

# Presentation Materials for Investors 1st Quarter FY2018

July, 2018



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# 01 Outline of Financial Results for Three-Months Ended June 30, 2018

Note: The company's fiscal year (FY) is from April 1 to March 31 of the following year. FY2018 represents the fiscal year begun on April 1, 2018, and ending on March 31, 2019. 1<sup>st</sup> Quarter(1Q) represents three months period ended June 30, 2018.



- Operating revenues (consolidated) increased for 2 consecutive years since 2017/1Q.
- Ordinary income (consolidated) increased following 2015/1Q, for the first time in 3 years.
- We recorded increased sales and profit (consolidated) following 2015/1Q, for the first time in 3 years.

		(Rounded down to ne	arest 100 million yen.)	(Billion yen,%)
[Consolidated]	2018/1Q	2017/1Q	Change	e
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	684.4	655.4	29.0	4.4
Operating income	36.4	31.9	4.4	14.0
Ordinary income	39.5	28.4	11.0	38.9
Net income attributable to owners of parent	28.0	20.6	7.3	35.7

\*The number of consolidated subsidiaries [change from the same period of the previous year in parenthesis] 2018/1Q : 34 subsidiaries (+3 companies), 31 affiliates accounted for under the equity method (+5 companies)

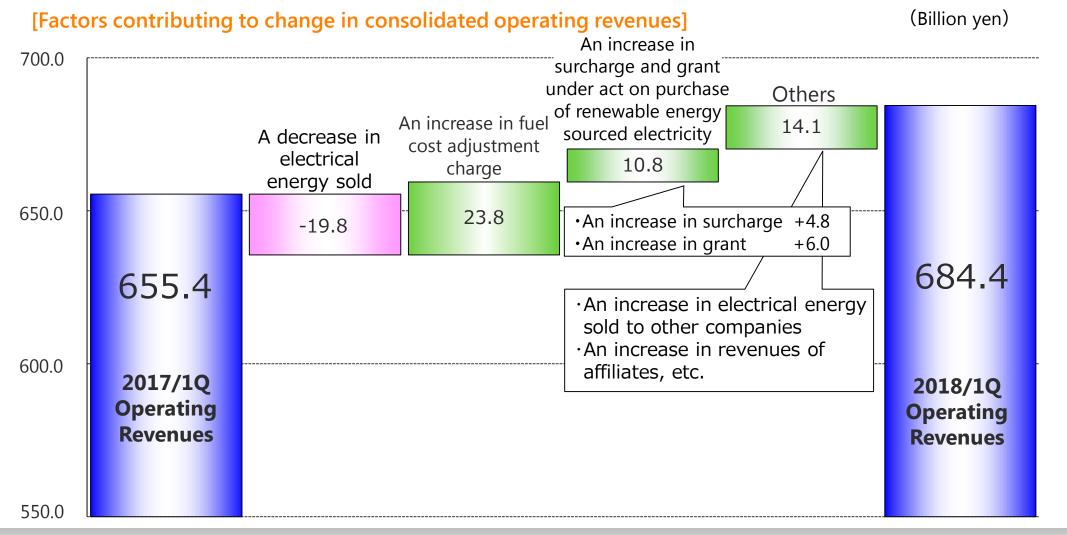
[Non-consolidated]		(Rounded down to nea	(Billion yen,%)	
	2018/1Q 2017/1Q		Change	
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	624.3	604.5	19.7	3.3
Operating income	33.6	28.8	4.7	16.5
Ordinary income	35.3	25.9	9.3	36.2
Net income	25.3	19.9	5.3	27.0

02 Summary of Financial Results <2>



### <Consolidated Operating Revenues>

Operating revenues increased by 29.0 billion yen compared with 2017/1Q, mainly due to a increase in surcharge and grant based on Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities, in addition to an increase in fuel cost adjustment charge, in spite of a decrease of electrical energy sold.



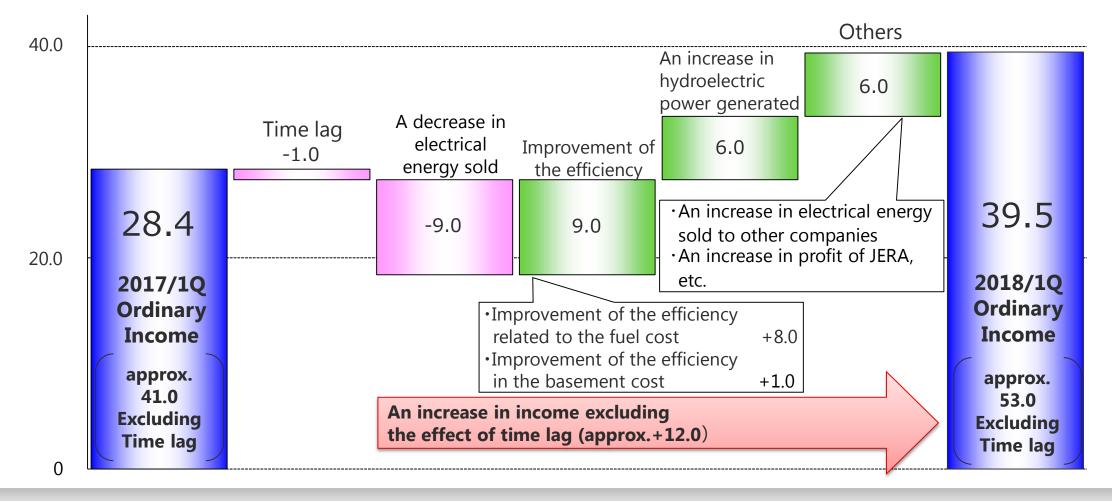


### <Consolidated Ordinary Income>

Consolidated ordinary income increased by 11.0 billion yen compared with 2017/1Q, mainly due to improvement of the efficiency and decrease in fuel cost by an increase in hydroelectric power generated, in spite of a decrease in electrical energy sold.

### [Factors contributing to change in consolidated ordinary income]

(Billion yen)





(TMh %)

### <Electrical Energy Sold>

- **Dropped by 3.7% to 27.3 TWh**, compared with 2017/1Q, mainly due to an effect of switches made to other operators with the intensified competition and an decrease in air conditioning demand by higher temperature in this early spring, in spite of a sales increase mainly in the Tokyo metropolitan area and an increase of production in the semiconductor industry.

				(TVVN,%
	2018/1Q	2017/1Q	Chan	ge
	(A)	(B)	(A-B)	(A-B)/B
Low voltage	7.8	8.5	(0.7)	(8.5)
High voltage • Extra-high voltage	19.5	19.8	(0.3)	(1.6)
Total	27.3	28.3	(1.0)	(3.7)
1)]				
nergy Sold roup companies (*)	28.4	29.2	(0.8)	(2.8)
f the company and consolidated subsidiaries.				
2)]				
nergy Sold mpanies (*)	2.4	1.7	0.7	39.8
	High voltage • Extra-high voltage Total ()] ergy Sold roup companies (*) The company and consolidated subsidiaries. ()] ergy Sold	(A)         Low voltage       7.8         High voltage • Extra-high voltage       19.5         Total       27.3         L)]       27.3         ergy Sold       28.4         coup companies (*)       28.4         The company and consolidated subsidiaries.       29.1         ergy Sold       2.4	(A)(B)Low voltage7.88.5High voltage • Extra-high voltage19.519.8Total27.328.3L)] ergy Sold oup companies (*)28.429.2the company and consolidated subsidiaries.21.7	(A)(B)(A-B)Low voltage7.88.5(0.7)High voltage • Extra-high voltage19.519.8(0.3)Total27.328.3(1.0)L)]ergy Sold roup companies (*)28.429.2(0.8)ergy Sold28.429.2(0.7)ergy Sold241707

\* Electrical Energy Sold to other electric utilities represents wholesale volume in the electric power supplied.



### <Electric Power Supplied>

- **Hydro :** The flow rate was higher than 2017/1Q ; thus hydroelectric power output **increased by 0.7 TWh.**
- Wholesale : Increased by 0.7 TWh, mainly due to an increase in wholesale volume.
- Purchased power : Increased by 0.3 TWh, mainly due to an increase in purchase of renewable energy.
- **Thermal :** As a result of decrease in electrical energy sold and above, thermal power output **decreased by 0.7 TWh**.

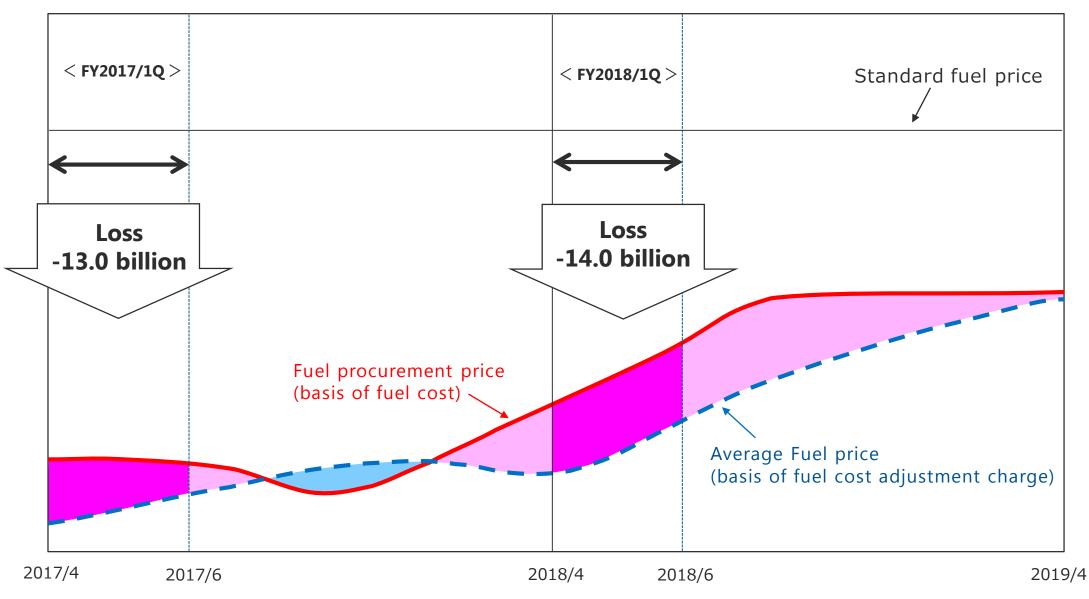
						(TWh,%)
			2018/1Q	2017/1Q	Chang	je
			(A)	(B)	(A-B)	(A-B)/B
		Hydro	2.9	2.2	0.7	30.7
Internally generated Electric	<flow rate=""></flow>	<108.9>	<82.1>	<26.8>		
	Teteve ally a second and	Thermal	22.7	23.4	(0.7)	(3.1)
	Internally generated	Nuclear	(0.1)	(0.1)	(0.0)	0.2
Power		<utilization rate=""></utilization>	<->	<->	<->	
Supplied		Renewable energy	0.0	0.0	(0.0)	132.7
	Externally	Wholesale	(2.4)	(1.7)	(0.7)	39.8
	generated(*)	Purchased power	5.2	4.9	0.3	5.4
	Power used for pum	ped storage	(0.2)	(0.2)	(0.0)	0.8
	Total		28.1	28.5	(0.4)	(1.6)

\* Externally generated represent power output that we grasp at the end of the 2018/1Q.

