

FY2019 3rd Quarter Financial Results (April 1 – December 31, 2019)

Tokyo Electric Power Company Holdings, Inc.



tepcon

Overview of FY2019 3rd Quarter Financial Results

(Released on January 30, 2020)

(Note)

Please note that the following is an accurate and complete translation of the original Japanese version prepared for the convenience of our English-speaking investors. In case of any discrepancy between the translation and the Japanese original, the latter shall prevail.

< FY2019 3rd Quarter Financial Results >

- Although electricity sales volume for TEPCO group companies decreased, operating revenue increased due to a rise in fuel cost adjustment.
- Ordinary income increased due to a gain incurred by fuel cost adjustment system time lag into income and continual cost reductions made by all Group companies.
- Both Ordinary income and net income showed a profit for seven consecutive years.
- Extraordinary income appropriated as the gain on change in equity as a result of the succession of the thermal power generation business to JERA , and extraordinary loss appropriated as the loss in the decommissioning of Fukushima Daini as a result of the decision to decommission the Fukushima Daini Nuclear Power Station, and the loss on disaster of Typhoon from September to October.

1. Consolidated Financial Results

(Unit: Billion kWh)

	FY2019 Apr-Dec (A)	FY2018 Apr-Dec (B)	Comparison	
			(A)-(B)	(A)/(B) (%)
Electricity Sales Volume	164.7	169.7	-5.0	97.1

(Unit: Billion Yen)

	FY2019 Apr-Dec (A)	FY2018 Apr-Dec (B)	Comparison	
			(A)-(B)	(A)/(B) (%)
Operating Revenue	4,637.9	4,553.2	84.7	101.9
Operating Income/Loss	247.1	260.4	-13.3	94.9
Ordinary Income/Loss	309.9	245.1	64.8	126.5
Extraordinary Income	367.2	-	367.2	-
Extraordinary Loss	205.3	109.7	95.6	-
Net Income attributable to owners of parent	434.8	100.5	334.3	432.6

2. Points of Each Company

<TEPCO Holdings>

- Ordinary income decreased due to factors including decreased wholesale power sales to TEPCO Energy Partner, etc.

<TEPCO Fuel & Power>

- Ordinary income increased due to factors including a gain incurred by fuel cost adjustment system time lag into income at JERA, which has succeeded the thermal power generation business, etc.

<TEPCO Power Grid>

- Although transmission revenue decreased, ordinary income increased due to factors including decreased maintenance expenses and depreciation.

<TEPCO Energy Partner>

- Ordinary income decreased due to factors including decreased in the amount of power purchased from TEPCO Holdings.

3. Overview of Each Company

(Unit: Billion Yen)

	FY2019 Apr-Dec (A)	FY2018 Apr-Dec (B)	Comparison	
			(A)-(B)	(A)/(B) (%)
Operating Revenue	4,637.9	4,553.2	84.7	101.9
TEPCO Holdings	535.1	585.5	-50.4	91.4
TEPCO Fuel & Power	6.5	1,454.2	-1,447.6	0.4
TEPCO Power Grid	1,288.2	1,295.7	-7.4	99.4
TEPCO Energy Partner	4,212.2	4,235.5	-23.3	99.4
Adjustments	-1,404.1	-3,017.8	1,613.7	-
Ordinary Income/Loss	309.9	245.1	64.8	126.5
TEPCO Holdings	148.3	178.9	-30.6	82.9
TEPCO Fuel & Power	62.3	3.4	58.8	-
TEPCO Power Grid	175.3	163.1	12.2	107.5
TEPCO Energy Partner	54.6	39.3	15.2	138.8
Adjustments	-130.7	-139.7	9.0	-

4. Consolidated Extraordinary Income/Loss

(Unit: Billion Yen)

	FY2019 Apr-Dec (A)	FY2018 Apr-Dec (B)	Comparison (A)-(B)
※1 Extraordinary Income	367.2	-	367.2
Grants-in-Aid from NDF ※3	54.0	-	54.0
Gain on reversal of provision for loss on disaster	113.5	-	113.5
Gain on change in equity	199.7	-	199.7
※2 Extraordinary Loss	205.3	109.7	95.6
Contingent Loss on Assets	0.3	-	0.3
Extraordinary Loss on Disaster	27.4	-	27.4
Expenses for Nuclear Damage Compensation	81.9	109.7	-27.8
Loss on Decommissioning Fukushima Daini NPS	95.6	-	95.6
Extraordinary Income/Loss	161.8	-109.7	271.6

※3 Nuclear Damage Compensation and Decommissioning Facilitation Corporation

※1 Overview of Extraordinary Income

◆ Grants-in-aid from NDF (New)

Apply for changes in grant amounts based on stipulations on September 26, 2019.

◆ Gain on reversal of provision for loss on disaster

Of the costs or losses recorded as a provision for loss on disaster, the amount for Fukushima Daini Nuclear Power Station was reverted due to the decision of decommissioning.

◆ Gain on change in equity

Equity income was realized as a result of JERA taking over certain business.

※2 Overview of Extraordinary Loss

◆ Contingent property loss (Change)

Considered book value on loss of destroyed property from Typhoon #15, #19 and #21 was booked.

◆ Extraordinary loss on disaster (Change)

Increase in the estimated amount of repair expenses to recover assets damaged, or loss incurred, in the financial impact of the great east Japan Earthquake and considered repair expenses to recover assets damaged in the typhoons #15, #19 and #21 were booked.

◆ Expenses for nuclear damage compensation

Increase in the estimated amount of compensation for damages due to the restriction on shipping and damages due to reputation, etc.

◆ Losses on decommissioning Fukushima Daini

Losses were booked for equipment and nuclear fuel lost due to the decision of decommissioning.

5. Extraordinary Loss on Disaster and Contingent Property Loss

- Repairing expenses for restoration on assets which was damaged by Typhoon #15, #19 and #21 occurred from September to October were booked as extraordinary loss on disaster and contingent property loss.
- Main reason for increasing from last term(April-September) is the extended support from other electric companies in the wake of Typhoon #19 and #21, and the damage incurred by equipment for hydroelectric power stations.

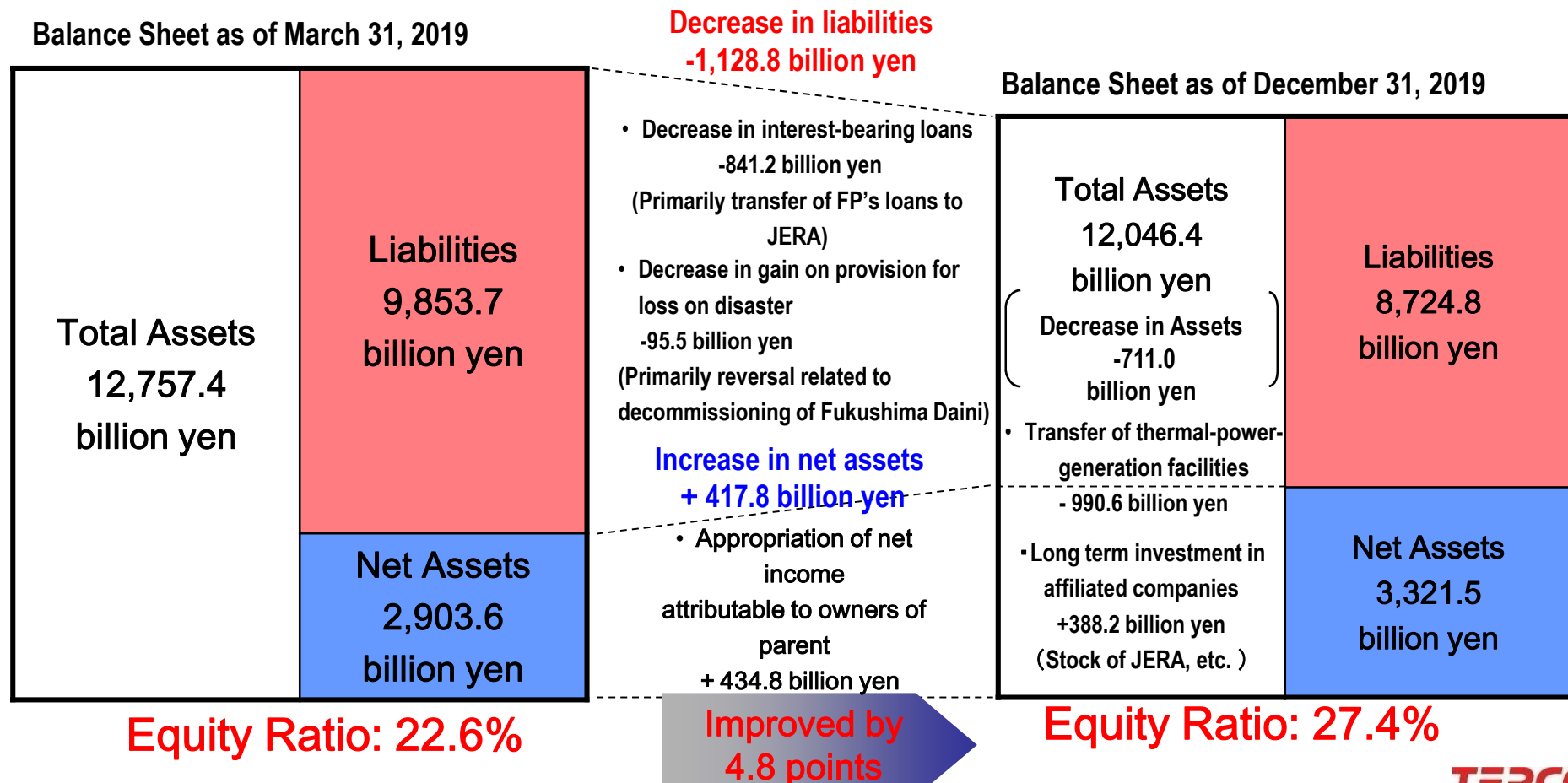
(Unit : Billion Yen)

	2019			
	Apr-Dec	Apr-Sep	Oct-Dec	
Contingent loss on property	3	0	2	Book value on property such as lost power poles
Extraordinary loss on disaster	274	118	156	
Typhoon-related totals	173	118	54	
Equipment for distribution	62	60	1	Mainly repairing expenses for restoration of damaged equipment and retirement expenses for removing
Equipment for transmission	2	1	1	
Equipment for Hydroelectric power	33	-	33	
Expense on measures for emergency disaster	74	55	18	
Financial Impact of the Great East Japan Earthquake related	101	※ -	101	Increase in estimates since the end of FY2018

- ※The last term(FY2019 Apr-Sep) was booked on non-operating expenses

6. Consolidated Financial Position

- Total assets balance decreased by 711.0 billion yen primarily due to the transfer of thermal-power-generation facilities to JERA.
- Total liabilities balance decreased by 1,128.8 billion yen primarily due to the transfer of TEPCO Fuel & Power's loans to JERA.
- Total net assets balance increased by 417.8 billion yen primarily due to the appropriation of net income attributable to owners of parent.
- Equity ratio improved by 4.8 points.



