

# Management Overview

**November 2022**



The Okinawa Electric Power Company, Inc.

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# Overview of Okinawa Prefecture



## Basic Data

Population:	1,468,678
No. of Households	631,612
Area	2,283 km <sup>2</sup>
Climate	Subtropical / Oceanic
Location	26° 12'N 127° 41'E
Prefectural GDP	¥4110.4billion
Tourism Revenue	¥292.4billion

- ◇ 160 islands scattered over a sea area lying about 1,000 kilometers east and west and about 400 kilometers north and south.
- ◇ Okinawa has attracted attention for its advantages and potentials.
  - Geographical characteristics as being located in the center of East Asia.
  - The highest birth rate in Japan.
  - Rich nature and mild climate.
- ◇ Making good use of such advantages and potentials, initiatives are underway
  - Promotion of tourism.
  - Clustering of international logistics industry.

Population, No. of Households as of September 1, 2022

Area as of July 1, 2022

Prefectural GDP as of Estimated results FY 2020

Tourism Revenue as of Estimated results FY 2021 (Source: Okinawa Prefecture, Geographical Survey Institute)

# Corporate Overview of OEPC

- The Okinawa Electric Power Company (OEPC) supplies electricity to 37 inhabited islands including Okinawa main island.
- OEPC maintains 11 isolated systems that are not connected with the transmission lines of other power companies.
- OEPC has no nuclear and hydroelectric power plants and depends on fossil fuels for its power supply.

Established	May 15, 1972
Capital	¥7,586 million
Total assets	¥407.311 billion (Non-consolidated) ¥446.519 billion (Consolidated)
Employees	1,532 (Consolidated: 2,812)

Security code	9511
Service area	Okinawa Prefecture
Generating facilities	Steam-power generators 5 locations 1,629 thousand kW (Oil 2 locations 375 thousand kW) (Coal 2 locations 752 thousand kW) (LNG 1 locations 502 thousand kW) Gas turbine generators 5 locations 326 thousand kW Internal-combustion power generators 12 locations 208 thousand kW Wind power generators 5 locations 2 thousand kW Total 2,165 thousand kW

(as of March 31, 2022)

## Ratings

Rating agency	S&P	Moody's	R&I
Rating	A+	A1	AA
Outlook (direction)	Stable	Stable	Stable

\* Ratings on long-term preferred debts as of October 31, 2022

# Financial Results for FY2022 2Q YTD (Year-on-Year Comparison)

(Unit: million yen, X)

	Consolidated (A)			Non-consolidated (B)			(A) / (B)	
	FY2021 2Q YTD (Results)	FY2022 2Q YTD (Results)	Rate of Change	FY2021 2Q YTD (Results)	FY2022 2Q YTD (Results)	Rate of Change	FY2021 2Q YTD (Results)	FY2022 2Q YTD (Results)
Sales	87,782	118,738	+35.3%	84,258	114,888	+36.4%	1.04	1.03
Operating income	5,155	-22,518	—	4,545	-22,905	—	1.13	—
Ordinary income	5,074	-22,473	—	4,672	-22,709	—	1.09	—
Net income	3,847*	-16,819*	—	3,761	-16,871	—	1.02	—

\* Net income attributable to owners of parent.

## 【Revenue】

- Increase in Sold power to other suppliers and income from the Fuel cost adjustment system in Electric business.

## 【Expenditure】

- Increase in Fuel costs and Purchased power costs due to soaring fuel prices in Electric business.

## 【Profit】

- Profit deteriorated significantly in Electric business because some of the increased costs associated with soaring fuel prices have not been reflected in Electricity sales.

# Annual Outlook Summary FY2022

(Unit: million yen, X)

	Consolidated(A)				Non-consolidated(B)				(A) / (B)	
	FY2021 (Results)	FY2022 (Forecasts)		Change (II) - (I)	FY2021 (Results)	FY2022 (Forecasts)		Change (II) - (I)	FY2021 (Results)	FY2022 (Forecasts)
		Announced in Jul. 2022 (I)	Announced in Nov. 2022 (II)			Announced in Jul. 2022 (I)	Announced in Nov. 2022 (II)			
Sales	176,232	219,000	223,000	+4,000	168,078	208,600	212,600	+4,000	1.05	1.05
Operating income	2,810	-39,800	-46,500	-6,700	465	-41,300	-48,000	-6,700	6.04	—
Ordinary income	2,717	-40,000	-47,000	-7,000	500	-41,500	-48,500	-7,000	5.43	—
Net income	1,959	-30,800	-41,600	-10,800	694	-31,700	-42,500	-10,800	2.82	—

\* Net income attributable to owners of parent.

## [ Comparison with previous forecasts (Jul.2022) ]

### 【Revenue】

- Increase in Electricity sales due to increase in Electricity sales volume.
- Increase in Sold power to other suppliers in Electric business.

### 【Expenditure】

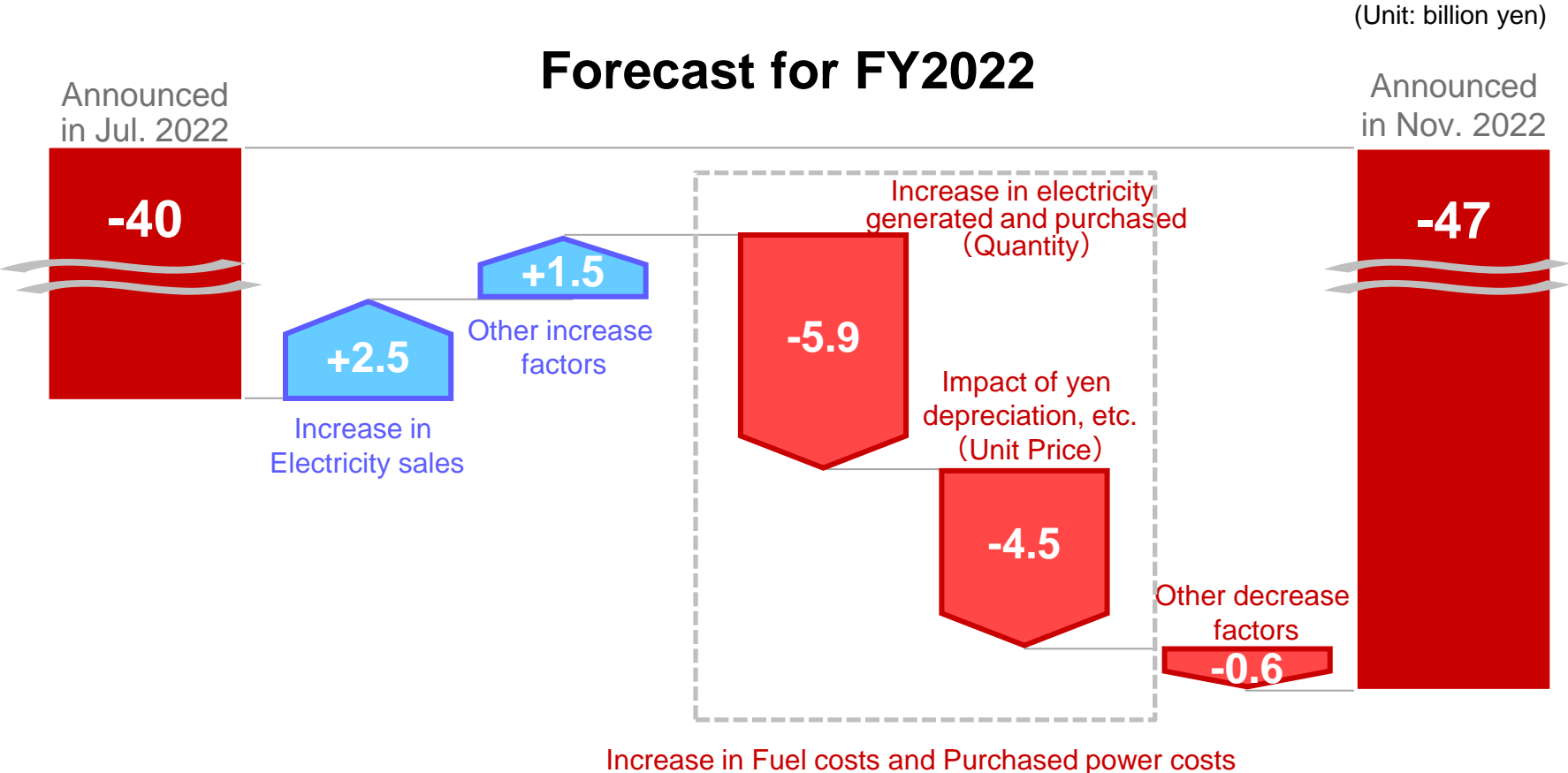
- Increase in Fuel costs and Purchased power costs in Electric business.

### 【Profit】

- Profit is expected to deteriorate in Electric business because the increase in costs associated with depreciation of the yen has not been fully reflected in Electricity sales.

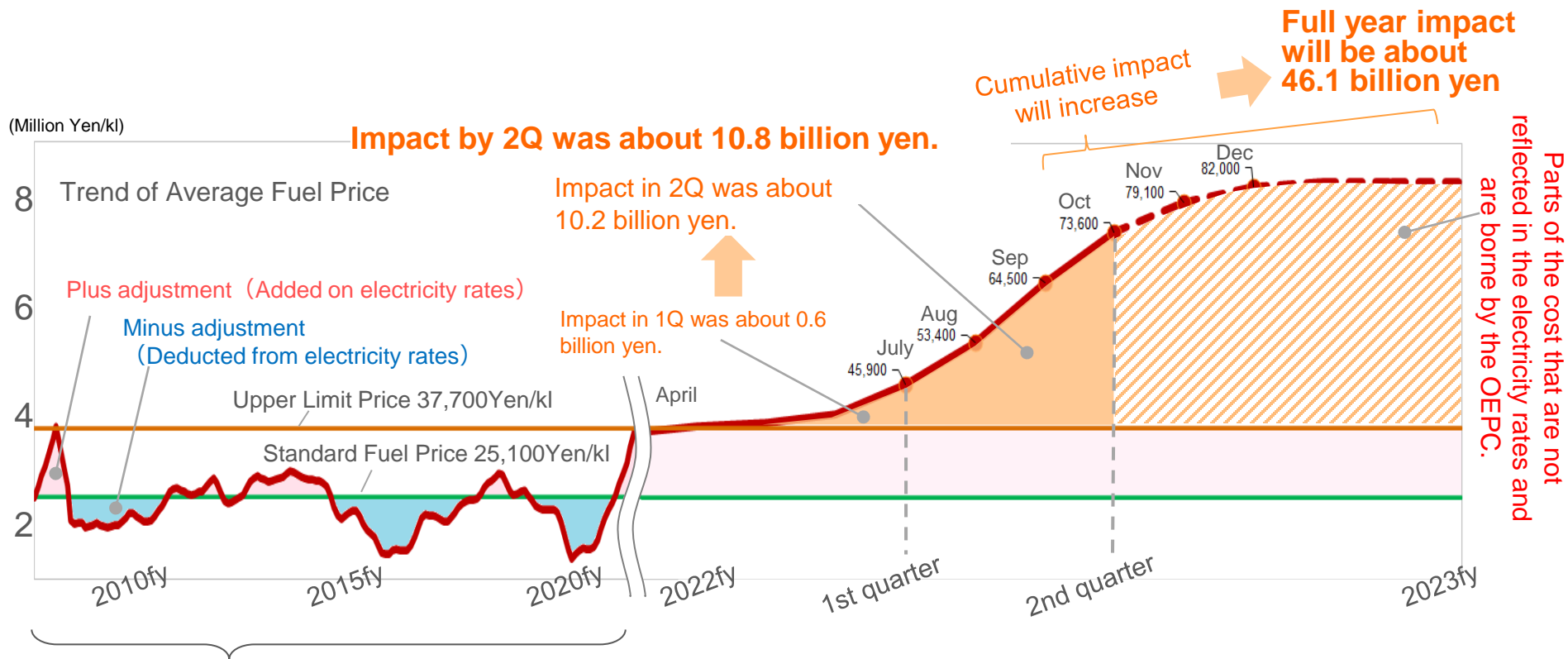
# Factors behind the Increase or Decrease in the Forecast of Financial Results (Consolidated)

- Forecast for FY2022 is an ordinary loss of -47.0 billion yen.
- Compared to the forecast announced in July, the loss is expected to be approximately 7 billion yen larger.



