

# FY2020 2<sup>nd</sup> Quarter Financial Results (April 1 – September 30, 2020)

Tokyo Electric Power Company Holdings, Inc.

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tepcon

# Overview of FY2020 2<sup>nd</sup> Quarter Financial Results

(Released on October 28, 2020)

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*(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.*

## < FY2020 2<sup>nd</sup> Quarter Financial Results >

- Operating revenue decreased due to decreases in electricity sales volume resulting from increased competition for electricity sales and impact of the COVID-19 pandemic.
- Ordinary income decreased due to decreases in operating revenue despite continual efforts on behalf of the entire Group to cut costs.
- Quarterly net income decreased due to a reactionary fall from the extraordinary income posted last fiscal year.

# 1. Consolidated Financial Results

(Unit: Billion kWh)

	FY2020 Apr-Sep (A)	FY2019 Apr-Sep (B)	Comparison	
			(A)-(B)	(A)/(B) (%)
Electricity Sales Volume	102.5	111.8	-9.3	91.7

(Unit: Billion Yen)

	FY2020 Apr-Sep (A)	FY2019 Apr-Sep (B)	Comparison	
			(A)-(B)	(A)/(B) (%)
Operating Revenue	2,834.2	3,175.6	-341.4	89.2
Operating Income/Loss	181.3	196.6	-15.2	92.3
Ordinary Income/Loss	224.8	249.9	-25.1	89.9
Extraordinary Income	-	367.2	-367.2	-
Extraordinary Loss	67.7	166.4	-98.7	-
Net Income Attributable to Owners of Parent	148.6	420.6	-272.0	35.3

## 2. Points of Each Company

### <TEPCO Holdings>

- Ordinary income decreased due to a decrease in wholesale power sales to TEPCO Energy Partner, Inc. and a decrease in received dividends from core operating companies, etc.

### <TEPCO Fuel & Power>

- Ordinary income decreased due to worsening performance in the generation business despite a positive turn in the effects of the time-lag from the fuel cost adjustment system at JERA, etc.

### <TEPCO Power Grid>

- Ordinary income increased due to an increase in transmission revenue caused by an increase in low-voltage demand and other factors despite a decrease in area demand because of the impact of COVID-19 pandemic.

### <TEPCO Energy Partner>

- Ordinary income increased due to a decrease in the amount of power purchased from TEPCO Holdings, Inc. and other factors despite a decrease in operating revenue caused by increased competition and the impact of COVID-19 pandemic.

### <TEPCO Renewable Power>

- Ordinary income increased due to an increase in wholesale power sales to TEPCO Energy Partner, Inc, etc.

### 3. Overview of Each Company

(Unit: Billion Yen)

	FY2020 Apr-Sep (A)	FY2019 Apr-Sep (B)	Comparison	
			(A)-(B)	(A)/(B) (%)
Operating Revenue	2,834.2	3,175.6	-341.4	89.2
TEPCO Holdings	267.9	* 321.7	-53.7	83.3
TEPCO Fuel & Power	3.8	4.3	-0.4	89.2
TEPCO Power Grid	862.8	862.9	-0	100.0
TEPCO Energy Partner	2,519.2	2,900.8	-381.6	86.8
TEPCO Renewable Power	80.1	* 59.8	20.3	134.0
Adjustments	-899.8	* -974.0	74.1	-
Ordinary Income/Loss	224.8	249.9	-25.1	89.9
TEPCO Holdings	63.3	* 144.2	-80.9	43.9
TEPCO Fuel & Power	45.3	58.4	-13.1	77.5
TEPCO Power Grid	123.8	119.9	3.9	103.3
TEPCO Energy Partner	45.9	43.4	2.4	105.8
TEPCO Renewable Power	36.7	* 18.1	18.5	202.7
Adjustments	-90.2	* -134.1	43.9	-

※ Figures for April through September FY2019 rearranged by TEPCO HD and RP to provide a comparison with this term.

## 4. Consolidated Extraordinary Income/Loss

(Unit: Billion Yen)

	FY2020 Apr-Sep (A)	FY2019 Apr-Sep (B)	Comparison (A)-(B)
Extraordinary Income	-	※2 367.2	-367.2
Extraordinary Loss	67.7	166.4	-98.7
Expenses for Nuclear Damage Compensation	※1 67.7	58.9	8.7
Other	-	※3 107.5	-107.5
Extraordinary Income/Loss	-67.7	200.7	-268.5

\*1 Increase in the estimated amount of compensation for damages due to the restriction on shipping and damages due to reputation, etc

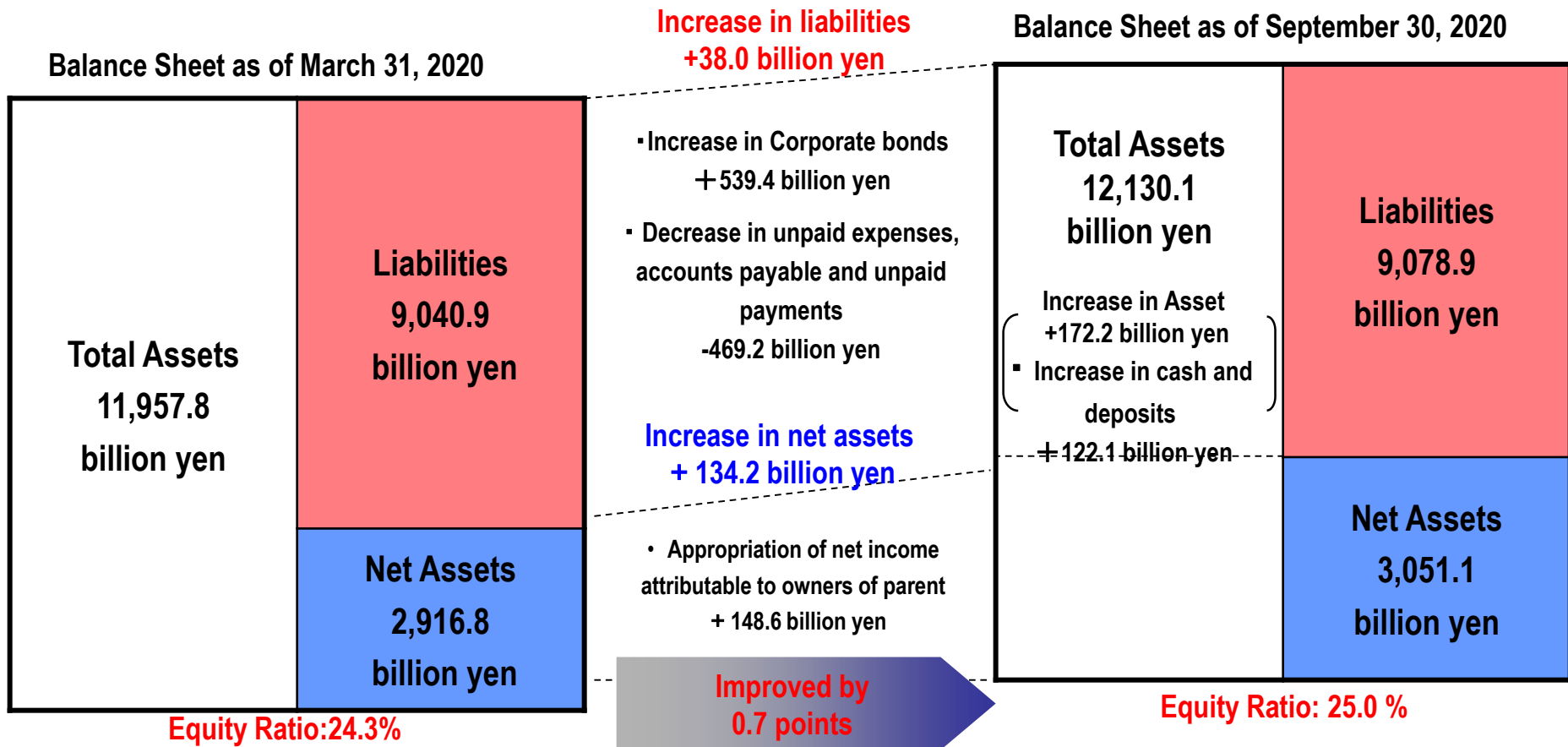
\*2 Gain on change in equity, Gain on reversal of provision for loss on disaster and Grants-in-Aid from the Nuclear Damage Compensation and Decommissioning Facilities Corporation.

\*3 Fukushima Daini decommissioning loss, special disaster loss, contingent property loss



# 5. Consolidated Financial Position

- Total assets balance increased by 172.2 billion yen primarily due to increases in cash and deposits.
- Total liabilities balance increased by 38.0 billion yen primarily due to increases in corporate bonds.
- Total net assets balance increased by 134.2 billion yen primarily due to the appropriation of net income attributable to owners of parent
- Equity ratio improved by 0.7 points.



