The English version is a translation of the original Japanese version.
Please note that if there is any discrepancy, the Japanese version will take priority.

Summary of FY2023 3rd Quarter Earnings Results

2024/1/31

Electric Power Development Co., Ltd.

Forward Looking Statements

The following contains statements that constitute forward-looking statements, plans for the future, management targets, etc. relating to the Company and/or the J-POWER group. These are based on current assumptions of future events, and there exist possibilities that such assumptions are objectively incorrect and actual results may differ from those in the statements as a result of various factors.

Furthermore, information and data other than those concerning the Company and its subsidiaries/affiliates are quoted from public information, and the Company has not verified and will not warrant its accuracy or appropriateness.

※Display of Figures

✓All figures are consolidated unless stated otherwise.

✓Amounts less than 100 million yen and electric power sales volume less than 100 million kWh shown in the consolidated financial data have been rounded down. Consequently, the sum of the individual amounts may not necessarily agree with figures shown in total columns.

Selected as Business Operators for an Offshore Wind Power Project Off Oga City, Katagami City, and Akita City in Akita Prefecture

- J-POWER, through a four-company consortium with, JERA Co., Inc. , Tohoku Electric Power Co., Inc. , and ITOCHU Corporation, applied to operate an offshore wind power project off Oga City, Katagami City, and Akita City in Akita Prefecture under the Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities, and was selected as the project's business operator.
- In collaboration with the consortium members, we will leverage our track record of developing and operating wind power plants in Japan and overseas.

Our Strengths in Wind Farm Development

Triton Knoll Offshore Wind Farm*1(UK)

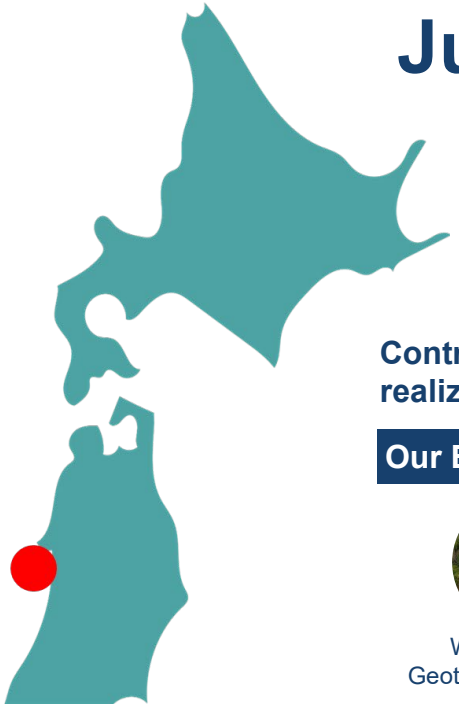
Overseas Offshore Wind Power Development and Operation

New Tomamae Winvilla Wind Farm (Hokkaido)

Top Runner of Onshore Wind Power in Japan

Kitakyushu Hibikinada Wind Power*2(Fukuoka)

Offshore wind power in port area under construction



Offshore Wind Power Project Off Oga City, Katagami City, and Akita City in Akita Prefecture

June 2028 Planned Start of Commercial Operation

- **Capacity**
  315MW(maximum)
- **Turbine Model, Number of Units**
  Vestas V236-15MW 21 units

Contributing to the development of local economies and to the realization of a sustainable society through decarbonization

Our Business in Akita Prefecture

Wasabisawa Geothermal Power *3

Yurihonjo Bayside Wind Power

Nikaho No. 2 Wind Power

New Nikaho Kogen Wind Power

*1 Conducted jointly with RWE AG, Kansai Electric Power Co., Inc. *2 Conducted jointly with Kyuden Mirai Energy Company,Incorporated, Hokutaku Co., LTD, Saibu Gas Co. Ltd. and Kyudenko Corp.
*3 Conducted jointly with Mitsubishi Materials Corporation, MITSUBISHI GAS CHEMICAL COMPANY, INC.

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Summary of FY2023 3rd Quarter Earnings Results

Decreased revenue and profit

■ Main reason for decrease in consolidated operating revenue

- Decreased due to lower electricity sales volume resulting from lower utilization of thermal power plants and lower electricity sales prices, etc.

■ Main reasons for decrease in consolidated operating profit and ordinary profit

- Decreased due to lower gross profit from JEPX sales
- Decreased in profit of a subsidiary in Australia that owns coal mining interests

(Unit: billion yen)

Consolidated	FY2022 3rd Quarter (Apr.-Dec.)	FY2023 3rd Quarter (Apr.-Dec.)	Year-on-year change	
Operating Revenue	1,401.5	960.8	(440.7)	(31.4)%
Operating Profit	161.5	83.7	(77.7)	(48.2)%
Ordinary Profit	158.2	84.8	(73.4)	(46.4)%
Profit attributable to owners of parent	111.0	56.3	(54.7)	(49.3)%

Non-consolidated	FY2022 3rd Quarter (Apr.-Dec.)	FY2023 3rd Quarter (Apr.-Dec.)	Year-on-year change	
Operating Revenue	1,052.2	629.0	(423.1)	(40.2)%
Operating Profit	46.8	7.1	(39.7)	(84.7)%
Ordinary Profit	81.7	48.4	(33.2)	(40.7)%
Profit	72.1	44.7	(27.3)	(38.0)%

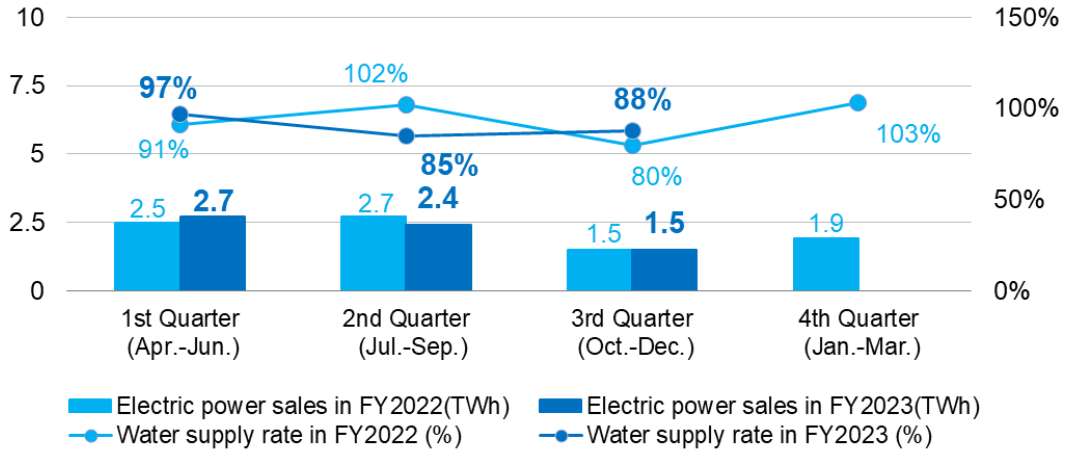
Key Data (Electric Power Sales)

	FY2022 3rd Quarter (Apr.-Dec.)	FY2023 3rd Quarter (Apr.-Dec.)	Year-on-year change	
Electric Power Sales (TWh)				
Electric Power Business	51.7	43.7	(8.0)	(15.5)%
Hydroelectric Power	6.8	6.7	(0.0)	(1.4)%
Thermal Power	34.5	27.7	(6.8)	(19.8)%
Wind Power	0.7	0.7	0.0	10.0 %
Other*1	9.5	8.3	(1.1)	(12.1)%
Overseas Business*2	10.1	16.3	6.2	61.3 %
Water supply rate	92%	91%	(1) points	
Load factor *3	65%	52%	(13) points	

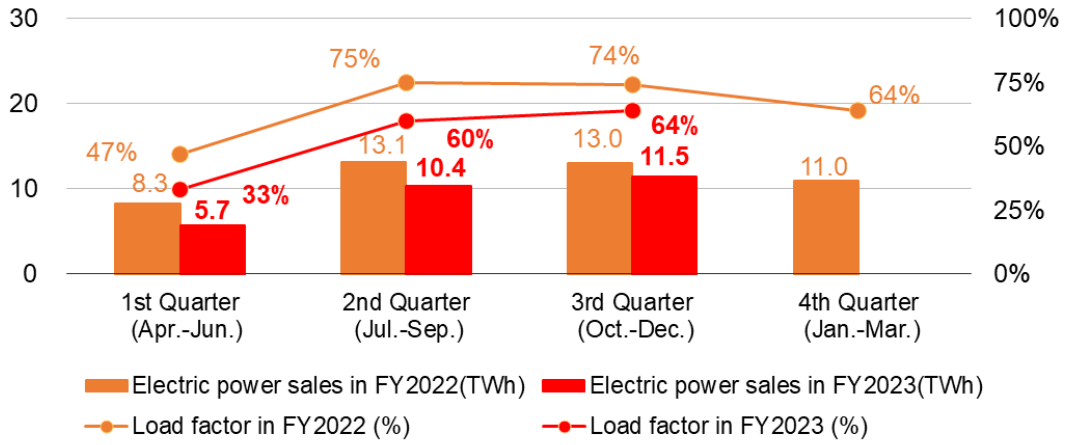
*1 Electric power sales volume of electricity procured from wholesale electricity market, etc.
*2 Electric power sales volume of overseas consolidated subsidiaries (Electric power sales volume of equity method affiliated companies is not included)
*3 Load factor of thermal power shows the results for non-consolidated only

Electric Power Sales for each Quarter

[Domestic Hydroelectric Power]



[Domestic Thermal Power]



Key Data (Operating Revenue)

■ Electric Power Business

- The revenue decreased due to lower electricity sales volume resulting from lower utilization of thermal power plants and lower electricity sales prices, etc.

■ Overseas Business

- The revenue increased due to increasing electricity sales volume in Thailand projects

■ Other Business

- The sales decreased due to falling coal prices at a subsidiary in Australia that owns coal mining interests

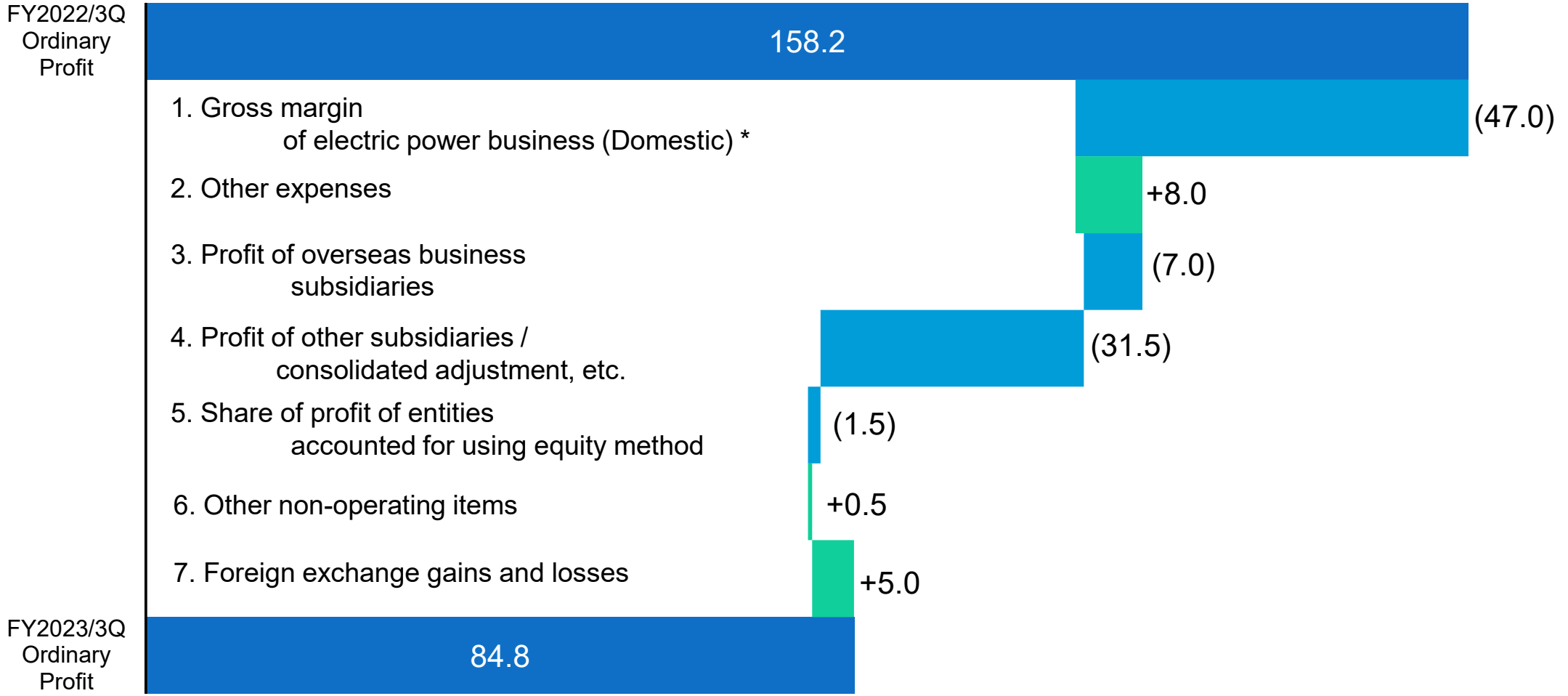
	FY2022 3rd Quarter (Apr.-Dec.)	FY2023 3rd Quarter (Apr.-Dec.)	Year-on-year change	
Operating Revenue (Billion yen)	1,401.5	960.8	(440.7)	(31.4)%
Electric Power Business	1,084.8	670.2	(414.5)	(38.2)%
Electric Power Sales	1,044.9	631.8	(413.1)	(39.5)%
Renewables*1	111.2	103.6	(7.5)	(6.8)%
Transmission / Transformation	36.9	35.7	(1.1)	(3.2)%
Overseas Business*2	205.1	215.5	10.3	5.1 %
Other Business*3	111.5	75.0	(36.4)	(32.7)%

		FY2022 3rd Quarter (Apr.-Dec.)	FY2023 3rd Quarter (Apr.-Dec.)
Foreign exchange rate			
(Yen/USD)	at the end of September	144.81	149.58
(Yen/THB)	at the end of September	3.81	4.09
(Yen/AUD)	at the end of September	94.17	96.06
(THB/USD)	at the end of September	37.91	36.56

*1 Hydroelectric, wind and geothermal power
*2 Sales for the overseas business segment (Sales from overseas consolidated subsidiaries and overseas consulting business, etc.)
*3 “Other Business” is composed of “Electric Power-Related Business” segment and “Other Business“ segment. See Appendix p.33 for details.