# Maximum amount of fuel cost adjustment

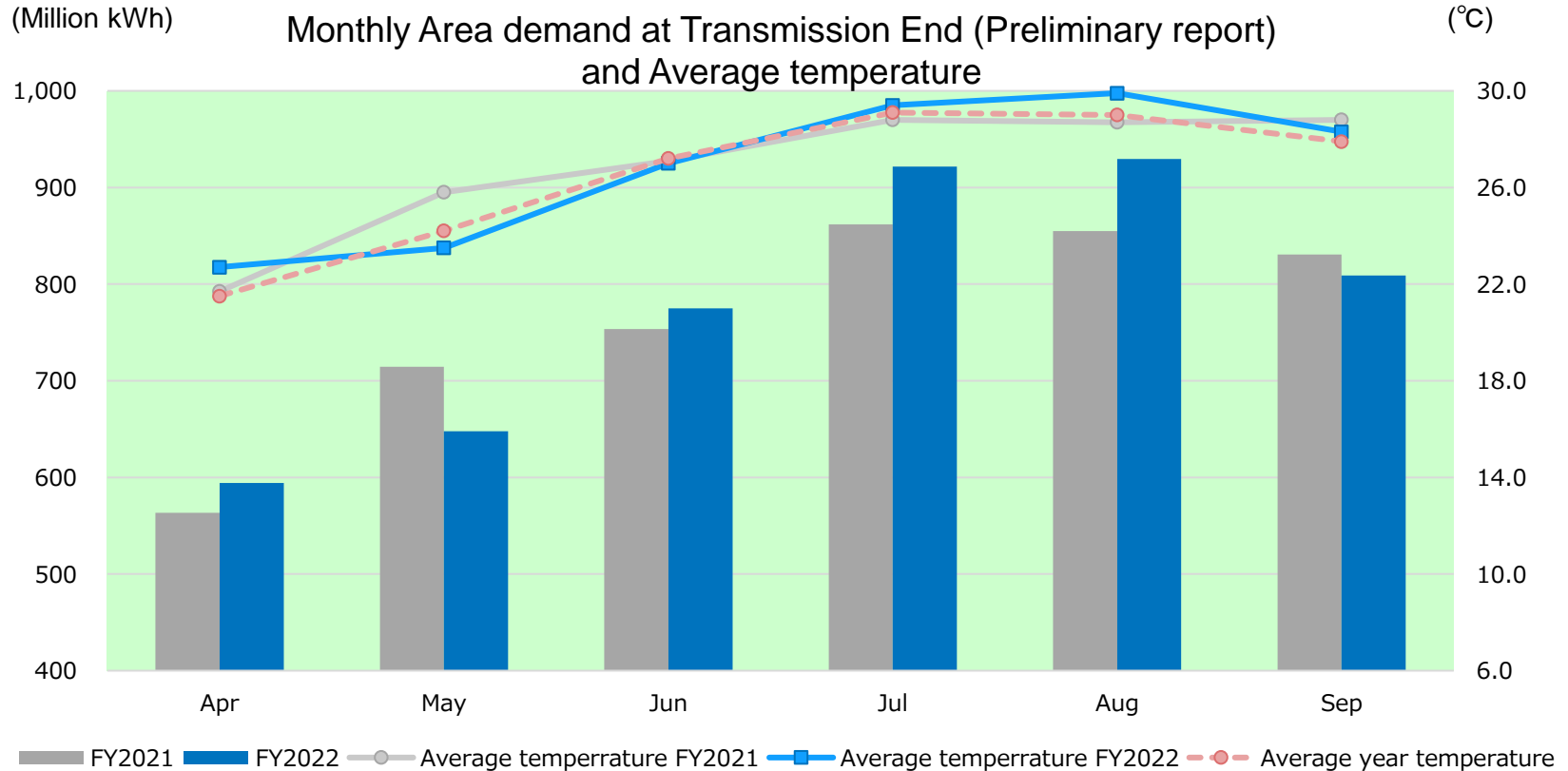
- Essentially, fluctuations in fuel prices and exchange rates are automatically adjusted monthly under the "fuel cost adjustment system" and promptly reflected in electricity rates.
- In Okinawa, the maximum price was reached in April of this year, and the amount exceeding the ceiling is not reflected in electricity rates, but is borne by the OEPC, and the impact up to the second quarter has been about 10.8 billion yen.



From the FY2008 Revision to FY2021 the cumulative amount of the fuel cost adjustments is Minus 45.5 billion yen (minus adjustments).



# Electric Energy Demand (Results) (1/2)



	Apr	May	Jun	Jul	Aug	Sep	1st Half
FY2022	594	648	775	921	929	809	4,676
FY2021	563	715	753	862	855	831	4,579
Rate of Change	+5.5	-9.3	+2.8	+6.9	+8.7	-2.6	+2.1

	Apr	May	Jun	Jul	Aug	Sep	1st Half
FY2022	22.7	23.5	27.0	29.4	29.9	28.3	26.8
FY2021	21.7	25.8	27.1	28.8	28.7	28.8	26.8
Climatological Normals	21.5	24.2	27.2	29.1	29.0	27.9	26.5

\* Climatological Normals is observed data from 1991 to 2020.

# Electric Energy Demand (Results) (2/2)

## Electricity Sales Volume

(Unit: million kWh, %)

	FY2021 2Q YTD (Results)	FY2022 2Q YTD (Results)	Change	Rate of Change
Lighting	1,579	1,580	+1	+0.1
Power	2,244	2,297	+53	+2.3
Total	3,823	3,877	+54	+1.4

### <Lighting>

The demand for Lighting remained almost unchanged from the previous year due the higher temperature in summer compared with previous year, despite the impact of customer switching to other suppliers.

### <Power >

The demand for Power increased compared with Year-on-Year due to the weakening impact of the novel coronavirus.

## Power Generated and Received

(Unit: million kWh)

		FY2021 2Q YTD		FY2022 2Q YTD		Change	Rate of change
		Electricity generated	Com- position ratio	Electricity generated	Com- position ratio		
OEPC	Coal	1,785	43.7%	1,830	43.7%	+45	+2.5%
	Oil	601	14.6%	548	13.0%	-53	-8.8%
	LNG	902	22.1%	954	22.8%	+52	+5.8%
	Total	3,288	80.4%	3,332	79.5%	+44	+1.3%
Other		800	19.6%	860	20.5%	+60	+7.5%
Total		4,088	100.0%	4,192	100.0%	+104	+2.5%

### <Power Generated and Received>

- Power generated and received was 4,192 million kWh, up 2.5%. \*
- Electricity generated of OEPC's Coal-fired thermal power was up 2.5%. \*
- Electricity generated of OEPC's Oil-fired thermal power was down 8.8%. \*
- Electricity generated of OEPC's LNG-fired thermal power was up 5.8%. \*

\*Comparison with the same period of the previous year.

# Electric Energy Demand (FY2022 and Long-term Outlook)

## Electricity sales volume (FY2022 Outlook)

(Unit: million kWh, %)

	FY2021 Results	FY2022 Forecasts	YoY Rate of Change
Lighting	2,895	2,837	-2.0
Power	4,138	4,201	1.5
Total	7,033	7,038	0.1

### (Lighting)

Demand is expected to be lower year-on-year.

- ✓ Impact of customers switching to other suppliers. (YoY growth:-2.0%)

### (Power)

Demand is expected to increased compared with the previous year.

- ✓ Impact of customers switching to other suppliers. (Factor for decrease)
- ✓ Reactionary increase due to weakened impact of the novel coronavirus compared with previous year. (YoY growth:1.5%)

### (Total)

As explained above, the total electricity sales volume is expected to be 7,038 million kWh, remain almost unchanged from the previous year. (YoY growth:+0.1%)

## Electricity sales volume (Long-term Outlook)

(Unit: million kWh, %)

	FY2010 Results	FY2020 Results	FY2031 Forecasts	2010-2020 Annual average growth rate	2020-2031 Annual average growth rate
Lighting	2,991	2,983	2,776	0.0 (-0.1)	-0.7 (-0.5)
Power	4,530	4,154	3,923	-0.9 (-0.9)	-0.5 (-0.4)
Total	7,521	7,137	6,699	-0.5 (-0.6)	-0.6 (-0.4)

### (Lighting)

Demand is expected to decrease.

- ✓ Impact of customers switching to other suppliers.
- ✓ Increased demand resulting from growth in the number of population and households. (Factor for increase) (Annual average growth:-0.5%\*)

### (Power)

Demand is expected to decrease.

- ✓ Impact of customers switching to other suppliers.
- ✓ On the Assumption that the novel coronavirus infection converges, increase in commercial and accommodation facilities and food manufacturers due to growth in the number of population and tourists. (Factor for increase) (Annual average growth:-0.4%\*)

### (Total)

As explained above, the total electricity sales volume is expected to be 6,699 million kWh. (Annual average growth:-0.4%\*)

\* Adjusted for the influence of temperature and leap year.

# Capital Expenditures Plan

- Capital investment in FY 2021 was 30.7 billion yen due to the aging of power sources and an increase in the construction and replacement of power distribution facilities.
- Although costs for responding to aging of supply facilities are expected to increase, efforts are made to level off investment amounts.
- In FY2022, the management environment will be extremely difficult, but it is planned to implement capital investment necessary to secure a stable supply of electricity after careful examination.