## Area Demand

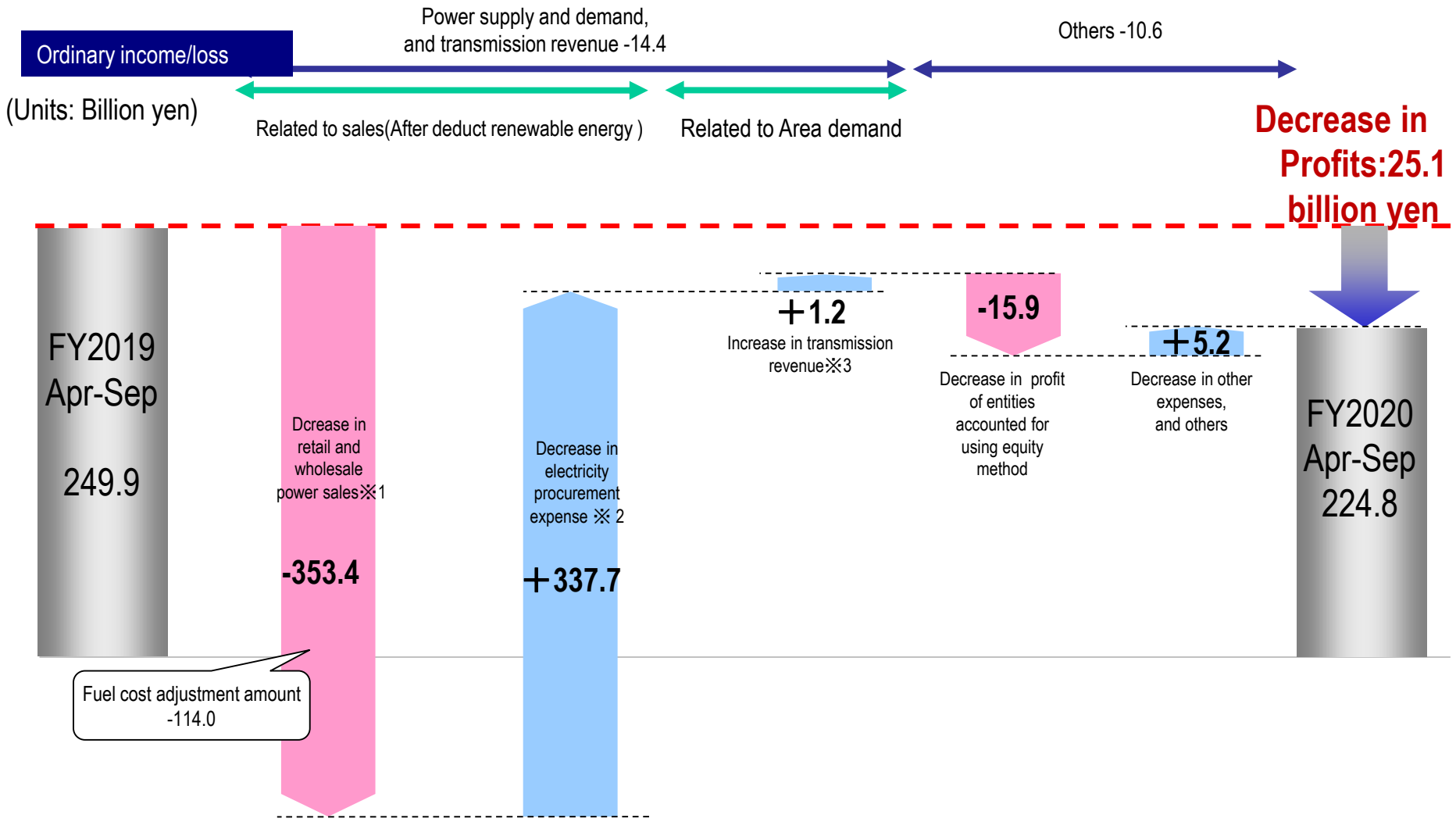
(Unit: Billion kWh)

	FY2020 Apr-Sep(A)	FY2019 Apr-Sep(B)	Comparison	
			(A)-(B)	(A)/(B) (%)
Area Demand	131.3	134.5	-3.2	97.7

## Foreign Exchange Rates/CIF

	FY2020 Apr-Sep(A)	FY2019 Apr-Sep(B)	(A)-(B)
Foreign Exchange Rate (Interbank,yen/dollar)	106.9	108.6	-1.7
Crude Oil Price (All Japan CIF,dollar/barrel)	36.5	68.9	-32.4

# <Reference> Consolidated Year-on-Year performance comparison ① ~Increases/Decreases chart~



※1 Retail and wholesale power sales include the impact of indirect auctions, and the impact of transmission expenses (excluding imbalances) have been deducted  
 ※2 Electricity procurement expenses include the impact of indirect auctions  
 ※3 Transmission revenue excludes the impact of income/expenditure imbalances but includes transactions within the Group companies

# <Reference> Consolidated Year-on-Year performance comparison ② ~Figures~

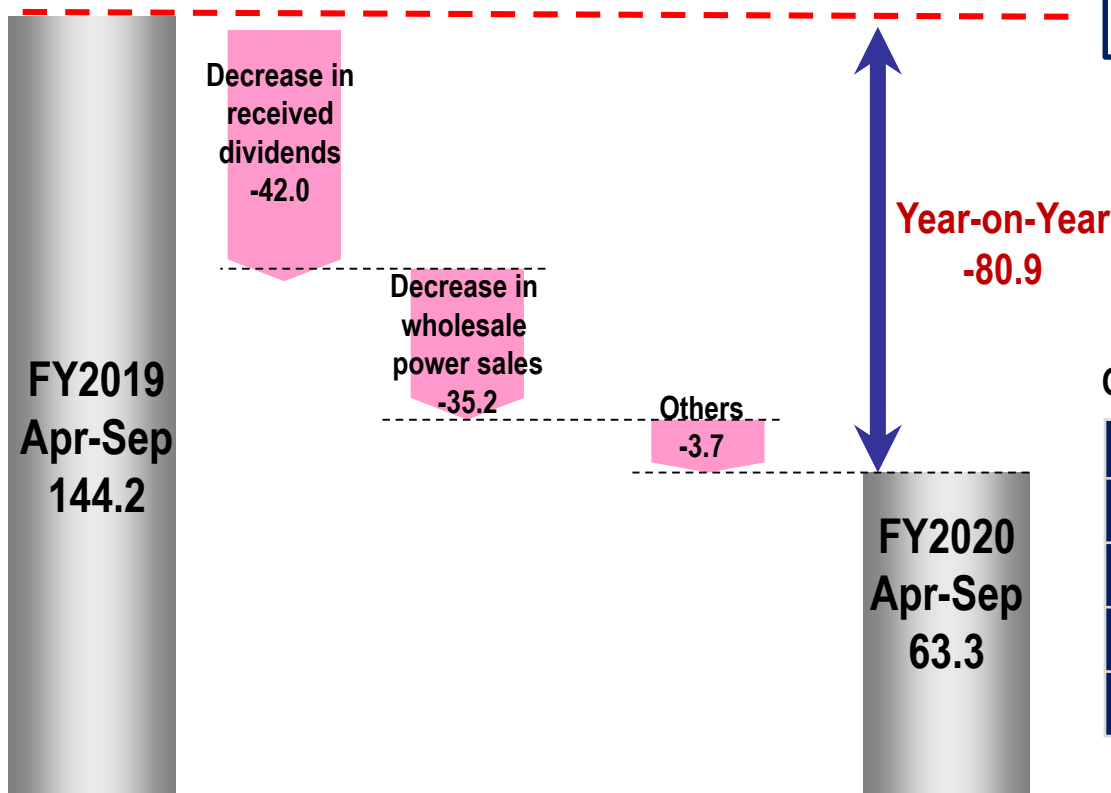
(Units: Billion yen)

	FY2020 Apr-Sep(A)	FY2019 Apr-Sep(B)	(A)-(B)
Ordinary Income	224.8	249.9	-25.1
Power supply and demand, and transmission revenue	962.7	977.2	-14.4
Retail/wholesale power sales	1,378.3	1,731.8	-353.4
(△) Electricity procurement expense	-1,108.0	-1,445.7	337.7
Transmission revenue※	692.3	691.1	1.2
Others	-737.9	-727.2	-10.6
Profit of entities accounted for using equity method	66.3	82.2	-15.9
(△) Depreciation costs	-199.6	-204.0	4.4
(△) Facility costs	-117.6	-113.1	-4.4
Other	-487.0	-492.2	5.2

※ Transmission revenue excludes the impact of income/expenditure imbalances but includes transactions within the Group companies

## Ordinary income/loss

(Units: Billion yen)



## Profit Structure

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

## Ordinary Income

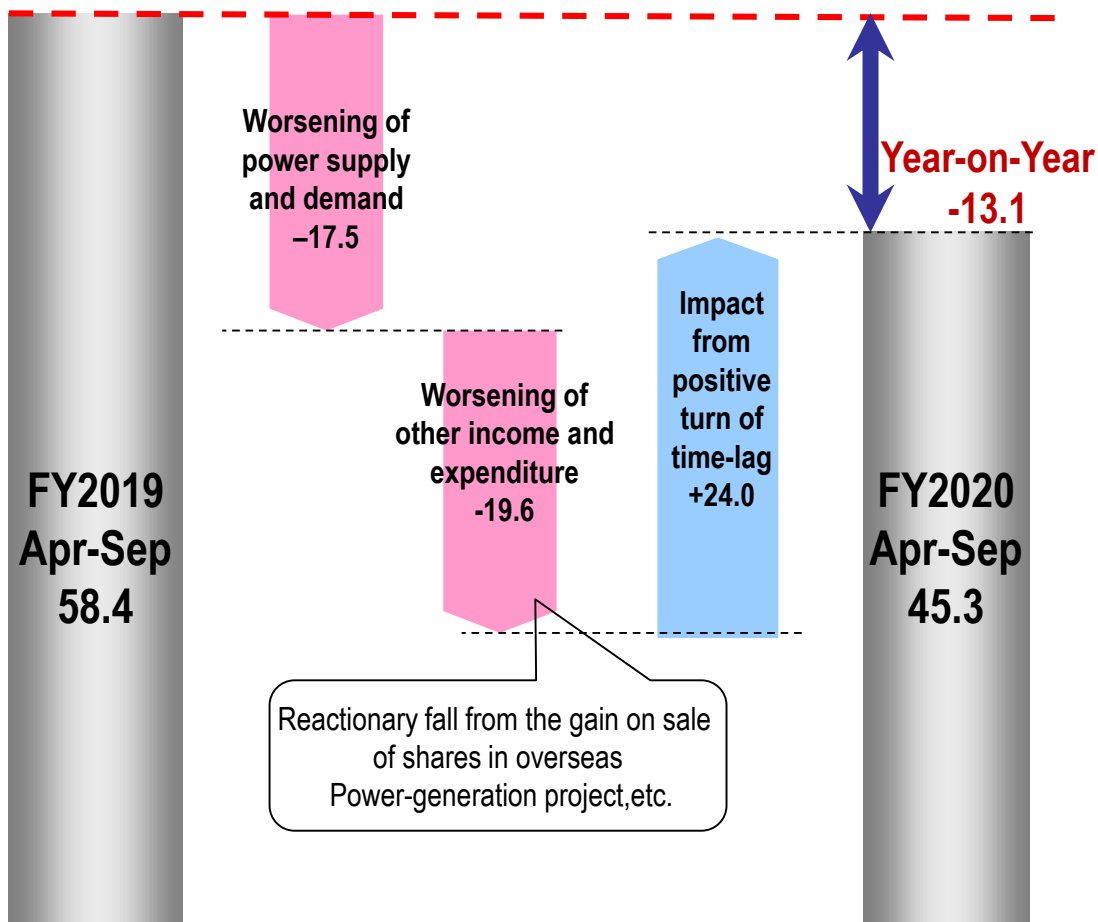
(Units: Billion Yen)

	FY2019	FY2020	Comparison
Apr-Jun	※ 148.2	79.5	-68.7
Apr-Sep	※ 144.2	63.3	-80.9
Apr-Dec	148.3		
Apr-Mar	152.9		

※ Figures for April through September FY2019 rearranged by TEPCO HD and RP to provide a comparison with this term.

