-fired thermal power generation, research and development of next-generation low-carbon technologies, and expanding CO<sub>2</sub>-free power generation facilities. Our ultimate aim is the achievement of zero emissions through such measures as CO<sub>2</sub> capture and storage.

**Addressing Local Environmental Issues**

We will seek to operate in harmony with local environments by adopting measures to reduce the environmental impact of our operations while working to save, recycle, and reuse resources in order to limit waste.

**Ensuring Transparency and Reliability**

We will ensure that our business activities comply with all applicable laws and regulations, disclose a wide range of environmental information, and enhance communication with stakeholders.

## Corporate Targets

The Action Programs for the J-POWER Group Environmental Management Vision set Corporate Targets, which are medium-term targets to be addressed by the Group as a whole.

Our Corporate Targets for fiscal 2018 are shown below.

	Item	Target
Addressing Global Environmental Issues	Reducing CO <sub>2</sub> emissions from power generation and promoting technological development	<p>Steadily implement the following measures aimed at realizing a low-carbon society as well as contribute to the stable supply of energy and reduction of CO<sub>2</sub> emissions in Japan and around the world by achieving the targets of the Electric Power Council for a Low Carbon Society's Action Plan for Achieving a Low-Carbon Society.</p> <p><b>(1) Expansion of renewable energy</b></p> <ul style="list-style-type: none"> <li>Advance the new installation, upgrading, and equipment replacement of hydroelectric power plants and expand the use of hydroelectric power.</li> <li>Work to significantly expand wind power facilities, including offshore wind power generation.</li> <li>Work to develop new geothermal power projects in Japan.</li> </ul> <p><b>(2) Strive toward carbon reduction and decarbonization in coal use</b></p> <ul style="list-style-type: none"> <li>Advance the development of high-efficiency integrated coal gasification combined cycle (IGCC) technology with the aim of bringing it to practical use. Advance research and development of CO<sub>2</sub> capture and storage (CCS) technology.</li> <li>Work to replace aging coal-fired thermal power plants with the world's leading high-efficiency coal-fired thermal power plants.</li> <li>Promote the mixed combustion of biomass fuels in coal-fired thermal power plants (effective exploitation of untapped resources).</li> <li>Contribute to the reduction of global CO<sub>2</sub> emissions and adoption of advanced technologies by expanding the coal-fired thermal power generation business using J-POWER's advanced, high-efficiency power generation technologies, especially in Asia.</li> </ul> <p><b>(3) Promotion of the Ohma Nuclear Power Plant Project, with safety as a major prerequisite</b></p> <ul style="list-style-type: none"> <li>Advance construction of the Ohma Nuclear Power Plant, giving highest priority to safety and working to ensure the trust of the local community.</li> </ul>
	Maintaining and improving thermal efficiency for thermal power (higher heating value (HHV) basis)	Maintain current level [about 40%]
	Reduction of sulfur hexafluoride (SF <sub>6</sub> ) emissions; gas recovery rate during inspection and retirement of equipment	Inspection: at least 97% Retirement: at least 99%
	Reducing sulfur oxide (SOx) emissions per unit of electric power generated by thermal power	Maintain current level [about 0.2 g/kWh]
Addressing Local Environmental Issues	Reducing nitrogen oxide (NOx) emissions per unit of electric power generated by thermal power	Maintain current level [about 0.5 g/kWh]
	Maintaining and increasing the recycling rate for industrial waste	Maintain current level [about 97%]
	Preservation of aquatic environments	Consider protection of river and ocean environments in business activities
	Preservation of biodiversity	Consider the protection of biodiversity in business activities
	Improvement of environment management level	Continual improvement of EMS
Ensuring Transparency and Reliability		

The ★ marks denote data that are the subject of third-party assurance. (Please refer to page 49.)

Actual performance versus the fiscal 2017 Corporate Targets is shown below. In fiscal 2017, all Corporate Targets were achieved.

Item		Target	
Addressing Global Environmental Issues	Reducing CO <sub>2</sub> emissions from power generation and promoting technological development	Work to provide a stable supply of energy and reduce CO <sub>2</sub> emissions in Japan and overseas by promoting the following measures looking toward 2020, in addition to continuing to contribute to the Environmental Action Plan of the Japanese Electric Utility Industry as an electric utility company.	
		<ul style="list-style-type: none"> <li>Work to replace aging coal-fired thermal power plants with the world's leading high-efficiency coal-fired thermal power plants.</li> </ul>	
		<ul style="list-style-type: none"> <li>Promote the mixed combustion of biomass fuels in coal-fired thermal power plants (effective exploitation of untapped resources).</li> </ul>	
		<ul style="list-style-type: none"> <li>Contribute to the reduction of global CO<sub>2</sub> emissions and the adoption of advanced technologies by expanding the coal-fired thermal power generation business using J-POWER's advanced, high-efficiency power generation technologies, especially in Asia.</li> </ul>	
		<ul style="list-style-type: none"> <li>Advance the development of high-efficiency integrated coal gasification combined cycle (IGCC) technology with the aim of bringing it to practical use. Advance research and development of CO<sub>2</sub> capture and storage (CCS) technology.</li> </ul>	
		<ul style="list-style-type: none"> <li>In relation to the Ohma Nuclear Power Project, respond appropriately to the review of compliance with the new safety standards, an application for which was submitted in December 2014. Based on serious consideration of the accident at the Fukushima Daiichi Nuclear Power Station, do our utmost to ensure the construction of a safe and trusted nuclear power plant, taking voluntary safety measures and obtaining the understanding of the local community where the plant site is located.</li> </ul>	
		<ul style="list-style-type: none"> <li>Advance the new installation, upgrading, and equipment replacement of hydroelectric power plants and expand the use of hydroelectric power.</li> </ul>	
	<ul style="list-style-type: none"> <li>Work to significantly expand wind power facilities, including offshore wind power generation.</li> </ul>		
	<ul style="list-style-type: none"> <li>Work to develop new geothermal power projects in Japan.</li> </ul>		
Item	Target	Fiscal 2016 Performance	
Maintaining and improving thermal efficiency for thermal power (higher heating value (HHV) basis)	Maintain current level [about 40%]	40.3% (Reference: LHV* = 41.4%)	
Reduction of sulfur hexafluoride (SF <sub>6</sub> ) emissions; gas recovery rate during inspection and retirement of equipment	Inspection: at least 97% Retirement: at least 99%	Inspection: 99.5% Retirement: 99.3%	
Addressing Local Environmental Issues	Reducing sulfur oxide (SO <sub>x</sub> ) emissions per unit of electric power generated by thermal power	Maintain current level [about 0.2 g/kWh]	0.18 g/kWh
	Reducing nitrogen oxide (NO <sub>x</sub> ) emissions per unit of electric power generated by thermal power	Maintain current level [about 0.5 g/kWh]	0.49 g/kWh
	Increasing the recycling rate for industrial waste	Maintain current level [about 97%]	98.5%
	Preservation of aquatic environments	Consider the protection of river and ocean environments in business activities	Practiced consideration for the protection of river and ocean environments
	Preservation of biodiversity	Consider the protection of biodiversity in business activities	Practiced consideration for biodiversity
Ensuring Transparency and Reliability	Improvement of environment management level	Continual improvement of EMS	Consistently implemented the PDCA cycle

\* LHV (lower heating value) is estimated from actual HHV (higher heating value) using conversion coefficients supplied in the Agency of Natural Resources and Energy's *Comprehensive Energy Statistics* (Fiscal 2004 edition)

## Main Fiscal 2017 Initiatives

	We made progress with construction work at the Takehara Thermal Power Plant Replacement Project, as planned.
	At the Matsuura Thermal Power Plant, Takehara Thermal Power Plant, and Takasago Thermal Power Plant, we implemented mixed combustion using domestically-sourced biomass fuels (such as wood pellets and dried sewage sludge).
	In Indonesia, we advanced construction work on the Central Java Project, as planned.
	At the Osaki CoolGen Project, we are implementing demonstration tests of oxygen-blown IGCC (Phase 1). We are implementing ongoing efforts toward oxygen-blown IGCC with CO <sub>2</sub> separation and capture (Phase 2).
	For the Ohma Nuclear Power Plant Project, we carried out studies for safety enhancement measures and responded to the review of compliance with the new safety standards. We also implemented initiatives to gain the understanding and trust of local residents.
	With regard to the expansion of the use of hydroelectric power, we started operations of the Unit No. 2 at the Akiba No. 1 Hydroelectric Power Plant after a comprehensive renewal of its major facilities that increased its capacity.
	In onshore wind power, the Setana-Ohsato Wind Farm, Kuzumaki No. 2 Wind Farm, and Nikaho No. 2 Wind Farm, all of which are new developments, are under construction. In offshore wind power, on April 17, 2017, J-POWER formed Hibiki Wind Energy Co., Ltd. as a joint venture with another company. We are now advancing business studies related to the Kitakyushu Hibikinada Offshore Wind Farm (tentative name).
	Looking at the development of new geothermal power projects in Japan, we made progress with construction work on the Wasabizawa Geothermal Power Plant, as planned. Furthermore, we shut down the existing facilities of the Onikobe Geothermal Power Station in April 2017 and are now advancing efforts to replace said facilities.

	Fiscal 2017 Performance	Fiscal 2017 Performance Evaluation
	40.4% ★ (Reference: LHV* = 41.5%)	The J-POWER Group met its target for total thermal efficiency for thermal power thanks to efforts at existing thermal power plants to maintain high-efficiency operations and to adopt high-efficiency technologies when renovating facilities.
	Inspection: 99.4% ★ Retirement: 99.2%	The target was met, with a recovery rate of 99.4% during inspections and 99.2% at retirement, thanks to efforts to curb emissions during equipment inspection through sound recovery and reuse.
	0.19 g/kWh ★	As a result of efforts including fuel management and the appropriate operation of flue gas desulfurization systems, we curbed our SO <sub>x</sub> emissions and achieved our target for emissions per unit of electric power generated.
	0.49 g/kWh ★	As a result of efforts including fuel management and the appropriate operation of flue gas denitrification systems, we curbed our NO <sub>x</sub> emissions and achieved our target for emissions per unit of electric power generated.
	98.9% ★	We achieved our targets through efforts to promote the recycling of coal ash and to reduce industrial waste generated by the maintenance and operation of power plants.
	Practiced consideration for the protection of river and ocean environments	At operating power generation facilities that are involved with rivers, we implemented measures for the protection of the river environment appropriate to the conditions at each location. These included the implementation of sedimentation disposal measures and measures to mitigate the long-term persistence of turbidity. At operating power generation facilities that adjoin the ocean, we implemented precise control over effluent in compliance with environmental protection agreements and other such arrangements.
	Practiced consideration for biodiversity	We showed consideration for the protection of ecosystems and the diversity of species in conducting our business activities and worked to protect rare animal and plant species and their habitats.
	Consistently implemented the PDCA cycle	We implemented the PDCA cycle consistently and worked to raise the level of environmental management.

## Fiscal 2018 J-POWER Group Environmental Action Guidelines

### 1 Addressing Global Environmental Issues

#### Expansion of Renewable Energy

- Maintain stable operations at existing hydroelectric, geothermal, wind, and recycle power stations
  - Maintain stable operations at existing hydroelectric, geothermal, wind, and recycle power stations
- Improve efficiency through the replacement of existing hydroelectric power facilities
- Advance the development of new hydroelectric, geothermal, and wind power projects
  - Advance the development of new hydroelectric, geothermal, and wind power projects; particularly in the case of wind power, in addition to proceeding with development aimed at significantly expanding power generation capacity, advance efforts to realize offshore wind power projects
  - Advance the development of renewable energy and support thereof in developing countries

#### Strive toward Carbon Reduction and Decarbonization in Coal Use

- Proceed with large-scale demonstration tests of oxygen-blown integrated coal gasification combined cycle (IGCC) generation
  - Proceed with the Osaki CoolGen Project to develop high-efficiency IGCC generation technologies
- Proceed with development of CO<sub>2</sub> capture and storage (CCS) technologies
  - Steadily proceed with Phase 2 of the Osaki CoolGen Project, making use of the results of pre-combustion CO<sub>2</sub> capture technology developed in the EAGLE Project
  - Advance basic research aimed at evaluating the technical risks and economic efficiency of CO<sub>2</sub> transportation and storage
  - Advance brown coal hydrogen pilot testing project in Australia
- Maintain high-efficiency operations at existing thermal power stations
- Promote biomass fuel mixed combustion at existing thermal power stations
- Move forward with a replacement project for an existing thermal power station
  - Replace the Takehara Thermal Power Station Units No. 1 and 2 with the latest USC plants to greatly improve efficiency
- Transfer high-efficiency coal-fired thermal power generation technologies overseas and promote their diffusion
  - Contribute to the reduction of global CO<sub>2</sub> emissions and adoption of advanced technologies by expanding the high-efficiency coal-fired thermal power generation business using J-POWER's advanced, high-efficiency power generation technologies, especially in Asia

#### Promotion of the Ohma Nuclear Power Plant Project, with Safety as a Major Prerequisite

- Respond appropriately to the review of compliance with new safety standards conducted by the Nuclear Regulation Authority
- Take on serious consideration of the accident at Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station, implement voluntary initiatives to further enhance safety and advance the construction of a nuclear power plant that will be trusted by the local community

#### Other

- Promote energy saving
  - Promote the reduction of the internal consumption rate at power stations
  - Take the initiative in energy conservation in offices throughout the Group
    - Promote energy conservation measures in offices, giving consideration to the criteria for judgment stipulated for businesses by the Energy Conservation Act
    - Work to conserve energy at our Headquarters to ensure compliance with the Tokyo Metropolitan Ordinance on Environmental Protection
  - Reduce the environmental burden by promoting such initiatives as the improvement of efficiency when transporting raw materials, etc.
  - Reduce the environmental burden through measures including the use of public transportation, improvement of company vehicles' operational efficiency, and promotion of eco driving
  - Promote energy and resource-conserving measures in employees' households, such as the use of the Household Eco-Account Book
  - Support measures to promote the spread of energy conservation
- Utilization and promotion of the offset credit mechanism
- Reduce emissions of GHGs other than CO<sub>2</sub>
  - Curtail emissions of greenhouse gases other than CO<sub>2</sub>, such as SF<sub>6</sub> (sulfur hexafluoride), CFCs (chlorofluorocarbons), HCFCs (hydrochlorofluorocarbons), HFCs (hydrofluorocarbons), and N<sub>2</sub>O (nitrous oxide)

### 2 Addressing Local Environmental Issues

#### Reduction of Emissions of Environmentally Harmful Substances

- Continue to reduce emissions
  - Properly manage combustion conditions and environmental equipment in order to reduce emissions of SO<sub>x</sub>, NO<sub>x</sub>, soot, and dust
  - Properly manage wastewater treatment facilities to reduce the discharge of water pollutants
  - Properly manage facilities to reduce noise, vibration, and odors
  - Properly manage facilities to prevent the pollution of soil and groundwater
- Strengthen measures to prevent oil spills from equipment, etc., and be prepared so that emergencies can be dealt with in an appropriate and timely manner
- Design and introduce highly efficient environmental equipment when newly installing or renovating facilities
- Reduce mercury emissions
  - Properly manage facilities to reduce mercury emissions

#### Promotion of the 3Rs (Reduce, Reuse, and Recycle waste) and Proper Disposal of Waste

- Make efforts toward the reuse and recycling of recyclable resources and achievement of zero waste emissions
  - Promote the reduction of waste as well as the reuse and recycling of materials and equipment during the new installation, upgrading, and demolition of facilities
    - Work to reduce consumption of water, chemicals, lubricating oil, etc.
    - Work to curb volume of office waste (copy paper, etc.) and promote reuse
    - Rigorously collect and separate paper, bottles, cans, plastic, and other waste, and promote reuse and recycling
- Maintain and continue green purchasing efforts in line with the J-POWER Group Green Purchasing Guidelines
  - Maintain and continue the green purchasing of office goods
  - Maintain and continue the use of low-pollution vehicles, etc.
- Properly implement maintenance, management, and closing procedures for final disposal sites
- Properly dispose of waste containing mercury
  - Dispose of waste containing mercury properly and completely in accordance with the Waste Disposal and Public Cleansing Act

#### Management of Chemical Substances

- Fully comply with the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (commonly known as the Pollutant Release and Transfer Register, or PRTR, Act)
  - Survey and manage the amounts of chemical substances subject to the PRTR Act that are emitted and transferred, notify the appropriate authorities, and publicly disclose this information
- Take appropriate measures to deal with dioxins
  - Appropriately manage waste incinerators, and survey and report on exhaust gases and ash in accordance with the Act on Special Measures against Dioxins
  - Observe the stipulations of the Waste Disposal and Public Cleansing Act and the Act on Special Measures against Dioxins when waste incinerators are scrapped
- Manage and treat PCB waste and products containing PCBs
  - Adopt appropriate measures to manage asbestos, including the prevention of dispersion, while systematically removing asbestos and replacing it with alternative substances based on the J-POWER Group's Basic Policy concerning Asbestos
- Appropriately store and manage PCB waste and products containing PCBs based on the stipulations of the Waste Disposal and Public Cleansing Act, the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes, the Electricity Business Act, and the Fire Service Act
- Steadily treat PCB waste and products containing PCBs in accordance with the J-POWER Group's Basic Policy for the Treatment of PCBs
- Strive to reduce volumes of toxic chemicals handled
- Respond appropriately to asbestos-related issues
  - Adopt appropriate measures to manage asbestos, including the prevention of dispersion, while systematically removing asbestos and replacing it with alternative substances based on the J-POWER Group's Basic Policy concerning Asbestos

### Measures to Protect the Natural Environment

- Take the natural environment into account at the various stages of business
  - Recognizing that the blessings of the natural environment support rich and secure living, conduct surveys, estimates, and assessments as necessary of the impact of business activities on the natural environment, and work to protect the natural environment at each stage of the business process, including the planning, design, construction, and operation of facilities
- Consideration for aquatic environments
  - In operating power generation facilities that are involved with rivers, steadily promote measures for the protection of the river environment appropriate to conditions at each location, including the implementation of sedimentation control measures and measures to mitigate the long-term persistence of turbidity
  - In operating power generation facilities that adjoin the ocean, implement precise control over effluent in compliance with environmental protection agreements and other such arrangements
- Consideration for biodiversity
  - Show consideration for the protection of ecosystems and the diversity of species in conducting our business activities and strive to protect rare animal and plant species and their habitats
- Implement forest protection initiatives
  - Institute appropriate protections for company-owned forests based on the J-POWER Group Forest Protection Guidelines
  - Promote the use of unexploited offcuts in forests

### Environmental Conservation Initiatives in Overseas Projects

- Promote the overseas transfer of environmental protection technologies
  - Promote the transfer of environmental protection technologies for thermal and hydroelectric power generation
- Incorporate environment-conscious initiatives when formulating development plans and considering investment in projects, and ensure that such initiatives are carried out

### Implementation of Accurate Environmental Impact Assessments

- Accurately conduct surveys, estimates, and assessments of the environmental impact of business activities in accordance with the applicable laws and regulations, reflect the results in the details of business activities, and give due consideration to environmental protection

## 3 Ensuring Transparency and Reliability

### 1. Continual Improvement of Environmental Management (Greater Reliability)

#### Improvement of Environmental Management Level

- Continue to improve the operation of the environmental management system (EMS) at each J-POWER Group company
  - Assess the actual status of environmental burden and set targets and formulate plans for the protection of the environment
  - Systematically conduct internal environmental audits and periodically evaluate and improve details of environmental activities in order to meet targets
  - Take measures to enhance check functions with the aim of maintaining and improving internal environmental audits
  - Make improvements through activities concerning ISO 14001 at certified business sites
- Raise employee awareness of environmental issues
  - Systematically conduct education and training programs regarding environmental laws and regulations applicable to business activities
  - Promote environmental education using e-learning, etc.
- Request that business partners, including contractors, cooperate in environmentally friendly business operations
- Strengthen risk management
  - Work to prevent environmentally harmful incidents and ensure essential communication and appropriate responses in an emergency

#### Full Compliance with Laws, Regulations, Agreements, and Other Rules

- Identify applicable laws, regulations, agreements, and other rules, and ensure that they are recognized and complied with in business operations
  - Accurately identify laws and regulations, agreements, etc., applicable to business activities, and work to ensure appropriate responses, their widespread recognition, and application, while verifying compliance
- Fully comply with environment-related laws, regulations, agreements, and other rules
  - Make precise improvements to equipment and operations in order to prevent pollution of the surrounding environment
  - Conduct risk diagnoses in relation to waste and education programs for employees engaged in waste disposal in order to ensure the appropriate disposal of waste. In addition, promote the application of the J-POWER Group Guidelines for Deciding Industrial Waste Disposal Contractors and the expansion of use of electronic manifests

### 2. Communication with Society (Greater Transparency)

#### Disclosure of Environmental Information

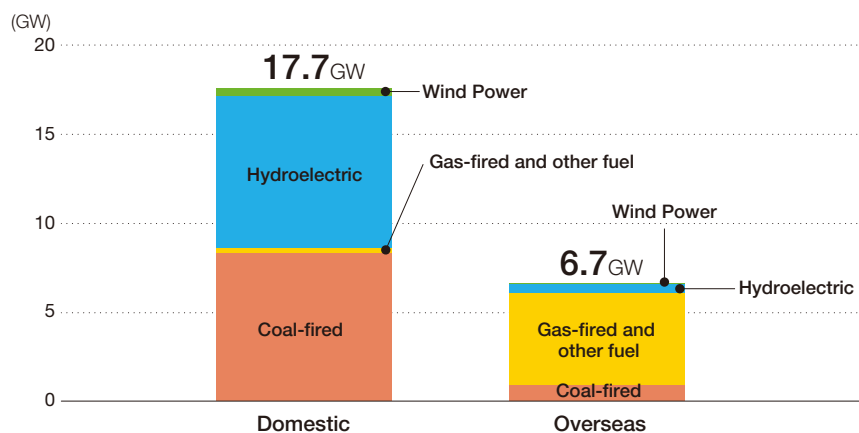
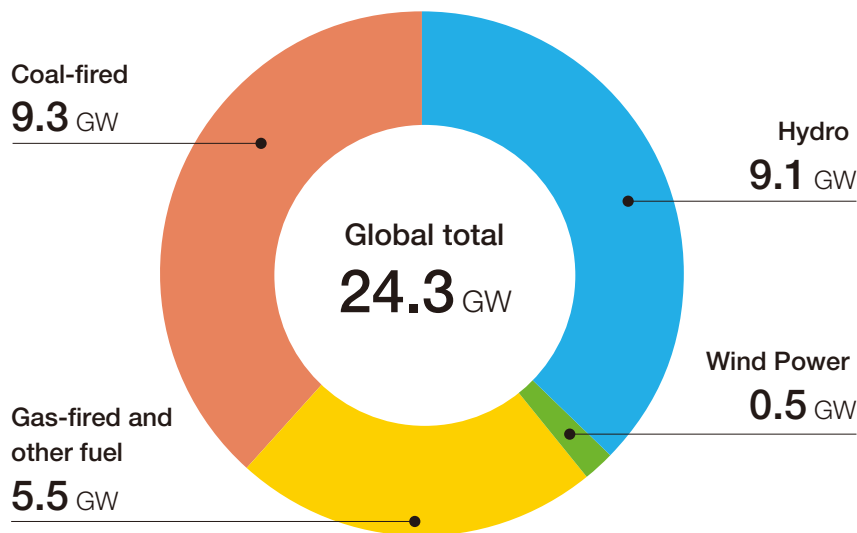
- Formulate environmental reports
  - In disclosing environmental information via the environmental report, we refer to such guidelines as the Environmental Reporting Guidelines of the Ministry of the Environment and carry out reporting in consideration of social demands
  - With regard to the content of the environmental report, work to increase reliability and transparency by such means as reviews by third parties

#### Increased Engagement in Environmental Communication

- Carry out environmental communication
  - Conduct publicity programs via websites, internal Group publications, etc.
  - Conduct publicity programs targeting visitors to offices, PR centers, etc.
  - Communicate with experts and other third parties
  - Receive external assessments, such as environmental ratings
  - Conduct environment-related social contribution activities, such as providing support for environmental education
- Carry out regional environmental protection activities
  - Independently implement regional environmental protection activities
  - Participate in cleanup events, beautification activities, tree planting events, and similar activities organized by cities, towns, villages, neighborhoods, etc.

Our Corporate Philosophy is “We will meet people’s needs for energy without fail, and play our part for the sustainable development of Japan and the rest of the world.” In line with this philosophy, the J-POWER Group is working to both ensure the stable supply of electric power and promote environmental preservation. Around the world, the Group owns a well-balanced portfolio of power generation facilities, including hydroelectric, wind, and other renewables as well as coal-fired thermal and gas-fired thermal facilities.

Composition of J-POWER Group Electric Power Generation Facilities (As of April 30, 2018, owned capacity basis)



The Paris Agreement, adopted at the 21st yearly session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) in December 2015, set the long-term goal of limiting global warming to well below 2°C compared with pre-industrial levels. Furthermore, Japan has set the medium-term target of a 26% reduction in greenhouse gas (GHG) emissions in 2030 compared with 2013 levels, as well as the long-term target of an 80% reduction by 2050.

The J-POWER Group takes part in the Electric Power Council for a Low Carbon Society, an industry organization composed of Japanese

electric power business companies. As a member, the Group is contributing to the achievement of the target for 2030.

Specifically, we are advancing the following initiatives: “Expansion of renewable energy,” “Strive toward carbon reduction and decarbonization in coal use,” and “Promotion of the Ohma Nuclear Power Plant Project, with safety as a major prerequisite.”

To achieve the long-term target for 2050, we believe that it will be necessary to strive toward the decarbonization of fossil fuel power sources. Accordingly, we are advancing wide-ranging technological development aimed at achieving zero emissions in the 2050s.



# The J-POWER Group's Initiatives to Help Realize a Low-Carbon Society

## Targets

- 2030** Help achieve carbon intensity target as a member of the Electric Power Council for a Low Carbon Society
- 2050s** Strive toward decarbonization of fossil fuel power sources

## Specific Initiatives

### Expansion of renewable energy

- Fiscal 2025 target  
Approximately 1 GW in new development [0.3 TWh/year increase in hydroelectric, 2.5 TWh/year increase in wind and others] (compared with fiscal 2017)
- Expand the overseas renewable energy business

### Strive toward carbon reduction and decarbonization in coal use

- Promoting the development of high-efficiency coal-fired thermal power
- Mixed combustion with biomass fuels
- Technological development, aiming for zero emissions in the 2050s  
Commercializing oxygen-blown IGCC,<sup>1</sup> R&D related to CCS<sup>2</sup> and brown coal hydrogen, etc.

### Promotion of the Ohma Nuclear Power Plant Project, with safety as a major prerequisite

1. Integrated coal gasification combined cycle (IGCC): A combined cycle power generation system with a twin-turbine configuration, comprising a gas turbine driven by the combustion of gas produced by gasifying coal and a steam turbine driven by the exhaust gases from the gas turbine  
2. CCS: CO<sub>2</sub> capture and storage

## Reference: Initiatives to Reduce CO<sub>2</sub> in Japan

### GHG reduction target

- Reducing GHG by 26% in 2030 from 2013 level

### Long-term Energy Supply and Demand Outlook (Energy Mix)

- The share of power generated by each power source in fiscal 2030 is estimated in line with the GHG reduction target (please refer to page 40)
- Thermal efficiency is estimated at high-efficiency generation levels (coal: USC, LNG: combined cycle)

### Voluntary initiative

#### The Electric Power Council for a Low Carbon Society (43 companies as of April 2018)

- Electricity business companies as a whole\* aim for the carbon intensity in line with the energy mix (0.37kg-CO<sub>2</sub>/kWh at user's end in fiscal 2030)

\* Covering over 99% of total electricity sales in Japan when this target was drawn up in 2015

### Governmental policy measures

#### Energy Conservation Act

- Newly built thermal power plants must employ the highest-efficiency technology presently in commercial operation (coal-fired thermal power: 42.0% [gross efficiency, HHV]).
- Each generator must aim for the high efficiency premised in the energy mix in fiscal 2030 (overall thermal power: 44.3% [gross efficiency, HHV]).

#### Energy Supply Structure Enhancement Act

- Each retailer must aim for a non-fossil power ratio of 44% or higher, the level estimated in the energy mix, in fiscal 2030.

### Expansion of Renewable Energy

As a result of ongoing efforts to expand its use of renewable energy, the J-POWER Group currently ranks number two in Japan in both hydroelectric and wind power capacity, making it a leader in fully domestically sourced, CO<sub>2</sub>-free energy.

In June 2018, we established a new Renewable Energy Division. We are accelerating initiatives to develop more small- and medium-scale hydroelectric, wind power, geothermal and other renewable energy

projects as well as technologies to support such projects. At the same time, over the long term, we will continue to stably operate our hydroelectric power plants with large-scale reservoirs, which have contributed greatly to the stable supply of electricity and CO<sub>2</sub> emissions reduction over the past 60 years.

Furthermore, we are advancing the Ohma Nuclear Power Plant Project, which will provide CO<sub>2</sub>-free energy, with safety as a major prerequisite.

#### Initiatives for Expanding Renewable Energy

<b>Hydroelectric</b>	<ul style="list-style-type: none"> <li>• Increase capacity through upgrades of major equipment (repowering) at existing plants</li> <li>• New development of small- to medium-scale hydroelectric plants</li> </ul>
<b>Wind Power</b>	<ul style="list-style-type: none"> <li>• New development of onshore wind power and steady replacement of existing facilities</li> <li>• Advance the offshore wind business</li> </ul>
<b>Geothermal</b>	<ul style="list-style-type: none"> <li>• New development and replacement of existing facilities</li> </ul>



### Renewable Energy Target (Fiscal 2025)

**Approximately 1 GW in new development**

[Increases of 0.3 TWh/year in hydroelectric\* and 2.5 TWh/year in wind and others\*]

\*Compared with fiscal 2017

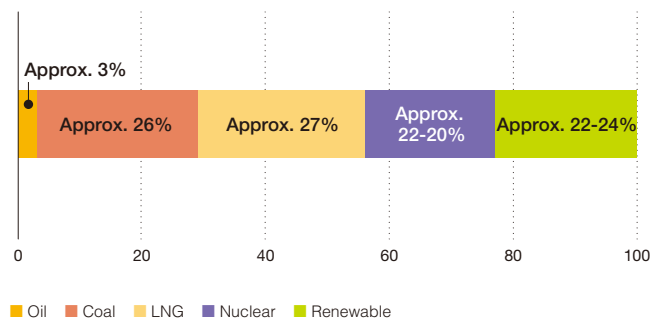
### Strive toward Carbon Reduction and Decarbonization in Coal Use

#### Coal-Fired Thermal Power in Japan's Energy Policy

Japan has few mineral resources and depends on imports for most of its fossil fuels. Furthermore, Japan is not connected to any other country through an international power grid, as is the case in many European countries, meaning that Japan cannot rely on imported power from its neighbors in the event of fuel supply problems caused by political issues or a major natural disaster. Accordingly, it is important for Japan's energy policy to realize the so-called S+3Es, that is, with Safety as a prerequisite, avoid overreliance on any one energy source and utilize a variety of energy sources in a well-balanced manner to ensure stable energy supply, or Energy security, as well as Economic efficiency and compatibility with the Environment.

Among fossil fuels, coal is subject to the least geopolitical risk and has the lowest import cost per calorie upon arrival in Japan. As such, coal-fired thermal power represents an important baseload power source with advantages in terms of stable fuel supply and economic efficiency. It is thus in Japan's interest to use this power source while working to reduce its environmental burden through such means as effectively employing high-efficiency coal-fired thermal power generation technologies. In Japan's fiscal 2030 energy mix, approximately 26% of electricity is to be generated by coal-fired thermal power.

#### Japan's Fiscal 2030 Energy Mix



Sources: Related Materials to Long-term Energy Supply and Demand Outlook (Agency for Natural Resources and Energy, July 2015)

#### The J-POWER Group's Initiatives

Given that coal-fired thermal power will continue to be necessary to Japan going forward, the J-POWER Group is working to reduce CO<sub>2</sub> emissions from coal-fired thermal power generation. To this end, the Group is promoting the use of mixed combustion with biomass fuels at coal-fired thermal power plants, aiming to realize up to 10% mixed combustion at the Takehara Thermal Power Plant New No. 1, which is scheduled to commence operations in fiscal 2020.

At the same time, we aim to reduce CO<sub>2</sub> emissions from coal use to zero by the 2050s. To this end, we are implementing initiatives aimed at the commercialization of oxygen-blown integrated coal gasification combined cycle (IGCC), and advancing R&D in such areas as CO<sub>2</sub> capture and storage (CCS) and the manufacture of hydrogen.