## Trends in the Capital Investment Amount

(Unit: 100million yen)

By facilities		FY		2019		2020		2021		2022	
		Results	(Plan)	Results	(Plan)	Results	(Plan)	(Plan)			
Power sources		63	( 67)	88	(115)	97	(124)			(195)	
Supply facilities	Transmission	63	( 87)	67	( 86)	47	(112)			(117)	
	Transformation	39	( 59)	63	( 76)	69	(74)			(45)	
	Distribution	48	( 77)	65	(106)	66	(93)			(84)	
	Subtotal	151	(224)	196	(267)	183	(279)			(247)	
Others		16	( 6)	24	( 27)	25	(34)			(44)	
Total		230	(297)	309	(409)	307	(438)			(485)	

Note: The figures may not exactly match the figures because of rounding.

### [ Major Projects in Capital Investments in FY 2022 ]

#### Power sources:

Makiminato Gas engine Power Plant  
 Responding to aging of Gushikawa Thermal Power Plant

#### Supply facilities: Responding to increasing demand

Replacement of aging facilities  
 Responding to shortened power outage times  
 Responding to supply reliability

# Business environment and challenges

Item	Overview and Challenges
Sales	<ul style="list-style-type: none"><li>■ The population and the number of households will continue increasing, but the number of tourists is recovering.</li><li>■ The demand for Electric Power in Okinawa area will increase, but the rate of its increase has been slowing down.</li><li>■ The entry of power producer and supplier has advanced competition.</li><li>■ Challenges will be sales expansion of electricity and gas.</li></ul>
Profitability	<ul style="list-style-type: none"><li>■ The fuel price has risen so high that it has exceeded the upper limit of the fuel cost adjustment system, which has reduces the company's profits.</li><li>■ The profit and cost structure must be reviewed.</li></ul>
CF	<ul style="list-style-type: none"><li>■ Capital investment will increase due to the implementation of the Mid-Term Management Plan.</li><li>■ No large-scale electric power development is planned for the time being.</li></ul>
Capital composition	<ul style="list-style-type: none"><li>■ Equity capital is secured at the level necessary for financial stability.</li><li>■ A challenge is to improve capital efficiency.</li></ul>

# The OEPC Group Vision: Basic Management Stance

## What the OEPC Group Aims To Be

With our comprehensive energy business as the core, we aim to create new value through services to support both corporate and individual customers and as a business group with a sense of solidarity, growing and developing hand-in-hand with the community, will contribute to the realization of a sustainable society.

## Basic Management Stance

(1) Strive to provide a stable supply of energy

(2) Aggressively take on carbon neutrality

(3) Meet the diverse needs of our customers and do our utmost to enhance customer satisfaction

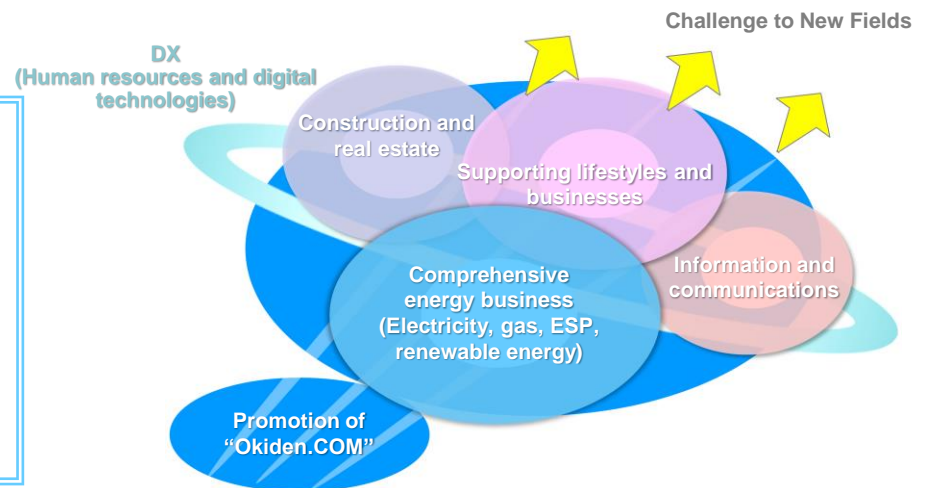
(4) Fulfill social responsibility as a good corporate citizen of local communities

(5) Nurture and value people

(6) Achieve sustainable growth through proactive business development and continually enhancing management efficiency

## Business Fields

- With comprehensive energy business at its core, the OEPC Group will expand its business fields by further developing businesses in construction and real estate, information and communications, and support for lifestyles and businesses.
- We will also leverage the strengths of the OEPC Group to develop new businesses.



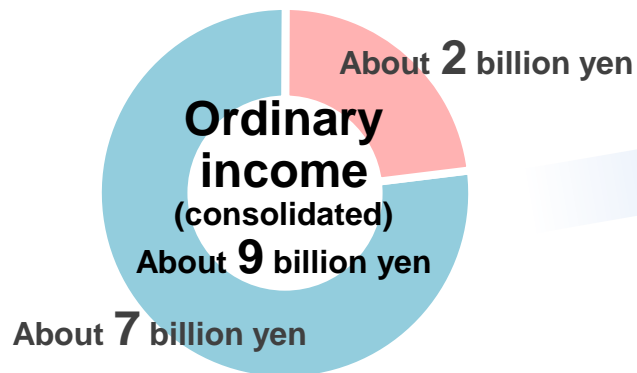
# Management Goals: Financial Goals and Business Portfolio

- The entire Group will work together to realize what we aim to be, striving to achieve financial goals.
- With the comprehensive energy businesses such as gas supply business, ESP and other at its core, in addition to the electric power business, the entire Group aims to grow by developing and enhancing the construction and real estate, information and communications, and lifestyle and business support businesses.

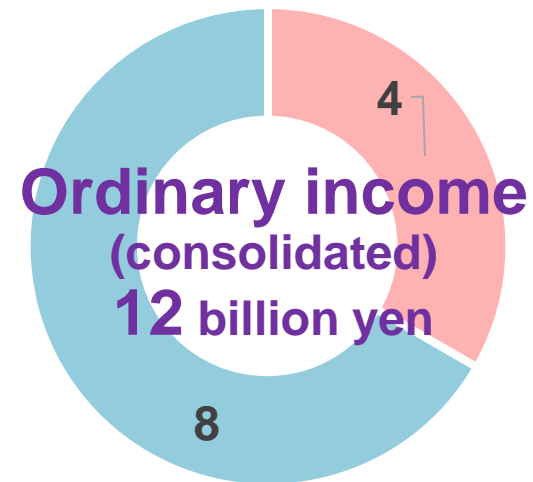
Financial goals (consolidated)	FY2025
Ordinary income	12 billion yen or more
ROE (Return on Equity)	5% or more
Capital adequacy ratio	Maintaining the 30% mark

Business Portfolio (2025)

## 2018-2020 Average



■ Electric power business ■ Group business



■ Electric power business ■ Group business

# Effective Utilization of Management Results: Concept of Investment and Shareholder Return Policy

## Concept of investment

- The basic mission of the OEPC Group is to provide stable energy to customers and contribute to the development of local communities and economies in Okinawa.
- We will maintain the capital adequacy ratio at current 30% level and promote investments that ensure financial stability.

## Investment for stable power supply

- With regard to facilities necessary for stable supply, we will steadily implement investments to maintain and build facilities appropriately and efficiently, while reducing the total cost of facility-related costs.

## Investment for carbon neutrality

- In order to achieve carbon neutrality, we will promote realistic and effective investment in cooperation with the national government, prefectural governments and other businesses under policy and financial supports.  
[Investment for mainstreaming renewable energy: Approx. 6 billion yen +  $\alpha$  (2022-2025)]

## Investment in growth sectors

- In order to ensure the growth of the entire Group, we conduct appropriate risk management by means of a PDCA cycle based on a regular assessment of the quantity of risks involved, and then make investments for business development.  
[Investment limit set for growth sectors: Approx. 20 billion yen (2022-2025)]

## Basic policy on shareholder return

- For the distribution of profits, our company will maintain a “consolidated dividend on equity ratio (DOE) of at least 2.0%” based on a “stable and continuous dividend” policy.

- \* In determining the actual dividend amount, in addition to the basic policy, the Company comprehensively considers the current management environment, trends in revenue and expenditure, and the balance among stakeholders.
- \* For the current fiscal year, since we expect a very difficult earnings situation, we will forgo the payment of dividends for the interim and the end of the fiscal year.



# Direction of Initiatives in the Medium-Term Management Plan: Direction of Initiatives to Realize What the OEPC Group Aims To Be

- To realize what the OEPC Group aims to be, under the concept of “Okiden.COM,” we will promote the “expansion of the topline,” “proactive streamlining” and “challenge to become carbon neutral,” to provide customers with energy and new extra value.

## What the OEPC Group Aims To Be

### Creating new value

### Main directions

Expansion of the topline

Proactive streamlining

Challenge to become carbon neutral

Okiden.COM



## [Concept of ‘Okiden.COM’]



**Convert (Digitalization):**  
“Give it a try and change”  
✓ Promote DX and review business processes to transform cost structures, sophisticate operations, and further improve efficiency



**Optimize (Optimization):**  
“Connect and be connected”  
✓ Strengthen and further optimize business collaboration within and outside the Group from a broad perspective of the entire supply chain



**Make (Value creation):**  
“Creating value”  
✓ Aim to create new value and enhance competitiveness under the concept of “Okiden.COM”

# Initiatives to Achieve Carbon Neutrality

## Okinawa Electric Power Company (OEPC) aims to achieve net zero CO<sub>2</sub> emissions by 2050

- In December 2020, the Group has set up “Zero Emission Initiatives of OEPC” as a long-term policy in response to the growing social demand for measures to combat global warming. We will work towards achieving net zero CO<sub>2</sub> emissions by 2050, by showing measures as a road map, based on two directions, “make renewable energy as the main power source” and “reduce CO<sub>2</sub> emissions from thermal power sources,” and will promote the initiatives by the Group as a whole.

### - JUST TRANSITION IN THE OKINAWA AREA

In its “Green Growth Strategy Through Achieving Carbon Neutrality in 2050,” the government called on the electric power industry to play a major role in decarbonization, and set an ambitious goal of “Reducing greenhouse gas emissions by 46%, striving further by 50%” in FY2030.

The government's goal of reducing greenhouse gas emissions by 46% corresponds to a reduction of 28% in the Okinawa area, where zero-emission power sources are limited. The 28% reduction is still a tough goal for the Okinawa area.

The 28% reduction is an estimate of the reduction rate in the Okinawa area, where zero-emission power sources are limited, as shown in the Sixth Basic Energy Plan. This is because it is difficult to develop nuclear power generation and large hydroelectric power due to geographical and topographical constraints as well as the size of the system, and because large wind turbines cannot be installed from the viewpoint of extreme wind speeds. Calculations are made by replacing all the power sources of hydropower, wind power, geothermal power, and nuclear power that are difficult to install with existing thermal power plants.

For this reason, in FY2030, it is necessary to move toward carbon neutrality through a unique path that does not have a significant impact on the local economy based on regional characteristics, i.e., a “JUST TRANSITION IN THE OKINAWA AREA,” rather than through a uniform national target.

