## Presentation Materials for Investors 3rd Quarter FY2018

January, 2019



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01

## Outline of Financial Results for Nine-Months ended December 31, 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. 3rd Quarter (3Q) represents nine months period ended December 31, 2018.

Monetary amounts are rounded down to the nearest whole number of the units being used, while principal figures like electrical energy sold or electric power supplied are rounded to the nearest unit.



#### < Points of Financial Results >

#### Consolidated operating revenues: 2,199.1 billion yen

Operating revenues increased by 136.4 billion yen compared with 2017/3Q, mainly due to an increase in surcharge and grant based on Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities (+32.5 billion yen), in addition to an increase in fuel cost adjustment charge (+86.1 billion yen), in spite of a decrease in electrical energy sold (-31.0 billion yen).

#### Consolidated ordinary income: 90.3 billion yen

Ordinary income decreased by 25.8 billion yen compared with 2017/3Q, mainly due to expansion of time lag loss (-47.0 billion yen) and a decrease in electrical energy sold (-14.0 billion yen), in spite of an increase in electrical energy sold to other companies (+13.0 billion yen), in addition to a decrease in fuel cost through the full operation of Nishi-Nagoya thermal power plant (+10.0 billion yen) and cost reduction achievement in fuel procurement and improvement of the efficiency related to the basic costs (+17.0 billion yen). Further, consolidated ordinary income excluding the effect of time lag is approx.151.0 billion yen (increased by 21.0 billion yen compared with 2017/3Q).

#### [Consolidated]

- •Operating revenues increased for 2 consecutive years since 2017/3Q.
- •Ordinary income decreased for 3 consecutive years since 2016/3Q.

•We recorded increased sales and decreased income for 2 consecutive years since 2017/3Q. (Billion ven.%)

	2018/3Q	2017/3Q	Char	ige
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	2,199.1	2,062.7	136.4	6.6
Operating income	94.9	124.8	(29.9)	(24.0)
Ordinary income	90.3	116.2	(25.8)	(22.2)
Net income attributable to owners of parent	62.9	80.8	(17.8)	(22.1)

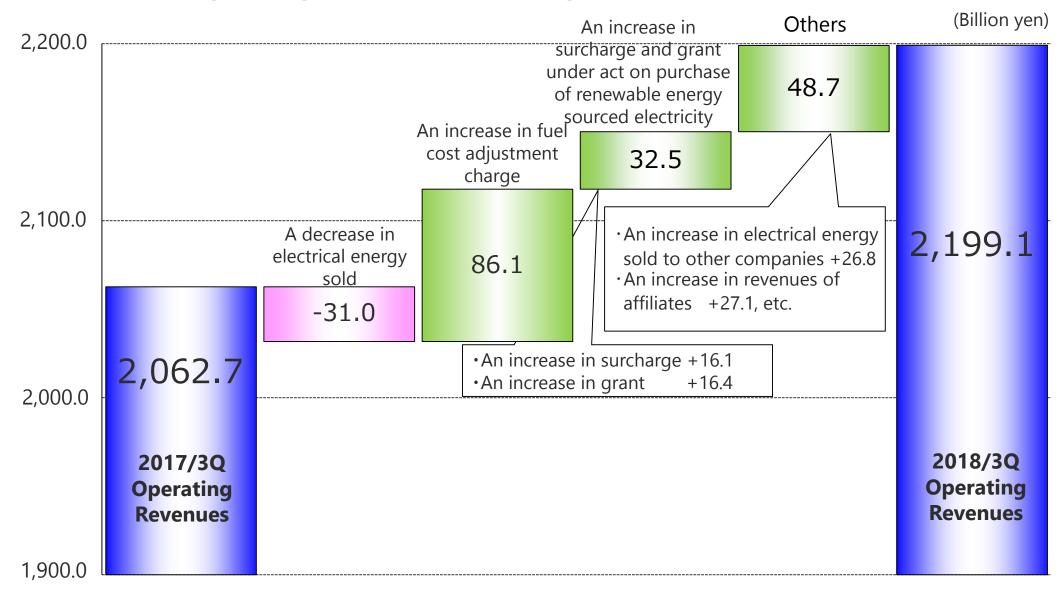
<sup>\*</sup>The number of consolidated subsidiaries [change from the same period of the previous year in parenthesis] 2018/3Q: 36 subsidiaries (+5 companies), 35 affiliates accounted for under the equity method (+9 companies)

(Billion yen,%)

[Nonconsolidated]	2018/3Q	2017/3Q	Change	е
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	1,997.1	1,887.8	109.2	5.8
Operating income	83.2	111.9	(28.7)	(25.7)
Ordinary income	73.1	97.5	(24.3)	(25.0)
Net income	53.4	68.5	(15.1)	(22.1)

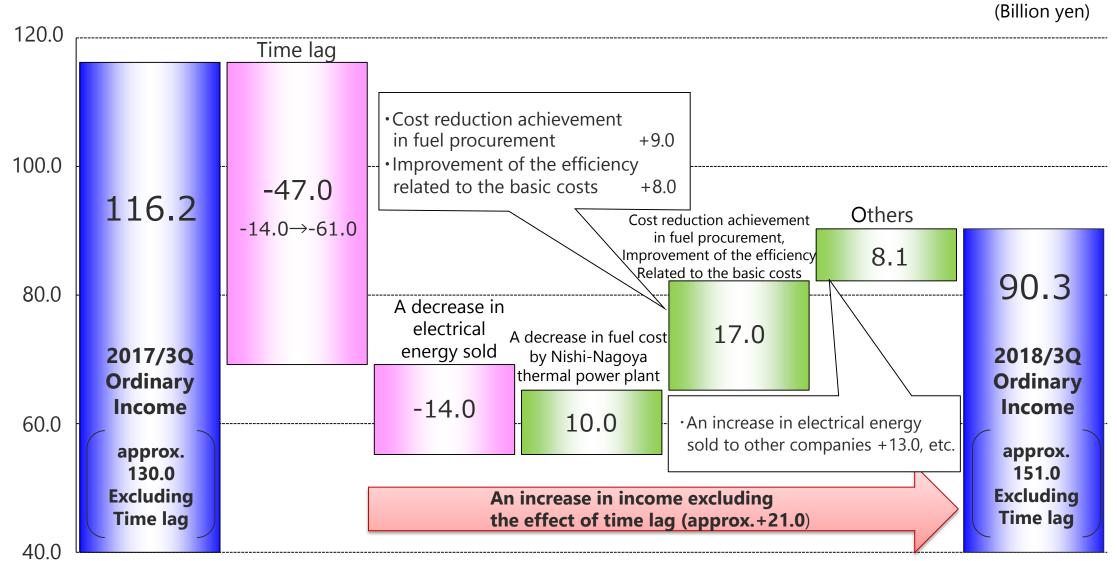


#### [Factors contributing to change in consolidated operating revenues]





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





#### < Electrical Energy Sold > (Nonconsolidated)

- **Dropped by 1.6TWh to 87.2TWh**, compared with 2017/3Q, mainly due to an effect of switches made to other operators, in spite of a sales increase outside Chubu region and an increase in production of the semiconductor industry.

					(TWh,%)
		2018/3Q	2017/3Q	Chan	ge
		(A)	(B)	(A-B)	(A-B)/B
	Low voltage	25.2	26.5	(1.3)	(4.9)
Electrical Energy Sold	High voltage • Extra-high voltage	62.0	62.3	(0.3)	(0.5)
	Total	87.2	88.8	(1.6)	(1.8)
[Reference(	1)]				
Electrical Enincluding gr	ergy Sold roup companies (*)	91.0	91.7	(0.6)	(0.7)
* The sum of the company, consolidated subsidiaries, and affiliates accounted for under the equity method.					
[Reference(2	2)]				
Electrical Ento other cor		7.6	5.2	2.5	47.5

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

#### **Electric Power Supplied and Principal Figures**



#### < Electric Power Supplied > (Nonconsolidated)

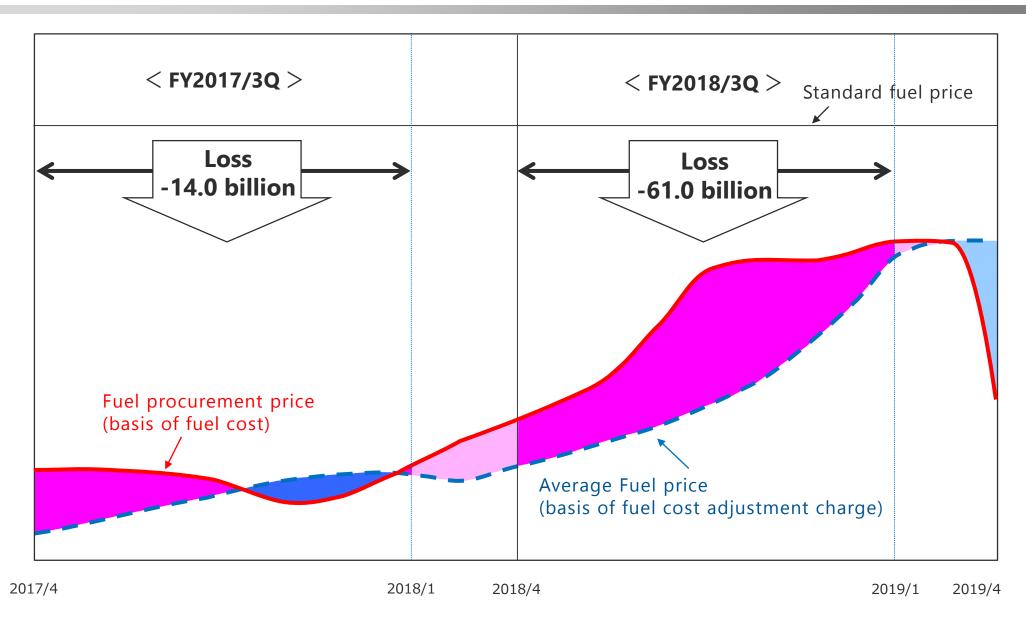
- Hydro: The flow rate was higher than 2017/3Q; thus hydroelectric power output increased by 0.6 TWh.
- Wholesale: Increased by 2.5 TWh, mainly due to an increase in wholesale volume.
- Purchased power: Increased by 2.9 TWh, mainly due to an increase in purchase of renewable energy.
- Thermal: As a result of decrease in electrical energy sold and above, thermal power output decreased by 2.9 TWh.