[Principal Figures]		2018/1Q (A)	2017/1Q (B)	Change (A-B)	
CIF price: crude oil	(\$/b)	71.0	53.3	17.7	*CIF o
FX rate (interbank)	(yen/\$)	109.1	111.2	(2.1)	2018

\*CIF crude oil price for 2018/1Q is tentative.

# 06 (Reference) Impact of Accrued Income Incurred by Fuel Cost Adjustment System (Result) (CHUBU Electric Power



\* Accrued income include the effect of time lag of gas supply business.



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### <Forecast>

### Forecasts of financial results have been revised from the previous announcement made in April 27, 2018.

- Consolidated operating revenues will increase mainly due to an increase of fuel cost adjustment charge.
- Consolidated ordinary income will decrease mainly due to expansion of time lag loss because of rise in fuel price. Further, consolidated ordinary income excluding the effect of time lag is expected to be approx.150.0 billion yen (No change from previous announcement).

### [Consolidated]

- Operating revenues will increase for 2 consecutive years since FY2017.
- Ordinary income will decrease following FY2016, for the first time in 2 years.

				(Billion yen,%)
	Current	April 27	Chan	ge
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	2,980.0	2,950.0	approx. 30.0	1.0
Operating income	110.0	145.0	(approx. 35.0)	(24.1)
Ordinary income	100.0	135.0	(approx. 35.0)	(25.9)
Net income attributable to owners of parent	75.0	100.0	(approx. 25.0)	(25.0)

### [(Reference)Non-consolidated]

				(Billion yen,%)
	Current	April 27	Chang	e
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	2,670.0	2,640.0	approx. 30.0	1.1
Operating income	90.0	125.0	(approx. 35.0)	(28.0)
Ordinary income	80.0	115.0	(approx. 35.0)	(30.4)
Net income	60.0	85.0	(approx. 25.0)	(29.4)



[Principal figures]				(TWh,%)
[Principal figures]	Current	April 27	Chan	ge
(Electrical energy sold)	(A)	(B)	(A-B)	(A-B)/B
Low voltage	35.7	36.0	(0.3)	(0.8)
High voltage • Extra-high voltage	81.6	81.3	0.3	0.4
Total	117.3	117.3	-	
[Reference]				
Electrical energy sold including group companies (*1)	123.0	123.0	_	_

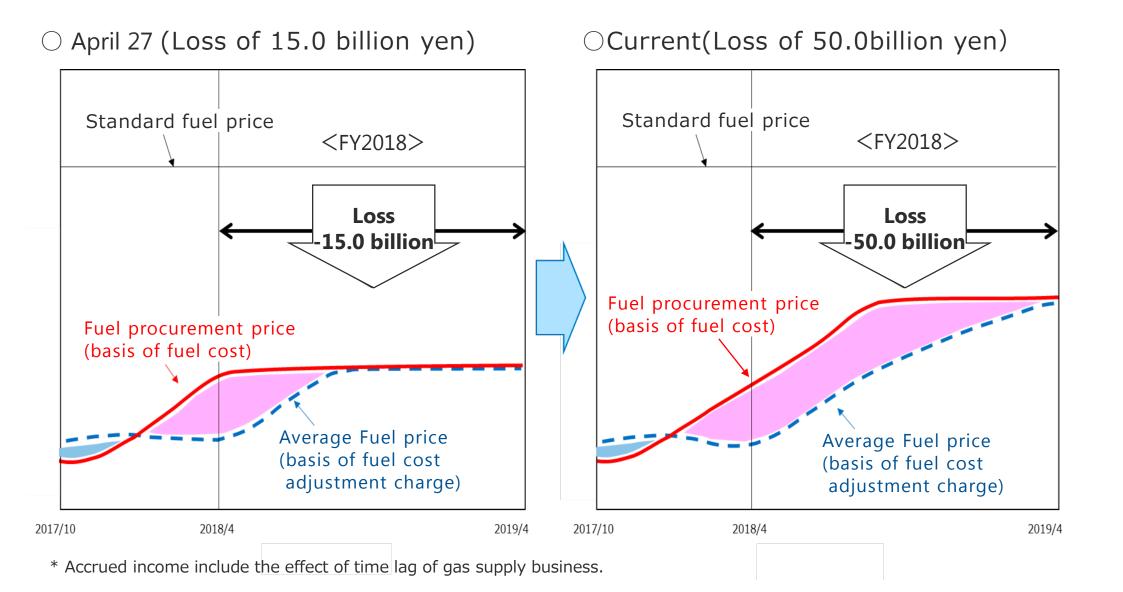
(Other principal figures)		Current	April 27
CIF price: crude oil	(\$/b)	approx. 74	approx. 65
FX rate	(yen/\$)	approx. 110	approx. 110
Nuclear power utilization rate	(%)	-	-

			(Billion yen)	
(Income sensitivity)		Current	April 27	
CIF price: crude oil	(1\$/b)	7.0	7.0	(*2,3)
FX rate	(1yen/\$)	6.5	5.5	(*2)
Flow rate	(1%)	0.8	0.8	_
Interest rate	(1%)	4.5	4.5	<u>.</u>

\*1 The sum of the company, consolidated subsidiaries, and equity method companies.

\*2 These figures represent income sensitivity for fuel expenses. Fluctuation of CIF price (crude oil) and FX rate will be reflected in sales revenue, in cases where average fuel price fluctuates and fuel cost adjustment system will be applied.

\*3 The impact value of crude oil price includes the impact of LNG price because LNG price is subject to crude oil price.

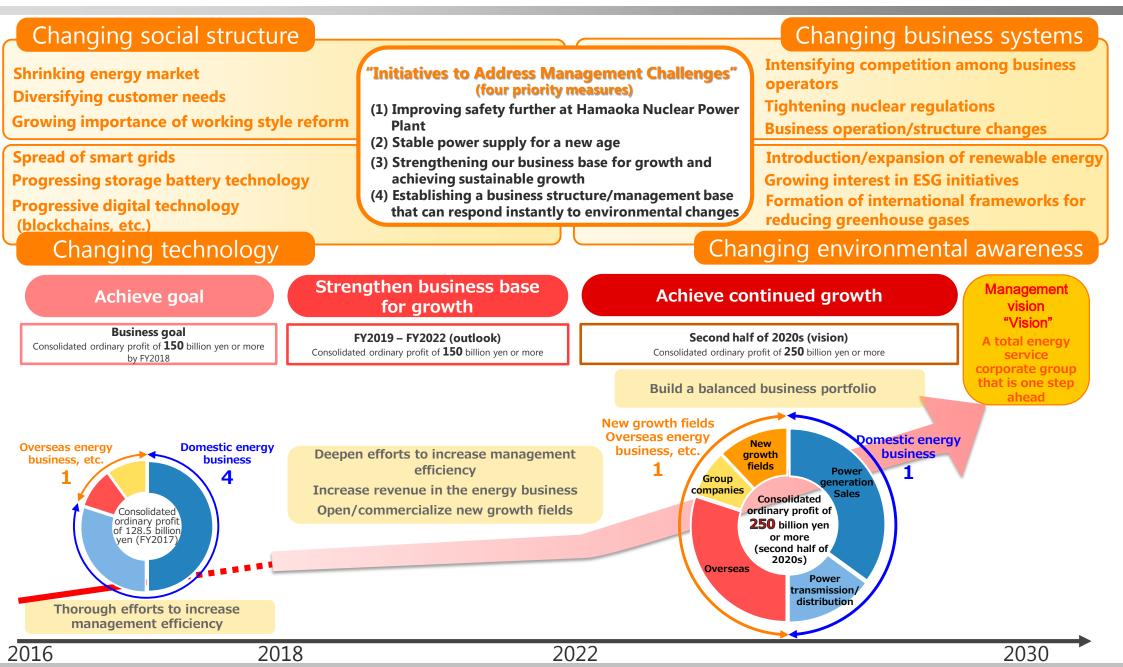




10

## Initiatives to Address Management Challenges and Toward Realization of Our "Vision"

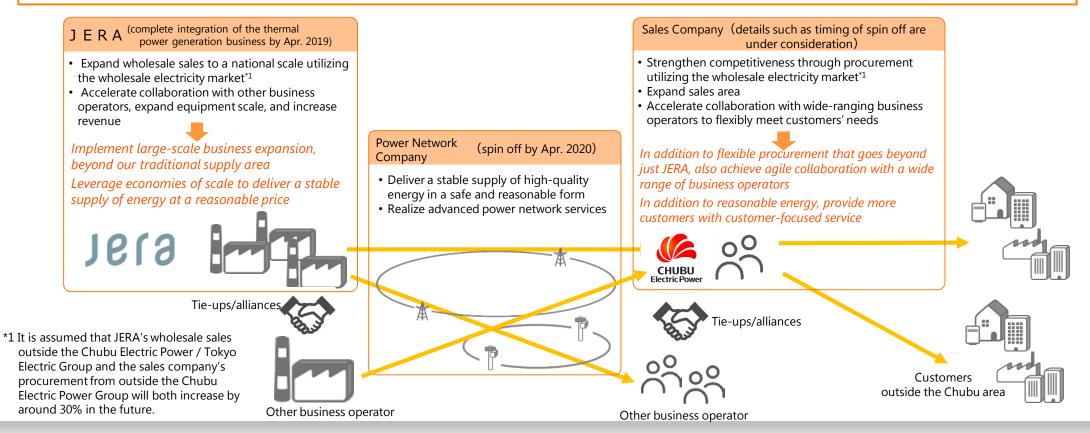




# **11** | Transition to a Business Model with Unbundling of Each Sector



- With the changes in the system, including full liberalization of the electricity retail market and the legal unbundling of the
  power transmission/distribution division, that made power generation, power transmission/distribution, and sales into different
  businesses, the operators of these businesses came to face their different markets (business activities area, business partners,
  customers).
- That is why we will make a transition by integration of the thermal power generation businesses into JERA and spinning off the
  power transmission/distribution and sales business to create a "business model with unbundling each sector". This is different
  from our traditional "vertical integration business model," in which operations from power generation to sales are conducted
  in an integrated system.
- By having each business entity facing its own market and carrying out autonomous initiatives, we will provide new services in addition to delivering a stable supply of high-quality energy in a safe and reasonable form.