FY2023 3rd Quarter Earnings Results (Main Factors for Change)

(Unit: billion yen)



* Gross margin of electric power business (Domestic) : Domestic electric power business revenue (hydro, thermal, wind and other) – fuel costs, etc.

Breakdown of Increase / Decrease Factors of Consolidated Ordinary Profit

(Unit: billion yen)
(Year on Year)

1.Gross margin of electric power business (Domestic) (47.0)

- Decrease in gross profit from JEPX sales due to lower JEPX prices and resource price impact, etc.
- Increase in unplanned outages
- Rebound in fuel balance
- Decrease in revenue of renewable energy
  (Reference) JEPX average price (Apr-Dec)
  FY2022: approx. 22 yen/kWh → FY2023: approx.11 yen/kWh

2.Other expenses +8.0

- Decrease in facilities maintenance costs…+3.0
- Increase in labor costs…(3.5)
- Decrease in other expenses…+8.5
  Decrease in waste disposal costs, etc.

3.Profit of overseas business subsidiaries (7.0)

- Jackson Generation Power Plant in North America (11.0)
  Decrease in market selling price
  Increase in facilities maintenance costs due to start of operation, etc.
- Power generation projects in Thailand +4.0
  Increase in energy margin, and foreign exchange rate impact

4.Profit of other subsidiaries / consolidated adjustment, etc. (31.5)

- Decrease in profit from a subsidiary in Australia that owns coal mining interests due to the fall of coal prices
  (Reference) Australian thermal coal spot price (Jan-Sep)
  FY2022: approx.US$350/t → FY2023: approx.US$185/t

5.Share of profit of entities accounted for using equity method (1.5)

- Overseas…(1.5)
- Domestic…±0.0

6.Other non-operating items +0.5

- Increase in financing costs
- Gain on sales of fixed assets and securities, etc.

7.Foreign exchange gains and losses +5.0

- Reduction of foreign exchange valuation loss on U.S. dollar denominated debt in the Thailand consolidation project +7.0

Q3 Foreign exchange rate (THB/USD)

	At the end of December of the previous year	3Q (At the end of September)*
FY2022	33.42	37.91
FY2023	34.56	36.56

* The fiscal year of overseas subsidiaries is from January to December

- Decrease in foreign exchange valuation gains on U.S. dollar-denominated receivables, etc. (2.0)

Consolidated: Revenue / Expenditure Comparison

(Unit: billion yen)

	FY2022 3rd Quarter (Apr.-Dec.)	FY2023 3rd Quarter (Apr.-Dec.)	Year-on-year change	Main factors for change
Operating Revenue	**1,401.5**	**960.8**	**(440.7)**	
Electric power business	1,084.8	670.2	(414.5)	
Overseas business	205.1	215.5	10.3	
Other business	111.5	75.0	(36.4)	
Operating Expenses	**1,240.0**	**877.1**	**(362.9)**	Electric power business(374.4), Overseas business+17.3, Other business(5.8)
Operating Profit	**161.5**	**83.7**	**(77.7)**	
Non-operating Revenue	**28.3**	**32.3**	**3.9**	
Share of profit of entities accounted for using equity method	16.6	15.1	(1.4)	
Other	11.7	17.1	5.4	
Non-operating Expenses	**31.6**	**31.2**	**(0.3)**	
Interest expenses	20.1	23.5	3.4	
Other	11.4	7.6	(3.7)	
Ordinary Profit	**158.2**	**84.8**	**(73.4)**	Electric power business (39.8), Overseas business(3.3),Other business(32.1)
Total income taxes	47.2	25.3	(21.9)	
Profit attributable to owners of parent	**111.0**	**56.3**	**(54.7)**	

Consolidated: Balance Sheet

(Unit: billion yen)

	FY2022 End of FY	FY2023 End of 3Q	Change from prior year end	Main factors for change
Non-current Assets	**2,701.3**	**2,788.4**	**87.0**	
Electric utility plant and equipment	1,065.5	1,081.4	15.8	
Overseas business facilities	447.2	474.0	26.8	
Other non-current assets	89.2	91.2	2.0	
Construction in progress	572.1	558.5	(13.6)	
Nuclear fuel	76.2	76.6	0.4	
Investments and other assets	451.0	506.5	55.4	Long-term investments +55.8 (Includes impact of foreign exchange revaluation+32.3)
Current Assets	**661.3**	**674.2**	**12.9**	
Total Assets	**3,362.6**	**3,462.7**	**100.0**	
Interest-bearing debt	1,885.8	1,878.4	(7.4)	Non-consolidated (17.1), Subsidiaries and others +9.7
Other	284.1	273.7	(10.3)	
Total Liabilities	**2,169.9**	**2,152.1**	**(17.8)**	
Shareholders' equity	977.8	1,016.7	38.9	
Accumulated other comprehensive income	106.8	173.5	66.6	Foreign currency translation adjustment +49.1 Deferred gains or losses on hedges+14.2
Non-controlling interests	108.0	120.2	12.2	
Total Net Assets	**1,192.7**	**1,310.5**	**117.8**	

D/E ratio (x)	1.7	1.6
Shareholders' equity ratio	32.3%	34.4%

Summary of FY2023 Earnings Forecast

We do not change the earnings forecast released on October 31, 2023.

(Unit: billion yen)

Consolidated	FY2022 Result	FY2023 Forecast	Comparison with FY2022 Result		FY2023 Initial Forecast*	Comparison with Initial Forecast
Operating Revenue	1,841.9	1,307.0	(534.9)	(29.0)%	1,513.0	(206.0)
Operating Profit	183.8	87.0	(96.8)	(52.7)%	111.0	(24.0)
Ordinary Profit	170.7	97.0	(73.7)	(43.2)%	110.0	(13.0)
Profit attributable to owners of parent	113.6	67.0	(46.6)	(41.1)%	76.0	(9.0)

Non-consolidated	FY2022 Result	FY2023 Forecast	Comparison with FY2022 Result		FY2023 Initial Forecast*	Comparison with Initial Forecast
Operating Revenue	1,370.7	863.0	(507.7)	(37.0)%	1,048.0	(185.0)
Operating Profit	46.5	(3.0)	(49.5)	-	32.0	(35.0)
Ordinary Profit	75.3	59.0	(16.3)	(21.7)%	62.0	(3.0)
Profit	60.0	59.0	(1.0)	(1.8)%	55.0	4.0

	Cash dividends per share		
	Interim	Year end	Annual
FY2022	40 yen	50 yen	90 yen
FY2023	45 yen	45 yen (forecast)	90yen (forecast)

* Initial Forecast: Earnings forecast released on May 10, 2023

Triton Knoll Offshore Wind Power Project, UK

Appendix

Appendix

1. Main Flow of Domestic Electricity Business ・・・14
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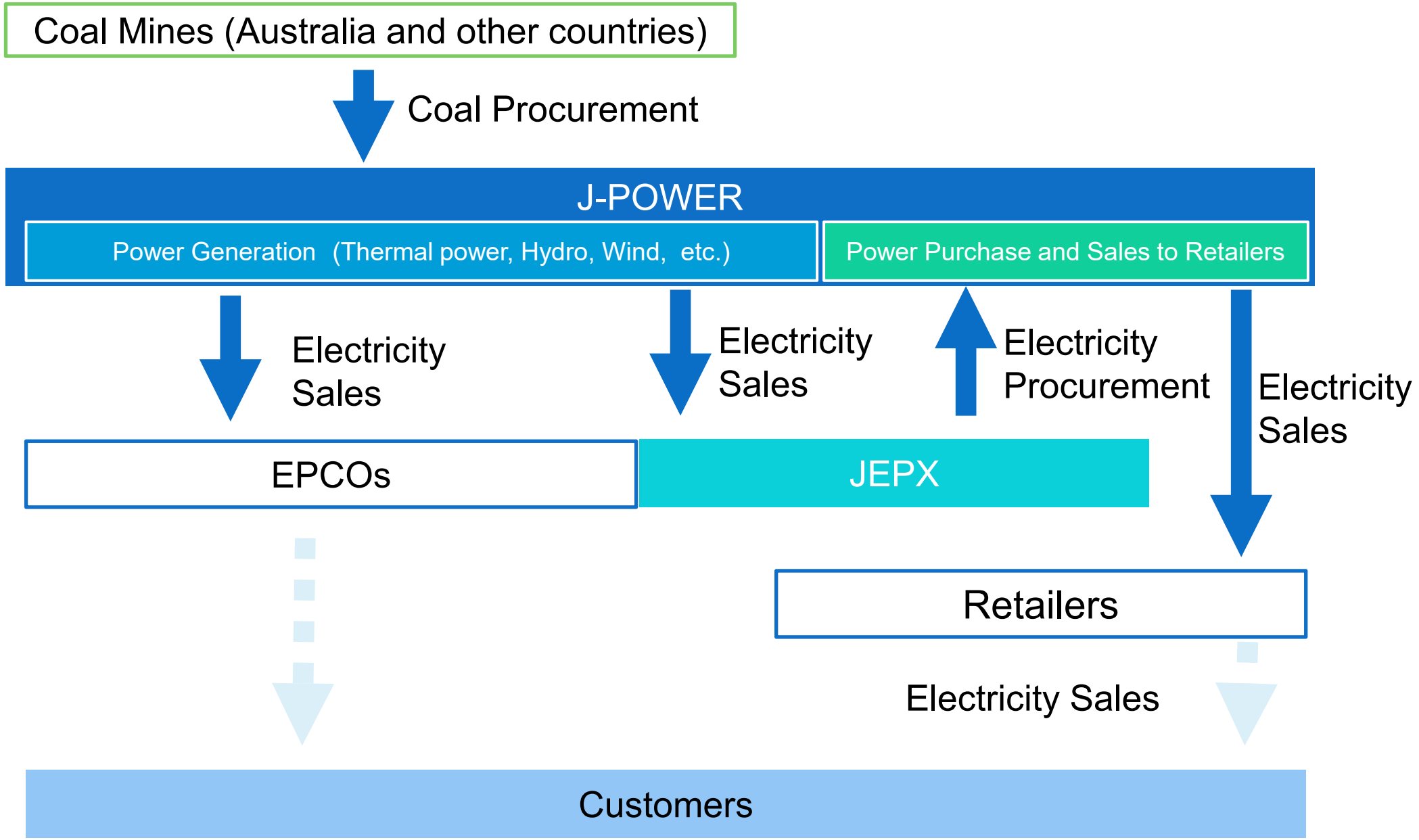
1. Main Flow of Domestic Electricity Business