<Reference> Key Factors Affecting Performance (Results)

Area Demand

(Unit: Billion kWh)

	FY2019 Apr-Dec (A)	FY2018 Apr-Dec (B)	Comparison	
			(A)-(B)	(A)/(B) (%)
Area Demand	198.6	201.4	-2.8	98.6

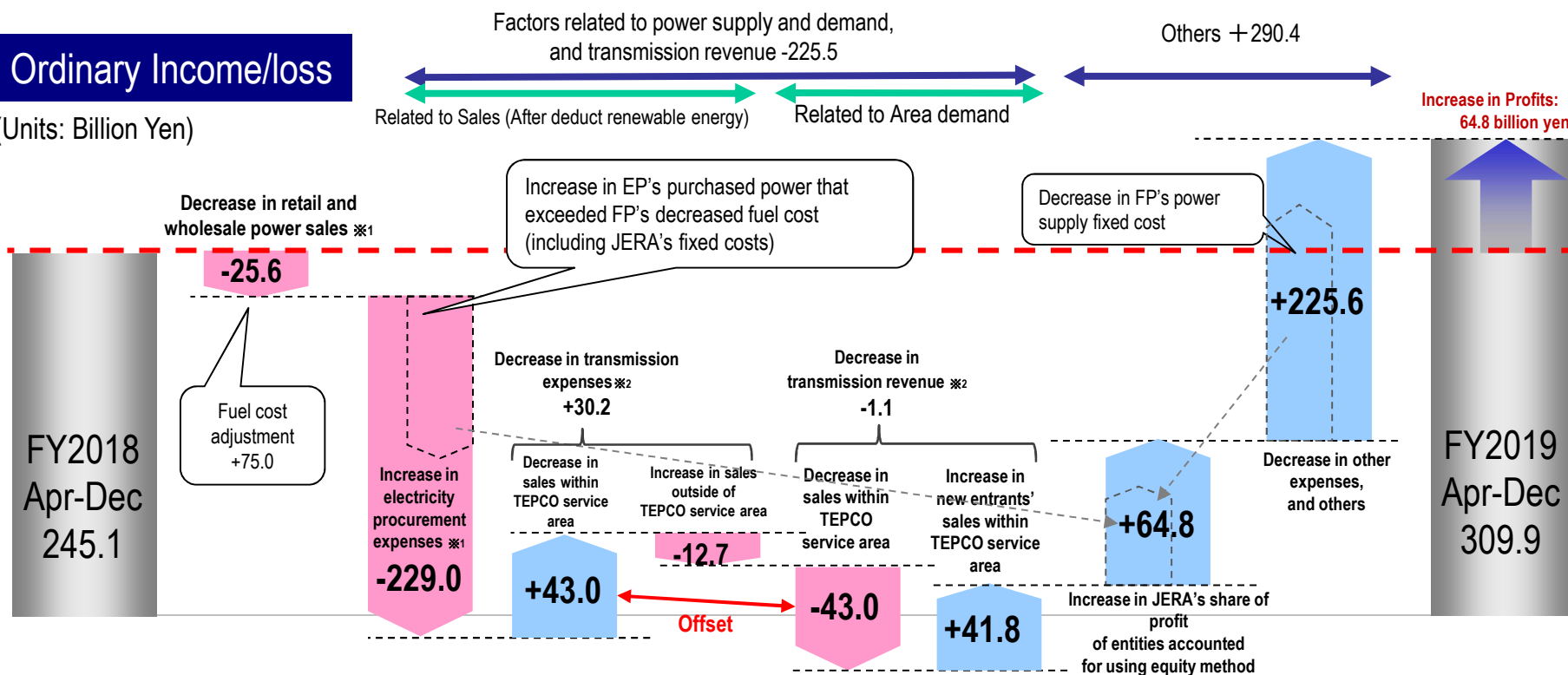
Foreign Exchange Rates / CIF

	FY2019 Apr-Dec (A)	FY2018 Apr-Dec (B)	(A)-(B)
Foreign Exchange Rate (Interbank, yen/dollar)	108.7	111.2	-2.5
Crude Oil Prices (All Japan CIF, dollar/barrel)	67.8	75.1	-7.3

<Reference> Consolidated Ordinary Income/Loss (Year-on-Year Comparison)

Ordinary Income/loss

(Units: Billion Yen)

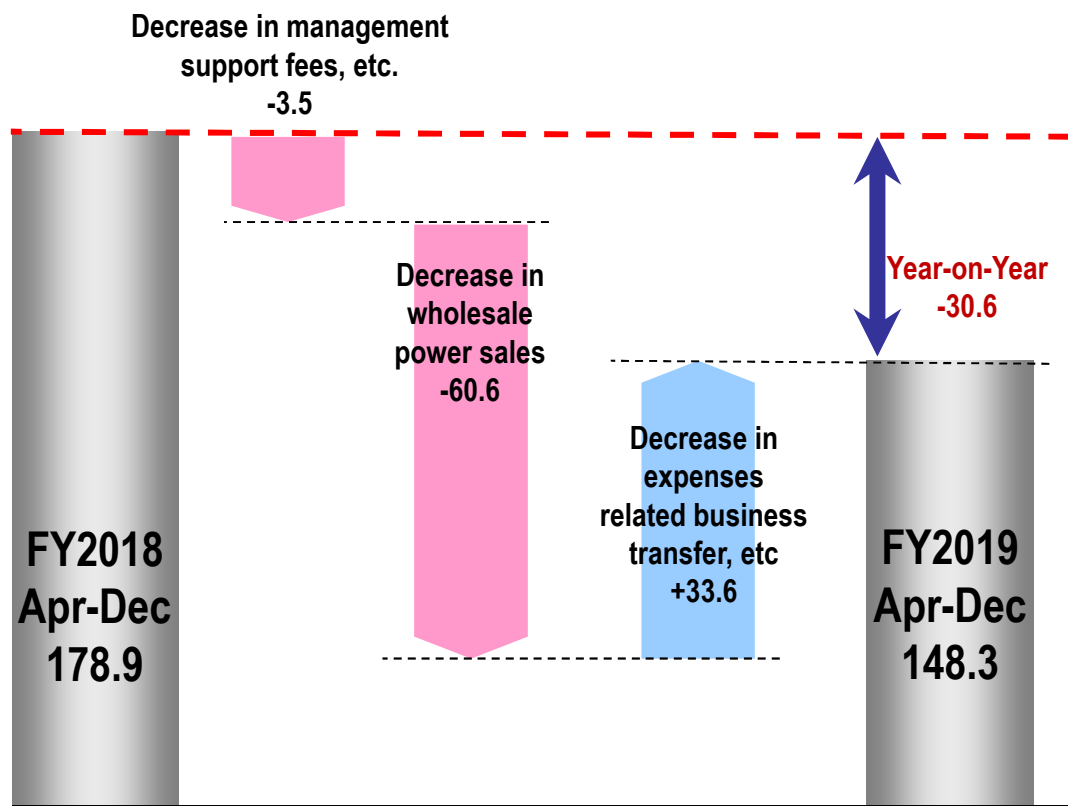


	FY2018 Apr-Dec (A)	FY2019 Apr-Dec (B)	(B)-(A)
Factors related to power supply and demand, and transmission revenue	1,642.8	1,417.2	-225.5
Retail and wholesale power sales	3,356.6	3,330.9	-25.6
(-) Electricity procurement expenses	-1,883.0	-2,112.0	-229.0
(-) Transmission expenses	-858.5	-828.2	+30.2
Transmission revenue	1,027.8	1,026.6	-1.1
Others	-1,397.7	-1,107.2	+290.4

※1 Expenses of retail and wholesale power sales include the effectiveness of indirect auction.
 ※2 Transmission expenses and transmission revenue exclude effectiveness of imbalance income/expense.

Ordinary Income/Loss

(Unit : Billion Yen)



Profit Structure

Profit is dividend income, decommissioning charges profit, management consultation fees, wholesale power sales of hydro and nuclear power, etc.

Flow Rate

	FY2018	FY2019	Comparison
Apr-Dec	98.2%	104.4%	+6.2%

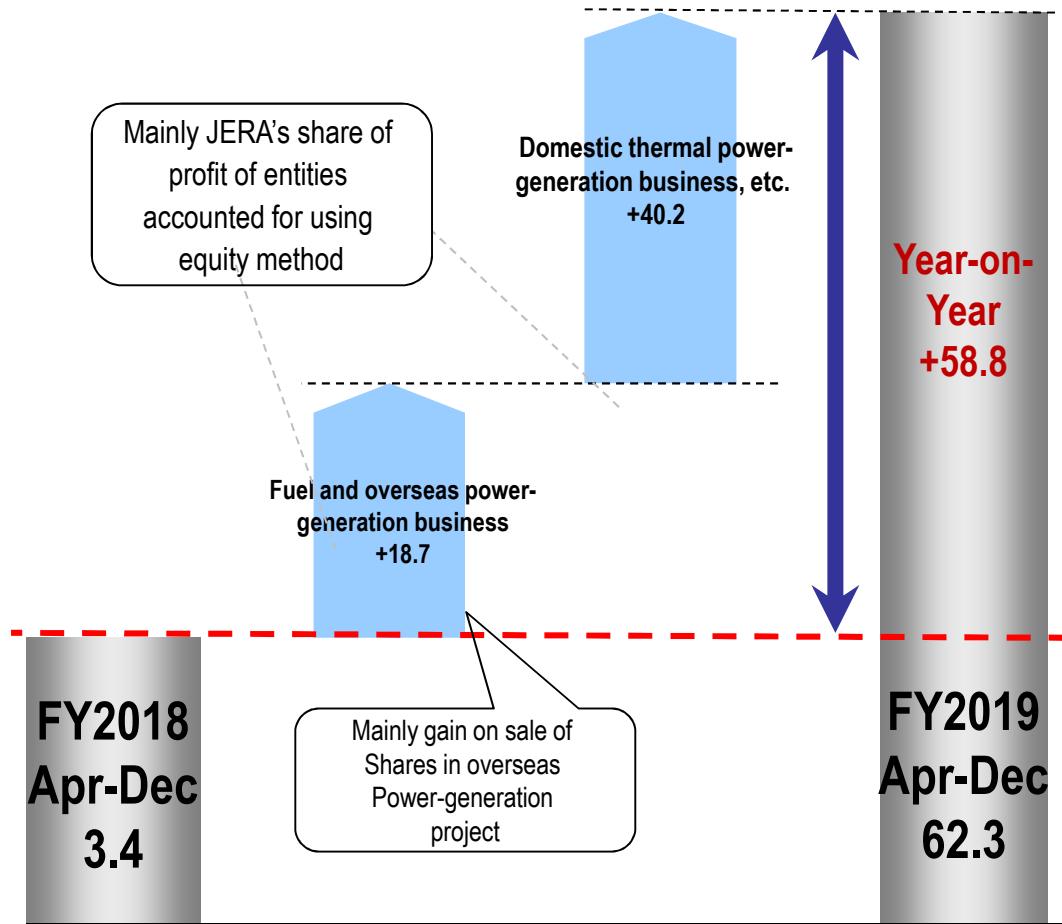
Ordinary Income

(Units: Billion Yen)

	FY2018	FY2019	Comparison
Apr-Jun	153.8	156.4	+2.5
Apr-Sep	173.4	162.3	-11.0
Apr-Dec	178.9	148.3	-30.6
Apr-Mar	232.7		

Ordinary Income/Loss

(Unit : Billion Yen)



Profit Structure

Main profit is JERA's share of profit of entities accounted for using equity method.
Power-generation business was transferred to JERA on April 1, 2019.