Taking into account the special characteristics of the Okinawa area, our company will continue to further accelerate its efforts toward carbon neutrality, which is premised on the stable supply of electricity, in line with the government's goals.

\* As for wind power generation facilities with a capacity of 500 kW or more, there is no wind turbine that can withstand extreme wind speeds of approximately 90 m/s or more, and large wind power facilities have not been introduced for no less than five years since the change of review on the construction plan notification.

Table 1 Zero Emission Power Sources That Can Be Introduced in the Okinawa Area

Power Source Configuration under the Sixth Basic Energy Plan		Applicable zero emission power sources		
		Nationwide	Okinawa area	
Renewable energy	Approx. 36-38%			
	Hydropower	Approx. 11%	○	×
	Wind	Approx. 5%	○	×
	Photovoltaic	Approx. 14-16%	○	○
	Geothermal	Approx. 1%	○	×
	Biomass	Approx. 5%	○	○
Nuclear	Approx. 20-22%	○	×	
Hydrogen	Approx. 1%	○	○	
Ammonia		○	○	
Thermal	Approx. 41%			
	LNG	Approx. 20%		
	Coal	Approx. 19%		
	Heavy oil	Approx. 2%		
Total	100%	Approx. 57-61%	Approx. 20-22%	

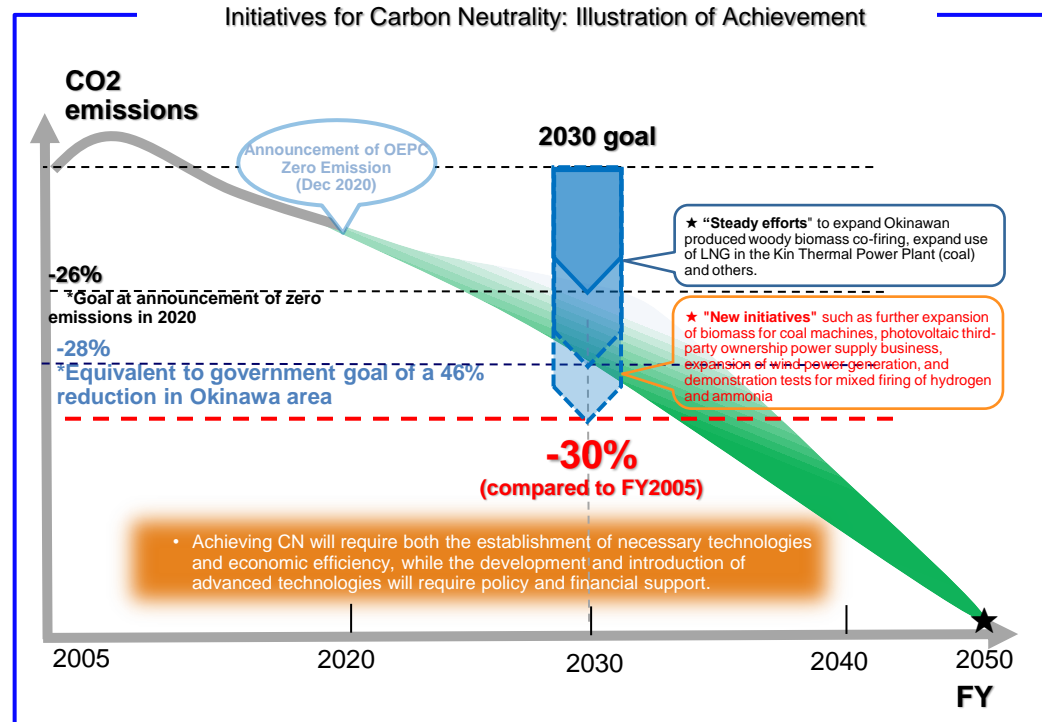
\* Because of the small prefectural land area, there is a limit on the development of photovoltaic power.

## More ambitious goal for FY2030

- Going beyond the government goal of a reduction rate of 28%, OEPC aims for **a reduction of 30% in FY2030 (compared to FY2005\*)** as an ambitious target in the "Just Transition in the Okinawa Area," and will accelerate the various carbon-neutral measures outlined in our Roadmap with maximum effort.

In order to achieve a balance between an inclusive decarbonized society and an economic society in the Okinawa area, it is essential that the following business environment be developed, at a minimum, with sufficient policy and financial support from the government.

- Technology is developed to meet the installation standards for large-scale wind power generation based on extreme wind speeds in the Okinawa area, and the business environment is developed to enable commercial installation.
- The business environment for a fair transition to low-carbon and decarbonized thermal power generation is established by providing sufficient support for efforts to reduce and decarbonize at existing thermal power plants by co-firing CO<sub>2</sub>-free fuels, in order to ensure both the capacity of thermal power plants necessary for a stable supply in the Okinawa area and the reduction of CO<sub>2</sub> emissions.
- In order to maximize the use of renewable energy, the burden on the people is controlled and a good relationship is established with local communities by streamlining environmental regulations and securing suitable land in harmony with local communities.
- To ensure the stable supply of necessary resources and fuels, supply costs for decarbonized fuels and technologies are sufficiently reduced through the integrated promotion of the establishment of hydrogen and ammonia fuel supply chains in cooperation with relevant countries and the securing of suitable lands for CCS, among others.



\* Since the previous goal set by the government compared to FY2013 was a 26% reduction (a 25.4% reduction from FY2005), with a goal compared to FY2005 also shown, we have set our goal to be a 26% reduction from FY2005, which is higher than the government's. As a measure against global warming, our company started co-firing biomass in the Gushikawa Thermal Power Plant in FY2010, and introduced the Yoshinoura Thermal Power Plant (LNG) in FY2012, which is the main pillar of the measures. Since believe that our efforts will be properly evaluated, we continue to use FY2005 as the base year.

# Initiatives to Achieve Carbon Neutrality: Roadmap

2030

2040

2050

Ambitious goals  
CO<sub>2</sub> ▲30%  
(Compared to FY2005)

Revision

Make Renewable Energy  
as Main Power Source

## ● Expansion of Renewable Energy

Introduction of Renewable Energy +100MW

- PV-TPO business<sup>※1</sup> + 50MW (3.4 times by current installation)
- Large Wind Power<sup>※1</sup> + 50MW

Maximum introduction of Renewable Energy

- Expansion of the PV-TPO business
- Expanding the introduction of large-scale Renewable Energy using Storage Batteries

## ● Grid Stabilization Technologies for Renewable Energy expansion

- Utilization and Advancement of Grid Stabilization Technologies using "Storage Batteries" and "Control Technologies"

## ● Development of the infrastructure to support the mainstreaming of Renewable Energy

- Raising demand for Electrification for Effective Use of Renewable Energy
- Building and Utilizing VPP<sup>※2</sup> and DR<sup>※3</sup> with DX (Digital Transformation)
- Building a disaster-resistant "Renewable Energy Micro-Grid" for local production and consumption

Reducing CO<sub>2</sub> Emissions  
from Thermal Power Plants

## ● Expanding the use of clean fuels

- Reducing CO<sub>2</sub> with increased consumption of LNG
- Leveraging the mobility of LNG power sources to smooth fluctuations in renewable energy output
- Consideration of introducing CO<sub>2</sub>-free fuels (hydrogen, ammonia, etc.) and offset technologies

- Conversion to CO<sub>2</sub>-free fuels
- Introduction of CO<sub>2</sub> offset technologies

## ● Fade-out of the inefficient thermal power plants

- Conversion of Oil to LNG. Lower carbon emission through the use of Local Biomass in Coal-fired Power Plants
- Consideration of introducing cutting-edge technologies such as next-generation thermal power

Introduction of next-generation power sources using CO<sub>2</sub>-free fuel conversion and CO<sub>2</sub> offset technology in conjunction with the shutdown of existing machines

Achieve Carbon Neutrality<sup>※4</sup>

Promoting  
Electrification

In addition to achieving a net zero structure on the power supply side, it is essential to promote electrification on the demand side (transportation, industry, business, household), implement necessary policies, and gain financial support.

※1 Service in which PV and storage batteries are installed free of charge and the electricity generated is sold to customers. Both PV-TPO and large wind power are scheduled to be built and managed by our affiliated companies.

※2 Virtual Power Plant (VPP) refers to the collective control and management of a number of small-scale renewable energy power plants, etc., to make them function as a single power plant.

※3 Demand Response (DR), according to the Ministry of Economy, Trade and Industry (METI), is defined as "an act of changing the consumption pattern of electricity for consumers to curb their use of electricity in response to the setting of electricity prices or the payment of incentives when wholesale market prices rise or when grid reliability declines."

※4 We aim to Net-Zero CO<sub>2</sub> Emissions by combining renewable energy power sources with thermal power sources that incorporate CO<sub>2</sub>-free fuels and CO<sub>2</sub> offset technologies.

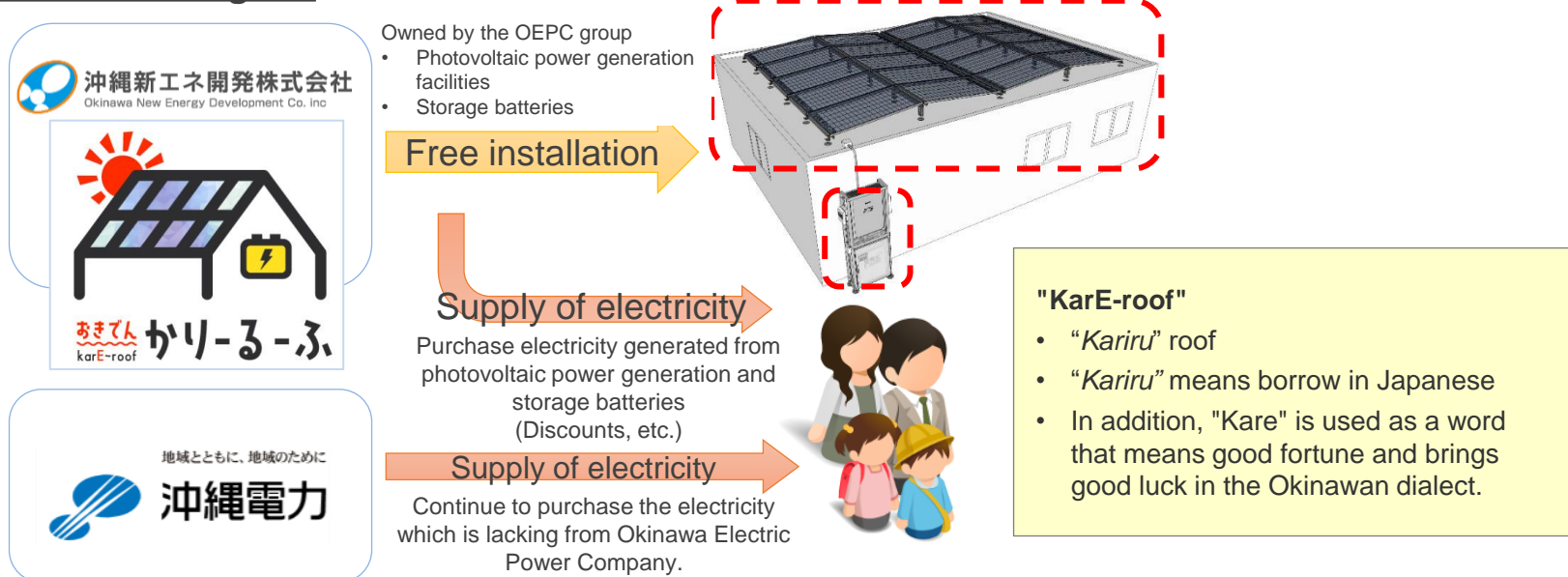
※This requires the establishment of necessary technologies along with economic feasibility. We will earnestly work to achieve these conditions. Further, policy and financial support are necessary for the development and introduction of advanced technologies.