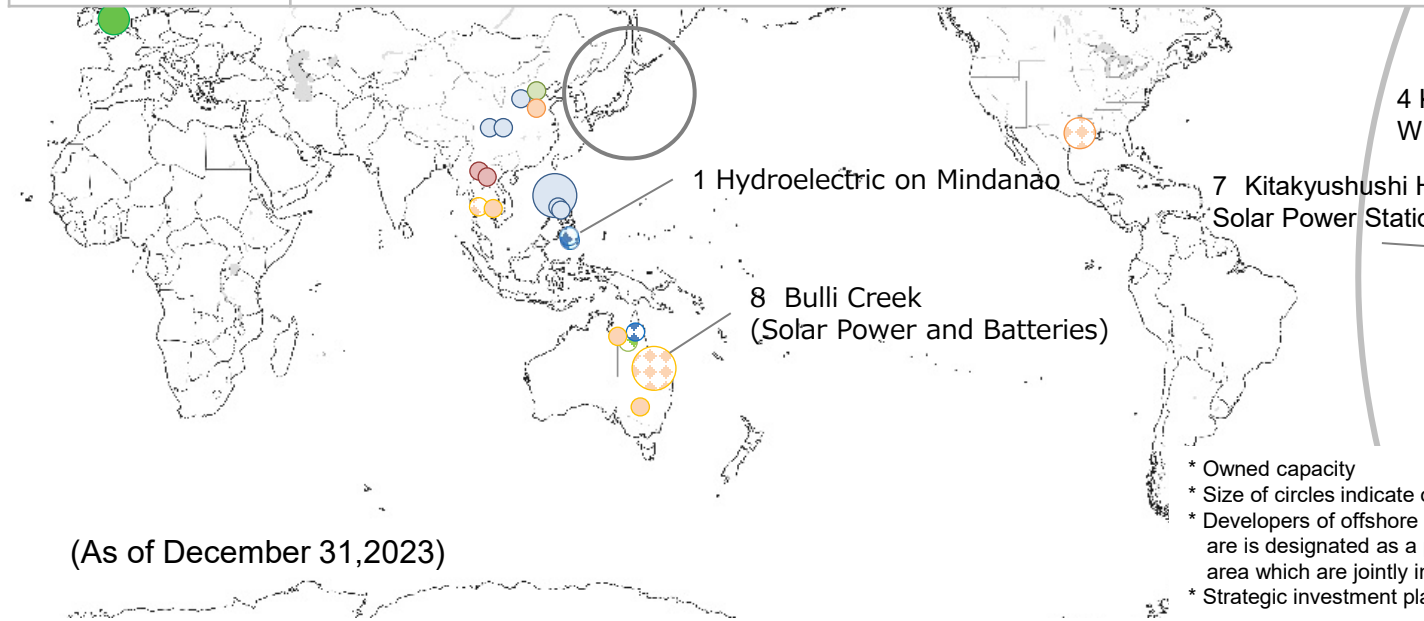


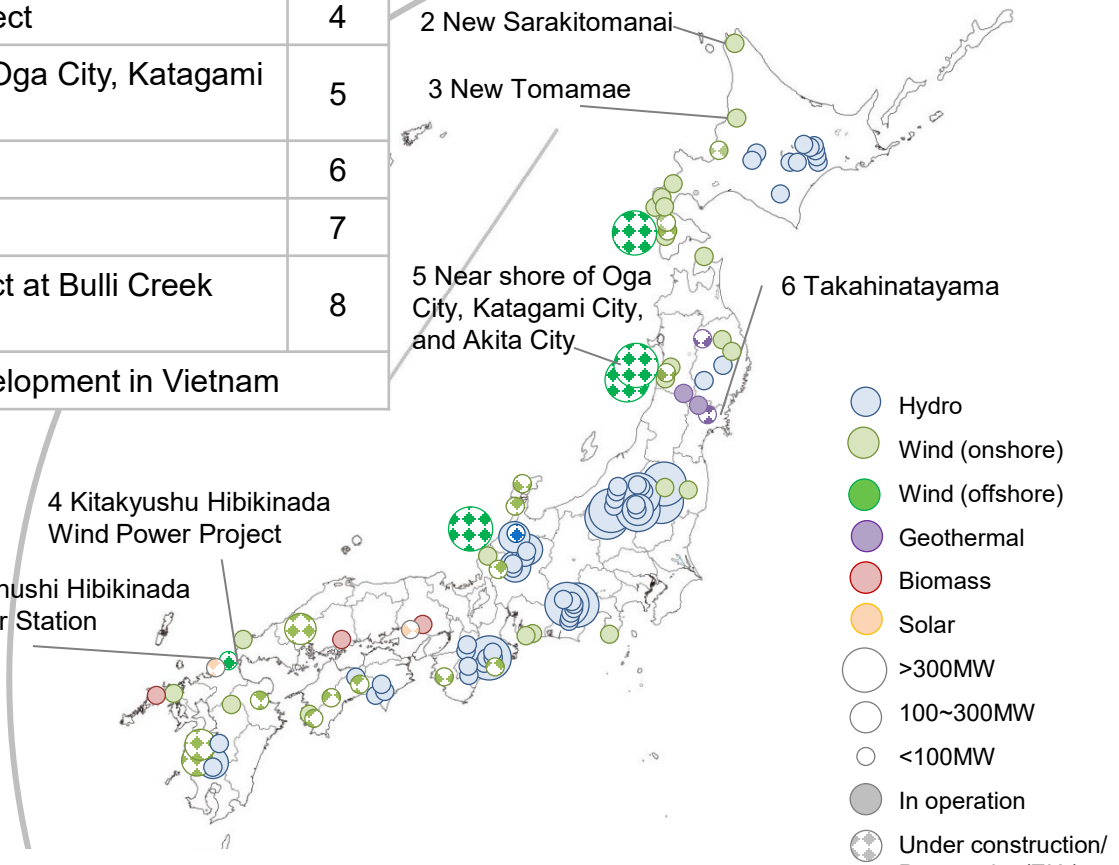
2. Expansion of Renewable Energy

Hydroelectric	Participation in hydroelectric power generation projects on Mindanao, the Republic of the Philippines (Bulanog Batang Hydro)	1
Onshore wind	Start Commercial Operation of “New Sarakitomanai Wind Farm”	2
	Start Commercial Operation of “New Tomamae Winvilla Wind Farm”	3
Offshore wind	Started construction of Kitakyushu Hibikinada Offshore Wind Power Project	4
	Selected as Business Operators for an Offshore Wind Power Project Off Oga City, Katagami City, and Akita City in Akita Prefecture	5
Geothermal	Under resource volume research in Takahinatayama-area	6
Solar Power	Under construction of “Kitakyushushi Hibikinada Solar Power Station”	7
Solar Power and Batteries	Signed joint development agreement for Solar Power and Batteries Project at Bulli Creek	8
Biomass	Signed MoU with Vinafor for Joint Examination of Biomass Business Development in Vietnam	

Strategic investment plan

More than 400 billion yen by FY2030
Strategic investment in renewable energy





(As of December 31,2023)

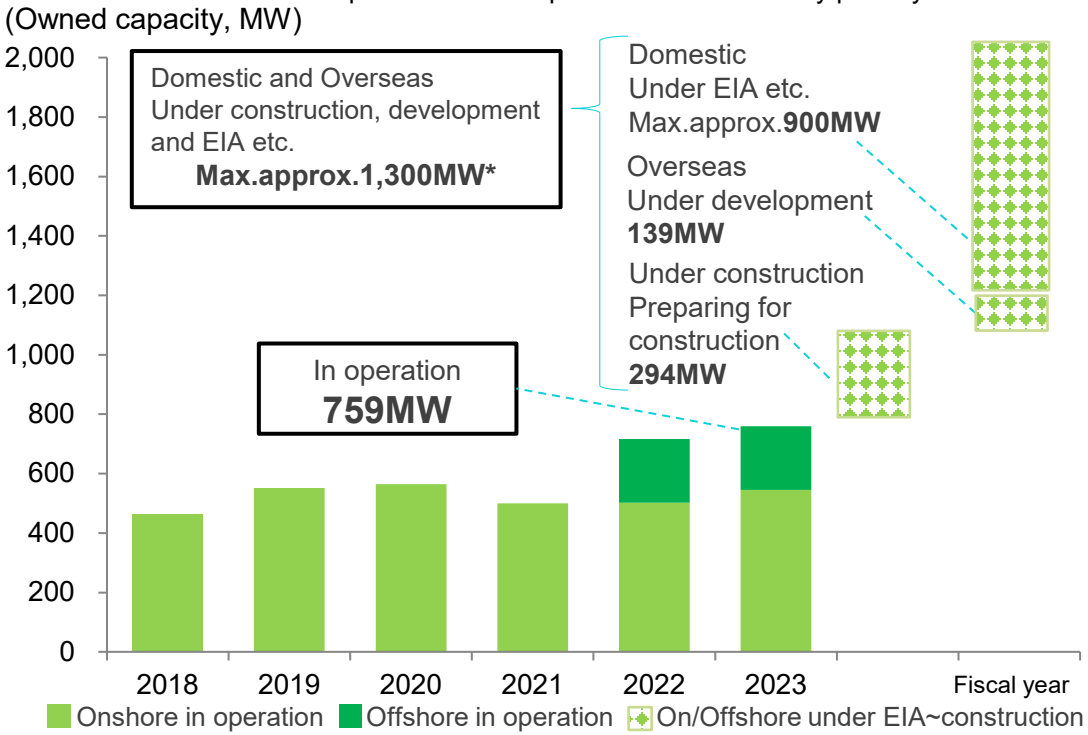
* Owned capacity
* Size of circles indicate owned capacity (in case capacity is TBD, estimated maximum owned capacity
* Developers of offshore wind projects outside port area in Japan are decided by bidding after each sea are is designated as a promoting area. The indicated capacities for offshore wind projects outside port area which are jointly implemented with other companies are estimated maximum gross capacities
* Strategic investment plan does not include offshore wind power in outside port areas.

3. Renewable Energy Development Projects (Wind)

(As of December 31,2023)

Projects

*Domestic offshore wind power in outside port areas includes only publicly solicited bids.



Under construction
Kaminokuni No.2*1
Minami Ehime No.2*2
Kitakyushyu-Hibikinada Offshore*3 etc.

Preparing for construction
Wajima etc.

Under renewal construction
New Nikaho Kogen

Under development (Overseas)
Kidston Stage 3 Wind(Australia)*4

Under environmental impact assessment
Reihoku Kunimiyama
Kita-Kagoshima, etc.

Under development (Domestic)
Offshore Wind Power Project Off Oga City, Katagami City, and Akita City*5

*1 Presents only phase 1 construction. Total plan amounts up to 120.4MW
*2 Total plan amounts up to 40.8MW
*3 Conducted jointly with Kyuden Mirai Energy Company,Incorporated, Hokutaku Co., LTD, Saibu Gas Co. Ltd. and Kyudenko Corp.
*4 Conducted jointly with Genex Power Limited. The owned capacity includes 7.7% stake in Genex, in addition to the 50% stake held by the Company under the development funding agreement.
*5 Conducted jointly with JERA Co., Inc. , Tohoku Electric Power Co., Inc. , and ITOCHU Corporation

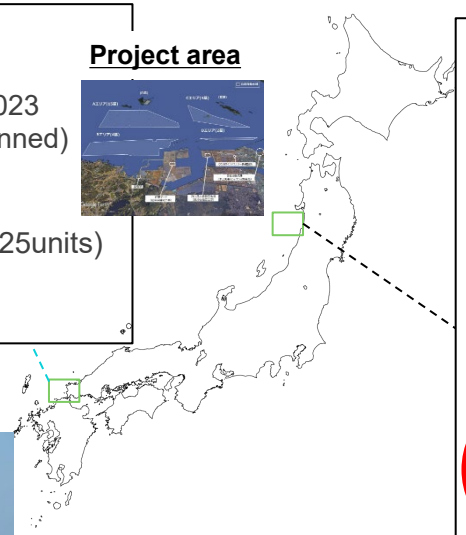
Domestic Offshore

Kitakyushyu-Hibikinada

Start of Construction :March 2023
Start of operation :FY2025(planned)
Port area
Max.approx.220MW
(Rated power output 9.6MW*25units)
Owned capacity 40%
=Max.approx.88MW

Project area

NEDO's pilot test
Offshore wind power plant
In Kitakyushyu coast
2011~2017.3



Offshore Wind Power Project Off Oga City, Katagami City, and Akita City in Akita Prefecture

June 2028 Planned Start of Commercial Operation

Project area
(The promotion area)

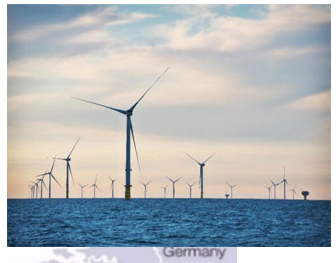
Outside port area
315MW(maximum)
Rated output 15MW*21 units

*We will consider and respond to each location for open tendering toward the more realization of offshore wind power in outside port area.

Overseas Offshore

Triton Knoll

Start of commercial operation :April 2022
UK
857MW
Ownership 25%
Owned Capacity 214MW



4. Renewable Energy Development Projects (Hydro, Geothermal, Solar)

(As of December 31,2023)

	Project	Capacity	Ownership	Owned capacity	Note
Hydro	Ogamigo Repowering	20.0MW→21.3MW	100%	20.0MW→21.3MW	Start of operation : FY2024 (planned)
	Suezawa Repowering	1.5MW→2.2MW	100%	1.5MW→2.2MW	Start of operation : FY2024 (planned)
	Nagayama Repowering	37.0MW→39.5MW	100%	37.0MW→39.5MW	Start of operation : After FY2025 (planned)
	Onabara	1.0MW	100%	1.0MW	Start of operation : FY2026 (planned)
	K2 Hydro (Australia) (Pumped hydro)	250MW	7.7%	19.3MW	Start of operation : 2024 (planned)
	Bulanog Batang Hydro (Philippines)	33.5MW	40%	13.4MW	Start of operation : 2030 (planned)
Geo-thermal	Appi	14.9MW	15%	2.2MW	Start of operation : April 2024 (planned)
	Takahinatayama-area	-	-	-	Under research for development
Solar	Kitakyushushi Hibikinada	30.0MW	100%	30.0MW	Start of operation : FY2024 (planned)
	Himejishi Oshio	2.0MW	100%	2.0MW	Start of operation : FY2024 (planned)
	Refugio (USA)	400.0MW	25%	100.0MW	Start of operation : After 2024 (planned)
	Rooftop solar (GJP1) (Thailand, 6 projects)	total 8.8MW	60%	5.3MW	Start of operation : After 2024 (planned)
	Rooftop solar (EGCO Cogen) (Thailand, 1project)	2.4MW	20%	0.5MW	Start of operation : FY2024 (planned)
	Bulli Creek[*1] (Australia)	2,000MW	53.9%[*2]	1,077MW	Scheduled to be developed in phases

[*1]Plans to develop up to 2,000 MW of solar power and batteries combined. [*2]J-POWER owns 50% stake of the project, and with its 7.7% stake in Genex Power Limited, J-POWER's overall stake is 53.9%.