(Unit : Billion Yen)

Timing Impact (JERA equity impact)

	FY2019
Apr-Dec	+37.0

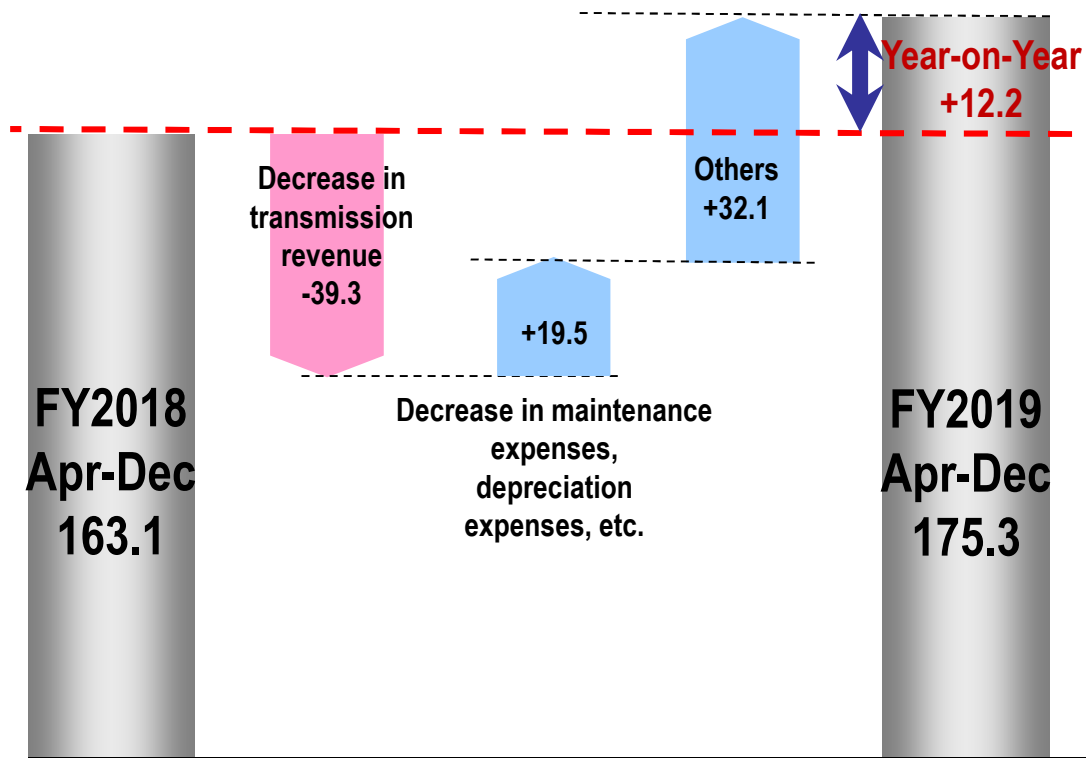
Ordinary Income

(Unit : Billion Yen)

	FY2018	FY2019	Comparison
Apr-Jun	22.4	45.8	+23.3
Apr-Sep	5.2	58.4	+53.2
Apr-Dec	3.4	62.3	+58.8
Apr-Mar	3.5		

Ordinary Income/Loss

(Unit : Billion Yen)



Profit Structure

Operating revenue is mainly transmission revenue, and this is fluctuated by area demand.
Expenses is mainly for repairs and depreciation of transmission and distribution facilities.

Area Demand

(Unit: Billion kWh)

	FY2018	FY2019	Comparison
Apr-Dec	201.4	198.6	-2.8

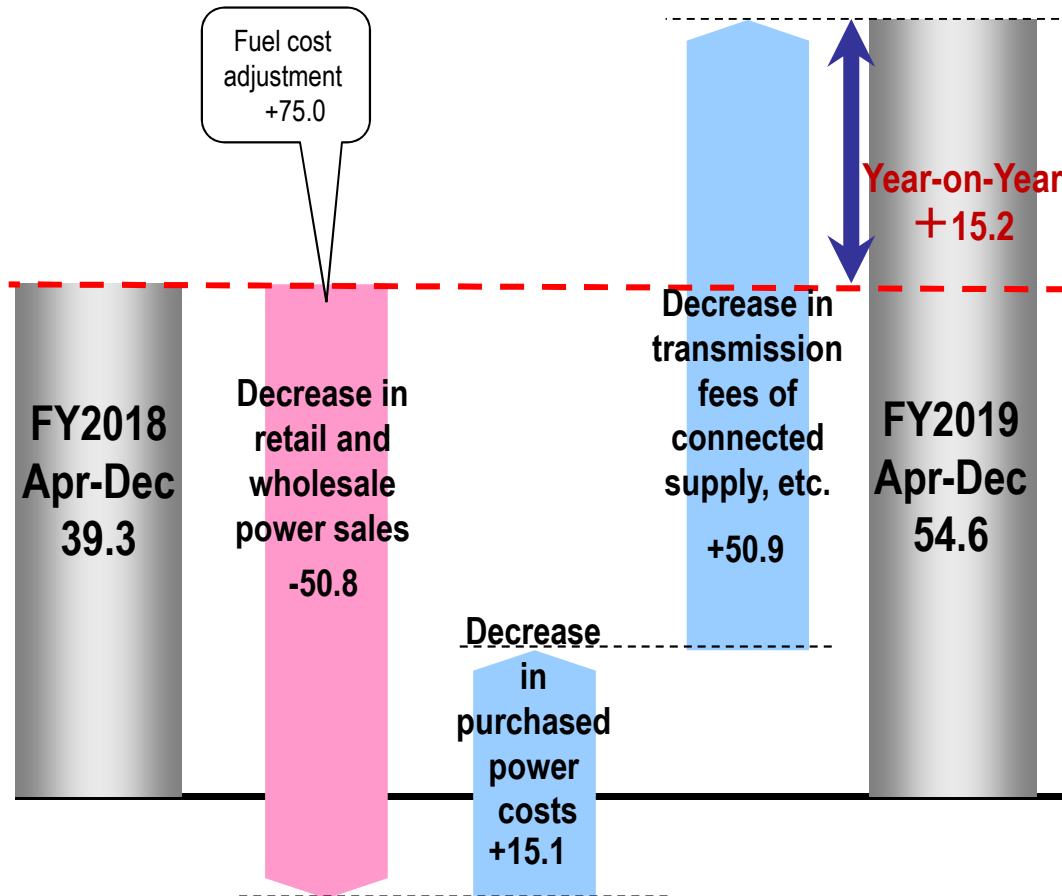
Ordinary Income

(Units: Billion Yen)

	FY2018	FY2019	Comparison
Apr-Jun	38.7	42.6	+3.8
Apr-Sep	117.0	119.9	+2.8
Apr-Dec	163.1	175.3	+12.2
Apr-Mar	113.9		

Ordinary Income/loss

(Units: Billion Yen)



Profit Structure

Operating revenue is mainly electricity sales revenue, and this is fluctuated by electricity sales volume. Expenses are mainly power purchasing costs and transmission fees of connected supply.

Electricity Sales Volume

(Unit: Billion kWh)

	FY2018	FY2019	Comparison
Apr-Dec	169.7	164.7	-5.0

Gas (including Nichi gas, TEA)

As of March 31, 2019	As of December 31, 2019
Approx. 1.25 million cases	Approx. 1.89 million cases

Ordinary Income

(Units: Billion Yen)

	FY2018	FY2019	Comparison
Apr-Jun	-8.3	-12.0	-3.6
Apr-Sep	54.1	43.4	-10.7
Apr-Dec	39.3	54.6	+15.2
Apr-Mar	72.7		

Supplemental Material

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FY2019 3rd Quarter Financial Results

Detailed Information

Consolidated Statements of Income

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(Unit: Billion Yen)

	FY2019	FY2018	Comparison	
	Apr-Dec (A)	Apr-Dec (B)	(A)-(B)	(A)/(B) (%)
Operating Revenue	4,637.9	4,553.2	84.7	101.9
Operating Expenses	4,390.8	4,292.7	98.0	102.3
Operating Income / Loss	247.1	260.4	-13.3	94.9
Non-operating Revenue	103.5	38.9	64.5	265.7
Investment Gain under the Equity Method	99.5	29.7	69.7	334.4
Non-operating Expenses	40.7	54.3	-13.6	75.0
Ordinary Income / Loss	309.9	245.1	64.8	126.5
Reserve for Fluctuation in Water Levels	—	-0.5	0.5	—
Reserve for Preparation of Depreciation of Nuclear Power Construction	0.2	0.1	0.0	124.0
Extraordinary Income	367.2	—	367.2	—
Extraordinary Loss	205.3	109.7	95.6	—
Income Tax, etc.	36.0	35.3	0.7	102.0
Net Income Attributable to Non-controlling Interests	0.7	-0.1	0.8	—
Net Income Attributable to Owners of Parent	434.8	100.5	334.3	432.6

Financial Impact of the Great East Japan Earthquake

15

(Unit: Billion Yen)

Item	FY2010 to FY2018	FY2019 Apr-Dec	Cumulative Amount
◇ Grants-in-aid from Nuclear Damage Compensation and Decommissioning Facilitation Corporation			
○ Grants-in-aid based on Nuclear Damage Compensation and Decommissioning Facilitation Corporation Act	*1 7,193.1	54.0	*2 7,247.2

Note: Journal Entry: Grants-in-aid receivable from Nuclear Damage Compensation and Decommissioning Facilitation Corporation is debited on the balance sheet.

*1 Numbers above are those after deduction of a governmental indemnity of 188.9 billion yen, and Grants-in-aid corresponding to decontamination expenses of 3,585.1 billion yen respectively.

*2 Numbers above are those after deduction of a governmental indemnity of 188.9 billion yen, and Grants-in-aid corresponding to decontamination expenses of 3,917.2 billion yen respectively.