(TWh,%) 2018/3Q 2017/3Q Change (A-B)/B(A-B) 6.8 7.4 0.6 9.1 Hydro <flow rate> <110.0> <96.3> <13.7> Thermal 75.5 78.4 (2.9)(3.7)Internally generated Nuclear **Flectric** (0.2)(0.2)(0.0)4.5 Power <utilization rate> <-> <-> <-> Supplied Renewable energy 0.0 0.0 0.0 78.6 Wholesale (7.6)(5.2)(2.5)47.5 Externally generated(\*) Purchased power 16.9 20.8 14.0 2.9 Power used for pumped storage (0.5)(0.9)0.4 (44.0)91.5 93.0 Total (1.4)(1.5)

<sup>\*</sup> Externally generated represent power output that we grasp at the end of the 2018/3Q.

[Principal Figures]		2018/3Q (A)	2017/3Q (B)	Change (A-B)	
CIF price: crude oil	(\$/b)	74.3	53.9	20.4	*CIF crude oil price for
FX rate (interbank)	(yen/\$)	111.1	111.7	(0.6)	2018/3Q is tentative.





<sup>\*</sup> Accrued income include the effect of time lag of gas supply business.



#### <Forecast>

Forecasts of financial results have been revised from the previous announcement made in October 26, 2018.

- Consolidated operating revenues: 3,000.0 billion yen (forecast) \*No change from the previous announcement
- Consolidated ordinary income: 110.0 billion yen (forecast)

Consolidated ordinary income will increase by 10.0 billion yen from the previous announcement mainly due to a reduction 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.160.0 billion yen. \*No change from the 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.
- We will record increased sales and decreased income following FY2013, for the first time in 5 years.

(Billion yen,%)

	Current	October 26	Chan	ge
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	3,000.0	3,000.0	-	-
Operating income	120.0	110.0	approx. 10.0	9.1
Ordinary income	110.0	100.0	approx. 10.0	10.0
Net income attributable to owners of parent	80.0	75.0	approx. 5.0	6.7

[(Reference) Nonconsolidated]

(Billion	yen,%)

(creferee) Nonconsonaatea	Current	October 26	Chang	je
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	2,690.0	2,690.0	-	_
Operating income	100.0	90.0	approx. 10.0	11.1
Ordinary income	90.0	80.0	approx. 10.0	12.5
Net income	65.0	60.0	approx. 5.0	8.3



(T\\/h %)

[Principal figures]			0 . 1 . 00		(TVVN,%
Electrical energy sold)		Current	October 26	Cha	nge
(Liectifical effergy sold)		(A)	(B)	(A-B)	(A-B)/B
Low voltage		36.4	36.4	-	-
High voltage • Extra-high voltage	9	82.1	82.1	_	<del>-</del>
Total		118.5	118.5	-	-
[Reference]					
Electrical energy sold including grocompanies (*1)	oup	124.2	124.2	-	-
(Other principal figures)		Current	October 26		
CIF price: crude oil	(\$/b)	approx. 71	approx. 77		
FX rate	(yen/\$)	approx. 111	approx. 110		
Nuclear power utilization rate	(%)	-	-		
			(Billion yen)		
(Income sensitivity)		Current	October 26		

(Income sensitivity)		Current	October 26	
CIF price: crude oil	(1\$/b)	7.0	7.0	(*2,3)
FX rate	(1yen/\$)	6.5	6.5	(*2)
Flow rate	(1%)	0.8	0.8	
Interest rate	(1%)	4.5	4.5	

<sup>\*1</sup> The sum of the company, consolidated subsidiaries, and affiliates accounted for under the equity method.

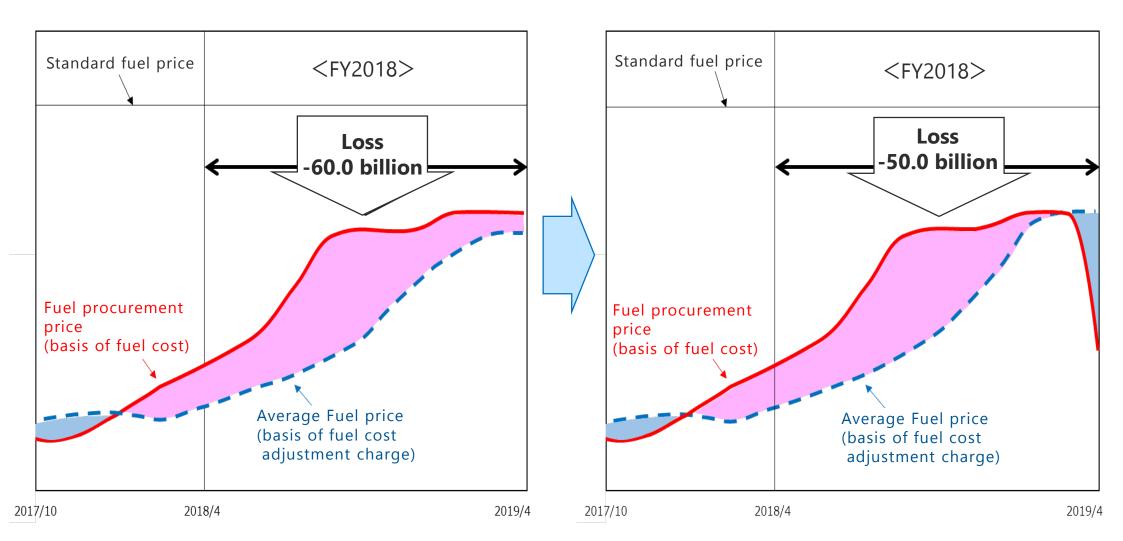
<sup>\*2</sup> These figures represent income sensitivity for fuel expenses. Fluctuation of CIF price (crude oil) and FX rate will be reflected in sales revenue, in cases where average fuel price fluctuates and fuel cost adjustment system will be applied.

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



October 26 (Loss of 60.0 billion yen)

Current(Loss of 50.0billion yen)



Note: Accrued income include the effect of time lag of gas supply business.

# 02

## **Management Situation**



#### Changing social structure

**Shrinking energy market Diversifying customer needs** 

**Growing importance of working style reform** 

**Spread of smart grids** 

**Progressing storage battery technology** 

**Progressive digital technology** (blockchains, etc.)

Changing technology

#### "Initiatives to Address Management Challenges" (four priority measures)

- (1) Improving safety further at Hamaoka Nuclear Power **Plant**
- (2) Stable power supply for a new age
- (3) Strengthening our business base for growth and achieving sustainable growth
- (4) Establishing a business structure/management base that can respond instantly to environmental changes

#### Changing business systems

**Intensifying competition among business operators** 

**Tightening nuclear regulations Business operation/structure changes** 

Introduction/expansion of renewable energy **Growing interest in ESG initiatives** Formation of international frameworks for reducing greenhouse gases

#### Changing environmental awareness

#### **Achieve goal**

#### **Business goal**

Consolidated ordinary profit of 150 billion yen or more by FY2018

#### Strengthen business base for growth

FY2019 - FY2022 (outlook)

Consolidated ordinary profit of 150 billion yen or more

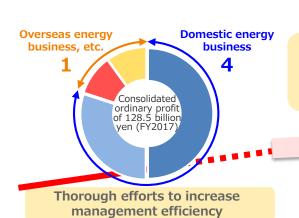
#### **Achieve continued growth**

Second half of 2020s (vision)

Consolidated ordinary profit of **250** billion yen or more

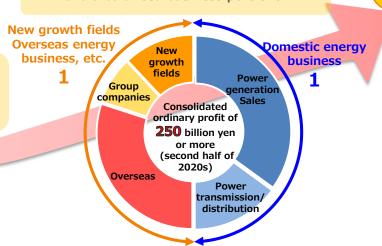
Build a balanced business portfolio

Management vision "Vision" A total energy service corporate group that is one step ahead



