# Progress under the Medium-Term Management Plan and Business Strategy Going Forward

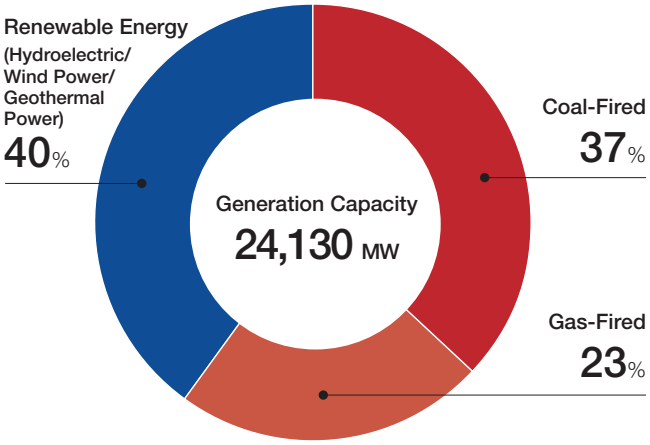
## The Current J-POWER

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. Since 2000, 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 24 GW in Japan and overseas, of which domestic power generation facilities account for around 17 GW. Half of this domestic capacity is renewable energy, namely, large-scale hydroelectric power generation, wind power generation, and geothermal 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. I think that, in Japan and abroad, the J-POWER Group as a whole has a well-balanced power generation facility portfolio that includes coal-fired thermal power, gas-fired thermal power, and renewable energy.

In the power transmission and transformation business, we own interconnection lines that link Honshu with Hokkaido, Shikoku, and Kyushu, a frequency converter station connecting regions with different frequencies, and other such power grid facilities. We work to maintain the sound function of our distribution facilities, which support part of the wide-area power distribution network. We were selected in 2016 as the main contractor to develop the New Sakuma Frequency Converter Station and increase the capacity of related transmission lines under the Cross-regional Network Development Plan published by the Organization for Cross-regional Coordination of Transmission Operators. At present, we are conducting evaluations in preparation for construction.

**Composition of J-POWER Group Electric Power Generation Assets in Japan and Overseas (Owned Capacity Basis)**

(As of June 30, 2019)




## Response to Electricity System Reform: The Changing Competitive Environment Due to Electricity Deregulation

Market competition in the power generation business has been hastened by the electricity system reform, and the J-POWER Group 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. To boost our supply capacity, 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.

In addition, we have diversified our sales methods by investing in Suzuyo-Power Co., Ltd. and ENERES Co., Ltd. The J-POWER Group is expected to play a major role in enlivening the wholesale power trading market by participating in the baseload power market, which began accepting bids in fiscal 2019. We will continue working to enhance our corporate value by accessing the new markets, including the capacity markets, to be created going forward.

Amid intensifying market competition, the J-POWER Group is enhancing cost-competitiveness through such measures as reducing the number of days needed for regular inspections and streamlining its operation and maintenance frameworks while maintaining the absolute prerequisites of stable supply and safety. At the same time, we are steadily developing new coal-fired thermal power plants, diversifying our sales methods, and tapping new markets with the aim of achieving even greater growth.

## Progress under the Medium-Term Management Plan

In April 2018, three years since we formulated the Medium-Term Management Plan in July 2015, the J-POWER Group reviewed the progress made under the plan thus far and published a forecast for the three years ending with fiscal 2020.

We believe we will be able to achieve our fiscal 2020 forecasts thanks to the profit contributions of domestic and overseas projects that will have begun operation by fiscal 2020 and thanks to our efforts to reduce costs by such means as reducing the number of days needed for regular inspections and streamlining operation and maintenance frameworks.

Furthermore, we have new development projects lined up for fiscal 2021 and beyond. Going forward, we will continue to achieve growth toward fiscal 2025 while flexibly responding to the rapidly changing business environment.

Note: For an overview of the Medium-Term Management Plan, please refer to pages 16–17.

### Medium-Term Management Plan

| | Indicator | Target |
|---|---|---|
| **Growth** | J-POWER EBITDA* | Increase to around **1.5x** the level of FY2014 in **FY2025**<br>(FY2014 result: ¥181.8 billion) |
| **Soundness** | Interest-bearing debts / J-POWER EBITDA | Improve from level at end of FY2014 by **end of FY2025**<br>(End of FY2014 result: **9.5x**) |

### Three-Year Forecasts and Results

| | | Growth Indicator | Soundness Indicator |
|---|---|---|---|
| FY2015-2017 | Forecast | **¥185.0 billion /year**<br>(FY2015-2017 three-year average) | Maintain same level as results at end of FY2014 (**9.5x**) at end of FY2017 |
| | Result | **¥186.7 billion/year**<br>(FY2015-2017 three-year average) | **8.0x**<br>(FY2017 result) |
| **FY2018-2020** | **Forecast** | **≥¥210.0 billion**<br>**(FY2020)** | Maintain same level as results at end of FY2017 (**8.0x**)<br>**End of FY2020** |