5. Upcycling to next-generation hydropower plants NEXUS Sakuma

- Under the NEXUS Sakuma project, we are proceeding with design of main electric facilities and buildings and preliminary preparation construction for the start of construction.
- By focusing on not only repowering for aged facilities, but also hydropower generation / areas and basins / people, we keep challenging to realize next-generation hydropower plants.

NEXUS Sakuma project

[Accomplishment schematic view]
It depicts a circulation image of hydropower generation / areas and basins / people in conjunction with each other around a power plant based on an infinity symbol and the circulation flow of atmospheric air and water.

"Next-generation hydropower plants" that bring new values and energy

Hydropower generation

By applying modern technologies to renovate aged facilities, we aim to further increase both output and amount in electricity to be generated, as well as to drastically solve issues in the existing facilities.

Areas and basins

To deploy our sustainable hydropower business under the understanding and cooperation by those who are living in the involving areas, we live together with them in the basins around our facilities and take efforts to create together new values.

People

With a fusion of the local employees' force (people) and digital technologies, we realize highly-advanced, highly-efficient maintenance services, as well as we create time and motivation for new challenges.

Sakuma power plant (present)

Maximum output	350MW
Annual power generation	Approx. 1.4 billion kWh
Basin area	4,156.5㎢
Total water storage capacity	326.85 million m^3
Other	Power supply to both 50 and 60 Hz areas

Shizuoka Tenryugawa river system

6. Ohma Nuclear Power Project

- In December 2014, J-POWER submitted to NRA* an application for permission for alteration of reactor installment license and an application for construction plan approval in order to undertake review of compliance with the new safety standards
- Standard seismic motion and standard tsunami is under review by NRA*
- Once the review has been passed, we will begin construction on facility safety reinforcement in the latter half of 2024 based on the review findings, with the aim of completion in the latter half of 2029
- Sincerely respond to compliance reviews and steadily implement safety measures based on the latest reviews result as for constantly pursuit of further safety improvements
- Strive for more polite information communication so that we can gain the understanding and trust of the community

* Nuclear Regulation Authority

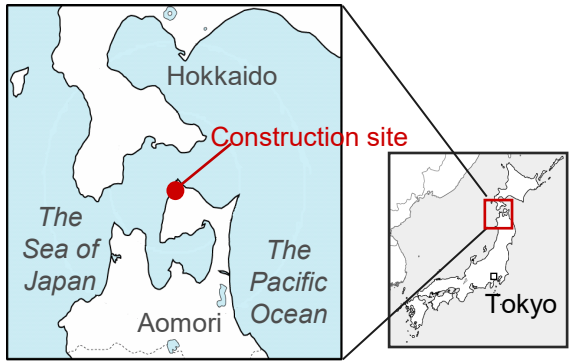
Overview of the Project

Location	Ohma-machi, Shimokita-gun, Aomori Prefecture
Capacity	1,383MW
Type of nuclear reactor	Advanced Boiling Water Reactor (ABWR)
Fuel	Enriched uranium and uranium-plutonium mixed oxide (MOX)
Commencement of operations	To be determined

Process (Results)

(Year) 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015-

- 2008: Construction commenced in May
- 2011: Suspension of construction work due to Great East Japan Earthquake Disaster in March
- 2008: Obtained permission to install nuclear reactor in April
- 2010: Construction resumed in October
- 2012: Application for review of compliance with new safety standards in December



Status of construction (as of December 31, 2023)

7. Hydrogen production and use in existing thermal power plants GENESIS Matsushima

- First step toward CO_2-free hydrogen power generation by commercializing the technology demonstrated in Osaki CoolGen Project.
- Upcycling by adding a gasification system to the existing facility of Matsushima thermal power plant. Enabling production and generation of electricity from gas containing hydrogen
- GENESIS Matsushima aims to start construction in 2026 and operation in FY2028.

Flow of research and development of coal gasification technologies

Wakamatsu research institute in Fukuoka prefecture

Demonstration tests for oxygen-blown coal gasification and CO_2 separation and capturing

2002 — **EAGLE project** — 2013

Large sizing →

Osaki Coolgen in Hiroshima prefecture

Demonstration tests for operation of large-sized gasifiers and gas turbines using high concentration hydrogen

2016 — **Osaki Coolgen project** — 2024

Commercializing →

Matsushima thermal power plant in Nagasaki prefecture (currently)

It aims CO_2-free hydrogen power generation in the future based on coal gasification technologies as core technologies

2028 — **J-POWER GENESIS** →

GENESIS Matsushima

- Low geopolitical risk
- Low power generation cost
- **High output control function**
- **Improved power generation efficiency**
- **CO_2 emission reductions**

September 2021- Started Environmental impact assessment

Preparation for starting construction

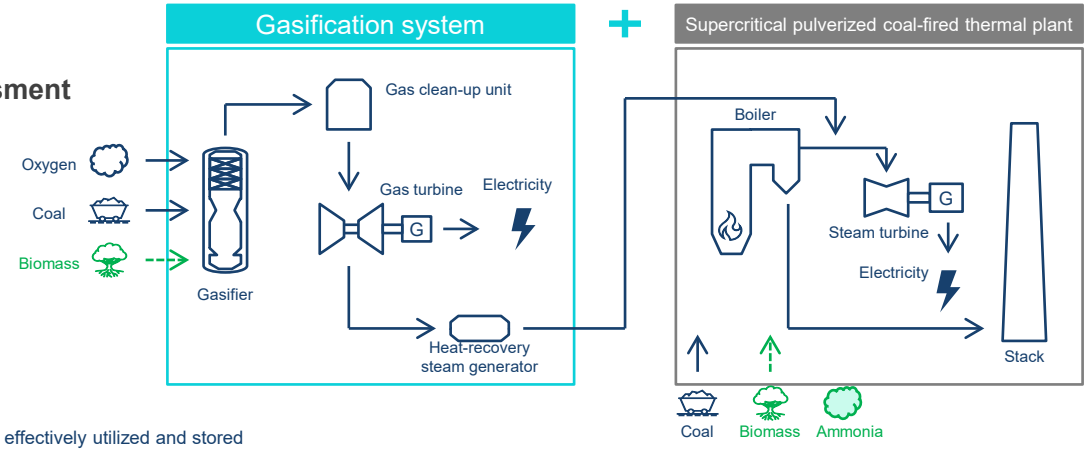
2026(Planned)- Start of construction

Construction work

FY2028 (Planned) Start of operations

Commercial operations

CCUS*/ carbon recycling ready



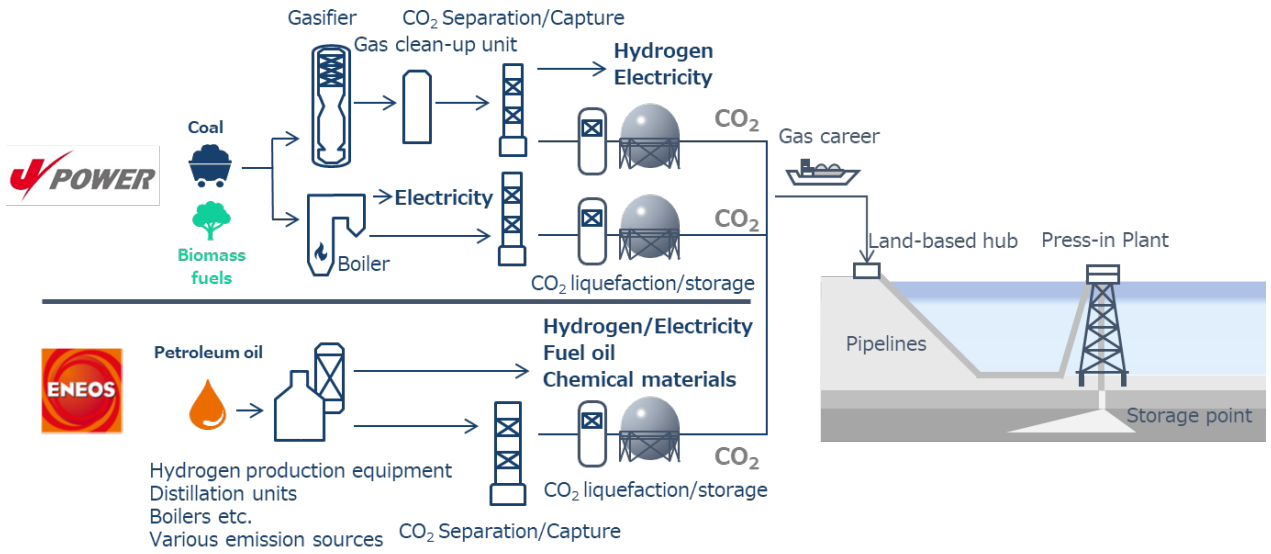
* Carbon dioxide Capture, Utilization and Storage, meaning that CO_2 is separated, captured, effectively utilized and stored

8. Establishment of joint venture for CCS in Japan

- J-POWER, ENEOS Corporation, and JX Nippon Oil & Gas Exploration Corporation are jointly working on the possibility of starting a CCS project to capture, transport, and store CO_2 from J-POWER's thermal power plants and ENEOS' refineries in western Japan by FY2030.
- In February 2023, the three companies have established "West Japan Carbon dioxide Storage Survey Co., Ltd. " to promote preparations for commercialization, including exploration and evaluation for the selection of candidate sites for CO_2 storage.
- In August 2023, the CCS project plan proposed by the above three companies was selected by JOGMEC for the FY2023 "Study on Implementation of Japan's Advanced CCS Project“, and acceptance agreement was signed with JOGMEC.

✓ J-POWER and ENEOS Holdings are implementing the following initiatives

Plan



✓ Overview of joint venture for CCS in Japan

Name	West Japan Carbon dioxide Storage Survey Co., Ltd.
Established	Feb.2023
Capital	150 million yen
Location	Chiyoda ward, Tokyo

✓ Overview of selected CCS project plan

Proposer	J-POWER, ENEOS Corporation, JX Nippon Oil & Gas Exploration Corporation
Emission Sources	J-POWER thermal power plants and ENEOS refineries in western Japan
Transport Method	Vessels and pipelines
Candidate sites for CO_2 storage	Off the northern to western in Kyushu (offshore saline aquifers)
Storage Volume	3 million tons/year
Feature of the project	Promoting a large-scale CO_2 storage project in the sea for a wide area of western Japan, including the Setouchi Sea.

9. Feasibility Study for Large-scale CCS in Japan

- It will take nearly 10 years—from the investigation of candidate sites to the start of press-in (injection) and storage—for surveys, design, and construction.
- By starting as early as possible, we will contribute to CO_2 reduction in Japan from FY2030.
- To achieve an early resolution of our goals, we will coordinate and collaborate with all stakeholders to resolve issues, such as business environment improvement, CCS chain formation, and reducing costs.

Progress

Policy trends

Jan. 2023: METI announced goal of 6-12 million tons per year in storage by 2030

Feb. 2023: Cabinet approved the GX Basic Policy, which includes an investment of approximately 4 trillion yen for the early establishment of an advanced CCUS value chain.

Mar. 2023: METI established CCS long-term roadmap aiming to start CCS projects by 2030

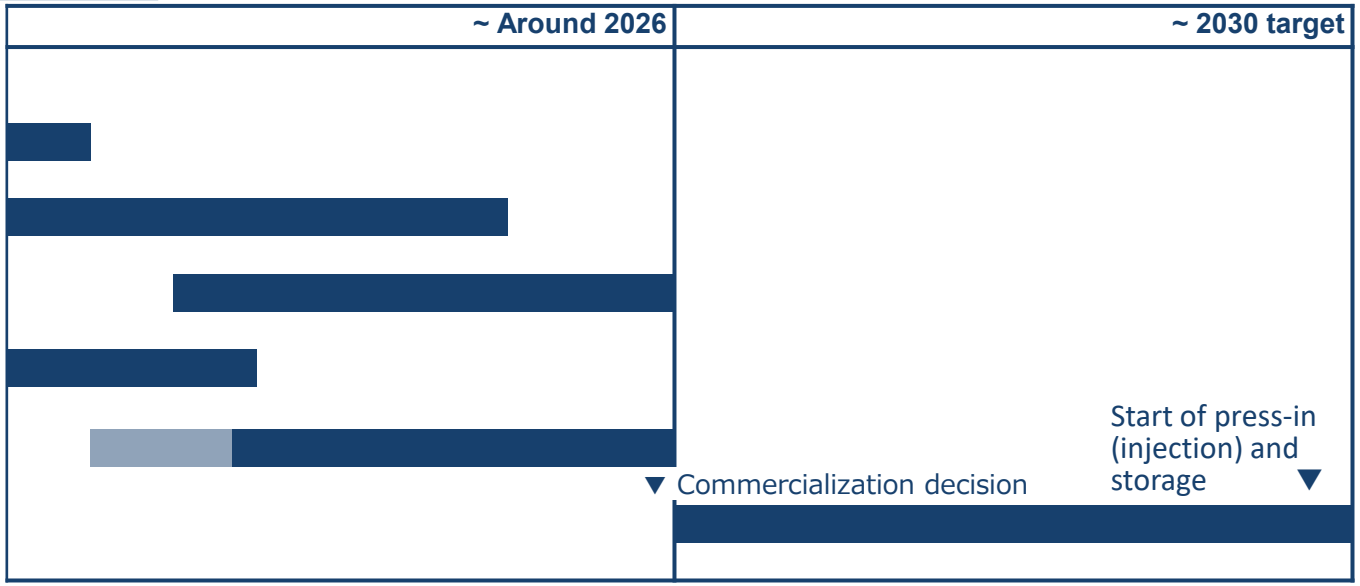
Aug. 2023

Our Initiatives

West Japan Carbon dioxide Storage Survey Co., Ltd. established

Signed acceptance agreement of "Study on Implementation of Japan's Advanced CCS Project" with JOGMEC.