Deepen efforts to increase management efficiency

Increase revenue in the energy business Open/commercialize new growth fields

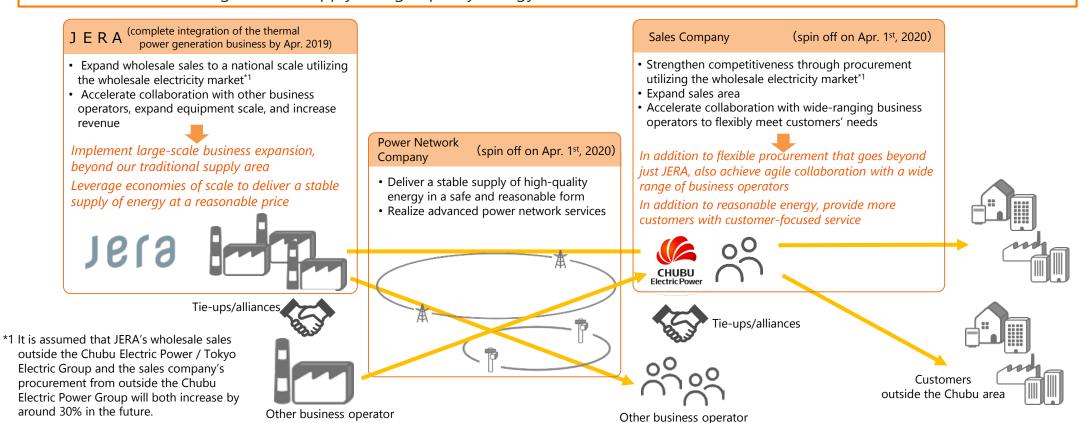


2016 2018 2022 2030

#### 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

### 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.

Approval

Conformity inspection Inspection of application for approval of construction plan (detailed design of equipment) application Inspection of application for approval of change to operational safety program (operational management system, etc.) Main inspection items and progress of application for approval of nuclear reactor establishment/change Earthquake/tsunami-related inspection App-roval Plant-related inspection Site vicinity On the site Geology Earthquake/ tsunami related **Underground structures** Oceanic intraplate earthquake Earthquake Interplate earthquake Inland crustal earthquake Tsunami, etc. Volcanic event/ground Tsunami

Aseismic/anti-tsunami design policy

Under deliberation

External fire

Internal fire

Effectiveness

assessment

Plant related

Design

standards

Serious accident

countermeasures

Mostly complete

Inspection of application for approval of nuclear reactor establishment/change (basic design of equipment)

Tornado

Other natural

phenomenon

capabilities

To be deliberation complete

Internal inundation

Equipment/technical

Volcano

As of December, 2018

#### Strengthen ability to respond on-site in an emergency

Approval





Education/training of personnel involved in activities to control an accident

Conformity to new regulatory standards

Restart operations

#### Strengthen coordination with nation/local governments, etc.

Approval



Participation in nuclear emergency response drills organized by Shizuoka Prefecture



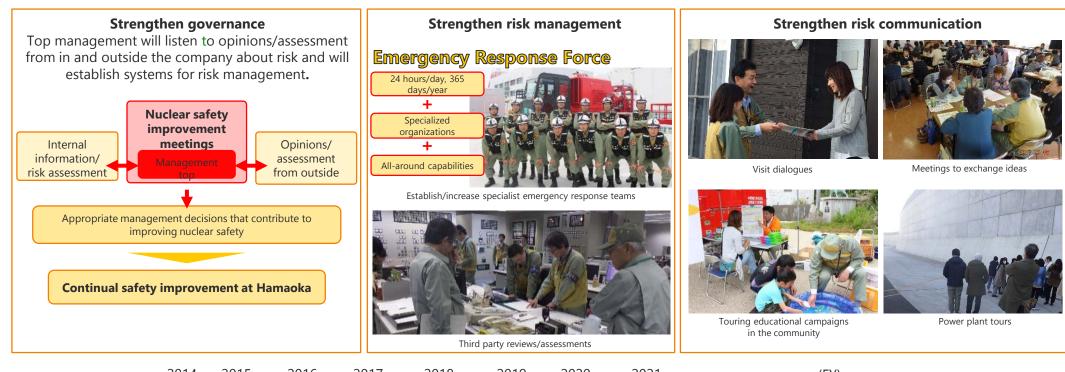
Implementation of combined exercises with the Omaezaki Coast Guard Station

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

13



- 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.



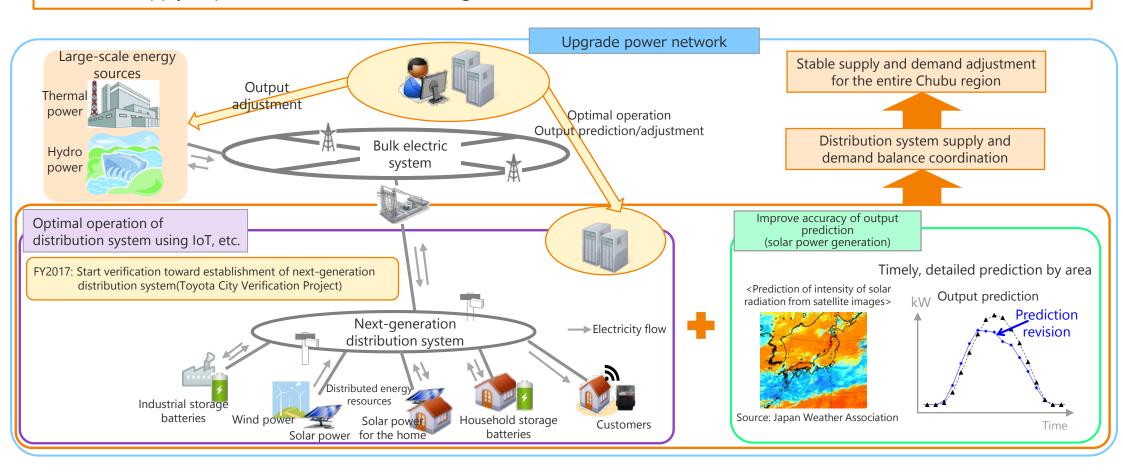
2014 2015 2016 2017 2018 2019 2021 -(FY) 2020 **▼** Introduction of new regulatory system Roadmap to Establish risk management (respond to new regulatory system) strengthen risk Operate new risk management system; verify and Consider means to use risk information management (new improve it continually regulatory system Improve/develop risk quantification Establish risk quantification model compliance) methods

#### Stable Power Supply for a New Age

## 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>



• 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. Control replacement work when demand increases Transformer <Decision method for equipment capacity/size> Replacement work not Before smart meter introduction After smart meter introduction Optimize capacity when making deterioration [kVA] [kVA] Choose equipment capacity/size according to 50 customers' actual usage, based on the smart meters' 40 Choose equipment capacity/size based on 30 customers' contract capacity Control replacement work when demand increases 20 20 Low-tension 10 Revise decision technique 10 Optimize low-tension line size when making deterioration updates 12 PM 12 AM : Customer C Customer B : Customer D

#### 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.

#### Kawagoe Thermal Power Station Unit No. 3



Carrying a gas turbine on the premises



Installing a newer gas turbine

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

#### 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"\*1 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.

**♦** Review of periodic inspection (items and cycles)

Target: distribution substation

#### **Before**

Inspections are conducted under a constant cycle and on a per-item basis

Inspection of circuit breaker bushing



Inspection of transformer pressure relay



Inspection of disconnecting switch body



All of these are preventive maintenance initiatives

#### **After**

Inspection approaches (e.g. extension of preventive maintenance cycle, corrective maintenance) are streamlined on a per-item basis

#### Large influence Inspection of

Status monitoring\*2 preventive maintenance

(cycle extension)

circuit breaker bushing





Damage in bushing

⇒ Influence on public safety

<example>

Inspection: once in 6 years

⇒Status monitoring + Inspection

: once/12years

Relay device malfunction caused power outage

⇒ Risk of power loss

<example>

Inspection : once in 6 years

⇒Status monitoring + Inspection

: once/12 years

#### **Small** influence

Status monitoring\*2 corrective maintenance

Inspection of disconnecting switch body



Malfunctioning of disconnecting switch

⇒ Risk of constraining operation

<example>

Inspection: once in 24 years ⇒ Status monitoring + corrective maintenance

\*2 Rounds, equipment performance tests, temperature measurement of energized cables, transformer anomaly diagnoses (e.g. in-oil gas analysis)

**♦ Cycle extension** for replacing parts during periodic inspections

Target: all substation

<example of cycle extension> Replacement of circuit breaker's magnetic contactor

circuit breaker



magnetic contactor



<cycle for replacing> Before: 18 years

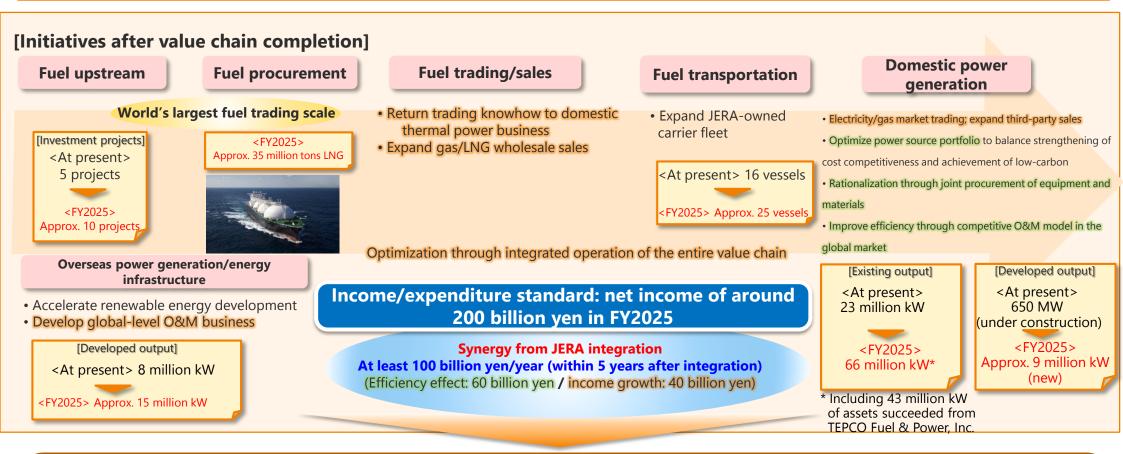
After: 24 years

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

#### 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

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



- In order to continue to be chosen by customers in a liberalized retailing market, we will deliver new services that
  meet customers needs using IoT, etc., not just stable, affordable energy.
- Also, aiming for sustainable growth, we will work at business expansion centered on the Tokyo metropolitan area.