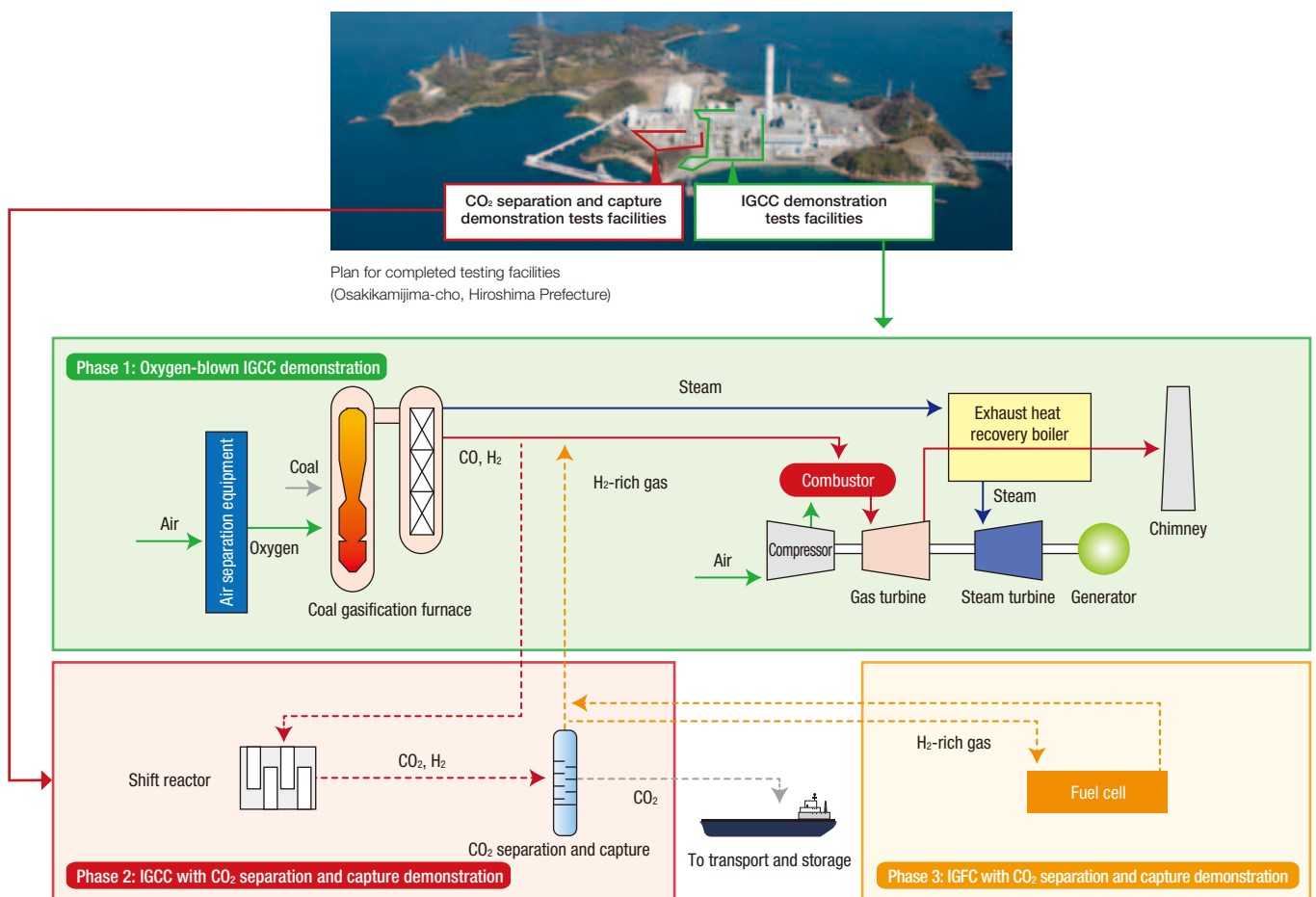
## Osaki CoolGen Project

J-POWER is developing integrated coal gasification combined cycle (IGCC) technologies, integrated coal gasification fuel cell combined cycle (IGFC<sup>1</sup>) technologies, and CO<sub>2</sub> capture and storage (CCS) technologies. Since fiscal 2002, J-POWER had been engaged in the EAGLE<sup>2</sup> Project in collaboration with the New Energy and Industrial Technology Development Organization (NEDO), a national research and development body, which aims to establish technologies for realizing oxygen-blown IGCC.

Employing insights and results gleaned from the EAGLE Project, the Company has since been engaged in the Osaki CoolGen Project in collaboration with The Chugoku Electric Power Co., Inc. In Phase 1, we are implementing a demonstration test of oxygen-blown IGCC. In

Phase 2, we plan to add CO<sub>2</sub> separation and capture facilities to conduct demonstration testing of IGCC with CO<sub>2</sub> separation and capture. Then, in Phase 3, we will conduct further demonstration testing of IGFC with CO<sub>2</sub> separation and capture using fuel cells. We started Phase 1 demonstration test operations (166 MW capacity, with a coal consumption volume of 1,180 tons per day) in March 2017, and the CO<sub>2</sub> separation and capture facilities for Phase 2 are currently under construction.

1. Integrated coal gasification fuel cell combined cycle (IGFC): An integrated power generation system that combines fuel cells with IGCC and achieves the highest level of thermal efficiency from coal-fired thermal power
2. EAGLE: An oxygen-blown coal gasification project that was conducted at the Wakamatsu Research Institute. The name EAGLE is an acronym for Coal Energy Application for Gas, Liquid & Electricity.



Fiscal		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Phase 1	Oxygen-blown IGCC	Detailed design/construction					Demonstration tests					
								Mar. 2017 Commencement of demonstration tests				
Phase 2	IGCC with CO <sub>2</sub> separation and capture						Detailed design/construction			Demonstration tests		
Phase 3	IGFC with CO <sub>2</sub> separation and capture								Detailed design/construction		Demonstration tests	

### Australian Brown Coal Hydrogen Pilot Test Project (HESC\* Project)

Hydrogen produces no CO<sub>2</sub> when combusted, can be manufactured from a variety of energy sources, and can be stored and transported. By employing CCS technology at the manufacturing stage, hydrogen can be used as a CO<sub>2</sub>-free form of energy. Therefore, for Japan, a nation poor in mineral resources, hydrogen technologies are promising as a means of promoting energy security and combating global warming.

Aiming to build and commercialize a CO<sub>2</sub>-free hydrogen supply chain, J-POWER is participating in a pilot test project to produce hydrogen by gasifying Australian brown coal, an abundant, underutilized resource,

and transport it to Japan. Within this project, J-POWER is handling the gasification of the brown coal (sponsored by NEDO) and purification facilities for the hydrogen gas produced.

When this supply chain is commercialized, plans call for utilizing CCS to store the CO<sub>2</sub> produced during the manufacture of hydrogen from brown coal, avoiding its release to the atmosphere and thus achieving CO<sub>2</sub>-free operations.

\* HESC: Hydrogen Energy Supply Chain



Source: HySTRA (partially sponsored by NEDO)

Conceptual rendering of the completed brown coal gasification facilities

The ★ marks denote data that are the subject of third-party assurance. (Please refer to page 49.)

The J-POWER Group Environmental Action Guidelines call for the reduction of emissions of environmentally harmful substances, such as SOx, NOx, soot, and dust; the conservation of resources; the reduction of waste; and the appropriate management of chemical substances. (For details, please refer to page 36.)

Furthermore, in the interests of conservation, we take the natural environment into account at various stages of our businesses, give consideration to aquatic environments and biodiversity, and implement forest protection initiatives. (For details, please refer to page 37.)

**Environmentally Harmful Substances**

The J-POWER Group undertakes environmental preservation initiatives using the latest technologies and knowledge to reduce the environmental burden caused by its domestic and overseas electric power businesses.

**Environmental Preservation Measures at Coal-Fired Thermal Power Plants**

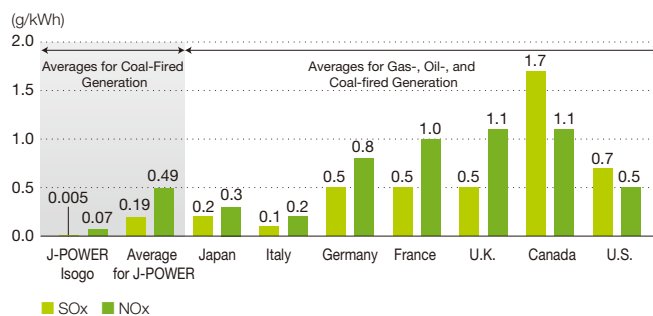
<b>Measures to Prevent Air Pollution</b>	The combustion of coal and other fuels can generate sulfur oxides (SOx), nitrogen oxides (NOx), and soot and dust. To reduce these emissions, we have improved our combustion methods and installed such flue gas treatment equipment as desulfurization and denitrification systems and electrostatic precipitators. Although the performance of equipment varies with its date of installation, at each facility, the newest technology available at the time of installation was used to ensure the high-efficiency removal of pollutants. This equipment operates automatically with the aid of measurement devices that continuously monitor the content of flue gas. In addition, human operators monitor the equipment 24 hours a day and are able to mount a swift response in the event of any abnormality, ensuring that our emissions do not exceed the benchmark figures specified by the Air Pollution Control Act and environmental protection agreements. Our fiscal 2017 performance regarding SOx, NOx, and soot and dust emissions is shown in the below table. The figures obtained are quite low by international standards.
<b>Measures to Control Coal Dust, etc.</b>	We implement various measures to prevent the dispersal of dust during the handling of coal and coal ash, including the use of closed conveyor belts and silos, as well as windshielding and spraying with water as dictated by topographical and weather conditions. At our coal ash landfill disposal sites, soil is spread over the surface, and leachate is treated with appropriate treatment systems.
<b>Measures to Prevent Oil Leaks</b>	We implement various measures to prevent the leakage and dispersion of fuel oil, lubricating oil, and other such substances within power station grounds, including keeping adsorbent materials constantly ready.
<b>Measures to Prevent Soil Pollution</b>	From fiscal 2004 through 2006, we conducted studies at all J-POWER Group domestic sites and determined that they were free of soil and groundwater contamination. We will continue working diligently to ensure that no soil pollution occurs.

**Fiscal 2017 SOx, NOx, and Soot and Dust Emissions Performance ★**

Substance	Emissions	Emissions Intensity <sup>1</sup>
SOx	11.4 thousand tons	0.19 g/kWh
NOx	29.6 thousand tons	0.49 g/kWh
Soot and dust <sup>2</sup>	0.9 thousand tons	0.02 g/kWh

1. Emissions intensity: Emissions per unit of electricity generated at thermal power stations.  
2. Emissions of soot and dust are calculated on the basis of monthly measurements.

**International Comparison of SOx and NOx Emissions Intensity for Thermal Generation**



Notes: 1. Emissions: OECD StatExtracts  
Power generated: IEA Energy Balances of OECD Countries, 2017 Edition  
2. J-POWER and Isogo figures are fiscal 2017 results.

**Waste**

**Reduction and Effective Utilization of Waste**

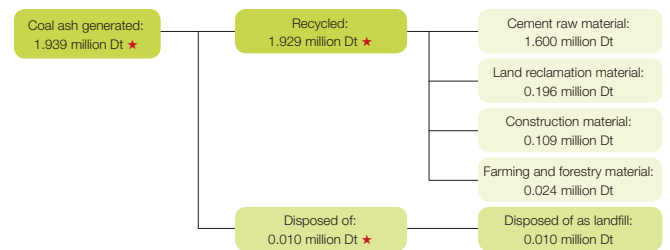
The J-POWER Group's target industrial waste recycling rate is 97%. The total amount of industrial waste we generated in fiscal 2017 was 2.32 million tons, and we achieved a recycling rate of 98.9%.

**Making Effective Use of Coal Ash and Gypsum**

The J-POWER Group's industrial waste consists of 98% coal ash and gypsum from thermal power stations.

We recycle 99.5% of coal ash produced in coal-fired thermal power generation, mainly as material for making cement and for land reclamation, as well as 100% of the gypsum and sulfuric acid produced as byproducts of emissions desulfurization.

**Breakdown of Coal Ash Recycling (displacement tons)**



Note: Sums of figures may not equal totals due to rounding.

**Information on Maintenance and Management of Industrial Waste Final Disposal Sites**

The J-POWER Group discloses on its website maintenance and management information for its industrial waste final disposal sites, including the maintenance and management plan, the results of groundwater and discharge water quality analyses, inspection results, and the volume of landfill waste.

**Chemical Substances**

**Management of Chemical Substances**

The J-POWER Group complies with applicable laws and regulations and properly uses, stores, manages, and treats chemical substances regulated by the PRTR Act, dioxins, PCB waste material (including equipment that contains trace amounts of PCB), materials that contain asbestos, and other substances that are used in power plants or are included in equipment or machinery.

**PRTR Substance Release and Transfer Volumes (Fiscal 2017)**

Substance	Use	Volume handled	Volume released	Volume transferred as waste
33: Asbestos	Insulation for equipment	19.5 t/y	—	19,485 kg/y
71: Ferric chloride	Wastewater treatment agents	11.8 t/y	—	11,840 kg/y
80: Xylene	Coating for machinery	5.1 t/y	613 kg/y	—
296: 1,2,4-Trimethylbenzene	House boiler fuel	5.2 t/y	26 kg/y	—
300: Toluene	Fuel for power generation (coal)	19.2 t/y	19,162 kg/y	—
405: Boron compounds	Manure additives	14.1 t/y	0.4 kg/y	—

Note: Figures represent the total release and transfer volumes for all business sites handling 1 ton or more per year of a Class 1 designated chemical substance or 0.5 ton or more per year of a Specific Class 1 designated chemical substance.

## Environmental Impact Assessment

Before building or expanding power plants, we conduct environmental impact assessments in accordance with applicable laws and regulations and adequately take the environment into consideration while listening to the opinions of local residents during the planning stages. After a power plant becomes operational, we carry out environmental preservation measures, referring to the results of monitoring performed pursuant to environmental protection agreements entered into with relevant local governments.

### Environmental Impact Assessments in Process from Fiscal 2017 Onward (Projects for which a planning stage statement has been submitted are listed.)

Project	Operator	Implementation area	Implementation status
New Tomamae Winvilla Wind Farm (tentative name)	J-POWER	Hokkaido	Draft environmental impact statement review in process (As of July 2018)
Kaminokuni No. 2 Wind Farm Project (tentative name)	J-POWER	Hokkaido	Draft environmental impact statement review in process (As of July 2018)
Minami Ehime No. 2 Wind Farm Project (tentative name)	J-POWER	Ehime Prefecture	Draft environmental impact statement review in process (As of July 2018)
Shiwa-Hanamaki Wind Farm Project (tentative name)	J-POWER	Iwate Prefecture	Planning stage environmental impact statement review completed (March 2018)
New Sarakitomanai Wind Farm Project (tentative name)	J-POWER	Hokkaido	Planning stage environmental impact statement review completed (April 2018)
Kita Kagoshima (West and East Zones) Wind Farm Project (tentative name)	J-POWER	Kagoshima Prefecture	Planning stage environmental impact statement review completed (April 2018)
Seiyo-Yusuhara Wind Farm Project (tentative name)	J-POWER	Ehime Prefecture and Kochi Prefecture	Planning stage environmental impact statement review completed (April 2018)
Kitakyushu Hibikinada Offshore Wind Farm (tentative name)	Hibiki Wind Energy Co., Ltd.	Fukuoka Prefecture	Scoping document review in process (As of July 2018)
Wajima Wind Farm Project (tentative name)	J-POWER	Ishikawa Prefecture	Planning stage environmental impact statement review in process (As of July 2018)
Renewal project at Onikobe Geothermal Power Station	J-POWER	Miyagi Prefecture	Draft environmental impact statement review in process (As of July 2018)
Nishi-Okinoyama Thermal Power Station (tentative name) installation project	Yamaguchi-Ube Power Generation Co., Ltd.	Yamaguchi Prefecture	Scoping document review completed (April 2016)

## Preservation of Aquatic Environments

From fiscal 2013 onward, the preservation of aquatic environments has been designated as one of the Corporate Targets under the J-POWER Group Environmental Management Vision with the aim of reinforcing our environmental preservation initiatives regarding rivers and the seas.

We undertake environmental preservation measures based on the specific regional environment and characteristics of each business site. For example, near hydroelectric power stations, we take measures regarding water quality and the accumulation of silt in dam lakes and downstream area, while near thermal power stations we manage effluent emitted into nearby oceans in accordance with applicable laws and regulations.

## Aquatic Environment Preservation Measures for Coal-Fired Thermal Power Plants

<b>Measures to Prevent Water Pollution</b>	Wastewater from such facilities as desulfurization units and offices is appropriately treated in integrated wastewater treatment systems using such processes as coagulation, precipitation, and filtration. Treated water is always monitored by automatic measuring equipment and analyzed periodically to ensure that it meets the standards set under the Water Pollution Prevention Act and environmental protection agreements.
<b>Measures to Control Thermal Water Discharge</b>	Seawater taken in to cool the steam used in power generation is released as thermal water discharge.* We control intake and discharge properly to minimize their impact on marine life in the vicinity and monitor the temperature of thermal water discharge on a 24-hour basis to ensure that it remains at or below the reference values established under environmental protection agreements
<b>Cutting Back on Industrial Water Use</b>	Industrial water is used in such equipment as boilers, cooling systems, and wet-type desulfurization systems. Part of this water is released into the atmosphere as steam. We work to recover and reuse as much of the wastewater not released into the atmosphere as possible in order to reduce our consumption of industrial water.

\* Thermal water discharge: In thermal and nuclear power generation, the steam that drives the turbine is sent through a condenser for cooling, returning to its liquid state for reuse in the boiler. In almost all power stations in Japan, seawater is used for cooling in the condensers. As the seawater cools the steam passing through the condenser, its temperature rises. It is then returned to the ocean through the discharge outlet, at which point it is referred to as thermal water discharge.

## Preservation of Forests

J-POWER owns forests in areas near its hydroelectric power facilities throughout Japan. We appropriately maintain these valuable forests in accordance with the Forest Protection Guidelines (formulated in 2007).

Many of Japan's forests are deteriorating, reflecting inadequate management caused by slumping forestry markets. J-POWER Group is contributing to forest preservation as well as the reduction of CO<sub>2</sub> emissions through efforts to combust biomass fuel pellets made from forestry offcuts and other materials along with coal at coal-fired thermal power stations.

## Preservation of Biodiversity

To reinforce our measures in light of the Basic Act on Biodiversity, from fiscal 2011 onward, the preservation of biodiversity has been one of the Corporate Targets under the J-POWER Group Environmental Management Vision.

During the planning and design stages of power generation facilities, we incorporate environmental preservation measures to mitigate the impact on habitats, breeding environments and ecological systems as determined through environmental impact assessments that look at the wildlife and ecological systems of the surrounding land and marine areas. We strive to preserve wildlife living in the vicinity of operating power plants, particularly rare species, and their habitats.

These measures are tailored to local environments and characteristics. For example, every effort is made to avoid outdoor work during the nesting season of the Japanese golden eagle and other endangered birds that live in the vicinity of the Okutadami Dam and Otori Dam. Another example is the restoration, maintenance, and management of marshes that became landfill areas when the Okutadami Dam was expanded.

The J-POWER Group conducts environmental preservation activities in accordance with its corporate philosophy. To this end, the introduction of environmental management systems (EMSs) at all J-POWER business sites was completed in 2002. The introduction of EMSs at J-POWER's consolidated subsidiaries and at subsequently established business sites is also proceeding, and we are continuing our efforts to enhance environmental preservation measures.

### Improvement of Environmental Management

On the basis of the J-POWER Group Environmental Action Guidelines, reviewed annually by management, each executive unit draws up its own Environmental Action Plan. Each executive unit periodically reviews and evaluates its initiatives and revises the measures to be taken, following the PDCA cycle.

### Raising Employee Awareness of Environmental Issues

The J-POWER Group puts efforts into environmental training for employees in order to deepen their awareness of environmental issues and instill a sense of personal responsibility.

### Fiscal 2017 In-House Environmental Training

Media	Type	Training category	Results	Main content of efforts to ensure strict compliance with environmental laws and regulations
General training	General environmental management	Environmental management briefing	Approximately 850 participants	Information regarding group environmental management initiatives and amendments to environmental laws and regulations
		Lecture presentations on the environment	Approximately 100 participants	A talk titled "Expectations and Suggestions for J-POWER as It Works to Harmonize the Energy Supply with the Environment" given by an invited guest lecturer
	E-learning	Basic knowledge regarding environmental issues	87.9% of employees participated	Basic knowledge regarding environmental issues
Advanced and specialized training	EMS implementation	Internal environmental auditor training	47 participants	Knowledge necessary to conduct internal audits under EMSs
		Follow-up training for internal environmental auditors	29 participants	Knowledge necessary to oversee audit teams conducting internal audits under EMSs
	Environmental laws and regulations	Skill enhancement training for waste-processing operations	81 participants	Explanation of the key points of the Waste Disposal Act
		Waste-processing risk assessment	Four locations assessed	Checking provisions of agreements and manifests specified by law
		Training on environmental laws and regulations	126 participants	Explanation of environmental laws and regulations
	E-learning	EMS course	Continuously conducted	Basic knowledge of EMSs

### Full Compliance with Laws, Regulations, Agreements, and Other Rules

In order to reduce the impact of business activities on the surrounding environment, we take appropriate steps to implement the laws, regulations, agreements, and other such rules applicable to our business activities and make them widely known. We are also engaged in ongoing efforts to improve our facilities and operations.

In order to dispose of waste properly, we take measures to maintain and improve the disposal capabilities of waste disposal operators, employing waste disposal consulting firms to directly confirm the status of waste disposal by local organizations.

### Responding to Environmental Incidents

We make every effort to prevent environmental incidents before they occur. When problems arise that require emergency handling, however, we promptly take whatever measures are required to contain the damage and notify the local agencies concerned as well as the J-POWER Headquarters Emergency Response Team and related departments.

The J-POWER Headquarters Emergency Response Team promptly notifies top management and, in the interests of information disclosure, provides information for publication on the emergency to the media and other relevant parties. We also devise measures to prevent recurrences. Of the incidents impacting the environment that occurred in fiscal 2017, one incident was reported through the mass media.

### Status of Environmental Incidents

Location	Situation and Countermeasures
Kitahon HVDC Link (Hokkaido/Aomori Prefecture)	<p>On the morning of February 27, 2018, the oil level of J-POWER's submarine transmission cable linking Hokkaido and Honshu (the Kitahon HVDC Link) was found to have fallen, and it was concluded that an estimated 2,700 liters of insulation oil had leaked from said cable.</p> <p>To prevent the further leakage of insulation oil, we stopped the pumps that supply oil to the damaged cable and are recovering the remaining oil at both ends. We are also monitoring the nearby area and surveying water quality. Thus far, no impact on the nearby marine environment has been detected.</p> <p>Inspections made by unmanned submersible vehicles and divers determined that the site of the leak was approximately 11 km from the Aomori end, at a depth of approximately of 174 m below sea level. The cause of the leak is surmised to be damage sustained when part of the cable laid in a zigzagging manner became looped due to external factors, such as contact with ship anchors, subjecting it to great strain.</p> <p>Going forward, we will continue the collection and survey efforts described above and work toward the withdrawal of the damaged cable.</p>

The ★ marks denote data that are the subject of third-party assurance. (Please refer to page 49.)

## Environment-Related Data

The following data represent annual values or year-end values for each fiscal year. Unless specifically noted, includes data for Group companies.<sup>1</sup>

1. The scope of applicability includes J-POWER and its 24 consolidated domestic subsidiaries, which are engaged in the electric power business, electric power related business, and other business. The amounts attributed to consolidated subsidiaries are based on percentages corresponding to J-POWER's equity share. For information on the companies included, please refer to the list of Major Group Companies on page 98. (However, the figures under Usage of Specified CFCs and for SF<sub>6</sub> emissions and handled amount under Greenhouse Gas Emissions are calculated based on the total amounts from consolidated subsidiaries.)

Note: The sums of individual figures may not equal the corresponding totals due to rounding.

### Fuel Consumption

	Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017★
Coal (dry coal 28 MJ/kg equivalent)	million t	18.49	18.61	18.10	18.83	17.73	18.87
Use intensity (coal-fired thermal power)	t/GWh	338	340	341	342	340	340
Natural gas	million m <sup>3</sup> N	148	172	173	116	160	164
Heavy oil	million kl	0.05	0.06	0.04	0.05	0.04	0.04
Diesel	million kl	0.02	0.02	0.02	0.02	0.02	0.02
Biomass	million t	0.02	0.03	0.02	0.03	0.02	0.03

Note: Denominators for use intensity represent electric power sold by coal-fired thermal power stations

### Greenhouse Gas Emissions<sup>2</sup>

	Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017★
CO <sub>2</sub> emissions (domestic and overseas power generation) <sup>3</sup>	million t-CO <sub>2</sub>	54.09	56.33	55.77	59.11	55.24	57.02
CO <sub>2</sub> emission intensity	kg-CO <sub>2</sub> /kWh	0.67	0.68	0.67	0.64	0.65	0.66
CO <sub>2</sub> emissions (domestic power generation)	million t-CO <sub>2</sub>	47.56	47.84	46.49	48.20	45.52	48.42
CO <sub>2</sub> emission intensity	kg-CO <sub>2</sub> /kWh	0.73	0.74	0.73	0.72	0.73	0.73
SF <sub>6</sub>	Emissions	t	0.1	0.0	0.0	0.1	0.1
	Handled	t	6.5	7.7	7.5	11.0	10.2
	Recovery rate	%	99	99	99	99	99
HFC emissions <sup>4</sup>	t	0.2	0.2	0.1	0.1	0.1	0.1
N <sub>2</sub> O emissions	t	1,362	1,553	1,576	1,715	1,107	1,780

2. CO<sub>2</sub> emissions comprise emissions from fuel combustion for power generation. Emissions of other greenhouse gases (PFC, CH<sub>4</sub>, and NF<sub>3</sub>) are effectively zero. The calculation of CO<sub>2</sub> emissions from both operations in Japan and those overseas is performed in accordance with the Act on Promotion of Global Warming Countermeasures.

3. This covers J-POWER as well as consolidated subsidiaries and equity method affiliates, which are engaged in the electric power business and overseas business (9 domestic and 32 overseas companies). The amounts attributed to consolidated subsidiaries and equity method affiliates are based on the percentages of J-POWER's equity share. For information on the companies included, please refer to the list of Major Group Companies on page 98.

4. Calculated using the same tabulation method as that employed for Usage of Specified CFCs.

Note: Denominators for emission intensity represent electric power sold.

### J-POWER Group Total Thermal Efficiency for Thermal Power Generation (Gross Efficiency)

	Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017★
Total thermal efficiency (gross efficiency, HHV)	%	40.5	40.3	40.2	40.4	40.3	40.4

### Usage of Specified CFCs

	Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Specified CFCs	Inventory	t	1.0	1.0	1.0	1.0	1.0
	Emissions	t	0.0	0.0	0.0	0.0	0.0
Halons	Inventory	t	4.6	4.6	4.6	4.7	4.5
	Emissions	t	0.0	0.0	0.0	0.0	0.0
Other CFCs	Inventory	t	10.8	10.8	10.4	6.2	5.0
	Emissions	t	0.1	0.1	0.1	0.1	0.0
HFCs (CFC alternatives)	Inventory	t	12.9	13.3	14.4	15.2	20.0
	Emissions	t	0.2	0.2	0.1	0.1	0.1



## SOx, NOx, and Soot and Dust Emissions

		Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017★
SOx	Emissions	thousand t	12.3	10.7	9.8	10.7	10.2	11.4
	Intensity (thermal)	g/kWh	0.21	0.18	0.17	0.18	0.18	0.19
NOx	Emissions	thousand t	30.3	31.1	29.1	29.8	27.8	29.6
	Intensity (thermal)	g/kWh	0.51	0.52	0.51	0.50	0.49	0.49
Soot and dust	Emissions	thousand t	0.8	0.8	0.8	0.8	1.0	0.9
	Intensity (thermal)	g/kWh	0.01	0.01	0.01	0.01	0.02	0.02

Notes: 1. Soot and dust emissions are calculated from monthly measurements.

2. Denominators for intensity represent the electricity generated in thermal power stations (excluding geothermal power stations).

## Industrial Waste Recycling

		Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017★
Volume generated		million t	2.30	2.32	2.14	2.25	2.10	2.32
Volume recycled		million t	2.26	2.27	2.11	2.22	2.07	2.29
Recycle rate		%	98	98	99	99	99	99

## Coal Ash and Gypsum Recycling

		Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017★
Coal ash	Volume generated	thousand t	1,900	1,928	1,773	1,852	1,719	1,939
	Volume recycled	thousand t	1,882	1,906	1,760	1,839	1,708	1,929
	Recycle rate	%	99.0	98.9	99.2	99.3	99.4	99.5
Gypsum	Volume generated	thousand t	352	322	304	318	310	329
	Recycle rate	%	99.9	100	100	100	100	100

## Office Power Consumption

		Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Power consumed by offices (company total)		GWh	19.48	19.04	19.51	19.61	20.83	19.37
Head office <sup>5</sup>	Power consumption	GWh	6.99	6.94	6.39	6.41	6.37	6.25
	Lighting/power sockets	GWh	1.33	1.29	1.26	1.25	1.22	1.18

5. J-POWER head office building

Note: Figures have been adjusted in accordance with the expansion/contraction of the range of data available for compilation.

## Fuel Consumption in Offices (Gasoline Equivalent)

		Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Consumption		kl	1,290	1,293	1,252	1,198	1,230	1,324

Note: Figures have been adjusted in accordance with the expansion/contraction of the range of data available for compilation.

## Rate of Procurement of Recycled Copy Paper

		Unit	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Copy paper <sup>6</sup>	Purchased	million sheets	61.50	61.79	58.53	55.30	54.81	55.14
	Recycled copy paper <sup>6</sup>	million sheets	61.25	61.45	57.85	54.76	54.58	54.63
Purchase rate		%	99	99	99	99	100	99

6. A4 paper-size equivalent

The ★ marks denote data that are the subject of third-party assurance. (Please refer to page 49.)

## Business Activities and the Environment

The charts below detail the resource consumption and environmental load of the fiscal 2017 J-POWER Group operations within Japan.

Note: The scope of applicability includes J-POWER and its 24 consolidated domestic subsidiaries, which are engaged in the electric power business, electric power related business, and other business. The amounts attributed to consolidated subsidiaries are based on percentages corresponding to J-POWER's equity share.

### INPUT

#### Thermal Power Generation

- Fuel ★

Coal (wet) .....	21.62 million tons
Heavy oil .....	42 thousand kl
Light oil .....	19 thousand kl
Natural gas .....	164.2 million Nm <sup>3</sup>
Biomass .....	25 thousand tons

- Industrial-use water ★ .....

- Major chemicals (undiluted equivalents)

Limestone (CaCO <sub>3</sub> ) .....	248 thousand tons
Ammonia (NH <sub>3</sub> ) .....	15 thousand tons

#### Hydroelectric Power Generation

- Power for pumped storage .....

#### Internal Use at Business Sites and Offices

- Electricity (purchased) ★

Business sites .....	65.25 GWh
Offices .....	15.96 GWh

- Fuel (gasoline equivalent)

Business sites .....	9,173 kl
Offices .....	1,324 kl

- Clean water

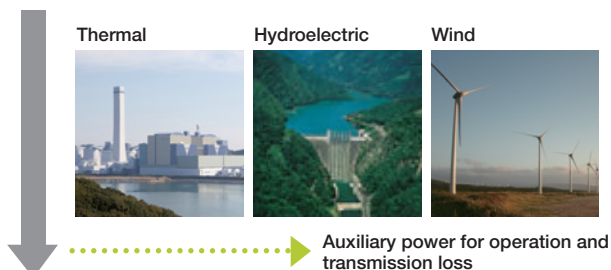
Business sites .....	102 thousand m <sup>3</sup>
Offices .....	189 thousand m <sup>3</sup>

- Copy paper (A4 equivalent) .....

Notes: 1. Other than that discharged as wastewater, almost all industrial-use water used in thermal power stations is released into the atmosphere as steam.  
 2. River water used in hydroelectric power stations is not included in the input figures, as all such water is returned to the river after power generation.

### Business Activities

#### Electric Power Generated ★ 71.6 TWh



#### Major Resources Recycled

Coal ash ★ .....	1,929 thousand tons	[99.5%]
Sludge (excluding gypsum) .....	8 thousand tons	[63.8%]
Gypsum (desulfurization byproduct) .....	329 thousand tons	[100.0%]
Sulfuric acid (desulfurization byproduct) .....	23 thousand tons	[100.0%]
Other industrial waste .....	23 thousand tons	[72.5%]
Wastepaper .....	307 tons	[95.6%]
Driftwood caught in dam reservoirs .....	16 thousand m <sup>3</sup>	[77.1%]

Note: Percentages indicate recycling rate.

Effective Utilization  
(at cement plants, etc.)