Plan



10. Global Business Expansion and J-POWER Group's Integrated Strengths

- The J-POWER group is expanding its overseas business based on and combining its unique strengths in (1)project development, (2) project promotion, and (3) portfolio management (profitability improvement and risk management)
- J-POWER group as a developer acquires wide knowledge and earns profits through development of Green-Field projects, steady progress of construction projects, and stable operation. As change of business situation, we revise our portfolio such as rebalancing investments for ensuring profitability and business sustainability.
- Based on valuable knowledge and revenue from our existing projects, J-POWER group continues development of new projects mainly renewable power project. Through these new projects, J-POWER continues global business expansion and contribution to achieve carbon neutrality.

Project development

・Accumulation of experience of Green-Field projects
・Ensuring first-mover advantage

Portfolio management

・Risk management and rebalancing
・Improve profitability and make the next investment

Project Promotion

・Steady execution from construction to operation

Sustainable business expansion

Leveraging these strengths to expand our business with a focus on renewable power projects.

New Projects
under construction, development, investigation

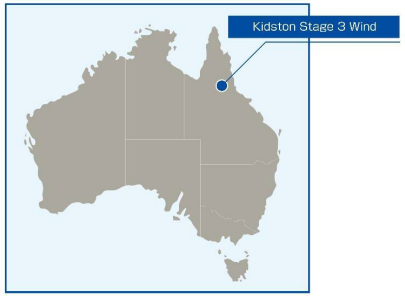
USA
- Development of solar power plants (Refugio)

Asia
- Development and construction of rooftop solar in Thailand
- Gas combined power plant replacement project (EGCO Cogen)
- Examination of biomass business development in Vietnam
- Development of hydroelectric power generation projects in Philippines (Bulanog Batang Hydro)

Australia
J-POWER participates in renewable power project with Genex*
- Development of onshore wind (Kidston Stage-3 Wind)
- Construction of pumped storage power plant (K2-Hydro)
- Development of combined solar/batteries projects (Bulli Creek)

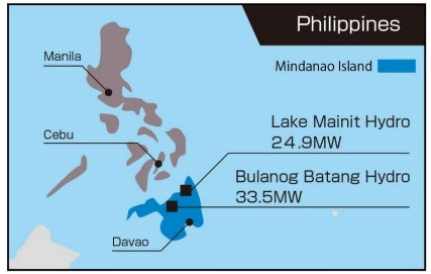
* Genex Power Limited: Renewable power company in Australia

11. Overview of Overseas Projects under Development (As of December 31, 2023)

Project	Overview
Refugio (USA) Capacity:400MW Type:Solar Ownership: 25% Status: Under development Start of operation (planned) : After 2024	• The joint project with AP Solar (local developer for solar power generation in Texas) • Refugio is located close to Houston, a high power demand area • Development issues such as procedures for land acquisition, permits have been largely resolved
Kidston Stage-3 Wind (Australia) Capacity: 258MW Type: Onshore wind Ownership: 53.9%* Status: Under development Start of operation (planned) : 2026	• First renewable project in Australia for J-POWER • J-POWER executes Joint Development Agreement with Genex Power Limited for New Wind Project in May 2022 • Leveraging J-POWER's domestic and international wind energy expertise and Genex's renewable energy development capabilities in Australia 
Bulli Creek (Australia) Capacity: 2,000MW (maximum) Type: Solar power and batteries Ownership: 53.9%* Status: Under development	• Plans to develop up to 2,000 MW of solar power and batteries in phases with Genex at Bulli Creek site in southern Queensland • Signed a Joint Development Agreement with Genex to acquire a 50% interest in the business

*The owned capacity which includes 7.7% stake in Genex in addition to the 50% stake held by the Company under the development funding agreement is 53.9%

11. Overview of Overseas Projects under Development (As of December 31, 2023)

Project	Overview
EGCO Cogen power plant replacement project (Thailand) Type：Gas combined cycle Output：Electricity 74MW Ownership: 20% **Start of commercial operation ; January 28, 2024**	• J-POWER participated in a replacement project for the EGCO Cogeneration Company Limited (“EGCO Cogen”) that is invested jointly with Electricity Generating Public Company Limited (“EGCO”) • J-POWER’s first contribution to replacing a power plant in Thailand. • Sells electricity and steam to Electricity Generating Authority of Thailand (EGAT) and neighboring industrial users • By introducing the latest technology, energy utilization efficiency will improve. As well, greenhouse gas emissions will be reduced, helping to achieve low carbonization goals
Rooftop solar [GJP1/EGCO Cogen] (Thailand) Capacity: total 8.8MW (6 projects)/2.4MW (1 project) Type: Solar Ownership: 60%/20% Status: Under development and construction Start of operation: Each project will commence commercial operation after 2024	• Utilizing the business foundation formed by large-scale gas-fired development • Work for decentralized power sources to accommodate growing requirements of customers for decarbonization • Aiming to supply CO_2-free energy by installing solar photovoltaic systems on customers’ factory roofs
Hydroelectric power generation projects on Mindanao (Philippines) Bulanog Batang Hydro Capacity: 33.5MW Type: Hydro (run-of-river system) Ownership: 40% Status: Under development Start of operation (planned) : 2030	• J-POWER will acquire a portion of the shares of subsidiaries of Markham Resources Corporation (MRC), a power generation company in the Republic of the Philippines, in order to participate in hydroelectric power generation projects on Mindanao Island, the Philippines. • Mindanao has many undeveloped hydropower sites. The development of these sites is expected to help shift the island’s electricity supply from fossil fuel-derived power sources, currently the major contributor, to carbon-free power sources. Both projects will play a role in this shift. • Lake Mainit Hydro has started commercial operation on March 2023. 
Biomass Business Development (Vietnam)	• J-POWER signed a memorandum of understanding (MoU) with Vietnam Forestry Corporation (Vinafor) to jointly examine the development of the biomass business in Vietnam, including power generation and fuel production • J-POWER intends to enter and expand the biomass power generation business in Vietnam and will strive to gain knowledge of the sustainable use of biomass fuels through a broad involvement in the supply chain for biomass fuels

12. Contributing to the enhancement of power networks

- Pursue business opportunities that contribute to the augmentation of power networks to support massive introduction of renewable energy
- Promote efforts to strengthen resilience in light of the increasing severity of natural disasters

Transmission and transformation facilities

J-POWER Transmission owns and operates critical transmission and transformation facilities throughout Japan, including the cross-regional interconnection facilities that interconnect the grids of different electric power companies.

Facilities in operation

Transmission lines
Total length: approximately **2,400**km

Substations
4 locations

AC/DC converter stations
4 locations

Frequency converter stations
1 location

Construction of the New Sakuma Frequency Converter Station and others

J-POWER will steadily promote the replacement/expansion of the New Sakuma Frequency Converter Station and related transmission lines to meet consumers' expectations for enhancing the capability to interchange electric power between 50Hz in eastern Japan and 60Hz in western Japan. J-POWER will continue to pursue business opportunities contributing to strengthening power networks.

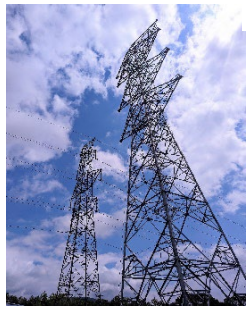
Today's most pressing issues also include the need to sophisticate maintenance due to over-aging deterioration and strengthen resilience against intensifying natural disasters. J-POWER will continue to contribute to a stable power supply through these efforts.

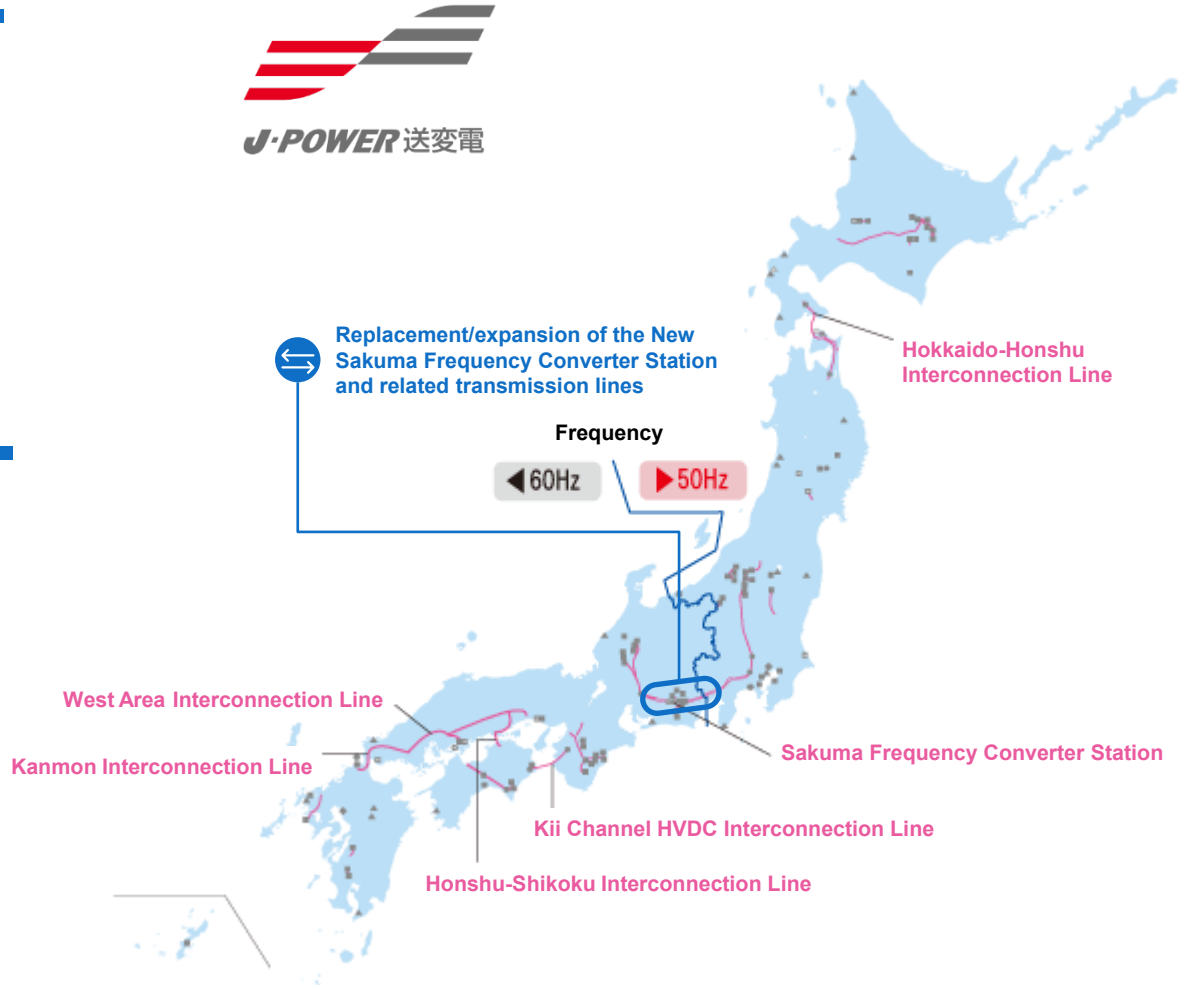
In the construction phase

Construction of the New Sakuma Frequency Converter Station and others

- New Sakuma Frequency Converter Station **300**MW
- Sakuma East Trunk Line etc. Approx. **141**km

Start of construction in April 2022
Operation scheduled to start in FY2027





13. Actions Taken towards HVDC Transmission System

- Japanese government has announced “Master Plan” (reinforcement of the national grids) considering the future power development on March 29, 2023.
- Three assumed scenarios for demand based on changes in load factors such as EVs, heat pumps, and location of renewable energy demand were published.
- Suitable places for renewable power generation such as off-shore, on-shore, solar power generation are mainly located in Kyushu, Hokkaido, and Tohoku area. Because of this utilization of renewable power requires long-distance transmission of massive power to the point of consumption. Therefore, the introduction of HVDC transmission system, which has benefits from the viewpoint of cost, efficiency flexibility of the operation and stability of the grids, is being studied.