Intensifying competition following electricity/gas liberalization

To continue to be

chosen by customers

**Deliver a stable supply** 

of energy at an

affordable price

#### Aiming for sustainable growth

Active gas & power development

- > Optimal energy procurement
- Optimal electricity/gas projects according to customer needs

[For household customers]

#### Services focused on daily life

- Online services with rich content
- Life support services, etc.



Diversification of services

[For business customers]

#### **Total energy solutions**

- Energy solutions
- > Energy saving support overseas
- > Integrated development solutions



#### [Target for second half of 2020s]

[Electric power sold]
124.2 billion kWh (FY2018 forecast)



Second half of 2020s

Maintain 130 billion kWh/year

#### [Gas/LNG sold]

**970,000** tons (FY2018 forecast)



Second half of 2020s

Increase to 3 million tons/year

#### [Sales alliance with KDDI]

- Alliance in gas sales and point linkage (started in Jun. 2018)
- > Electricity sales (started in Sep. 2018)

#### [Establishment of sales companies]

- ➤ CS Energy Service Selling gas and electricity to corporate clients in the Higashi Mikawa region in Aichi Prefecture, the Seien region in Shizuoka Prefecture (started in Oct. 2018)
- Chuden Energy Service (tentative name)
   Sales agent for household, small and medium-sized business (scheduled in Feb. 2019)

Business expansion cantered on the Tokyo metropolitan area

Expand sales through collaboration with partner companies and other business operators

- Electricity sales in Kansai area (Apr. 2018)
- Started selling electricity by established sales company for energy (Joint venture with Osaka Gas: Aug. 2018)



- On the business partnership with the ARUHI Marketing Corporation on electricity and gas retail sales (Sep. 2018)
- Started selling "KODOMO Shimbun Denki" jointly developed with The Yomiuri Shimbun (Jan. 2019)

etc.

#### [Target for FY2018]

[Gas applications in the Chubu region]

Target of 200 thousand customers by FY2018

Achieved approx. 208 thousand customers (as of Jan. 2019)

#### [Electricity sales in the Tokyo metropolitan areas]

Approx. 230 thousand (as of Jan. 2019)

Target of 300 thousand customers by FY2018

#### 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."

**Solving social issues Technological innovations** (from perspective of needs) (from 4th Industrial Revolution perspective) **Expansion through Expansion through New growth** M&As and M&As and alliances fields alliances **Chubu Electric Power Group's** strengths (from core competence perspective)

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

#### Carrying out ESG management (E)



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**

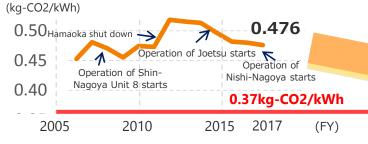
- □ Develop, introduce, and expand renewable energy
- Actively develop power sources
- Increase connection volume to transmission lines
- ☐ Increase thermal efficiency of thermal power generation
- World-class high efficiency power generators
- Optimize power plant operation using IoT
- Use nuclear power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





**Nishi-Nagoya Thermal Power Station** 

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



Reduction of CO2 emissions

#### **Help customers/communities reduce CO2**

☐ Energy solutions & energy saving support







- **□** Energy management







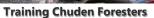




**Practice environmental management** 

- **□** Harmony with nature
- Achieve recycling society
- Local and global cooperation







#### 22 Carrying out ESG management (S $\cdot$ G)





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.



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

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.)

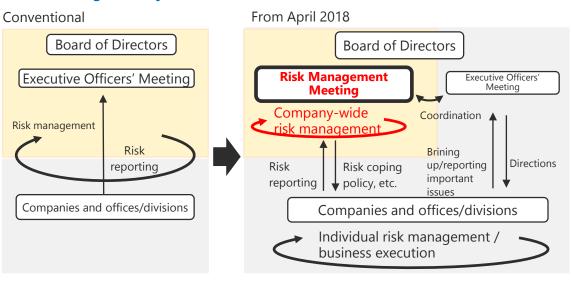
#### **Social contribution activities**

- 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**



Natural disaster risk Cyber risk Market risk Compliance risk ...

# 03

# Reference Data(1): Financial Results



(Billion yen,%)

	2018/3Q	2017/3Q	Chang	е
	(A)	(B)	(A-B)	(A-B)/B
Operating revenues	2,199.1	2,062.7	136.4	6.6
Non-operating revenues	19.6	16.0	3.6	22.8
Ordinary revenues	2,218.8	2,078.7	140.0	6.7
Operating expenses	2,104.2	1,937.8	166.3	8.6
Non-operating expenses	24.2	24.6	(0.4)	(1.7)
Ordinary expenses	2,128.4	1,962.4	165.9	8.5
<operating income=""></operating>	<94.9>	<124.8>	<(29.9)>	<(24.0)>
Ordinary income	90.3	116.2	(25.8)	(22.2)
Reserve for fluctuation in water levels	-	(0.4)	0.4	-
Income taxes	25.2	34.1	(8.8)	(25.9)
Net income attributable to non-controlling interests	2.1	1.6	0.4	28.0
Net income attributable to owners of parent	62.9	80.8	(17.8)	(22.1)



			(Billie	on yen,%)	
	2018/3Q (A)	2017/3Q (B)	Chang (A-B)	e (A-B)/B	[Major factors for change]
Electricity sales revenues	1,591.8	1,564.5	27.2	1.7	- An increase in fuel cost adjustment charge +86.1
Sold power to other electric utilities(*1)	76.0	49.2	26.8	54.5	- A decrease in electrical energy sold -31.0
Transmission revenue, etc. (*2)	62.6	39.8	22.8	57.2	- An increase in wholesale volum
Grant under act on purchase of renewable energy sourced electricity	193.9	177.5	16.4	9.2	- An increase in purchase of
Other	20.6	18.8	1.7	9.5	renewable energy sourced electricity
Electricity business operating revenues	1,945.1	1,850.0	95.0	5.1	- Gas supply business +10.9
Incidental businesses operating revenues	51.9	37.8	14.1	37.5	<gas lng="" sold=""> 614 thousand tons → 663 thousand tons</gas>
Total operating revenues	1,997.1	1,887.8	109.2	5.8	

<sup>\*1</sup> Sold power to other utilities and Sold power to other suppliers

<sup>\*2</sup> Transmission revenue and Settlement revenue among utilities

#### Nonconsolidated Statements of Income <2>: Operating Expenses



	(Billion yen,%)						
	2018/3Q (A)	2017/3Q (B)		Change (A-B) (A-B)/B		[Major factors for change]	
Salaries and employee benefits	139.8	135.7	4.1	3.0		Low performance in pension assets management	
Fuel	580.5	514.3	66.1	12.9	-	Differences in power generated: -32.2	
Nuclear back-end expenses (*1)	12.0	9.7	2.3	24.1		•A decrease in fuel cost by Nishi- Nagoya thermal power plant	
Purchased power etc. (*2)	361.9	310.9	50.9	16.4		•An increase in hydroelectric power generated	
Transmission charges etc. (*3)	17.6	12.2	5.3	43.7	-	Increase in unit price: +98.3  •Rise in CIF price	
Maintenance	120.0	121.7	(1.7)	(1.4)		An increase in purchase of renewable	
Depreciation	175.7	184.7	(9.0)	(4.9)		energy sourced electricity	
Taxes other than income taxes	91.7	90.6	1.0 \	1.2	<u>-</u>	Sales increase outside Chubu region	
Levy under act on purchase of renewable energy sourced electricity	217.3	201.1	16.1	8.0	-	The progress of the depreciation etc.	
Other	146.4	158.1	(11.7)	(7.4)			
Electricity business operating expenses	1,863.3	1,739.7	123.6	7.1			
Incidental business operating expenses	50.5	36.1	14.3	39.7			
Total operating expenses	1,913.8	1,775.8	137.9	7.8		- Gas supply business: +14.5	

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

<sup>\*2</sup> 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

<sup>\*3</sup> Transmission charges, Supply connection transmission charges, Settlement revenue among utilities



(Billion yen,%)

			(billion yen,		(Billion yen, 76)
		2018/3Q	2017/3Q	Chan	ige
		(A)	(B)	(A-B)	(A-B)/B
0	perating income	83.2	111.9	(28.7)	(25.7)
Ν	on-operating revenues	12.1	9.0	3.1	34.9
N	on-operating expenses	22.2	23.4	(1.2)	(5.2)
	Ordinary revenues	2,009.2	1,896.8	112.4	5.9
	Ordinary expenses	1,936.1	1,799.3	136.7	7.6
0	rdinary income	73.1	97.5	(24.3)	(25.0)
Reserve for fluctuation in water levels		-	(0.4)	0.4	-
ln	come taxes	19.7	29.3	(9.6)	(32.8)
N	et income	53.4	68.5	(15.1)	(22.1)