◆ Breakdown of the restoration cost and others caused by the Great East Japan Earthquake (Extraordinary Income and Loss)

● Expenses and/ or losses for Fukushima Daiichi Nuclear Power Station Units 1 through 4	1,079.1	10.0	1,089.2
● Other expenses and/ or losses	381.9	0.0	381.9
Loss on Disaster Sub Total: (A)	1,461.0	10.1	1,471.2
○ Difference of the restoration cost caused by re-estimation due to decommissioning of Fukushima Daiichi Nuclear Power Station Units 5 and 6	32.0	—	32.0
○ Difference of the work cost caused by re-estimation due to decommissioning of Fukushima Daini Nuclear Power Station	—	113.5	113.5
Gain on reversal of provision for loss on disaster (Extraordinary Income) Sub Total: (B)	32.0	113.5	145.5
Total: (A)-(B)	1,429.0	-103.3	1,325.6

◆ Loss on Decommissioning

● Expenses and/ or losses for decommissioning of Fukushima Daiichi Nuclear Power Station Units 5 and 6	39.8	—	39.8
● Expenses and/ or losses for decommissioning of Fukushima Daini Nuclear Power Station	—	95.6	95.6

◆ Expenses for Nuclear Damage Compensation

● Compensation for individual damages - Expenses for radiation inspection, Mental distress, Damages caused by voluntary evacuations, and Opportunity losses on salary of workers etc.	2,070.6	-0.2	2,070.4
● Compensation for business damages - Opportunity losses on businesses, Damages due to the restriction on shipment, Damages due to groundless rumor and Package compensation etc.	3,045.3	48.2	3,093.5
● Other expenses - Damages due to decline in value of properties, Housing assurance damages and Decontamination costs etc.	5,845.1	366.1	6,211.2
● Amount of indemnity for nuclear accidents from the Government	-188.9	—	-188.9
● Grants-in-aid corresponding to decontamination expenses	-3,585.1	-332.1	-3,917.2
Total	7,187.0	81.9	7,269.0

Consolidated Balance Sheets

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(Unit: Billion Yen)

	Dec. 31	Mar. 31	Comparison	
	2019 (A)	2019 (B)	(A)-(B)	(A)/(B) (%)
Total Assets	12,046.4	12,757.4	-711.0	94.4
Fixed Assets	10,093.5	10,657.7	-564.1	94.7
Current Assets	1,952.8	2,099.7	-146.8	93.0
Liabilities	8,724.8	9,853.7	-1,128.8	88.5
Long-term Liability	4,704.5	4,766.2	-61.6	98.7
Current Liability	4,012.9	5,080.3	-1,067.4	79.0
Reserve for Preparation of the Depreciation of Nuclear Plants Construction	7.3	7.1	0.2	102.9
Net Assets	3,321.5	2,903.6	417.8	114.4
Shareholders' Equity	3,324.2	2,889.6	434.5	115.0
Accumulated Other Comprehensive Income	-19.2	-0.2	-18.9	—
Non-controlling Interests	16.5	14.2	2.2	116.0

<Interest-bearing debt outstanding>

(Unit: Billion Yen)

	Dec. 31	Mar. 31	(A)-(B)
	2019 (A)	2019 (B)	
Bonds	2,256.7	1,956.7	299.9
Long-term Debt	844.9	1,161.6	-316.6
Short-term Debt	1,947.7	2,772.3	-824.6
Total	5,049.5	5,890.7	-841.2

<Reference>

	FY2019	FY2018	(A)-(B)
	Apr-Dec (A)	Apr-Dec (B)	
ROA(%)	2.0	2.1	-0.1
ROE(%)	14.0	3.7	10.3
EPS(Yen)	271.40	62.73	208.67

ROA: Operating Income / Average Total Assets

ROE: Net Income attributable to owners of parent / Average Equity Capital

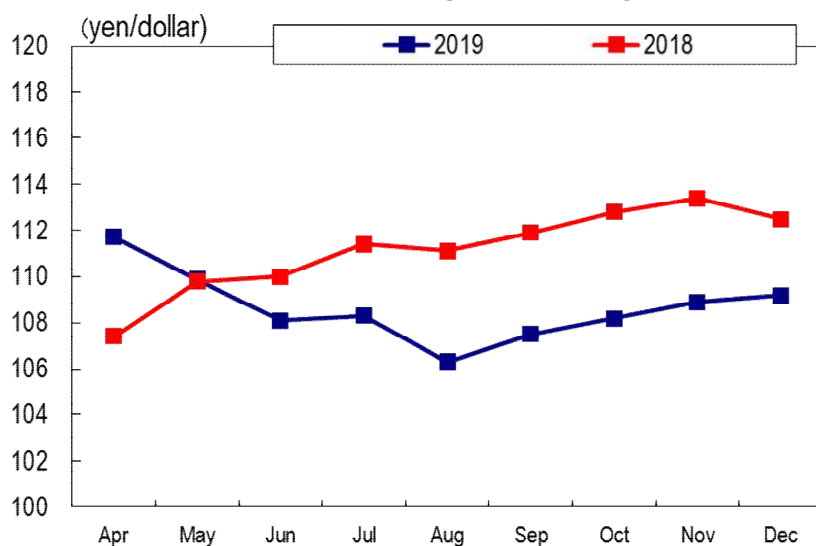
*On April 1st, 2019, TEPCO Fuel & Power Inc., succeeded its existing thermal power generation business to JERA Co., Inc. (50% investment by TEPCO Fuel & Power Inc., 50% investment by Chubu Electric Power Co., Inc.)

Key Factors Affecting Performance

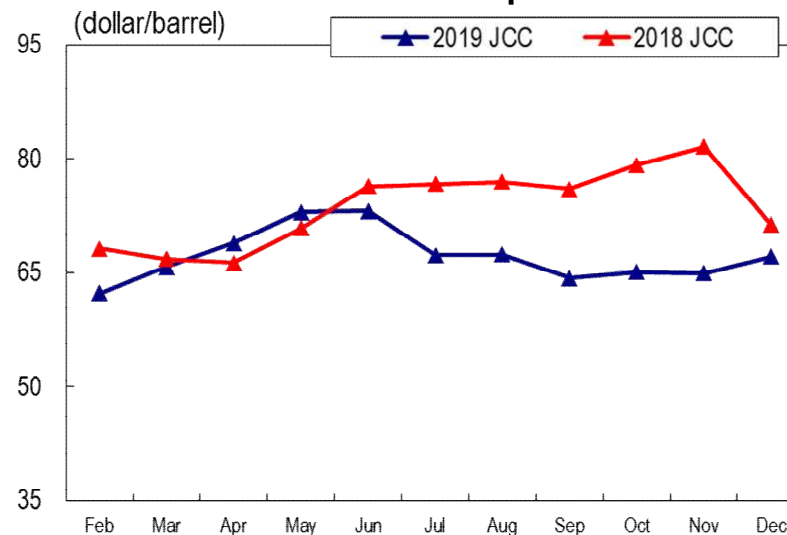
Key Factors Affecting Performance (Results)

	FY2019 Apr-Dec	FY2018 Apr-Dec	[Reference] FY2018
Electricity Sales Volume (Billion kWh)	164.7	169.7	230.3
Gas Sales Volume (Million ton)	1.44	1.18	1.77
Foreign Exchange Rate (Interbank; yen per dollar)	108.7	111.2	110.9
Crude Oil Prices (All Japan CIF; dollars per barrel)	67.8	75.1	72.1
Nuclear Power Plant Capacity Utilization Ratio (%)	-	-	-

<Fluctuation of Foreign Exchange Rate>



<Fluctuation of All Japan CIF>



Seasonal Breakdown of Electricity Sales Volume and Total Power Generated

Electricity Sales Volume

Unit: Billion kWh

	FY2019						[Ref.] Year-on-year Comparison	
	Apr-Sep	Oct	Nov	Dec	Oct-Dec	Apr-Dec	Oct-Dec	Apr-Dec
Lighting	32.25	4.92	4.82	5.92	15.66	47.91		
Power	79.53	12.92	11.99	12.38	37.29	116.81		
Total	111.78	17.84	16.81	18.30	52.95	164.73		
	FY2018						[Ref.] Year-on-year Comparison	
	Apr-Sep	Oct	Nov	Dec	Oct-Dec	Apr-Dec	Oct-Dec	Apr-Dec
Lighting	35.34	4.94	5.18	6.28	16.40	51.73	95.5%	92.6%
Power	80.74	12.69	12.07	12.48	37.24	117.97	100.1%	99.0%
Total	116.07	17.63	17.25	18.76	53.63	169.70	98.7%	97.1%

Total Power Generated

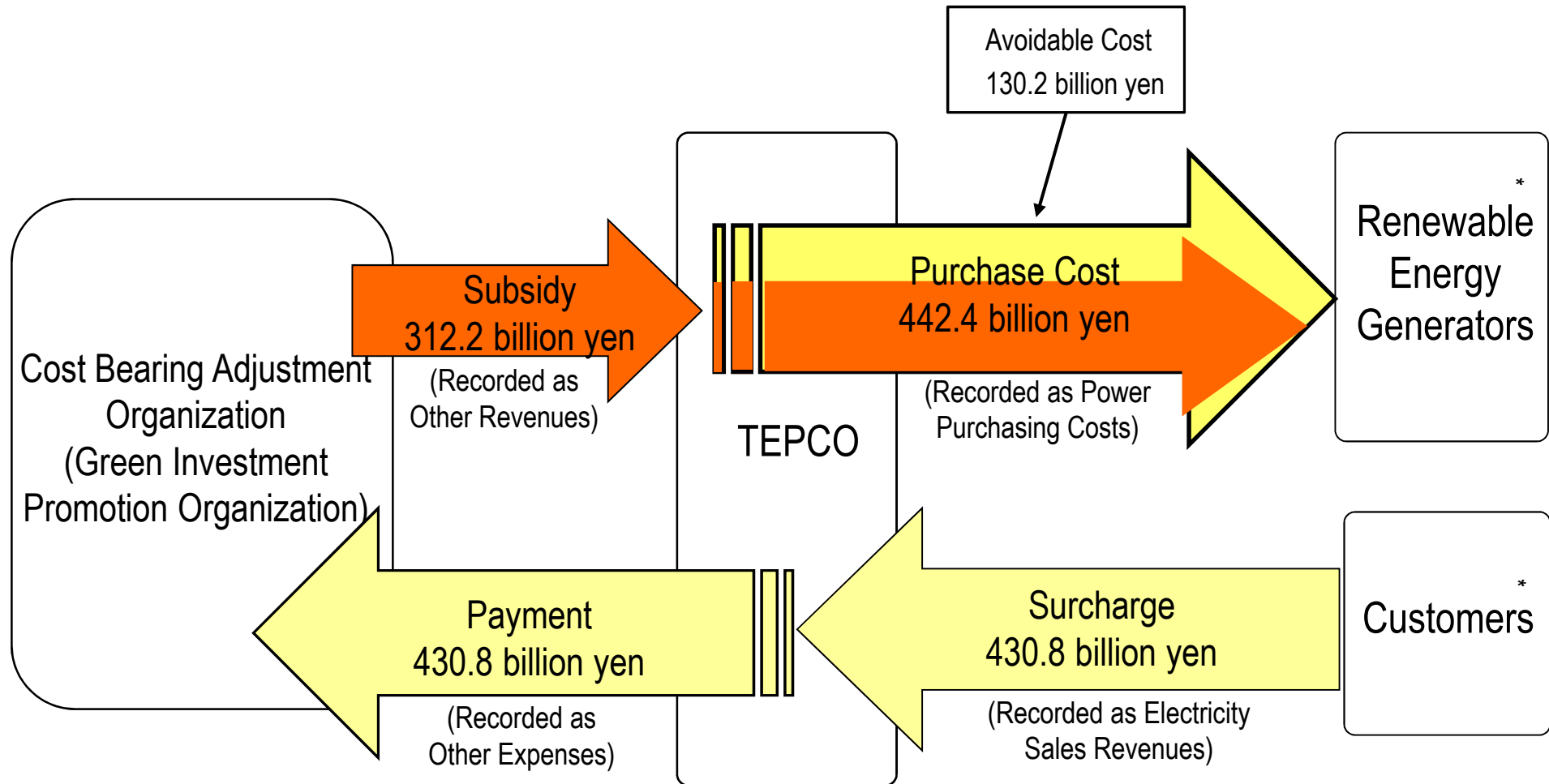
Unit: Billion kWh

	FY2019						[Ref.] Year-on-year Comparison	
	Apr-Sep	Oct	Nov	Dec	Oct-Dec	Apr-Dec	Oct-Dec	Apr-Dec
Hydroelectric	6.04	0.84	0.87	0.75	2.46	8.50		
Thermal	0.08	0.01	0.01	0.01	0.04	0.12		
Nuclear	-	-	-	-	-	-		
Renewable etc.	0.04	0.01	0.00	0.00	0.01	0.05		
Total	6.16	0.86	0.88	0.77	2.51	8.67		
	FY2018						[Ref.] Year-on-year Comparison	
	Apr-Sep	Oct	Nov	Dec	Oct-Dec	Apr-Dec	Oct-Dec	Apr-Dec
Hydroelectric	6.73	0.93	0.61	0.76	2.29	9.03	107.4%	94.2%
Thermal	88.82	13.40	13.65	16.66	43.71	132.53	0.1%	0.1%
Nuclear	-	-	-	-	-	-	-	-
Renewable etc.	0.04	0.00	0.00	0.00	0.01	0.06	111.9%	86.9%
Total	95.60	14.33	14.25	17.42	46.01	141.61	5.5%	6.1%

*On April 1st, 2019, TEPCO Fuel & Power Inc., succeeded its existing thermal power generation business to JERA Co., Inc. (50% investment by TEPCO Fuel & Power Inc., 50% investment by Chubu Electric Power Co., Inc.)