Inductive scenario

Total investment
Approx. 6.0~6.9 trillion yen
Investment for HVDC in eastern area
Approx. 2.5~3.4 trillion yen

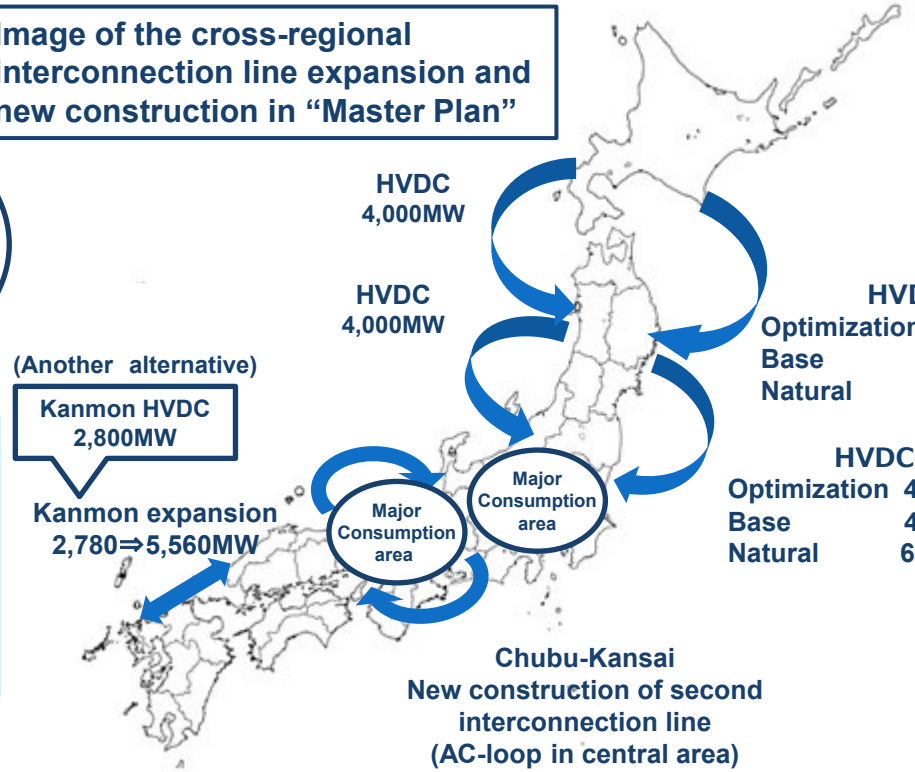
Base scenario

Total investment
Approx. 6.0~7.0 trillion yen
Investment for HVDC in eastern area
Approx. 2.5~3.4 trillion yen

Natural scenario

Total investment
Approx. 6.7~7.9 trillion yen
Investment for HVDC in eastern area
Approx. 3.1~4.2 trillion yen

Image of the cross-regional interconnection line expansion and new construction in “Master Plan”



J-POWER Group’s HVDC transmission system facilities

✓ J-POWER Transmission owns and maintains Hokkaido-Honshu HVDC Link and Kii-Channel HVDC Link* (including submarine cables).

*Jointly owned with Kansai Transmission and Distribution, Inc. and Shikoku Electric Power Transmission & Distribution Company, Incorporated

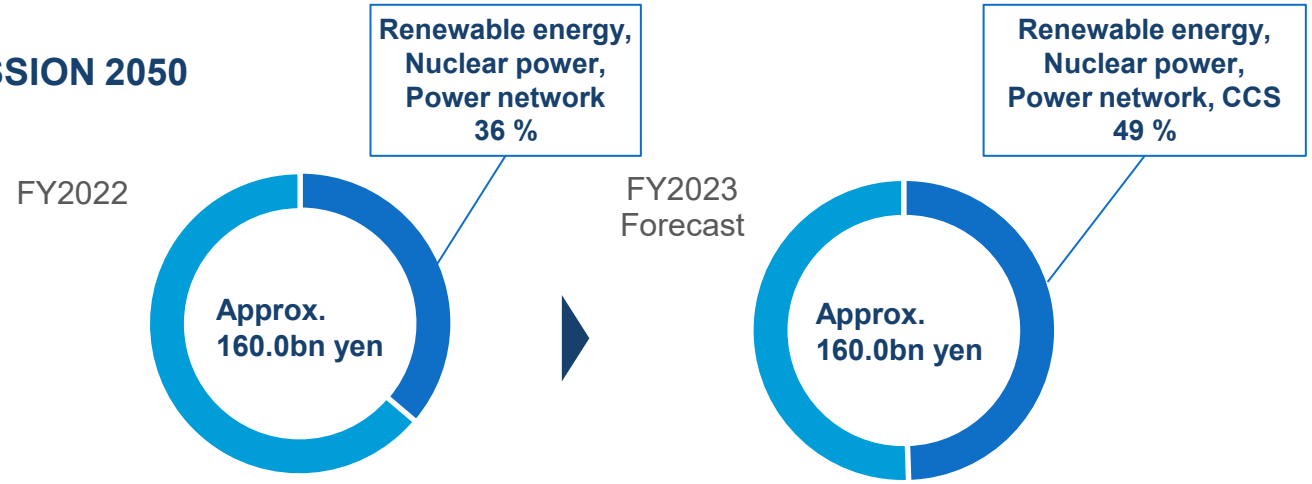
Prepared by J-POWER based on the material of The 22nd Study Committee on Master Plan and Rules for Grid Utilization (March 29, 2023), "Long-Term Policy for Wide-Area Grid (Regarding Master Plan for Wide-Area Interconnected Grid) "

14. Investments for Transition

Investment result and forecast Investment Cash Flow

Towards a carbon-neutral society, three initiaves in BLUE MISSION 2050

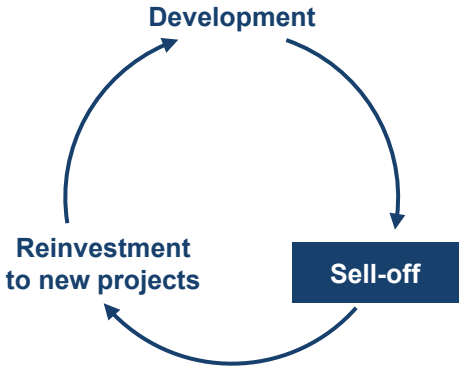
Expansion of CO_2-free power sources	Renewable energy
	Nuclear power
Push for zero-emission power sources	CO_2-free hydrogen power generation
	CO_2-free hydrogen production
Electric power network	Stabilization of electric power networks
	Enhancement of electric power networks



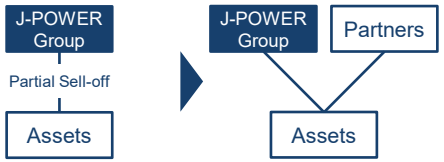
*The above figures are current estimates and may change depending on future conditions.
*The above graphs do not include the recovery of investments and loans in the investment CF.

Efforts for improvements in capital efficiency

We are working to improve capital efficiency by not only holding assets for the long term, but also replacing our business portfolio as appropriate, for example by selling assets and reinvesting in new projects using the proceeds from the sale. Furthermore, we have started studying of introducing Return on Invested Capital (ROIC) for improving capital efficiency.



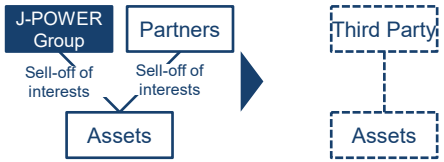
Development→ Partial Sell-off and Operation



Jackson Generation Power Plant in the US

- ✓ Sold partial interests in developed gas-fired power plants and acquired developer's profits.
- ✓ Actively involved in the operation of the plant after partial-sells off

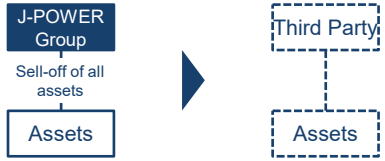
Development→ Sell-off of all interests



Wharton Solar Project in the US

- ✓ Sold all equity interests in solar power plants that have finished development and acquired developer's profits.

Development and Operation→ Withdrawal



Three domestic thermal power projects (Ichihara, Shinminato and Itoigawa) etc.

- ✓ Withdrew through the transfer of assets to a third party, taking into account the age and competitiveness of the facilities.

15. J-POWER Group's Green/Transition Finance Framework

Potential Funding Objectives of Green/Transition Finance (Use of Proceeds instruments)

J-POWER"BLUE MISSION 2050"'s Initiatives		Potential Funding Objectives
CO_2-free Hydrogen energy	Hydrogen power generation	Upcycling (adding gasifier to existing assets)
		Upcycling (CO_2 separation and capture units)
		CO_2-free hydrogen Power generation facilities*
	Fuel production (CO_2-free hydrogen)	CO_2-free hydrogen Power generation facilities*
CO_2-free power generation	Renewable energy	Hydro, wind, geothermal, solar*
	Nuclear power	The Ohma Nuclear Power Plant
Power network	Stabilization	Distributed energy service*
	Enhancement	Frequency Converter Station, etc.
		Network for renewable energy
Domestic coal-fired power plants		Gradual phasing out of aging plants
		Power generation facilities for mixed / mono combustion with biomass, ammonia, etc.

*Potential Funding Objectives of Green Finance ※The use of funds is defined on a case-by-case basis, undecided at this time.

15. J-POWER Group's Green/Transition Finance Framework

Possible candidates for Sustainability Targets of Transition Finance (General Corporate Purpose instruments)

KPI: Key Performance Indicator	SPT: Sustainability Performance Target
CO_2 emissions reduction from J-POWER Group's domestic power generation business	1. FY2025: -9.2million tons (Compared to the actual emissions in FY2013) 2. FY2030: -46%/-22.5 million tons (Compared to the actual emissions in FY2013)

*SPT (Either or both 1. and 2.) and Various conditions, including changes in interest rate terms based on achievement of goals are determined on individual occasions
*Revised J-POWER Group Green/Transition Finance Framework in July 2023. The revised framework was assessed by DNV BUSINESS ASSURANCE JAPAN K.K., a third-party evaluation organization, for conformance with various standards related to green finance, transition finance, and sustainability-linked finance.

Examples of Transition-Linked Loan Financing			
Borrowing date	February 28, 2023	September 29, 2023	September 29, 2023
Borrowing Amount	30 billion yen	10 billion yen	10 billion yen
Borrowing period	5 years	7 years	10 years
Lender	Domestic financial institutions	Domestic financial institutions	Domestic financial institutions
Third-party evaluator	DNV BUSINESS ASSURANCE JAPAN K.K.		

Consolidated: Revenues and Expenses

(Unit: 100 million yen)

	FY2019	FY2020	FY2021	FY2022	FY2022 3Q	FY2023 3Q
Operating revenue	**9,137**	**9,091**	**10,846**	**18,419**	**14,015**	**9,608**
Electric utility operating revenue	6,841	7,313	8,764	14,179	10,848	6,702
Overseas business operating revenue	1,790	1,380	1,451	2,775	2,051	2,155
Other business operating revenue	505	397	630	1,464	1,115	750
Operating expenses	**8,301**	**8,313**	**9,976**	**16,580**	**12,400**	**8,771**
Operating profit	**836**	**777**	**869**	**1,838**	**1,615**	**837**
Non-operating income	**265**	**112**	**225**	**247**	**283**	**323**
Share of profit of entities accounted for using equity method	113	27	142	91	166	151
Foreign exchange gains	74	6	-	-	-	-
Other	77	77	82	156	117	171
Non-operating expenses	**320**	**280**	**366**	**378**	**316**	**312**
Interest expenses	262	237	224	273	201	235
Foreign exchange losses	-	-	75	11	92	41
Other	57	43	66	93	21	35
Ordinary profit	**780**	**609**	**728**	**1,707**	**1,582**	**848**
Extraordinary income	-	94	-	-	-	-
Extraordinary losses	124	57	-	-	-	-
Profit attributable to owners of parent	**422**	**223**	**696**	**1,136**	**1,110**	**563**

Non-consolidated: Operating Revenues & Expenses

(Unit: 100 million yen)

	FY2019	FY2020	FY2021	FY2022	FY2022 3Q	FY2023 3Q
Operating revenue	**5,712**	**5,899**	**7,900**	**13,707**	**10,522**	**6,290**
Electric power business	**5,638**	**5,838**	**7,810**	**13,533**	**10,377**	**6,247**
Sold power to retailers	-	-	6	11	8	2
Sold power to other suppliers	5,104	5,660	7,672	13,373	10,271	6,151
Other*	533	177	132	149	97	93
Incidental business	**74**	**61**	**89**	**173**	**145**	**43**
Operating expenses	**5,464**	**5,120**	**7,721**	**13,241**	**10,053**	**6,218**
Electric power business	**5,397**	**5,065**	**7,637**	**13,075**	**9,915**	**6,180**
Personnel expense	358	318	201	206	151	186
Amortization of the actuarial difference in retirement benefits	24	28	(70)	(75)	(56)	(29)
Fuel cost	2,332	1,937	2,985	7,621	5,764	3,196
Repair and maintenance cost	666	441	515	419	300	291
Depreciation	527	552	559	589	440	442
Other	1,512	1,814	3,375	4,238	3,259	2,063
Incidental business	**66**	**55**	**84**	**166**	**138**	**37**
Operating profit	**248**	**778**	**178**	**465**	**468**	**71**

* “Other” shows transmission revenue and other electricity revenue. Due to the split of transmission business in April, 2020, “Other” for FY2020 shows only other electricity revenue

Consolidated: Segment Information

(Unit: 100 million yen)

		FY2019	FY2020	FY2021	FY2022	FY2022 3Q	FY2023 3Q	YoY
Electric power	Sales	6,860	7,334	8,788	14,202	10,866	6,720	(4,145)
	Ordinary profit	274	190	266	545	632	233	(398)
Electric power-related	Sales	4,005	3,741	2,439	3,217	2,084	1,765	(318)
	Ordinary profit	185	122	258	928	685	374	(310)
Overseas	Sales	1,790	1,380	1,451	2,775	2,051	2,155	103
	Ordinary profit	339	308	220	226	264	231	(33)
Other	Sales	221	184	210	293	223	113	(110)
	Ordinary profit	5	10	12	18	13	2	(11)
Subtotal	Sales	12,878	12,641	12,889	20,489	15,225	10,754	(4,471)
	Ordinary profit	805	633	757	1,719	1,595	841	(754)
Elimination*	Sales	(3,740)	(3,550)	(2,043)	(2,069)	(1,209)	(1,145)	64
	Ordinary profit	(24)	(24)	(29)	(11)	(13)	6	19
Consolidated	Sales	9,137	9,091	10,846	18,419	14,015	9,608	(4,407)
	Ordinary profit	780	609	728	1,707	1,582	848	(734)

"Electric Power Business"

Mainly J-POWER group's electric power generation business and transmission/ transformation business. The majority of consolidated revenue is derived from this segment.