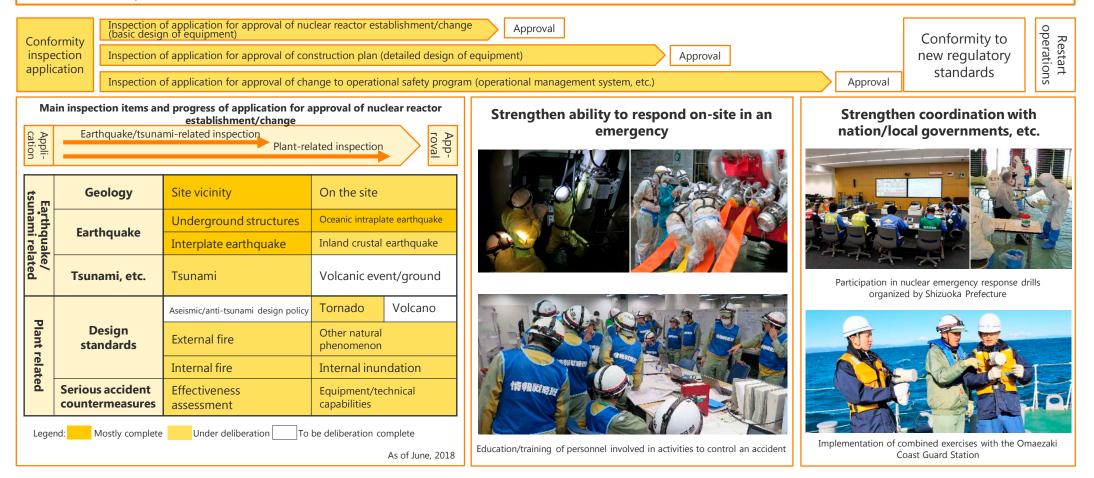


### Improving Safety Further at Hamaoka Nuclear Power Plant

# 12 | Safety improvement measures for Hamaoka Nuclear Power Plant (prevent accidents and prepare for their occurrence)



- Under a strong determination to "not allow another accident like that at the Fukushima Daiichi Nuclear Power Plant," the Hamaoka Nuclear Power Plant has strengthened its equipment measures to improve safety and is going through an inspection of conformity with new regulatory standards by the Nuclear Regulation Authority.
- Furthermore, we have strengthened our ability to respond on-site to ensure equipment functions effectively in an emergency and our coordination with national and local governments, etc., in case of an accident or problem.
- We will strive to improve safety further and provide careful explanations, aiming to be a power plant that earns more trust from the public.



### Improving Safety Further at Hamaoka Nuclear Power Plant

## 13 | Aiming for a power plant that is safer and more trusted



- In order for the business operator itself to squarely reconsider the safety of nuclear power and make efforts to
  continuously improve safety in the wake of the Fukushima Daiichi accident, the top management at Chubu Electric Power
  are taking responsibility for improving nuclear power safety and strengthening governance, risk management, and risk
  communication.
- We will push ahead with responses to the new inspection system that stresses independent safety using risk information, which will be introduced in fiscal 2020.

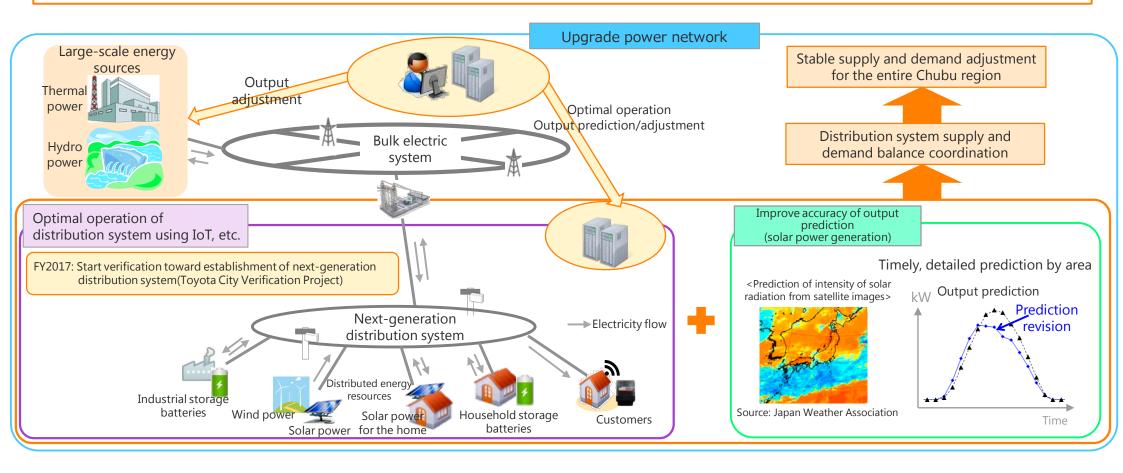


### Stable Power Supply for a New Age

# 14 | Responding to the introduction/expansion of renewable energy (upgrading the power network)



- In response to output fluctuations in renewable energy (distributed energy resources), we will improve the accuracy of output prediction and conduct optimal operation of distribution system using IoT, etc.
- On top of that, we will combine large-scale energy sources from the bulk electric system in an effort to provide a stable supply of power to the entire Chubu region.



#### 15 Improve management efficiency to strengthen business base <1>



Control replacement work when demand increases

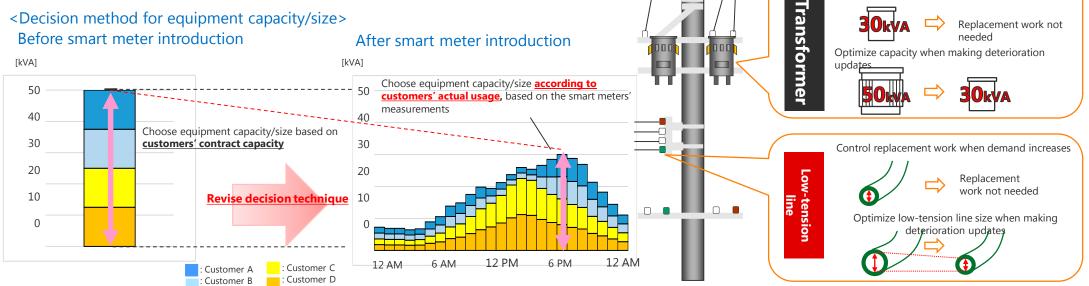
Replacement work not

Aiming to strengthen our business base through improved management efficiency, we will continually work at reducing repair costs and will streamline equipment in light of changes in the supply-demand structure caused by the introduction/expansion of renewable energy.

### [Specific initiative example: equipment rationalization using smart meters]

We will increase the capacity factor and reduce device costs by installing equipment according to customers' actual power usage, based on the use of measurements from smart meters introduced.

#### <Decision method for equipment capacity/size> Before smart meter introduction



# **16** Improve management efficiency to strengthen business base <2>



### [Specific initiative example: improving thermal efficiency of LNG combined cycle generation plants]

We are working on cutting fuel costs by improving the efficiency of existing LNG combined cycle generation plants. The following construction projects are being planned or implemented to further improve thermal efficiency, restore summer output capacity, and extend intervals between inspections.

- •Replacement of Kawagoe Thermal Power Station Unit No. 3's gas turbine into a newer model (completed)
- •Replacement of Joetsu Thermal Power Station's hot gas turbine parts into a newer model (completed)

•Replacement of Nishi-Nagoya Thermal Power Station Unit No.7's gas turbine into a newer model (replacement underway) Harnessing the performance of latest gas turbine models, we are taking steps to further improve output change rates and shorten the time for starting up LNG combined cycle generation plants, in an effort to address significant supply-demand

fluctuations stemming from an increase in solar power generation.



Carrying a gas turbine on the premises



Installing a newer gas turbine

### Strengthening Our Business Base for Growth and Achieving Sustainable Growth

#### 17 Improve management efficiency to strengthen business base <3>



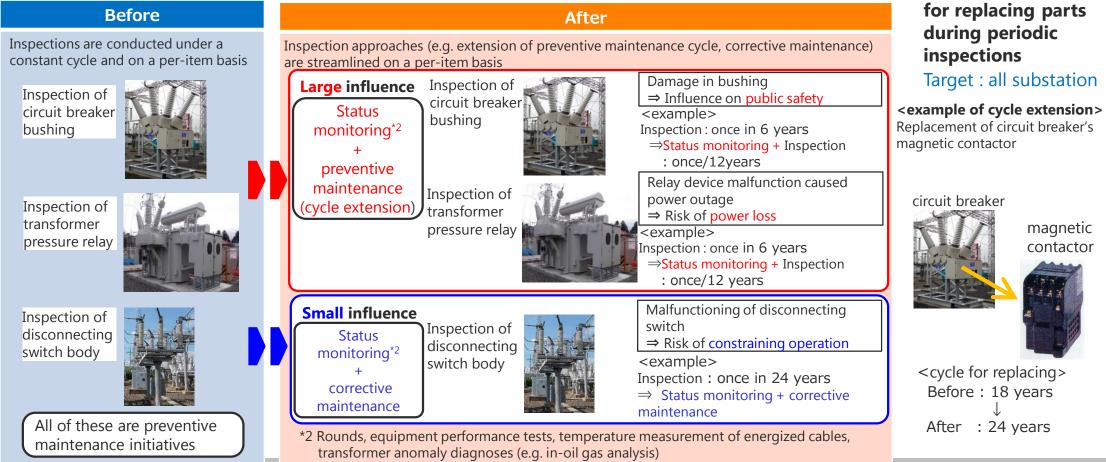
### [Specific initiative example: improving thermal efficiency of LNG combined cycle generation plants]

Based on past hazard results and process of failure development, we categorize periodic inspection items for distribution substation transformation equipment that undergo periodic inspection from preventive maintenance aspects into groups with "large" and "small"\*<sup>1</sup> impact that are caused during failure. We save costs by doing so and carefully examining necessary inspection items and cycles.

By evaluating hazards after previous inspection cycle extensions and by evaluating accelerated aging through the use of removed items, we extend the cycle for replacing parts during periodic inspections and save costs accordingly.

\*1 Matters challenging energy supply or involving public safety issues are categorized as "large" impact. Issues that constrain operation are grouped into the "small" impact category.  $\bigcirc$  Cycle extension

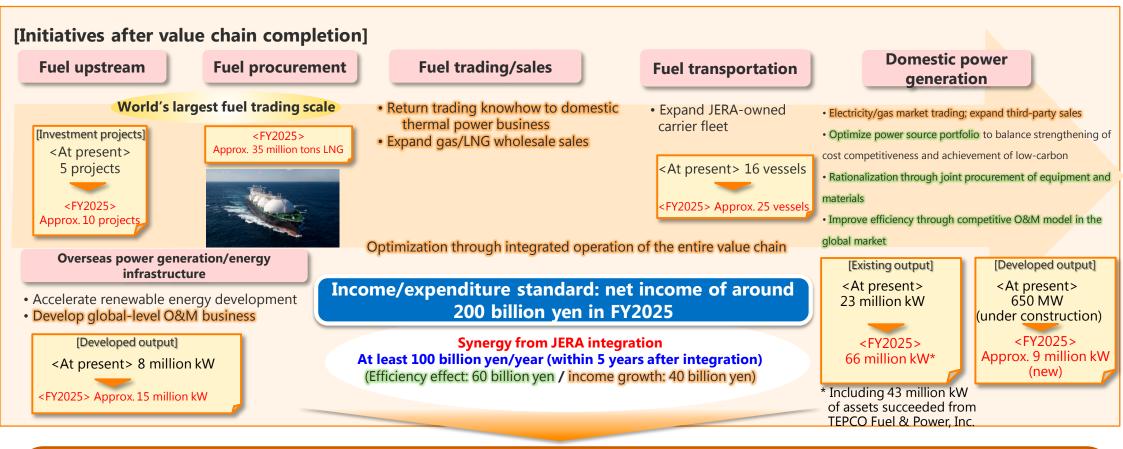
 $\bigcirc$  Review of periodic inspection (items and cycles) Target : distribution substation



# **18** | Accelerate growth after completion of value chain in JERA



We will complete a whole value chain from upstream investments and fuel procurement through power generation to power and gas wholesale sales by integrating our existing thermal power generation business, etc., with JERA in April 2019.
 We will aim to become a global energy corporate group by producing synergistic effects with the already integrated fuel/overseas power generation business and energy infrastructure business and by accelerating growth in each business field.