# Initiatives to Achieve Carbon Neutrality: Examples of Initiatives

## Example: Development of the PV-TPO Business “karE-roof”

- On April 1, 2021, the Company started the “karE-roof,” a service that supplies electricity by installing photovoltaic power generation facilities and storage batteries free of charge (PV-TPO business).

### Service overview diagram



It is the “first” service of this kind by a major electric power company\* **which includes the installation of storage batteries free of charge, in addition to photovoltaic power generation.**

\* Assuming former general electricity providers. According to our research as of January 2021.

### Key Benefits to Customers

#### Zero yen Free initial installation cost

Photovoltaic generation and storage batteries can be used with zero initial installation cost.

#### Use of electricity in the event of disasters and other emergencies

Electricity can be used from photovoltaic power and storage batteries in the event of disasters and other emergencies.

#### Reasonable rate plan

Electricity generated by photovoltaic power can be purchased with a reasonable plan.

Full-electrification of homes enables a further **reduction in overall energy costs.**

# Initiatives to Achieve Carbon Neutrality: Examples of Initiatives



## Example: Development of PV-TPO Business

- In May 2022, we launched our first commercial service at Urasoe Municipal Minatogawa Junior High School.
- We have also entered into contracts with 16 customers and are preparing to begin operations.

### Urasoe Municipal Minatogawa Junior High School

- Photovoltaic power generation facilities: 65kW
- Storage battery: 13.5kWh
- Electricity supply by photovoltaic: 17% of annual electricity consumption
- CO2 emissions: 73 tons/year (equivalent to 8,332 cedar trees)



### OKINAWA TOURIST SERVICE INC.

- Photovoltaic power generation facilities: 65kW
- Storage battery: 13.5kWh ■ CO2 emissions: 100 tons/year



### Ryukai Logistics CO.LTD.

- Photovoltaic power generation facilities: 220kW
- CO2 emissions: 356 tons/year



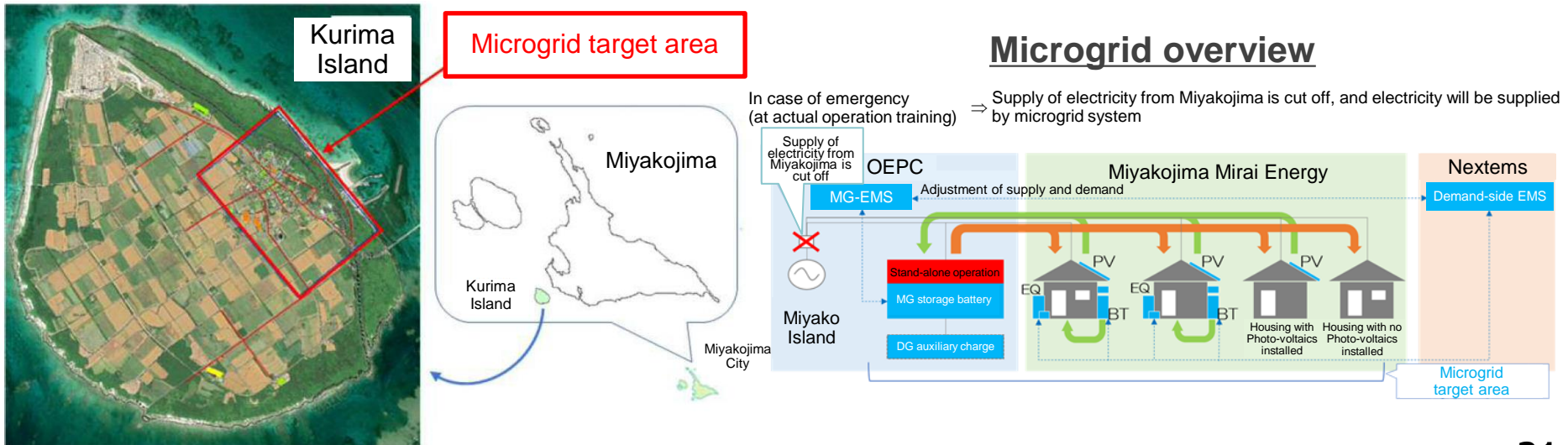
# Initiatives to Achieve Carbon Neutrality: Examples of Initiatives



## Example: Microgrid Demonstration Project in the Kurima Island Region

- In response to a decision by the Ministry of Economy, Trade and Industry to grant a subsidized project “Regional Microgrid Construction Project,” construction work on a demonstration facility for the Kurima microgrid, which was being carried out in collaboration with Nextems Co., Ltd. and Miyakojima Mirai Energy Co., Ltd., was completed and operation was started in January 2022.
- In May 2022, for the first time in Japan, we separated the microgrid target area from the original power transmission and distribution network, and succeeded in supplying electricity using existing power distribution lines using only a combination of photovoltaic power generation installed on the customer side and our company's MG storage batteries.
- By establishing regional microgrids, we will contribute to the realization of decarbonization, strengthening of electric power resilience, and sustainable society, which is increasingly in demand from the society.

\*1 A regional microgrid is a system that uses regional renewable energy in an area of a certain size.  
 \*2 Nextems Co., Ltd. (Urasoe City): In December 2019, the company received the Minister of Economy, Trade and Housing Industry Award, the highest award in the New Energy Foundation’s FY2019 New Energy Grand Prize in the Advanced Business Model Category.



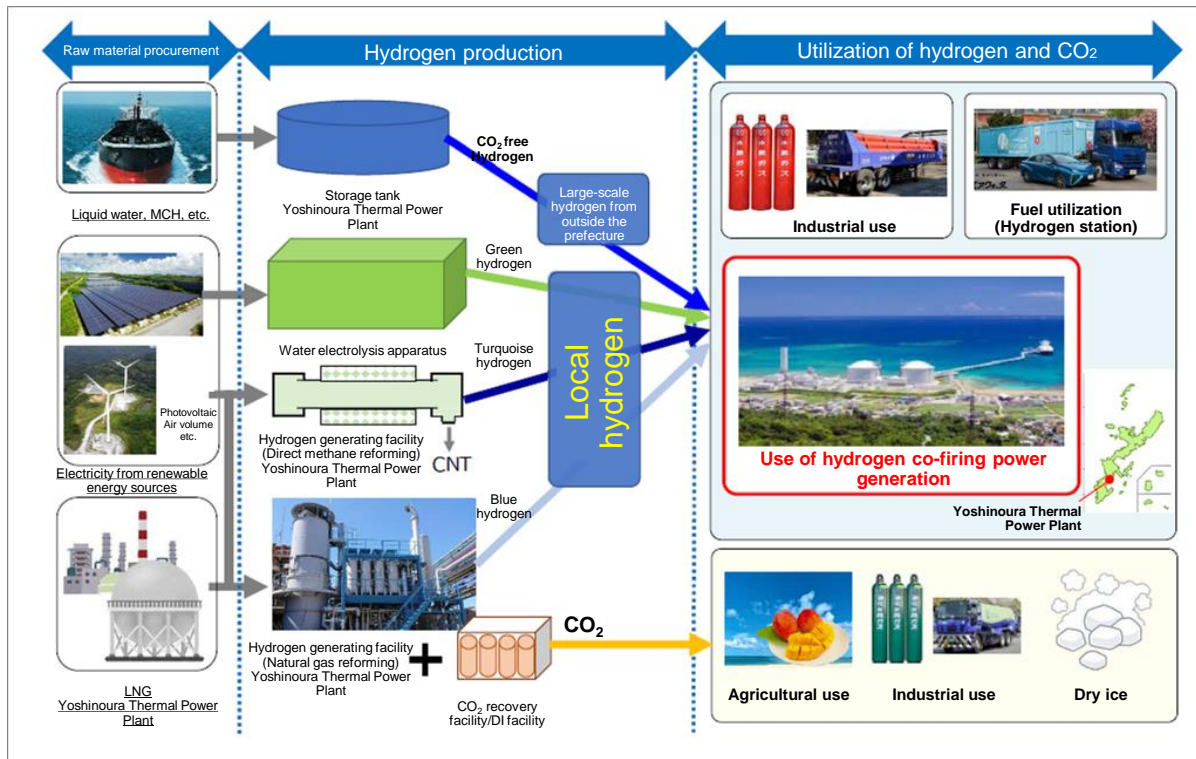
# Initiatives to Achieve Carbon Neutrality: Examples of Initiatives

## Example: Investigation for building a hydrogen-based society

- We applied for “Development of Technologies for Realizing a Hydrogen Society/ Development of Technology for Utilizing Regional Hydrogen/Investigation of Potential for Hydrogen Production and Utilization” publicly solicited by NEDO\*, which selected our “Investigation on the development of a total system for the utilization of regional hydrogen centered on the Yoshinoura Multi Gas Turbine Power Plant in the Okinawa area.”
- In addition to technical investigation on raw material procurement, and receiving and co-firing facilities for hydrogen co-firing at the Yoshinoura Multi Gas Turbine, we will conduct research on the local production of hydrogen and industrial development using by-produced CO<sub>2</sub>, etc.