### OUTPUT

#### Thermal Power Stations ★

- Emissions into the atmosphere

CO <sub>2</sub> .....	48.42 million t-CO <sub>2</sub>
SO <sub>x</sub> .....	11 thousand tons
NO <sub>x</sub> .....	30 thousand tons
Soot and dust .....	1 thousand tons

- Emissions into bodies of water

Wastewater .....	3.85 million m <sup>3</sup>
Wastewater COD .....	14 tons

#### CO<sub>2</sub> Emissions from Business-Site and Office Activities ★

• Business sites .....	55 thousand t-CO <sub>2</sub>
• Offices .....	11 thousand t-CO <sub>2</sub>

#### Waste ★


• Industrial waste .....	24 thousand tons
(Of which, coal ash .....	10 thousand tons)
• Specially controlled industrial waste .....	0.5 thousand tons
• Non-industrial waste	
Wastepaper .....	14 tons
Driftwood caught in dam reservoirs .....	3.3 thousand m <sup>3</sup>

## Third-Party Assurance Regarding Environment-Related Information

The environmental information and performance data (hereinafter “sustainability information”) contained in the J-POWER Group Annual Report 2018 have been reviewed by Ernst & Young ShinNihon LLC, from the point of view of accuracy and comprehensiveness for important sustainability information as determined by the Japanese Association of Assurance Organizations for Sustainability Information

(J-SUS). As a result of this review, said sustainability information has received an Independent Assurance Report. The data that were calculated in accordance with the specified calculation standards\* and are covered by this assurance are indicated by stars (★).

\* The calculation standards are available on the annual reports page of the J-POWER Group website.



### Translation

The following is an English translation of an independent assurance report prepared in Japanese and is for information and reference purposes only. In the event of a discrepancy between the Japanese and English versions, the Japanese version will prevail.

August 9, 2018

## Independent Assurance Report

**TO:**  
Mr. Toshifumi Watanabe  
President  
Electric Power Development Co., Ltd.

**Kenji Sawami**  
Engagement Partner  
Ernst & Young ShinNihon LLC Tokyo

We, Ernst & Young ShinNihon LLC, have been commissioned by Electric Power Development Co., Ltd. (hereafter the “Company”) and have carried out a limited assurance engagement on the Key Environmental Performance Indicators (hereafter the “Indicators”) of the Company and its major subsidiaries for the year ended March 31, 2018 as included in J-POWER Group Annual Report 2018 (hereafter the “Report”). The scope of our assurance procedures was limited to the Indicators marked with the symbol “★” in the Report.

**1. The Company’s Responsibilities**

The Company is responsible for preparing the Indicators in accordance with the Company’s own criteria, which it determined with consideration of Japanese environmental regulations as presented in the Investor Relations, IR Library, Annual Reports, Calculation Standards of Environmental Information of the Company’s website. Greenhouse gas (GHG) emissions are estimated using emissions factors, which are subject to scientific and estimation uncertainties, given instruments for measuring GHG emissions may vary in characteristics, in terms of functions and assumed parameters.

**2. Our Independence and Quality Control**

We have met the independence requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants in January 2017, which is based on the fundamental principles of integrity, objectiveness, professional competence and due care, confidentiality, and professional behavior. In addition, we maintain a comprehensive quality control system, including documented policies and procedures for compliance with ethical rules, professional standards, and applicable laws and regulations in accordance with the International Standard on Quality Control 1 issued by the International Auditing and Assurance Standards Board in April 2009.

**3. Our responsibilities**

Our responsibility is to express a limited assurance conclusion on the Indicators included in the Report based on the procedures we have performed and the evidence we have obtained.

We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements: Assurance Engagements Other than Audits or Reviews of Historical Financial Information - (“ISAE 3000”) (Revised), issued by the International Auditing and Assurance Standards Board in December 2013, Practical Guidelines for the Assurance of Sustainability Information, revised in December 2014 by the Japanese Association of Assurance Organizations for Sustainability Information and, with respect of GHG emissions, Assurance Engagements on Greenhouse Gas Statements (“ISAE 3410”), issued by the International Auditing and Assurance Standards Board in June 2012. The procedures, which we have been performed according to our professional judgment, include inquiries, document inspection, analytical procedures, reconciliation between source documents and Indicators in the Report, as well as the following:

- Making inquiries regarding the Company’s own criteria that it determined with consideration of Japanese environmental regulations, and evaluating the appropriateness thereof;
- Inspecting relevant documents with regard to the design of the Company’s internal controls related to the Indicators, and inquiring of personnel responsible thereof at the headquarters and one power station visited;
- Performing analytical procedures concerning the Indicators at the headquarters and one power station visited; and
- Testing, on a sample basis, underlying source information and conducting relevant re-calculations at the headquarters and one power station visited.

The procedures performed in a limited assurance engagement are more limited in nature, timing and extent than a reasonable assurance engagement. As a result, the level of assurance obtained in a limited assurance engagement is lower than would have been obtained if we had performed a reasonable assurance engagement.

**4. Conclusion**

Based on the procedures performed and evidence obtained, nothing has come to our attention that causes us to believe that the Indicators included in the Report have not been measured and reported in accordance with the Company’s own criteria that it determined with consideration of Japanese environmental regulations.

The J-POWER Group considers each employee to be a valuable human resource that enables its sustainable corporate growth. We strive to provide safe and comfortable working environments. At the same time, we endeavor to create a corporate culture that respects the character and individuality of our employees and makes them feel it worthwhile to constantly take on new challenges.

The J-POWER Group positions recruitment and making effective use of and developing human resources as crucial measures for its sustainable growth. We are reinforcing the foundations for career development with a focus on the Career Development Program (CDP) and establishing workplace environments and systems that make advantageous use of diversity in order to improve individual skills and workforce productivity.

## Recruiting and Making Effective Use of Human Resources

### The J-POWER Group's Approach to Human Resource

#### Recruitment

The J-POWER Group approach is realizing stable recruiting in the interest of sustainable growth, seeking human resources in a wide range of fields and age-groups, and providing employees with opportunities to take an active part. When recruiting and making use of human resources, we make sure that we comply with the labor regulations of Japan and other countries in which we conduct business. In addition, we are also conducting awareness raising through human rights training in accordance with J-POWER's Compliance Action Guidelines, which stipulate respect for individuality and human rights and prohibit discrimination. (Please refer to page 63.) We are engaged in creating systems and working environments that enable our diverse personnel to fully demonstrate their capabilities, without regard for gender, age, or other such distinctions.

#### Number of New Graduates Hired (J-POWER)

	FY 2016	FY 2017	FY 2018
Male	66	72	79
Female	3	9	12
Total	69	81	91

#### Status of Human Resource Retention (J-POWER)

Average length of continuous service	19.9 years (As of March 31, 2018)
Turnover rate for the three years after joining	0% (April 2017)

#### Measures to Promote Diversity

As a measure to further make use of the skills of older workers, we have an employment extension system that allows those who have passed mandatory retirement age (60) to extend their employment and continue working until the age of 65 should they so desire. Using this system in combination with the personnel registration system (available up to the age of 70), which introduces job opportunities in the Group, we will harness the experience, skills, and motivation to work possessed by the Group's most senior personnel for the sustained growth of our business. As of the end of March 2018, 135 employees (of J-POWER) are working using the employment extension system.

Our employment rate of persons with disabilities was 2.06% as of June 1, 2018. We are enhancing working environments and promoting understanding among other employees through such initiatives as establishing a consultation desk where employees with disabilities can discuss employment assistance and working environments as well as making office buildings barrier-free. We will continue making efforts to raise our employment rate of persons with disabilities.

We will also take steps to improve our management training with a view to building a workplace where diverse human resources can take active part.

#### Protection of Employees' Rights

In accordance with the laws and regulations of each country in which we operate, the J-POWER Group protects the basic rights of its employees, including the prevention of child labor and forced labor, protection of the right to freedom of association, protection of the right of collective bargaining, and compliance with minimum wages. The Group also thoroughly prohibits discrimination in all its forms, including on the grounds of birth, nationality, race, creed, religion, gender, physical condition, and social status.

In addition, in order to protect the rights of employees and to maintain and improve their living standards, we obligate employees who are not in management positions to join labor unions and form collective agreements between our companies and their respective labor unions. In addition to consulting with the labor unions on important changes in working conditions, including salaries and bonuses, we hold consultations on management policy with labor unions once a year in order to reflect the opinions of employees in management policy.

#### Internships

J-POWER, JPHYTEC Co., Ltd., and JPec Co., Ltd. offer short-term summer internships to science students in graduate school, university, or technical college. The internships provide experience in certain operations at power stations and other facilities with the aim of helping the interns' studies and supporting them in making future career choices. In fiscal 2017, 66 interns from various areas of Japan took up the challenge of practical training in the maintenance and operation of electric power facilities.

In addition, J-POWER conducts short-term summer and winter internships multiple times a year for students interested in employment in non-technical positions.

## Human Resource Development

### Human Resource Development Programs

Our aim in the J-POWER Group is to develop all our employees into independent, talented, professional human resources who contribute to the organization with knowledge in multiple specialized areas and a broad perspective. We have adopted the Career Development Program (CDP) as a measure to achieve that aim.

### Overview of the CDP

The CDP comprises departmental visions and personnel requirements, job rotation, and career building support systems. By implementing human resource development measures from a number of angles, we aim to increase value for both the Company and employees.

### Departmental Visions and Personnel Requirements

Each department establishes a departmental vision that reflects changes in its business environment and corporate strategy and lays out the kinds of human resources needed for the Company, based on the departmental vision, as personnel requirements. These personnel requirements are shared between the Company and employees. The Company uses the requirements as targets for its human resource development efforts and reflects them in its concrete personnel development mechanisms, while employees use them as guideposts for their career building and skill development efforts.

### Job Rotation

J-POWER divides its employees' careers into three broad stages: the basic knowledge and skill acquisition stage, the expert stage, and the professional stage. Job rotation helps employees gain the abilities necessary for each stage.

### Career Building Support Systems

To support employee's independent career building efforts, the Company systematically operates a range of support systems.

<b>Self-Declaration System</b>	Every year, employees make a self-declaration to the Company about their future career outlook, based in part on an examination of their execution of work duties and abilities. The Company's managers discuss the declarations with employees, offer advice as appropriate from a medium- to long-term human resource development perspective, and plan and implement employee rotations as needed.
<b>Training System</b>	The Company implements training systems in step with each employee's career stage, required skills, career path, and personal motivation. These include level-specific training <sup>1</sup> and department-specific training <sup>2</sup> as well as objective-specific training, self-improvement through correspondence or campus-based education, sending employees to study or work at universities or other institutions in and outside Japan, and selective leadership training.

Human resource development through such training programs is aimed not only at ensuring our human resources acquire the basic knowledge and skills necessary for our business, but also at fostering next-generation leaders, promoting diversity, and empowering our veteran employees.

1. Expert training, human resource management practical training, etc.
2. The technical departments (civil engineering and architectural engineering; hydroelectric power, transmission and transformation, and telecommunications; and thermal power) each have their own training facilities in order to systematically develop engineers.

### CDP Overview



### Evaluation and Management System

We established an evaluation system in 2004 that is based on a goal management system. The system encourages employees to perform work autonomously, heighten their drive to achieve, and improve their

faculties while working toward achieving their goals. We also set divisional goals to realize divisional strategies. Employees are encouraged to work together to achieve the divisional goals.

## Developing Environments to Create Dynamic Workplaces

### Toward the Realization of Work-Life Balance

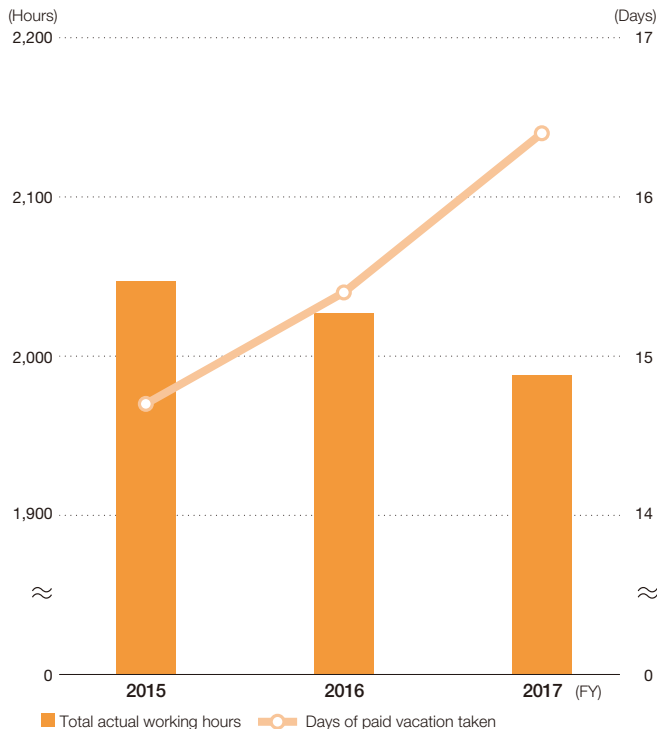
The J-POWER Group is actively developing working environments and cultures that enable every employee to autonomously enhance their work and personal life and focus on highly creative work. We are taking measures to help employees improve their work-life balance, including enhancing and encouraging the use of childcare and nursing care support programs, and normalizing working hours.

### Reduction of Working Hours

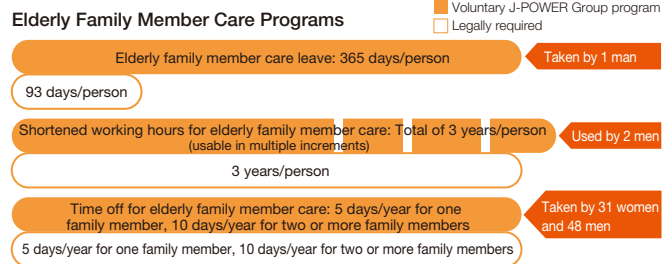
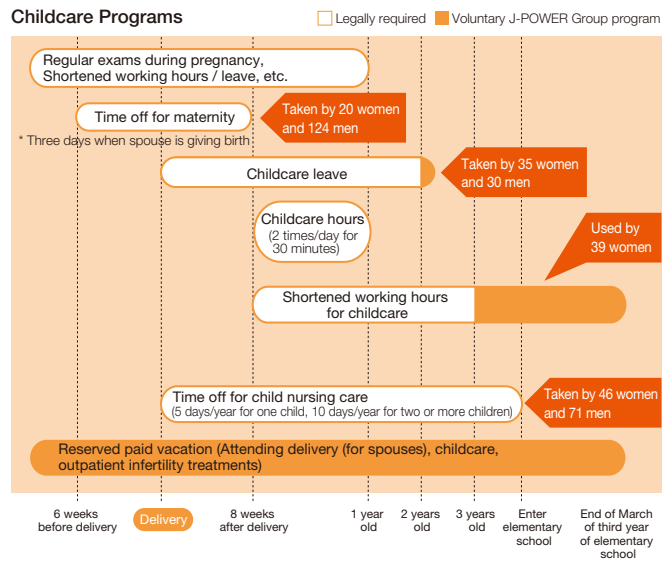
As part of the work reforms at J-POWER, we have established an action program known as J-POWER Challenge 30, setting and working toward goals that include reducing the number of overtime hours by 30% and increasing the days of paid vacation taken by 30%, compared with fiscal 2016 levels, by the end of fiscal 2020. Measures to achieve these goals include the introduction of a system for using paid leave in hourly increments and a policy of complete lights-out and a PC shutdown at Headquarters at 10 p.m. Through such efforts and by reexamining our operations, we will become a company in which diversified human resources gather and can prove their merits according to their capabilities.

	FY 2016	FY 2017	End of FY 2020 Target
Overtime hours	24.6 hrs/month	22.2 hrs/month	17 hrs/month
Days of paid vacation taken	15.4 days/year	16.4 days/year	20 days/year

### Changes in Total Actual Working Hours and Paid Vacation Taken (J-POWER)



### Overview of the Childcare and Nursing Care Support Programs and Results in Fiscal 2017 (J-POWER Group)



### “Platinum Kurumin” Special Certification Mark

Certified by the Minister for Health, Labour and Welfare as a supportive company for childcare, J-POWER received a “Kurumin” certification. We also received the special “Platinum Kurumin” mark certification, which is awarded only to companies with measures that have met an even higher standard. We will continue making improvements for an even better work environment so that all employees will be able to harmonize their work and their personal life and exercise their abilities fully.



### Consultation Desk

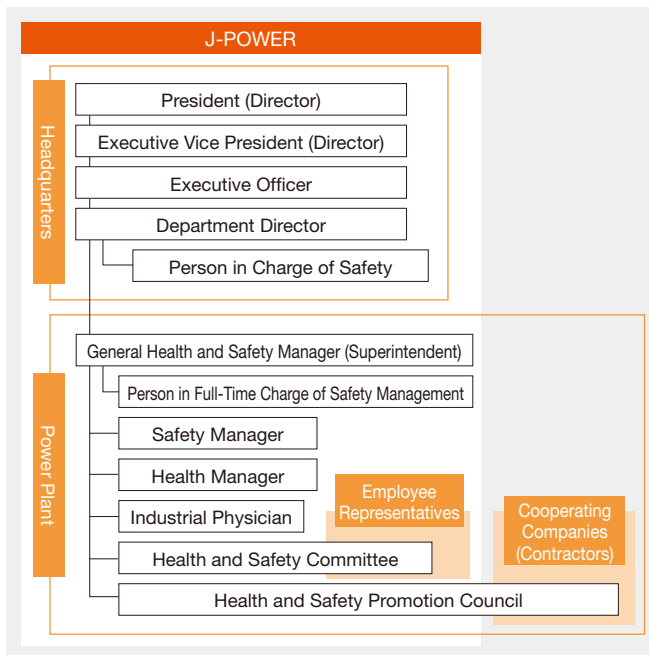
Aiming to create employee-friendly workplaces, we have established a consultation desk where employees can discuss working hours, the workplace environment, and harassment. In order to prevent harassment, we have also developed Company regulations, manuals, and other such resources, and we are implementing education for increased awareness via level-specific training courses, posters, and other such means. We are also training managers in each section in how to respond should a harassment-related incident occur as part of efforts to maintain a framework to respond to incidents appropriately. Our goal is a working environment where human rights and individuality are respected and where diverse personnel are completely at ease going about their work.

The J-POWER Group intends to create safe, healthy, and rewarding workplaces as the foundation of its business activities. J-POWER and other Group companies each have roles and responsibilities and collaborate on implementing health and safety management to prevent occupational accidents and maintain and improve the health of employees.

### Health and Safety Management System

Based on laws and regulations, the J-POWER Group has established health and safety management systems, which include employee representatives and cooperating companies (contractors), at Headquarters and local operating units, such as power plants.

#### Health and Safety Management System



Note: Since health and safety management systems differ depending on the work content and the number of employees, etc., of each operating unit, this diagram shows a typical system at a thermal power plant.

### Measures Pursuant to the Group Operational Health and Safety Plan

The J-POWER Group has established a groupwide Group Operational Health and Safety Plan. Based on the plan, individual Group companies formulate their own operational health and safety plans and take measures to promote occupational health and safety in cooperation with the Group.

The roles, operations, and workplace environments of Group companies vary significantly. Accordingly, to efficiently and effectively advance initiatives across the Group, the Group Operational Health and Safety Plan designates only major targets for the entire Group; specific safety initiatives to achieve said targets are designated in each Group company's operational health and safety plan in line with their respective conditions and needs. At the Group level, we check, evaluate, and take steps to improve each company's plan and its implementation, aiming to ensure the steady implementation of said plans.

The results from the implementation of operational health and safety plans are compiled at the end of the fiscal year and reported to the Executive Committee\*. The operational health and safety plans for the next fiscal year are drawn up on the basis of those results.

\* Executive Committee: Please refer to page 57.

### Fiscal 2018 Group Operational Health and Safety Plan

Major Targets	Operational Safety	No serious disasters (all related staff at Group workplaces and cooperating companies)
	Operational Health	Preventing and raising awareness of lifestyle-related diseases and enhancing mental health care

### Initiatives for the Prevention of Occupational Accidents

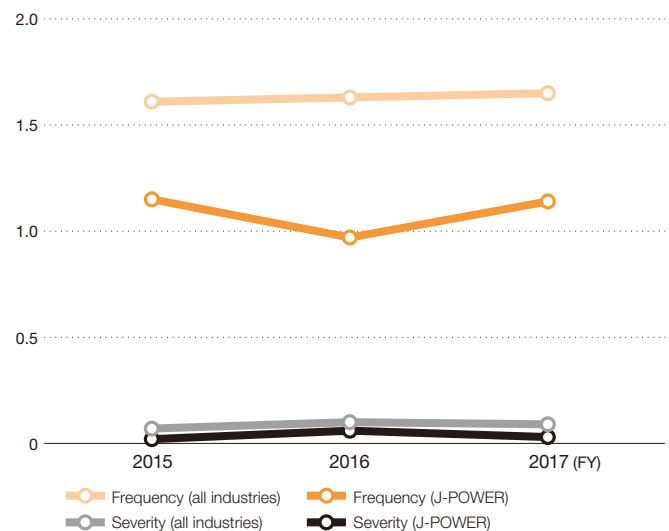
In recent years, many occupational accidents have occurred when contractors are engaged in construction and other work. It is therefore important to promote unified safety activities that include contractors. Accordingly, we are taking measures to invigorate communications throughout the workplace and raise safety awareness. In addition, when we place an order for construction work with contractors, we give consideration to work methods, schedules, costs, etc., in order to enable them to work in healthy and safe environments. By implementing these measures, we prevent the occurrence of all types of occupational and traffic accidents, including repetitive-pattern accidents.

The number of occurrences and nature of occupational accidents as well as analyses of the circumstances are reported to the Executive Committee on a quarterly basis.

#### Number of Occupational Accidents<sup>1</sup>

	FY 2015	FY 2016	FY 2017
Fatal Accident	—	—	—
Serious Injury	8	7	10
Minor Injury	13	11	12

#### Accident Frequency<sup>2</sup> and Severity<sup>3</sup>



1. Accidents involving J-POWER employees and accidents involving contractors (principal contractors and subcontractors) engaging in construction and other works ordered by J-POWER
2. Frequency: Number of casualties in occupational accidents per one million working hours. Covers accidents causing loss of one day or more of work. Does not include accidents of employees on loan.
3. Severity: Number of days of work lost per 1,000 working hours. Does not include accidents of employees on loan.

### Health and Safety Training Programs

J-POWER Headquarters implements safety training for Group companies at head offices and local operating units for the purpose of improving the health and safety of the entire J-POWER Group. In addition, local operating units implement safety training suitable for their business operations, such as training for new hires and transferring employees as required by regulations, special training for work involving electricity, and training about related laws and regulations. Management-level employees, such as superintendents, and the staff members in full-time charge of safety are made to participate in seminars and courses held by external organizations in order to improve their health and safety knowledge and management skills and to raise safety awareness. In fiscal 2017, 524 people participated in such training programs held by J-POWER Headquarters.



Safety awareness program

### Health and Safety Management with Regard to Radiation

J-POWER is currently proceeding with construction of the Ohma Nuclear Power Plant. Currently, construction work is still under way, and there is no danger of employees and workers being affected by radiation. We will have established our health and safety management system related to radiation by the time that it becomes necessary.

### Maintaining the Physical and Mental Health of Employees and Their Families

To maintain and improve the health of employees and their families, we encourage employees to undergo health checks and health maintenance guidance, and take infectious disease prevention measures. In addition, we place priority on the prevention of lifestyle-related disease and mental health disorders. Accordingly, we provide special health checks and specific health guidance as well as health maintenance and improvement activities\* and stress check programs. By taking these measures, we support the sound physical and mental health of employees and their families.

\* Health maintenance and improvement activities: Comprehensive activities that integrate activities aimed at total health, both physical and mental, based on Ministry of Health, Labour and Welfare guidelines on Total Health Promotion Plans (THP), and activities aimed at fostering a vibrant environment through the Company's unique communication revitalization initiative.

### Basic Policy on Occupational Health and Safety

The Company aims to create safe, healthy, and rewarding workplaces for the J-POWER Group.

The Company and general directors of operating units fully play their parts in establishing and operating a robust occupational health and safety management system with the cooperation of employees and all concerned while remaining in compliance with laws, regulations, and self-defined rules. We also work to promote overall safety management and improve the health and safety standards of the J-POWER Group. Through these measures, we prevent occupational accidents and maintain and promote health.

#### Creating Rewarding Workplaces

The Company works to create rewarding workplaces that enable each and every J-POWER Group employee to realize health and self-fulfillment by ensuring, maintaining, and improving workplaces that are safe and comfortable to work in.

#### Compliance with Rules, Including Laws and Regulations

The Company complies with external and internal rules, including the relevant laws, regulations, and Company regulations, and endeavors to prevent occupational accidents as well as maintain and promote health in the J-POWER Group.

#### Improvement of Health and Safety Management

The Company and general directors of operating units establish and operate a systematic, efficient occupational health and safety management system by supervising safety managers, health managers, and those in charge of safety at the operating units and by gaining the cooperation of employees and all others concerned, thus working to improve the level of health and safety in the J-POWER Group.

#### Responsibilities of Management

The Company and general directors of operating units recognize their responsibility to realize this basic policy and take the initiative and set an example for those that follow while keeping the relevant parties thoroughly informed of this basic policy.

When a situation arises that runs contrary to this aim, the Company and the general directors of operating units will take the initiative to solve the problem while working to investigate the cause, prevent recurrences, clarify the root causes, and take appropriate measures.

### Community Development Activities at the Central Java Project

The J-POWER Group is currently constructing the Central Java Project (2,000 MW, coal) in Indonesia. This project is known as a model project for its high efficiency and environmental friendliness. The J-POWER Group, through the project company Bhimasena Power Indonesia (BPI), provides various supporting activities for the sustainable growth of the local community in the area near the project site. In order to reflect local needs, the activities were reviewed by local citizens and the municipal governments, and thus BPI supported the implementation. For these supporting initiatives, BPI has received a number of awards both within and outside of Indonesia.



Children reading books in a library established with support from BPI





“We pursue harmony with the environment, and thrive in the trust of communities where we live and work.” “We regard profits as the source of our growth, and share the fruits with the society.” In line with these tenets of its Corporate Philosophy, the J-POWER Group actively participates in social contribution activities and contributes to social development as a good corporate citizen. Our activities include support for culture and the arts, cooperation with local communities, support for participation in volunteer activities, and contributions to the international community.

Specifically, having made community involvement and harmonizing the energy supply with the environment two main themes of our activities, we place high value on communicating with, sharing knowledge with, and learning with local community members and people working to harmonize energy supply with the environment. We are steadily engaging in activities on this basis as well as supporting the volunteer activities of our employees.

### Social Contribution Activities

For our social contribution activities in fiscal 2017, we implemented a variety of initiatives that included the following programs.

Program	Outline	Target	Partner group	Number of participants, etc.
<p><b>Workshop “Be the Minister of Energy!”</b></p> 	<p>This fun card game, developed with an organization that plans and researches educational science content, is aimed at helping players learn in groups about the country’s energy balance. Players step into the shoes of a cabinet minister in charge of deciding national energy policy, gaining a variety of experiences and insights. We bring the game to high schools, technical colleges, and universities around the country in a travelling class format.</p>	<p>High school, technical college, university, and graduate school students</p>	<p>Science Cocktail Project</p>	<p>Five–six times/year</p>
<p><b>Yakushi Kids’ Ski Class in Niigata Prefecture</b></p> 	<p>Several staff of the Koide Power Administration Office, who maintain and manage hydroelectric power plants and dams, volunteer as instructors and staff for a kids’ ski class held in Uonuma City. The ski school’s first president was a former employee of the Koide office, and the office’s relationship with the school goes back more than 30 years. The office also contributes numbered bibs to the program.</p>	<p>Pre-schoolers to 6th-year students</p>	<p>Sponsor: Ski Association of Japan (SAJ) Yakushi Ski School</p>	<p>176 students, 30 instructors/staff</p>

### Support for Volunteer Activities

To support employees’ volunteer activities, we are taking measures to maintain an environment that is conducive to volunteer activities, including offering a volunteer leave of absence system.

### Respect for Human Rights

Believing that it is important to respect human rights in our business activities, we incorporate human rights training in employee training programs and provide human rights training in accordance with the needs of local business units.

#### Specific Initiatives

<b>Economic activity support</b>	Supporting small businesses (laundries, tailors, etc.) run by local resident groups as well as local microfinance (providing materials, training, etc.) Support provided for 155 groups and 2,277 individuals as of 2017
<b>Medical support</b>	Providing supplemental food for infants and the elderly at village clinics, providing medical kits, training medical volunteers
<b>Educational support</b>	Supporting an environmental education program of the Indonesian government, providing a scholarship program for elementary and junior high school students in collaboration with the national electrical power company, supporting the creation of a village library in coordination with the regional government and the Coca Cola Foundation
<b>Infrastructure improvement support</b>	Setting up public toilets, renovating mosques, setting up a medical clinic, repairing roads, etc. 195 projects completed as of 2017
<b>Social, cultural, and environmental support</b>	Recycling activities, tree planting, mangrove maintenance, town clean-up, etc.

#### Main Awards Received

- Special Award as The Best Environmental Concerned Company on Indonesia Best Electricity Award (IBEA) 2016
- TOP CSR Improvement 2017
- TOP Leader on CSR Commitment 2017 for Takashi Irie, CEO of BPI (dispatched from J-POWER)
- AREA (Asia Responsible Entrepreneurship) Awards for category Social Empowerment
- Indonesia CSR Leadership Award 2017
- Certificate of appreciation for BPI contribution to national program on community based disaster risk reduction program in affected villages around power plant project



Indonesia CSR Leadership Award 2017 Ceremony

In accordance with its Corporate Philosophy, the Company endeavors to enhance corporate governance on an ongoing basis in order to realize sustainable growth and enhance corporate value over the medium-to-long term.

The Company has established the Basic Policy on Corporate Governance. For more information, please refer to the J-POWER Group website.

### Respect for Shareholder Rights

The J-POWER Group believes that sustainable growth and the enhancement of corporate value over the medium-to-long term can only be achieved in cooperation with a wide range of stakeholders. One important group of stakeholders is shareholders. The Company respects shareholder rights in order to allow for proper collaboration with shareholders.

#### Ensuring the Rights and Equality of Shareholders

The Company's policy regarding shareholder rights, such as voting rights at the general meeting of shareholders, is to respect such rights and ensure the substantial equality of shareholders. In addition, the Company gives consideration to ensuring that the special rights that are granted to minority shareholders are upheld with regard to confronting listed companies and their officers (including the right to seek an injunction against illegal activities and the right to file a shareholder lawsuit).

#### General Meetings of Shareholders

The Company provides shareholders with information that it believes to be useful for appropriate decision making at general meetings of shareholders. To this end, it is constantly striving to improve the content of convocation notices, reference materials, and business reports. It also provides information via financial results, timely disclosure materials, and disclosure via its website, as needed.

The Company sends a convocation notice for each ordinary general meeting of shareholders around three weeks prior to the meeting date to

ensure that shareholders have sufficient time to consider the proposals to be put before the meetings and enable them to appropriately exercise their voting rights. The Company also endeavors to disclose information included in the convocation notice online in both Japanese and English prior to sending the notice. Moreover, the Company strives to avoid scheduling the general meeting of shareholders for the date most crowded with other companies' shareholder meetings.

#### General Meeting of Shareholders for Fiscal 2017

Date	June 27, 2018 (to avoid the day most crowded with other companies' shareholder meetings)
Convocation notice	Posted online Japanese: May 23, 2018 English: May 30, 2018 Mailed June 1, 2018 (11 days earlier than legally required)

#### Strategic Shareholdings

J-POWER holds shares of companies it deems necessary in order to maintain, reinforce, and build a business base for sustainable growth and the medium-and long-term enhancement of corporate value.

Every year, the Board of Directors evaluates whether the Company should continue holding its main strategic shareholdings from the perspective of consistency with the objectives of said holdings as well as their rationality and necessity.

Furthermore, J-POWER exercises the voting rights of its strategically held shares based on careful consideration of the medium- and long-term enhancement of the corporate value of the companies whose shares it holds as well as its objectives for holding such shares.