## Ordinary income/loss

(Units: Billion Yen)



## Profit Structure

Main profit is JERA's share of profit of entities accounted for using equity method.

## Timing Impact (JERA equity impact) (Units: Billion Yen)

	FY2019	FY2020	Comparison
Apr-Sep	+ 32.0	+ 56.0	+ 24.0

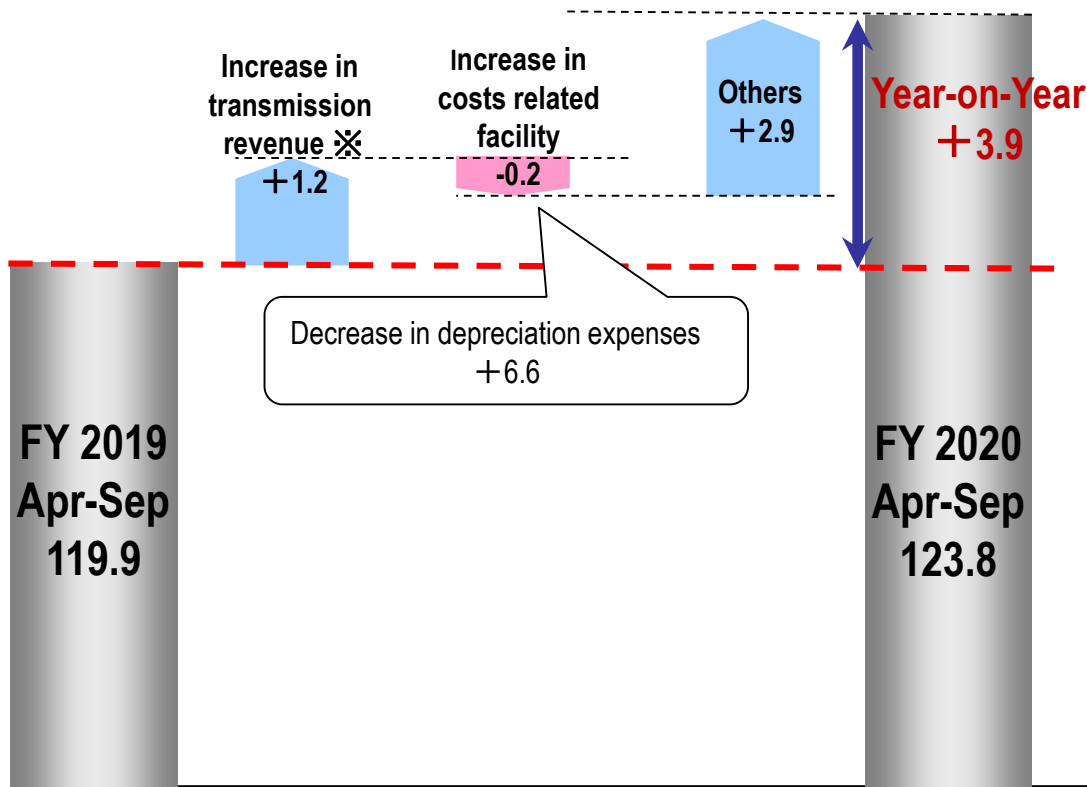
## Ordinary income

(Units: Billion Yen)

	FY2019	FY2020	Comparison
Apr-Jun	45.8	9.2	-36.5
Apr-Sep	58.4	45.3	-13.1
Apr-Dec	62.3		
Apr-Mar	64.7		

## Ordinary income/loss

(Units: 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

(Units: Billion kWh)

	FY2019	FY2020	comparison
Apr-Sep	134.5	131.3	-3.2

## Ordinary income

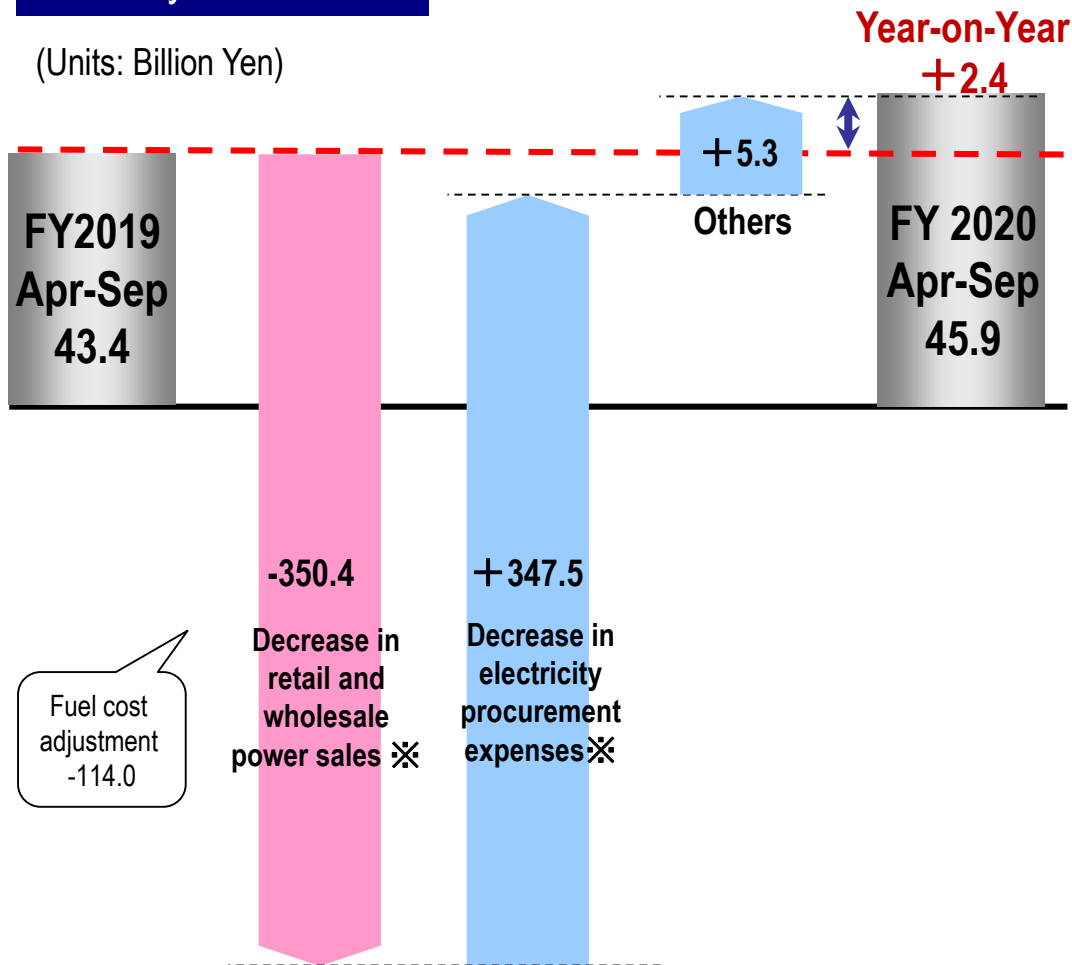
(Units: Billion Yen)

	FY2019	FY2020	comparison
Apr-Jun	42.6	40.7	-1.8
Apr-Sep	119.9	123.8	+3.9
Apr-Dec	175.3		
Apr-Mar	116.6		

※ Transmission revenue excludes impact from imbalanced revenue and expenditure

## 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

(Units: Billion kWh)

	FY2019	FY2020	comparison
Apr-Sep	111.8	102.5	-9.3

## Gas contracts (Non-consolidated basis of EP)

As of March 31, 2020	As of September 30, 2020
Approx. 1.13 million	Approx. 1.18 million

## Ordinary income

(Units: Billion yen)