\*New Energy and Industrial Technology Development Organization

## Outline of the investigation



## Specific details of the investigation

- (1) Hydrogen co-firing in gas turbine power generation facilities
- (2) Local production of hydrogen using LNG reforming and local renewable energy
- (3) Industrial promotion using CO<sub>2</sub> and carbon nanotubes in hydrogen production
- (4) Large-scale hydrogen import bases at power plants
- (5) Investigation of potential hydrogen utilization in the region

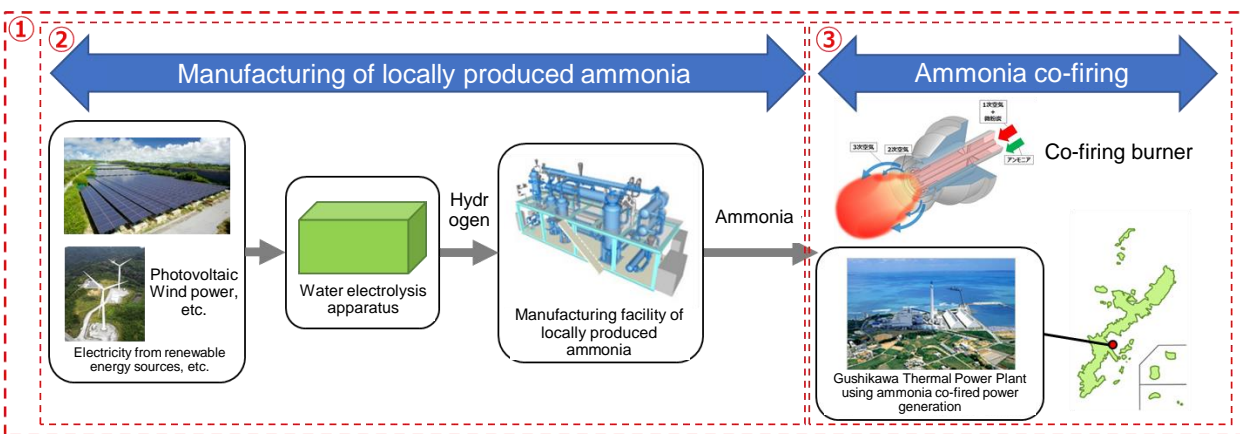


# Initiatives to Achieve Carbon Neutrality: Examples of Initiatives

## Example: Research project on locally produced and locally consumed ammonia in coal-fired thermal power plants

- We applied for the “FY2022 Investigation Project on Okinawa-style Clean Energy Introduction Promotion Investigation Project,” which was publicly solicited by the Okinawa General Bureau of Cabinet Office, and the "Investigation Project for Local Production and Consumption of Clean Fuel Ammonia in Okinawa" was selected.
- Ammonia co-firing at coal-fired power plants is expected to be an effective means of decarbonizing thermal power plants in Okinawa, where reducing CO<sub>2</sub> emissions is an issue.
- In this investigation, we will investigate the feasibility and business profitability of local production for local consumption of clean fuel ammonia, co-firing (local consumption) of ammonia at coal-fired power plants, while contributing to the utilization of renewable energy by ammonia production (local production) using renewable energy derived electricity.

## Outline of the investigation



## Specific details of the investigation

- (1) Investigation on possibility of mixed combustion of locally produced and locally consumed ammonia at Gushikawa Thermal Power Plant
- (2) Investigation of local ammonia production and supply
- (3) Investigation on modified mixed combustion of ammonia at Gushikawa Thermal Power Plant

# Initiatives by Business: Electric Power Business

## [Direction of Initiatives]

- ① Even in a competitive environment, the Group's fundamental mission of providing a stable supply of energy remains unchanged, and we will make every effort to realize it.
- ② We will promote the initiatives for carbon neutrality.
- ③ Based on the concept of "Okiden.COM," we will strive to improve the profitability of our electric power business by thoroughly reducing costs and providing electric power with additional value, while reviewing our business model.
- ④ We will develop the infrastructure to enable each electric power business to operate autonomously and flexibly.

### Power Generation Business

By thoroughly reducing power generation costs, we will ensure the necessary supply capacity in the future while promoting the replacement of aging power sources and the replacement of facilities to reduce carbon emissions.

### Transmission and Distribution Business

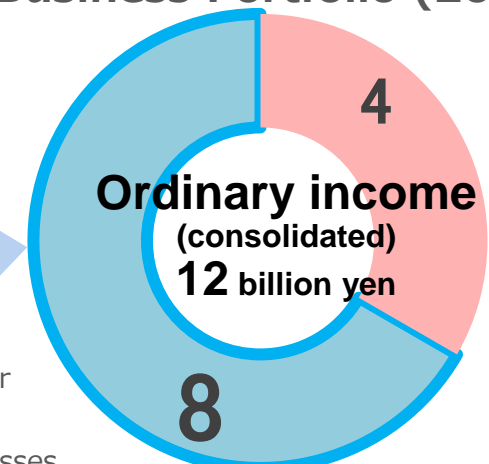
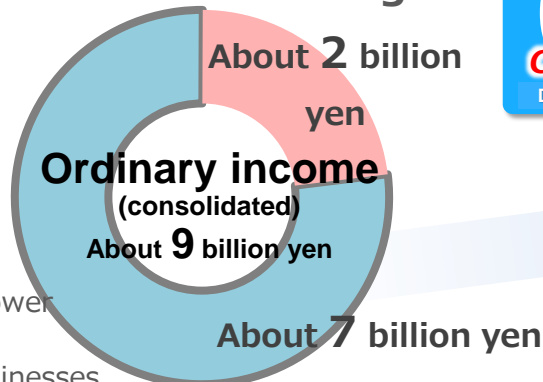
We will secure an appropriate level of profit, while maintaining a stable supply, and make appropriate capital investments for the next-generation power network and the renewal of aging facilities.

### Retail Business

We will strive to improve profitability in order to ensure sustainable business operations in the face of intensified competition and expected population decline in the future.

## Business Portfolio (2025)

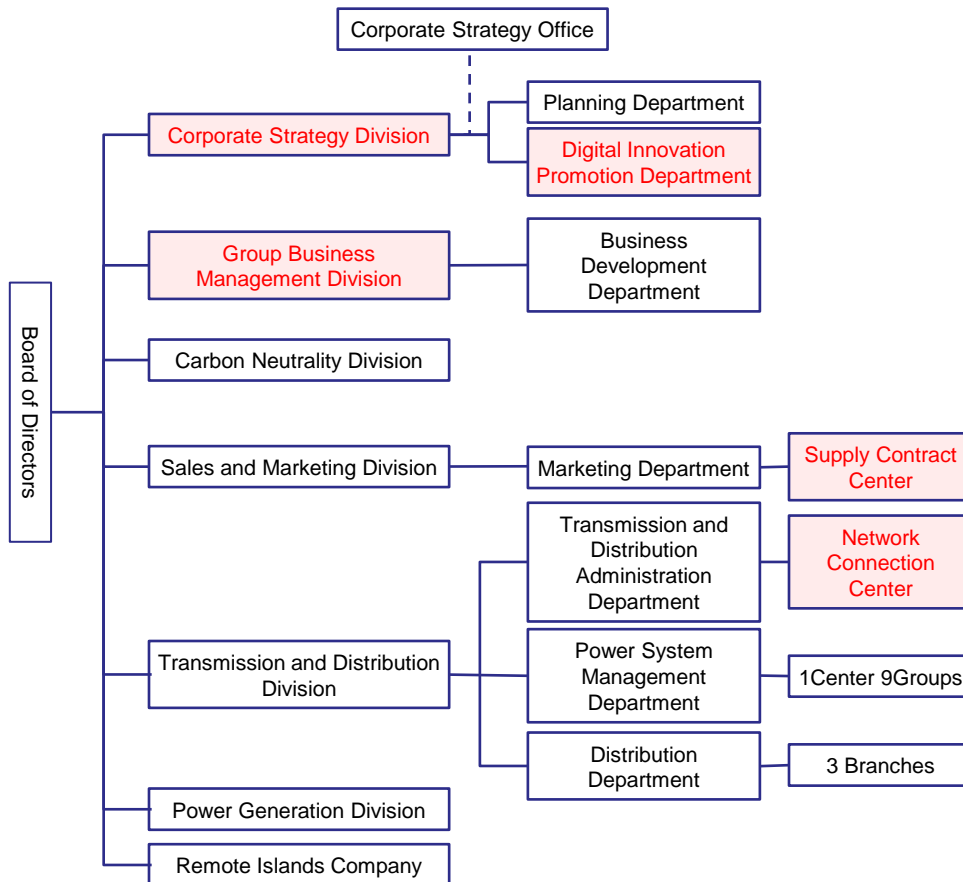
### 2018-2020 Average



# Organizational Changes to Promote the Medium-Term Management Plan

- In order to strongly promote the "OEPC Group Medium-Term Management Plan 2025" formulated in March 2022, we changed our organization on July 1.
- In order to achieve our group's business missions and profit targets, we have established a structure that enables us to shift to high-value-added operations, such as profitability and sophistication, by formulating planning and strategies, promoting Group businesses, and strengthening and streamlining the functions of each business department.

**Okinawa Electric Power Company Organization Chart  
(Revised on July 1, 2022)**



(Note) Only divisions/companies and revised departments are listed.

## Establishment of the Corporate Strategy Division

- In order to strengthen the strategic planning function, the Corporate Strategy Division was newly established, with the "Corporate Strategy Office," the "Planning Department" and the "Digital Innovation Promotion Department" (formerly the Information Systems Department).
- Given that future systems strategy will be closely linked to management strategy, the Information Systems Department was positioned as a strategic department, and placed within the strategy division, as well as renamed as the Digital Innovation Promotion Department.

## Establishment of the Group Business Management Division

- In order to strongly promote the Group's businesses, the Group Business Management Division was newly established, with the Business Development Department.

## Strengthening the functions of each business department

- Related business groups were integrated to enable consistent review from equipment specifications to maintenance, to improve operational efficiency and to become capable of responding to high-value-added operations
- Four branches and one sales office on the main island of Okinawa were reorganized into three branches and placed in the Distribution Department in order to shift to high-value-added operations, as well as strengthening management of facilities and budgets of the distribution department, improving efficiency through mechanization, centralization, and outsourcing, and strengthening on-site capabilities.
- The "Supply Contract Center" in the Marketing Department and the "Network Connection Center" in the Transmission and Distribution Division were newly established, respectively, by centralizing supply and purchase reception operations at branches and sales offices on the main island.