### Corporate Governance System

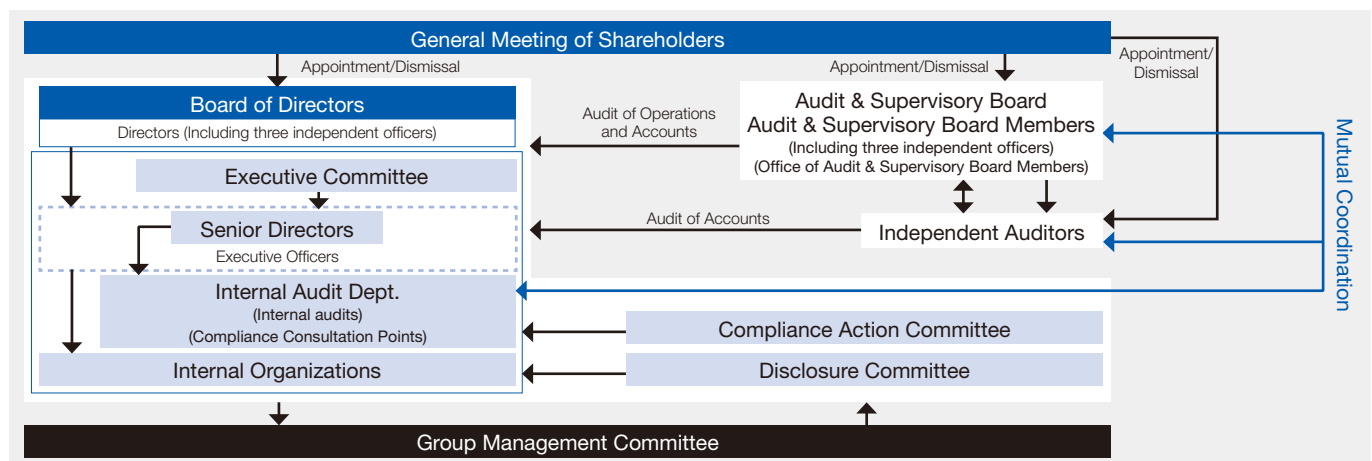
J-POWER has adopted a Company with an Audit & Supervisory Board structure, and has put in place a system for mutual oversight among Directors through the meetings of the Board of Directors attended by Outside Directors who participate in the Company's management decision making from an independent position.

Further, the execution of duties by Directors is constantly monitored through the attendance at the meetings of the Board of Directors and other

management meetings of the Audit & Supervisory Board Members, including Outside Audit & Supervisory Board Members with abundant experience in such areas as the management of leading Japanese listed companies and execution of government policies. The Company believes this system allows for sufficient corporate governance functionality.

The Company has also established the Executive Committee in addition to structures prescribed by the Companies Act.

Corporate Governance Structure (As of June 27, 2018)



## Composition of the Board of Directors and the Audit & Supervisory Board

### Composition of the Board of Directors

The Board of Directors is composed of Directors with abundant experience, distinguished knowledge, and advanced specialization, ensuring that an overall balance and diversity of knowledge, experience, and abilities is maintained. The number of Directors is capped at 14.

In addition, to ensure the effectiveness of independent and objective management supervision by the Board of Directors, the Company endeavors to appoint at least two Independent Outside Directors, giving consideration to their experience, knowledge, specialization, and other attributes.

Currently, the total number of Directors is 13, including three Independent Outside Directors.

### Composition of the Audit & Supervisory Board

The Audit & Supervisory Board comprises a maximum of five Audit & Supervisory Board Members, at least half of whom are required to be Outside Audit & Supervisory Board Members. In addition, at least one person with appropriate knowledge of finance and accounting is appointed as an Audit & Supervisory Board Member.\*

Currently, the total number of the Audit & Supervisory Board Members is five, including three Independent Outside Audit & Supervisory Board Members.

\* Senior Audit & Supervisory Board Member Hiroshi Fujioka (Independent Outside Audit & Supervisory Board Member) has a high level of knowledge in the area of finance and accounting as he has had many years of experience in fiscal and financial administration.

## System for the Execution of Directors' Duties

### Ensuring Effectiveness in Business Execution

The Board of Directors meets monthly in principle\* and on an as-needed basis, with attendance by all Directors and Audit & Supervisory Board Members, including Outside Directors and Outside Audit & Supervisory Board Members. The Executive Committee meets weekly in principle, with attendance by all Senior Directors, Executive Managing Officers, and full-time Audit & Supervisory Board Members. This committee discusses matters subject to deliberation by the Board of Directors, significant company-wide matters related to business execution by the President and Executive Vice Presidents based on policies decided by the Board of Directors, and important matters related to individual business execution.

In addition to allocating functions for the Board of Directors and Executive Committee, the Company has established a system in which Senior Directors and Executive Officers share responsibility for business execution. This system clarifies responsibilities and authority, enables appropriate and prompt decision making, and provides for efficient corporate management.

\* The Board of Directors met 12 times during fiscal 2017.

### Ensuring Appropriateness in Business Execution

The Company has established the Internal Audit Department to ensure proper business execution. The department conducts internal audits from a perspective that is independent of other operating units. In addition, each operating unit regularly conducts self-audits of its own business execution.

### Preventing Conflicts of Interest

The Directors of the Company, in accordance with its Corporate Philosophy, Corporate Conduct Rules, and Compliance Action Guidelines<sup>1</sup>, exemplify honest and fair conduct based on a spirit of

compliance and business ethics. In addition, the Company works to prevent conflicts of interest in the event that the Company engages in a transaction with one of its Directors, etc.,<sup>2</sup> by obtaining the approval of the Board of Directors before executing the transaction, and reports the results of such transactions to the Board of Directors.

1. Please refer to pages 62 and 63 for further information on the Corporate Conduct Rules and Compliance Action Guidelines.  
2. Directors or major shareholders (shareholders with shares representing 10% or more of the voting rights in the Company)

## Audits by Audit & Supervisory Board Members

In accordance with the Companies Act, J-POWER appoints Audit & Supervisory Board Members, who audit the legality and appropriateness of Directors' business execution. At J-POWER's Headquarters, Audit & Supervisory Board Members conduct audits by attending the meetings of the Board of Directors and other important meetings and observing the status of the execution of Directors' and Executive Officers' duties. In addition, the Audit & Supervisory Board Members perform site visits to local operating units and subsidiaries in Japan and overseas.

In the course of accounting audits, Audit & Supervisory Board Members liaise with the Independent Auditors to regularly receive reports and exchange opinions regarding auditing schedules and results as a means of ensuring the appropriateness of the Independent Auditors' auditing methods and results.

When performing audits, Audit & Supervisory Board Members liaise with the Internal Audit Department.

With regard to staff under the Audit & Supervisory Board Members, the Company has established the Office of Audit & Supervisory Board Members as an independent unit outside of the Directors' chain of command. The office's full-time specialist staff assist the Audit & Supervisory Board Members in the course of their audits.

## Group Governance

With regard to the administration of subsidiaries and affiliates, the J-POWER Group's basic policy calls for Group-wide business development in accordance with the Group's management plan. The administration of subsidiaries and affiliates is undertaken in accordance with the Company's internal regulations, and the Group Management Committee works to improve the appropriateness of operations for the entire corporate Group. In addition, the Audit & Supervisory Board Members and the Internal Audit Department implement audits of subsidiaries and affiliates with the objective of ensuring proper operations at all Group companies.

## Evaluation of Effectiveness of the Board of Directors

The Company annually analyzes and evaluates the effectiveness of the Board of Directors to improve its effectiveness, as well as to realize sustainable growth and enhance corporate value over the medium-to-long term.

Regarding the evaluation in 2018, the Board of Directors discussed the status of measures implemented on the basis of the previous year's analysis and evaluation as well as the results of interviews conducted mainly with Outside Directors and Outside Audit & Supervisory Board Members, and the chairs of the Board of Directors and Audit & Supervisory Board. As a result of the discussion, the effectiveness of the Board of Directors was determined to be sufficient. Going forward, the Company will further expand the scope of deliberation based on changes in the business environment, and make continual efforts to enhance the effectiveness of the Board of Directors.

Directors, Audit & Supervisory Board Members, and Executive Officers (As of June 27, 2018)



Representative Director  
Chairman  
**Masayoshi Kitamura**  
Company-wide compliance



Representative Director  
President  
**Toshifumi Watanabe**



Representative Director  
Executive Vice President  
**Hitoshi Murayama**  
General operations  
Production/technology oversight  
Procurement Dept.



Representative Director  
Executive Vice President  
**Masato Uchiyama**  
General operations  
Department Director of Energy Business  
(delegation of administrative works)  
Corporate Planning & Administration Dept.  
Accounting & Finance Dept.  
General Affairs Dept.



Representative Director  
Executive Vice President  
**Akihito Urashima**  
General operations  
Department Director of Nuclear Power  
Business (delegation of administrative works)



Director, Executive Vice President  
**Yoshiki Onoi**  
General operations  
Department Director of International Business  
(delegation of administrative works)



Director, Executive Vice President  
**Hiromi Minaminosono**  
General operations  
Department Deputy Director of Nuclear Power  
Business (delegation of administrative works)  
Secretarial Affairs & Public Relation Dept.  
Personnel & Employee Relations Dept.  
Siting & Environment Dept.  
Nuclear Power Management Dept.



Director, Executive Managing Officer  
**Hiroyasu Sugiyama**  
Department Director of Renewable Energy  
(delegation of administrative works)  
Department Deputy Director of Nuclear Power  
Business (delegation of administrative works)  
Civil & Architectural Engineering Dept.  
Thermal power engineering business and  
international business (matters under special  
assignment)



Director, Executive Managing Officer  
**Hideki Tsukuda**  
Thermal Power Dept.  
Thermal Power Engineering Dept.  
Research & Development Dept.  
International business (matters under special  
assignment)



Director, Executive Managing Officer  
**Makoto Honda**  
Department Deputy Director of International  
Business (delegation of administrative works)  
Accounting & Finance Dept.  
Procurement Dept.  
International Business Management Dept.  
International Business Development Dept.  
Corporate planning & administration (matters  
under special assignment)



Director  
**Go Kajitani**<sup>1,3</sup>



Director  
**Tomonori Ito**<sup>1,3</sup>



Director  
**John Buchanan**<sup>1,3</sup>

Senior Audit & Supervisory  
Board Members

Naori Fukuda  
Hiroshi Fujioka<sup>2,3</sup>  
Shinichi Kawatani

Audit & Supervisory  
Board Members

Mutsutake Otsuka<sup>2,3</sup>  
Kiyoshi Nakanishi<sup>2,3</sup>

Executive Managing Officers

Shosaku Kusunose  
Yoshikazu Shimada  
Ryou Suzuki

Hisanori Shizuma  
Hitoshi Kanno

Executive Officers

Hiroshi Sasatsu  
Katsunori Hoshi  
Isshu Kurata  
Masaaki Ikeda

Takaya Nomura  
Osamu Hagiwara  
Ryouji Sekine  
Takashi Jahana

1. Outside Director  
2. Outside Audit & Supervisory Board Member  
3. Independent Officer

## Outside Directors and Outside Audit & Supervisory Board Members

The Company's Outside Directors and Outside Audit & Supervisory Board Members are independent officers that meet both the requirements for independent officers prescribed by the Tokyo Stock Exchange, and the Criteria to Determine the Independence of Outside Officers prescribed by the Company.

### Criteria to Determine the Independence of Outside Officers

Outside Officers must not fall into any of the following categories:

1. Persons whose major business partner<sup>1</sup> is the Company or any of the Company's subsidiaries, or persons executing business for such persons.
  2. Persons who are major business partners<sup>1</sup> of the Company or any of the Company's subsidiaries, or persons executing business for such persons.
  3. Consultants, accounting professionals, and legal professionals who have received large amounts of money<sup>2</sup> and/or other items of value other than officers' remuneration from the Company or any of the Company's subsidiaries. (If the persons that have received such items are corporations, general partnerships, or other organizations, this means persons that belong to such organizations.)
  4. Persons who fall into any of (1) to (3), below, during the past 10 years:
    - (1) Persons listed in paragraphs 1 to 3, above;
    - (2) Persons who execute business, or Directors who do not execute business of the Company or any of the Company's subsidiaries; or
  - (3) Audit & Supervisory Board Members of the Company or any of the Company's subsidiaries.
  5. Persons who are close relatives of any of the persons listed in (1) to (4), below (excluding immaterial cases):
    - (1) Persons listed in paragraphs 1 to 4, above;
    - (2) Persons who execute business or Directors who do not execute business of the Company or any of the Company's subsidiaries;
    - (3) Audit & Supervisory Board Members of the Company or any of the Company's subsidiaries; or
    - (4) Persons who fall under (2) or (3), above, during the past 10 years.
1. "Major business partners" refers to business partners whose annual amount of transactions with the Company during the past three fiscal years accounted for over 2% of the total consolidated sales of the Company or that of the other party.  
2. "Large amounts of money" refers to amounts of ¥10 million or more a year, on average, during the past three fiscal years.

### Independent Outside Directors (As of June 27, 2018)

#### Go Kajitani (b. November 22, 1936)

##### Career summary

April 1967	Registered as an attorney at law (Dai-ichi Tokyo Bar Association) Joined KAJITANI LAW OFFICES
April 1998	President of Dai-ichi Tokyo Bar Association, Vice President of Japan Federation of Bar Associations
April 1999	Senior Partner of KAJITANI LAW OFFICES
June 2003	Outside Audit & Supervisory Board Member of NICHIAS Corporation
April 2004	President of Japan Federation of Bar Associations
June 2007	Chairman of the Central Third-Party Committee to Check Pension Records, the Ministry of Internal Affairs and Communications
June 2009	Director (Outside Director) of the Company (current position)
April 2011	President of Japan Legal Support Center
June 2011	Outside Audit & Supervisory Board Member of The Yokohama Rubber Co., Ltd.

##### Reason for selection

Go Kajitani has distinguished knowledge as an attorney at law and abundant experience in the legal profession.

##### Main activities during fiscal 2017

He attended 12 of the 12 meetings of the Board of Directors and made comments primarily based on his distinguished knowledge and a wide range of experience as an attorney at law.

#### Tomonori Ito (b. January 9, 1957)

##### Career summary

April 1979	Joined The Bank of Tokyo, Ltd.
March 1990	Vice President of Investment Banking Group, Bank of Tokyo Trust Company, New York Branch
April 1994	Vice President of Emerging Market Group, The Bank of Tokyo, Ltd., New York Branch
March 1995	Manager of Business Development Daini, Union Bank of Switzerland, Tokyo Branch
August 1997	General Manager of Tokyo Branch and Head of Investment Banking, Union Bank of Switzerland
June 1998	Head of Investment Banking and Managing Director, UBS Securities Japan Co., Ltd.
April 2011	Visiting Professor of Graduate School of International Corporate Strategy, Hitotsubashi University
May 2012	External Director of PARCO CO., LTD. (current position)
October 2012	Professor of Graduate School of International Corporate Strategy, Hitotsubashi University (currently Department of International Corporate Strategy, Graduate School of Business Administration, Hitotsubashi University) (current position)
June 2014	Outside Director of Aozora Bank, Ltd. (current position)
June 2016	Director (Outside Director) of the Company (current position)

##### Reason for selection

Tomonori Ito has abundant experience in investment banking business both inside and outside Japan and distinguished knowledge acquired through research in financial theory as a Professor of the Department of International Corporate Strategy, Graduate School of Business Administration, Hitotsubashi University.

##### Main activities during fiscal 2017

He attended 12 of 12 meetings of the Board of Directors and made comments primarily based on his abundant experience in investment banking business both inside and outside Japan and distinguished knowledge and abundant experience acquired through research in financial theory.

#### John Buchanan (b. October 31, 1951)

##### Career summary

October 1974	Joined Lloyds Bank Group (Bank of London and South America, Lloyds Bank International, Lloyds Merchant Bank)
January 1981	Representative, subsequently Branch Manager, Lloyds Bank International, Osaka
August 1983	Branch Manager, Bank of London and South America, Barcelona
October 1987	Joined S.G. Warburg & Co. Ltd.
October 1992	Director of S.G. Warburg & Co. Ltd.
October 1995	Joined The Sumitomo Bank, Limited, London Branch
May 2000	Joined Daiwa Securities SB Capital Markets Europe Limited
August 2006	Research Associate of Centre for Business Research, University of Cambridge (current position)
June 2016	Director (Outside Director) of the Company (current position)

##### Reason for selection

John Buchanan has abundant experience in investment advisory business both inside and outside Japan as well as distinguished knowledge acquired through research concerning corporate governance at the University of Cambridge.

##### Main activities during fiscal 2017

He attended 12 of 12 meetings of the Board of Directors and made comments primarily based on his abundant experience in investment advisory business both inside and outside Japan and distinguished knowledge and abundant experience acquired through research concerning corporate governance.

## Independent Outside Audit & Supervisory Board Members (As of June 27, 2018)

### Hiroshi Fujioka (b. June 2, 1954)

#### Career summary

April 1977	Joined the Ministry of Finance
July 2008	Director-General of Customs and Tariff Bureau, the Ministry of Finance
July 2009	Director-General for Policy Planning, the Ministry of Land, Infrastructure, Transport and Tourism
January 2012	Senior Executive Vice President of Japan Housing Finance Agency (Incorporated Administrative Agency)
January 2014	Councilor of the Minister's Secretariat, the Ministry of Finance
June 2014	Audit & Supervisory Board Member (Outside Audit & Supervisory Board Member) of the Company
June 2015	Senior Audit & Supervisory Board Member (Outside Audit & Supervisory Board Member) of the Company (current position)
June 2016	Outside Corporate Auditor of The Nishi-Nippon City Bank, Ltd.
October 2016	Audit and Supervisory Committee Member (Outside Director) of The Nishi-Nippon City Bank, Ltd. (current position)

#### Reason for selection

Hiroshi Fujioka has distinguished knowledge and abundant experience acquired through many years of work in the government.

#### Main activities during fiscal 2017

He attended 12 of the 12 meetings of the Board of Directors and 12 of the 12 meetings of the Audit & Supervisory Board, and made comments primarily based on his distinguished knowledge and abundant experience in fiscal and financial administration, etc.

### Mutsutake Otsuka (b. January 5, 1943)

#### Career summary

April 1965	Joined Japanese National Railways
April 1987	Joined East Japan Railway Company, General Manager of Finance Department
June 1990	Director and General Manager of Personnel Department of East Japan Railway Company
June 1992	Executive Director and General Manager of Personnel Department of East Japan Railway Company
June 1997	Executive Vice President and Representative Director and Director General of Corporate Planning Headquarters of East Japan Railway Company
June 2000	President and Representative Director of East Japan Railway Company
April 2006	Chairman and Director of East Japan Railway Company
April 2007	Temporary Audit & Supervisory Board Member (Outside Audit & Supervisory Board Member) of the Company
June 2007	Audit & Supervisory Board Member (Outside Audit & Supervisory Board Member) of the Company (current position)
May 2011	Vice Chairman of Nippon Keidanren
April 2012	Advisor of East Japan Railway Company (current position)
June 2013	Outside Director of JX Holdings, Inc. (currently JXTG Holdings, Inc.) (current position)
June 2014	Outside Director of NIPPON STEEL & SUMITOMO METAL CORPORATION (current position)

#### Reason for selection

Mutsutake Otsuka has distinguished knowledge and abundant experience as a director of a listed company.

#### Main activities during fiscal 2017

He attended 12 of the 12 meetings of the Board of Directors and 12 of the 12 meetings of the Audit & Supervisory Board and made comments primarily based on his distinguished knowledge and abundant experience in the management of a listed company.

### Kiyoshi Nakanishi (b. April 2, 1945)

#### Career summary

April 1970	Joined Toyota Motor Co., Ltd.
January 1997	General Manager of No. 3 Engine Technical Department of No. 4 Development Center of TOYOTA MOTOR CORPORATION
June 2000	Director of TOYOTA MOTOR CORPORATION
June 2003	Managing Officer of TOYOTA MOTOR CORPORATION
June 2004	Adviser of TOYOTA MOTOR CORPORATION
June 2004	Representative Director of GENESIS RESEARCH INSTITUTE, INC.
June 2010	Adviser of GENESIS RESEARCH INSTITUTE, INC. (current position)
June 2010	Adviser of Toyota Central R&D Labs, Inc.
June 2010	Audit & Supervisory Board Member of TOYOTA TECHCRAFT Co., LTD. (currently TOYOTA CUSTOMIZING & DEVELOPMENT Co., Ltd.)
June 2011	Audit & Supervisory Board Member (Outside Audit & Supervisory Board Member) of the Company (current position)

#### Reason for selection

Kiyoshi Nakanishi has distinguished knowledge and abundant experience as a director of a listed company.

#### Main activities during fiscal 2017

He attended 12 of the 12 meetings of the Board of Directors and 12 of the 12 meetings of the Audit & Supervisory Board and made comments primarily based on his distinguished knowledge and abundant experience in the management of a listed company.

## Directors' and Audit & Supervisory Board Members' Remuneration

By resolution at the 54th Ordinary General Meeting of Shareholders held on June 28, 2006, total remuneration for Directors was capped at ¥625 million annually (a fixed monthly salary calculated according to position and a performance-linked bonus paid once a year. Employee salaries for Directors who serve in dual capacity as employees are excluded). Directors' remuneration is determined, within the cap prescribed above, by means of discussion at meetings of the Board of Directors, after comprehensively taking into account corporate performance, his or her position, and other factors, in light of the characteristics of the Company's business, namely, aiming to recover investment through the long-term operation of power plants, etc.

Total remuneration for the Audit & Supervisory Board Members was capped at ¥120 million annually (a fixed monthly salary calculated according to position) at the same general meeting of shareholders. Audit & Supervisory Board Members' remuneration is determined, within the cap prescribed above, by means of consultation among Audit & Supervisory Board Members.

## Remuneration Paid during Fiscal 2017

Category	Number of Persons	Total Amount
Directors	16	¥442 million
(Outside Directors)	(3)	(¥28 million)
Audit & Supervisory Board Members	6	¥116 million
(Outside Audit & Supervisory Board Members)	(3)	(¥49 million)
Total	22	¥558 million

Notes: 1. The Directors' remuneration includes a performance-linked bonus of ¥49 million for fiscal 2017.

2. The number of Directors and the number of Audit & Supervisory Board Members include two Directors and one Audit & Supervisory Board Member, respectively, who retired from office at the end of the 65th Ordinary General Meeting of Shareholders held on June 28, 2017.

## Remuneration of Independent Auditors

Total remuneration paid during fiscal 2017 by the Company and its consolidated subsidiaries to the Independent Auditors who conducted accounting audits of the J-POWER Group comprised ¥140 million for auditing procedures and ¥22 million for non-auditing functions.

J-POWER, in accordance with its Corporate Philosophy, has established the Corporate Conduct Rules (please refer to page 62) as the core of its compliance activities, outlining basic rules for behavior in line with the spirit of compliance and business ethics to be observed in the course of business operations. In addition, the Company has established its Compliance Action Guidelines (please refer to page 62) as criteria for determining specific actions by individual employees, including members of management, when conducting business activities. The Company distributes these documents to all employees and works to encourage compliance awareness by having employees sign and keep with them a copy of the Compliance Pledge.

Directors adhere to the Corporate Philosophy, Corporate Conduct Rules, and Compliance Action Guidelines, set an example for honest and fair conduct based on a steadfast spirit of compliance and business ethics, and instill these values in employees.

In addition to these compliance measures, the Company incorporates mutual checks and balances in the internal decision-making process, undertakes reviews in various meetings and committees, and always maintains risk management frameworks in accordance with Company regulations. This structure ensures measures are implemented to recognize and avoid risks in the conduct of business activities and minimizes losses when risks actualize.

### Compliance Promotion Structure

The Company's compliance is overseen by the Chairman. An Executive Vice President or an Executive Officer in charge of compliance implements compliance promotion programs and assists the Chairman and President. The Compliance Action Committee, chaired by the Chairman, has been established to discuss company-wide compliance promotion measures, evaluate their implementation status, and address issues related to compliance violations. With the participation of group companies, the committee is implementing measures for the entire J-POWER Group. Two task forces, led by two Executive Vice Presidents, have also been established to quickly and accurately promote operations pertaining to compliance promotion, one for company-wide compliance promotion and the other for autonomous safety activities based on the Company's safety regulations.

At major business units, such as regional headquarters, regional transmission system and telecommunications centers, and thermal power plants, local compliance committees have been established to implement compliance activities suited to the characteristics of their respective business units.

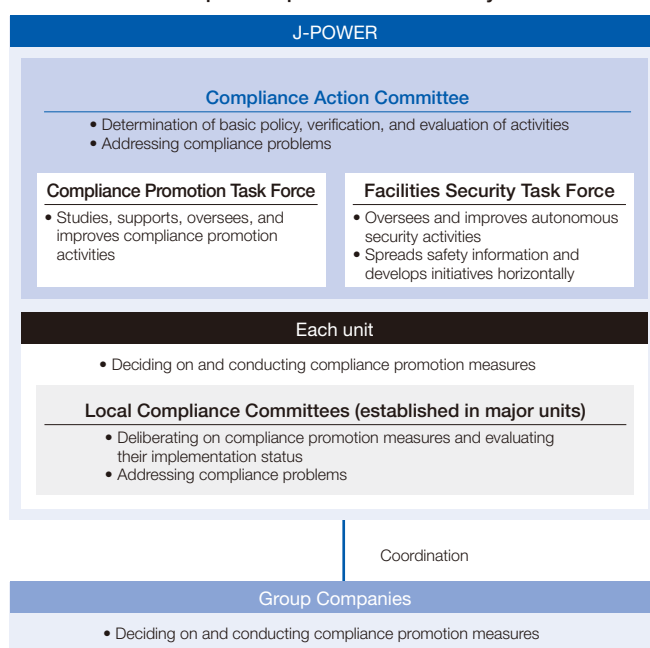
### Compliance Promotion Activities

The Compliance Action Committee utilizes a PDCA (plan-do-check-act) method for compliance promotion, formulating a plan for each fiscal year, evaluating the results at the end of the fiscal year, and formulating the next year's plan based on the results. The compliance promotion plan and results are reported to the Board of Directors.

To raise compliance awareness among employees, the Company issues notifications of changes in laws and regulations, presents compliance-related case studies, and conducts training sessions on laws and regulations related to our business and on compliance issues.

When alleged compliance violations occur, the Compliance Action Committee investigates the facts and causes surrounding the issues and takes appropriate action as necessary, including issuing directives for improvement or measures to prevent their recurrence.

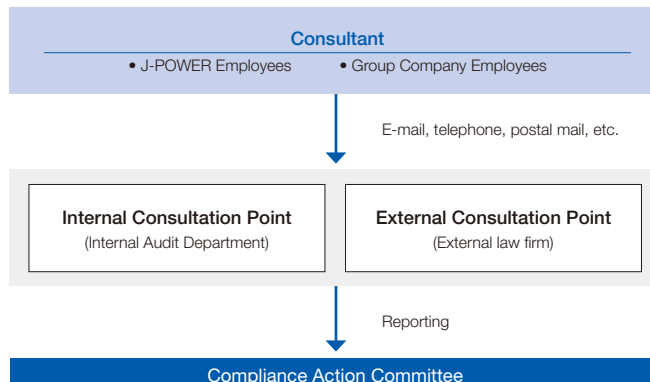
### The J-POWER Group's Compliance Promotion System



### Compliance Consultation Points (Whistle-Blowing System)

The J-POWER Group has established Compliance Consultation Points at the Internal Audit Department and at an external law firm to serve as a consulting hotline in the event that employees face compliance issues. The Group makes employees aware of these channels. Employees who use these resources are rigorously protected.

### The J-POWER Group's Compliance Consultation Points



### Barring Relations with Anti-Social Forces

The J-POWER Group's policy is to not maintain relations of any sort with the anti-social forces that threaten the order and safety of civil society. The Company has designated an internal department to act as a point of contact in the event that demands or other contacts are received from anti-social forces and has established a system that ensures the quick collection of information and appropriate response in cooperation with specialist external agencies.

### Preventing Bribery and Corruption

The J-POWER Group prohibits bribes, illicit payments, and illegal political donations, as well as entertaining or giving gifts to public officials that conflict with the National Public Service Ethics Act or rules prescribed by government agencies. Also, the Company does not offer financial or other rewards to foreign government officials in return for illicit benefits or accommodations. We are careful to avoid actions that might be construed as collusion with politicians or administrative agencies and strive to establish sound and transparent relationships.

### Disclosure

The Company has established the Disclosure Committee, chaired by the President, to enhance transparency and accountability in corporate

activities. This committee ensures the fair and transparent disclosure of company information in a timely and proactive manner.

### Compliance with the Internal Control Reporting System

In response to the internal control reporting system for financial reporting required by Japan's Financial Instruments and Exchange Act, the J-POWER Group established, maintains, and evaluates its internal control system, mainly through the Accounting & Finance Department and Internal Audit Department.

In fiscal 2017, continuing from the previous year, the Company's management evaluated the status of the development and operation of internal controls with respect to company-wide internal controls, operational process-related internal controls, and information technology-based internal controls in accordance with the implementation standards of Japan's Financial Services Agency. The Company determined that its internal control system for financial reporting is effective. This evaluation result was submitted as an Internal Control Report to the Director-General of the Kanto Finance Bureau in June 2018 following an audit carried out by the Company's Independent Auditor.

Going forward, the J-POWER Group will continue to verify the efficacy of its internal control system and ensure the reliability of its financial reporting.

#### Corporate Conduct Rules (Revised on April 1, 2004)

##### Reliable supply of energy

We will put forth every effort to reliably supply energy both in Japan and abroad, utilizing our experienced personnel and cutting-edge technology.

##### Safety assurance

In conducting operations, we will constantly work to raise safety awareness and give the highest priority to public and worker safety.

##### Environmental conservation

Based on the awareness that our business operations are deeply linked with the environment, we will actively engage in environmental conservation activities.

##### Communication with society

To establish communication with society, we will conduct information disclosure and public relations activities in a fair and transparent manner.

##### Contribution to society

Aiming to be a good corporate citizen, we will undertake activities to contribute to society and assist in the development of local communities both in Japan and abroad.

##### Creation of a rewarding corporate culture

In addition to providing safe and comfortable work environments, we will respect the individuality of our employees and endeavor to establish a rewarding corporate culture that encourages them to take on new challenges.

##### Compliance with laws, regulations, and corporate ethics

We will conduct business in good faith and in a fair manner with a strong commitment to compliance and ethics. We will stand firm against anti-social forces that threaten the order and safety of civil society.

##### Role of top management

Recognizing its responsibility in putting into practice the spirit of these Corporate Conduct Rules, our top management must set an example for others and work to spread awareness of these rules.

Should an event occur that violates the spirit of these rules, top management must take the initiative in dealing with the problem to determine the causes and prevent its recurrence. Top management must also identify and take disciplinary action against those responsible, including its own members.

#### Compliance Action Guidelines (Revised on October 1, 2014)

##### [1] Basic Matters (omitted)

##### [2] Compliance Rules

##### 1. Relationship with Society

###### (1) Contribution to Society

- a. We shall contribute to the sustainable development of Japan and the world by faithfully fulfilling the mission of the J-POWER Group to provide a stable supply of electricity.
- b. We shall act sensibly and responsibly as members of society and conduct our duties with awareness and pride as members of the J-POWER Group.
- c. We shall actively participate in social contribution activities as a good corporate citizen and contribute to the development of society. We shall continually conduct social contribution activities, including supporting culture and the arts, cooperating with local communities, supporting participation in volunteer activities, and contributing to international society, in order to fulfill our role as a good corporate citizen.

###### (2) Appropriate Disclosure

- a. We shall not act in a way that leads to a loss of trust from society, such as disclosing false information or data, or willfully concealing information that should be made public.
- b. We shall respect diverse views and not act in a way that hinders the formation of sound public opinion.

- c. In written statements and other information released as part of public relations activities, we will never use any slanderous expressions or socially discriminatory language.

###### (3) Restrictions on Donations and Political Contributions

- a. In making political contributions or donations to any type of organization, etc., we will comply with the Public Officers Election Act, Political Funds Control Act, and other related laws and regulations, acting in accordance with regular methods.
- b. In accordance with Company regulations, we shall receive prior approval for contributions or donations.
- c. We will not offer bribes, illicit payments, or illegal political donations, and be extremely careful not to act in a way that may be construed as colluding with politicians or government agencies. We will strive to build sound and transparent relationships.

###### (4) Barring Relations with Anti-Social Forces

- a. To avoid illegal or anti-social behavior, we will maintain a basic legal knowledge, an awareness of social norms and sense of justice, and strive to constantly exercise good sense.
- b. We will be resolute in dealing with the anti-social forces that threaten the order and safety of civil society and never engage with them in relations of any sort. If an improper demand is received from anti-social forces or other parties, we will maintain a firm stance and never seek a resolution with money or other rewards.



- c. We will never use anti-social forces for corporate or personal gain.
- d. We will never conduct business with anti-social forces or businesses affiliated with anti-social forces.

(5) Environmental Protection

We maintain a continuous awareness of the importance of environmental protection in all our business activities. We will comply with all environment-related laws and regulations and proactively address global and local environmental issues based on our Environmental Management Vision.

(6) Appropriate Use of Information Systems

- a. We recognize that information security is a social responsibility for a company with vital infrastructure.
- b. We use the Company's information systems only for work purposes, and not for personal matters.
- c. We strictly manage Company information and encrypt data removed from Company premises to prevent the leak or theft of confidential information.
- d. When using computers or external storage media, we will run a virus scan to prevent damage from viruses and other malicious programs.
- e. We will properly manage our ID and password information and never illicitly access systems.
- f. When using the Internet, we always take care to ensure appropriate use and refrain from acts that could undermine the Company's social credibility in our private lives, as well.
- g. We use software appropriately and shall not install software with a high risk of information leakage, such as free software or file sharing software.