Feed-in Tariff Scheme for Renewable Energy (Purchase Cost Collection Flow)

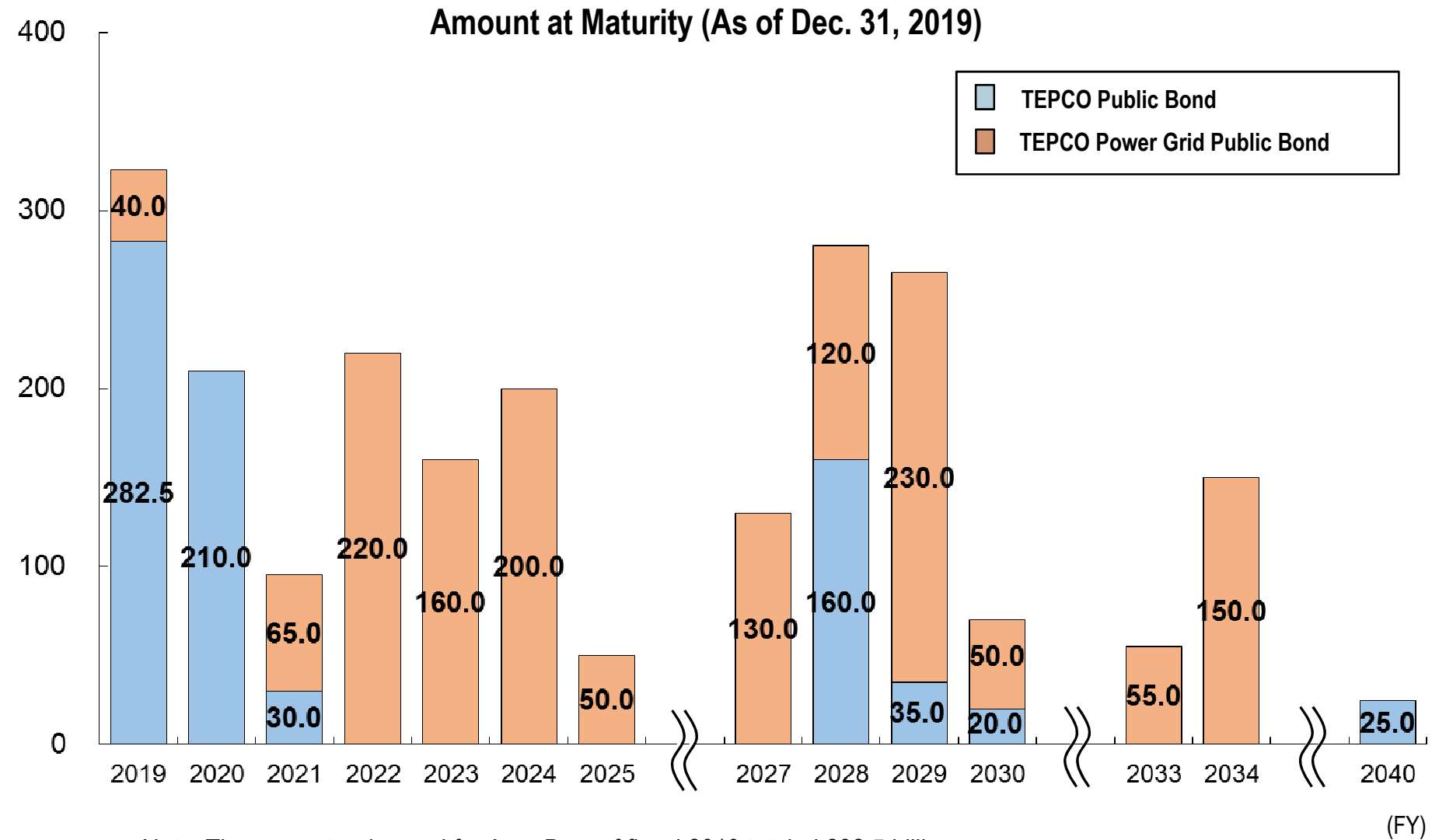
(FY2019 Apr.- Dec.)



* Including TEPCO Group Companies

Schedules for Public Bond Redemption

(Billion Yen)



Note: The amount redeemed for Apr.- Dec. of fiscal 2019 totaled 232.5 billion yen.

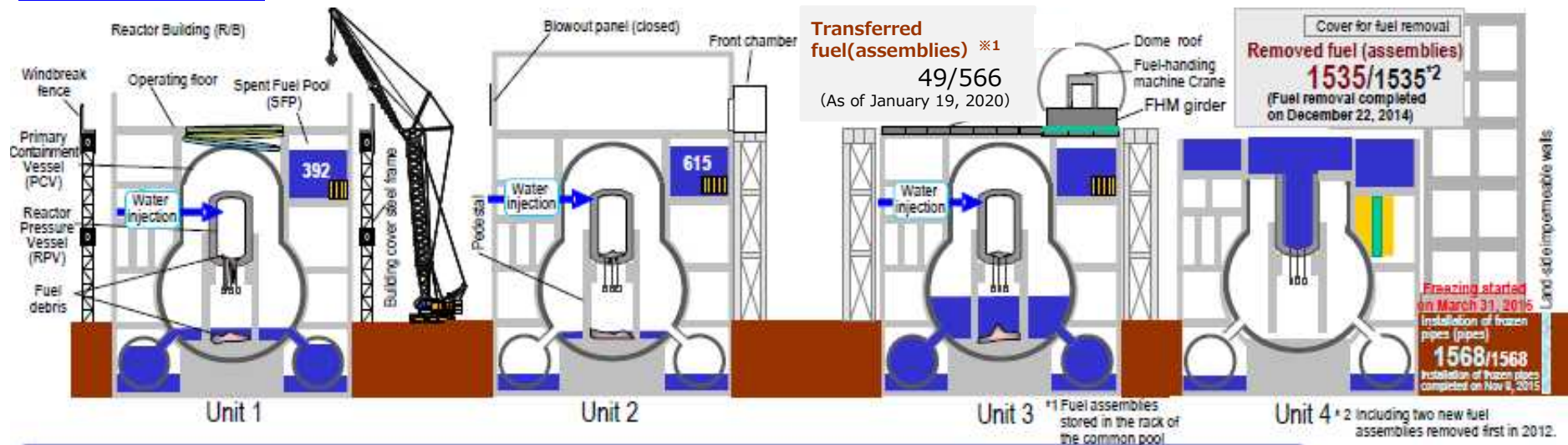
The Current Status of Fukushima Daiichi Nuclear Power Station and Future Initiatives

Current Situation and Status of Units 1 through 4

- At Units 1, 2 and 3, it was evaluated that the comprehensive cold shutdown condition had been maintained, judging from the temperatures of the reactors and spent fuel pools as well as the density of radioactive materials. To facilitate the removal of spent fuel, preparation works are underway.
- The Mid-and-Long-Term Roadmap was revised and unit 2 was evaluated that it is suitable for the first implementing unit for fuel debris retrieval.

Current Situation

✓ Please visit our website for latest information about the progress of decommissioning, etc.



<p>Works towards removal of spent fuel and fuel debris</p>	<p>[Spent fuel removal]</p> <ul style="list-style-type: none"> Started removing rubble on the north side of the operating floor from January 2018; work is progressing steadily. Based on investigation results that revealed the status of the fallen roof on the south side (Unit 3 side) and the contamination status of the well plug, "the method to initially install a large cover over the Reactor Building and then remove rubble inside the cover" was selected to ensure a safer and more secure removal. <p>[Fuel debris removal]</p> <ul style="list-style-type: none"> Installed a work monitoring dust monitor near the PCV top lid in November 2019 to strengthen dust concentration monitoring near the PCV. 	<p>[Spent fuel removal]</p> <ul style="list-style-type: none"> Based on findings from internal operating floor investigations from November 2018 to February 2019, instead of fully dismantling the upper part of the building, the decision was made to install a small opening on the south side and use a boom crane. <p>[Fuel debris removal]</p> <ul style="list-style-type: none"> The characteristics of the debris acquired by the contact investigation in February 2019 and , the status of improvement in the environment on the 1st floor of the Reactor Building for access to PCV and the engineering works with these results taken into consideration and Unit 2 was evaluated that it is suitable for the first implementing unit for fuel debris retrieval. As the method, to determine, a trial retrieval using a robot arm will begin. After verifying and checking this retrieval method, the scale will be gradually expanded using equipment with the same mechanism. 	<p>[Spent fuel removal]</p> <ul style="list-style-type: none"> Measures were implemented for defects detected during the preparatory work toward resumption of fuel removal and operation was checked using dummy fuel. However, interference of cans inside the transportation cask and dummy fuel was identified. Though the following investigation confirmed slight leaning of the FHM mast, measures, including a review of the procedures, will be implemented to complete fuel removal within FY2020. <p>[Fuel debris removal]</p> <ul style="list-style-type: none"> Analyzing the image data obtained from the pedestal internal survey of July 2017, damage of multiple structures and the structures assumed as core internals, is confirmed. The review of fuel extraction will be continued based on the obtained information. 	<p>[Spent fuel removal]</p> <ul style="list-style-type: none"> Fuel removal from the SFP was completed in December, 2014.
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Key points of the revised “the Mid-and-Long-Term Roadmap”

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● Please visit the company webpage for the revised Mid-and-Long-Term Roadmap.

- ✓ **Setting out a basic principle of “coexistence of reconstruction and decommissioning”**, while there has been gradual progress of **residents’ return and reconstruction efforts** in surrounding area.
(giving priority on early risk reduction and ensuring safety)
 - **Coexist with local communities.**
 - **“Optimize the whole decommissioning tasks”**, by reviewing the work process of 10 years.
- ✓ **Total period of decommissioning is unchanged: “within 30-40 years”**

① Fuel debris retrieval



Determine first implementing Unit and the method for fuel debris retrieval.

Start trial retrieval at Unit 2 within 2021, by partial submersion method and side access

The scale of the retrieval will be gradually enlarged.