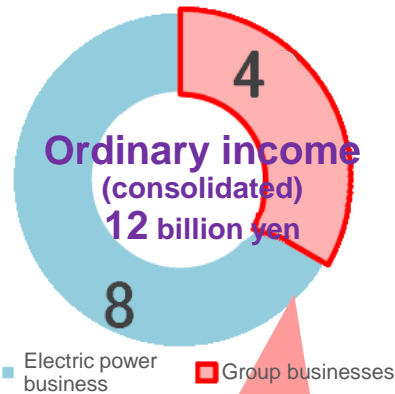
# Initiatives by Business: Group Businesses

## [Direction of Initiatives]

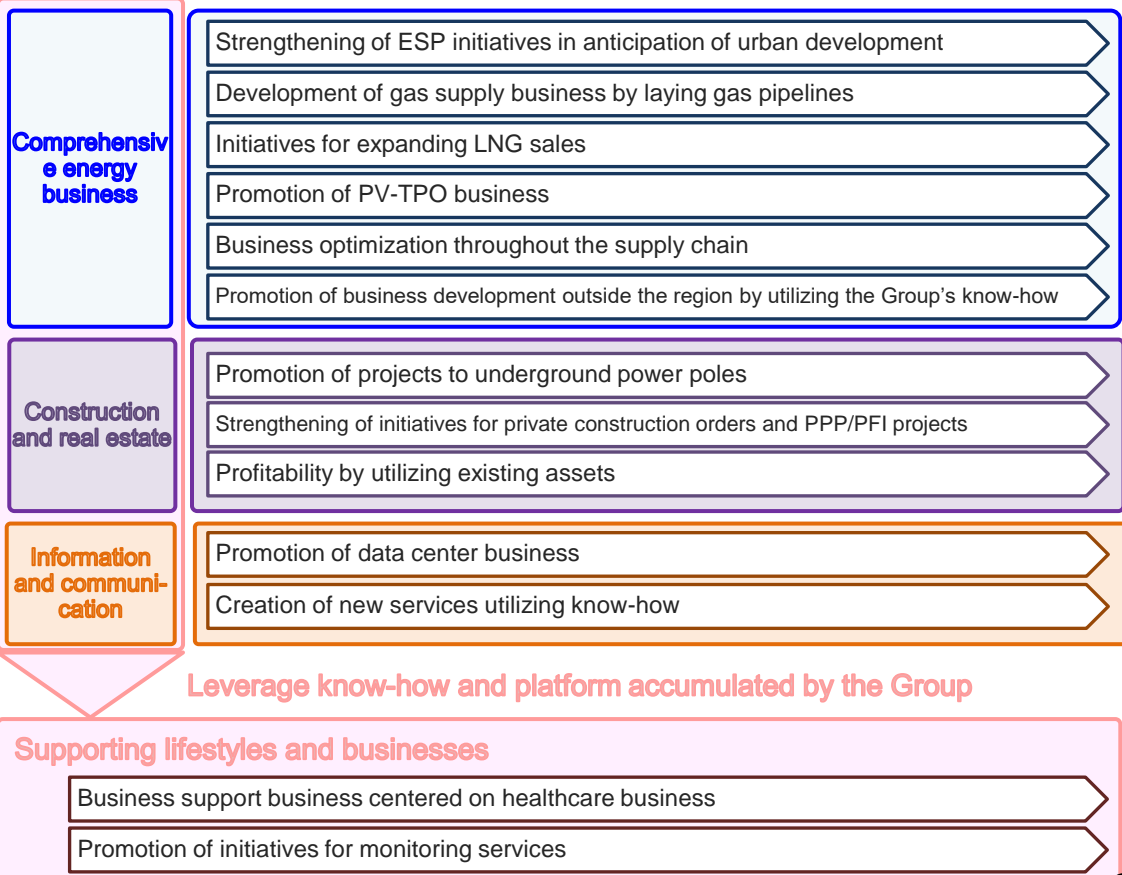
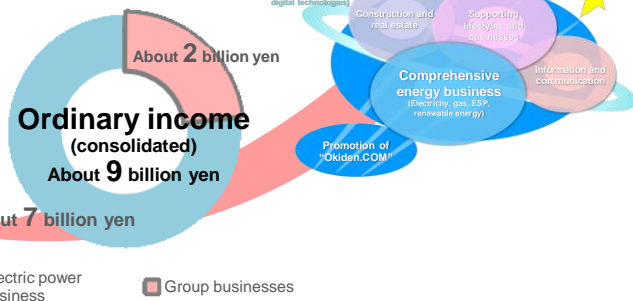
- ① Based on the concept of “Okiden.COM” we will strive to create new value and enhance competitiveness--Make (Value creation)--through improving work efficiency--Convert (digitalization)--and business collaboration--Optimize (optimization).
- ② We will expand our existing business areas and boldly take on new business areas.

## [Initiatives]

### Business Portfolio (2025)



### 2018-2020 Average



# Group Businesses (Examples of Initiatives: Development of Comprehensive Energy Services)

- As a comprehensive energy company that can supply both electricity and gas, we will build an energy center on the premises of the OEPC head office, which will have the advantages of reducing CO<sub>2</sub> emissions, providing a stable supply, and strengthening business continuity plans (BCPs), and we are beginning to supply the main building and other buildings in the complex outside the premises.
- We will develop a comprehensive energy supply business centered on the center.

## Increase in new energy demand

- Large-scale development of urban areas (e.g. former U.S. military bases)
- Construction of hotels in response to an increase in the number of tourists
- Construction of large-scale retail stores



## Advancement and diversification of energy needs

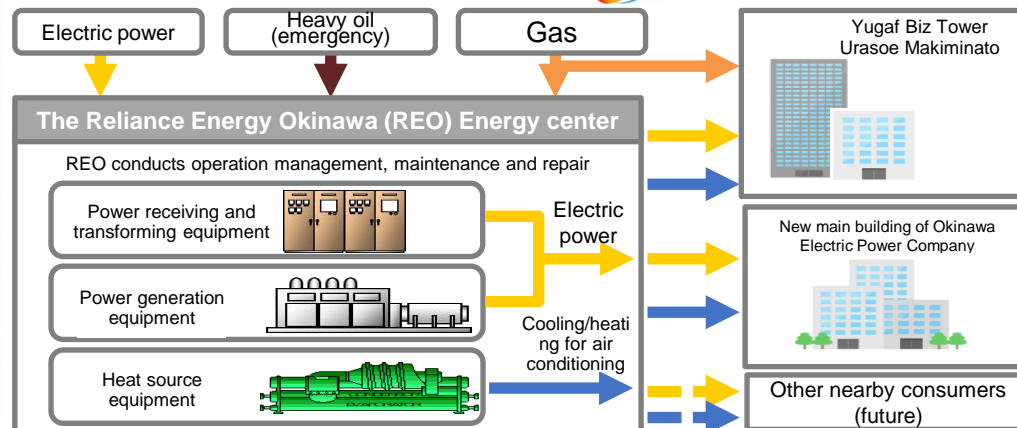
- Reduce initial investment in energy use (e.g. electricity and gas)
- Reduce burdens involved in facility operation/maintenance and emergency response



Customer

- It owns energy facilities on behalf of customers.
- It provides electricity and gas in the forms of, for example, air-conditioning water (cold / hot), hot-water supply and steam.

## 【Image of energy supply areas】

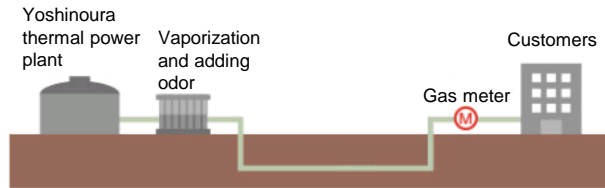


# Group Businesses (Examples of Initiatives: Gas supply business)

- Commenced gas supply business through subsidiary PEC in 2015.
- The OEPC Group will further promote sales of LNG by supplying LNG based on LNG supply center, capturing demand along newly constructed gas pipelines, and collaborating with other energy companies.

## Pipeline supply

Supplies gas to customers in the vicinity of the Yoshinoura thermal power plant through gas pipelines after vaporizing and odorizing liquefied natural gas (LNG).



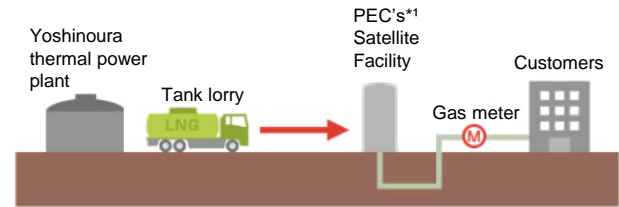
## Lorry supply

Supplies LNG by tank lorry to customers in areas where pipelines are difficult to be developed.



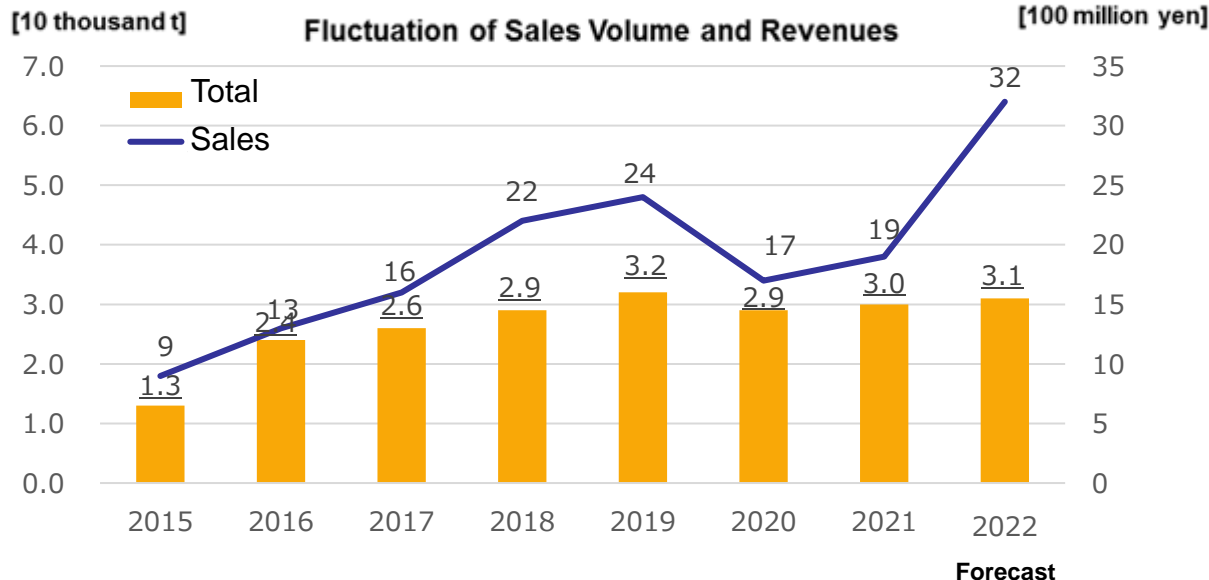
## LNG Supply Center

At former U.S. military base site and industrial parks, PEC\*<sup>1</sup> constructs supply centers\*<sup>2</sup> and supplies gas through pipelines.



\*1: Progressive Energy Corp.