(7) Protection of Intellectual Property Rights

The Company's intellectual property rights acquired through research and development or other business operations (inventions, utility models, designs, copyrights, trademarks, know-how, technical information, etc.) are important Company assets. We will use them properly and strive to protect those rights.

- a. We will promptly submit applications and register work that belongs to the Company and strive to protect the Company's intellectual property rights.
- b. We will never infringe upon the intellectual property rights of others, such as by engaging in the unauthorized copying of computer software.
- c. The intellectual property rights of business partners must be used only under appropriate license and never illicitly.

(8) Compliance with Import-Export Laws and Regulations

- a. For the export and import of products, we will follow proper import/export and customs procedures in accordance with relevant laws and regulations.
- b. We will never import or export prohibited goods.

## 2. Relationships with Customers, Business Partners, and Competitors

(1) Safety and Reliability of Energy Supplies and Product Sales

- a. In supplying electric power and other forms of energy to society, with constant priority on ensuring safety, we will maintain full understanding of and compliance with relevant laws, regulations, and standards. We will also take extreme care with regard to maintenance and operations and strive to provide a stable energy supply with quality and safety.
- b. Similarly, with regard to product sales, we will maintain full understanding of and compliance with safety-related laws and safety standards, from development and manufacturing to sales, repair, and maintenance, aiming for higher reliability.
- c. When we receive information about impediments to safety or reliability, we will promptly confirm the facts, and if we determine that there is a problem, contact the relevant departments and take appropriate action.

(2) Compliance with Antitrust Laws

Under no circumstances will we act in a manner that violates antitrust laws, for example, by participating in cartels or collusion, fixing resale prices, or abusing a dominant bargaining position. We will engage in fair and free competition.

- a. We will not make any agreements with other business operators that affect sales prices or terms of sale and will not engage in collusive bidding or other unreasonable restraint of trade.
- b. We will not sell products at inappropriately low prices, restrict the selling prices of customers, or engage in other unfair business practices.

(3) Appropriate Business with Suppliers

In our business relations with suppliers, we will act with good sense and sincerity and treat suppliers with impartiality and fairness.

- a. When choosing a supplier from among several companies, we will determine the optimal partner by fairly comparing and evaluating such factors as quality, price, delivery period, technical development capabilities, stable supply, and financial standing.
- b. We will not exert influence that provides certain suppliers with improper favorable treatment.
- c. When commissioning business partners for manufacturing, repairs, the preparation of information deliverables, or the rendering of services, we will conclude contracts and conduct business with a full understanding of the Subcontract Act, taking care to avoid delayed payment or other improper action.

(4) Prevention of Unfair Competition

- a. We will not acquire or use the trade secrets of other companies through theft or other improper means.

- b. We will not acquire or use the trade secrets of other companies that we know or suspect to have been obtained through improper means.

(5) Entertaining/Gifts

- a. Entertaining and the giving of gifts to business partners will be within the scope of social courtesy.
- b. When we have no choice but to be entertained by or accept gifts from customers or business partners, it must be within the scope of social courtesy.

## 3. Relationships with Company Assets, Accounting, Shareholders, and Investors

(1) Appropriate Use of Company Assets

Company assets need to be in a condition for efficient and ready use, and we should handle both tangible and intangible assets appropriately to prevent damage or theft. Company assets or expenditures may not be used for personal purposes.

(2) Appropriate Accounting Management and Tax Treatment

Entries on accounting ledgers or accounting slips will be made in accordance with relevant laws, regulations, and Company regulations. We will not disguise or conceal facts, create fictional records, or accumulate off-book assets.

(3) Disclosure of Management Information

We will provide shareholders and investors with timely and appropriate disclosure of management information, including the Company's financial condition and status of business activities. We will clearly convey the Company's management philosophy and policies and take seriously any opinions or criticism regarding them.

(4) Prohibition on Insider Trading

We will not buy or sell Company stocks or bonds using internal information obtained during the course of business.

We will not buy or sell the stocks or bonds of business partners with which we have a business relationship, competitors, or customers using internal information obtained during the course of business prior to the disclosure of such information to ordinary investors.

We will handle internal information appropriately to prevent stock transactions using internal information and not disclose such information to others not associated with the business.

## 4. Relationships with Government Agencies and Public Officials

(1) Appropriate Approval and Notification Procedures

- a. We ensure that necessary procedures, such as obtaining approvals and submitting notifications, are taken.
- b. We will not neglect to submit necessary notifications, alter data, or take any action that leads to a loss of the Company's credibility.

(2) Entertaining and Gifts to Public Officials

We will not entertain or give gifts to public officials or equivalent persons in a manner that conflicts with the National Public Service Ethics Act or other rules prescribed by government agencies.

In addition, we will not give, promise, or offer financial or other rewards to foreign government officials to improperly gain a business advantage or in return for a business accommodation.

## 5. Relationships with Employees

(1) Respect for Human Rights

We will strive to constantly maintain a wholesome work environment, will respect human rights, and will never act in a way that leads to discrimination or the denial employees' personalities.

- a. We will not discriminate in any way, including on the grounds of birth, nationality, race, creed, religion, gender, physical condition, or social status.
- b. We will not engage in abuse of authority, sexual harassment, or similar types of behavior.

(2) Protection of Privacy

We will strictly manage the personal information of employees and external persons obtained during the course of business and use this information only for business purposes, while preventing the leakage of this information.

(3) Workplace Health and Safety

We will strive to provide a work environment with priority on health and safety, and will understand and comply with laws and regulations regarding workplace health and safety. Should a work-related accident occur, we will minimize the effects of the accident and faithfully and promptly follow prescribed procedure, such as reporting, to prevent recurrences.

(4) Compliance with Labor Laws

We will comply with labor-related laws and strive to maintain a wholesome work environment with a pleasant atmosphere for a wide range of human resources.

- a. We will comply with the Labor Standards Act and not impose duties that force employees to engage in excessive labor or overtime.
- b. We will comply with the overtime work agreement and not require or condone unpaid overtime.
- c. We will conduct discussions with labor unions in good faith and establish healthy labor-management relations.
- d. Each of us will constantly strive to maintain our own mental and physical health and pay attention to the physical and mental health of subordinates.

(5) Compliance with Rules of Employment

- a. We will maintain discipline on the job and comply with the Rules of Employment.
- b. We will respect the rights of employees as prescribed by the Rules of Employment.

### Emergency Management Measures

The J-POWER Group has a responsibility as an electric utility company to ensure a stable supply of electricity, which plays an essential role in people's everyday lives. We need to prevent damage to the equipment that produces and transmits electric power and to restore service quickly should a disruption occur. Accordingly, the J-POWER Group implements the following measures.

- (1) Installation of appropriate facilities and development of disaster recovery systems in preparation for natural disasters, including earthquakes, typhoons, lightning strikes, and tsunami
- (2) Enhancement of security to prevent malicious and violent conduct
- (3) Enhancement of regular facility inspections to prevent major impediments to electric power supply and appropriate repairs and upgrades in response to aging, the decline of function, and breakdowns
- (4) Preparation of action plans for responding to pandemics and other events that could have a major impact on business operations

The J-POWER Group has established the following systems to accurately forecast and prevent accidents, facility incidents, and other emergency events, and to promptly and appropriately respond to and manage such events should they occur.

### Emergency Management Systems

#### (1) Emergency Response Team

A permanent organization at the J-POWER Headquarters. The team forecasts emergencies, immediately takes first-response action in the case of an occurrence, and oversees emergency management operations.

#### (2) Emergency Managers and Emergency Duty Personnel

Emergency Managers and Personnel are appointed at the Headquarters and local units to take first-response action and report information.

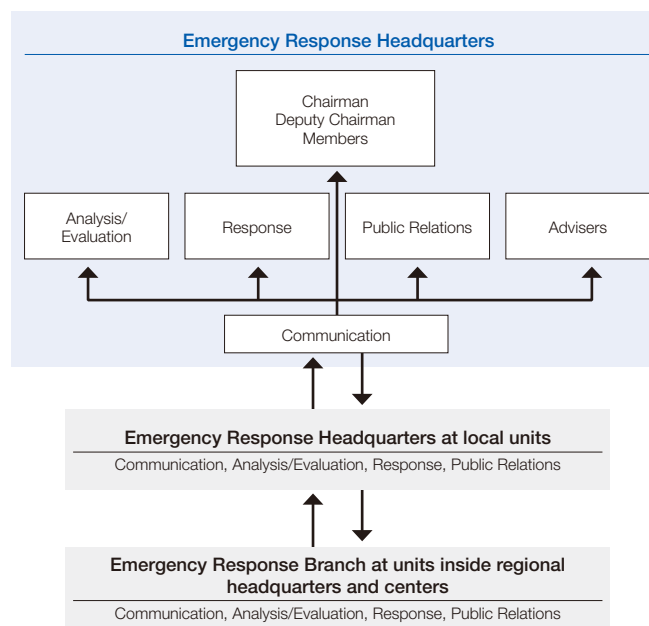
#### (3) Emergency Response Headquarters and Branches

When an emergency is predicted to occur or occurs and the seriousness warrants emergency countermeasures, the Emergency Response Headquarters (and Branches) are established.

#### Emergency Response Headquarters Structure (Head Office)

Structure	Composition
Chairman	President
Deputy Chairman	Executive Vice President
Members	Executive Officers in charge of General Affairs Dept. and related Executive Officers Department Directors of General Affairs Dept., Secretarial Affairs & Public Relation Dept., and other related departments
Emergency Management Task Force	Emergency Response Team and related departments
(Composition of Task Force)	(Division of Duties)
1. Communication	Communication, collection, and management of information
2. Analysis/Evaluation	Analysis, evaluation, response planning
3. Response	Restoration, liaison, response to victims, response to consumers, IR-related information
4. Public Relations	Relations with media
5. Advisers	Provide advice regarding analysis, evaluation, response planning, etc.

### Emergency Response Headquarters Communication System



### Disaster Prevention and Business Continuity

J-POWER, as an electric utility company responsible for vital lifelines, is a designated public institution under the Basic Act on Disaster Control Measures.

Accordingly, the Company has established physical measures assuming a large-scale natural disaster as well as non-physical measures, such as various rules for when disasters occur, and a systematic disaster preparedness structure from the head office to local units. By actively implementing these measures, the Company further strengthens its disaster preparedness structure to ensure the continuation of business even in the event of a natural disaster exceeding assumptions.

### Information Security

With advancements in the utilization of IT by corporations, information security has become increasingly important in light of the increase in instances of cyber attacks targeting specific companies and other threats. As an important infrastructure company that is responsible for ensuring a stable power supply in Japan and overseas and the construction of a nuclear power plant, it is imperative that the J-POWER Group ensure an especially high level of information security.

Furthermore, ensuring the security of important systems, such as electric power control systems, is growing ever more important to ensuring a stable power supply.

The J-POWER Group has established a Basic Policy on Information Security and formulates and implements an annual plan with specific measures based on activities in the previous fiscal year.

Of note, the Company is strengthening its collaboration with relevant government agencies and the electric power industry overall, contributing to the stable supply of electric power from an IT perspective. The Company is implementing robust information security measures in constructing the Ohma Nuclear Power Plant, with the IT department working in close coordination with the nuclear power department.

Note: Please refer to the J-POWER website for more information on the Basic Policy on Information Security and information security measures.

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## Consolidated Balance Sheet

(Millions of yen)

	2017/3	2018/3
<b>Assets</b>		
<b>Noncurrent Assets</b>	2,271,046	2,320,012
Electric Utility Plant and Equipment	958,754	951,149
Hydroelectric Power Production Facilities	346,037	346,719
Thermal Power Production Facilities	313,198	305,191
Internal Combustion Engine Power Production Facilities	3,301	3,029
Renewable Power Production Facilities	46,170	50,784
Transmission Facilities	157,790	153,180
Transformation Facilities	29,598	29,718
Communication Facilities	8,186	8,375
General Facilities	54,470	54,148
Overseas Business Facilities	332,010	341,418
Other Noncurrent Assets	92,501	93,404
Construction in Progress	476,171	525,740
Construction and Retirement in Progress	476,171	525,740
Nuclear Fuel	73,682	73,800
Nuclear Fuel in Processing	73,682	73,800
Investments and Other Assets	337,926	334,500
Long-Term Investments	253,660	256,715
Net Defined Benefit Asset	2	—
Deferred Tax Assets	40,514	42,501
Other	43,794	35,283
Allowance for Doubtful Accounts	(45)	—
<b>Current Assets</b>	335,239	327,209
Cash and Deposits	117,240	129,675
Notes and Accounts Receivable—Trade	78,805	91,432
Short-Term Investments	51,344	9,045
Inventories	47,172	52,368
Deferred Tax Assets	4,564	5,411
Other	36,129	39,322
Allowance for Doubtful Accounts	(18)	(46)
<b>Total Assets</b>	2,606,285	2,647,221

(Millions of yen)

	2017/3	2018/3
<b>Liabilities</b>		
<b>Noncurrent Liabilities</b>	1,497,888	1,561,922
Bonds Payable	494,991	554,991
Long-Term Loans Payable	891,200	875,043
Lease Obligations	353	368
Other Provision	120	152
Net Defined Benefit Liability	58,079	55,176
Asset Retirement Obligations	11,971	28,484
Deferred Tax Liabilities	23,387	22,437
Other	17,783	25,266
<b>Current Liabilities</b>	344,377	249,174
Current Portion of Noncurrent Liabilities	208,760	114,307
Short-Term Loans Payable	24,957	16,803
Notes and Accounts Payable—Trade	24,616	25,539
Accrued Taxes	19,843	26,303
Other Provision	267	292
Asset Retirement Obligations	592	341
Deferred Tax Liabilities	5	73
Other	65,333	65,512
<b>Total Liabilities</b>	1,842,266	1,811,096
<b>Net Assets</b>		
<b>Shareholders' Equity</b>	689,542	745,176
Capital Stock	180,502	180,502
Capital Surplus	119,927	119,927
Retained Earnings	389,117	444,753
Treasury Stock	(5)	(6)
<b>Accumulated Other Comprehensive Income</b>	34,276	42,114
Valuation Difference on Available-for-Sale Securities	15,594	16,822
Deferred Gains or Losses on Hedges	(2,183)	(6,580)
Foreign Currency Translation Adjustment	21,295	30,960
Remeasurements of Defined Benefit Plans	(430)	912
<b>Non-Controlling Interests</b>	40,200	48,833
<b>Total Net Assets</b>	764,019	836,124
<b>Total Liabilities and Net Assets</b>	2,606,285	2,647,221

## Consolidated Statement of Income

(Millions of yen)

	2017/3	2018/3
<b>Operating Revenue</b>	744,402	856,252
Electric Utility Operating Revenue	538,558	631,923
Overseas Business Operating Revenue	149,888	163,084
Other Business Operating Revenue	55,955	61,244
<b>Operating Expenses</b>	662,675	751,916
Electric Utility Operating Expenses	487,766	566,143
Overseas Business Operating Expenses	119,535	131,251
Other Business Operating Expenses	55,374	54,521
<b>Operating Income</b>	81,726	104,336
<b>Non-Operating Income</b>	20,526	29,113
Dividend Income	1,689	1,577
Interest Income	1,024	1,287
Share of Profit of Entities Accounted for Using Equity Method	13,258	9,721
Foreign Exchange Gains	1,770	11,179
Other	2,783	5,347
<b>Non-Operating Expenses</b>	35,103	30,974
Interest Expenses	29,798	28,387
Other	5,304	2,586
Total Ordinary Revenue	764,929	885,366
Total Ordinary Expenses	697,779	782,890
<b>Ordinary Income</b>	67,150	102,476
Extraordinary Losses	—	3,389
Impairment Losses	—	3,389
<b>Profit before Income Taxes</b>	67,150	99,086
Income Taxes—Current	18,634	20,124
Income Taxes—Deferred	2,847	(3,700)
Total Income Taxes	21,482	16,423
Profit	45,667	82,662
Profit Attributable to Non-Controlling Interests	4,238	14,213
<b>Profit Attributable to Owners of Parent</b>	41,429	68,448

## Consolidated Statement of Cash Flows

(Millions of yen)

	2017/3	2018/3
<b>Cash Flows from Operating Activities</b>		
Profit before Income Taxes	67,150	99,086
Depreciation and Amortization	75,660	82,298
Impairment Loss	2,624	3,389
Loss on Retirement of Noncurrent Assets	2,842	3,039
Increase (Decrease) in Net Defined Benefit Liability	9,276	(1,046)
Interest and Dividend Income	(2,713)	(2,864)
Interest Expenses	29,798	28,387
Decrease (Increase) in Notes and Accounts Receivable–Trade	(13,433)	(10,801)
Decrease (Increase) in Inventories	(5,503)	(5,121)
Increase (Decrease) in Notes and Accounts Payable–Trade	(6,477)	(2,143)
Share of (Profit) Loss of Entities Accounted for Using Equity Method	(13,258)	(9,721)
Other, Net	6,786	6,863
Subtotal	152,753	191,366
Interest and Dividend Income Received	13,229	16,620
Interest Expenses Paid	(30,224)	(28,486)
Income Taxes Paid	(20,317)	(19,190)
Net Cash Provided by (Used in) Operating Activities	115,440	160,310
<b>Cash Flows from Investing Activities</b>		
Purchase of Noncurrent Assets	(108,149)	(98,816)
Payments of Investment and Loans Receivable	(18,005)	(8,149)
Collection of Investment and Loans Receivable	2,577	2,243
Other, Net	(14,086)	(4,913)
Net Cash Provided by (Used in) Investing Activities	(137,663)	(109,635)
<b>Cash Flows from Financing Activities</b>		
Proceeds from Issuance of Bonds	79,702	99,633
Redemption of Bonds	(90,000)	(160,100)
Proceeds from Long-Term Loans Payable	83,762	56,510
Repayment of Long-Term Loans Payable	(69,108)	(53,280)
Proceeds from Short-Term Loans Payable	87,663	67,708
Repayment of Short-Term Loans Payable	(90,194)	(75,813)
Proceeds from Issuance of Commercial Papers	15,000	15,000
Redemption of Commercial Papers	(15,000)	(15,000)
Proceeds from Sales of Subsidiaries' Shares that Do not Result in Changes in Scope of Consolidation	42,363	—
Cash Dividends Paid	(12,811)	(12,810)
Cash Dividends Paid to Non-Controlling Interests	—	(7,342)
Other, Net	(916)	(329)
Net Cash Provided by (Used in) Financing Activities	30,461	(85,825)
Effect of Exchange Rate Change on Cash and Cash Equivalents	267	3,536
Net Increase (Decrease) in Cash and Cash Equivalents	8,505	(31,614)
Cash and Cash Equivalents at Beginning of the Period	159,949	168,454
Cash and Cash Equivalents at End of the Period	168,454	136,840

## Financial Results

### Operating Income

Sales (operating revenue) increased 15.0% from the previous fiscal year to ¥856.2 billion, due mainly to increases in fuel prices and the load factor of thermal power plants (from 75% to 80% on a non-consolidated basis) in the Electric Power Business.

Operating expenses increased 13.5% to ¥751.9 billion, mainly due to the increase in fuel costs stemming from the increases in fuel prices and the load factor of thermal power plants.

As a result, operating income increased 27.7% from the previous fiscal year, to ¥104.3 billion, with the operating income margin rising 1.0 point to 12.0%.

### Ordinary Income

Ordinary revenue, the sum of operating and non-operating revenue, increased 15.7% from the previous fiscal year to ¥885.3 billion. Ordinary expenses, the sum of operating and non-operating expenses, rose 12.2% to ¥782.8 billion. As a result, ordinary income increased 52.6% from the previous fiscal year to ¥102.4 billion.

Ordinary income by reportable segment for the subject fiscal year is as follows.

#### Electric Power Business

Electricity sales volume from hydroelectric power plants increased 8.7% from the previous fiscal year to 9.2 TWh, due mainly to an increase in the water supply rate, from 92% in the previous fiscal year to 105%. Thermal power electricity sales volume increased 6.5% to 57.0 TWh, mainly as a result of an increase in the load factor at J-POWER plants. Overall, electricity sales volume grew 6.8% from the previous fiscal year to 67.0 TWh.

Sales (electric utility operating revenue) increased 17.3% from the previous fiscal year to ¥633.7 billion, mainly due to the increases in fuel prices and the load factor of thermal power plants.

Segment income increased 78.1% from the previous fiscal year to ¥39.5 billion, due mainly to the increase in sales.

#### Electric Power-Related Business

Sales (other business operating revenue) increased 15.5% from the previous fiscal year to ¥412.7 billion, due mainly to an increase in the coal sales revenues of consolidated subsidiaries.

Segment income increased 62.2% from the previous fiscal year to ¥23.0 billion, due mainly to the increase in sales.

#### Overseas Business

Electricity sales volume in the overseas business increased 8.1% from the previous fiscal year to 15.8 TWh.

Sales (overseas business operating revenue) increased 8.8% from the previous fiscal year to ¥163.0 billion, due mainly to the increase in electricity sales volume and foreign exchange impact of the weaker yen.

Segment income increased 29.8% from the previous fiscal year to ¥40.5 billion, due in part to the foreign exchange gains and the foreign exchange impact of the weaker yen.

#### Other Business

Sales (other business operating revenue) increased 13.6% from the previous fiscal year to ¥27.2 billion.

Segment income decreased 8.6% from the previous fiscal year to ¥1.2 billion.



## Profit before Income Taxes

Profit before income taxes increased 47.5% (¥31.9 billion) compared with the previous fiscal year to ¥99.0 billion.

## Profit Attributable to Owners of Parent

Total income taxes decreased 23.5% (¥50.5 billion) year on year to ¥16.4 billion, with profit attributable to owners of parent increasing 65.2% (¥27.0 billion) from the previous fiscal year to ¥68.4 billion.

## Earnings per Share

Earnings per share were ¥373.93 in fiscal 2017, compared with ¥226.33 in the previous fiscal year.

## Dividend Policy

The most distinctive feature of J-POWER's business is the utilization of long-term project management capabilities to invest in power plants and other types of infrastructure—including the construction of power plants and other facilities—and recover that investment through the long-term operation of those assets. J-POWER will continue to allocate an appropriate level of internal reserves to business investments aimed at new growth while increasing shareholders' equity based on the recognition that it must further reinforce its financial position.

With regard to shareholder returns, taking into account such factors as the level of profit, earnings forecasts, and our financial condition, we strive to ensure stable, ongoing returns to sharehold-

ers enhanced in line with a consolidated payout ratio of around 30%, excluding factors causing short-term profit fluctuations.

For fiscal 2017, the year ended March 31, 2018, the Company had planned to pay a year-end dividend of ¥35 per share. In line with the adoption of the above new shareholder return policy, however, we raised the per-share year-end dividend ¥5 to ¥40. As a result, the annual dividend for fiscal 2017, comprising the interim and year-end dividends, will be ¥75 per share. For fiscal 2018, J-POWER plans to pay an annual per-share dividend of ¥75, including a ¥35 interim dividend.

## Financial Position

### Assets

Total assets at the end of the subject fiscal year (March 31, 2018) amounted to ¥2,647.2 billion, an increase of ¥40.9 billion from the previous fiscal year-end. This was due mainly to an increase in noncurrent assets.

### Liabilities

Total liabilities amounted to ¥1,811.0 billion, a decrease of ¥31.1 billion from the previous fiscal year-end. Of this amount,

interest-bearing debt decreased ¥58.7 billion to ¥1,561.3 billion. Non-recourse loans in overseas business accounted for ¥279.5 billion of interest-bearing debt.

### Net Assets

Total net assets increased ¥72.1 billion from the previous fiscal year-end to ¥836.1 billion, due mainly to the recording of profit attributable to owners of parent. The shareholders' equity ratio increased from 27.8% at the previous fiscal year-end to 29.7%.

### Capital Expenditures

Capital expenditures amounted to ¥98.7 billion, a decrease of ¥7.1 billion from the previous fiscal year. Of that amount, expenditures in the electric power business amounted to ¥100.1 billion, a decrease of ¥7.7 billion from the previous fiscal year, and expenditures related to the overseas business amounted to ¥5.0 billion, an increase of ¥3.6 billion.

### Fund Procurement

The majority of J-POWER's financing requirements are related to capital expenditures and debt refinancing. The Company's

basic policy is to procure long-term funds. For the procuring of long-term funds, in the interest of ensuring low interest rates and funding stability, the Company issues straight bonds and procures long-term loans from financial institutions. The outstanding balances of straight bonds and borrowings at March 31, 2018, were ¥594.9 billion and ¥948.9 billion, respectively. For short-term funding, in addition to working capital, the Company obtains flexible bridge financing from the standpoint of enhancing responsiveness in procurement. To meet short-term funding needs, the Company is able to issue up to ¥300.0 billion in commercial paper.

## Cash Flows

### Cash Flows from Operating Activities

Cash provided by operating activities increased ¥44.8 billion from the previous fiscal year to ¥160.3 billion, due mainly to an increase in profit before income taxes.

### Cash Flows from Investing Activities

Cash used in investing activities was down ¥28.0 billion from the previous fiscal year to ¥109.6 billion, due mainly to decreases in payments of investment and loans receivable and the purchase of noncurrent assets.

### Cash Flows from Financing Activities

Cash used in financing activities amounted to ¥85.8 billion, compared to cash provided amounting to ¥30.4 billion in the previous fiscal year. This was mainly due to the absence of a transfer of a portion of the shares of a consolidated subsidiary that provided a cash inflow in the previous fiscal year as well as a decrease in income from borrowings and an increase in outflow due to the redemption of corporate bonds in the subject fiscal year.

As a result, cash and cash equivalents at March 31, 2018 stood at ¥136.8 billion, a decrease of ¥31.6 billion from the end of the previous fiscal year.

## Risk Factors

This section discusses the main potential risks related to J-POWER's financial position, business results, current and future business operations, and other matters. From the perspective of actively disclosing information to investors, this section also provides information to help investors understand business and other risks that the Company does not necessarily consider significant.

### Impact of Reforms to the Electric Power Business Regulations on J-POWER's Electricity Revenue and Business

The Policy on Electricity System Reform was approved by the Cabinet in April 2013, bringing about drastic changes to the

business environment surrounding J-POWER. Amendments to the Electricity Business Act fully liberalized market participation in the retail of electric power in April 2016 and eliminated regulations on wholesale electricity utilities (regulations of business permits and rates). Further, the legal unbundling of the transmission and distribution divisions of the former EPCOs and J-POWER will be required, with an approximate deadline of 2020. After the legal unbundling of transmission and distribution divisions, there are plans to review the regulations on electricity retail rates (transitional measures) for the former EPCOs.

With the revision of electric power business types in the system reforms, as of April 2016, J-POWER has changed from a wholesale electricity utility as prescribed in the Electricity

Business Act prior to amendment to an electricity utility that conducts power generation and transmission businesses. Cost-basis rate regulations have been repealed, and rates related to the power generation business are now determined upon consultation with customers based on market competition. Rates related to the transmission business remain regulated, with a cost-basis rate system, to maintain a healthy transmission and distribution network system.

The majority of J-POWER's operating revenue comprises rate income from domestic sales to the former EPCOs. As market competition in the power generation business advances, to ensure that the value of our power generation business receives adequate assessment, we are therefore proceeding with appropriate rate consultations with customers, primarily the former EPCOs, while proceeding to diversify customers and trade using the Japan Electric Power Exchange (JEPX).

Still, in the case that there are major changes to business plans or operations due to shifts in long-term electricity demand, further market competition, consultations with customers, faults with facilities, or legislation, and such changes cause an inability to secure adequate revenue to cover power generation costs, such a situation may adversely affect our performance.

### **Global Warming**

J-POWER owns many coal-fired thermal power plants, which emit a relatively higher level of CO<sub>2</sub> with respect to power output compared to power plants using other fossil fuels, such as LNG. The Company is working to increase the efficiency and reduce the carbon emissions of its coal-fired thermal power. Also, we are working to expand our use of CO<sub>2</sub>-free power sources, such as renewable energy, and developing nuclear power plants. Furthermore, based on the electricity business's Action Plan for Achieving a Low-Carbon Society established by electricity utilities, including J-POWER, in July 2015, we will do our utmost to achieve the targets set for the overall electric power industry.

However, going forward, if new legal regulations or other rules related to global warming countermeasures were to be introduced, causing major changes to business plans or operations, it could potentially have an adverse effect on our performance.

### **New Businesses in and outside Japan, Including Overseas Power Generation Business**

J-POWER aims to build a new revenue platform by engaging in new electric power businesses domestically and overseas, including the overseas power generation business.

Specifically, in the overseas power generation business, we are applying the experience gleaned through our consulting services businesses in various countries in the pursuit of independent power producer (IPP) projects.

Also, in domestic electric power business, we are proceeding with new development of high-efficiency coal-fired thermal power plants as well as power generation businesses utilizing wind, geothermal, waste-fueled thermal, and other renewable energies.

However, these businesses may not generate the level of profits that we anticipate, due to unforeseeable circumstances, including major changes in operating conditions; changes in demand or the market environment; and changes in regulations. Changes in our business plans or the suspension of operations or construction prompted by such circumstances could result in related expenses or a need for additional funding that could potentially have an adverse effect on the results of our operations. Furthermore, some of these businesses are operated as joint ventures with third parties. In cases where the joint venture format is revised due to changes in the business environment or J-POWER is a minority equity owner and thus unable to engage in management and administration, the results of the joint venture may not beneficially impact our performance. In addition, overseas businesses entail foreign exchange risk as well as country risk due to political instability and other factors.

### **Capital Funds**

The Company has invested a very large amount in power plants and other facilities. The funds for these investments have been procured mainly through borrowings and the issuance of bonds payable. We anticipate the need to raise funds in the future to invest in new domestic and overseas projects, such as Ohma Nuclear Power Plant and Takehara Thermal Power Plant New No. 1, and to repay existing obligations. If we are unable to raise the required funds on acceptable terms and in a timely manner due to the prevailing conditions in the financial markets, the Company's credit situation, or other factors at that time, then this could potentially have material adverse effects on our business development and profitability.

### Ohma Nuclear Power Plant Construction Project

With regard to the Ohma Nuclear Power Plant Project, the Japan Atomic Energy Commission concluded in the August 1995 decision that the plant has a policy-oriented role in enhancing flexibility of the plan to use MOX (uranium-plutonium mixed oxide) fuel in light water reactors because the plant adopts an advanced boiling water reactor with a view to using MOX fuel for the entire core (full MOX-ABWR). In addition, the commission expected the implementation of the plan not only by J-POWER, which has primary responsibility, but also under the auspices of the government and EPCOs. Accordingly, under the government's guidelines, the Company is the recipient of an R&D grant for the use of MOX fuel for the entire reactor core. Furthermore, the Company has already concluded basic agreements with nine former EPCOs, excluding The Okinawa Electric Power Company, Incorporated, that require the nine former EPCOs to purchase the total amount of electricity at fair cost.

As a nuclear power plant using MOX fuel for the entire core, the Ohma Nuclear Power Plant Project received consent from the local municipality of Ohma as well as Aomori Prefecture and was included by the Electric Power Development Coordination Council in the national Electric Power Development Master Plan as laid out by the Electric Power Development Promotion Act in August 1999. (The Electric Power Development Promotion Act was abolished in October 2003, and, with it, the system of the Electric Power Development Master Plan ended. The functions of the plan were taken on by the major power development site designation system, under which the project received site designation in February 2005.) In April 2008, the nuclear reactor installation permit was granted based on the Act on Control of Nuclear Raw Material, Nuclear Fuel and Nuclear Reactors, and, in May of the same year, upon the initial approval of the construction work plan by the Minister of Economy, Trade and Industry, based on the Electricity Business Act, construction began. At that time, planned construction costs were ¥469.0 billion. Construction was suspended immediately after the Great East Japan Earthquake struck in March 2011 but was resumed in October 2012.

On December 16, 2014, we submitted an application for permission for alteration of a reactor installment license and an application for construction plan approval to the Nuclear Regulation Authority (NRA) in order to undergo a review of compliance with the New Safety Standards concerning nuclear power plants promulgated by the NRA in July 2013. Specific examples of the wide-ranging measures include the raising of

assumptions and enhancement of countermeasures with regard to earthquakes and tsunamis as design-basis measures to prevent severe accidents, combined with measures to prevent damage to the core and the containment vessel that were newly drawn up under the New Safety Standards as severe accident countermeasures. Furthermore, as countermeasures against terrorism, such as the deliberate crashing of an aircraft into the facility, we have decided to install a specified severe accident response facility that will enable reactor decompression and other functions to be controlled remotely to inhibit the abnormal release of radioactive material due to damage sustained by the reactor containment vessel. The construction work for the additional safety enhancement measures compiled in the above-mentioned application will commence following confirmation that the content of the Company's application conforms to New Safety Standards when reviewed by the NRA. The Company forecasts that the additional construction work will cost approximately ¥130.0 billion. Moving forward, J-POWER will seriously and appropriately respond to the NRA's conformity reviews and steadily implement necessary safety measures or other measures required in a Companywide effort to build a safe power plant.