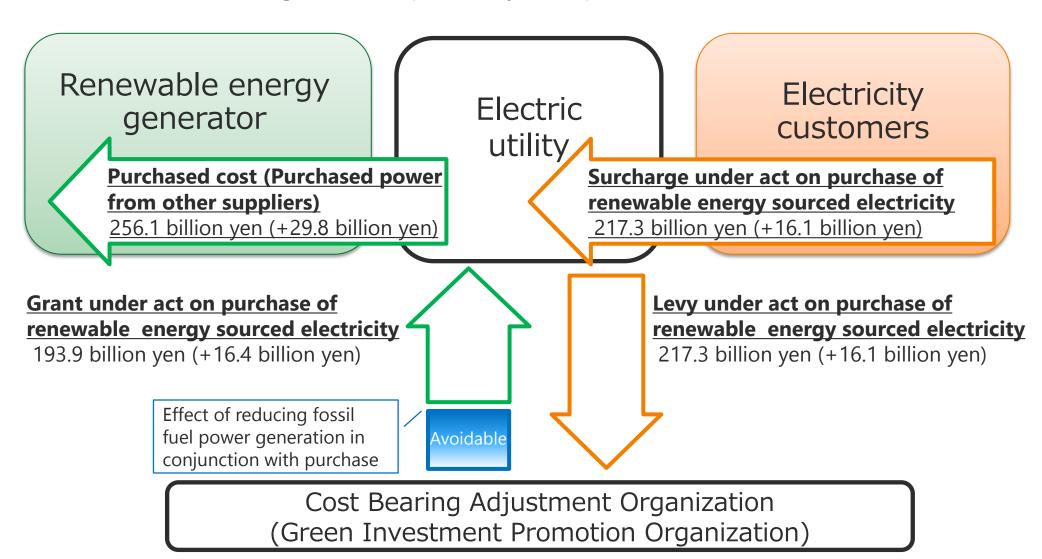


(Billion	yen)
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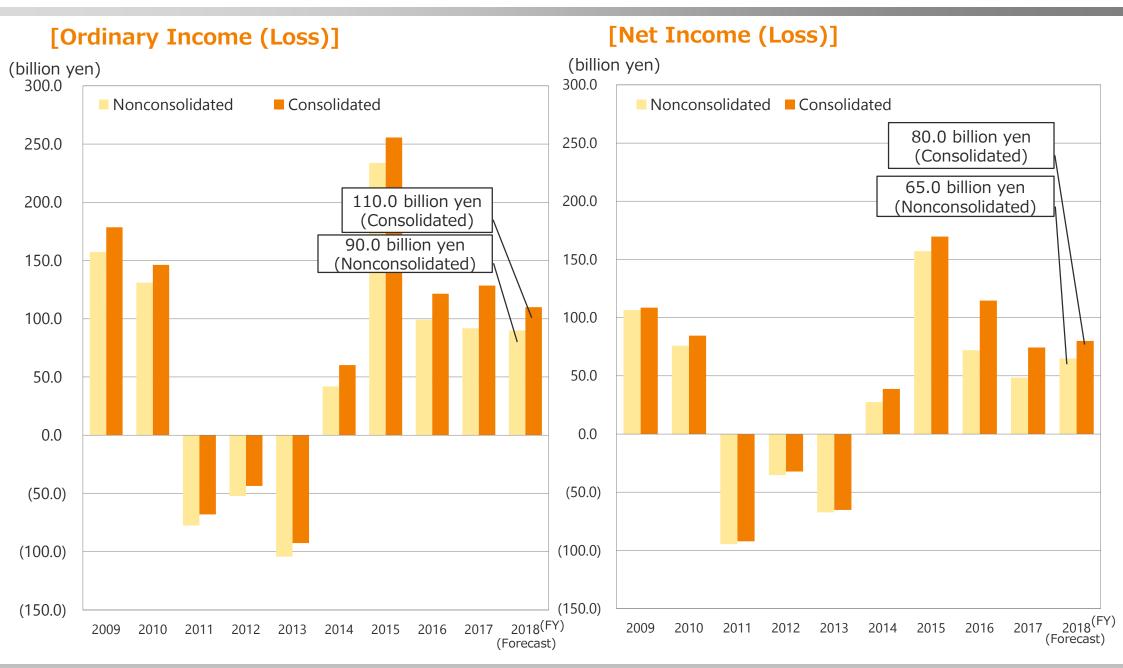
				(= ) =,
		Dec 31, 2018	Mar 31, 2018	Change
		(A)	(B)	(A-B)
Accets	Consolidated	5,551.3	5,529.4	21.9
Assets	Nonconsolidated	4,980.5	5,001.2	(20.6)
	Consolidated	3,724.2	3,737.4	(13.2)
Liabilities	Nonconsolidated	3,512.9	3,556.1	(43.2)
Niet	Consolidated	1,827.1	1,791.9	35.1
Net assets	Nonconsolidated	1,467.6	1,445.0	22.6
Charabaldors' aquity ratio (0/)	Consolidated	31.8	31.3	0.5
Shareholders' equity ratio (%)	Nonconsolidated	29.5	28.9	0.6
	Consolidated	2,648.2	2,595.6	52.5
Outstanding interest-bearing debt	Nonconsolidated	2,597.9	2,569.4	28.4



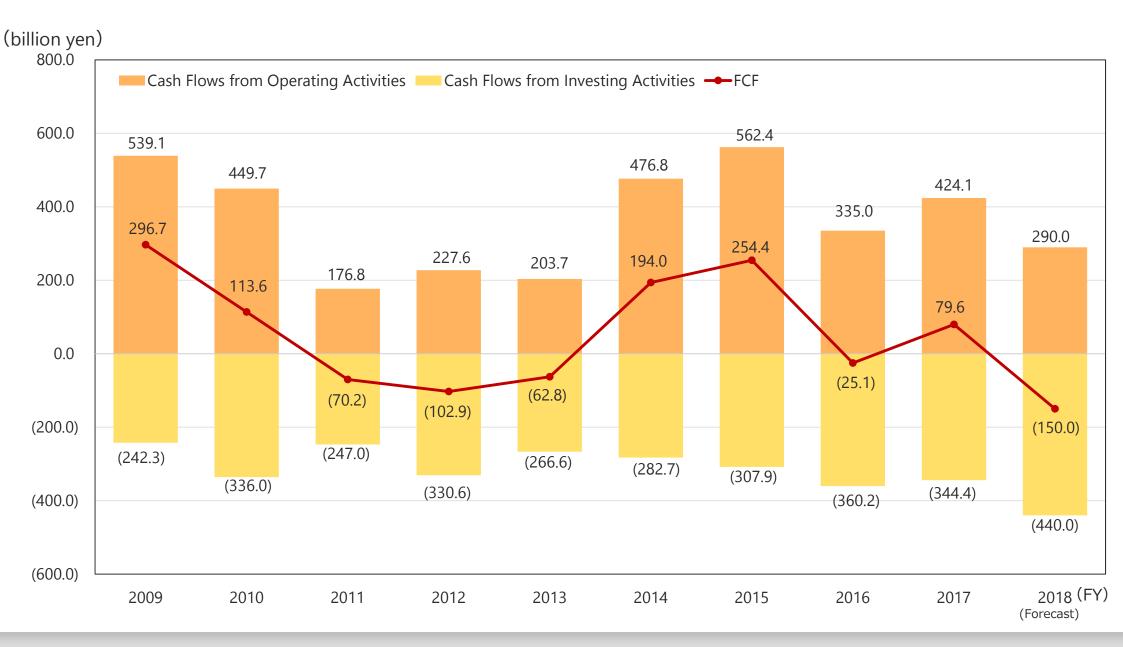
<Result of 2018/3Q (change from the previous year in parenthesis)>