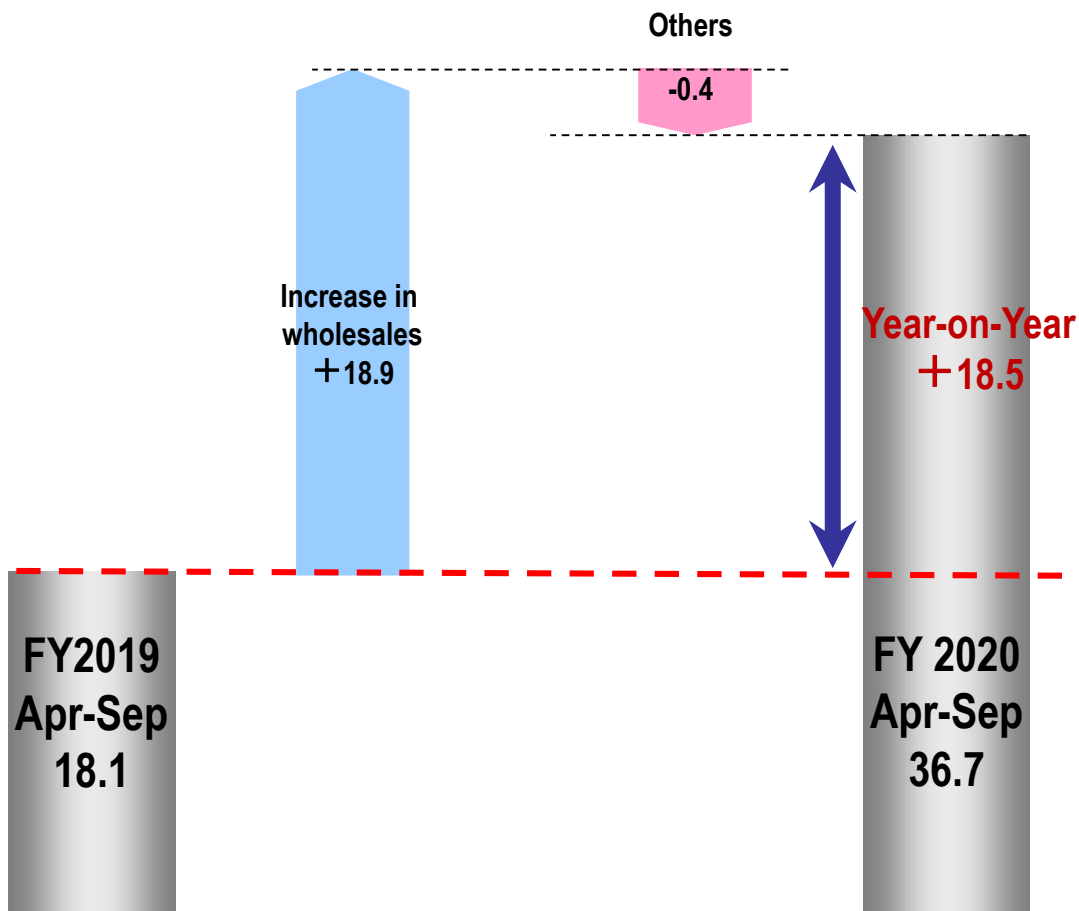
	FY2019	FY2020	comparison
Apr-Jun	-12.0	11.2	+23.2
Apr-Sep	43.4	45.9	+2.4
Apr-Dec	54.6		
Apr-Mar	60.0		

※ Retail and wholesale power sales, and electricity procurement expenses both include the impact from indirect auctions. The impact of imbalance on transmission costs has been added to the electricity procurement costs after deducting the impact excluding the imbalance from retail and wholesale power sales.



## Ordinary income/loss

(Units: Billion Yen)



## Profit Structure

Profit is mainly wholesale power sales of hydroelectric and new energies.  
Expenses is mainly for depreciation and repairs.

## Flow rate

(Unit: %)

	FY2019	FY2020	comparison
Apr-Sep	98.1	103.3	+5.2

## Ordinary Income

(Units: Billion yen)

	FY2019	FY2020	comparison
Apr-Jun	※ 8.1	17.8	+9.6
Apr-Sep	※ 18.1	36.7	+18.5
Apr-Dec	-		
Apr-Mar	-		

※ Figures for April through September FY2019 rearranged by TEPCO HD and RP to provide a comparison with this term.

# Supplemental Material

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# FY2020 2<sup>nd</sup> Quarter Financial Results

## Detailed Information

# Consolidated Statements of Income

	(Unit: Billion Yen)			
	FY2020	FY2019	Comparison	
	Apr-Sep (A)	Apr-Sep (B)	(A)-(B)	(A)/(B) (%)
Operating Revenue	2,834.2	3,175.6	-341.4	89.2
Operating Expenses	2,652.8	2,979.0	-326.2	89.0
<b>Operating Income / Loss</b>	<b>181.3</b>	<b>196.6</b>	<b>-15.2</b>	<b>92.3</b>
Non-operating Revenue	68.4	85.5	-17.1	80.0
Investment Gain under the Equity Method	66.3	82.2	-15.9	80.7
Non-operating Expenses	24.9	32.1	-7.1	77.7
<b>Ordinary Income / Loss</b>	<b>224.8</b>	<b>249.9</b>	<b>-25.1</b>	<b>89.9</b>
Reserve for Fluctuation in Water Levels	0.1	—	0.1	—
Reserve for Preparation of Depreciation of Nuclear Power Construction	0.2	0.1	0.0	157.1
Extraordinary Income	—	367.2	-367.2	—
Extraordinary Loss	67.7	166.4	-98.7	—
Income Tax, etc.	7.5	29.4	-21.8	25.7
Net Income Attributable to Non-controlling Interests	0.5	0.5	0.0	101.2
<b>Net Income Attributable to Owners of Parent</b>	<b>148.6</b>	<b>420.6</b>	<b>-272.0</b>	<b>35.3</b>

# Consolidated Balance Sheets

(Unit: Billion Yen)

<Interest-bearing debt outstanding>

(Unit: Billion Yen)

	Sep. 30 2020 (A)	Mar. 31 2020 (B)	Comparison	
			(A)-(B)	(A)/(B) (%)
<b>Total Assets</b>	<b>12,130.1</b>	<b>11,957.8</b>	<b>172.2</b>	<b>101.4</b>
Fixed Assets	10,110.4	10,171.8	-61.3	99.4
Current Assets	2,019.6	1,786.0	233.6	113.1
<b>Liabilities</b>	<b>9,078.9</b>	<b>9,040.9</b>	<b>38.0</b>	<b>100.4</b>
Long-term Liability	5,367.2	4,858.6	508.6	110.5
Current Liability	3,703.7	4,174.7	-470.9	88.7
Reserve for Fluctuation in Water Levels	0.1	—	0.1	—
Reserve for Preparation of the Depreciation of Nuclear Plants Construction	7.7	7.5	0.2	103.0
<b>Net Assets</b>	<b>3,051.1</b>	<b>2,916.8</b>	<b>134.2</b>	<b>104.6</b>
Shareholders' Equity	3,089.1	2,940.4	148.7	105.1
Accumulated Other Comprehensive Income	-55.1	-40.2	-14.8	—
Share Acquisition Rights	0.0	0.0	0.0	365.1
Non-controlling Interests	17.0	16.6	0.3	102.4

	Sep. 30 2020 (A)	Mar. 31 2020 (B)	(A)-(B)
Bonds	2,575.4	2,214.6	360.7
Long-term Debt	711.2	727.5	-16.3
Short-term Debt	1,986.1	1,972.6	13.4
Total	5,272.7	4,914.9	357.8

<Reference>

	FY2020 Apr-Sep (A)	FY2019 Apr-Sep (B)	(A)-(B)
ROA(%)	1.5	1.6	-0.1
ROE(%)	5.0	13.6	-8.6
EPS(Yen)	92.76	262.54	-169.78

ROA: Operating Income / Average Total Assets

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

# Consolidated Statements of Cash Flows

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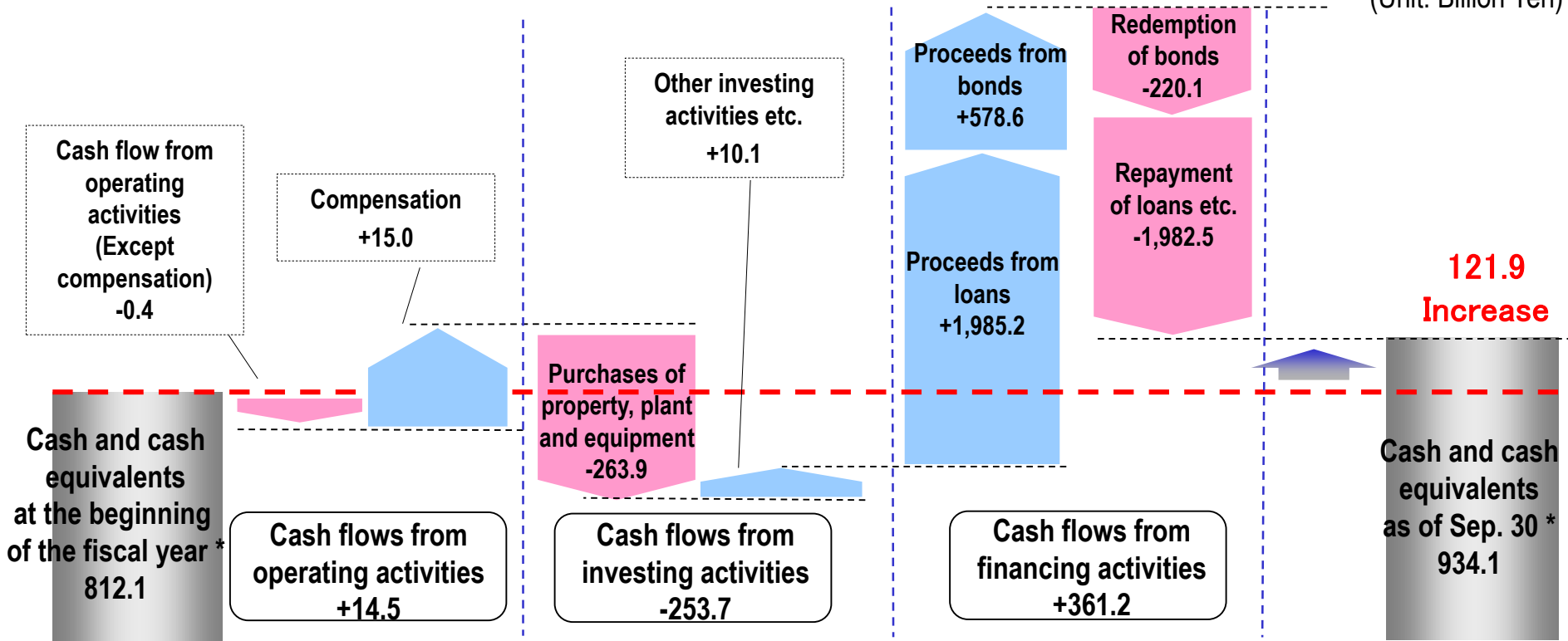
(Unit: Billion Yen)