While it is impossible to predict the progress of the compliance review as an examinee, we aim to start construction work for the additional safety enhancement measures in the latter half of 2018, and aim to complete it in the latter half of 2023. However, the construction work schedule for the additional safety measures may be extended depending on changes surrounding the nuclear power business, the status of reviews by the NRA, and the emergence of a need for additional response to the New Safety Standards. Also, in such events, construction expenses may increase further, and other related costs may arise. In addition, nuclear power generation entails various risks, such as revisions to plans due to significant changes in conditions around the nuclear power business caused by the review of Japan's nuclear policy, the advance of market competition, or other unexpected circumstances as well as risks associated with the storage and handling of radioactive materials and risks all electric power plants are exposed to, such as natural disasters and unforeseen accidents after operations have commenced (please refer to (7) Natural Disasters and Accidents). J-POWER intends to ensure that these risks are avoided or minimized. However, if any of these risks should eventuate, it could adversely affect the business performance of the Company.

### **Fuel for Coal-Fired Thermal Power**

J-POWER's coal-fired thermal power plants use imported coal as their main source of fuel. In procuring imported coal, the Company purchases coal from diverse sources in Australia, Indonesia, Russia, and elsewhere to seek both stable and economical supply. In addition, the Company holds interests in certain coal mines, aiming for stable coal supply. The Company's imported coal procurement is handled mainly under long-term or approximately one-year contracts, with spot purchasing to fill gaps as necessary. Coal purchase prices under long-term contracts are normally adjusted once per year in light of market prices.

The Company's fuel cost is impacted by such factors as changes in imported coal prices, supply and demand in the transport vessel market, and problems with the facilities or operations of suppliers. According to the power purchase agreements with customers for our major coal-fired thermal power plants, the electricity rates corresponding to fuel price properly reflect market conditions relating to fuel procurement. As a result, fluctuations in fuel cost have a limited impact on the business performance of J-POWER. However, if coal prices rise sharply, there will be a delay before the rise in fuel prices is reflected in electricity rates. This could have a temporary adverse effect on the results of our performance. Furthermore, should a significant fall in coal prices have a significant effect on the performance of a mine in which the Company holds an interest, the Company's performance could also be adversely affected.

### **Natural Disasters and Accidents**

Should a natural disaster, human error, terrorist activity, fuel supply stoppage, or other unforeseen circumstance result in a major disruption of one of J-POWER's power plants or transmission or transformation facilities, or should such an event disrupt the information systems that control operations at these facilities, this could potentially hamper our business operations and consequently have an adverse effect on the surrounding environment. To prevent accidents at power plants as well as transmission and transformation facilities, which are important infrastructure for Japan, to ensure the safety of involved parties and to preserve the surrounding environment, J-POWER works to establish security and disaster prevention systems, take accident and disaster prevention measures and emergency response and recovery countermeasures, and implement environmental monitoring.

Nevertheless, if an accident or other event were to halt operations of J-POWER's power plant, transmission, or transformation

facilities, or if an accident or other event were to negatively impact the surrounding environment, the Company's performance could be adversely affected.

### **Legal Regulations**

The electric power business, which comprises the majority of J-POWER's business, is regulated by the Electricity Business Act.

In line with the Amended Electricity Business Act of June 2014, regulations related to wholesale electricity utilities (regulations on business permits and rates) stipulated in the previous act were repealed in April 2016. However, J-POWER will continue to be regulated under the act as an electricity utility that operates power generation and transmission businesses. Thus, J-POWER is subject to business and safety regulations as well as change and suspension orders derived from such regulations, and also to provisions regarding the cancellation of licenses to operate transmission business. The Company's business operations are also subject to various other laws and regulations. If the Company is unable to comply with these laws and regulations, or if these laws and regulations are revised, this could potentially have an adverse effect on our business operations and performance.

Also, based on the concept of mutual aid for nuclear power operators, nuclear power business operators are obligated to contribute to expenses required for the Nuclear Damage Compensation and Decommissioning Facilitation Corporation, based on the Nuclear Damage Compensation and Decommissioning Facilitation Corporation Act, which aims to build a system that centers on a facilitation organization that can respond to nuclear damage compensation into the future. In relation to the Ohma Nuclear Power Plant Project, which is currently under way, J-POWER will pay contributions once the Ohma Nuclear Power Plant commences operation of the nuclear reactor, as stipulated in the Act on Compensation for Nuclear Damage. Depending on the amount of such contributions, this may adversely affect the performance of the Company.

### **Management of Business Information**

J-POWER holds a large amount of important information that must be kept confidential, including personal information. J-POWER controls this information carefully by implementing information security measures, employee training programs, and other means. However, a leak of sensitive information outside the Company could adversely affect J-POWER's reputation and business performance.

## Financial and Operating Highlights

	2009/3	2010/3	2011/3	2012/3	2013/3
<b>Consolidated: Operating Revenue/ Expenses Comparison</b>					
<b>Operating Revenue</b>	<b>704,936</b>	<b>584,484</b>	<b>635,975</b>	<b>654,600</b>	<b>656,056</b>
Electric Utility Operating Revenue	648,362	530,289	584,436	609,775	605,338
Hydroelectric (Wholesale Electric Power Business)	110,945	108,994	108,152	108,479	106,681
Thermal (Wholesale Electric Power Business)	460,336	349,693	406,488	424,436	413,938
Other Electric Power Business	20,055	14,754	13,723	22,371	30,707
Overseas Business Operating Revenue* <sup>1</sup>	—	1,576	1,881	2,005	1,647
Other Business Operating Revenue* <sup>2</sup>	56,574	52,617	49,657	42,819	49,070
<b>Operating Expenses</b>	<b>647,828</b>	<b>535,544</b>	<b>565,387</b>	<b>604,800</b>	<b>601,490</b>
<b>Operating Income</b>	<b>57,108</b>	<b>48,939</b>	<b>70,588</b>	<b>49,800</b>	<b>54,566</b>
<b>Non-Operating Income</b>	<b>13,282</b>	<b>18,734</b>	<b>14,965</b>	<b>15,356</b>	<b>17,577</b>
Share of Profit of Entities Accounted for Using Equity Method	7,470	11,722	9,072	9,565	11,728
Other	5,812	7,011	5,893	5,790	5,849
<b>Non-Operating Expenses</b>	<b>30,791</b>	<b>25,979</b>	<b>29,231</b>	<b>28,536</b>	<b>27,318</b>
Interest Expenses	22,616	23,085	22,371	22,005	22,362
Foreign Exchange Losses	—	—	—	—	991
Other	8,174	2,894	6,860	6,530	3,964
<b>Ordinary Income</b>	<b>39,599</b>	<b>41,694</b>	<b>56,322</b>	<b>36,619</b>	<b>44,825</b>
Extraordinary Income	12,170	—	1,635	—	—
Extraordinary Losses	19,648	—	19,176	3,382	—
<b>Profit Attributable to Owners of Parent</b>	<b>19,457</b>	<b>29,149</b>	<b>19,583</b>	<b>16,113</b>	<b>29,808</b>
Average Exchange Rates (Yen/US\$)	100.75	92.89	85.74	79.08	82.91
Foreign Exchange Rate at December 31 (Yen/THB)	2.60	2.76	2.70	2.45	2.82
Foreign Exchange Rate at December 31 (THB/US\$)	34.90	33.32	30.15	31.69	30.63
<b>Consolidated: Electricity Sales Volume</b>					
<b>Electric Power Business</b>	<b>59,148</b>	<b>57,238</b>	<b>65,815</b>	<b>66,084</b>	<b>65,605</b>
Hydroelectric (Wholesale Electric Power Business)	8,384	9,214	10,267	10,318	9,032
Thermal (Wholesale Electric Power Business)	49,147	46,546	54,086	53,756	54,333
Other Electric Power Businesses	1,616	1,477	1,462	2,010	2,239
<b>Overseas Business*<sup>3</sup></b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>
Domestic Hydroelectric: Water Supply Rate	88%	96%	106%	115%	102%
Domestic Thermal: Load Factor	76%	68%	78%	77%	78%

\*1 Revenues of the overseas business segment (including revenues of overseas consolidated subsidiaries, overseas consulting businesses, etc.)

\*2 "Other Businesses Operating Revenue" is composed of revenues of "Electric Power-Related Business" and "Other Business."

\*3 Electric power sales volume of overseas consolidated subsidiaries (Electric power sales volume of equity method affiliates is not included.)

2014/3	2015/3	2016/3
(Millions of yen)		
<b>706,835</b>	<b>750,627</b>	<b>780,072</b>
609,080	588,184	570,837
104,765	105,705	109,034
411,850	389,192	380,382
37,875	41,707	30,265
42,834	108,916	155,952
54,920	53,526	53,282
<b>647,663</b>	<b>677,767</b>	<b>692,157</b>
<b>59,171</b>	<b>72,859</b>	<b>87,915</b>
<b>22,357</b>	<b>22,714</b>	<b>17,871</b>
16,380	15,659	10,889
5,976	7,054	6,981
<b>41,451</b>	<b>36,223</b>	<b>47,248</b>
25,305	28,224	30,495
11,190	1,547	12,888
4,955	6,451	3,865
<b>40,077</b>	<b>59,350</b>	<b>58,538</b>
2,386	2,127	—
—	—	—
<b>28,694</b>	<b>43,206</b>	<b>40,081</b>
100.17	109.76	120.15
3.20	3.67	3.34
32.81	32.96	36.09
(Million kWh)		
<b>65,421</b>	<b>64,049</b>	<b>65,332</b>
8,759	9,028	10,322
54,316	52,577	55,010
2,345	2,442	1,985
<b>3,665</b>	<b>8,678</b>	<b>13,896</b>
99%	98%	111%
79%	76%	80%

	2017/3	2018/3
<b>Consolidated: Operating Revenue/ Expenses Comparison</b>		
(Millions of yen)		
<b>Operating Revenue</b>	<b>744,402</b>	<b>856,252</b>
Electric Utility Operating Revenue	538,558	<b>631,923</b>
Electric Power Generation Business	487,263	<b>577,861</b>
Transmission/ Transformation Business	49,021	<b>48,679</b>
Overseas Business Operating Revenue* <sup>1</sup>	149,888	<b>163,084</b>
Other Business Operating Revenue* <sup>2</sup>	55,955	<b>61,244</b>
<b>Operating Expenses</b>	<b>662,675</b>	<b>751,916</b>
<b>Operating Income</b>	<b>81,726</b>	<b>104,336</b>
<b>Non-Operating Income</b>	<b>20,526</b>	<b>29,113</b>
Share of Profit of Entities Accounted for Using Equity Method	13,258	<b>9,721</b>
Foreign Exchange Gains	1,770	<b>11,179</b>
Other	5,497	<b>8,212</b>
<b>Non-Operating Expenses</b>	<b>35,103</b>	<b>30,974</b>
Interest Expenses	29,798	<b>28,387</b>
Other	5,304	<b>2,586</b>
<b>Ordinary Income</b>	<b>67,150</b>	<b>102,476</b>
Extraordinary Losses	—	<b>3,389</b>
<b>Profit Attributable to Owners of Parent</b>	<b>41,429</b>	<b>68,448</b>
Average Exchange Rates (Yen/US\$)	108.34	<b>110.85</b>
Foreign Exchange Rate at December 31 (Yen/THB)	3.24	<b>3.45</b>
Foreign Exchange Rate at December 31 (THB/US\$)	35.83	<b>32.68</b>
<b>Consolidated: Electricity Sales Volume</b>		
(Million kWh)		
<b>Electric Power Business</b>	<b>62,791</b>	<b>67,090</b>
Hydroelectric	8,508	<b>9,247</b>
Thermal	53,513	<b>57,018</b>
Wind	769	<b>824</b>
<b>Overseas Business*<sup>3</sup></b>	<b>14,687</b>	<b>15,871</b>
Domestic Hydroelectric: Water Supply Rate	92%	<b>105%</b>
Domestic Thermal: Load Factor	75%	<b>80%</b>

	2009/3	2010/3	2011/3
<b>Consolidated: Balance Sheet Items</b>			
Noncurrent Assets	1,843,143	1,879,804	1,842,658
Electric Utility Plant and Equipment	1,235,044	1,226,640	1,178,492
Overseas Business Facilities	—	—	—
Other Noncurrent Assets	46,634	49,619	64,920
Construction in Progress	321,889	309,740	301,676
Nuclear Fuel	27,650	38,688	46,693
Investments and Other Assets	211,923	255,115	250,875
Current Assets	162,325	144,276	169,727
<b>Total Assets</b>	<b>2,005,469</b>	<b>2,024,080</b>	<b>2,012,386</b>
Interest-Bearing Debt	1,470,748	1,452,515	1,429,037
Other	152,607	156,583	168,450
<b>Total Liabilities</b>	<b>1,623,356</b>	<b>1,609,099</b>	<b>1,597,487</b>
Shareholders' Equity	408,036	426,680	435,760
Accumulated Other Comprehensive Income	(27,908)	(14,003)	(19,997)
Non-Controlling Interests	1,984	2,304	(863)
<b>Total Net Assets</b>	<b>382,112</b>	<b>414,981</b>	<b>414,898</b>

**Consolidated: Cash Flow Items**

<b>Net Cash Provided by (Used in) Operating Activities</b>	<b>158,628</b>	<b>169,148</b>	<b>151,236</b>
Profit before Income Taxes	32,536	42,105	38,739
(Reference) Depreciation and Amortization on a Non-Consolidated Basis	109,741	115,585	106,080
<b>Net Cash Provided by (Used in) Investing Activities</b>	<b>(132,350)</b>	<b>(129,504)</b>	<b>(124,675)</b>
Capital Expenditure for Subsidiaries	(15,628)	(13,502)	(30,200)
(Reference) CAPEX on a Non-Consolidated Basis	(150,228)	(97,908)	(73,796)
<b>Free Cash Flow</b>	<b>26,278</b>	<b>39,643</b>	<b>26,560</b>

**Consolidated: Financial Indicators**

Return on Assets (ROA)	2.0%	2.1%	2.8%
ROA (after exclusion of the construction in progress of tangible fixed assets)	2.4%	2.5%	3.3%
Return on Equity (ROE)	4.6%	7.4%	4.7%
Net Income per Share (EPS) (Yen)	121.65	194.26	130.51
Net Assets per Share (BPS) (Yen)	2,533.28	2,750.20	2,770.77
Equity Ratio	19.0%	20.4%	20.7%
Debt-Equity Ratio	3.9	3.5	3.4
Number of Common Shares Issued at the End of the Period (Thousands) (excluding treasury stock)	150,054	150,053	150,053



(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
1,849,786	1,975,202	2,149,579	2,275,453	2,232,286	2,271,046	2,320,012
1,111,251	1,058,849	1,023,751	986,552	948,252	958,754	951,149
—	14,311	125,018	264,800	357,448	332,010	341,418
65,657	104,529	109,787	115,111	101,827	92,501	93,404
380,425	464,674	512,604	506,967	441,080	476,171	525,740
54,157	59,769	69,216	71,467	73,447	73,682	73,800
238,295	273,067	309,201	330,555	310,231	337,926	334,500
166,607	194,707	235,636	383,695	308,436	335,239	327,209
<b>2,016,394</b>	<b>2,169,909</b>	<b>2,385,216</b>	<b>2,659,149</b>	<b>2,540,723</b>	<b>2,606,285</b>	<b>2,647,221</b>
1,435,736	1,523,059	1,649,993	1,723,659	1,628,783	1,620,082	1,561,360
174,465	192,964	215,745	239,191	236,506	222,183	249,700
<b>1,610,202</b>	<b>1,716,024</b>	<b>1,865,739</b>	<b>1,962,851</b>	<b>1,865,289</b>	<b>1,842,266</b>	<b>1,811,096</b>
441,369	460,673	478,860	629,463	650,817	689,542	745,176
(33,985)	(6,768)	37,350	59,268	15,775	34,276	42,114
(1,191)	(19)	3,265	7,566	8,839	40,200	48,833
<b>406,192</b>	<b>453,885</b>	<b>519,477</b>	<b>696,298</b>	<b>675,433</b>	<b>764,019</b>	<b>836,124</b>
<b>125,891</b>	<b>119,786</b>	<b>122,110</b>	<b>147,813</b>	<b>146,130</b>	<b>115,440</b>	<b>160,310</b>
33,237	45,176	42,770	61,598	58,421	67,150	99,086
100,423	89,485	81,500	77,824	73,475	49,696	53,469
<b>(136,852)</b>	<b>(170,369)</b>	<b>(177,375)</b>	<b>(142,964)</b>	<b>(131,541)</b>	<b>(137,663)</b>	<b>(109,635)</b>
(64,235)	(100,277)	(95,747)	(87,971)	(37,530)	(17,500)	(14,748)
(68,493)	(66,262)	(86,554)	(61,119)	(106,386)	(99,844)	(94,159)
<b>(10,960)</b>	<b>(50,582)</b>	<b>(55,264)</b>	<b>4,848</b>	<b>14,588</b>	<b>(22,223)</b>	<b>50,675</b>
1.8%	2.1%	1.8%	2.4%	2.3%	2.6%	3.9%
2.2%	2.7%	2.2%	2.9%	2.8%	3.2%	4.8%
3.9%	6.9%	5.9%	7.2%	5.9%	6.0%	9.1%
107.39	198.65	191.23	284.43	218.97	226.33	373.93
2,714.94	3,024.98	3,440.23	3,762.52	3,641.59	3,954.22	4,300.98
20.2%	20.9%	21.6%	25.9%	26.2%	27.8%	29.7%
3.5	3.4	3.2	2.5	2.4	2.2	2.0
150,053	150,052	150,051	183,050	183,049	183,049	183,049

2009/3                      2010/3                      2011/3                      2012/3                      2013/3

**Non-Consolidated: Operating Revenue/  
Expenses**

	2009/3	2010/3	2011/3	2012/3	2013/3
<b>Operating Revenue</b>	<b>645,850</b>	<b>530,436</b>	<b>583,213</b>	<b>599,973</b>	<b>586,993</b>
Electric Utility Operating Revenue	631,452	518,682	573,878	590,553	577,284
Hydroelectric	110,945	108,994	108,152	108,479	106,681
Thermal	460,336	349,693	406,488	424,436	413,938
Transmission Revenue	60,170	59,993	59,237	57,638	56,664
Incidental Business Operating Revenue	14,398	11,753	9,335	9,419	9,708
<b>Operating Expenses</b>	<b>601,122</b>	<b>489,531</b>	<b>520,569</b>	<b>557,628</b>	<b>543,659</b>
Electric Utility Operating Expenses	588,224	479,085	513,395	549,010	534,765
Personnel Expenses	43,571	36,187	31,276	34,441	34,084
Amortization of the Actuarial Difference*	10,787	3,408	(2,213)	1,752	505
Fuel Cost	255,156	173,957	209,967	238,497	238,441
Repair Expenses	55,419	45,390	50,635	54,286	56,454
Depreciation and Amortization Cost	109,741	115,585	106,080	100,423	89,485
Other	124,334	107,965	115,435	121,362	116,299
Incidental Business Operating Expenses	12,897	10,446	7,174	8,617	8,894
<b>Operating Income</b>	<b>44,728</b>	<b>40,904</b>	<b>62,644</b>	<b>42,344</b>	<b>43,333</b>

(Amortization of the Actuarial Difference)

Actuarial Difference	The Remainders in the Previous Year	2,936	4,983	1,574	(1,022)	809
	Actuarial Difference in the Present Year	12,835	—	—	—	—
	Actuarial Difference in the Previous Year	—	—	(4,811)	3,584	(70)
	Subtotal	15,771	4,983	(3,236)	2,561	738
Amortization*		10,787	3,408	(2,213)	1,752	505
The Remainders in the Present Year		4,983	1,574	(1,022)	809	233

[Repair Expenses]

Hydroelectric	14,752	8,009	8,112	13,039	11,340
Thermal	36,195	33,242	38,765	35,733	40,438
Transmission/Transformation	2,518	2,327	2,259	3,761	3,161
Other	2,133	1,811	1,496	1,753	1,513
Total	55,419	45,390	50,635	54,286	56,454

[Depreciation]

Hydroelectric	24,921	24,054	23,553	23,418	21,852
Thermal	61,970	69,307	61,318	56,707	48,411
Transmission/Transformation	18,470	17,752	16,849	16,053	15,302
Other	4,379	4,470	4,359	4,242	3,919
Total	109,741	115,585	106,080	100,423	89,485

\* Until the year ended March 31, 2009, actuarial differences were amortized from the year in which they occurred. Since the year ended March 31, 2010, actuarial differences are amortized from the year following the year in which they occurred.

(Millions of yen)

	2014/3	2015/3	2016/3
	<b>582,861</b>	<b>557,943</b>	<b>552,341</b>
	572,937	548,580	543,019
	104,765	105,705	109,034
	411,935	389,607	381,201
	56,236	53,267	52,783
	9,923	9,363	9,322
	<b>542,396</b>	<b>513,387</b>	<b>510,770</b>
	533,444	504,946	502,326
	29,810	28,566	31,811
	(3,099)	(4,372)	(2,308)
	250,259	228,482	218,481
	58,521	61,005	58,325
	81,500	77,824	73,475
	113,352	109,067	120,231
	8,952	8,441	8,444
	<b>40,464</b>	<b>44,555</b>	<b>41,570</b>
	233	(1,431)	(2,019)
	—	—	—
	(4,746)	(4,960)	(1,354)
	(4,530)	(6,392)	(3,374)
	(3,099)	(4,372)	(2,308)
	(1,431)	(2,019)	(1,066)
	11,776	13,391	12,160
	41,942	42,382	40,985
	3,205	3,671	3,495
	1,596	1,558	1,683
	58,521	61,005	58,325
	21,318	20,947	20,640
	40,879	37,982	33,409
	15,074	14,395	13,871
	4,226	4,500	5,553
	81,500	77,824	73,475

(Millions of yen)

	2017/3	2018/3	
<b>Non-Consolidated: Operating Revenue/Expenses</b>			
<b>Operating Revenue</b>	<b>552,460</b>	<b>614,591</b>	
Electric Utility Operating Revenue	510,909	601,475	
Electric Power Sales	457,953	545,669	
Transmission and Other	52,955	55,815	
Incidental Business Operating Revenue	11,551	13,115	
<b>Operating Expenses</b>	<b>494,829</b>	<b>571,519</b>	
Electric Utility Operating Expenses	484,288	559,300	
Personnel Expenses	43,657	34,205	
Amortization of the Actuarial Difference*	10,726	(103)	
Fuel Cost	196,843	257,308	
Repair Expenses	68,348	63,458	
Depreciation and Amortization Cost	49,696	53,469	
Other	125,743	150,857	
Incidental Business Operating Expenses	10,540	12,219	
<b>Operating Income</b>	<b>27,630</b>	<b>43,071</b>	
(Amortization of the Actuarial Difference)			
Actuarial Difference	The Remainders in the Previous Year	(1,066)	4,955
	Actuarial Difference in the Present Year	—	—
	Actuarial Difference in the Previous Year	16,748	(5,106)
	Subtotal	15,682	(150)
	Amortization*	10,726	(103)
	The Remainders in the Present Year	4,956	(47)
[Repair Expenses]			
Hydroelectric	11,915	11,996	
Thermal	50,770	46,027	
Transmission/Transformation	3,948	3,924	
Other	1,713	1,510	
Total	68,348	63,458	
[Depreciation]			
Hydroelectric	13,245	15,174	
Thermal	23,007	24,318	
Transmission/Transformation	10,068	10,516	
Other	3,373	3,459	
Total	49,696	53,469	

# 10-Year Consolidated Financial Data

## Consolidated Balance Sheet

	2009/3	2010/3	2011/3
<b>Assets</b>			
<b>Noncurrent Assets</b>	<b>1,843,143</b>	<b>1,879,804</b>	<b>1,842,658</b>
<b>Electric Utility Plant and Equipment</b>	<b>1,235,044</b>	<b>1,226,640</b>	<b>1,178,492</b>
Hydroelectric Power Production Facilities	441,694	403,329	389,892
Thermal Power Production Facilities	463,682	482,045	454,823
Internal Combustion Engine Power Production Facilities	12,906	11,764	4,694
Renewable Power Production Facilities	—	24,334	38,436
Transmission Facilities	217,723	207,948	197,163
Transformation Facilities	36,615	35,089	34,456
Communication Facilities	9,591	9,339	9,539
General Facilities	52,830	52,789	49,486
<b>Overseas Business Facilities</b>	<b>—</b>	<b>—</b>	<b>—</b>
<b>Other Noncurrent Assets</b>	<b>46,634</b>	<b>49,619</b>	<b>64,920</b>
<b>Construction in Progress</b>	<b>321,889</b>	<b>309,740</b>	<b>301,676</b>
Construction and Retirement in Progress	321,889	309,740	301,676
<b>Nuclear Fuel</b>	<b>27,650</b>	<b>38,688</b>	<b>46,693</b>
Nuclear Fuel in Processing	27,650	38,688	46,693
<b>Investments and Other Assets</b>	<b>211,923</b>	<b>255,115</b>	<b>250,875</b>
Long-Term Investments	150,332	195,414	181,934
Net Defined Benefit Asset	—	—	—
Deferred Tax Assets	58,711	57,207	56,843
Other	3,414	2,964	13,292
Allowance for Doubtful Accounts	(534)	(471)	(1,196)
<b>Current Assets</b>	<b>162,325</b>	<b>144,276</b>	<b>169,727</b>
Cash and Deposits	27,628	38,749	37,202
Notes and Accounts Receivable—Trade	50,014	47,003	57,781
Short-Term Investments	2,592	2,253	2,346
Inventories	43,110	25,717	32,400
Deferred Tax Assets	6,264	5,560	5,998
Other	32,718	24,995	34,006
Allowance for Doubtful Accounts	(2)	(2)	(9)
<b>Total Assets</b>	<b>2,005,469</b>	<b>2,024,080</b>	<b>2,012,386</b>

- Notes: 1. In accordance with revisions in Electric Utility Accounting Regulations, wind power and geothermal power production facilities are recorded as "Renewable Power Production Facilities" from the fiscal year ended March 31, 2010.
2. Until the year ended March 31, 2012, "Overseas Business Facilities" was included in "Other Noncurrent Assets," but it has been presented separately from the year ended March 31, 2014 due to the increase in monetary importance due to progress in the Thai projects. For year-on-year comparison purposes, it is also presented separately in the year ended March 31, 2013.
3. Accounting policies were partially changed from the year ended March 31, 2017 and the figures for the year ended March 31, 2016 reflect retroactive application of the change.

(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
<b>1,849,786</b>	<b>1,975,202</b>	<b>2,149,579</b>	<b>2,275,453</b>	<b>2,237,836</b>	<b>2,271,046</b>	<b>2,320,012</b>
<b>1,111,251</b>	<b>1,058,849</b>	<b>1,023,751</b>	<b>986,552</b>	<b>948,252</b>	<b>958,754</b>	<b>951,149</b>
374,510	363,437	355,616	348,911	343,193	346,037	346,719
423,049	387,957	362,307	334,252	313,744	313,198	305,191
4,296	3,956	5,414	5,105	3,754	3,301	3,029
34,479	31,358	36,698	40,877	35,960	46,170	50,784
186,274	185,754	176,102	168,680	161,491	157,790	153,180
31,774	30,608	30,482	30,206	29,884	29,598	29,718
9,065	8,638	8,596	8,469	8,449	8,186	8,375
47,801	47,137	48,532	50,049	51,772	54,470	54,148
—	<b>14,311</b>	<b>125,018</b>	<b>264,800</b>	<b>357,448</b>	<b>332,010</b>	<b>341,418</b>
<b>65,657</b>	<b>104,529</b>	<b>109,787</b>	<b>115,111</b>	<b>101,827</b>	<b>92,501</b>	<b>93,404</b>
<b>380,425</b>	<b>464,674</b>	<b>512,604</b>	<b>506,967</b>	<b>441,080</b>	<b>476,171</b>	<b>525,740</b>
380,425	464,674	512,604	506,967	441,080	476,171	525,740
<b>54,157</b>	<b>59,769</b>	<b>69,216</b>	<b>71,467</b>	<b>73,447</b>	<b>73,682</b>	<b>73,800</b>
54,157	59,769	69,216	71,467	73,447	73,682	73,800
<b>238,295</b>	<b>273,067</b>	<b>309,201</b>	<b>330,555</b>	<b>310,231</b>	<b>337,926</b>	<b>334,500</b>
181,132	202,464	244,181	269,891	234,506	253,660	256,715
—	—	—	278	—	2	—
52,571	47,234	40,734	38,705	43,818	40,514	42,501
5,653	24,416	24,331	21,725	31,950	43,794	35,283
(1,062)	(1,047)	(45)	(45)	(45)	(45)	—
<b>166,607</b>	<b>194,707</b>	<b>235,636</b>	<b>383,695</b>	<b>308,436</b>	<b>335,239</b>	<b>327,209</b>
35,112	49,283	50,333	69,151	87,659	117,240	129,675
59,283	61,644	70,135	71,288	66,312	78,805	91,432
1,331	402	35,000	167,433	72,410	51,344	9,045
34,972	38,160	34,053	37,781	41,199	47,172	52,368
6,688	7,423	8,637	5,736	5,268	4,564	5,411
29,284	37,847	37,477	32,337	35,601	36,129	39,322
(63)	(54)	(0)	(32)	(14)	(18)	(46)
<b>2,016,394</b>	<b>2,169,909</b>	<b>2,385,216</b>	<b>2,659,149</b>	<b>2,540,723</b>	<b>2,606,285</b>	<b>2,647,221</b>

	2009/3	2010/3	2011/3
<b>Liabilities</b>			
<b>Noncurrent Liabilities</b>	<b>1,304,830</b>	<b>1,346,526</b>	<b>1,319,146</b>
Bonds Payable	717,867	689,883	734,898
Long-Term Loans Payable	513,239	580,925	500,913
Lease Obligations	520	811	1,093
Provision for Retirement Benefits	51,931	57,855	57,069
Other Provision	1,098	1,111	16
Net Defined Benefit Liability	—	—	—
Asset Retirement Obligations	—	—	3,620
Deferred Tax Liabilities	2,352	3,459	5,869
Other	17,820	12,479	15,666
<b>Current Liabilities</b>	<b>317,379</b>	<b>261,837</b>	<b>277,563</b>
Current Portion of Noncurrent Liabilities	120,700	142,923	162,958
Short-Term Loans Payable	9,098	13,327	17,528
Commercial Paper	109,971	24,998	11,999
Notes and Accounts Payable—Trade	10,144	14,804	20,112
Accrued Taxes	16,317	7,952	21,322
Other Provision	713	855	317
Asset Retirement Obligations	—	—	473
Deferred Tax Liabilities	9	5	11
Other	50,423	56,970	42,839
<b>Reserves under Special Laws</b>	<b>1,146</b>	<b>734</b>	<b>777</b>
Reserve for Fluctuation in Water Levels	1,146	734	777
<b>Total Liabilities</b>	<b>1,623,356</b>	<b>1,609,099</b>	<b>1,597,487</b>
<b>Net Assets</b>			
<b>Shareholders' Equity</b>	<b>408,036</b>	<b>426,680</b>	<b>435,760</b>
Capital Stock	152,449	152,449	152,449
Capital Surplus	81,849	81,849	81,849
Retained Earnings	236,998	255,643	264,724
Treasury Stock	(63,260)	(63,262)	(63,263)
<b>Accumulated Other Comprehensive Income</b>	<b>(27,908)</b>	<b>(14,003)</b>	<b>(19,997)</b>
Valuation Difference on Available-for-Sale Securities	(404)	2,960	(137)
Deferred Gains or Losses on Hedges	(6,285)	(3,747)	611
Foreign Currency Translation Adjustment	(21,217)	(13,217)	(20,471)
Remeasurements of Defined Benefit Plans	—	—	—
<b>Non-Controlling Interests</b>	<b>1,984</b>	<b>2,304</b>	<b>(863)</b>
<b>Total Net Assets</b>	<b>382,112</b>	<b>414,981</b>	<b>414,898</b>
<b>Total Liabilities and Net Assets</b>	<b>2,005,469</b>	<b>2,024,080</b>	<b>2,012,386</b>

Notes: 1. The "Accounting Standards for Retirement Benefits" (Corporate Accounting Standard No. 26 of May 17, 2012) and the "Guidelines for Applying Accounting Standards for Retirement Benefits" (Corporate Accounting Standard Application Guideline No. 25 of May 17, 2012) are applied from the end of the consolidated fiscal year ended March 31, 2014.

2. Accounting policies were partially changed from the year ended March 31, 2017 and the figures for the year ended March 31, 2016 reflect retroactive application of the change.