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

### Completed in Fiscal 2018

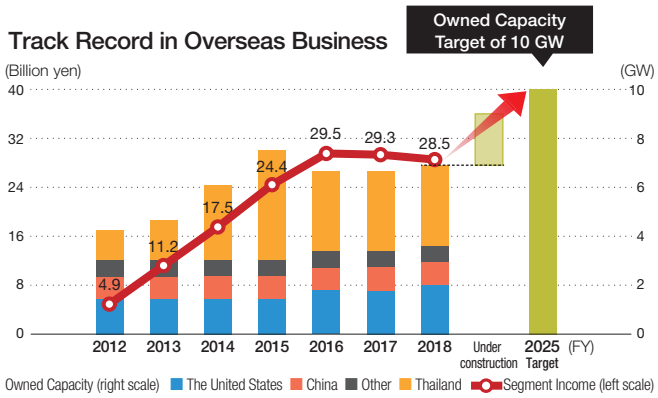
| | |
|---|---|
| Hydroelectric | • Began construction on the Shinkatsurazawa hydroelectric plant project (22 MW; from April 2019)<br>• Completed combined renewal construction of the Akiba No. 1 and No. 2 power plants (2 MW capacity increase)<br>• Began construction on the Ashoro Power Plant repowering project (2 MW capacity increase; from April 2019)<br>• Hinoemata-Chinabora dam water intake facility improvement (increase capacity of 27 GWh/year). |
| Wind | • Acquired a stake in the Triton Knoll Offshore Wind Farm in the United Kingdom (860 MW)<br>• Began environmental assessments for the Wajima, Youra, and Kunimiyama projects (maximum total of 206 MW)<br>• Progressed with preparations for construction of the Kaminokuni No. 2 Wind Farm Project (42 MW; construction began in May 2019)<br>• Progressed with construction of Setana-Ohsato (50 MW) and Nikaho No. 2 (41 MW) projects (both scheduled to begin operation in January 2020), as well as the Kuzumaki No. 2 Project (45 MW; scheduled to begin operation in December 2020)<br>• Signed memorandum of understanding on collaboration with ENGIE of France on floating offshore wind power generation business in Japan |
| Geothermal | • Progressed with construction of the Wasabizawa Geothermal Power Plant (46 MW; started operation in May 2019)<br>• Began construction on the replacement of Onikobe Geothermal Power Plant (14.9 MW; from April 2019)<br>• Progressed with commercialization of the Appi Geothermal Power Plant (14.9 MW) |
| Overseas | Began operation of the Westmoreland Power Plant in the United States (started operation in December 2018) |

### Projects Under Construction Scheduled to Begin Operation by Fiscal 2020

| Power Plants | Type | Location (Prefecture) | Output Capacity (MW) | Ownership (%) | Owned Capacity (MW) |
|---|---|---|---|---|---|
| **Domestic** | | | | | |
| Takehara Unit New No. 1 | Coal-fired | Hiroshima | 600 | 100 | 600 |
| Kashima Power | Coal-fired | Ibaraki | 645 | 50 | 323 |
| Setana-Ohsato Wind Farm | Wind | Hokkaido | 50 | 90 | 45 |
| Nikaho No.2 | Wind | Akita | 41 | 100 | 41 |
| Kuzumaki No.2 | Wind | Iwate | 45 | 100 | 45 |
| **Overseas** | | | | | |
| Central Java IPP | Coal-fired | Indonesia | 2,000 | 34 | 680 |

## Overseas Business Development

We are steadily advancing projects in development and working to secure new development projects in order to achieve the 10 GW target for overseas owned capacity by fiscal 2025, as stated in the Medium-Term Management Plan.




Notes: 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.).

There are currently three projects in development.

The first is a coal-fired thermal power plant 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. By leveraging the J-POWER Group's high-efficiency advanced environmental technologies, we hope to help solve Indonesia's energy problems in a way that suits the country's circumstances.

The second project is the U.K.-based Triton Knoll offshore wind power project—in which the J-POWER Group has a 25% equity stake—which is making steady progress toward operational startup in 2021.

As for the third project, we finalized plans for and began construction on the Jackson Power Plant, a 1,200 MW gas combined cycle plant located in the U.S. state of Illinois. The project site is near the suburbs of Chicago, an area of high power demand. Moreover, it will be constructed within the PJM market, which is the country's largest electricity market, and next to the Elwood Energy facility, in which J-POWER owns a stake. This gives us the advantageous position of having a deep understanding of the local market situation.