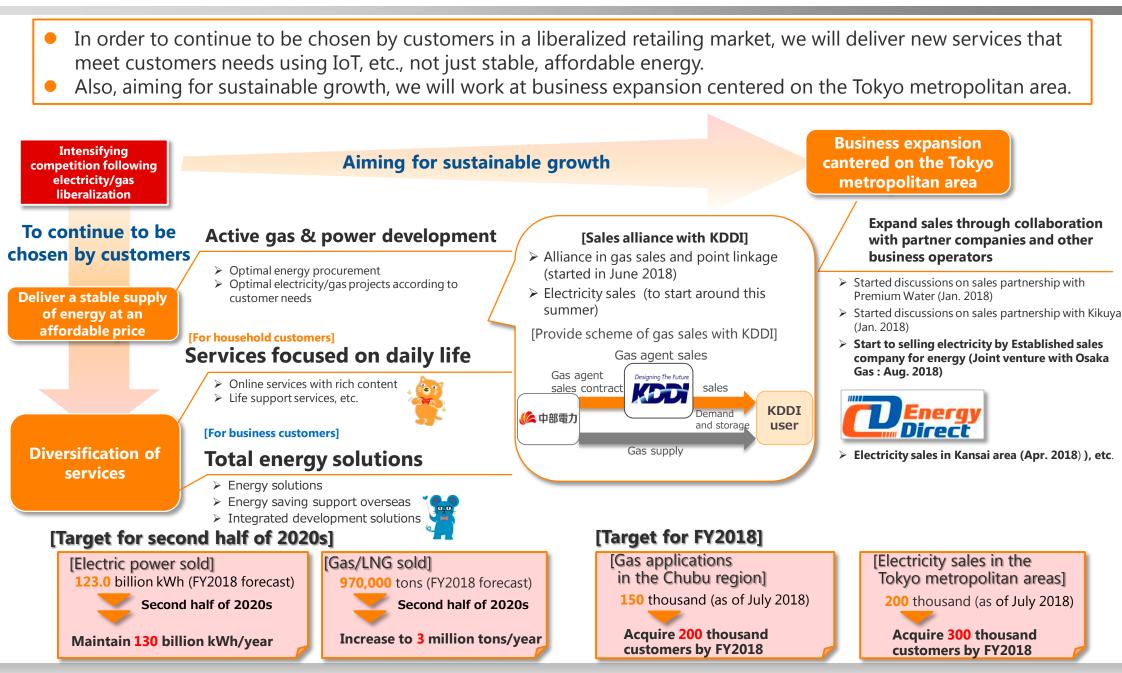


Stably deliver energy that is internationally competitive / Increase the corporate value of the Chubu Electric Power Group

### Strengthening Our Business Base for Growth and Achieving Sustainable Growth

## **19** | Provide energy services that continue to be chosen by customers

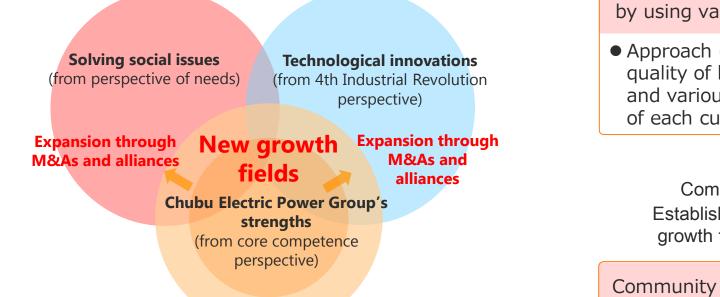




20 Establish new growth fields (provide new forms of community)



The Chubu Electric Power Group has contributed to regional development through the energy business. In order to help resolve social issues faced by communities, we will establish growth fields by working at providing "new forms of community."



We have cultivated in the energy business

- connections and relationships of trust with customers in the community,
- knowhow building and operating electricity infrastructure, and
- energy saving and CO2 reduction proposals based on optimal use of energy that leverage our technical capabilities, proposal capabilities, and relationships of trust with customers

Services to raise the quality of life of individuals by using various data

• Approach of attempting to maintain and raise quality of life by making use of our customer base and various data, focusing on the inconveniences of each customer's life

Combine two approaches in various ways

Establish new growth fields

Provide new forms of community

Community services based on connecting and evolving several kinds of social infrastructure

• Approach of making customers' lives convenient and comfortable by evolving energy infrastructure into community support infrastructure that can meet social issues, working on community units of a certain scope

### Establishing a Business Structure/Management Base that can Respond Instantly to Environmental Changes

#### Carrying out ESG management (E) 21



We carry out business activities with awareness of ESG (environment, society, and governance), in order to fulfil our corporate social responsibility (CSR), increase our medium- to long-term corporate value, and contribute to the sustainable development of society.

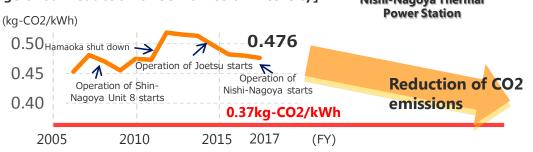
#### (Environment)

In line with the Chubu Electric Power Group Basic Environmental Policy, we establish action plans as specific goals and practice environmental management.

### **Reduce CO2 emissions**

- Develop, introduce, and expand renewable energy
- Actively develop power sources
- Increase connection volume to transmission lines
- □ Increase thermal efficiency of thermal power generation
- World-class high efficiency power generators
- Optimize power plant operation using IoT
- **Use nuclear power generation**

#### [Image of our reduction of CO2 emission intensity]





Mega Solar Shimizu



**Nishi-Nagoya Thermal** 

### Help customers/communities reduce CO2



# 22 Carrying out ESG management (S · G)



### (Social)

So that employees will work with vitality, we will promote work-life balance, based on the idea that life (physical and mental health and a fulfilling life) is the foundation. Also, we will contribute to sustainable development of communities by valuing communication with members of the community.

### (Governance)

Aiming for sustainable growth, we will strive to further enhance our corporate governance, taking fairness and transparency as the core of management. In April 2018, we will establish a Risk Management Meeting and make a structure for integrated management of risks that would have a material effect on the company's management.

### For employees

#### Work style reform (increase productivity)

Expand flextime system company-wide (from April 2018)Introduce telework (from April 2018)

#### **Promote diversity**

Provide continual training to double, at least, the number of women in managerial positions compared to FY2014 (FY2020)

#### **Health management**

□ Complete medical check-ups for all employees (from April 2019)

### For the community

#### **Communication with community members**

Cooperation with universities (Mie University, etc.)Women monitors (tours of energy facilities, etc.)

### Social contribution activities

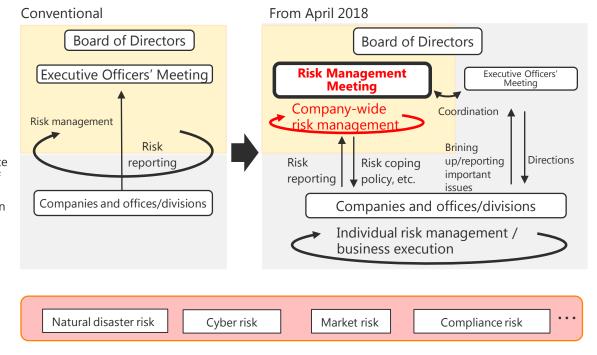
PR for safe electricity use

Guest classes / workplace experience



Certified as an "Outstanding Health Management Corporation 2018 (White 500)" by the Ministry of Economy, Trade and Industry and the Nippon Kenko Kaigi.

### Risk management system



# 03 Reference Data(1): Financial Results



	(Rounded down to nearest 100 million yen.) (Billion yen,%)					
	2018/1Q 2017/1Q Change					
	(A)	(B)	(A-B)	(A-B)/B		
Operating revenues	684.4	655.4	29.0	4.4		
Non-operating revenues	9.8	5.0	4.8	97.5		
Ordinary revenues	694.3	660.4	33.9	5.1		
Operating expenses	648.0	623.4	24.5	3.9		
Non-operating expenses	6.8	8.5	(1.7)	(20.0)		
Ordinary expenses	654.8	632.0	22.8	3.6		
<operating income=""></operating>	<36.4>	<31.9>	<4.4>	<14.0>		
Ordinary income	39.5	28.4	11.0	38.9		
Reserve for fluctuation in water levels	-	(0.7)	0.7	_		
Income taxes	11.2	8.1	3.1	38.2		
Net income attributable to non-controlling interests	0.1	0.3	(0.1)	(57.7)		
Net income attributable to owners of parent	28.0	20.6	7.3	35.7		

# 24 Non-consolidated Statements of Income <1>: Operating Revenues



(Rounded down to nearest 100 million yen.) (Billion yen,%)							
		2018/1Q (A)	2017/1Q (B)	Change (A-B) (	e (A-B)/B	[Major factors for change]	
Electricity sales reven	ues	486.5	490.7	(4.2)	(0.9)	<ul> <li>A decrease in electrical energy sold</li> </ul>	
Sold power to other outilities(*1)	electric	21.9	14.5	7.3	50.9		
						- An increase in wholesale volume	
transmission revenue	, etc. (*2)	17.5	11.0	6.5	59.0		
Grant under act on p of renewable energy		76.5	70.4	6.0	8.6		
electricity						<ul> <li>An increase in purchase of renewable energy sourced</li> </ul>	
Other		6.7	6.0	0.6	11.4	electricity	
Electricity business							
operating revenues		609.3	592.8	16.4	2.8	- Gas supply business : +3.2	
Incidental businesses operating revenues		15.0	11.7	3.3	28.6	<gas lng="" sold=""> 202 thousand tons → 217 thousand tons</gas>	
Total operating revenues		624.3	604.5	19.7	3.3		

\*1 Sold power to other utilities, and Sold power to other suppliers

\*2 Transmission revenue and Settlement revenue among utilities

# 25 Non-consolidated Statements of Income <2>: Operating Expenses



(Rounded					
	2018/1Q	2017/1Q	Chai	<u> </u>	
	(A)	(B)	(A-B)	(A-B)/B	[Major factors for change]
Salaries and employee benefits	45.5	44.4	1.1	2.6	- Differences in power generated : -10.4
Fuel	156.3	153.6	2.7	1.8	• Improvement of thermal efficiency by Nishi-Nagoya thermal power
Nuclear back-end expenses (*1)	4.0	3.2	0.7	24.1	plant
Purchased power etc. (*2)	124.3	115.3	9.0	7.8	•An increase in hydroelectric power generated
Transmission charges etc. (*3)	4.8	3.5	1.2	34.5	- Increase in unit price : +13.1 [•Rise in CIF price ]
Maintenance	40.0	47.0	(7.0)	(14.9)	- An increase in purchase of renewable
Depreciation	57.5	58.1	(0.5)	(0.9)	energy sourced electricity
Taxes other than income taxes	29.2	29.3	(0.0)	(0.2)	<ul> <li>An increase in extra-regional power supply</li> </ul>
Levy under act on purchase of renewable energy sourced electricity	66.4	61.6	4.8	7.8	- A decrease in repair work in thermal
Other	47.2	47.8	(0.6)	(1.3)	
Electricity business operating expenses	575.7	564.1	11.5	2.0	
Incidental business operating expenses	15.0	11.5	3.5	30.5	
Total operating expenses	590.7	575.7	15.0	2.6	- Gas supply business : +3.4