(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
<b>1,324,663</b>	<b>1,402,287</b>	<b>1,522,905</b>	<b>1,633,825</b>	<b>1,561,072</b>	<b>1,497,888</b>	<b>1,561,922</b>
714,914	694,930	691,346	666,061	575,079	494,991	554,991
522,407	608,977	741,509	857,846	867,276	891,200	875,043
983	982	981	697	479	353	368
58,015	59,012	—	—	—	—	—
25	36	43	84	89	120	152
—	—	49,071	48,901	65,912	58,079	55,176
4,585	3,971	6,644	7,510	11,685	11,971	28,484
6,390	7,801	14,730	20,394	18,294	23,387	22,437
17,339	26,574	18,579	32,327	22,254	17,783	25,266
<b>284,761</b>	<b>313,311</b>	<b>342,714</b>	<b>329,025</b>	<b>304,100</b>	<b>344,377</b>	<b>249,174</b>
166,342	196,999	207,968	169,754	158,131	208,760	114,307
18,443	18,475	20,318	30,044	28,009	24,957	16,803
12,999	3,999	—	—	—	—	—
20,011	25,049	33,197	44,035	37,033	24,616	25,539
11,408	10,811	8,791	13,516	23,344	19,843	26,303
325	273	302	270	265	267	292
626	1,495	245	372	635	592	341
4	3	9	5	22	5	73
54,599	56,202	71,880	71,027	56,656	65,333	65,512
<b>777</b>	<b>425</b>	<b>119</b>	<b>—</b>	<b>116</b>	<b>—</b>	<b>—</b>
777	425	119	—	116	—	—
<b>1,610,202</b>	<b>1,716,024</b>	<b>1,865,739</b>	<b>1,962,851</b>	<b>1,865,289</b>	<b>1,842,266</b>	<b>1,811,096</b>
<b>441,369</b>	<b>460,673</b>	<b>478,860</b>	<b>629,463</b>	<b>650,817</b>	<b>689,542</b>	<b>745,176</b>
152,449	152,449	152,449	180,502	180,502	180,502	180,502
81,849	81,849	81,849	109,902	109,902	119,927	119,927
270,334	289,639	307,829	339,061	360,418	389,117	444,753
(63,264)	(63,265)	(63,268)	(2)	(4)	(5)	(6)
<b>(33,985)</b>	<b>(6,768)</b>	<b>37,350</b>	<b>59,268</b>	<b>15,775</b>	<b>34,276</b>	<b>42,114</b>
(772)	4,855	9,030	19,860	12,516	15,594	16,822
(4,209)	(6,929)	1,772	(15,821)	(14,395)	(2,183)	(6,580)
(29,003)	(4,693)	22,955	53,205	30,464	21,295	30,960
—	—	3,592	2,023	(12,809)	(430)	912
<b>(1,191)</b>	<b>(19)</b>	<b>3,265</b>	<b>7,566</b>	<b>8,839</b>	<b>40,200</b>	<b>48,833</b>
<b>406,192</b>	<b>453,885</b>	<b>519,477</b>	<b>696,298</b>	<b>675,433</b>	<b>764,019</b>	<b>836,124</b>
<b>2,016,394</b>	<b>2,169,909</b>	<b>2,385,216</b>	<b>2,659,149</b>	<b>2,540,723</b>	<b>2,606,285</b>	<b>2,647,221</b>

## Consolidated Statement of Income

	2009/3	2010/3	2011/3
<b>Operating Revenue</b>	<b>704,936</b>	<b>584,484</b>	<b>635,975</b>
Electric Utility Operating Revenue	648,362	530,289	584,436
Overseas Business Operating Revenue	—	1,576	1,881
Other Business Operating Revenue	56,574	52,617	49,657
<b>Operating Expenses</b>	<b>647,828</b>	<b>535,544</b>	<b>565,387</b>
Electric Utility Operating Expenses	588,808	478,644	509,116
Overseas Business Operating Expenses	—	—	—
Other Business Operating Expenses	59,019	56,899	56,271
<b>Operating Income</b>	<b>57,108</b>	<b>48,939</b>	<b>70,588</b>
<b>Non-Operating Income</b>	<b>13,282</b>	<b>18,734</b>	<b>14,965</b>
Dividends Income	1,706	1,406	1,499
Interest Income	960	581	1,220
Share of Profit of Entities Accounted for Using Equity Method	7,470	11,722	9,072
Foreign Exchange Gains	—	—	—
Other	3,145	5,024	3,172
<b>Non-Operating Expenses</b>	<b>30,791</b>	<b>25,979</b>	<b>29,231</b>
Interest Expenses	22,616	23,085	22,371
Foreign Exchange Losses	—	—	—
Other	8,174	2,894	6,860
<b>Total Ordinary Revenue</b>	<b>718,219</b>	<b>603,218</b>	<b>650,941</b>
<b>Total Ordinary Expenses</b>	<b>678,619</b>	<b>561,524</b>	<b>594,619</b>
<b>Ordinary Income</b>	<b>39,599</b>	<b>41,694</b>	<b>56,322</b>
<b>Provision or Reversal of Reserve for Fluctuation in Water Levels</b>	<b>(413)</b>	<b>(411)</b>	<b>42</b>
Provision of Reserve for Fluctuation in Water Levels	—	—	42
Reversal of Reserve for Fluctuation in Water Levels	(413)	(411)	—
<b>Extraordinary Income</b>	<b>12,170</b>	<b>—</b>	<b>1,635</b>
<b>Extraordinary Loss</b>	<b>19,648</b>	<b>—</b>	<b>19,176</b>
<b>Profit before Income Taxes</b>	<b>32,536</b>	<b>42,105</b>	<b>38,739</b>
<b>Income Taxes—Current</b>	<b>17,928</b>	<b>11,270</b>	<b>20,403</b>
<b>Income Taxes—Deferred</b>	<b>(4,945)</b>	<b>1,883</b>	<b>2,459</b>
<b>Total Income Taxes</b>	<b>12,982</b>	<b>13,153</b>	<b>22,863</b>
<b>Profit</b>	<b>—</b>	<b>—</b>	<b>15,876</b>
<b>Profit Attributable to Non-Controlling Interests</b>	<b>95</b>	<b>(197)</b>	<b>(3,707)</b>
<b>Profit Attributable to Owners of Parent</b>	<b>19,457</b>	<b>29,149</b>	<b>19,583</b>

Notes: 1. Until the year ended March 31, 2012, "Overseas Business Operating Revenue" was included in "Other Business Operating Revenue," but it has been presented separately from the year ended March 31, 2014 due to the increase in monetary importance due to progress in the Thai projects. For year-on-year comparison purposes, it is also presented separately in the year ended March 31, 2013.

2. Until the year ended March 31, 2012, "Overseas Business Operating Expenses" was included in "Electric Utility Operating Expenses" and "Other Business Operating Expenses," but it has been presented separately from the year ended March 31, 2014 due to the increase in monetary importance due to progress in the Thai projects. For year-on-year comparison purposes, it is also presented separately in the year ended March 31, 2013.

Under each item, there are cases of fiscal years in which the monetary importance has been minor being included and represented under another item.

3. Accounting policies were partially changed from the year ended March 31, 2017 and the figures for the year ended March 31, 2016 reflect retroactive application of the change.

Under each item, there are cases of fiscal years in which the monetary importance has been minor being included and represented under another item.



(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
<b>654,600</b>	<b>656,056</b>	<b>706,835</b>	<b>750,627</b>	<b>780,072</b>	<b>744,402</b>	<b>856,252</b>
609,775	605,338	609,080	588,184	570,837	538,558	631,923
2,005	1,647	42,834	108,916	155,952	149,888	163,084
42,819	49,070	54,920	53,526	53,282	55,955	61,244
<b>604,800</b>	<b>601,490</b>	<b>647,663</b>	<b>677,767</b>	<b>692,157</b>	<b>662,675</b>	<b>751,916</b>
553,873	540,134	545,430	521,351	506,234	487,766	566,143
—	8,346	43,899	98,979	131,605	119,535	131,251
50,927	53,009	58,333	57,436	54,317	55,374	54,521
<b>49,800</b>	<b>54,566</b>	<b>59,171</b>	<b>72,859</b>	<b>87,915</b>	<b>81,726</b>	<b>104,336</b>
<b>15,356</b>	<b>17,577</b>	<b>22,357</b>	<b>22,714</b>	<b>17,871</b>	<b>20,526</b>	<b>29,113</b>
1,315	1,321	1,454	1,869	2,409	1,689	1,577
968	1,195	1,054	1,155	905	1,024	1,287
9,565	11,728	16,380	15,659	10,889	13,258	9,721
—	—	—	—	—	1,770	11,179
3,506	3,331	3,468	4,030	3,667	2,783	5,347
<b>28,536</b>	<b>27,318</b>	<b>41,451</b>	<b>36,223</b>	<b>47,248</b>	<b>35,103</b>	<b>30,974</b>
22,005	22,362	25,305	28,224	30,495	29,798	28,387
—	991	11,190	1,547	12,888	—	—
6,530	3,964	4,955	6,451	3,865	5,304	2,586
<b>669,957</b>	<b>673,634</b>	<b>729,192</b>	<b>773,341</b>	<b>797,944</b>	<b>764,929</b>	<b>885,366</b>
<b>633,337</b>	<b>628,808</b>	<b>689,115</b>	<b>713,991</b>	<b>739,405</b>	<b>697,779</b>	<b>782,890</b>
<b>36,619</b>	<b>44,825</b>	<b>40,077</b>	<b>59,350</b>	<b>58,538</b>	<b>67,150</b>	<b>102,476</b>
—	(351)	(306)	(119)	116	—	—
—	—	—	—	116	—	—
—	(351)	(306)	(119)	—	—	—
—	—	2,386	2,127	—	—	—
<b>3,382</b>	—	—	—	—	—	<b>3,389</b>
<b>33,237</b>	<b>45,176</b>	<b>42,770</b>	<b>61,598</b>	<b>58,241</b>	<b>67,150</b>	<b>99,086</b>
<b>12,953</b>	<b>11,940</b>	<b>8,372</b>	<b>7,468</b>	<b>12,821</b>	<b>18,634</b>	<b>20,124</b>
<b>4,370</b>	<b>3,622</b>	<b>6,579</b>	<b>9,917</b>	<b>5,059</b>	<b>2,847</b>	<b>(3,700)</b>
<b>17,324</b>	<b>15,562</b>	<b>14,952</b>	<b>17,386</b>	<b>17,880</b>	<b>21,482</b>	<b>16,423</b>
<b>15,913</b>	<b>29,613</b>	<b>27,817</b>	<b>44,212</b>	<b>40,540</b>	<b>45,667</b>	<b>82,662</b>
<b>(200)</b>	<b>(194)</b>	<b>(876)</b>	<b>1,005</b>	<b>459</b>	<b>4,238</b>	<b>14,213</b>
<b>16,113</b>	<b>29,808</b>	<b>28,694</b>	<b>43,206</b>	<b>40,081</b>	<b>41,429</b>	<b>68,448</b>

## Consolidated Statement of Cash Flows

	2009/3	2010/3	2011/3
<b>Cash Flows from Operating Activities</b>			
Profit before Income Taxes	32,536	42,105	38,739
Depreciation and Amortization	114,669	120,313	111,644
Impairment Loss	439	384	9,266
Loss on Liquidation of Business	—	—	4,550
Loss on Retirement of Noncurrent Assets	4,182	2,516	2,941
Disaster Recovery Expenses	—	—	—
Increase (Decrease) in Provision for Retirement Benefits	12,848	5,923	(779)
Increase (Decrease) in Net Defined Benefit Liability	—	—	—
Increase (Decrease) in Reserve for Fluctuation in Water Levels	(413)	(411)	42
Interest and Dividend Income	(2,666)	(1,987)	(2,720)
Interest Expenses	22,616	23,085	22,371
Decrease (Increase) in Notes and Accounts Receivable—Trade	(6,040)	6,311	(10,753)
Decrease (Increase) in Inventories	(17,637)	17,645	(6,132)
Increase (Decrease) in Notes and Accounts Payable—Trade	(1,109)	7,034	3,171
Loss (Gain) on Sales of Securities	2	(231)	(1,450)
Loss (Gain) on Valuation of Securities	19,648	—	5,359
Share of (Profit) Loss of Entities Accounted for Using Equity Method	(7,470)	(11,722)	(9,072)
Loss (Gain) on Sales of Shares of Subsidiaries	—	—	—
Loss (Gain) on Sale of Noncurrent Assets	38	(590)	432
Distribution by Dissolution of Anonymous Association	(12,170)	—	—
Other, Net	24,235	(10,205)	8,355
Subtotal	183,709	200,170	175,965
Interest and Dividend Income Received	15,368	5,845	7,644
Interest Expenses Paid	(22,079)	(22,987)	(22,881)
Income Taxes Paid	(18,369)	(13,880)	(9,492)
<b>Net Cash Provided by (Used in) Operating Activities</b>	<b>158,628</b>	<b>169,148</b>	<b>151,236</b>
<b>Cash Flows from Investing Activities</b>			
Proceeds from Contribution Received for Construction	8,619	9,962	7,068
Purchase of Noncurrent Assets	(173,119)	(114,967)	(115,827)
Proceeds from Sales of Noncurrent Assets	58,657	1,860	2,453
Payments of Investments and Loans Receivable	(27,643)	(23,456)	(14,184)
Collections of Investments and Receivable	7,901	3,896	5,235
Purchase of Investments in Subsidiaries Resulting in Change in Scope of Consolidation	(2,611)	(495)	—
Proceeds from Purchase of Investments in Subsidiaries, Net of Cash Acquired	—	—	—
Proceeds from Sales of Shares of Subsidiaries Resulting in Change in Scope of Consolidation	—	—	—
Other, Net	(4,154)	(6,305)	(9,419)
<b>Net Cash Provided by (Used in) Investing Activities</b>	<b>(132,350)</b>	<b>(129,504)</b>	<b>(124,675)</b>
<b>Cash Flows from Financing Activities</b>			
Proceeds from Issuance of Bonds	114,570	59,792	79,726
Redemption of Bonds	(60,300)	—	(88,000)
Proceeds from Long-Term Loans Payable	9,803	122,794	49,036
Repayment of Long-Term Loans Payable	(41,287)	(121,555)	(53,988)
Proceeds from Short-Term Loans Payable	193,040	42,500	84,880
Repayment of Short-Term Loans Payable	(190,023)	(38,294)	(80,680)
Proceeds from Issuance of Commercial Papers	639,380	475,905	392,965
Redemption of Commercial Papers	(619,000)	(561,000)	(406,000)
Proceeds from Issuance of Common Shares	—	—	—
Proceeds from Stock Issuance to Minority Shareholders	—	—	—
Purchase of Treasury Stock	(63,195)	—	—
Proceeds from Sales of Treasury Shares	—	—	—
Proceeds from Sales of Subsidiaries' Shares that Do not Result in Changes in Scope of Consolidation	—	—	—
Cash Dividends Paid	(12,499)	(10,503)	(10,503)
Cash Dividends Paid to Minority Shareholders	(20)	(2)	(8)
Cash Dividends Paid to Non-Controlling Interests	—	—	—
Other, Net	(83)	11	3,398
<b>Net Cash Provided by (Used in) Financing Activities</b>	<b>(29,615)</b>	<b>(30,351)</b>	<b>(29,172)</b>
<b>Effect of Exchange Rate Change on Cash and Cash Equivalents</b>	<b>(2,764)</b>	<b>1,506</b>	<b>285</b>
<b>Net Increase (Decrease) in Cash and Cash Equivalents</b>	<b>(6,101)</b>	<b>10,798</b>	<b>(2,326)</b>
<b>Cash and Cash Equivalents at Beginning of the Period</b>	<b>35,631</b>	<b>29,530</b>	<b>40,329</b>
<b>Increase (Decrease) in Cash from the Addition of Consolidated Subsidiaries</b>	<b>—</b>	<b>—</b>	<b>—</b>
<b>Cash and Cash Equivalents at the End of the Period</b>	<b>29,530</b>	<b>40,329</b>	<b>38,002</b>

Note: Accounting policies were partially changed from the year ended March 31, 2017 and the figures for the year ended March 31, 2016 reflect retroactive application of the change.

Under each item, there are cases of fiscal years in which the monetary importance has been minor being included and represented under another item.

(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
33,237	45,176	42,770	61,598	58,421	67,150	99,086
105,271	95,254	91,408	93,309	94,582	75,660	82,298
946	—	14	2,489	1,392	2,624	3,389
—	—	—	—	—	—	—
2,434	2,418	2,241	2,359	3,656	2,842	3,039
3,382	—	—	—	—	—	—
971	987	—	—	—	—	—
—	—	(4,800)	(4,611)	(3,351)	9,276	(1,046)
—	(351)	(306)	(119)	116	—	—
(2,284)	(2,517)	(2,508)	(3,024)	(3,314)	(2,713)	(2,864)
22,005	22,362	25,305	28,224	30,495	29,798	28,387
(1,607)	(2,133)	(7,753)	23	2,445	(13,433)	(10,801)
(2,488)	(3,133)	4,223	(3,593)	(3,259)	(5,503)	(5,121)
3,148	5,642	9,244	6,639	(3,085)	(6,477)	(2,143)
(484)	(620)	(280)	(252)	—	—	—
1,791	242	—	—	—	—	—
(9,565)	(11,728)	(16,380)	(15,659)	(10,889)	(13,258)	(9,721)
—	—	—	(2,127)	—	—	—
747	526	—	—	—	—	—
—	—	—	—	—	—	—
8,526	(8,742)	2,123	6,841	3,134	6,786	6,863
166,031	143,385	145,302	172,097	170,342	152,753	191,366
6,869	7,926	12,626	10,735	13,573	13,229	16,620
(21,765)	(21,974)	(25,131)	(28,211)	(30,554)	(30,224)	(28,486)
(25,244)	(9,552)	(10,687)	(6,807)	(7,232)	(20,317)	(19,190)
<b>125,891</b>	<b>119,786</b>	<b>122,110</b>	<b>147,813</b>	<b>146,130</b>	<b>115,440</b>	<b>160,310</b>
3,102	6,343	—	—	—	—	—
(133,711)	(165,201)	(176,982)	(148,404)	(140,840)	(108,149)	(98,816)
2,285	—	—	—	—	—	—
(6,068)	(1,347)	(1,149)	(4,429)	(2,537)	(18,005)	(8,149)
4,915	7,938	6,460	4,053	15,960	2,577	2,243
—	—	—	—	—	—	—
—	—	—	—	—	—	—
1,425	—	—	1,665	—	—	—
(8,802)	(18,101)	(5,704)	4,150	(4,123)	(14,086)	(4,913)
<b>(136,852)</b>	<b>(170,369)</b>	<b>(177,375)</b>	<b>(142,964)</b>	<b>(131,541)</b>	<b>(137,663)</b>	<b>(109,635)</b>
—	39,877	79,740	39,858	—	79,702	99,633
(35,000)	(20,000)	(63,599)	(85,298)	(60,999)	(90,000)	(160,100)
176,745	207,887	241,625	189,320	96,697	83,762	56,510
(127,173)	(146,048)	(158,518)	(120,062)	(110,783)	(69,108)	(53,280)
103,760	108,500	97,221	104,942	100,944	87,663	67,708
(103,070)	(110,038)	(95,374)	(95,582)	(102,994)	(90,194)	(75,813)
359,968	326,969	83,996	—	2,999	15,000	15,000
(359,000)	(336,000)	(88,000)	—	(3,000)	(15,000)	(15,000)
—	—	—	59,359	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	59,740	—	—	—
—	—	—	—	—	42,363	—
(10,502)	(10,501)	(10,504)	(10,505)	(12,811)	(12,811)	(12,810)
(196)	—	—	—	—	—	—
—	—	—	—	—	—	(7,342)
3,764	856	1,709	2,148	1,315	(916)	(329)
<b>9,296</b>	<b>61,502</b>	<b>88,295</b>	<b>143,920</b>	<b>(88,632)</b>	<b>30,461</b>	<b>(85,825)</b>
(585)	2,615	3,297	2,446	(2,446)	267	3,536
(2,248)	13,535	36,328	151,216	(76,490)	8,505	(31,614)
38,002	35,359	48,894	85,223	236,439	159,949	168,454
(394)	—	—	—	—	—	—
<b>35,359</b>	<b>48,894</b>	<b>85,223</b>	<b>236,439</b>	<b>159,949</b>	<b>168,454</b>	<b>136,840</b>

## Segment Information

	2009/3	2010/3	2011/3
<b>Sales to External Customers</b>			
Electric Power Business	648,362	530,289	584,436
Electric Power-Related Business	23,488	24,095	26,294
Overseas Business	—	1,576	1,881
Other Businesses	33,085	28,522	23,363
Consolidated	704,936	584,484	635,975
<b>Operating Income</b>			
Electric Power Business	44,610	38,294	—
Electric Power-Related Business	11,569	11,207	—
Other Business	360	(301)	—
Adjustments	567	(260)	—
Consolidated	57,108	48,939	—
<b>Ordinary Income</b>			
Electric Power Business	—	22,320	41,832
Electric Power-Related Business	—	11,521	10,425
Overseas Business	—	6,511	5,047
Other Business	—	1,614	(1,517)
Adjustments	—	(273)	533
Consolidated	—	41,694	56,322
<b>Depreciation and Amortization</b>			
Electric Power Business	113,112	119,241	110,179
Electric Power-Related Business	3,406	2,839	3,362
Overseas Business	—	48	115
Other Business	1,174	1,349	1,231
Adjustments	(3,023)	(3,166)	(3,244)
Consolidated	114,669	120,313	111,644
<b>Increase in the Tangible and Intangible Noncurrent Assets</b>			
Electric Power Business	154,096	106,737	70,742
Electric Power-Related Business	13,170	2,507	5,236
Overseas Business	—	5,727	18,091
Other Business	4,897	344	643
Adjustments	(36)	(3,084)	(1,584)
Consolidated	172,128	112,233	93,128

- Notes: 1. From the year ended March 31, 2011, overseas business that had been included under "Other Business" was made into a separate segment. For year-on-year comparison purposes, it is also presented separately in the year ended March 31, 2010.
2. From the year ended March 31, 2011, segment income is stated in terms of ordinary income rather than operating income as before. For year-on-year comparison purposes, ordinary income is also stated in the year ended March 31, 2010.
3. Accounting policies were partially changed from the year ended March 31, 2017 and the figures for the year ended March 31, 2016 reflect retroactive application of the change.

(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
609,775	605,338	609,080	588,184	570,837	538,558	631,923
23,133	26,599	29,944	30,467	31,973	34,004	36,934
2,005	1,647	42,834	108,916	155,952	149,888	163,084
19,686	22,471	24,975	23,059	21,309	21,950	24,309
654,600	656,056	706,835	750,627	780,072	744,402	856,252
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
22,290	31,088	29,088	33,386	32,239	22,212	39,561
8,373	9,099	9,626	8,970	14,462	14,244	23,098
3,499	3,907	52	15,990	11,483	31,229	40,528
(3)	986	956	611	810	1,376	1,258
2,460	(256)	353	392	(456)	(1,912)	(1,970)
36,619	44,825	40,077	59,350	58,538	67,150	102,476
104,344	93,163	85,173	81,924	77,628	54,650	60,606
3,514	4,498	5,308	5,776	6,252	5,975	5,786
55	84	3,299	7,820	12,833	16,448	17,443
521	492	512	468	422	314	282
(3,164)	(2,984)	(2,884)	(2,680)	(2,553)	(1,728)	(1,819)
105,271	95,254	91,408	93,309	94,582	75,660	82,298
68,286	69,390	94,307	67,038	119,176	107,841	100,129
7,119	46,713	4,889	7,071	2,820	2,153	3,639
62,548	60,175	95,815	75,158	11,472	1,358	5,018
340	494	546	317	301	553	346
(570)	(1,667)	(532)	(2,692)	(7,450)	(6,070)	(10,417)
137,725	175,106	195,026	146,894	126,320	105,837	98,716

## 10-Year Non-Consolidated Financial Data

### Non-Consolidated Balance Sheet

	2009/3	2010/3	2011/3
<b>Assets</b>			
<b>Noncurrent Assets</b>	<b>1,796,175</b>	<b>1,808,678</b>	<b>1,768,302</b>
<b>Electric Utility Plant and Equipment</b>	<b>1,220,808</b>	<b>1,215,919</b>	<b>1,159,857</b>
Hydroelectric Power Production Facilities	428,270	413,221	399,744
Thermal Power Production Facilities	469,618	489,556	462,070
Renewable Power Production Facilities	—	2,084	1,765
Transmission Facilities	221,274	211,312	200,373
Transformation Facilities	37,929	36,360	35,721
Communication Facilities	10,384	10,121	10,274
General Facilities	53,331	53,261	49,907
<b>Incidental Business Facilities</b>	<b>2,321</b>	<b>2,070</b>	<b>2,297</b>
<b>Non-Operating Facilities</b>	<b>461</b>	<b>248</b>	<b>335</b>
<b>Construction in Progress</b>	<b>313,664</b>	<b>287,204</b>	<b>295,682</b>
Construction in Progress	313,542	286,540	295,449
Retirement in Progress	121	664	233
<b>Nuclear Fuel</b>	<b>27,650</b>	<b>38,688</b>	<b>46,693</b>
Nuclear Fuel in Processing	27,650	38,688	46,693
<b>Investments and Other Assets</b>	<b>231,268</b>	<b>264,546</b>	<b>263,435</b>
Long-Term Investments	46,787	72,083	62,572
Long-Term Investments for Subsidiaries and Affiliates	143,118	152,399	164,876
Long-Term Prepaid Expenses	2,164	1,824	2,480
Deferred Tax Assets	40,084	39,079	38,992
Allowance for Doubtful Accounts	(886)	(840)	(5,485)
<b>Current Assets</b>	<b>114,416</b>	<b>93,826</b>	<b>116,528</b>
Cash and Deposits	4,973	5,151	4,362
Accounts Receivable—Trade	44,178	39,848	49,264
Other Accounts Receivable	5,186	4,870	4,845
Short-Term Investments	22	—	—
Supplies	38,414	19,087	28,529
Advance payments	—	—	—
Prepaid Expenses	1,002	1,219	1,672
Short-Term Receivables from Subsidiaries and Affiliates	4,880	9,516	11,637
Deferred Tax Assets	4,150	2,993	3,732
Other Current Assets	11,622	11,138	12,604
Allowance for Doubtful Accounts	(14)	—	(121)
<b>Total Assets</b>	<b>1,910,592</b>	<b>1,902,504</b>	<b>1,884,830</b>

Notes: 1. Corresponding to the revision of electric utility accounting regulations, the disclosure of "Renewable Power Production Utilities" began and a geothermal power production facility was booked as "Renewable Power Production Facilities" from the year ended March 31, 2010.

2. Accounting policies were partially changed from the year ended March 31, 2017 and the figures for the year ended March 31, 2016 reflect retroactive application of the change.

(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
<b>1,728,454</b>	<b>1,749,201</b>	<b>1,780,429</b>	<b>1,795,979</b>	<b>1,820,204</b>	<b>1,892,648</b>	<b>1,933,261</b>
<b>1,095,654</b>	<b>1,045,889</b>	<b>1,003,628</b>	<b>965,328</b>	<b>931,795</b>	<b>932,819</b>	<b>921,000</b>
384,125	372,980	365,343	359,001	353,685	357,508	358,916
429,797	394,071	367,935	341,313	320,428	318,961	311,298
1,526	1,533	1,541	2,523	1,061	939	—
189,304	188,695	178,925	171,471	164,220	160,596	155,982
32,944	31,762	31,645	31,424	31,132	30,988	31,097
9,767	9,308	9,257	9,095	9,039	8,815	9,022
48,187	47,537	48,979	50,497	52,227	55,009	54,683
<b>2,186</b>	<b>1,980</b>	<b>2,213</b>	<b>2,088</b>	<b>1,944</b>	<b>2,199</b>	<b>2,029</b>
<b>260</b>	<b>798</b>	<b>857</b>	<b>406</b>	<b>331</b>	<b>313</b>	<b>452</b>
<b>315,318</b>	<b>331,810</b>	<b>367,748</b>	<b>384,957</b>	<b>438,730</b>	<b>483,067</b>	<b>533,741</b>
314,737	331,120	367,563	384,859	438,592	482,143	531,567
580	690	185	98	138	923	2,174
<b>54,157</b>	<b>59,769</b>	<b>69,216</b>	<b>71,467</b>	<b>73,447</b>	<b>73,682</b>	<b>73,800</b>
54,157	59,769	69,216	71,467	73,447	73,682	73,800
<b>260,877</b>	<b>308,954</b>	<b>336,763</b>	<b>371,731</b>	<b>373,953</b>	<b>400,565</b>	<b>402,235</b>
60,522	67,029	70,612	83,250	61,773	63,824	65,105
169,582	212,363	236,195	252,708	265,759	277,179	284,479
1,548	3,760	9,597	16,718	25,553	36,609	28,011
35,411	31,004	24,041	19,203	20,866	22,953	24,756
(6,188)	(5,204)	(3,682)	(149)	—	—	(116)
<b>115,806</b>	<b>121,090</b>	<b>146,302</b>	<b>262,629</b>	<b>165,044</b>	<b>168,232</b>	<b>142,444</b>
4,295	4,440	3,934	4,380	3,969	5,169	10,550
50,745	48,758	46,228	32,145	26,789	43,488	50,026
507	3,618	782	649	4,636	2,838	1,932
—	—	35,000	167,398	72,399	51,000	9,000
31,565	33,083	28,210	30,048	31,758	36,360	39,350
—	—	—	—	71	—	—
2,388	2,405	2,370	2,385	2,140	2,752	2,764
6,876	7,808	11,079	6,197	5,293	5,381	5,835
4,599	4,917	5,289	3,885	3,217	2,305	3,449
14,895	16,166	13,405	15,539	14,767	18,936	20,447
(65)	(108)	—	—	—	—	(913)
<b>1,844,261</b>	<b>1,870,291</b>	<b>1,926,731</b>	<b>2,058,609</b>	<b>1,985,248</b>	<b>2,060,881</b>	<b>2,075,706</b>

	2009/3	2010/3	2011/3
<b>Liabilities</b>			
<b>Noncurrent Liabilities</b>	<b>1,256,467</b>	<b>1,302,695</b>	<b>1,257,747</b>
Bonds Payable	717,867	689,883	734,898
Long-Term Loans Payable	481,577	550,955	461,256
Long-Term Accrued Liabilities	2	1	0
Lease Obligations	133	218	314
Long-Term Debt to Subsidiaries and Associates	3,073	4,887	5,709
Provision for Retirement Benefits	41,439	46,351	45,259
Assets Retirement Obligations	—	—	158
Other Noncurrent Liabilities	12,373	10,396	10,149
<b>Current Liabilities</b>	<b>316,383</b>	<b>252,974</b>	<b>277,226</b>
Current Portion of Noncurrent Liabilities	117,815	136,703	159,747
Short-Term Loans Payable	9,000	12,750	17,350
Commercial Papers	109,971	24,998	11,999
Accounts Payable—Trade	1,220	4,452	5,055
Accounts Payable—Other	8,040	9,892	2,970
Accrued Expenses	11,349	10,407	9,760
Accrued Taxes	13,539	3,790	18,821
Deposits Received	261	278	282
Short-Term Debt to Subsidiaries and Associates	42,331	47,298	47,634
Other Advances	938	583	1,034
Other Current Liabilities	1,916	1,818	2,569
<b>Reserves under the Special Laws</b>	<b>1,146</b>	<b>734</b>	<b>777</b>
Reserve for Fluctuation in Water Levels	1,146	734	777
<b>Total Liabilities</b>	<b>1,573,998</b>	<b>1,556,404</b>	<b>1,535,751</b>
<b>Net Assets</b>			
<b>Shareholders' Equity</b>	<b>338,012</b>	<b>343,879</b>	<b>348,159</b>
<b>Capital Stock</b>	<b>152,449</b>	<b>152,449</b>	<b>152,449</b>
<b>Capital Surplus</b>	<b>81,852</b>	<b>81,852</b>	<b>81,852</b>
Legal Capital Surplus	81,852	81,852	81,852
<b>Retained Earnings</b>	<b>166,971</b>	<b>172,839</b>	<b>177,121</b>
Legal Retained Earnings	6,029	6,029	6,029
Other Retained Earnings	160,941	166,810	171,092
Reserve for Special Disaster	50	53	57
Exchange-Fluctuation Preparation Reserve	1,960	1,960	1,960
General Reserve	137,861	137,861	142,861
Retained Earnings Brought Forward	21,070	26,935	26,213
<b>Treasury Stock</b>	<b>(63,260)</b>	<b>(63,262)</b>	<b>(63,263)</b>
<b>Valuation and Translation Adjustments</b>	<b>(1,417)</b>	<b>2,220</b>	<b>919</b>
Valuation Difference on Available-for-Sale Securities	(1,214)	2,634	(479)
Deferred Gains or Losses on Hedges	(203)	(414)	1,399
<b>Total Net Assets</b>	<b>336,594</b>	<b>346,099</b>	<b>349,079</b>
<b>Total Liabilities and Net Assets</b>	<b>1,910,592</b>	<b>1,902,504</b>	<b>1,884,830</b>

Note: Accounting policies were partially changed from the year ended March 31, 2017 and the figures for the year ended March 31, 2016 reflect retroactive application of the change.