"Electric Power-Related business"

These focus on peripheral business essential for the operation of power plants and transmission facilities, such as designing, executing, inspecting and maintaining power facilities and importing and transporting coal. Intra-group transactions account for a large portion of this segment, such as Company's power plant maintenance, coal transportation activities.

"Overseas business"

Overseas power generation business, overseas engineering and consulting business

"Other business"

Diversified business such as telecommunication, environmental and the sale of coal

＊ Elimination includes elimination of intersegment sales

Consolidated: Cash Flow

(Unit: 100 million yen)

	FY2019	FY2020	FY2021	FY2022	FY2022 3Q	FY2023 3Q
Operating activities	**1,592**	**1,679**	**1,283**	**1,558**	**872**	**1,628**
Profit before income taxes	655	646	728	1,707	1,582	848
Depreciation	830	964	969	1,076	784	811
Share of (profit) loss of entities accounted for using equity method	(113)	(27)	(142)	(91)	(166)	(151)
Investing activities	**(1,617)**	**(1,432)**	**(1,788)**	**(1,508)**	**(993)**	**(513)**
Purchase of non-current assets	(1,495)	(1,592)	(1,352)	(1,448)	(1,023)	(656)
Investments and loan advances	(109)	(25)	(497)	(78)	(41)	(80)
Free cash flow	**(24)**	**246**	**(504)**	**49**	**(121)**	**1,115**

Consolidated: Key Ratios and Key Data

(Unit: 100 million yen)

		FY2019	FY2020	FY2021	FY2022	FY2022 3Q	FY2023 3Q
(PL)	Operating revenue	9,137	9,091	10,846	18,419	14,015	9,608
	Operating profit	836	777	869	1,838	1,615	837
	Ordinary profit	780	609	728	1,707	1,582	848
	Profit attributable to owners of parent	422	223	696	1,136	1,110	563
(BS)	Total assets	28,053	28,419	30,661	33,626	34,698	34,627
	Construction in progress	6,471	5,882	6,765	5,721	5,517	5,585
	Shareholders' equity	8,077	8,091	9,160	10,846	11,133	11,902
	Net assets	8,573	8,536	9,641	11,927	11,711	13,105
	Interest-bearing debt	16,484	16,646	17,864	18,858	19,678	18,784
(CF)	Investing activities	(1,617)	(1,432)	(1,788)	(1,508)	(993)	(513)
	Free cash flow	(24)	246	(504)	49	(121)	1,115
	(Ref) CAPEX*1	(1,626)	(1,715)	(1,321)	(1,218)	(721)	(666)
	(Ref) Depreciation	830	964	969	1,076	784	811
ROA (%)		2.8	2.2	2.5	5.3	-	-
ROA (ROA excl. Construction in progress) (%)		3.6	2.8	3.1	6.6	-	-
ROE (%)		5.3	2.8	8.1	11.4	-	-
EPS (￥)		230.96	121.85	380.70	621.50	607.04	308.18
BPS (￥)		4,412.84	4,420.39	5,004.31	5,931.68	6,088.50	6,508.97
Shareholders' equity ratio (%)		28.8	28.5	29.9	32.3	32.1	34.4
D/E ratio (x)		2.0	2.1	2.0	1.7	1.8	1.6
Number of shares issued*2 (thousand)		183,048	183,048	183,048	182,861	182,862	182,869

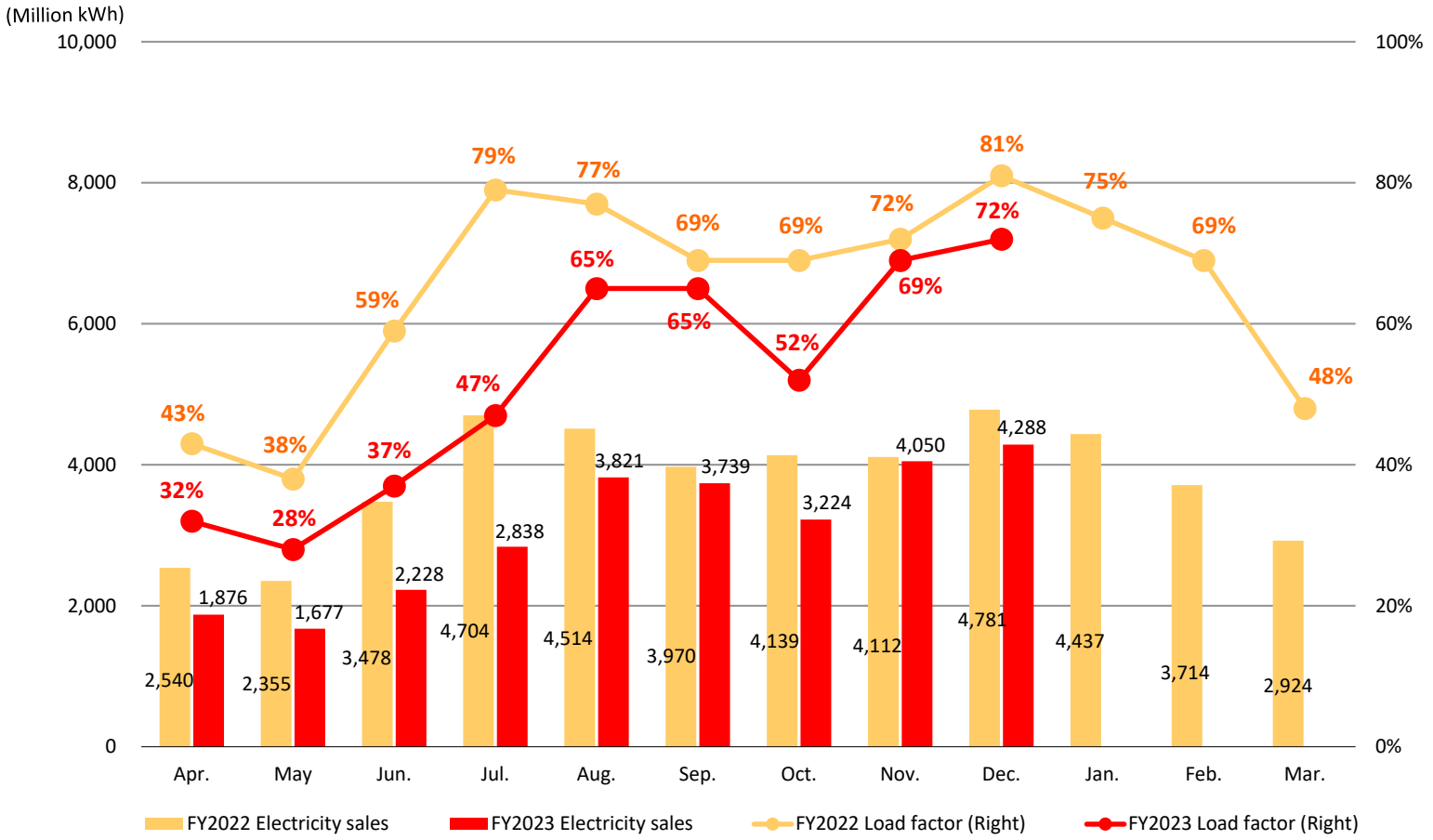
*1 Capital expenditure: Increase in tangible and intangible non-current assets

*2 Number of shares issued at the end of the fiscal year (excluding treasury stock)

Monthly Electricity Sales: Domestic Power Generation Business (Thermal Power)

- Apr. 2022 - Dec. 2022 Results (cumulative)
  Load factor ⇒ 65%
  Electricity sales ⇒ 34.5 TWh

- Apr. 2023 - Dec. 2023 Results (cumulative)
  Load factor ⇒ 52%
  Electricity sales ⇒ 27.7 TWh



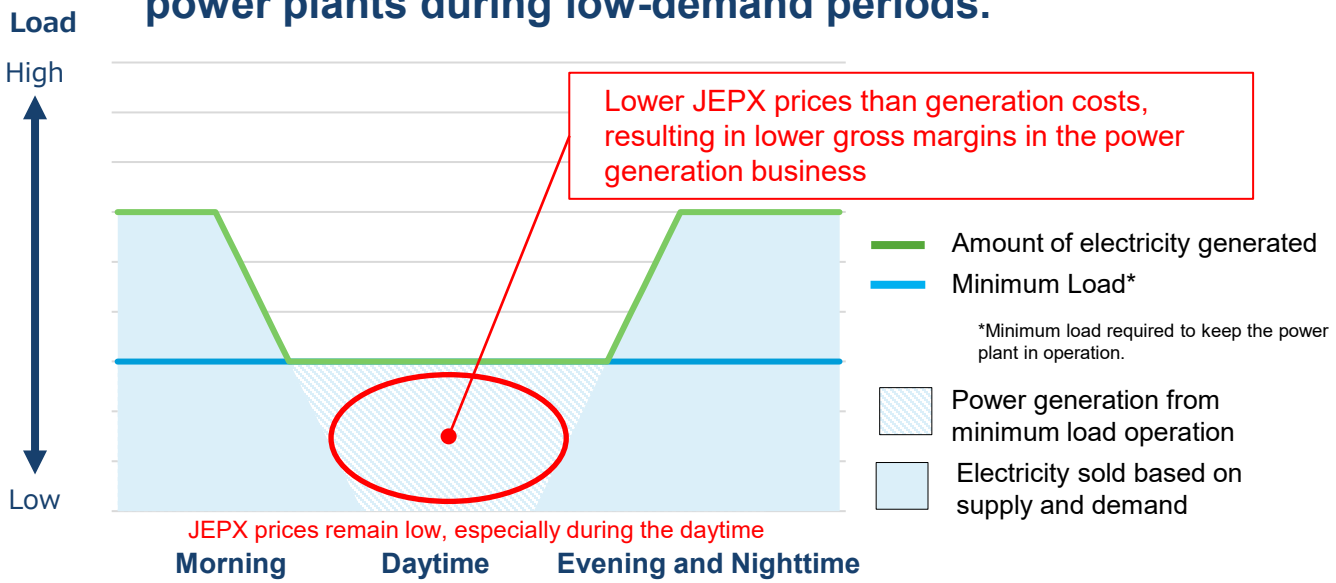
* Load factor of thermal power shows the results for non-consolidated only.
* Proportion of equity holding is not taken into account.

Changes in the Operational Pattern of Thermal Power Plants and Impact on Gross margin of electric power business (Domestic) in the Current Fiscal Year

Change in Operational Pattern

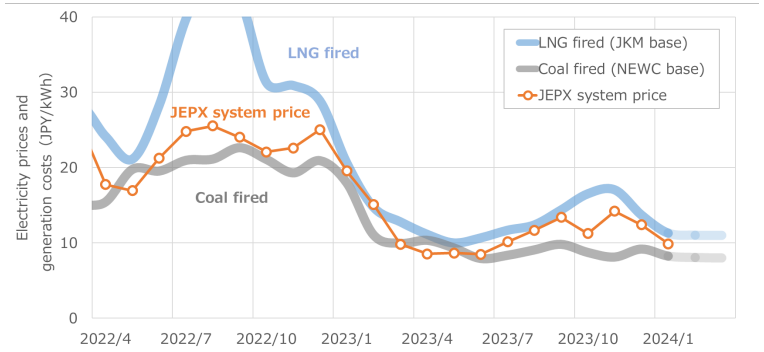
- Increased generation from renewable energy sources in western Japan and the restart of nuclear power plants have led to lower generation from thermal power plants, especially during the daytime during low-demand periods
- On the other hand, solar power generation decreases during the evening and nighttime hours, which must be supplemented by load-following middle power sources.
- In the case of our coal-fired thermal power plants, the output is reduced to the minimum load during the daytime, and the load is increased to meet the increase in demand mainly from the evening to nighttime hours.
  (The role of coal-fired power is changing from a traditional base power source to a middle power source.)