\*1 Contributions for reprocessing of irradiated nuclear fuel, Designated radioactive waste disposal expenses, Decommissioning nuclear power plants

\*2 Purchased power from other utilities, Purchased power from other suppliers, Portion of the existing power generation expenses such as spent fuel reprocessing for which contracts have been signed

\*3 Transmission charges, Supply connection transmission charges, Settlement revenue among utilities



	(Rounded down to	o nearest 100 n			
	2018/1Q (A)	2017/1Q (B)	Cha (A-B)	nge (A-B)/B	[Major factors for change]
Operating income	33.6	28.8	4.7	16.5	
Non-operating revenues	8.1	5.2	2.9	56.7	<ul> <li>Electricity business : +4.9 (28.6 → 33.6)</li> <li>Incidental business : -0.1</li> </ul>
Non-operating expenses	6.4	8.1	(1.6)	(20.9)	$(0.1 \rightarrow -0.0)$
Ordinary revenues	632.5	609.8	22.7	3.7	
Ordinary expenses	597.1	583.8	13.3	2.3	
Ordinary income	35.3	25.9	9.3	36.2	
Reserve for fluctuation in w levels	ater _	(0.7)	0.7	-	
Income taxes	9.9	6.7	3.2	48.8	
Net income	25.3	19.9	5.3	27.0	

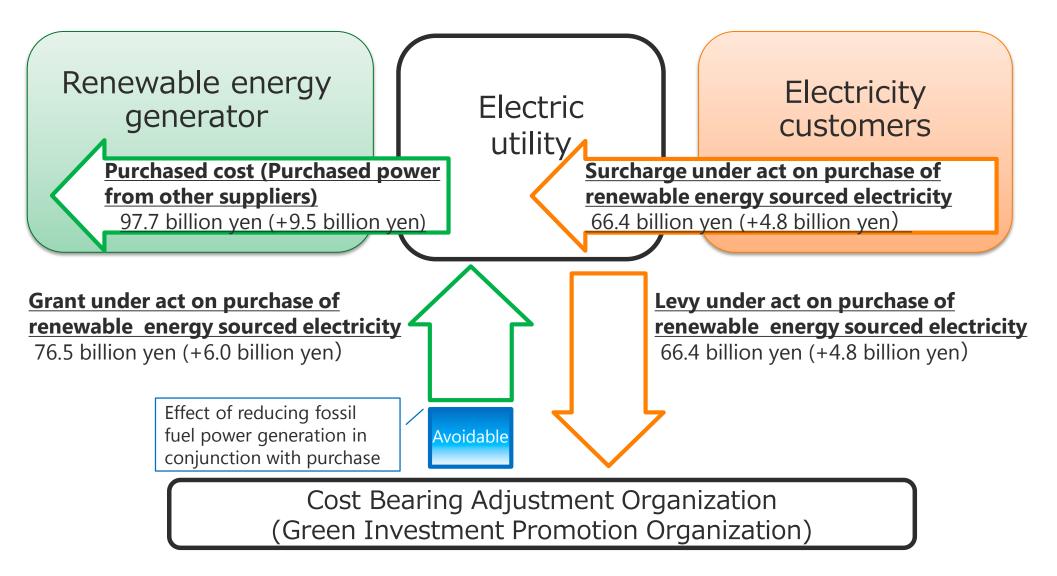


		(Rounded down to n	(Billion yen)	
		2018.6 (A)	2018.3 (B)	Change (A-B)
Acceta	Consolidated	5,496.4	5,529.4	(32.9)
Assets	Non-consolidated	4,962.1	5,001.2	(39.0)
Liebilities	Consolidated	3,695.2	3,737.4	(42.1)
Liabilities	Non-consolidated	3,503.0	3,556.1	(53.0)
Net assets	Consolidated	1,801.1	1,791.9	9.1
	Non-consolidated	1,459.1	1,445.0	14.0
Shareholders' equity ratio (%)	Consolidated	31.6	31.3	0.3
	Non-consolidated	29.4	28.9	0.5
Outstanding interest-bearing debt	Consolidated	2,648.5	2,595.6	52.9
	Non-consolidated	2,607.1	2,569.4	37.6

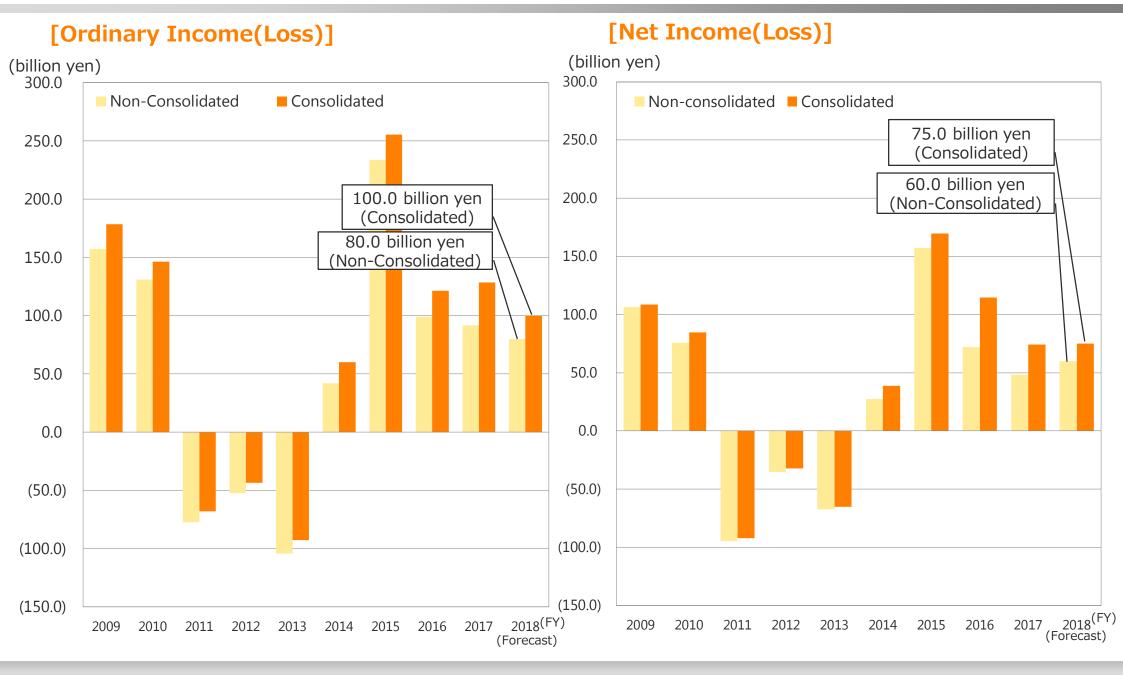
# 28 Impact of the Feed-in-Tariff Scheme for Renewable Energy



<Result of 2018/1Q (change from the previous year in parenthesis)>

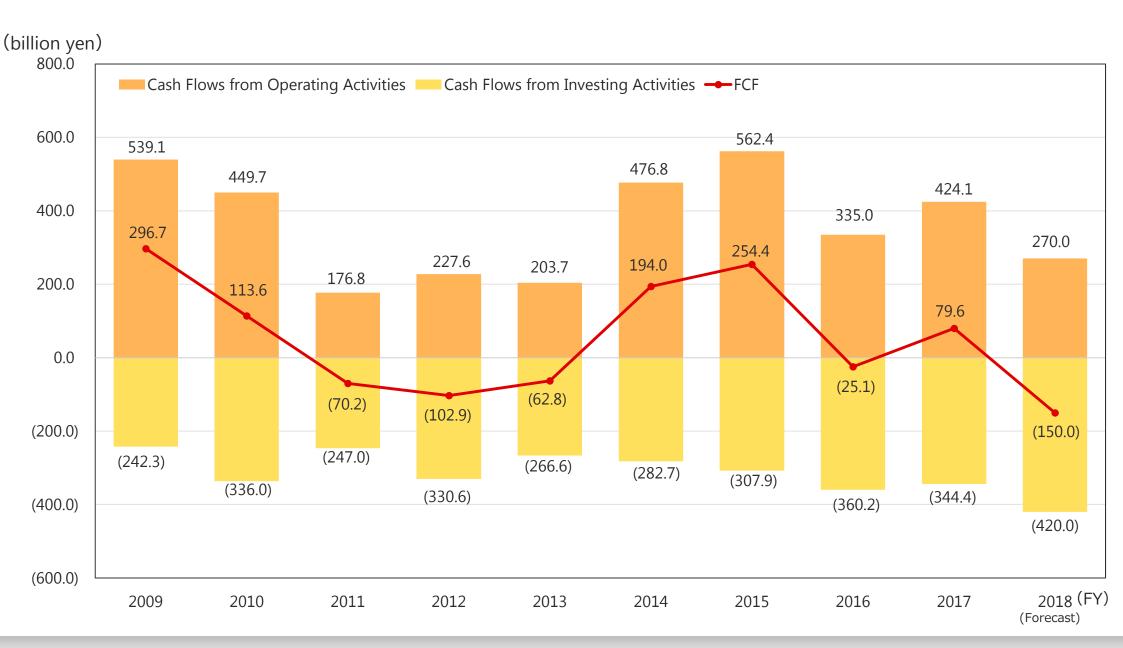






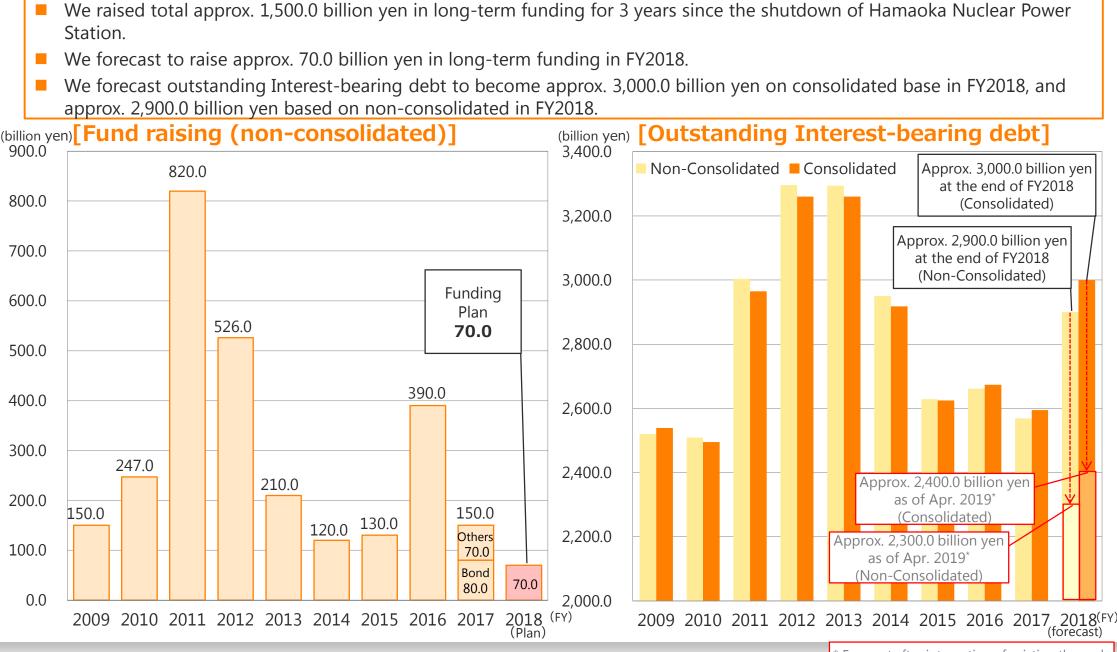
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# 31 | Fund Raising and Outstanding Interest-bearing Debt