In addition to these projects, we are considering multiple other projects. Along with business expansion in Thailand and the United States, where we already have established business platforms, we are working to find potential new greenfield projects in new markets with robust energy demand, mainly in Asia. 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 geothermal.

Going forward, as we strengthen our frameworks and broaden our fields of activity, we aim to achieve the fiscal 2025 goals for our overseas power generation business.

## Expanding Use of Renewable Energy

In April 2018, we established the numerical target of approximately 1 GW in new renewable energy development by fiscal 2025. Initiatives are being further bolstered and accelerated with the Renewable Energy Business Strategy Department at the core.

In the hydroelectric power business, we are striving to better utilize hydroelectric resources by developing small- and medium-sized hydroelectric power generation projects that utilize untapped river flows and unused waterheads and by repowering existing facilities through the installation of cutting-edge technologies to increase capacity.

In wind power generation, we are currently constructing four wind farms in Japan with a combined capacity of 173 MW. We are also planning eight additional projects with a combined maximum capacity of 791 MW, including the Kitakyushu Hibikinada Offshore Wind Farm in Kitakyushu City in Fukuoka Prefecture. Overseas, J-POWER acquired a 25% equity stake in August 2018 in the Triton Knoll Offshore Wind Farm construction project in the United Kingdom. Leveraging the expertise in the construction, maintenance, and operation of offshore wind power farms gained from our participation in this project, we will be positioned to more actively join offshore wind projects in Japan.

In the geothermal power business, we began construction in April 2019 to replace the Onikobe Geothermal Power Plant, which was in service for over 40 years. In addition, the Appi Geothermal Power Plant—a new development project jointly funded with Mitsubishi Materials Corporation and MITSUBISHI GAS CHEMICAL COMPANY, INC.—is in preparations for construction, and we are conducting surveys for new geothermal projects.

We are also working to expand the use of biomass fuels to reduce $CO_2$ 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.

As one of the top companies of 100% domestically produced $CO_2$-free energy, the J-POWER Group continues to proactively develop renewable energy through its abundant operational experience and the adoption of the latest technologies.

Wasabizawa Geothermal Power Plant (Akita Prefecture)

## Achieving Japan's Planned Energy Mix while Combating Climate Change

Japan has a low energy self-sufficiency rate and relies on imports for most of its fossil fuels. It is therefore essential that the country utilize diverse sources of energy in a well-balanced manner. As a widely produced resource throughout the world, coal presents the lowest geopolitical risk among fossil fuels. 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. 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%.

On the other hand, global concern about climate change has recently begun to intensify. Based on the Paris Agreement, an international agreement on mitigating climate change, Japan set the medium-term goal of reducing greenhouse gas emissions to 26% below fiscal 2013 levels by fiscal 2030. A long-term goal was also set with the aim of reducing emissions by 80% by 2050.

It is true that coal produces a greater volume of $CO_2$, a greenhouse gas, than other fossil fuels. For Japan to achieve the 2050 goals and ensure a stable supply of electric power, it needs to significantly reduce $CO_2$ emissions from, but continue to use, fossil fuels, such as coal and natural gas. The electricity industry is building a voluntary framework so that the industry as a whole will be able to reach the government's greenhouse gas reduction target for fiscal 2030. As part of the electricity industry, the J-POWER Group is both working to fulfill its responsibilities under this framework, and taking measures aimed at achieving the long-term 2050 goals.

We decided to work toward carbon reduction and even full decarbonization in coal use. To this end, we are currently taking the following measures. We are replacing aging 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 utilizing 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 $CO_2$ emissions from coal use to zero by the 2050s. To this end, we are working toward the commercialization of oxygen-blown integrated coal gasification combined cycle (IGCC) technology, and advancing R&D into carbon capture, use, and storage (CCUS) technologies, and technologies to manufacture and utilize forms of carbon-free energy, such as hydrogen, from low-grade coal.

Note: For details on IGCC, CCUS, hydrogen, and other technologies aimed at reducing carbon emissions, please refer to pages 20–25.

The J-POWER Group has constantly been at the forefront in adopting cutting-edge technologies over the decades. As a result, we possess not only high-efficiency power generation technologies that emit less $CO_2$, but also environmental technologies that reduce emissions of such atmospheric pollutants as sulfur oxides (SOx) and nitrogen oxides (NOx) to levels on par with gas-fired thermal power generation.