② Fuel removal from pool



Change in the methods to suppress the dust dispersion at Unit 1 and 2

Postpone fuel removal for 4-5 years at Unit 1, and **for 1-3 years at Unit 2**

Aim at the completion of fuel removal from all Units 1-6, within 2031

③ Contaminated water countermeasures

- The volume of contaminated water generated has been significantly suppressed.

(540m³/day (May 2014) → 170m³/day (average of FY2018))



Keep current target of reducing the contaminated water generation **to 150m³/d within 2020.**

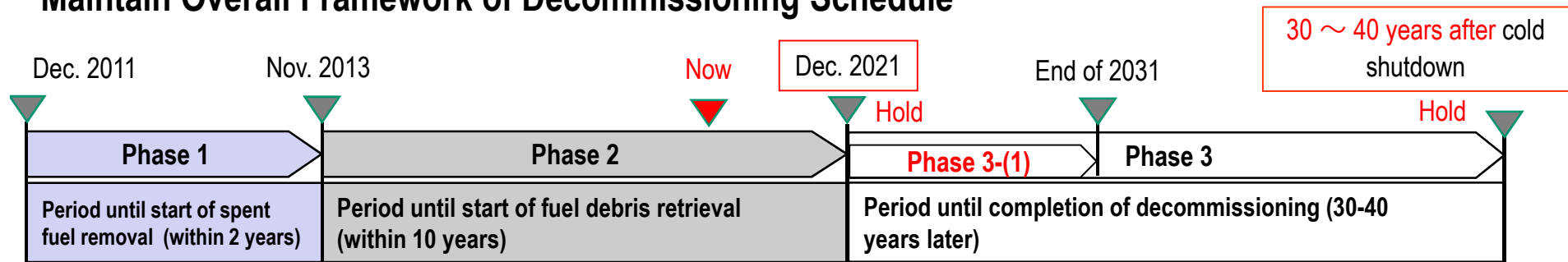
Set new target of reducing the contaminated water generation **to 100m³/d within 2025.**

* Handling of ALPS treated water will be continuously discussed in a comprehensive manner

【Source】Decommissioning/contaminated water countermeasures Fukushima Council Meeting Materials (December 27, 2019)

Major milestones of Mid-and-Long-Term Roadmap

Maintain Overall Framework of Decommissioning Schedule



Major milestones

			Roadmap (Sept. 2017)	Revised Roadmap	
Contaminated water management	Reduce to about 150 m ³ /day <u>Reduce to about 100m³/day or less</u>	} Further reduction of generation	Within 2020 —	Within 2020 <u>Within 2025</u>	<u>NEW</u>
	Stagnant water treatment Complete stagnant water treatment in buildings* <u>Reduce the amount of stagnant water in buildings to about a half of that in the end of 2020</u>		Within 2020 —	Within 2020(*) <u>FY2022 - 2024</u>	<u>NEW</u>
Fuel removal	<u>Complete of fuel removal from Unit 1-6</u>	} Methods have changed to ensure safety and prevent dust scattering	—	<u>Within 2031</u>	<u>NEW</u>
	<u>Complete of installation of the large cover at Unit 1</u>		—	<u>Around FY2023</u>	<u>NEW</u>
	Start fuel removal from Unit 1 Start fuel removal from Unit 2		Around FY2023 Around FY2023	<u>FY2027 – 2028</u> <u>FY2024 - 2026</u>	<u>REVISED</u> <u>REVISED</u>
Fuel debris retrieval	Start fuel debris retrieval from the first Unit <u>(Start from Unit 2, expanding the scale gradually)</u>		Within 2021	Within 2021	
Waste management	Technical prospects concerning the processing/disposal policies and their safety		Around FY2021	Around FY2021	
	<u>Eliminating temporary storage areas outside for rubble and other waste</u>		—	<u>Within FY2028</u>	<u>NEW</u>

※ Excluding the reactor buildings of Units 1-3, process main buildings, and High temperature incineration building.

【Source】 Decommissioning/contaminated water countermeasures Fukushima Council Meeting Materials (December 27, 2019)

- In December 2013, the government's Nuclear Disaster Response Headquarters arranged a set of preventative and multi-tiered measures based on the three basic policies for addressing contaminated water issues.

<Main countermeasures>

Eliminate contamination sources

- Multi-nuclide removal equipment, etc.
- Remove contaminated water from the trench

Isolate water from contamination

- Pump up groundwater by groundwater bypass
- Pump up groundwater near buildings
- Land-side frozen impermeable walls
- Waterproof pavement

Prevent leakage of contaminated water

- Enhance soil by adding sodium silicate
- Sea-side impermeable walls
- Increase the number of (welded-joint) tanks

Treatment of stagnant water in buildings

- The work to circulate and purify stagnant water inside the buildings started on the Units 3/4 side in February 2018 and on the Units 1/2 side in April 2018.

< Major Progress >

✓ Please visit our website for the latest information.

Subdrain operation

- Groundwater pumped up through wells near reactor building (Subdrain system) are discharged after purification by dedicated facilities and quality test. (A cumulative total of 523,022 tons of groundwater has been discharged as of 00:00 on January 21, 2020).
- Construction work for reinforcement and restoration of the subdrain pit is being conducted so that pumping amount of the subdrain can be stably secured. The reinforced pits began to be used, starting from pits whose construction work was completed. In regard to the restored pits, construction work planned for 3 pits has been completed and the pits began to be used on December 26, 2018.

Land-side frozen impermeable walls

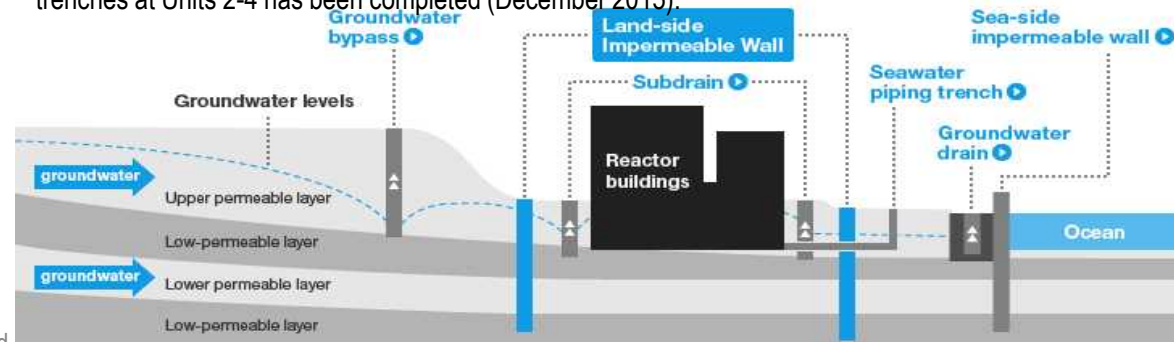
- In March 2018, the land-side impermeable walls were considered completed as the underground temperature had declined below 0°C in almost all areas.
- The Committee on Countermeasures for Contaminated Water Treatment clearly recognized the effect of the land-side impermeable walls to shield groundwater and confirmed that a water-level management system, including the functions of subdrains, etc., to stably control groundwater and isolate the buildings from groundwater had been established.
- Investigations and countermeasures will be conducted to further reduce the generated contaminated water.

Sea-side impermeable walls

- On October 26, 2015, the seaside impermeable walls were completed to be closed.

Removal of contaminated water in trenches

- The work to remove approx. 10,000 tons of contaminated water from seawater pipe trenches and fill the trenches at Units 2-4 has been completed (December 2015).



The Current Status of Kashiwazaki-Kariwa Nuclear Power Station and Future Initiatives

Main Measures to Secure Safety – 1 [Outline]

- ◆ We promote the following measures to secure further safety after the Great East Japan Earthquake.

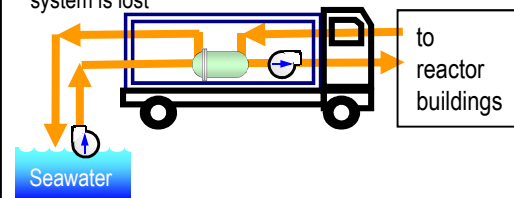
I. Installation of flooding embankment [banks]

- Install flooding embankment (banks) to prevent Tsunami from invading the site and to protect light oil tanks, buildings and other facilities in the power station



III. Further enhancement of heat removal and cooling function

- (5) Installation of alternative submerged pumps and seawater heat exchanging system
- Install alternative submerged pumps and other equipments to continue to operate residual heat removal system even if cooling function of sea water system is lost

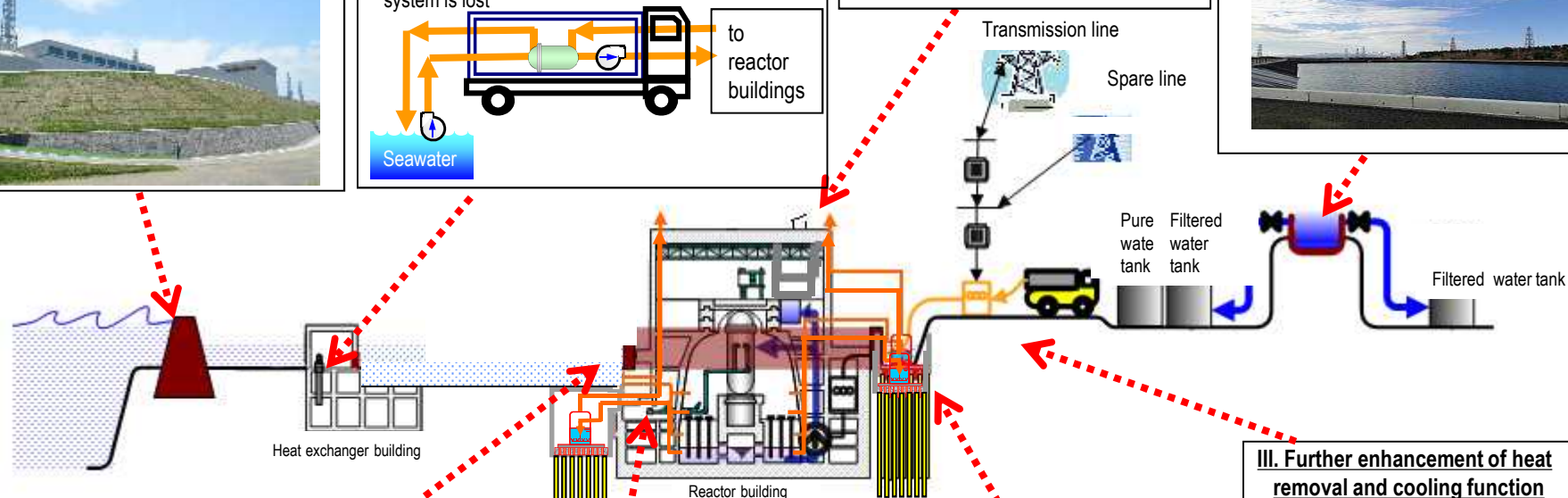


III. Further enhancement of heat removal and cooling function

- (8) Installation of top venting on reactor buildings
- Install top venting system to prevent hydrogen from piling up in a reactor buildings

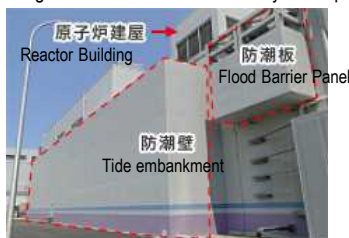
III. Further enhancement of heat removal and cooling function