Image of the daily operating pattern of thermal power plants during low-demand periods.



Relation to resource price trends

Fluctuations in resource prices



- Fuel price difference between LNG and coal affects gross margins of coal-fired power generation
- From the end of 2022 to mid-2023, the fuel price difference between LNG and coal narrowed and reversed, making it difficult to secure gross margins for coal-fired power generation.
- Generation costs calculated from actual and futures prices after the second half of 2023 are LNG-fired > Coal-fired

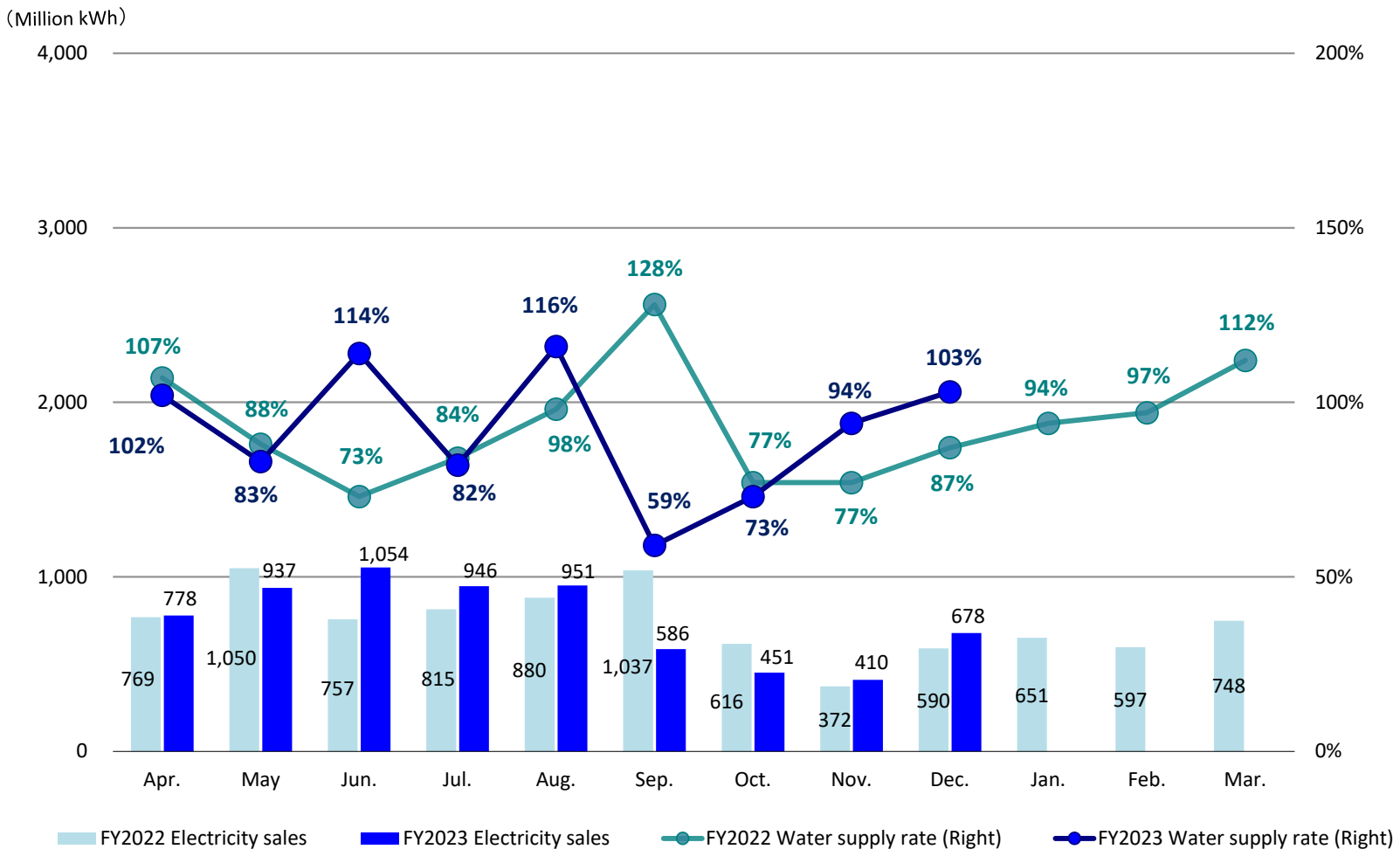
Our Initiatives

- Implementing initiatives to improve operational performance, including lowering minimum loads.
- Operational shutdowns on a weekly basis, based on forecasts of electricity supply and demand and market prices.
- Implement initiatives to reduce fuel costs, such as coal blending.

Monthly Electricity Sales: Domestic Power Generation Business (Hydroelectric Power)

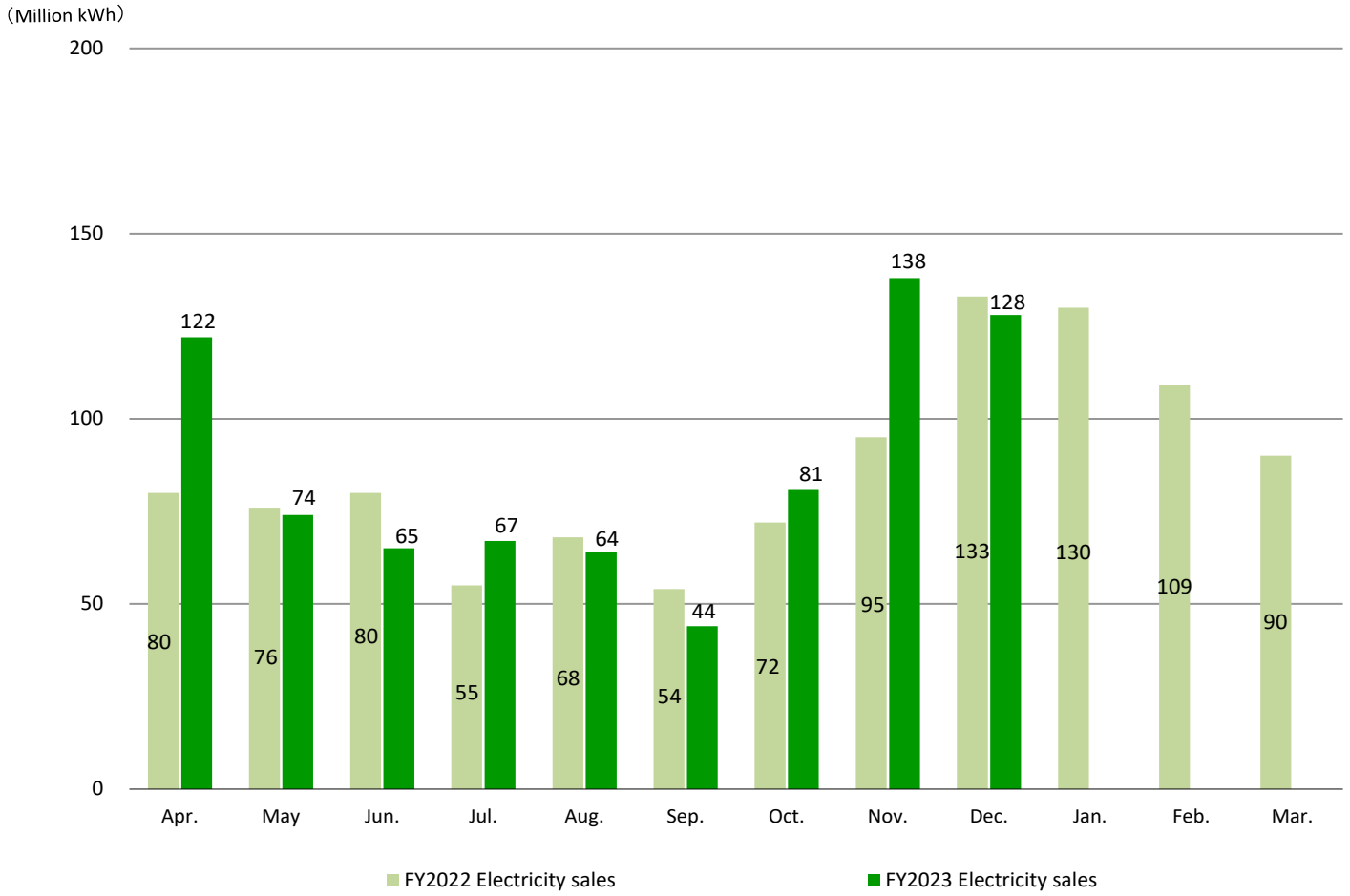
- Apr. 2022 - Dec. 2022 Results (cumulative)
  Water supply rate ⇒ 92%
  Electricity sales ⇒ 6.8 TWh

- Apr. 2023 - Dec. 2023 Results (cumulative)
  Water supply rate ⇒ 91%
  Electricity sales ⇒ 6.7 TWh



Monthly Electricity Sales: Domestic Power Generation Business (Wind Power)

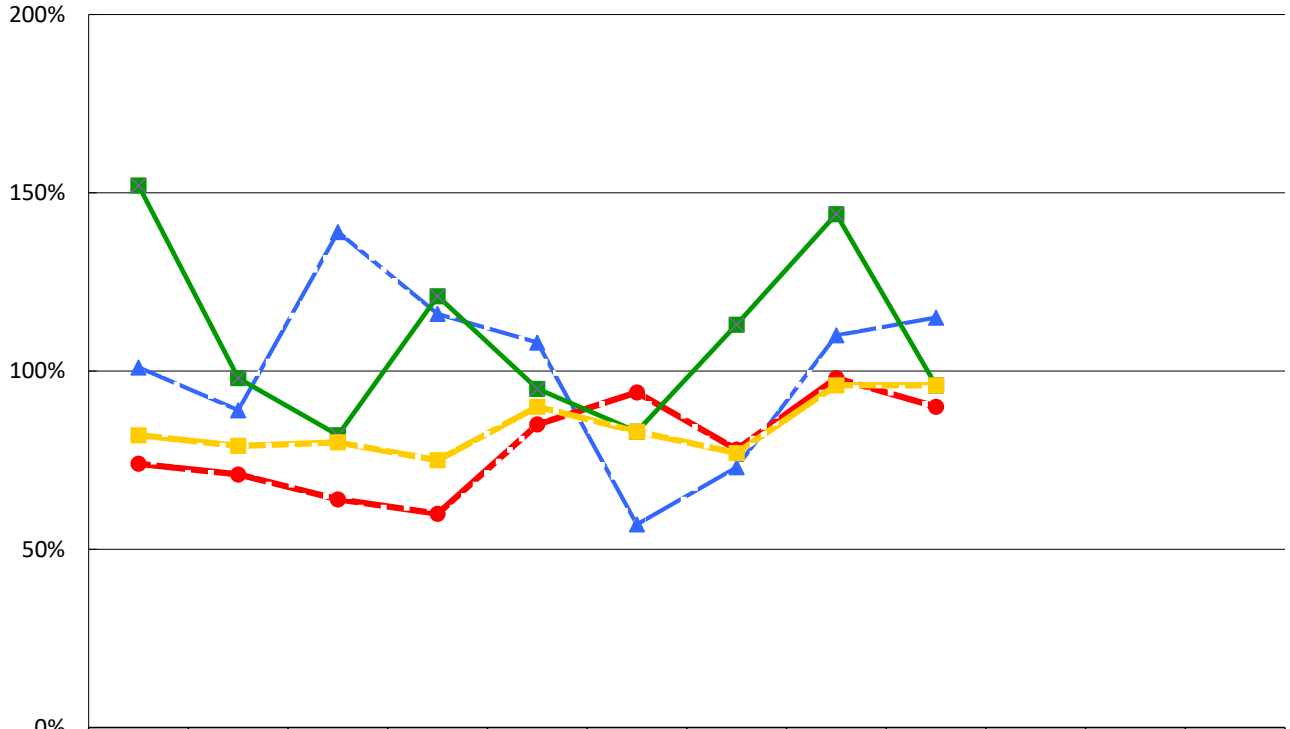
- Apr. 2022 - Dec. 2022 Results (cumulative) ⇒ 0.71 TWh
- Apr. 2023 - Dec. 2023 Results (cumulative) ⇒ 0.78 TWh



* Proportion of equity holding is not taken into account.

Change in Monthly Electricity Sales: Domestic Power Generation Business

- Apr. 2022 - Dec. 2022 Total Results (cumulative) ⇒ 51.7 TWh
- Apr. 2023 - Dec. 2023 Total Results (cumulative) ⇒ 43.7 TWh



	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr. - Dec.
Year-on-year (Hydro)	101%	89%	139%	116%	108%	57%	73%	110%	115%				99%
Year-on-year (Thermal)	74%	71%	64%	60%	85%	94%	78%	98%	90%				80%
Year-on-year (Wind)	152%	98%	82%	121%	95%	83%	113%	144%	96%				110%
Year-on-year Total	82%	79%	80%	75%	90%	83%	77%	96%	96%				84%

* Total volume includes electricity sales volume of hydro, thermal, wind and electricity procured from wholesale electricity market, etc.

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