(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
<b>1,211,719</b>	<b>1,206,654</b>	<b>1,226,516</b>	<b>1,245,889</b>	<b>1,184,707</b>	<b>1,156,280</b>	<b>1,226,571</b>
714,914	694,930	691,346	666,061	575,079	494,991	554,991
429,373	438,228	479,549	524,557	562,520	605,486	607,250
—	—	269	271	269	269	5,269
392	374	342	249	188	133	157
5,192	4,999	4,932	6,346	1,425	1,805	1,652
46,053	47,155	42,089	41,945	38,548	47,395	46,340
175	189	202	214	1,604	1,646	6,231
15,617	20,777	7,784	6,242	5,070	4,552	4,677
<b>285,725</b>	<b>304,261</b>	<b>325,406</b>	<b>300,443</b>	<b>282,557</b>	<b>342,408</b>	<b>258,207</b>
163,166	192,821	201,395	157,661	145,540	190,745	94,210
18,350	18,350	18,350	18,350	16,250	16,650	16,650
12,999	3,999	—	—	—	—	—
2,194	2,375	1,839	3,341	1,731	6,141	7,233
3,094	2,843	8,362	11,996	7,587	10,560	12,035
10,191	10,276	9,519	10,801	10,016	14,391	12,833
8,877	7,201	4,919	7,972	9,319	7,362	13,892
454	474	308	315	323	294	491
60,697	59,093	74,979	84,544	87,863	92,253	97,507
666	741	694	602	786	3,067	201
5,032	6,081	5,037	4,857	3,137	941	3,152
<b>777</b>	<b>425</b>	<b>119</b>	<b>—</b>	<b>116</b>	<b>—</b>	<b>—</b>
777	425	119	—	116	—	—
<b>1,498,222</b>	<b>1,511,341</b>	<b>1,552,042</b>	<b>1,546,332</b>	<b>1,467,381</b>	<b>1,498,688</b>	<b>1,484,778</b>
<b>346,824</b>	<b>354,914</b>	<b>366,524</b>	<b>494,713</b>	<b>506,807</b>	<b>545,629</b>	<b>574,753</b>
<b>152,449</b>	<b>152,449</b>	<b>152,449</b>	<b>180,502</b>	<b>180,502</b>	<b>180,502</b>	<b>180,502</b>
<b>81,852</b>	<b>81,852</b>	<b>81,852</b>	<b>109,904</b>	<b>109,904</b>	<b>109,904</b>	<b>109,904</b>
81,852	81,852	81,852	109,904	109,904	109,904	109,904
<b>175,787</b>	<b>183,878</b>	<b>195,491</b>	<b>204,309</b>	<b>216,405</b>	<b>255,228</b>	<b>284,352</b>
6,029	6,029	6,029	6,029	6,029	6,029	6,029
169,758	177,848	189,462	198,280	210,375	249,198	278,323
70	77	82	65	66	69	72
1,960	1,960	1,960	1,960	1,960	1,960	1,960
147,861	147,861	152,861	152,861	162,861	182,861	222,861
19,866	27,950	34,558	43,393	45,488	64,308	53,429
<b>(63,264)</b>	<b>(63,265)</b>	<b>(63,268)</b>	<b>(2)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
<b>(785)</b>	<b>4,035</b>	<b>8,164</b>	<b>17,562</b>	<b>11,059</b>	<b>16,562</b>	<b>16,174</b>
(1,158)	4,281	8,154	18,663	11,178	14,276	15,592
373	(245)	9	(1,101)	(118)	2,286	581
<b>346,039</b>	<b>358,950</b>	<b>374,689</b>	<b>512,276</b>	<b>517,867</b>	<b>562,192</b>	<b>590,927</b>
<b>1,844,261</b>	<b>1,870,291</b>	<b>1,926,731</b>	<b>2,058,609</b>	<b>1,985,248</b>	<b>2,060,881</b>	<b>2,075,706</b>

## Non-Consolidated Statement of Income

	2009/3	2010/3	2011/3
<b>Operating Revenue</b>	<b>645,850</b>	<b>530,436</b>	<b>583,213</b>
<b>Electric Utility Operating Revenue</b>	<b>631,452</b>	<b>518,682</b>	<b>573,878</b>
Sold Power to Other Suppliers	571,282	458,688	514,640
Transmission Revenue	55,414	54,402	54,343
Other Electricity Revenue	4,755	5,591	4,894
<b>Incidental Business Operating Revenue</b>	<b>14,398</b>	<b>11,753</b>	<b>9,335</b>
<b>Operating Expenses</b>	<b>601,122</b>	<b>489,531</b>	<b>520,569</b>
<b>Electric Utility Operating Expenses</b>	<b>588,224</b>	<b>479,085</b>	<b>513,395</b>
Hydroelectric Power Production Expenses	68,281	60,904	60,005
Thermal Power Production Expenses	402,159	319,569	358,156
Renewable Power Production Expenses	—	802	976
Purchased Power from Other Suppliers	80	15	1,388
Transmission Expenses	28,475	27,523	26,943
Transformation Expenses	7,020	6,785	6,453
Selling Expenses	1,307	1,225	1,223
Communicating Expenses	6,242	6,275	6,480
General and Administrative Expenses	66,407	49,349	44,466
Expenses for Third Party's Power Transmission Service	—	—	—
Enterprise Taxes	8,250	6,634	7,300
<b>Incidental Business Operating Expenses</b>	<b>12,897</b>	<b>10,446</b>	<b>7,174</b>
<b>Operating Income</b>	<b>44,728</b>	<b>40,904</b>	<b>62,644</b>
<b>Non-Operating Income</b>	<b>6,617</b>	<b>6,463</b>	<b>6,348</b>
<b>Financial Revenue</b>	<b>4,933</b>	<b>3,547</b>	<b>4,649</b>
Dividend Income	3,775	2,346	3,403
Interest Income	1,158	1,200	1,246
<b>Non-Operating Revenue</b>	<b>1,683</b>	<b>2,916</b>	<b>1,699</b>
Gain on Sales of Noncurrent Assets	5	600	82
Miscellaneous Revenue	1,678	2,316	1,616
<b>Non-Operating Expenses</b>	<b>28,950</b>	<b>23,576</b>	<b>25,800</b>
<b>Financial Expenses</b>	<b>22,294</b>	<b>22,175</b>	<b>21,627</b>
Interest Expenses	21,915	21,967	21,353
Share Issuance Cost	—	—	—
Bond Issue Cost	379	207	273
<b>Non-Operating Expenses</b>	<b>6,655</b>	<b>1,400</b>	<b>4,173</b>
Loss on Sales of Noncurrent Assets	32	—	625
Miscellaneous Loss	6,622	1,400	3,547
<b>Total Ordinary Revenue</b>	<b>652,468</b>	<b>536,899</b>	<b>589,561</b>
<b>Total Ordinary Expenses</b>	<b>630,072</b>	<b>513,107</b>	<b>546,370</b>
<b>Ordinary Income</b>	<b>22,395</b>	<b>23,791</b>	<b>43,191</b>
<b>Provision or Reversal of Reserve for Fluctuation in Water Levels</b>	<b>(413)</b>	<b>(411)</b>	<b>42</b>
Provision of Reserve for Fluctuation in Water Levels	—	—	42
Reversal of Reserve for Fluctuation in Water Levels	(413)	(411)	—
<b>Extraordinary Income</b>	<b>14,472</b>	<b>—</b>	<b>1,635</b>
<b>Extraordinary Losses</b>	<b>19,647</b>	<b>—</b>	<b>13,757</b>
<b>Profit before Income Taxes</b>	<b>17,635</b>	<b>24,203</b>	<b>31,027</b>
Income Taxes—Current	13,389	6,660	16,395
Income Taxes—Deferred	(5,781)	1,170	(153)
Total Income Taxes	7,608	7,831	16,242
<b>Profit</b>	<b>10,026</b>	<b>16,372</b>	<b>14,785</b>

Notes: 1. Corresponding to the revision of electric utility accounting regulations, the disclosure of "Renewable Power Production Expenses" began and expenses related to a geothermal power production facility was booked as "Renewable Power Production Expenses" from the year ended March 31, 2010.

2. Accounting policies were partially changed from the year ended March 31, 2017 and the figures for the year ended March 31, 2016 reflect retroactive application of the change.

(Millions of yen)

2012/3	2013/3	2014/3	2015/3	2016/3	2017/3	2018/3
<b>599,973</b>	<b>586,993</b>	<b>582,861</b>	<b>557,943</b>	<b>552,341</b>	<b>522,460</b>	<b>614,591</b>
<b>590,553</b>	<b>577,284</b>	<b>572,937</b>	<b>548,580</b>	<b>543,019</b>	<b>510,909</b>	<b>601,475</b>
532,915	520,620	516,701	495,313	490,235	457,953	545,659
53,059	52,632	52,182	49,281	48,991	49,021	48,679
4,579	4,031	4,054	3,985	3,792	3,933	7,136
<b>9,419</b>	<b>9,708</b>	<b>9,923</b>	<b>9,363</b>	<b>9,322</b>	<b>11,551</b>	<b>13,115</b>
<b>557,628</b>	<b>543,659</b>	<b>542,396</b>	<b>513,387</b>	<b>510,770</b>	<b>494,829</b>	<b>571,519</b>
<b>549,010</b>	<b>534,765</b>	<b>533,444</b>	<b>504,946</b>	<b>502,326</b>	<b>484,288</b>	<b>559,300</b>
66,325	60,762	60,633	62,171	62,715	57,093	58,562
381,201	377,701	383,857	359,690	344,062	322,317	388,300
2,274	2,036	926	367	2,183	645	—
3,428	256	520	10	14	4,283	6,588
29,031	26,586	27,054	26,459	25,848	23,560	23,485
5,968	6,623	6,218	6,317	6,338	5,751	6,175
1,482	2,570	3,197	1,244	1,362	1,209	970
6,360	5,815	4,714	4,853	4,671	4,301	4,342
45,429	45,040	39,018	36,828	48,135	58,071	62,998
—	—	—	—	—	478	179
7,508	7,371	7,301	7,001	6,993	6,577	7,697
<b>8,617</b>	<b>8,894</b>	<b>8,952</b>	<b>8,441</b>	<b>8,444</b>	<b>10,540</b>	<b>12,219</b>
<b>42,344</b>	<b>43,333</b>	<b>40,464</b>	<b>44,555</b>	<b>41,570</b>	<b>27,630</b>	<b>43,071</b>
<b>9,089</b>	<b>8,304</b>	<b>14,773</b>	<b>8,599</b>	<b>18,319</b>	<b>45,458</b>	<b>27,036</b>
<b>6,726</b>	<b>6,063</b>	<b>11,700</b>	<b>6,626</b>	<b>17,079</b>	<b>43,456</b>	<b>25,846</b>
5,401	4,395	10,275	5,250	15,825	42,543	25,000
1,325	1,668	1,425	1,375	1,253	913	846
<b>2,362</b>	<b>2,241</b>	<b>3,072</b>	<b>1,973</b>	<b>1,240</b>	<b>2,002</b>	<b>1,190</b>
76	109	89	3	10	2	12
2,286	2,131	2,983	1,969	1,230	1,999	1,177
<b>25,756</b>	<b>22,799</b>	<b>24,177</b>	<b>24,217</b>	<b>19,715</b>	<b>16,619</b>	<b>17,648</b>
<b>20,525</b>	<b>20,707</b>	<b>20,348</b>	<b>19,531</b>	<b>17,874</b>	<b>15,739</b>	<b>14,526</b>
20,525	20,585	20,088	19,115	17,874	15,442	14,159
—	—	—	274	—	—	—
—	122	259	141	—	297	366
<b>5,230</b>	<b>2,091</b>	<b>3,829</b>	<b>4,685</b>	<b>1,840</b>	<b>879</b>	<b>3,122</b>
643	630	631	55	4	15	1
4,587	1,461	3,197	4,629	1,835	863	3,120
<b>609,062</b>	<b>595,298</b>	<b>597,635</b>	<b>566,543</b>	<b>570,661</b>	<b>567,919</b>	<b>641,628</b>
<b>583,384</b>	<b>566,459</b>	<b>566,574</b>	<b>537,605</b>	<b>530,486</b>	<b>511,449</b>	<b>589,168</b>
<b>25,677</b>	<b>28,839</b>	<b>31,060</b>	<b>28,938</b>	<b>40,174</b>	<b>56,470</b>	<b>52,460</b>
—	(351)	(306)	(119)	116	—	—
—	—	—	—	116	—	—
—	(351)	(306)	(119)	—	—	—
—	—	—	2,280	—	—	—
<b>3,434</b>	—	—	—	—	—	<b>3,205</b>
<b>22,243</b>	<b>29,190</b>	<b>31,367</b>	<b>31,337</b>	<b>40,058</b>	<b>56,470</b>	<b>49,254</b>
10,148	7,999	4,375	3,444	6,267	7,691	10,350
2,924	2,596	4,874	5,450	2,970	(2,773)	(3,033)
13,073	10,595	9,250	8,895	9,238	4,917	7,316
<b>9,169</b>	<b>18,594</b>	<b>22,117</b>	<b>22,442</b>	<b>30,820</b>	<b>51,552</b>	<b>41,938</b>

# Major Group Companies

(As of March 31, 2018)

	Company Name	Main Businesses	Equity Stake (%)	①	②
Consolidated Subsidiaries	<b>Electric Power Business</b>				
	Bay Side Energy Co., Ltd.	Thermal power business	100.0	○	○
	Mihama Seaside Power Co., Ltd.	Thermal power business	100.0	○	○
	ITOIGAWA POWER Inc.	Thermal power business	64.0	○	○
	J-Wind Co., Ltd.	Wind power business	100.0	○	○
	Yurihonjo Wind Power Co., Ltd.	Wind power business	100.0	○	○
	Minami Kyushu Wind Power Co., Ltd.	Wind power business	100.0	○	○
	J-Wind NIKAHO Co., Ltd.	Wind power business	100.0		
	J-Wind KUZUMAKI Co., Ltd.	Wind power business	100.0		
	J-Wind SETANA Co., Ltd.	Wind power business	90.0		
	Nagasaki-Shikamachi Wind Power Co., Ltd.	Wind power business	70.0	○	○
	<b>Electric Power-Related Business</b>				
	JPec Co., Ltd.	Construction, technical development, design, consulting, maintenance, and research for thermal and nuclear power plants; unloading and transporting of coal at thermal power plants; sale of fly ash; shipping of coal for thermal power plants; research and planning of environmental conservation	100.0	○	
	JPHYTECH Co., Ltd.	Construction, technical development, design, consulting, maintenance, and research for hydroelectric power plants, substations, and transmission lines; surveying of and compensation for construction sites; civil engineering, construction management, and construction services	100.0	○	
	JP Business Service Corporation	Operation of welfare facilities; facility maintenance; business process outsourcing; development of computer software	100.0	○	
	KEC Corporation	Construction and maintenance of electronic and communications facilities	100.0	○	
	JP Design Co., Ltd.	Design, management, and research for electric power facilities and other facilities and construction consulting	100.0	○	
	J-POWER RESOURCES Co., Ltd.	Import, sales, and transportation of coal	100.0	○	
	J-POWER AUSTRALIA PTY. LTD.	Investment in coal mines in Australia	100.0		
	JPOWER GENEX CAPITAL Co., Ltd.	Management of IPP projects	100.0		
	J-Wind Service Co., Ltd.	Maintenance and operation of wind power plants	100.0	○	
	J-POWER EnTech Co., Inc.	Engineering services for atmospheric and water pollutant removal equipment	100.0	○	
	Miyazaki Wood Pellet Co., Ltd.	Operation of manufacturing facilities of wood pellets and procurement of forest offcut	98.3	○	
	JM Activated Coke, Inc.	Manufacturing, sales, and marketing of activated coke	90.0	○	
	EPDC CoalTech and Marine Co., Ltd.	Marine transportation of ash and fly ash	100.0 (100.0)	*	
	and 10 other companies				
	<b>Overseas Business</b>				
	J-Power Investment Netherlands B.V.	Management of investments	100.0		
	J-POWER Holdings (Thailand) Co., Ltd.	Management of investments	100.0 (100.0)		
	J-POWER Generation (Thailand) Co., Ltd.	Management of investments, research and development of projects	100.0 (100.0)		
	Gulf JP Co., Ltd.	Management of investments	60.0 (60.0)		
	Gulf JP UT Co., Ltd.	Thermal power business	60.0 (60.0)		○
	Gulf JP NS Co., Ltd.	Thermal power business	60.0 (60.0)		○
	Gulf JP NNK Co., Ltd.	Thermal power business	60.0 (60.0)		○
	Gulf JP CRN Co., Ltd.	Thermal power business	60.0 (60.0)		○
	Gulf JP NK2 Co., Ltd.	Thermal power business	60.0 (60.0)		○
	Gulf JP TLC Co., Ltd.	Thermal power business	60.0 (60.0)		○
	Gulf JP KP1 Co., Ltd.	Thermal power business	60.0 (60.0)		○
	Gulf JP KP2 Co., Ltd.	Thermal power business	60.0 (60.0)		○
	Gulf JP NLL Co., Ltd.	Thermal power business	45.0 (45.0)		○
	J-POWER North America Holdings Co., Ltd.	Management of investments	100.0		
	J-POWER USA Investment Co., Ltd.	Management of investments	100.0 (100.0)		
	J-POWER USA Development Co., Ltd.	Management of investments, research and development of projects	100.0 (100.0)		
	J-POWER Consulting (China) Co., Ltd.	Management of investments, research and development of projects	100.0		
	and other 15 companies				

① 24 domestic consolidated subsidiaries that are covered in environment-related data calculations

Note: In addition to the companies shown in the list above, coverage includes JP Enterprise Corporation (100% equity stake owned by J-POWER) and Biocoal Yokohama-South CO., LTD. (60% equity stake owned by J-POWER).

\*Data for EPDC CoalTech and Marine Co., Ltd., are included as a portion of the data for JPec Co., Ltd.

② 9 electric power business companies and 32 overseas business companies that are covered in the calculation of CO<sub>2</sub> emissions for domestic and overseas power generation

	Company Name	Main Businesses	Equity Stake (%)	①	②
Consolidated Subsidiaries	<b>Other Businesses</b>				
	Kaihatsu Hiryou Co., Ltd.	Production and sales of fertilizer using ash	100.0	○	
	Japan Network Engineering Co., Ltd.	Telecommunications; operation and maintenance of telecommunications facilities	100.0	○	
	Omuta Plant Service Co., Ltd.	Operation and maintenance of a waste-fueled power generation plant	100.0	○	
	Biocoal Osaka-Hirano Co., Ltd.	Construction and operation of a sewage sludge-based fuel manufacturing facility	60.0	○	
Affiliates Accounted for by the Equity Method	Green Coal Saikai Co., Ltd.	Operation of an ordinary waste-based fuel manufacturing facility	60.0	○	
	and 1 other company				
	<b>Electric Power Business</b>				
	Kashima Power Co., Ltd.	Thermal power business	50.0		
	TOSA POWER Inc.	Thermal power business	45.0	○	
	GENEX Co., Ltd.	Thermal power business	40.0 (40.0)	○	
	Osaki CoolGen Corporation	Large-scale demonstration trials of oxygen-blown IGCC and CO <sub>2</sub> separation and capture	50.0		
	Yuzawa Geothermal Power Generation Corporation	Geothermal power business	50.0		
	Hibiki Wind Energy Co., Ltd.	Offshore wind power generation surveying	40.0		
	Suzuyo Electric Co., Ltd.	Electricity sale	49.9		
	<b>Overseas Business</b>				
	Gulf Electric Public Co., Ltd.	Management of investments	49.0 (49.0)		
	Gulf Power Generation Co., Ltd.	Thermal power business	49.0 (49.0)	○	
	Nong Khae Cogeneration Co., Ltd.	Thermal power business	49.0 (49.0)	○	
	Samutprakarn Cogeneration Co., Ltd.	Thermal power business	49.0 (49.0)	○	
	Gulf Cogeneration Co., Ltd.	Thermal power business	49.0 (49.0)	○	
	Gulf Yala Green Co., Ltd.	Thermal power business	49.0 (49.0)	○	
	EGCO Green Energy Co., Ltd.	Management of investments	26.0 (26.0)		
	EGCO Cogeneration Co., Ltd.	Thermal power business	20.0 (20.0)	○	
	Roi-Et Green Co., Ltd.	Thermal power business	— [95.0]	○	
	J-POWER USA Generation, L.P.	Management of investments	50.0 (50.0)		
	Birchwood Power Partners, L.P.	Thermal power business	50.0 (50.0)	○	
	Green Country Energy, LLC	Thermal power business	— [100.0]	○	
	Pinelawn Power LLC	Thermal power business	— [100.0]	○	
	Equus Power I, L.P.	Thermal power business	— [100.0]	○	
	Edgewood Energy, LLC	Thermal power business	— [100.0]	○	
	Shoreham Energy, LLC	Thermal power business	— [100.0]	○	
Orange Grove Energy, L.P.	Thermal power business	— [100.0]	○		
Elwood Energy, LLC	Thermal power business	— [100.0]	○		
Tenaska Virginia Partners, L.P.	Thermal power business	— [30.0]	○		
Tenaska Frontier Partners, Ltd.	Thermal power business	— [25.0]	○		
JM Energy Co., Ltd.	Management of investments	50.0			
Shaanxi Hanjiang Investment & Development Co., Ltd.	Hydroelectric power business	27.0	○		
ShanXi TianShi Power Generation Co., Ltd.	Thermal power business	24.0	○		
China Resources Power (Hezhou) Co., Ltd.	Thermal power business	— [34.0]	○		
Chiahui Power Corporation	Thermal power business	40.0 (40.0)	○		
PT. BHIMASENA POWER INDONESIA	Thermal power business	34.0			
CBK Netherlands Holdings B.V.	Management of investments	50.0 (50.0)			
CBK Power Co., Ltd.	Hydroelectric power business	— [100.0]	○		
Zajaczkowo Windfarm Sp. z o.o.	Wind power business	50.0 (50.0)	○		
and 52 other companies					

Notes: 1. The percentages in parentheses present indirect holding ratios and are included in the percentages above. Those shown in brackets are the ratios held by closely related parties or parties in agreement and excluded from the percentages above.

2. JPec Co., Ltd., J-POWER RESOURCES Co., Ltd., J-POWER AUSTRALIA PTY. LTD., J-POWER Holdings (Thailand) Co., Ltd., and Gulf JP Co., Ltd. are specified subsidiaries.

3. On April 1, 2018, J-Wind Co., Ltd. absorbed and merged with Yurihonjo Wind Power Co., Ltd.

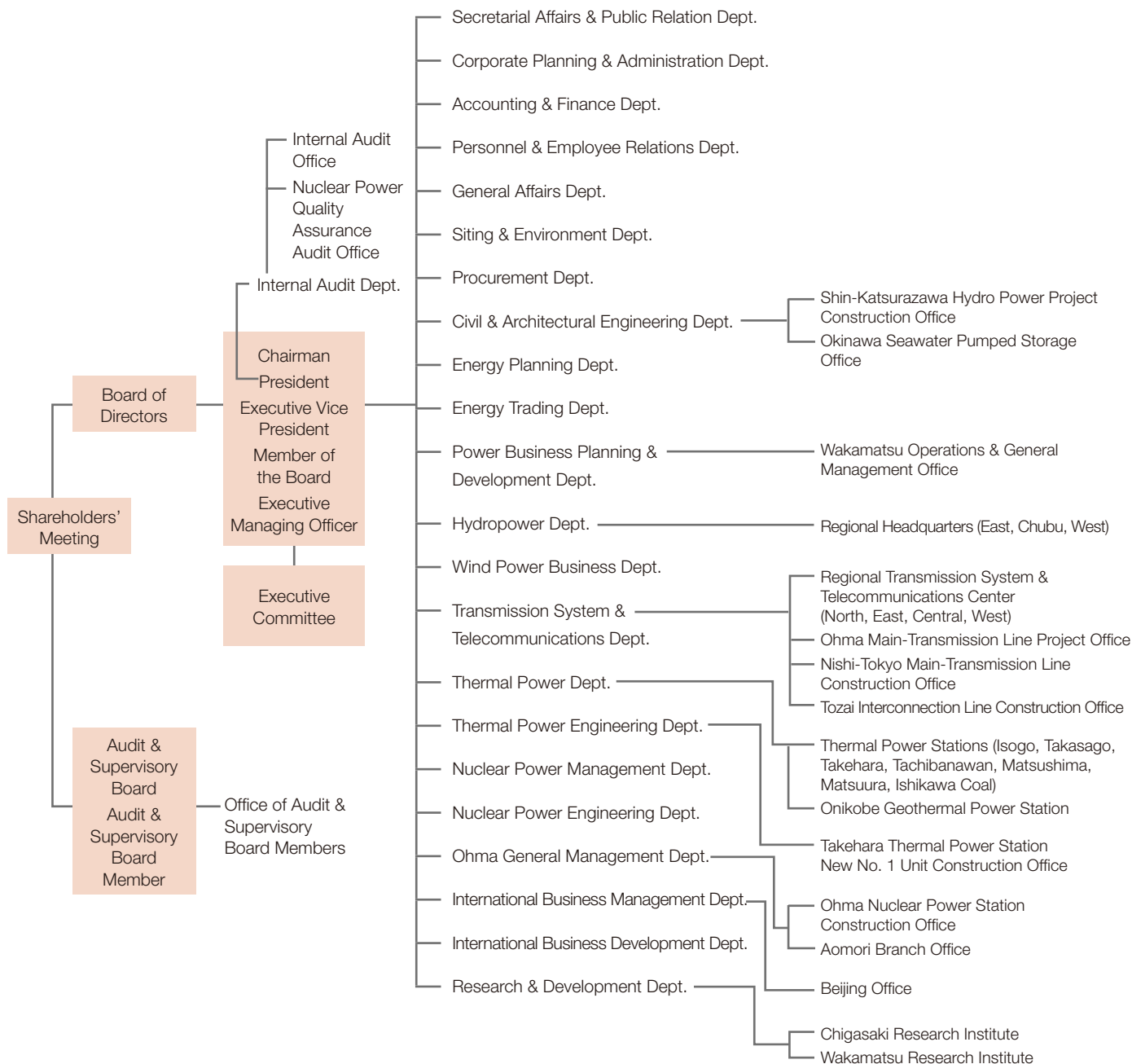
# Corporate Profile/Stock Information

(As of March 31, 2018)

Corporate Name	Electric Power Development Co., Ltd.
Communication Name	J-POWER
Date of Establishment	Sept. 16, 1952
Headquarters Address	15-1, Ginza 6-chome, Chuo-ku, Tokyo 104-8165, Japan
Paid-in Capital	¥180,502,169,192
Number of Shares Authorized	660,000,000
Number of Shares Issued	183,051,100
Number of Shareholders	33,937
Stock Exchange Listing	Tokyo Stock Exchange
Independent Public Accountants	Ernst & Young ShinNihon LLC
Transfer Agent	Sumitomo Mitsui Trust Bank, Limited

## Organization Chart

(As of June 27, 2018)

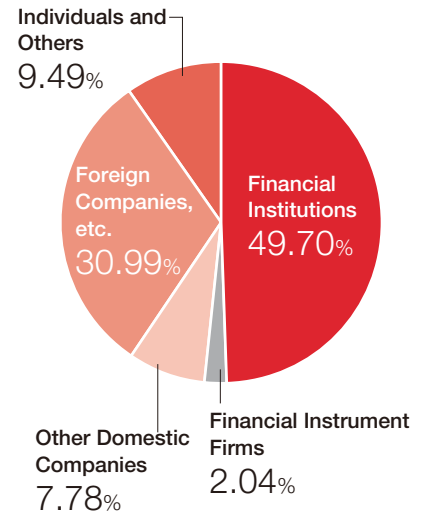


## Major Shareholders (Top 10)

(As of March 31, 2018)

Name or Designation	Number of Shares Held (Thousands of Shares)	Percentage to Total Shares Issued (%)
Japan Trustee Services Bank, Ltd. (Trust Account)	11,669	6.37
Nippon Life Insurance Company	9,152	5.00
The Master Trust Bank of Japan, Ltd. (Trust Account)	9,010	4.92
Mizuho Bank, Ltd.	6,955	3.80
Japan Trustee Services Bank, Ltd. (Trust Account 9)	5,843	3.19
JP MORGAN CHASE BANK 385632	5,567	3.04
Sumitomo Mitsui Banking Corporation	4,295	2.35
J-POWER Employees Shareholding Association	3,786	2.07
THE BANK OF NEW YORK, TREATY JASDEC ACCOUNT	3,522	1.92
The Bank of Tokyo-Mitsubishi UFJ, Ltd.	3,331	1.82

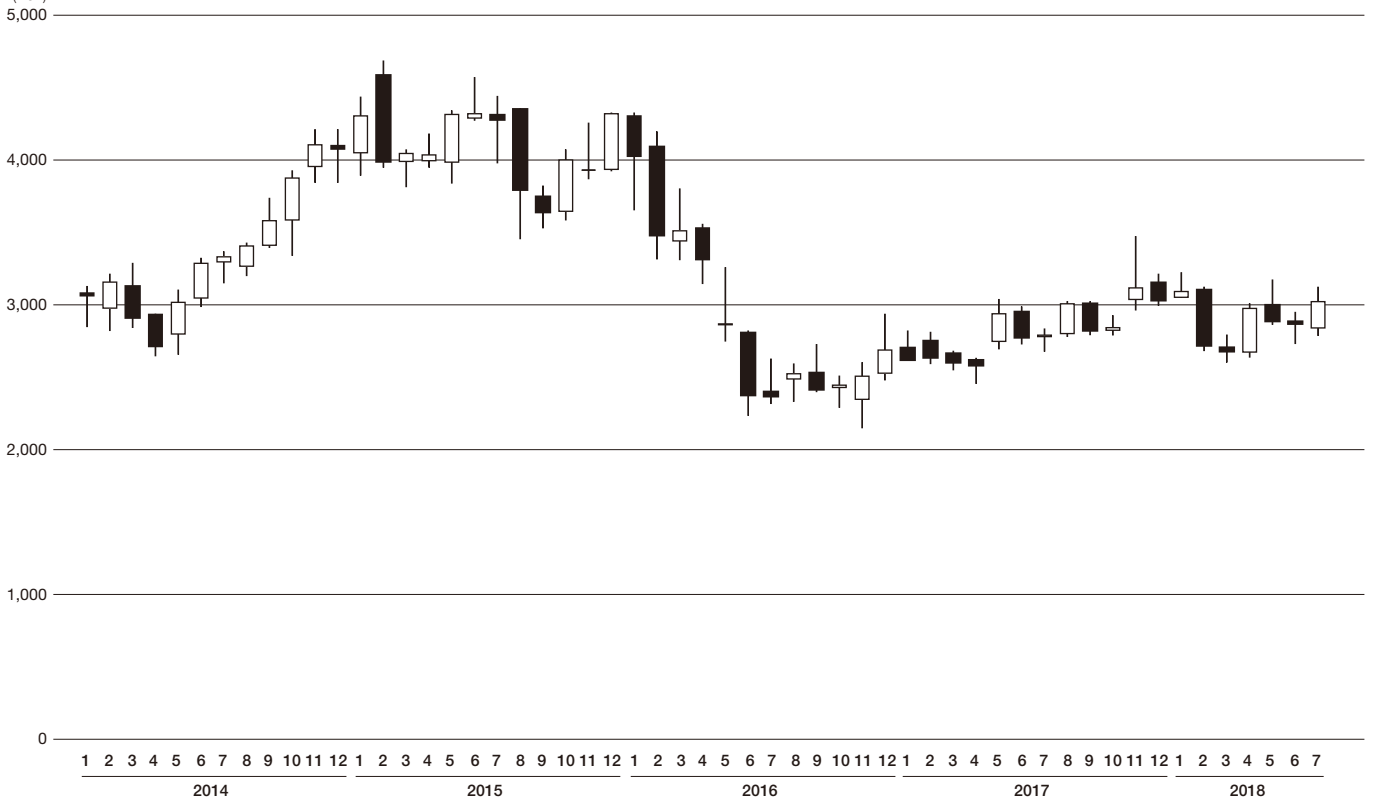
## Breakdown of Issued Shares by Type of Shareholders



\* "Individuals and Others" includes 1,751 shares of treasury stock.

## Common Stock Price Range

(Yen)





Electric Power Development Co., Ltd.

Corporate Planning & Administration Department  
Corporate Planning Office

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<http://www.jpower.co.jp/english/>