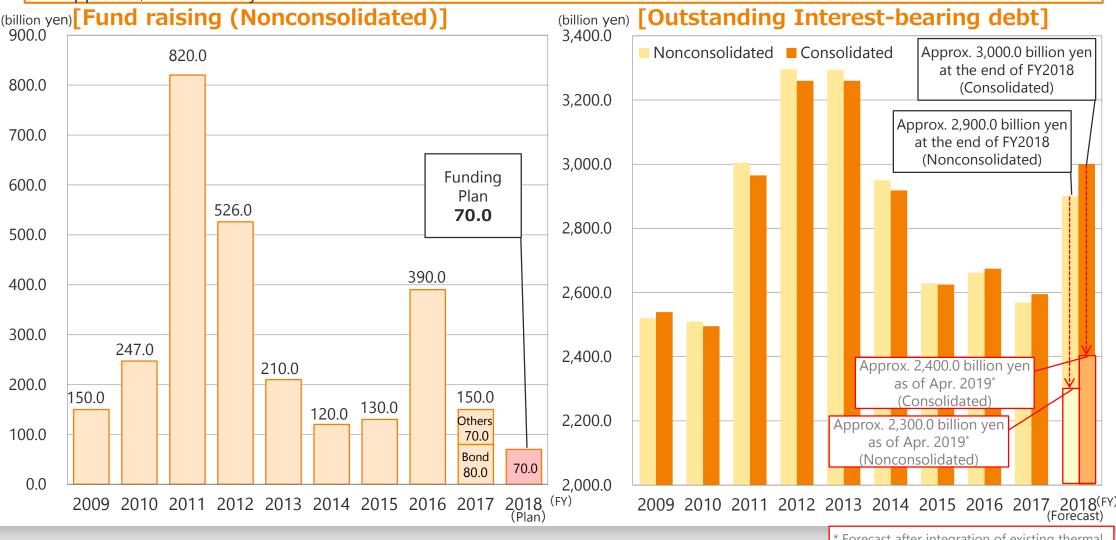




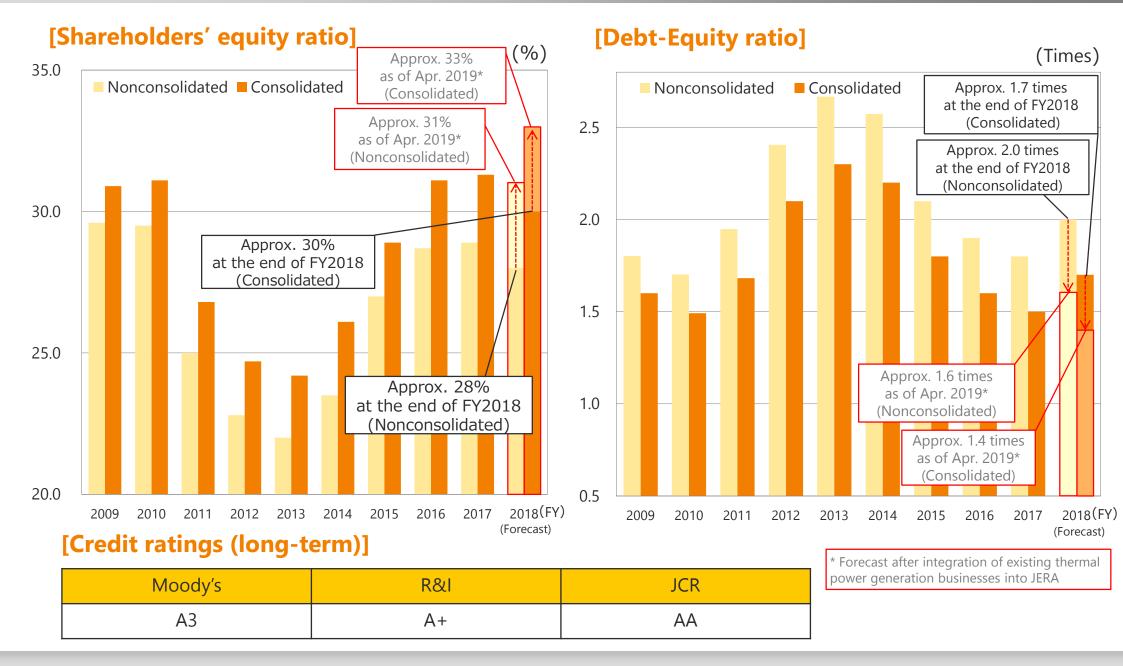
#### 31 | Fund Raising and Outstanding Interest-bearing Debt



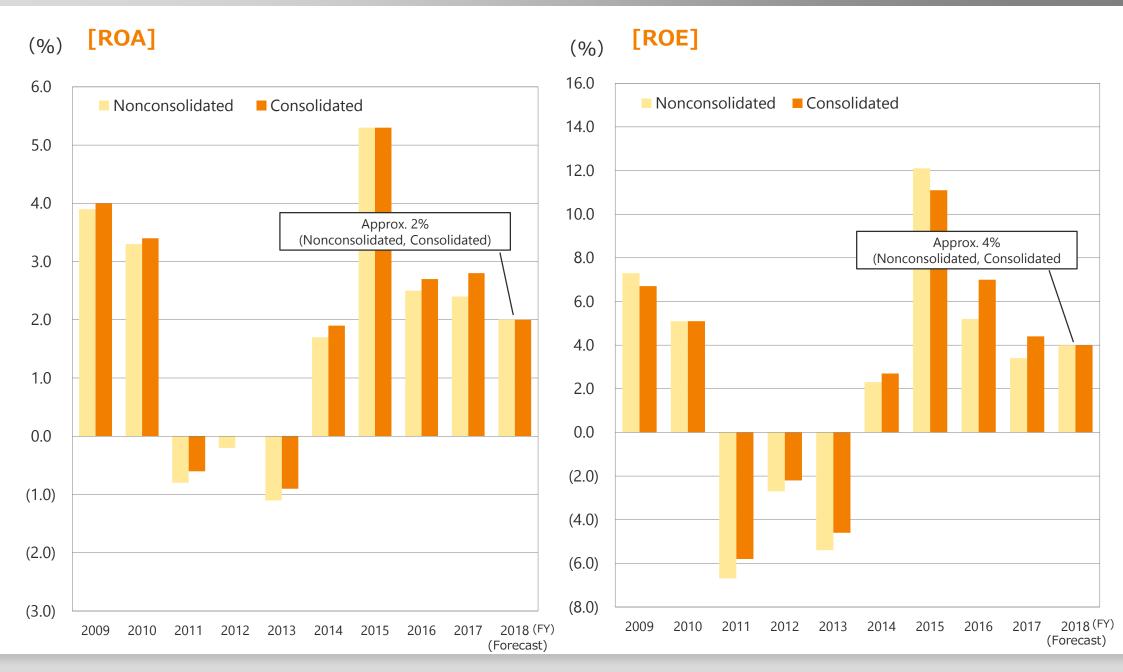
- We raised total approx. 1,500.0 billion yen in long-term funding for 3 years since the shutdown of Hamaoka Nuclear Power Station.
- We forecast to raise approx. 70.0 billion yen in long-term funding in FY2018.
- We forecast outstanding Interest-bearing debt to become approx. 3,000.0 billion yen on consolidated base in FY2018, and approx. 2,900.0 billion yen based on nonconsolidated in FY2018.











## 34 | Segment Information



#### [Operating revenues]

(Billion yen)

	2018/3Q (A)	external customers	2017/3Q (B)	external customers	Change (A-B)	external customers
Power Generation	825.6	36.7	794.9	25.5	30.6	11.1
Power Network	544.8	88.1	534.1	57.4	10.6	30.7
Customer Service & Sales	2,009.2	1,928.6	1,929.1	1,851.5	80.1	77.0
Others (*)	497.7	145.6	494.2	128.1	3.4	17.4
Total		2,199.1		2,062.7		136.4

#### [Operating income and loss]

(Billion yen)

	2018/3Q (A)	2017/3Q (B)	Change (A-B)
Power Generation	7.0	44.8	(37.7)
Power Network	27.0	29.7	(2.7)
Customer Service & Sales	43.9	22.2	21.6
Others (*)	21.3	28.9	(7.6)
Operating income	99.3	125.7	(26.3)

<sup>\* &</sup>quot;Others" is business segment that is excluded from reporting segments and includes nuclear power division, administrative division and other consolidated subsidiaries.



		2018/3Q	Target
Chubu region	The number of applications ; New electric tariff menu	Approx.1.59 million	_
Outside of Chubu region	Electrical energy sold outside of Chubu region	6.0 billion kWh	Increase to 30.0 billion kWh/year (around FY2030) in the Tokyo metropolitan area
Chaba region	The number of applications ; Electricity in the Tokyo metropolitan area	Approx. 230 thousand	Acquire 300 thousand customers by FY2018
Cos	Gas and LNG sold	663 thousand tons	Increase to 3,000 thousand tons/year (second half of 2020s)
Gas	The number of applications ; Gas (for household, etc.)	Approx. 208 thousand	Acquire 200 thousand customers by FY2018
	KatEne members	2.18 million	_



(TWh)

		FY2018								
	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
Low voltage	2.9	2.5	2.3	2.7	3.6	3.3	2.3	2.5	3.0	
High voltage • Extra-high voltage	6.4	6.3	6.9	7.6	7.6	7.3	7.0	6.6	6.5	
Total	9.3	8.9	9.1	10.3	1 1.2	1 0.5	9.3	9.1	9.5	

(TWh)

		FY2017											
	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total
Low voltage	3.6	2.7	2.3	2.9	3.3	3.2	2.5	2.8	3.4	4.6	4.3	3.4	38.8
High voltage • Extra-high voltage	6.6	6.3	6.9	7.4	7.5	7.3	6.9	6.6	6.8	6.7	6.8	6.8	8 2.6
Total	10.1	9.0	9.2	1 0.3	1 0.8	1 0.5	9.4	9.4	1 0.2	1 1.3	11.1	1 0.2	1 2 1.4

<sup>\*</sup> The total may not match due to rounding.

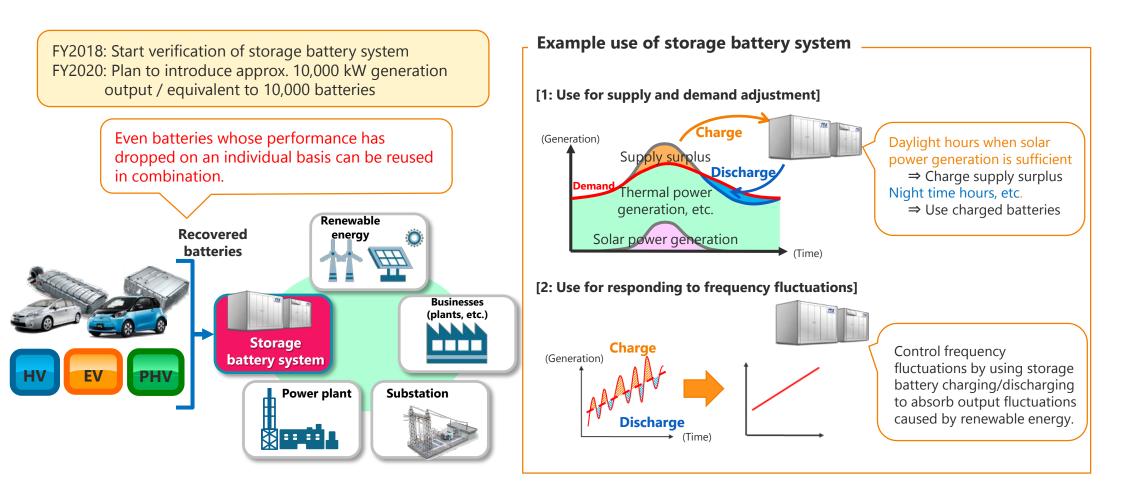
# 03

# Reference Data (2): Management Information

# 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 high-capacity 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.