	FY2020 Apr-Sep (A)	FY2019 Apr-Sep (B)	Comparison (A)-(B)
<b>Cash flow from operating activities</b>	<b>14.5</b>	<b>86.2</b>	<b>-71.6</b>
Income / loss before income taxes and minority interests	156.7	450.6	-293.9
Depreciation and amortization	205.0	209.5	-4.4
Increase (decrease) in decommissioning reserve fund*	-20.8	-14.1	-6.6
Interest expenses	21.3	21.8	-0.4
Grants-in-aid from Nuclear Damage Compensation and Decommissioning Facilitation Corporation	-	-54.0	54.0
Expenses for nuclear damage compensation	67.7	58.9	8.7
Decrease (increase) in notes and accounts receivable trade*	-85.7	-67.8	-17.8
Increase (decrease) in notes and accounts payable trade**	-64.8	60.0	-124.8
Interest expenses paid	-20.6	-20.3	-0.3
Payments for extraordinary loss on disaster due to the Great East Japan Earthquake	-16.3	-17.9	1.6
Grants-in-aid from Nuclear Damage Compensation and Decommissioning Facilitation Corporation received	144.2	269.6	-125.4
Payments for nuclear damage compensation	-129.1	-249.5	120.3
Others	-242.9	-560.4	317.4
<b>Cash flows from investing activities</b>	<b>-253.7</b>	<b>-253.0</b>	<b>-0.6</b>
Purchases of property, plant and equipment	-263.9	-272.1	8.2
Others	10.1	19.1	-8.9
<b>Cash flows from financing activities</b>	<b>361.2</b>	<b>331.2</b>	<b>30.0</b>
Proceeds from issuance of bonds	578.6	374.5	204.1
Redemption of bonds	-220.1	-195.3	-24.7
Repayment of long-term loans	-16.3	-63.1	46.8
Proceeds from short-term loans	1,985.2	1,994.2	-8.9
Repayment of short-term loans	-1,971.7	-1,775.9	-195.7
Others	5.5	-2.9	8.5
Effect of exchange rate changes on cash and cash equivalents	-0.1	0.0	-0.1
Net increase (decrease) in cash and cash equivalents**	121.9	164.4	-42.4
Cash and cash equivalents at the beginning of the fiscal year	812.1	999.3	-187.2
Decrease(increase) in cash and cash equivalents due to change in scope of consolidation**	-	-16.0	16.0
Cash and cash equivalents at the end of the quarter	934.1	1,147.7	-213.5

\* Minus denotes an increase. \*\* Minus denotes a decrease.

- Cash and cash equivalents as of September 30, 2020 increased 121.9 billion yen to 934.1 billion yen.
  - Cash flows from operating activities increased 14.5 billion yen mainly due to income before income taxes and minority interests
  - Cash flows from investing activities decreased 253.7 billion yen mainly due to purchases of property, plant and equipment
  - Cash flows from financing activities increased 361.2 billion yen mainly because proceeds from bonds/ loans exceeded redemption of bonds / repayment of loans

(Unit: Billion Yen)



\* Including expenses for compensation 2.4 billion yen

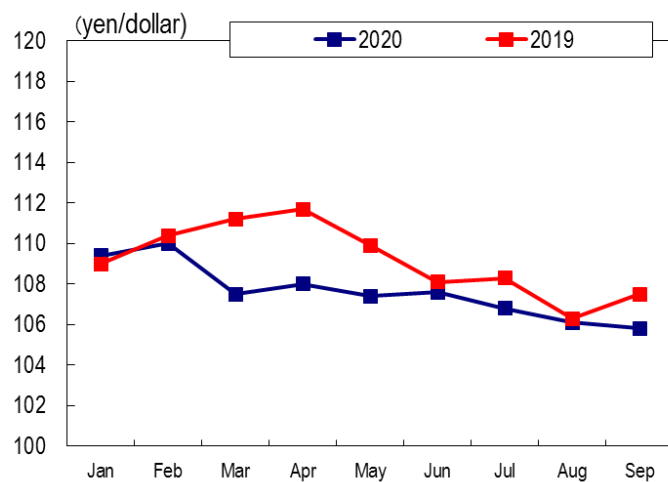
\* Including expenses for compensation 17.5 billion yen



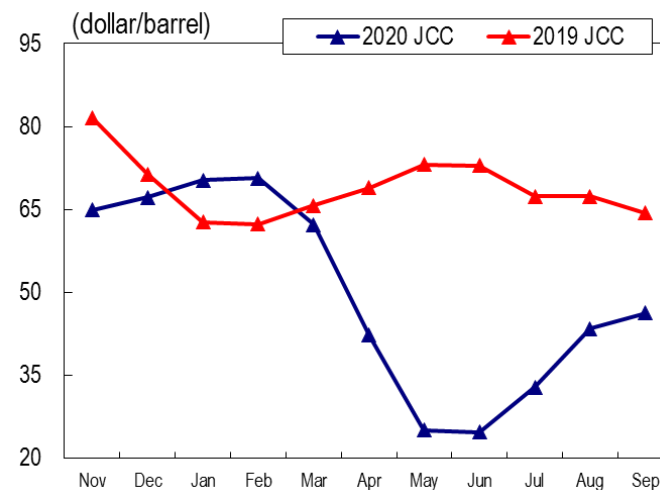
## Key Factors Affecting Performance (Results)

	FY2020 Apr-Sep	FY2019 Apr-Sep	[Reference] FY2019
Electricity Sales Volume (Billion kWh)	102.5	111.8	222.3
Gas Sales Volume (Million ton)	0.87	0.88	2.17
Foreign Exchange Rate (Interbank; yen per dollar)	106.9	108.6	108.7
Crude Oil Prices (All Japan CIF; dollars per barrel)	36.5	68.9	67.8
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

	FY2020					
	Apr-Jun	Jul	Aug	Sep	Jul-Sep	Apr-Sep
Lighting	14.90	4.60	5.70	6.31	16.61	31.51
Power	32.47	12.23	13.12	13.19	38.53	71.00
Total	47.37	16.83	18.82	19.50	55.14	102.51

Unit: Billion kWh

	FY2019						[Ref.] Year-on-year Comparison	
	Apr-Jun	Jul	Aug	Sep	Jul-Sep	Apr-Sep	Jul-Sep	Apr-Sep
Lighting	15.25	4.68	6.56	5.76	17.00	32.25	97.7%	97.7%
Power	36.92	13.56	14.88	14.17	42.61	79.53	90.4%	89.3%
Total	52.17	18.24	21.43	19.93	59.61	111.78	92.5%	91.7%

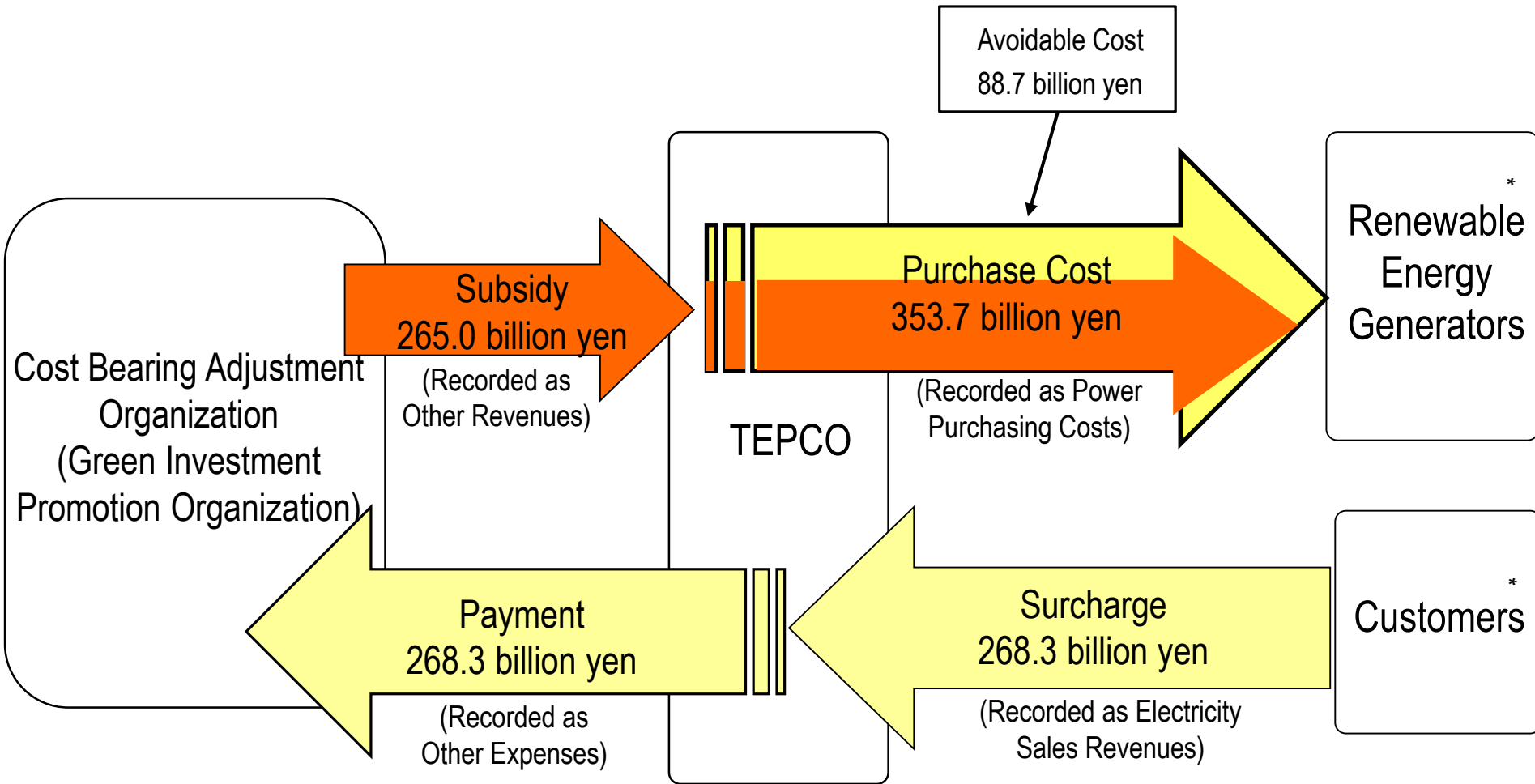
## Total Power Generated

Unit: Billion kWh

	FY2020					
	Apr-Jun	Jul	Aug	Sep	Jul-Sep	Apr-Sep
Hydroelectric	3.52	1.32	1.37	0.96	3.65	7.17
Thermal	0.03	0.01	0.02	0.01	0.05	0.08
Nuclear	-	-	-	-	-	-
Renewable etc.	0.02	0.00	0.00	0.00	0.01	0.03
Total	3.57	1.34	1.40	0.98	3.71	7.28