- (1) Installation of water source
- Install a freshwater reservoir in the power station to secure stable supply of coolant water for reactors and spent fuel pools



II. Countermeasures against Inundation into buildings

- (1) Installation of tide embankments (flood barrier panel included)
- Install tide embankments around reactor buildings containing critical equipments in order to prevent Tsunami from damaging power facilities and emergency diesel generators and to secure safety of the power plant



II. Countermeasures against Inundation into buildings

- (2) Installation of water tight doors
- Install water tight doors at reactor buildings and turbine buildings to protect equipments from water

III. Further enhancement of heat removal and cooling function

- (12) Installation of warehouses for emergency on high ground
- Install a warehouse for equipments and materials for emergency in case of Tsunami

III. Further enhancement of heat removal and cooling function

- (7) Installation of filtered vent
- Control of radioactive pollution emitted upon containment vessel venting
 - Installation of underground filtered vent for backfitting

III. Further enhancement of heat removal and cooling function

- (11) Additional environment monitoring equipments and monitoring cars
- Prepare additional monitoring cars to continuously measure radiation dose at the site

III. Further enhancement of heat removal and cooling function

- (3) Deployment of gas turbine generators and power supply cars
- Deploy gas turbine generators and power supply cars to ensure that power can be supplied and the residual heat removal system pump operated in a blackout.
- (4) Installation of high voltage power distribution board for emergency and permanent cables for reactor buildings
- Install high voltage power distribution board for emergency and permanent cables for reactor buildings to secure power supply in case of station black out (losing all AC power), and to secure stable supply of power to residual heat removal system

Main Measures to Secure Safety - 2 [Implementation Status]

As of January 8, 2020

Item	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
I . Installation of flooding embankment [banks]	Completed *2				Completed		
II . Countermeasures against inundation into buildings							
(1) Installation of tide embankments (flood barrier panel included)	Completed	Completed	Completed	Completed	All closed under 15 meters above sea level		
(2) Installation of water tight doors on reactor buildings, etc.	Completed	Under consideration	Under construction	Under consideration	Completed	Completed	Completed
(3) Countermeasures against inundation into heat exchanger buildings	Completed	Completed	Completed	Completed	Completed	-	
(4) Installation of tide barriers for switching stations*1	Completed						
(5) Reliability improvement of inundation countermeasures (countermeasures against flooding inside buildings)	Under construction	Under consideration	Under construction	Under consideration	Under construction	Under construction	Under construction
III . Further enhancement of heat removal and cooling function							
(1) Installation of water source	Completed						
(2) Installation of storage water barrier	Completed	Under consideration	Under consideration	Under consideration	Completed	Completed	Completed
(3) Deployment of gas turbine generators and power supply cars	Completed					Under construction	Under construction
(4)-1 Installation of high voltage power distribution board for emergency	Completed						
(4)-2 Installation of permanent cables for reactor buildings	Completed	Completed	Completed	Completed	Completed	Completed	Completed
(5) Installation of alternative submerged pumps and seawater heat exchanging system	Completed	Completed	Completed	Completed	Completed	Completed	Completed
(6) Installation of alternative high pressure water injection system	Under construction	Under consideration	Under consideration	Under consideration	Under construction	Under construction	Under construction
(7) Installation of aboveground filter vent	Under construction	Under consideration	Under consideration	Under consideration	Under construction	Under construction	Under construction
(8) Installation of top venting on reactor buildings*1	Completed	Completed	Completed	Completed	Completed	Completed	Completed
(9) Installation of hydrogen treatment system in reactor buildings	Completed	Under consideration	Under consideration	Under consideration	Completed	Completed	Completed
(10) Installation of facilities to fill water up to the top of containment vessels	Completed	Under consideration	Under consideration	Under consideration	Completed	Completed	Completed
(11) Additional environment monitoring equipment and monitoring cars	Completed						
(12) Installation of warehouses for emergency on high ground*1	Completed						
(13) Improvement of earthquake resistance of pure water tanks on the Ominato side*1	-				Completed		
(14) Installation of large-capacity water cannons, etc.	Completed						
(15) Multiplexing and reinforcing access roads	Completed				Under construction		
(16) Environmental improvement of the seismic isolated building	Under construction						
(17) Reinforcement of the bases of transmission towers*1 and earthquake resistance of the switchboards*1	Completed						
(18) Installation of tsunami monitoring cameras	Under construction				Completed		
(19) Installation of Corium Shield	Under consideration	Under consideration	Under consideration	Under consideration	Under consideration	Completed	Completed

*1 TEPCO's voluntary safety measures *2 Additional measures are under consideration

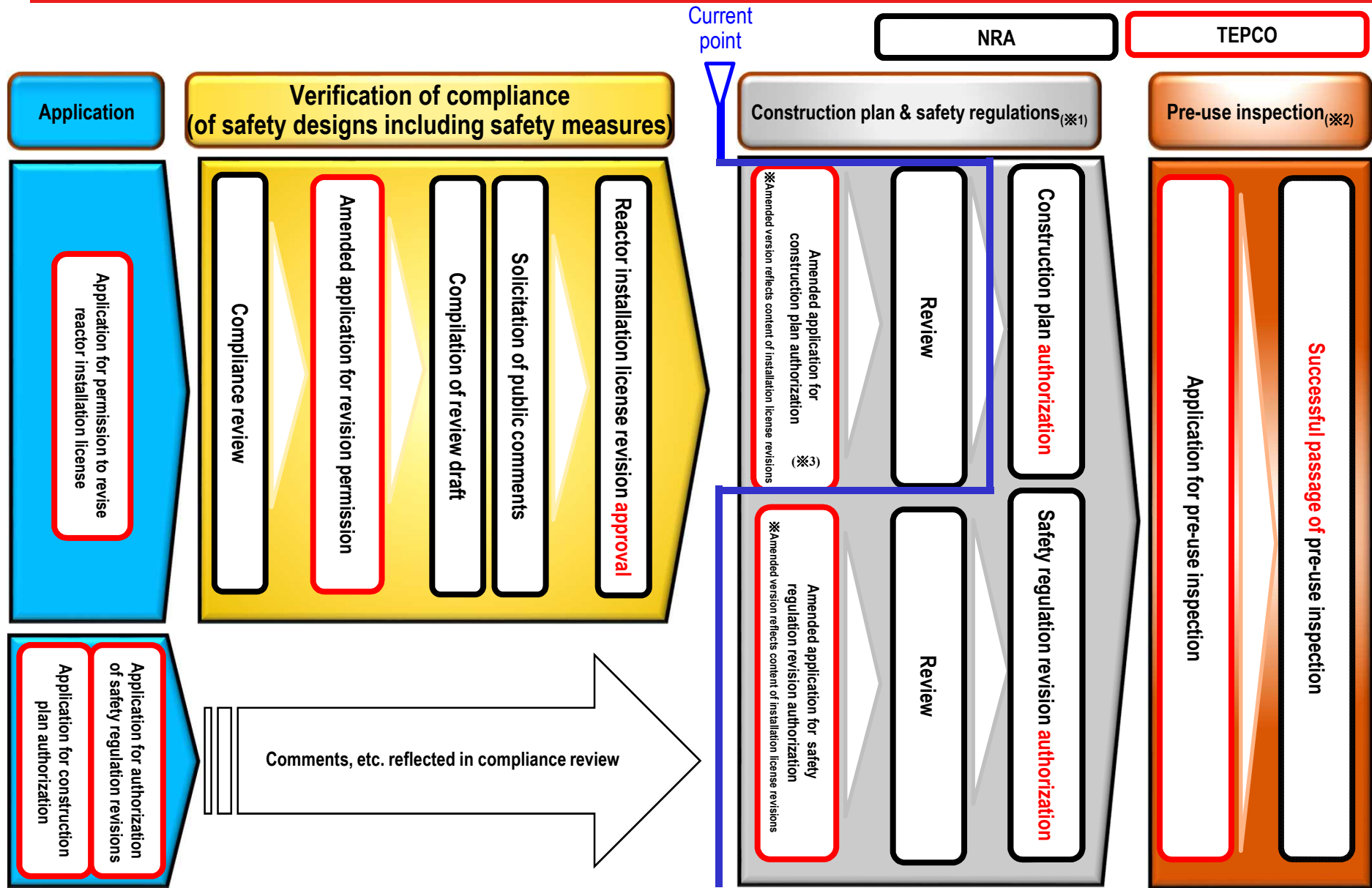
Latest Review Status

- On September 27, 2013, the applications for permission changes in reactor installation were presented to receive the regulatory standard compliance examination for Units 6 and 7.
- After the application for permission changes in reactor installation was presented, amended applications for revision of the reactor installation license, which reflect changes sought as discussed review meetings held, were submitted to the Nuclear Regulation Authority (NRA) on June 16, August 15, September 1 and December 18, in 2017.
- On December 27, 2017, the NRA approved TEPCO's application for revision of its reactor installation license.
- Amended application for authorization of a construction plan (first) for Unit 7 was submitted on December 13, 2018.
- Amended application for authorization of a construction plan (second) for Unit 7 was submitted on July 5, 2019.

Upcoming Reviews

- The pending amended applications for authorization of a construction plan and authorization of safety regulation revision will be submitted as soon as preparations are complete (submission time is unknown at present).

Key License/Permit Steps in Enforcement of New Regulatory Requirements



※1: Basic matters for safety of a nuclear power plant are stated, which an operator must observe.

※2: Inspection conducted by the central government to verify that construction has been carried out in the manner determined by the construction plan.

※3: Amended application for authorization of a construction plan (partial) was submitted

Other Initiatives

- ✓ JERA is participating in “Formosa 1”, Taiwan’s first commercial offshore wind power generation project that started commercial operation in December 27, 2019 (total output: 128 MW). JERA has also entered into an agreement with Macquarie Capital (Australia) to acquire an equity interest in additional offshore wind power generation project “Formosa 2” which has a total output of 376 MW.
- ✓ JERA will contribute to realizing long-term and stable operation of the wind farm, leveraging strengths such as strong relationships with stakeholders and knowhow in addition to its construction, operation, and maintenance technology and knowledge developed through its thermal power generation business.
- ✓ JERA will continue to invest in large offshore wind power generation businesses domestic and abroad to lead the clean energy economy.