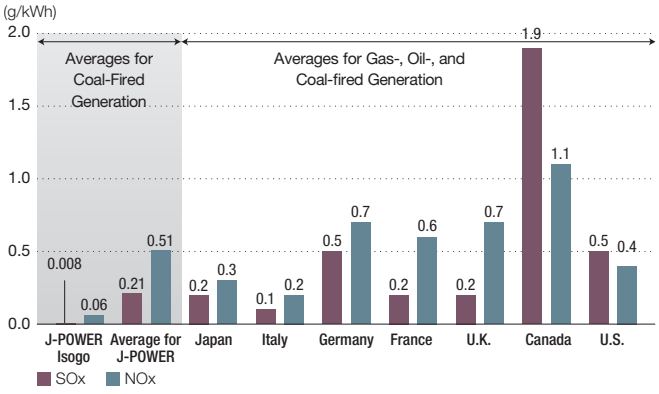
Taking the initiative, we will contribute to the realization of a well-balanced energy mix and ambitiously work toward the decarbonization of fossil energy sources, aiming to help solve global environmental problems.

Furthermore, recognizing that our business activities are strongly related to the state of the global environment, we have worked to enhance our climate change-related disclosures. In May 2019, we agreed to and signed the recommendations of the TCFD.* Going forward, we will continue to further enhance these disclosures to fulfill our responsibilities to our stakeholders regarding climate change-related information.

* Task Force on Climate-Related Financial Disclosures

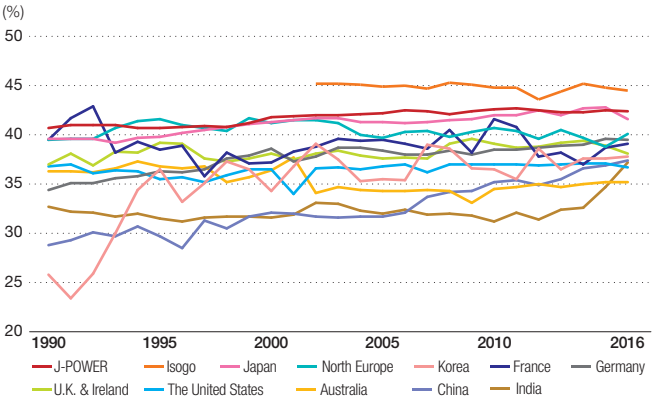
TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

### SOx and NOx Emissions per Unit of Thermal Power Generation




Notes: 1. Emissions: OECD StatExtracts
Power generated: IEA Energy Balances of OECD Countries, 2018 Edition
2. J-POWER and Isogo figures are fiscal 2018 results.

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




Source: Ecofys International Comparison of Fossil Power Efficiency and $CO_2$ Intensity 2018
* Lower heating value (LHVs) estimated using higher heating value (HHV) records and the coefficients in the Comprehensive Energy Statistics (fiscal 2004 edition)

## The Ohma Nuclear Power Plant Project

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 $CO_2$.

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.

Nuclear power plants are commonly able to use up to about one-third uranium-plutonium mixed oxide (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 constantly working to further improve safety and steadily advancing plans toward the commencement of operations.


Construction status of the Ohma Nuclear Power Plant Project (as of June 2019)

## Corporate Governance

### Establishment of the Nomination and Compensation Committee

In response to the June 2018 amendment to the Corporate Governance Code, the J-POWER Group's management held numerous discussions on issues related to our form of corporate governance. As a result, in December 2018, the J-POWER Group revised its own basic policy on corporate governance and, as part of said revision, on April 1, 2019, established the Nomination and Compensation Committee. The establishment of this committee, which mainly comprises independent directors and Audit & Supervisory Board Members, enhanced the independence and objectivity of the functions of the Board of Directors as they pertain to the appointment and compensation of directors and Audit & Supervisory Board Members.

### Measures to Ensure the Effectiveness of the Board of Directors

The J-POWER Group is implementing a variety of measures to ensure the effectiveness of the Board of Directors. We have raised the standard monetary level for investment projects to be discussed by the Board of Directors with the aim of enhancing discussions related to the Company's strategies and hold meetings about specific themes at which directors can freely exchange opinions. In these and other ways, we are striving to create a productive environment.

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.

Every year, we analyze and assess the effectiveness of the Board of Directors. In 2019, we evaluated the Board's fiscal 2018 performance. 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 and questionnaires given to all members of the Board of Directors and Audit & Supervisory Board, including their respective outside members and chairpersons, the Board of Directors found that the effectiveness of the Board of Directors was sufficiently secured.

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.

## Returns to Shareholders

In fiscal 2017, we established a new approach to shareholder returns. The approach states, "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." Also in fiscal 2017, we increased the per-share dividend from ¥70 to ¥75. For fiscal 2018, we once again paid a per-share dividend of ¥75.

Going forward, we will continue working to achieve sustained improvement in corporate value and to enhance shareholder returns based on growth.