	FY2019						[Ref.] Year-on-year Comparison	
	Apr-Jun	Jul	Aug	Sep	Jul-Sep	Apr-Sep	Jul-Sep	Apr-Sep
Hydroelectric	2.91	1.07	1.06	1.01	3.13	6.04	116.6%	118.6%
Thermal	0.04	0.02	0.02	0.01	0.05	0.08	100.6%	99.1%
Nuclear	-	-	-	-	-	-	-	-
Renewable etc.	0.02	0.01	0.01	0.01	0.02	0.04	76.6%	81.5%
Total	2.96	1.09	1.08	1.03	3.20	6.16	116.2%	118.2%

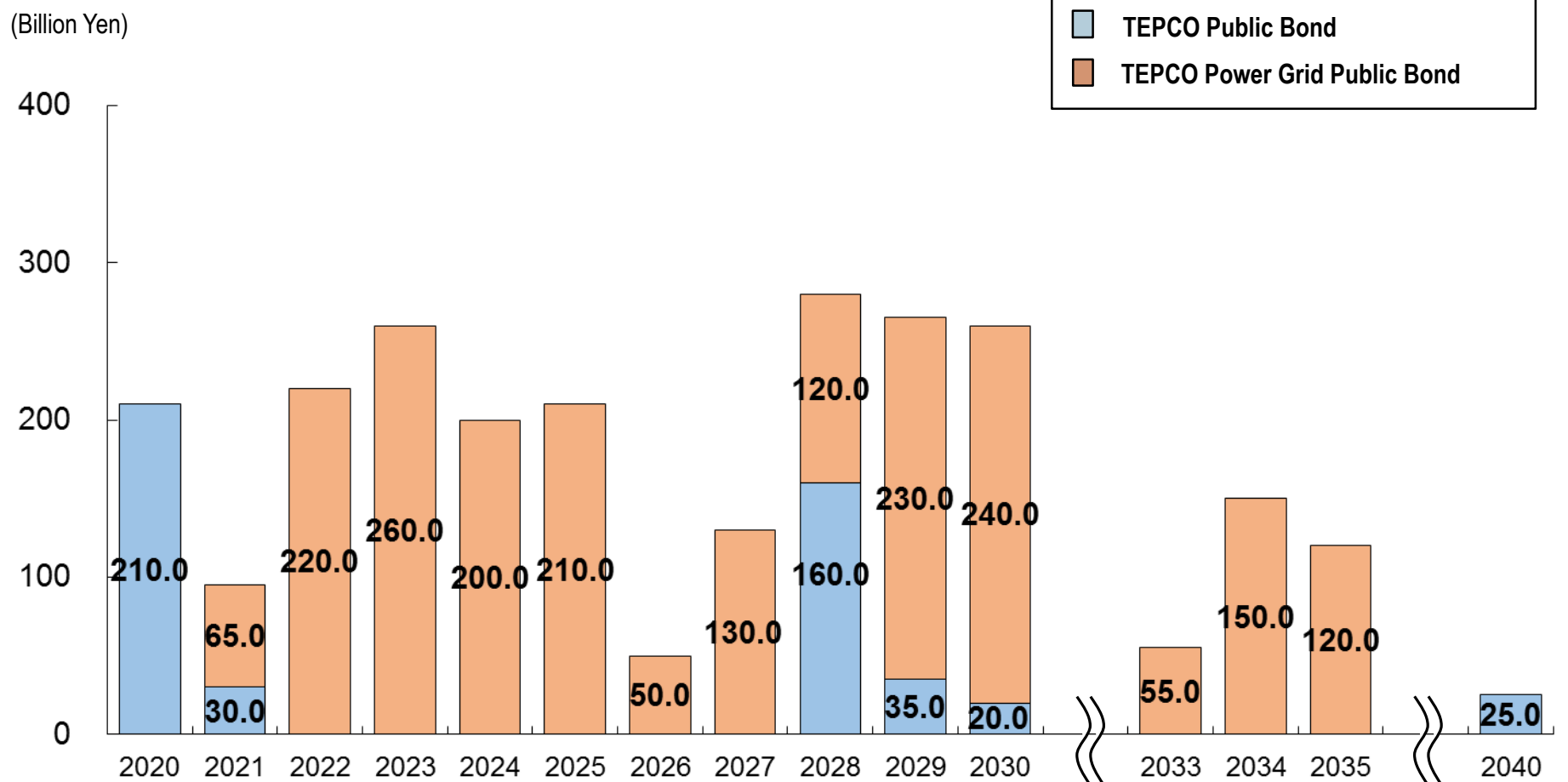
(FY2020 Apr. – Sep. )



\* Including TEPCO Group Companies

# Schedules for Public Bond Redemption

Amount at Maturity (As of Sep. 30, 2020)



Note: The amount redeemed for Apr. - Sep. of fiscal 2020 totaled 210.0 billion yen.

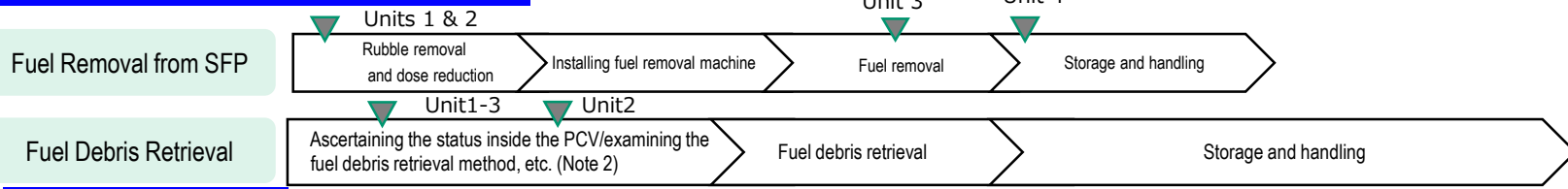
(FY)

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

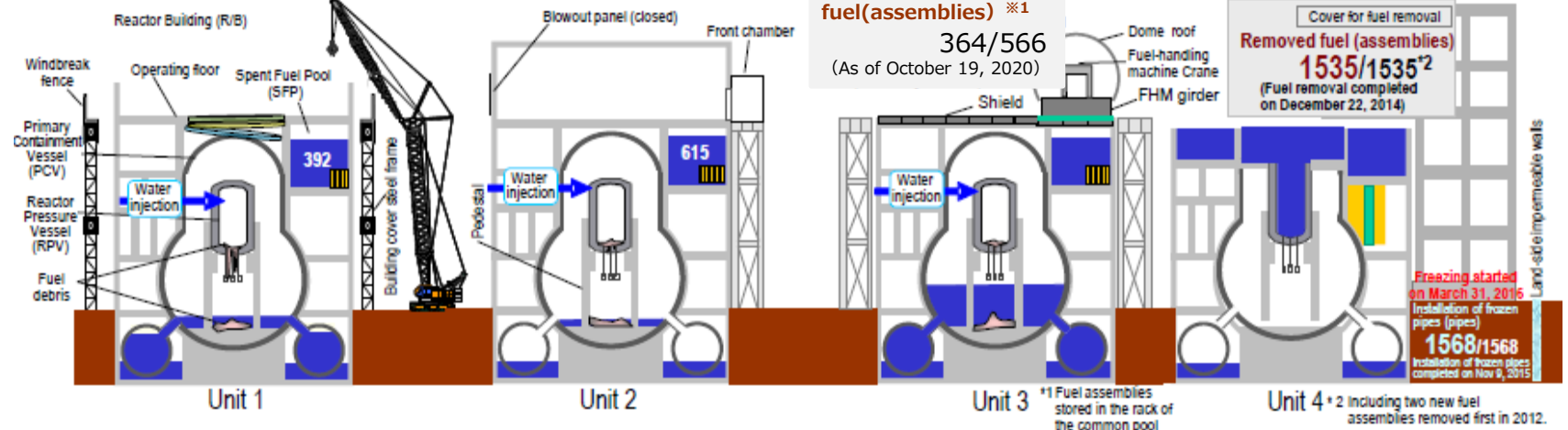
# Current Situation and Status of Units 1 through 4

- 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. Fuel removal from the spent fuel pool is being implemented at Unit 3 and preparation work toward the start of fuel removal at Units 1 and 2 is also being carried out.

**Main decommissioning work and steps** ✓ Please visit our website for latest information about the progress of decommissioning, etc.