	Formosa 1	Formosa 2
Investors (share ratio)	Ørsted (35%) Macquarie(25%) Swancor(7.5%) JERA (32.5%)	Macquarie(26.0%) Swancor(25.0%) JERA (49.0%)
Location	Approx. 2-6 km off the coast of Miaoli Country, Taiwan	Approx. 4-10 km off the coast of Miaoli Country, Taiwan
Capacity	128 MW	376 MW
No. of generators	22 units	47 units
Commercial operation	End of 2019(Target) Except for 2 units that started operations in April 2017, with generating output of 8MW	End of 2021 (Target)

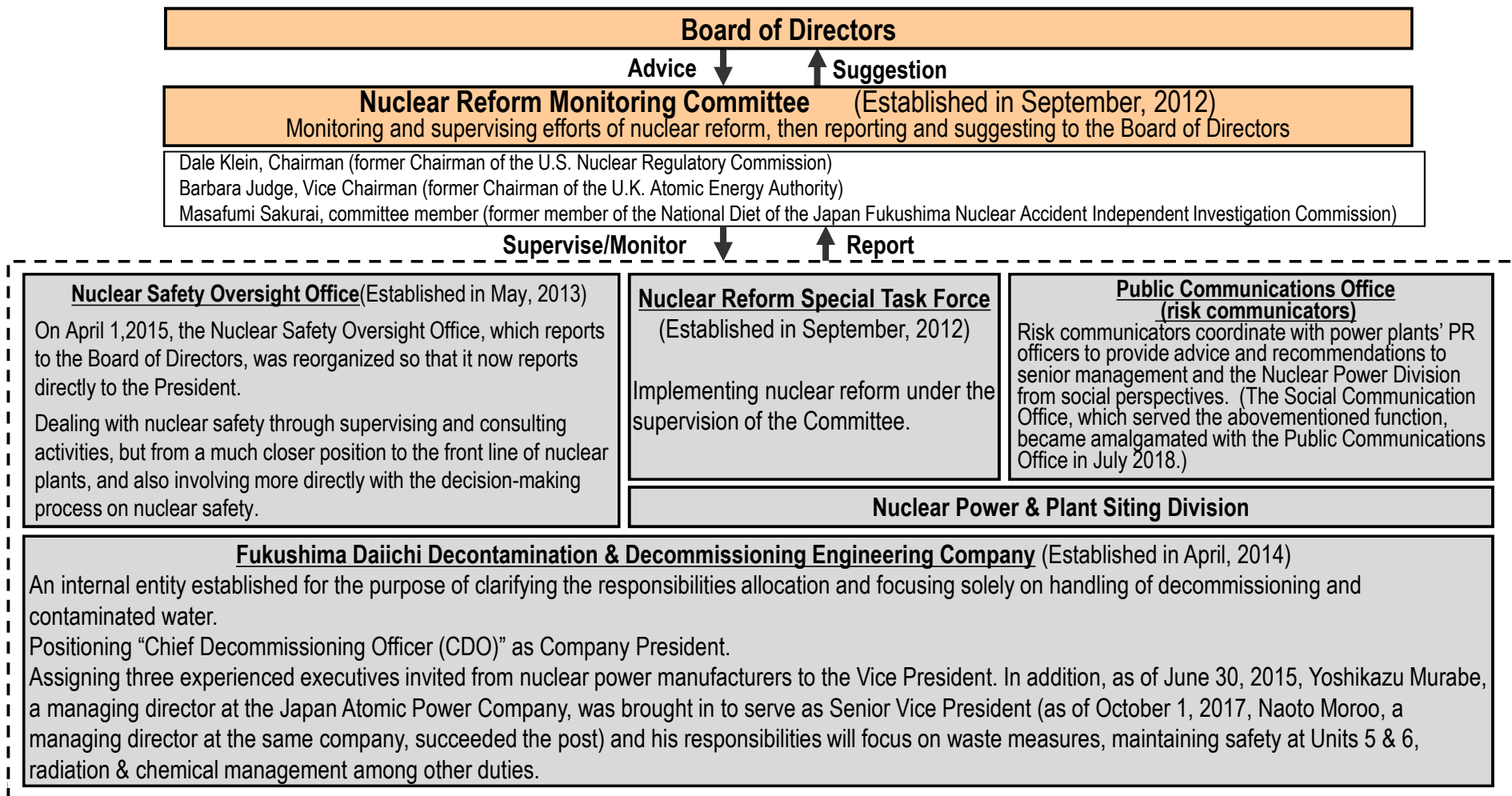


Efforts towards Nuclear Reform - 1

- Framework for Nuclear Reform

- Since April 2013, TEPCO has advanced the Nuclear Safety Reform Plan so that it may realize its determination that “the Fukushima nuclear accident will never be forgotten and we will be a nuclear operator which continues to create unparalleled safety and increase the level of that safety to be greater today than yesterday and still greater tomorrow than today.”
- The Mid-and-Long-Term Roadmap for decommissioning Fukushima Daiichi NPS was revised in September 2017 and permission received to revise the reactor installation license for Kashiwazaki-Kariwa NPS Units 6 & 7. TEPCO will now reassess its plans to take into account items pointed out and suggested by the Nuclear Reform Monitoring Committee and faithfully implement these items.

<Framework for Nuclear Reform>



Efforts towards Nuclear Reform – 2

- Report on Status of the Nuclear Safety Reform Plan

- ✓With respect to the Nuclear Safety Reform Plan, in addition to measures to make up for the inadequacies in "safety awareness", "interaction capabilities", "technical capabilities" that were the underlying factors of the accident, and to enhance these factors, initiatives for strengthening the governance across the organization are being undertaken as well.
- ✓The World Association of Nuclear Operators (WANO) conducted a Corporate Peer Review (in which a review team of nuclear experts with a plethora of experience around the world examined our facilities and organizations with a critical eye) to assess the performance of the entire Nuclear Power Division (with a focus on Headquarter functions). We recognized areas for further improvement.

Recent main initiatives, etc. ※	
Initiatives for strengthening governance	<ul style="list-style-type: none"> - In order to become an organization with the world's highest level of safety, each CFAM (Corporate Functional Area Manager) and SFAM (Site Functional Area Manager) develop the focused self-assessment plan (2-year plan) and perform the self-assessment for areas defined in the management model - A year and a half has passed since the introduction of the Management Model and even though the objective was to carry out the Safety Reform Plan we are aware that, "current CFAM activities are not completely effective," and "the objective of the Management Model and the ideal state that it aims to achieve have still not sufficiently permeated throughout personnel at Headquarters and power stations." In order to rectify this situation, we held an intensive meeting for CFAM and other related parties on July 31 and August 16. In addition to CFAM, SFAM supervisors from each power station and the Higashidori Nuclear Power Station Construction Site Superintendent (who has declared to also engage in SFAM supervisor duties for the construction site) participated in the meeting and discussed the factors that are hindering CFAM activities, how to overcome these hindrances, and what is necessary to make these activities completely effective.
Initiatives for enhancing safety awareness	<ul style="list-style-type: none"> - To ensure that future generations understand the importance of fulfilling our responsibilities with respect to Fukushima, we have been holding training to convey to all employees the facts and lessons learned from the Fukushima Nuclear Accident since July 2018. As of the end of the second quarter, 16,210 employees(53% of all employees) have participated in this training. - On August 29 of every year we engage in "8.29 Rehabilitation Day" activities during which we look back upon the scandal of 2002. On the 2019 "Rehabilitation Day", messages from nuclear leaders as well as moral discourse by directors and executives were used to directly engage employees, and group discussions to promote understanding through opinion exchange were carried out to reaffirm awareness about never letting scandals happen again, using not only the Fukushima Nuclear Accident but also lessons learned from the past as educational materials to improve safety awareness.
Initiatives for enhancing interaction capabilities	<ul style="list-style-type: none"> -The Niigata Headquarters has created virtual-reality content that introduces the safety measures, etc. being implemented at Kashiwazaki-Kariwa and is using that content at Kashiwazaki-Kariwa Service Hall and communication booths in various locations. Since many people that have seen the content have commented that "it's important to get more people to see this," we have set up a special page on our website entitled "KKVR Visit the Kashiwazaki-Kariwa Nuclear Power Station in a virtual reality!" - On July 5, 2019, the President of the Fukushima Daiichi Decontamination & Decommissioning Engineering Company (CDO) visited Fukushima University to talk to new students who will bear the future of recovery in Fukushima and explained decommissioning initiatives, etc. Participants made comments such as: "I have a clearer understanding of future recovery in Fukushima now that I understand the decommissioning process," etc.
Initiatives for enhancing technical capabilities	<ul style="list-style-type: none"> - In order to support those preparing for the oral portion of the senior reactor engineer exam (secondary exam), booklets of past test problems have been distributed and opportunities are being provided to engage in mock oral exams in-house. As a result of such support measures, the number of people that have passed the exam over recent years has increased with six people passing this fiscal year. - In the Operations Division, operators are sent to domestic pressurized water reactor (PWR) plants in operation during "real reactor training" so that they can directly experience and cultivate a sense of what it feels like to work at a plant in operation as part of efforts to improve the technological capability of operators. During the second quarter operators from Kashiwazaki-Kariwa were sent to KEPCO's Takahama Nuclear Power Station. This is a valuable opportunity to learn through experience about what it's like to work at a plant in operation.

※From the Nuclear Safety Reform Plan FY2019 Second quarter progress report" released in November 12, 2019

<TEPCO Holdings>

November 6, 2019 Started receiving applications for the fourth round of Free Electrons on November 4, 2019, together with nine of the world's major electric utilities to discover and foster startups with promising electricity and energy-related ideas and technologies. The utilities support, partner with or start joint ventures with these startups, leveraging the utilities' energy-related expertise and experience, and customer base.

<TEPCO Power Grid>

January 16, 2020 Started demonstration tests in the Toranomom area of roadside transformers featuring advertisements and street signage® that disseminate information. This demonstration conducted together with Minato-Ward, Panasonic Corporation, and others will verify if street signage® can be put to practical use in generating enough revenue to cover installation, maintenance and management costs while disseminating information about the region, disaster prevention, and sightseeing.

January 21, 2020 Agreed to provide specific transmission and distribution services (design, construction, maintenance of specific transmission and distribution operator facilities, installation of smart meters and providing automatic meter readings) to Toranomom Energy Network Co., Ltd. which is a specific transmission and distribution operator for the area being developed under the Toranomom/Azabudai area category 1 urban redevelopment project.

<TEPCO Energy Partner>

- October 29, 2019 Started accepting registration forms in October 31, 2019 for the “Tokutoku Gas AP Plan”, a residential city gas rate plan, in which customers can use Amazon Prime services without paying the annual fee. The plan comes with the “gas equipment repair service” where customers can receive up to 500,000 yen (tax included) worth of gas equipment repairs for free if their gas equipment such as gas stoves and gas powered water heater fails.
- November 7, 2019 Obtained the “Green Power Certificate” to increase environmental value and switched the power source for “Juren”, a mobile battery rental service, to renewable energy.
- November 12, 2019 Started accepting registration forms in November 13, 2019 for residential electricity rate plans in the Hokkaido, Hokuriku, Chugoku, Shikoku areas in addition to the Chubu, Kansai, Tohoku, Kyushu areas to become the utility of choice for customers across the nation.
- December 12, 2019 Started accepting registration forms on December 13, 2019 for the electricity rate plan “e-kenet Denki”, a dedicated plan for e-kenet VISA card members. This plan was organized together with KEIHAN Card Co. Ltd. and FAMILYNET JAPAN CORPORATION to provide additional value for customers that use the Keihan Card.
- December 20, 2019 Started accepting registration forms on January 6, 2020 for “Aqua de Power Kanagawa”, an electricity rate plan that provides carbon-free electricity produced locally by the 11 hydroelectric power plants owned by Kanagawa prefecture to contribute to the promotion of environmental measures in Kanagawa prefecture.
- January 29, 2020 Planning to accept registration forms on February 3, 2020 for “Giants Electricity/ Gas”, a new electricity and gas plan with various benefits regarding Giants in cooperation with the Yomiuri Giants(professional baseball team), with the Yomiuri Shimbun Tokyo Headquarter.