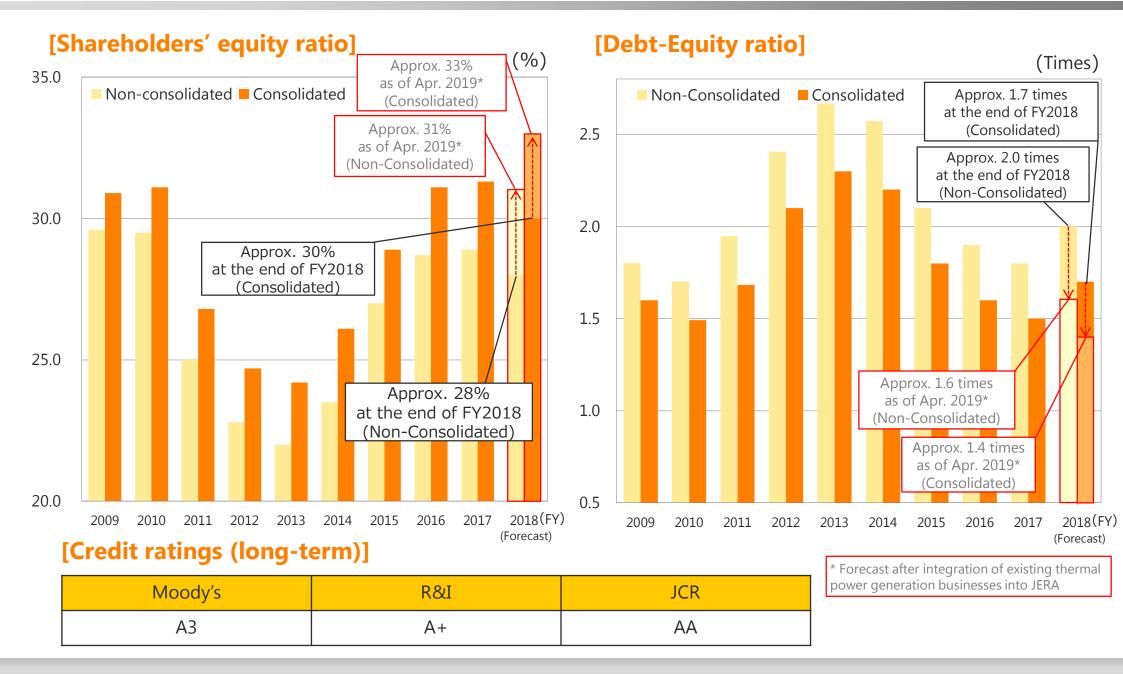




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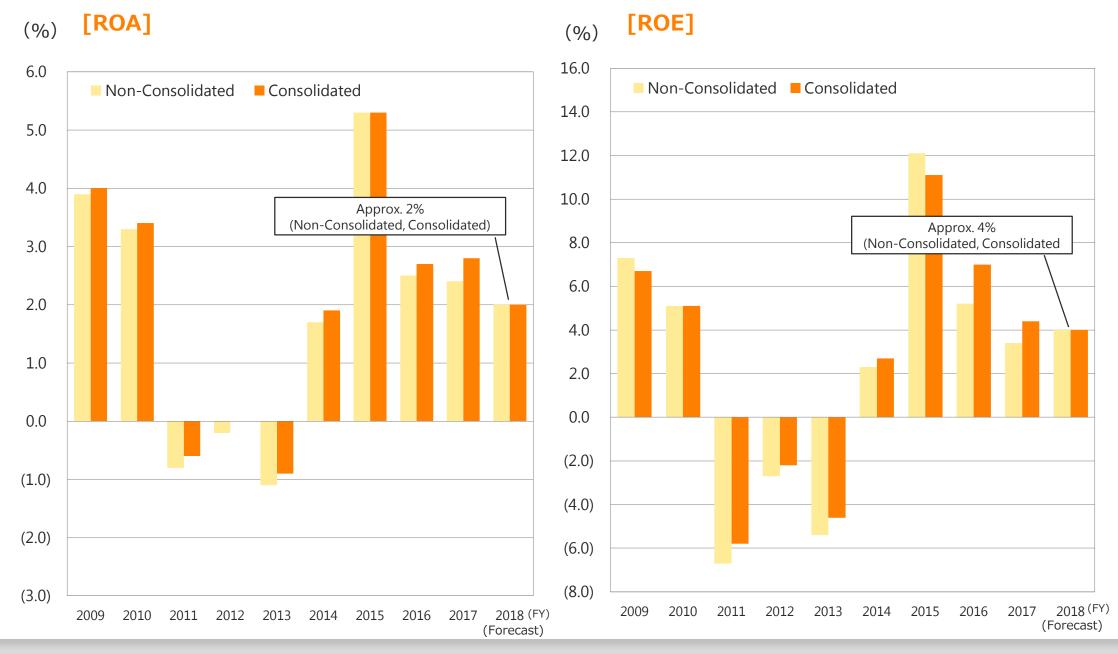
\* Forecast after integration of existing thermal power generation businesses into JERA





# 33 ROA and ROE





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[Operating revenues]			(Rounded down to nearest 100 million yen.) (Billion yen)				
	2018/1Q (A)	external customers	2017/1Q (B)	external customers	Change (A-B)	external customers	
Power Generation	242.6	12.7	239.2	6.4	3.4	6.3	
Power Network	169.3	25.2	176.2	17.2	(6.8)	8.0	
Customer Service & Sales	628.7	604.7	624.1	595.0	4.5	9.7	
Others (*)	153.7	41.6	154.2	36.7	(0.4)	4.9	
Total		684.4		655.4		29.0	

[Operating income and loss]		(Rounded down to nearest 1	00 million yen.) (Billion yen)
	2018/1Q (A)	2017/1Q (B)	Change (A-B)
Power Generation	9.1	9.2	(0.1)
Power Network	2.6	3.7	(1.0)
Customer Service & Sales	18.1	7.9	10.2
Others (*)	6.5	11.0	(4.5)
Operating income	36.5	32.0	4.5

\* "Others" is business segment that is excluded from reporting segments and includes nuclear power division, administrative division and other consolidated subsidiaries.



		2018/1Q	Target
Chubu region	The number of applications ; New electric tariff menu	1.48 million	
Outside of Chubu region	Electrical energy sold outside of Chubu region	1.5 billion kWh	Increase to 30.0 billion kWh/year (second half of 2020s) in the Tokyo metropolitan area
	The number of applications ; Electricity in the Tokyo metropolitan area	200 thousand	Acquire 300 thousand customers by FY2018
Cas	Gas and LNG sold	21.7 thousand tons	Increase to 3,000 thousand tons/year (second half of 2020s)
Gas	The number of applications ; Gas (for household, etc.)	150 thousand	Acquire 200 thousand customers by FY2018
KatEne members		2.04 million	



٦)	W	h,	%)
----	---	----	----

		FY2	Change			
	Apr.	Apr. May Jun.		AprJun. (A)	(A-B)	(A-B) /B
Low voltage	2.9	2.5	2.3	7.8	(0.7)	(8.5)
High voltage Extra-high voltage	6.4	6.3	6.9	19.5	(0.3)	(1.6)
Total	9.3	8.9	9.1	27.3	(1.0)	(3.7)

		FY2017					
	Apr.	Мау	Jun.	AprJun. (B)			
Low voltage	3.6	2.7	2.3	8.5			
High voltage Extra-high voltage	6.6	6.3	6.9	19.8			
Total	10.1	9.0	9.2	28.3			

# 03 Reference Data (2) : Management Information

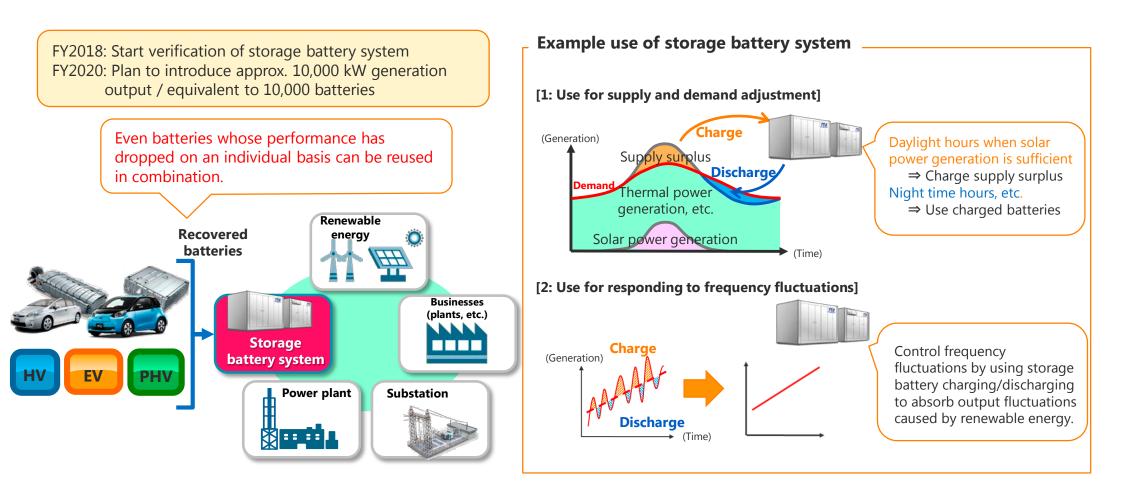
#### Stable Power Supply for a New Age

37

Responding to the introduction/expansion of renewable energy (reuse storage batteries for EVs)



 In cooperation with Toyota Motor Corporation, we will start new verification aimed at establishing a highcapacity storage battery system that reuses storage batteries for EVs, in order to use it in various distribution system issues caused by the introduction/expansion of renewable energy.



### Strengthening Our Business Base for Growth and Achieving Sustainable Growth

# 38 | Initiatives of JERA <1>



#### [Domestic power generation business (New establishment and replacement)]

Bring together the knowledge and technology of both companies to establish and replace thermal power stations, and thereby seek a balance between achieving improved competitiveness and addressing global warming issues.

We will develop fair competitive activities and realize sound market development in the newly established domestic electric power market etc.