## Current Situation



Works towards removal of spent fuel and fuel debris	<p>[Spent fuel removal]</p> <ul style="list-style-type: none"> <li>-Covered the Unit 1 spent fuel pool.</li> <li>-Started preparatory work for the installation of fuel handling machine support in September 2020 and overhead crane support in October 2020.</li> </ul> <p>[Fuel debris removal]</p> <ul style="list-style-type: none"> <li>-Interfering objects in the primary containment vessel are being severed in order to deploy the internal investigation robot inside the reactor vessel.</li> </ul>	<p>[Spent fuel removal]</p> <ul style="list-style-type: none"> <li>-On June 10 and 11, 2020, an internal investigation of the Unit 2 spent fuel pool was conducted for the first time since after the earthquake.</li> </ul> <p>[Fuel debris removal]</p> <ul style="list-style-type: none"> <li>-Have scheduled an investigation on the distribution of sediment that interferes with future work while implementing safety measures such as dust scattering suppression measures in preparation for the start of Unit 2 fuel debris retrieval on a trial basis scheduled in 2021.</li> </ul>	<p>[Spent fuel removal]</p> <ul style="list-style-type: none"> <li>-Discussing corrective measures for fuel removal work restart after removal work was halted on September 2, 2020 as a result of fuel handling machine cable damage.</li> </ul> <p>[Fuel debris removal]</p> <ul style="list-style-type: none"> <li>-Sampled the water inside the suppression chamber. Will be using the results in designing and building reactor containment vessel water intake facilities and its operation plans after its installation.</li> </ul>	<p>[Spent fuel removal]</p> <ul style="list-style-type: none"> <li>- Fuel removal from the SFP was completed in December, 2014.</li> </ul>
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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.  
(540m<sup>3</sup>/day (May 2014) → 170m<sup>3</sup>/day (average of FY2018))

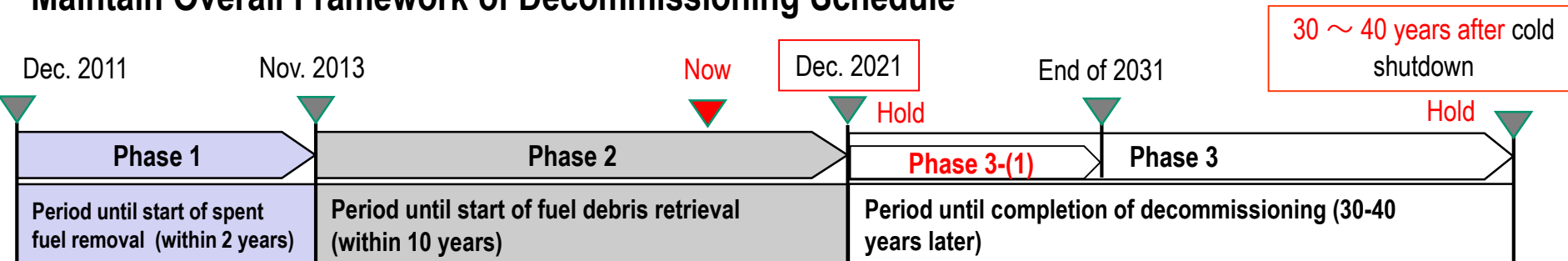


**Keep current target of reducing** the contaminated water generation **to 150m<sup>3</sup>/d within 2020.**  
**Set new target of reducing** the contaminated water generation **to 100m<sup>3</sup>/d within 2025.**

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

# Major milestones of Mid-and-Long-Term Roadmap

## Maintain Overall Framework of Decommissioning Schedule



## Major milestones

			Roadmap (Sept. 2017)	Revised Roadmap	
<b>Contaminated water management</b>	Reduce to about 150 m <sup>3</sup> /day <u>Reduce to about 100m<sup>3</sup>/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>
<b>Fuel removal</b>	<u>Complete of fuel removal from Unit 1-6</u>		—	<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	} Methods have changed to ensure safety and prevent dust scattering	Around FY2023	<u>FY2027 – 2028</u>	<u>REVISED</u>
	Around FY2023		<u>FY2024 - 2026</u>	<u>REVISED</u>	
<b>Fuel debris retrieval</b>	Start fuel debris retrieval from the first Unit <u>(Start from Unit 2, expanding the scale gradually)</u>		Within 2021	Within 2021	
<b>Waste management</b>	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.

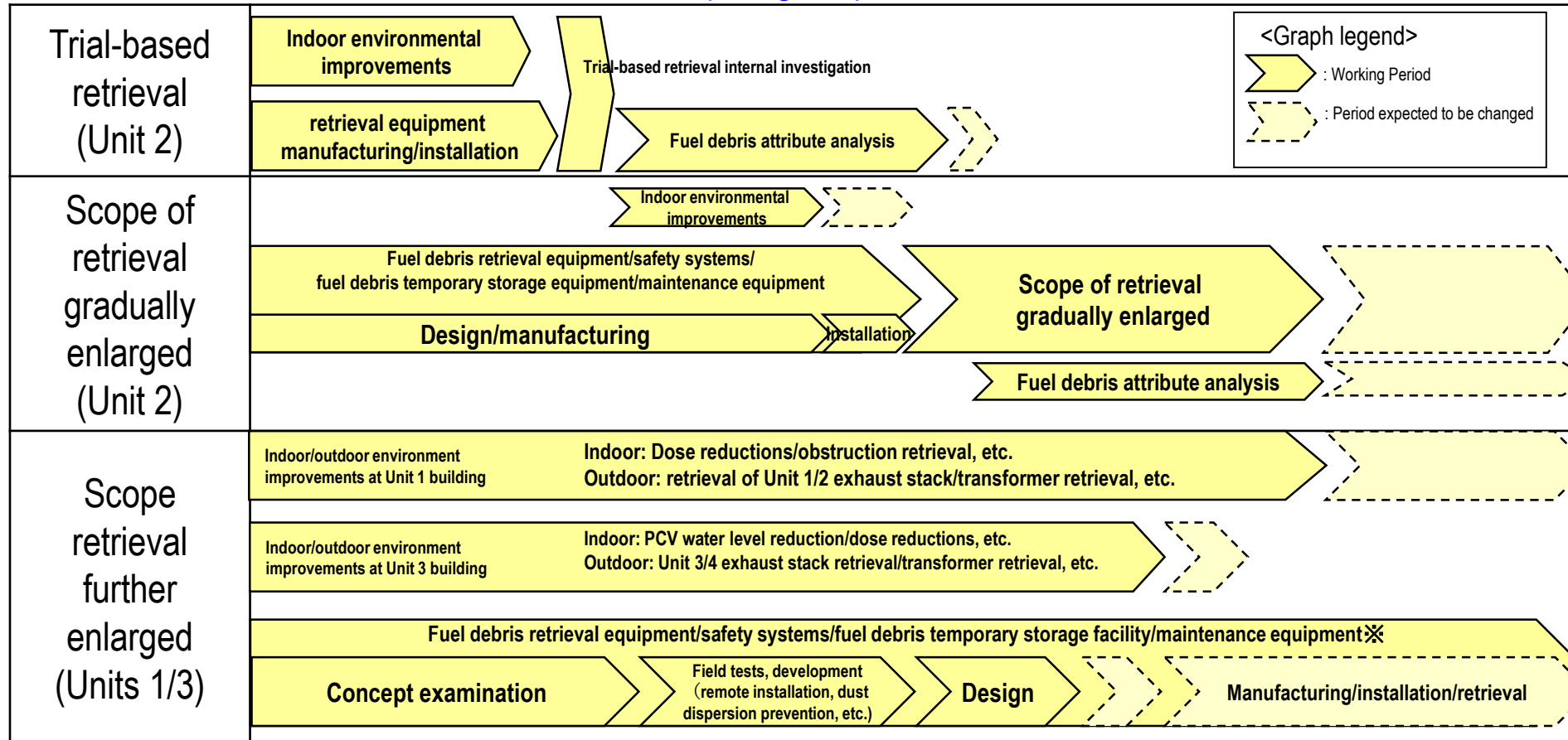
【Source】 Decommissioning/contaminated water countermeasures Fukushima Council Meeting Materials (December 27, 2019)



- By 2031, the scale of retrieval will be gradually enlarged at Unit 2 and preparations will be made to further enlarge the scale of retrieval.

▽ Commencement of fuel debris retrieval from first reactor (during 2021)

End of 2031



※These tasks shall be carried out for Unit 3 first and then examined with the intention doing the same for Unit 1

- 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

- Currently processing the building stagnant water in all buildings except those which are undergoing circulating injection including the reactor building for Units 1-3, process main building, high temperature incinerator building, to expose the floor of the lowermost floor in 2020.

## < Major Progress >

✓ Please visit our website for the latest information.

### Subdrain operation

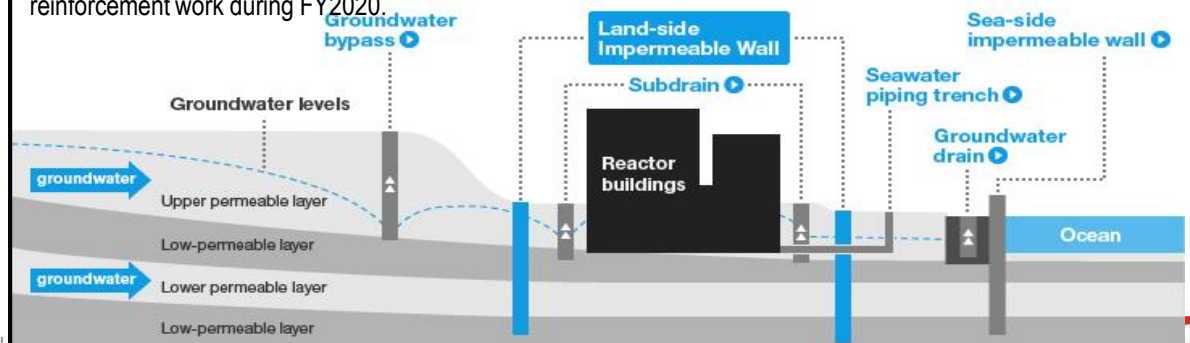
- Groundwater pumped up through wells near reactor building (Subdrain system) are discharged after purification by dedicated facilities and quality test. (A cumulative total of 999,399 tons of groundwater has been discharged as of 15:00 on October 20, 2020).
- Construction work for reinforcement and 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.

### Progress on earthquake and tsunami countermeasures

- Decided to build a new Japan Trench Tsunami Seawall from FY2021 to FY2023 based on a reassessment reflecting the materials published by the Cabinet's "Study Meeting on the Modelling of a Large Earthquake Along the Japan Trench and the Kuril-Kamchatka Trench" in April 2020,.
- Construction on the Kuril-Kamchatka Trench Tsunami Seawall started in the first half of FY2019 was completed on September 25, 2020. However, based on the Japan Trench tsunami assessment results, will continue reinforcement work during FY2020.