## 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 support to account	Existing thermal power generation	10 locations*1	15 locations*2
	Thermal power generation business	Generation capacity*3(MW)	23,410	42,960
	generation basiness	Electricity generated*4(billion kWh)	1,102	1,902
Asse	Fuel acceptance/	LNG terminals	Owned terminals : 3 locations*5  Joint terminal : 1 location*6	Own terminals : 2 locations*7  Joint terminal : 2 locations*8
ets	storage/gas transmission business	Tank capacity(million kL)	1.93	2.98
	transmission business	Payout amount*4(million tons)	12.77	22.57
	Polated companies	Subsidiaries	2 companies*9	6 companies*10
	Related companies	Affiliated companies	4 companies*11	4 companies*12

- \*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)

stability

## 39 | Initiatives of JERA<2>



#### [Fuel business (upstream, procurement, transportation, trading)]

15 MTPA

EV 2030

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

#### **Oreation of optimum portfolio of LNG** change in handling scale short-term and spot ■ Procurement with short-term and Expansion of Energy contract external sales spot contract Policy 5 MTPA **Combine various contracts to form the** Improvement of optimum portfolio\* power generation ■ Procurement with long-term contract Long-term contract efficiency 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 (Existing contract)

, 15 0	11 2030	9
Oct, 2017	(LNG) Conclusion of LNG Sales and Purchase HOA with Malaysia LNG	JERA plans to purchase up to approx. 2.5 million tons of LNG for a period of three years beginning in 2018. JERA will continue to focus on building and maintaining an optimal LNG procurement portfolio that enables economical and competitive procurement, as well as flexibility to respond to changes in the business environment.
	(1)(C) (C) (1) (1) (1)	

of procurement amount and long-term contract which has exceptional economy and

July, 2018 (LNG) Signing of binding agreements to form an LNG optimization and trading joint venture Through JERAT, JERA will establish a system to globally conduct risk assessment and management of LNG procurement and sales in the first half of 2019, and begin optimizing the LNG portfolio.

Aug, 2018

(LNG) Conclusion of LNG Sales and Purchase MOA with ADNOC LNG

(LNG) Conclusion of LNG Sales and Purchase MOA with ADNOC LNG

JERA plans to purchase up to 8 cargoes per annum of LNG from ADNOC LNG for a period of three years beginning in 2019. JERA will continue to focus on building and maintaining an optimal LNG procurement portfolio that enables economical and competitive procurement, as well as flexibility to respond to changes in the business environment.

#### [Overseas power generation business]

As of July, 2016

JERA will seek to enhance its enterprise value and contribute to reducing the environmental load of power generation, through optimizing its portfolio of conventional and renewable power generation assets.

<u> </u>							
Oct, 2017	(US) Participation in Linden Gas Thermal IPP	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 knowledge of NYISO, one of the most advanced US power markets.					
Aug, 2018	(US) Participation in Natural Gas-fired Thermal Power Generation in the Northeastern United States	Acquisition of equity interest in three natural gas-fired thermal power generation plants. Utilizing operation and maintenance technologies developed domestically and overseas to improve efficiency and leading the project.					
Dec, 2018	(U.K. and Taiwan) Participation in Wind Power Project	Agreement about acquisition of equity interest regarding wind power project in two countries. Through its participation in advanced markets, JERA will gain knowledge and experience in operation of the offshore wind power generation and leverage this to move forward with projects in Japan and abroad.					

## 40

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



- 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.

## Chubu Electric Power's management resources and knowhow

Characteristic of electricity business
Stably deliver electricity widely to every corner
of an area, regardless of demand density

Integrated development solutions for building production equipment with customers

Online services with rich content

Visualization and improvement proposals using IoT technology

Electric power sales performance and knowhow in the Tokyo metropolitan area Osaka Gas' management resources and knowhow

#### **Characteristic of gas business**

Ensure safety by providing equipment and services through close contact with customers

Solutions to improve productivity through custom development, including industrial burners

New services and preventive maintenance using big data analysis for gas equipment

Energy saving through cogeneration and remote control

Gas safety knowhow delivering safety and peace of mind

Company name	CD Energy Direct Co., Ltd.
date of establishment	Apr. 2, 2018
Capital	1.75 billion yen Chubu Electric Power: 50% Osaka Gas: 50%
Business	Business selling services related to electricity and gas as well as lifestyle and business in the Tokyo metropolitan area



[Household customers] Provide confortable and convenient living through optimal use of electricity and gas

[Corporate customers] Provide business solutions with excellent economic and environmental performance by leveraging electrification technology and combustion technology

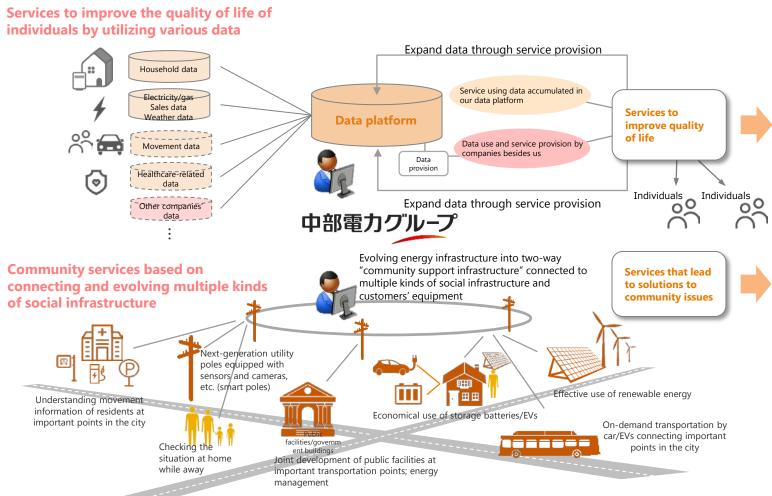
Furthermore, we will create "new value" useful in living and business through services using IoT technology with the aim of establishing a new business model and providing services that go beyond the framework of the energy business operator.

#### [Topics]

	May 29, 2018	Conclusion on absorption- type split agreement
_	May 30, 2018	Publication of alliance with Tokyu Power Supply
	June 12, 2018	Beginning of tariff menu application
	Aug. 1, 2018	Beginning of power and gas supply

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





#### 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
- For far removed individuals

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

data and medical data

#### IoT services for the home

✓ We will provide <u>services that</u> <u>make life rich and comfortable</u> by using IoT devices to gather and make use of household data.

#### Energy management service

We will enable efficient use of energy by using IoT technology to connect the energy resources of multiple customers.

#### **Smart poles**

We will **provide new community services** by **installing ICT devices**such as sensors and
communications equipment **on utility poles** and using the data
obtained.

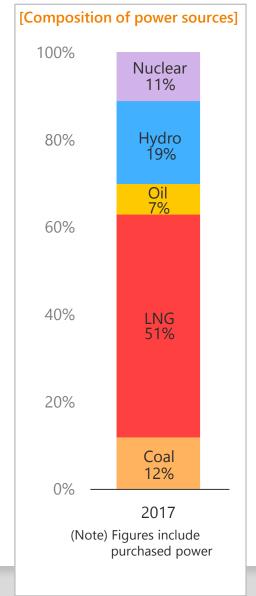
## Strengthening relationships with local governments

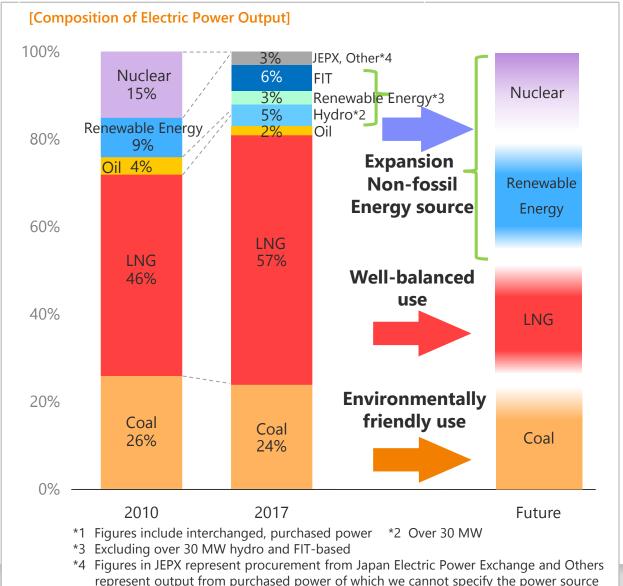
✓ Working with local governments such as Toyota City in Aichi Prefecture and lida City in Nagano Prefecture, we will work at creating community services that lead to higher quality of life for various communities and residents.