Place (Fuel)	Output	Start of operation
Hitachinaka (Coal)	650 MW	FY 2020
Goi (LNG)	Approx. 2,340 MW	FY 2022 - FY 2023
Anegasaki (LNG)	Approx. 1,950 MW	FY 2022 - FY 2023
Yokosuka (Coal)	Approx. 1,300 MW	FY 2023

#### [Assets subjected to integration of existing thermal power generation businesses into JERA]

	Assets	subjected to integration	Chubu	TEPCO FP
	The sum of the second	Existing thermal power generation	10 locations <sup>*1</sup>	15 locations <sup>*2</sup>
	Thermal power generation business	Generation capacity <sup>*3</sup> (MW)	23,410	42,960
	generation business	Electricity generated <sup>*4</sup> (billion kWh)	1,102	1,902
Asse	Fuel acceptance/	LNG terminals	Owned terminals : 3 locations <sup>*5</sup> Joint terminal : 1 location <sup>*6</sup>	Own terminals : 2 locations <sup>*7</sup> Joint terminal : 2 locations <sup>*8</sup>
ets	storage/gas transmission business	Tank capacity(million kL)	1.93	2.98
		Payout amount <sup>*4</sup> (million tons)	12.77	22.57
	Deleted exercise	Subsidiaries	2 companies <sup>*9</sup>	6 companies <sup>*10</sup>
	Related companies	Affiliated companies	4 companies <sup>*11</sup>	4 companies <sup>*12</sup>

\*1 Shin-Nagoya, Yokkaichi, Chita, Taketoyo, Nishi-Nagoya, Atsumi, Chita Daini, Kawagoe, Hekinan, Joetsu \*2 Futtsu, Chiba, Goi, Anegasaki, Sodegaura, Yokohama, Yokosuka, Kawasaki, Minami-Yokohama,

Higashi-Oghishima, Oi, Shinagawa, Hitachinaka, Hirono

\*3 As of 1 January 2018

\*4 Results for FY2016

\*5 Kawagoe LNG Terminal, Yokkaichi LNG Center, Joetsu LNG Terminal

\*6 Chita LNG Joint Terminal

\*7 Futtsu LNG Terminal, Higashi-Ogishima LNG Terminal

\*8 Sodegaura LNG Joint Terminal, Negishi LNG Joint Terminal

\*9 Chita L.N.G Co., Ltd., Chita Berth Co., Inc.

\*10 Bio Fuel Co., Inc., Fuel TEPCO, Tokyo Waterfront Recycle Power Co., Ltd., Kawasaki Steam Net Co., Ltd., Nanso Service Co., Ltd., Ogishima Gas Supply Co., Ltd.

\*11 Kasumi Berth Co., Inc., Aichi Kinuura Bio K.K.

Central LNG Marine Fuel Japan Co., Inc., Central LNG Shipping Japan Co., Inc.

\*12 Kimitsu Cooperative Thermal Power Company, Inc., Kashima Kyodo Electric Power Co., Ltd., Soma Kyodo Power Company, Ltd., Joban Joint Power Co., Ltd. (Only equity method affiliated companies)

### Strengthening Our Business Base for Growth and Achieving Sustainable Growth

39 | Initiatives of JERA<2>



#### [Fuel business (upstream, procurement, transportation, trading)] Optimum portfolio is create using the world's largest procurement scale and trading, and fuel procurement that can flexibly respond to change of business environment in the future is realized. Factors contributing to **OCreation of optimum portfolio of LNG** change in handling scale short-term and spot contract Procurement with short-term and Expansion of 5 MTPA Energy external sales spot contract Policy Combine various contracts to form the Improvement of optimum portfolio\* power generation Procurement with long-term contract efficiency Long-term contract Examination of acquisition of (Existing contract) upstream concession at the same time Long-term contract 35 MTPA \* Procurement by combining short-term and spot contract which has exceptional elasticity of (Existing contract) procurement amount and long-term contract which has exceptional economy and stability 15 MTPA As of July, 2016 FY 2030 Following completion of the transaction, JERA Trading("JERAT") will become one of the (Coal) Signing of binding agreements for the acquisition of EDF Dec, 2016 largest coal traders globally, with a major presence in both the Atlantic and Pacific basins Trading's coal and freight business and total physical coal sales of approximately 60 million tonnes per annum. JERA will continue to focus on building and maintaining an optimal LNG procurement (LNG) Conclusion of LNG Sales and Purchase HOA with Oct, 2017 portfolio that enables economical and competitive procurement, as well as flexibility to Malaysia LNG respond to changes in the business environment. Through JERAT, JERA will establish a system to globally conduct risk assessment and (LNG) Signing of binding agreements to form an LNG management of LNG procurement and sales in the first half of 2019, and begin optimizing July, 2018 optimization and trading joint venture the LNG portfolio. [Overseas power generation business] By expanding power generation and energy infrastructure business overseas, economic growth and reduction of environmental load in developing countries are supported and new revenue source is acquired. The first new power generation project outside of Japan in which JERA will take part, after Jan, 2017 (US) Participation in Cricket Valley Gas Thermal IPP succession of overseas power generation business Acquisition of a part of shares from ReNew in India. Feb, 2017 (India) Participation in Renewable Energy Business Aim to construct the power generation portfolio that includes renewable energy. actively participate in energy projects situated in its portfolio regions to ultimately become a key player in energy markets in those regions. JERA will also seek to benefit from gaining Oct, 2017 (US) Participation in Linden Gas Thermal IPP knowledge of NYISO, one of the most advanced US power markets.

### Strengthening Our Business Base for Growth and Achieving Sustainable Growth

40

Provide energy services that continue to be chosen by customers (expand business in the Tokyo metropolitan area)

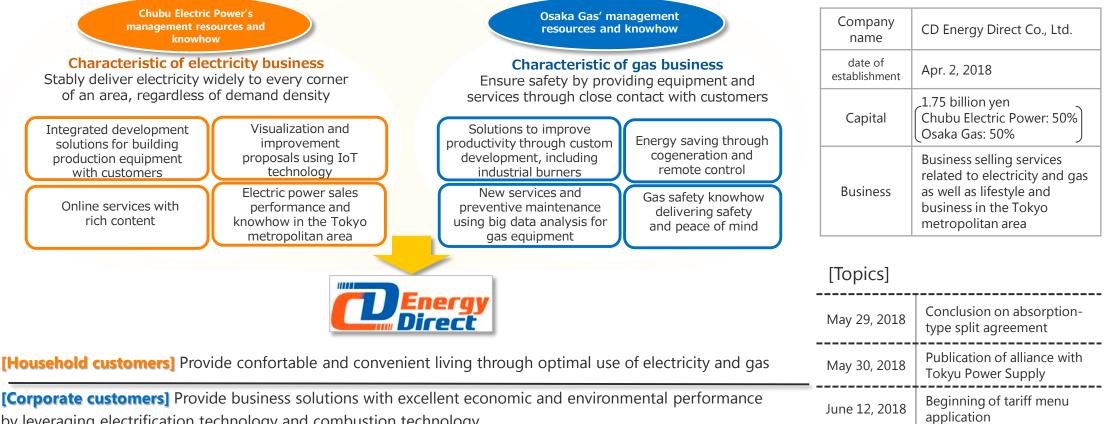


Beginning of power and gas

supply

Aug. 1, 2018

- We jointly established a new company with Osaka Gas to conduct sales of services related to electric power/gas, lifestyle, and business.
- By combining management resources and business knowhow cultivated by both companies in the electricity and gas businesses and making the most of them in the Tokyo metropolitan area, we will contribute to society by maximizing the value provided to household and corporate customers.

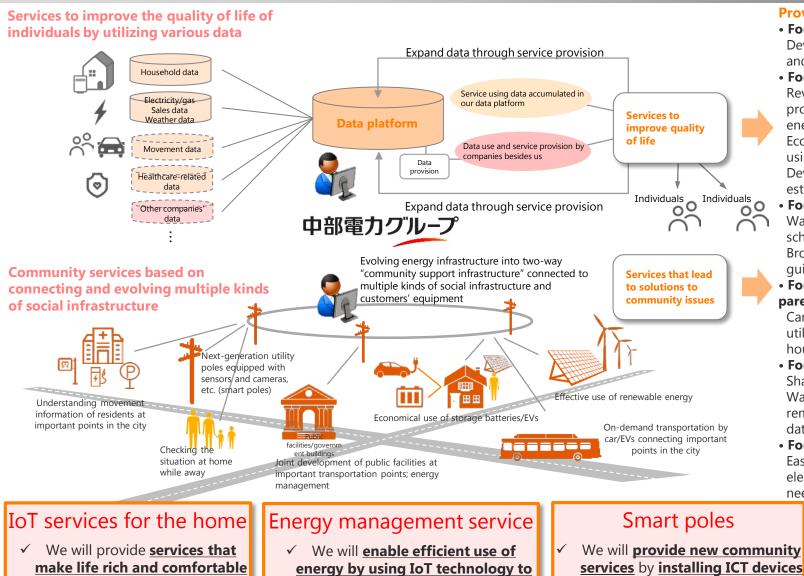


by leveraging electrification technology and combustion technology

Furthermore, we will create "new value" useful in living and business through services using IoT technology with the aim of establishing a new business model and providing services that go beyond the framework of the energy business operator.

# 41 | Establish new growth fields (provide new forms of community)





**connect** the energy resources of

multiple customers.

by using IoT devices to gather

and make use of household data.

#### Provide various "new forms of community"

- For new community development in urban areas: Development of safe communities where children and senior citizens can live with a sense of security
- For provincial cities with declining populations: Revitalization of the local economy through local production for local consumption of renewable energy

Economical and low-carbon local transportation using movement data and renewable energy Development of attractive communities through establishment of community support infrastructure

- For local communities such as schools: Watching over children as they go to and from school through coordination of movement data Broadcasting of safe transit routes in real time and guiding of children
- For households attempting to balance work and parenting:

Care of and watching over children through utilization of household data and remote control of household devices

• For families living far away

Sharing of electricity between families living far away Watching over the health of parents living in far removed communities by coordinating household data and medical data

• For far removed individuals

Easy trading of surplus solar power-generated electricity between individuals by matching the needs of far removed individuals

# Strengthening relationships with local governments

✓ Working with local governments such as Toyota City in Aichi Prefecture and Iida City in Nagano Prefecture, we will work at creating community services that lead to higher quality of life for various communities and residents.