# 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.

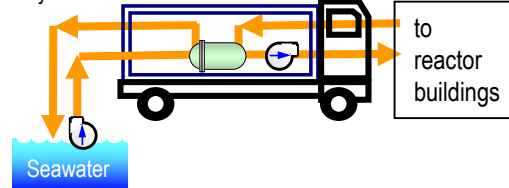
## I. Installation of flooding embankment [banks]

- 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

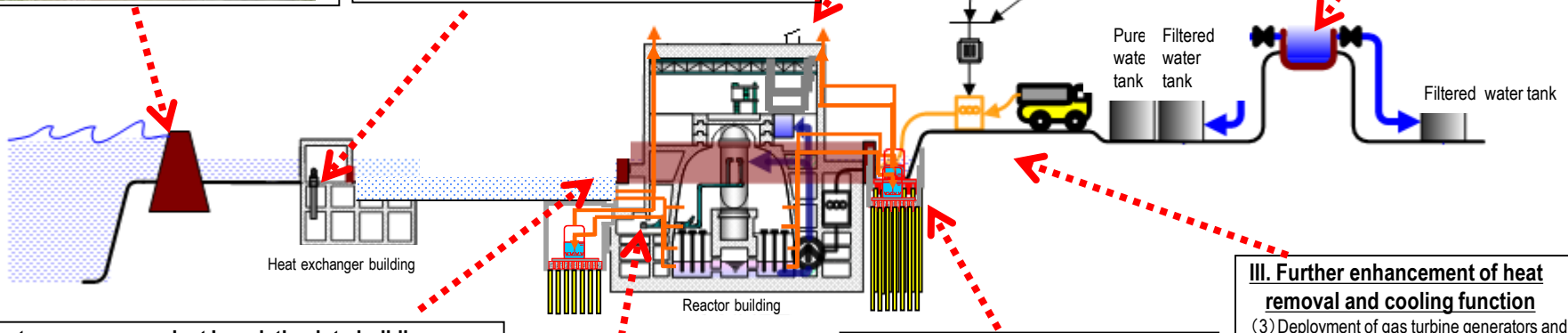


## III. Further enhancement of heat removal and cooling function

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

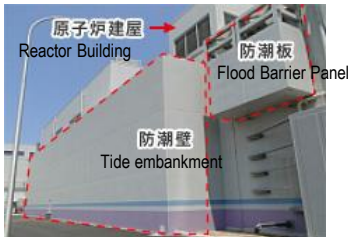
## III. Further enhancement of heat removal and cooling function

- (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 water 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 October 7, 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	Completed *3
(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*1	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				Under construction		
(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

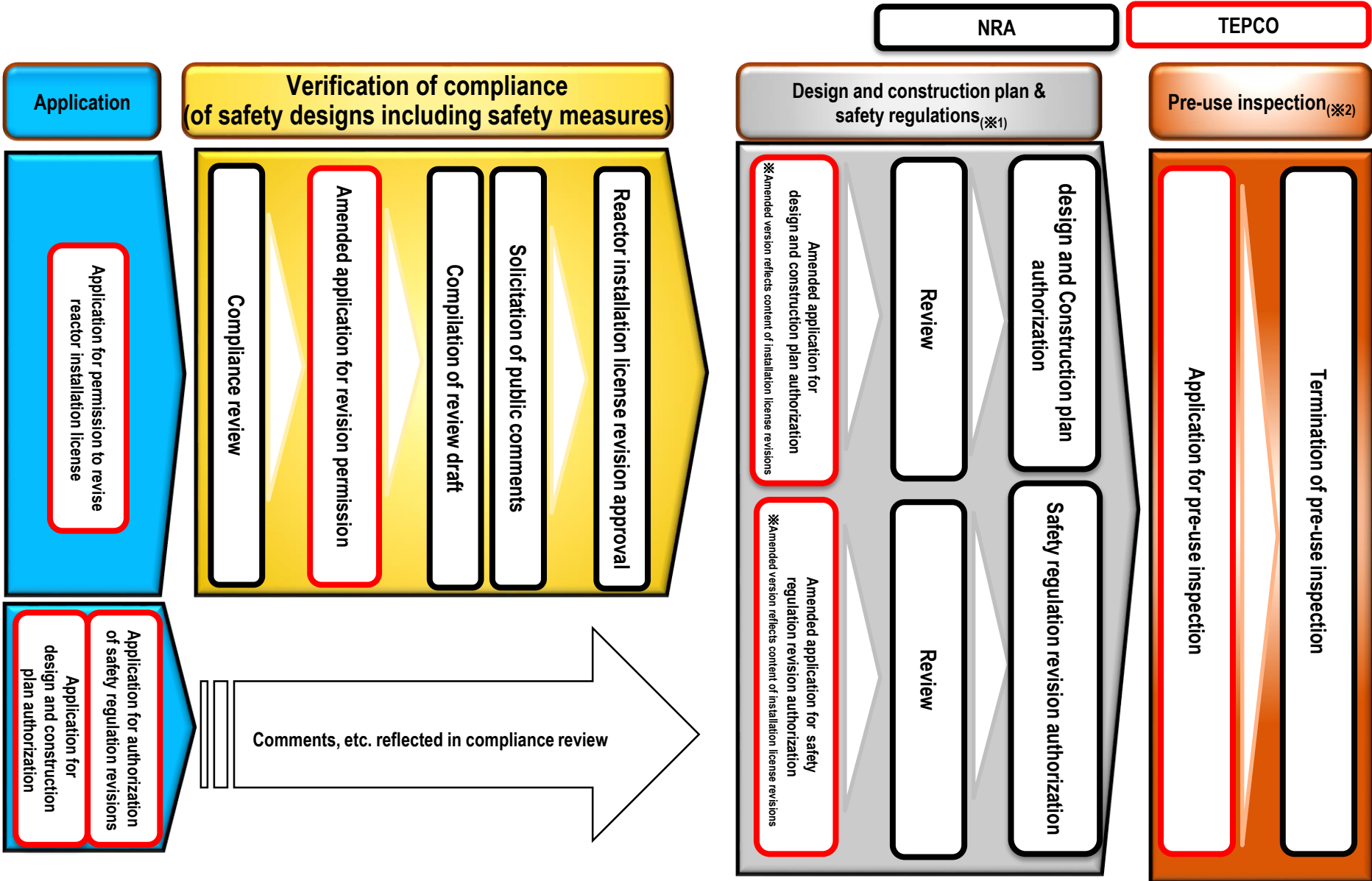
\*1 TEPCO's voluntary safety measures \*2 Additional measures are under consideration \*3 Main construction work is complete with only pre-service operator inspections left.

## Latest Review Status

- On September 27, 2013, the application for permission changes in reactor installation, application for authorization of design and construction plan, and application for authorization of safety regulation revision were presented for the new regulatory requirements conformance confirmation review 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.
- On December 13, 2018, amended application for authorization of design and construction plan for Unit 7 was submitted to the NRA . Additional amendments were submitted on July 5, 2019, September 25 and October 9, 2020, based on the review.
- On March 30, 2020, amended application for authorization of safety regulation revision was submitted to NRA.
- October 14, 2020, the NRA approved TEPCO's application for the design and construction plan for Unit 7.
- On October 16, 2020, amended application for authorization of safety regulation revision (second) was submitted to NRA.
- On October 26, 2020, amended application for authorization of safety regulation revision (third) was submitted to NRA.



# 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: The operator checks for themselves that construction will be implemented according to the construction plan. The results are inspected by the NRA.



# Other Initiatives



## <TEPCO Holdings>

- July 14, 2020 TEPCO Holdings applied for and was selected for the program for “business for the development of generic technology development business for a multiuse multi-terminal DC transmission system” hosted by the New Energy and Industrial Technology Development Organization (NEDO).
- July 28, 2020 litate Bio Partners, jointly funded by Kumagai Gumi Co.,Ltd., Kobelco Eco-Solutions Co.,Ltd., and Tokyo Power Technology Ltd. and TEPCO, applied for a public solicitation regarding the maintenance of a woody biomass facility in litate village Fukushima Prefecture and was selected as the responsible organization.  
It will aim to establish a business that contributes to the regeneration of Fukushima forestry that is rooted in the community, effectively utilizing biomass resources mainly comprised of bark produced in Fukushima Prefecture with safety as the base premise.
- August 6, 2020 The V2G (vehicle to grid) business demonstration business that uses electric cars that was created together with five companies that include Mitsubishi Motors Corporation, Hitachi Systems Power Services, Ltd., Shizuoka Gas, Co., Ltd. started test operation of the demonstration facilities
- September 3, 2020 TEPCO Holdings applied for and was selected for the “floating-type offshore wind power generation cost reducing technology development research survey” program hosted by the New Energy and Industrial Technology Development Organization (NEDO)

## <TEPCO Power Grid>

- August 5, 2020 TEPCO Power Grid established the Smart Resilience Network to actively promote the connection of societal resources to realize a societal foundation where distributed resources can be mutually connected and used as an asset for the society at large with Kansai Transmission and Distribution, Inc.
- August 28, 2020 TEPCO Power Grid signed a joint venture contract with Automagi Inc. on developing and selling AI solutions to streamline infrastructure maintenance that uses AI.

## <TEPCO Energy Partner>

- August 28, 2020 TEPCO Energy Partners signed an “Agreement related to the Promotion of Local Production and Consumption of Energy” with Saitama Prefecture. It has built a local electricity production and consumption model for businesses in Saitama Prefecture that utilizes FIT power stations within Saitama Prefecture and the environmental value in post-FIT as non-fossil certificates, and established a new carbon free Saitama-produced electricity rate plan, the first in the country
- August 31, 2020 Together with Renaissance Incorporated, TEPCO Energy Partners introduced an EV bus for transporting club members at Sports Club & Spa Renaissance Inage 24 and has started operating a V2X (Vehicle to X) system that can utilize EVs as an emergency power source for providing water and lighting buildings in a disaster. (Started operation on September 1, 2020)
- September 17, 2020 Jointly with Gunma Prefecture, created and started accepting contracts for the local production and consumption electricity rate plan--“Power Gunma Hydropower Plan”--that is carbon free and sources energy from the 26 hydropower stations owned by Gunma Prefecture.

## <TEPCO Renewable Power>

- October 16, 2020 TEPCO Renewable Power obtained a “BBB+” stable outlook rating and “A” stable outlook rating from R&I and JCR respectively.