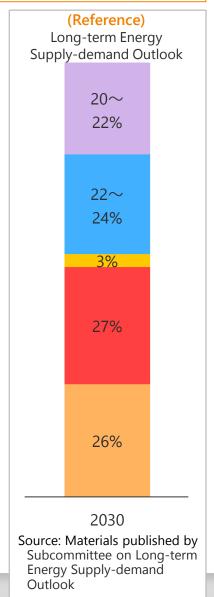
## 42 | Carrying out ESG management (E : Composition of Electric Power Output)



■ 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.





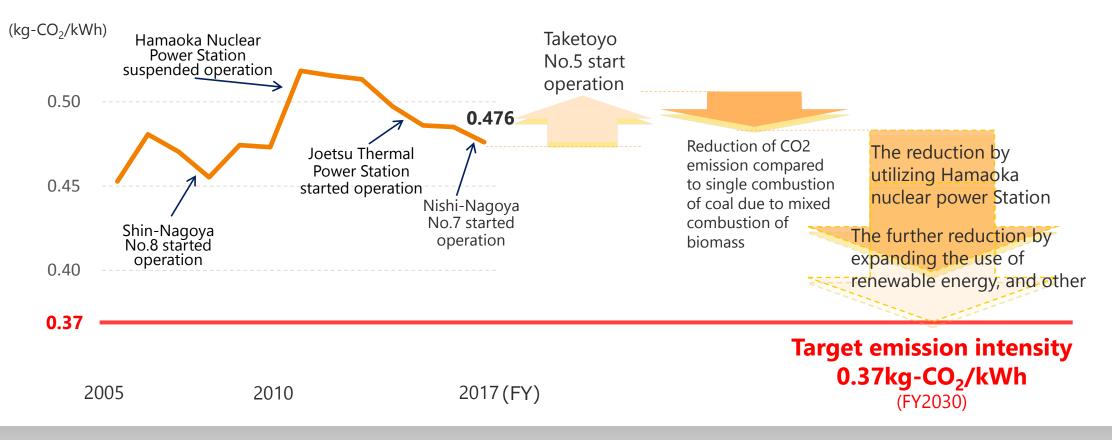


## 43 | Carrying out ESG management (E : Reduction of CO<sub>2</sub> emissions)



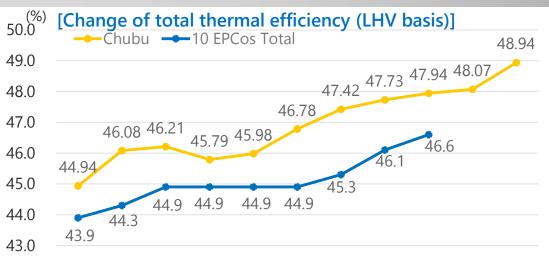
- Japanese government set up the target of reducing greenhouse gas emissions (26% reduced by FY2030) as Japan's goal of the Paris Agreements, and decide the proportion of nuclear power generation and renewable energy(Non-fossil energy sources ratio is more than 44% by FY2030) to achieve the target.
- 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)]



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





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)

#### Effect due to start of operation

- LNG consumptions
  - Reduce 0.5 million tons per year
- CO<sub>2</sub> emissions

Reduce 1.4 million tons per year

#### TOPICS

Unit 7-1 having been granted with recognition as the world's most efficient combined cycle power plant.



#### [Outline of development of Taketoyo Thermal Power Plant Unit No.5]

Output (	at the generation end)	1,070 MW		
Therma	efficiency (LHV basis)	46%(LHV basis)		
	Fuel	Coal·Wood biomass		
	type	Wooden pellet		
Wood	Mixed fuel burning ratio	Approx. 17% (Heating value ratio)		
biomass	Annual use of fuel	Approx. 0.5 million tons		
	Electricity generated by Biomass power	Approx. 1.2 TWh per year		

One of Japan's largest biomass generation output (\*) \* A single unit's generation output including both single- and co-firing

#### Effect due to start of operation

- Secure the stable and reasonably priced base load power source
- CO<sub>2</sub> emissions
   Reduce 0.9 million tons per year
- \* Comparison with single-firing of coal

#### [Construction progress of Taketoyo Thermal Power Plant]

	FY2017	FY2018	FY2019	FY2020	FY2021	FY2022	
Unit No.5 (1,070MW)		n. 2018 : prepa Mar. 2018 : cor	▽ Mar. 2022 : operation to start				
(1,0701111)		▲Apr. 2018 : co	onstruction starte	ed	△July 2021 : first firinç		

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



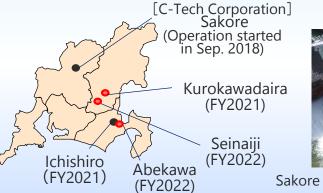
(	As	ot	the	end	ot	Decem	ber,	2018	)
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		(As	of the end	d of December, 2018)		
		Chubu Electric	(Reference) Chubu Electric Group			
Hydro	operating	197 Site : 5,459MW	Akigami : 0.29MW(FY2016) Sakore : 0.38MW(FY2018)			
		Kurokawadaira : 0.17 MW (FY2021) Ichishiro : 0.16 MW (FY2021) Seinaiji : 5.6 MW (FY2022) Abekawa : 7.1 MW (FY2022)	Amazake : 0.53MW(FY2018) Hidasunouchi : 0.82MW(FY2020)			
8	Operating	Omaezaki:22MW	150MW			
Wind	Plan	Atsumi (tentative name) : 7.4 MW	_			
Solar	Operating	Mega Solar Iida : 1.0 MW Mega Solar Shimizu : 8.0 MW Mega Solar Kawagoe : 7.5 MW	241MW			
	plan	<u> </u>	7 Site : 131MW (FY2019)			
Biomass		Mixture of wooden chip Mixture of fuel from carbonized sewage sludge	Taki bio power : 6.75 MW (FY2016)			
		Biomass power generation facility at Yokkaichi Thermal Power Station : 49MW(FY2020) Yonago : 16.35MW(FY2021)	CEPO Handa biomass : 45 MW (FY2019)			
Total	Operating	5,497.5MW	Grand Total	5,896.39MW		
tal	Plan	85.78MW	nd tal	436.56MW		

#### **Development locations of hydroelectric power station**

- Conventional hydro
- Generation with minimum water level

Parentheses denote the commercial operation start year.





Sakore Hydroelectric Power Station

#### **Biomass Power Generation**

Investment in the Woody Biomass Electric Power Plant in Yonago-shi (joint business)

[Site map] Power plant station Reference: GSI

**(Summary of Project)** 

Site: Yonago City, Tottori Prefecture

Wadahama Industrial Park

Power output: 54.5MW

Power generation: Approx. 390 million kWh/year

Type of fuel: Wooden pellet, Palm coconut shell

Investing companies:

Chubu Electric Power Co., Inc.

Tokyu Land Corporation

Mitsubishi UFJ Lease & Finance Company Limited

New Energy Development Co., Ltd.

Power generation output of renewable energy

\* Increase over the level in 2016

**Increase 20% by 2030** 

<sup>\*</sup> Joint businesses are recorded by equity interest.

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

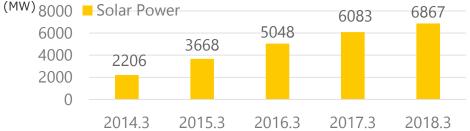
Amount of electricity flowing

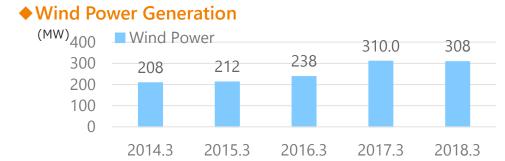


- Chubu Electric Power has begun an initiative (N-1 power control) to use capacity that is set aside for an emergency in case of
  failure, based on the anticipated flow of electricity in check with power generator operation (anticipated current), so that more
  sources of power, including renewable 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.

#### [Introduction of renewable energy in Chubu region]







#### What is connect & manage?

A system that makes maximal use of existing transmission lines and allows the connection of renewable energy, etc., with certain conditions, enabling the connection of lots of power sources while attempting to reduce the costs of connection

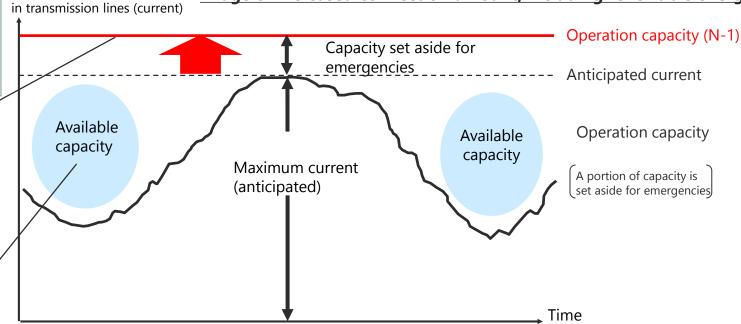
#### N-1 power control

Increase the amount of electricity that can flow through transmission lines (operation capacity), on the premise that generator output will be limited instantly during a failure, such as on a transmission line

#### **Non-firm connection**

Allow use of transmission lines when there is available capacity, on the premise that generator output will be limited when operation capacity is exceeded

#### Image of increased connection amount, including renewable energy





#### **DISCLAIMER**

This presentation contains assumptions and forward-looking statements with respect to the financial conditions, and forecasts of the company, which are based on information currently available.

These assumptions involve certain risks and uncertainties, and may cause actual results materially differ from them, by changes in the managerial environment such as economic activities and market trends.

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