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such as sensors and

communications equipment **on** 

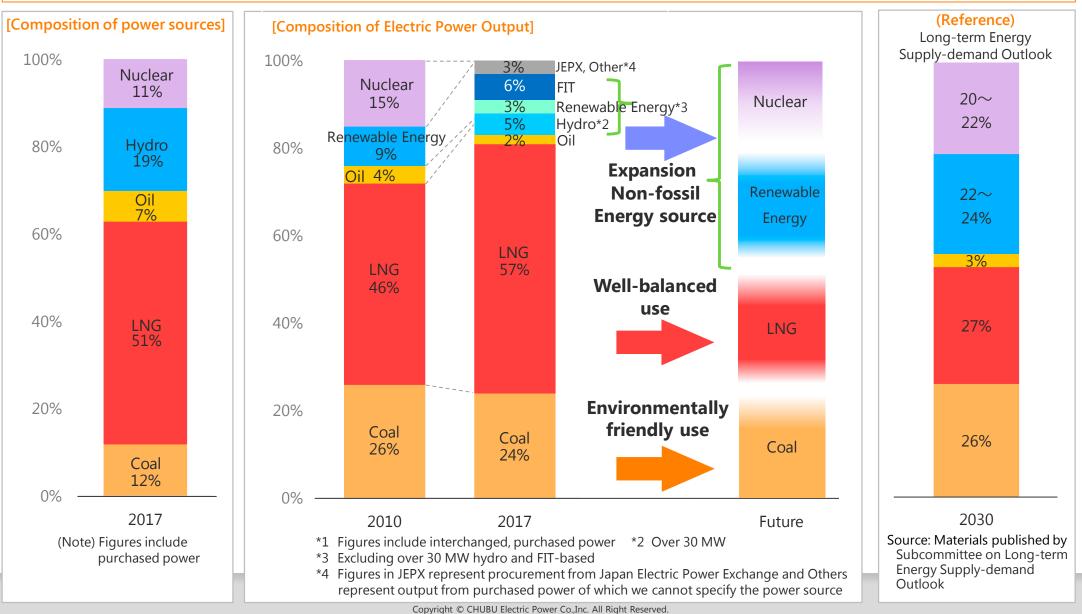
utility poles and using the data

obtained.

# 42 Carrying out ESG management (E : Composition of Electric Power Output)



Based on energy mix of Japan, aim for optimum composition of power sources by combining various types of power source, such as nuclear power, thermal power and renewable energy, in a well-balanced manner from the standpoint of "S+3E" while taking aging of equipment into account.

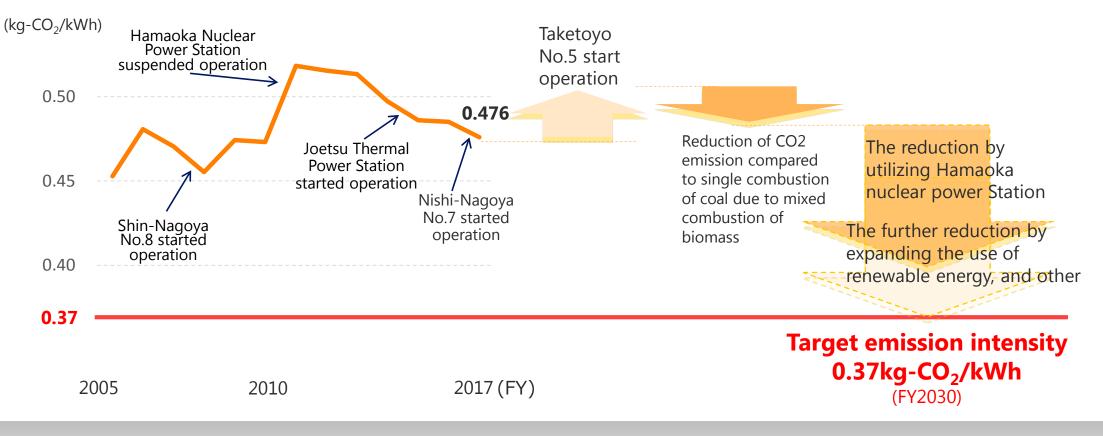


# 43 | Carrying out ESG management (E : Reduction of CO<sub>2</sub> emissions)



- Japanese government set up the target of reducing greenhouse gas emissions (26% reduced by FY2030) as Japan's goal of the Paris Agreements, and decide the proportion of nuclear power generation and renewable energy(Non-fossil energy sources ratio is more than 44% by FY2030) to achieve the target.
- The entire electric utility industry set the target emission intensity 0.37kg-CO2/kWh (FY2030).
- In order to achieve the target, we take various actions such as making thermal power facilities highly efficient and continuously utilizing nuclear power generation which largely contributes to reduction of CO2 emission.

# [Trends and outlook of CO<sub>2</sub> emission intensity (before reflecting CO<sub>2</sub> credits)]



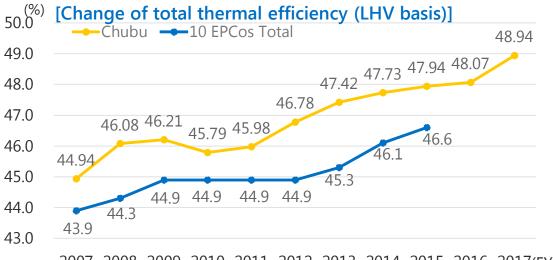
# Carrying out ESG management (E : Improvement of thermal efficiency)



: operation to start

riangle July 2021

: first firing



2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017(FY) (Note)"10 EPCos Total" values are based on " Environmental Action Plan by the Japanese Electric Utility Industry" published by The Federation of Electric Power Companies of Japan (FEPC)

# [Outline of development of Nishi-Nagoya Thermal Power Plant Unit No.7]

Output (at the generation end)	2,376 MW(1,188MW×2)
Thermal efficiency	Approx. 62% (LHV basis)
Fuel	LNG
operation started	Sep. 2017(Unit7-1) Mar. 2018(Unit7-2)

plant.

#### Effect due to start of operation

44

LNG consumptions
 Reduce 0.5 million tons per year

CO<sub>2</sub> emissions
 Reduce 1.4 million tons per year





	[Outlin			nto	f Tak	atovo		
	loutin		/elopme			Power Pla	ant Unit	No.5]
	Output (	at the de	neration e				) MW	-
		<u> </u>	y (LHV ba			-	IV basis)	
	петпа	Fuel	y (LITV Da	515)				6
						Coal·Woo		5
			type				en pellet	
	Wood		<sup>f</sup> uel burniı ratio	ng	Арр	orox. 17% rati		value
	biomass	Annua	Annual use of fuel			Approx. 0.5	million to	ons
)	Electricity generated by Biomass power				Approx. 1.2 TWh per year			
			pan's large eration out			outpu	le unit's ge t including - and co-firi	both
	THE REAL	$\geq$			1	Effect due t	to start of o	peration
							ne stable and Ily priced ba ource	
						CO <sub>2</sub> emis <b>Reduce 0.9</b> * Compariso of coal	million ton	
ז	[Constru	iction pro	ogress of	Take	toyo Ī	hermal Po	wer Plant	:]
16		FY2017	FY2018	FY	2019	FY2020	FY2021	FY2022
		▼Ja	n. 2018 : prepa	i ratory '	works sta	l rted		Mar. 2022
							· ·	

▼Mar. 2018 : construction plan notified

▲Apr. 2018 : construction started

Unit No.5

(1,070MW)

# 45 Carrying out ESG management (E : Promotion of Renewable Energy)

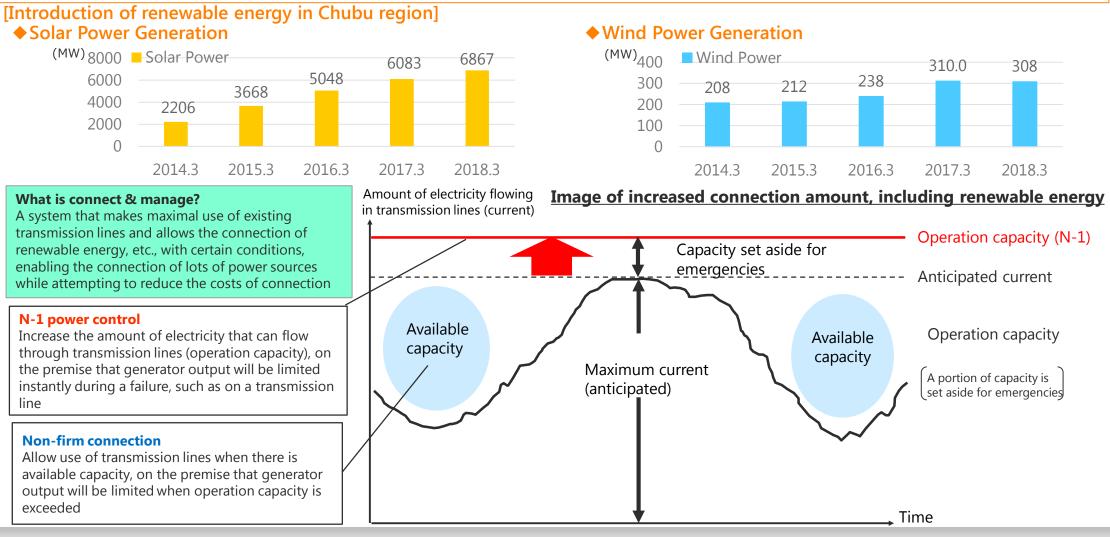


	1	, ,	5	Υ.		<b>337 1 1 1 1 1 1 1 1 1 1</b>
_			(As of th	e end of June, 2018)		Development locations of hydroelectric power station
		Chubu Electric		(Reference)		Conventional hydro
			Chu	ou Electric Group		Generation with minimum water level
	operating	197 Site : 5,459MW	Akigami	: 0.29MW(FY2016)		Parentheses denote the commercial operation start year.
Hydro	plan	. , , , , , , , , , , , , , , , , , , ,		0.38MW(FY2018) e : 0.53MW(FY2018)	И	[Crech Corporation] Sakore (FY2018) Seinaiji (FY2022)
Wind	Operating	Omaezaki:22MW	150MW			Shin-Okuizumi Abekawa
nd	Plan	—		_		(Operation started in Mar.2018) (FY2022) Shin-Okuizumi Hydroelectric Power Station
Solar	Operating	Mega Solar Iida : 1.0 MW Mega Solar Shimizu : 8.0 MW Mega Solar Kawagoe : 7.5 MW				Wind Power       Akita Port and Noshiro Port survey of development         Generation       Akita Pref. (joint survey)
	plan			5 Site : 20 MW (FY2018) 7 Site : 131 MW (FY2019)		[Site map][Summary of Project]Power generation method
	•		/ Site : 1	31 MW (FY2019)		: Offshore wind power generation
Biomass	operating	Mixture of wooden chip Mixture of fuel from carbonized sewage sludge	Taki bio <sub>l</sub>	power : 6.75 MW (FY2016)		Noshiro Port Site : Akita port area and Noshiro port area in Akita Pref. (Total : Approx. 730ha) Output
ass	plan	Biomass power generation facility at Yokkaichi Thermal Power Station : 49MW	CEPO Ha	CEPO Handa biomass : 45 MW (FY2019)		Akita Port Akita Port (Akita port 65 MW, Noshiro port 80 MW)
Total	operating	5,497.5MW	Grand Total	5,877.73MW		Project Period : 20 years (planned)
tal	plan	61.87MW	ind tal	394.53MW	Pov	wer generation output of renewable energy
* Join	* Joint businesses are recorded by equity interest.				* Incr	rease over the level in 2016 Increase 20% by 2030

# 46 | Carrying out ESG management (E : connect & manage)



- Chubu Electric Power has begun an initiative (N-1 power control) to use capacity that is set aside for an emergency in case of failure, based on the anticipated flow of electricity in check with power generator operation (anticipated current), so that more sources of power, including renewable energy, can be connected to transmission lines.
- In the future, we will look at an initiative (non-firm connection) to use transmission lines when there is available capacity, as even more effective utilization.





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