\*2: Awase Natural Gas Supply Center, Suzuki Natural Gas Supply Center and Makiminato Natural Gas Supply Center



## Principal customers

- Okinawa Gas Co. (Raw materials for city gas)
- TAKUNAN STEEL CO., LTD
- Okinawa Watakyu shingu Co.
- ORION BREWERIES, LTD
- Chubu Tokushukai Hospital
- ITO EN, LTD.
- Musashino Okinawa
- Royal Hotel OKINAWA ZANPAMISAKI

\*Customers to whom we supplied over 500t of gas in FY2021

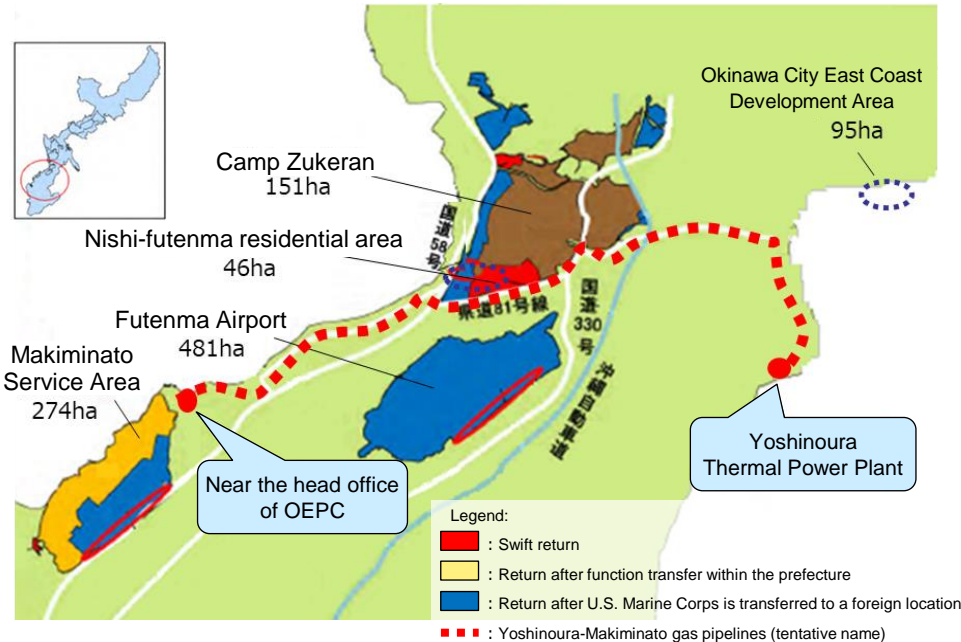
# Development of Demand Along the Route by Laying Gas Pipelines

- Gas pipeline will be laid from the Yoshinoura Thermal Power Plant to the head office of the Okinawa Electric Power Company in Urasoe City through the Nishi-Futenma area, where heat demand is expected due to the development of the former military base sites.
- We will further promote the sale of natural gas in the central part of the main island of Okinawa.

## Route for laying Yoshinoura-Makiminato gas pipelines (tentative name)

[Equipment specifications]

Pressure (high pressure specification), diameter (300 mm), conduit extension (about 14 km)



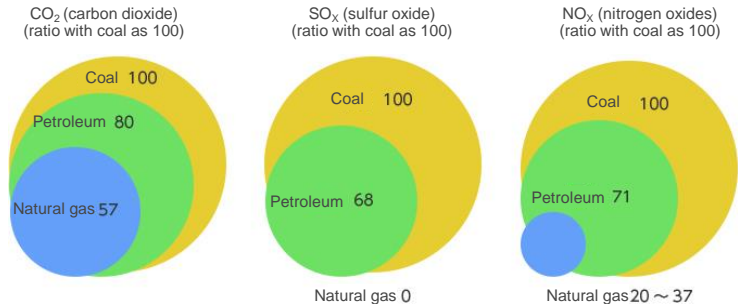
\* Source: The material of the Okinawa Revitalization Council Chair and Specialized Committee Meeting (third session) presented on the Cabinet Office website

- We will develop the pipeline network, and acquire demand in line with customer's change of fuels and urban development. We will also work with other energy companies to consider supply to ordinary households.

## [Reference]

### Environmental friendliness of natural gas

Natural gas is a clean energy with low CO<sub>2</sub> emissions among fossil fuels. In addition, it generates less nitrogen compounds (NOx), which cause air pollution, and does not emit any sulfur oxides (SOx).



Source: "Report on Verification of Technology for Assessment of Atmospheric Impact of Thermal Power Plants" (March 1990)/Institute of Applied Energy for CO<sub>2</sub>, "Natural Gas Prospects" (1986)/OECD and IEA for SO<sub>x</sub> and NO<sub>x</sub>

### Resilience of gas pipelines

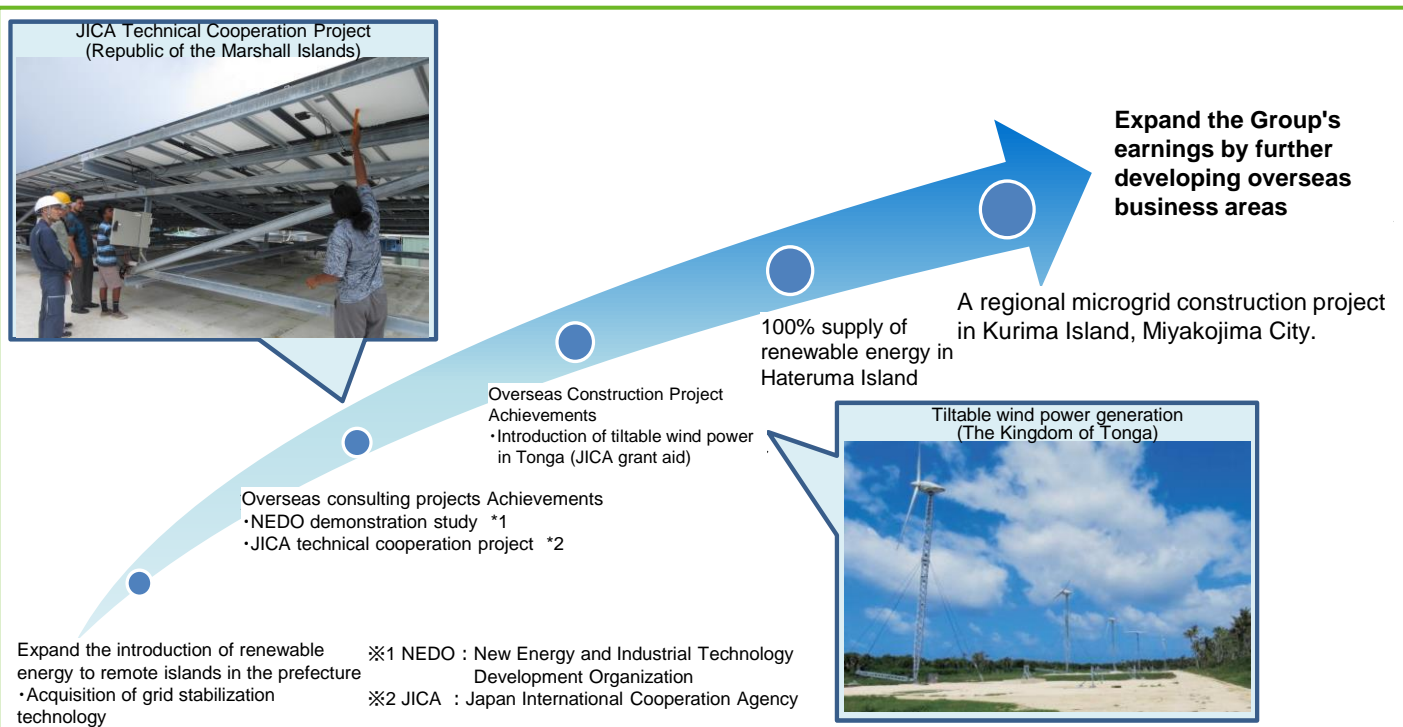
Most of gas pipelines are buried, so they are not easily affected by rain and wind. High- and medium-pressure gas pipelines have also been confirmed to be highly earthquake-resistant.

- At the time of the Great Hanshin-Awaji Earthquake, a medium-pressure gas pipeline attached to a bridge was deformed when the bridge fell. No gas leakage occurred.
- During the Great East Japan Earthquake, there was no damage to high-pressure gas pipelines.

Source: Interim report of the Study Group on Gas Business toward 2050 (April 2021)

- OEPC established “SeED Okinawa LLC” jointly with five group companies to promote the development of energy business outside the region, by leveraging the knowledge and technologies cultivated with electric business such as the expansion of renewable energy introduction in remote islands, operation of grid stabilization devices, etc. (April 2021)
- As social demands for countermeasures against global warming increase further worldwide, we will contribute to the realization of a low-carbon society and sustainable society, by further spreading renewable energy in the island regions of Asia and the Pacific where we can leverage the strengths of our group.

## Promotion of energy business overseas and out of the region



### Papua New Guinea Power grid planning and operational capacity improvement project (JICA Project)

Technical support will be provided for the formulation of grid planning, maintenance and management of transmission lines and substations, and protection coordination in the country.

\* SeED will participate in JV with other companies

### Commissioned survey and verification for the introduction of renewable energy in Iwo-to and Minamitorishima Islands (the Ministry of the Environment project)

Surveys will be conducted on the potential for introducing renewable energy in both islands.

\* Four companies, OEPC, SeED, Okinawa Enetech, and PEC, will participate.

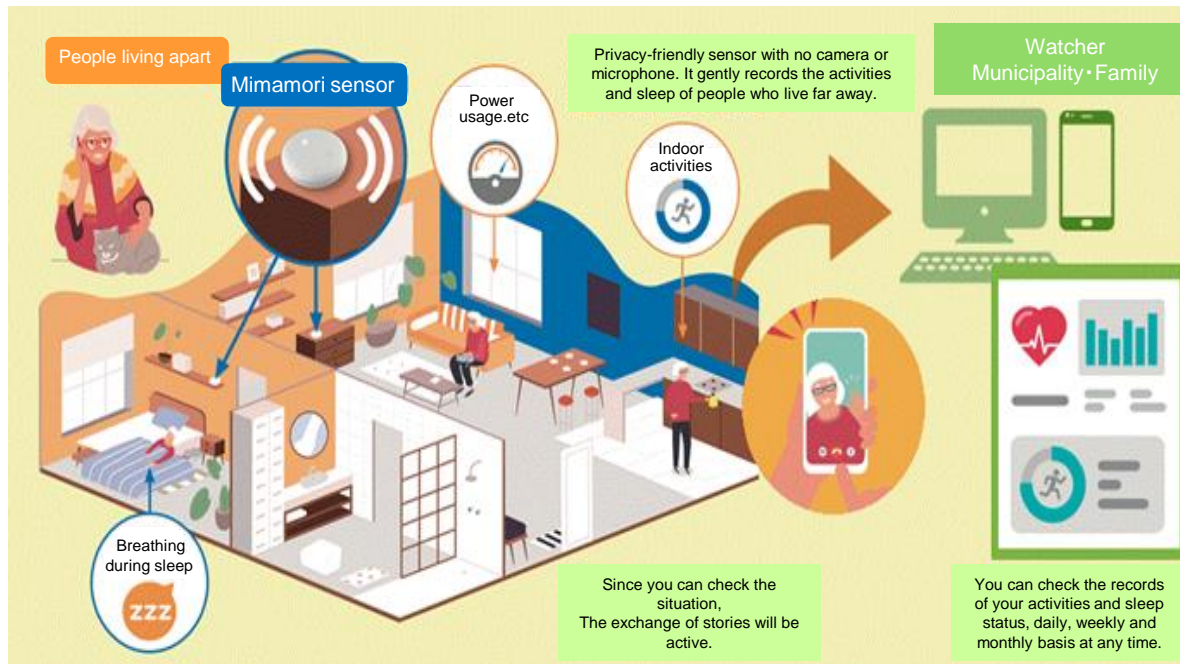


# Development of Lifestyle and Business Support Businesses

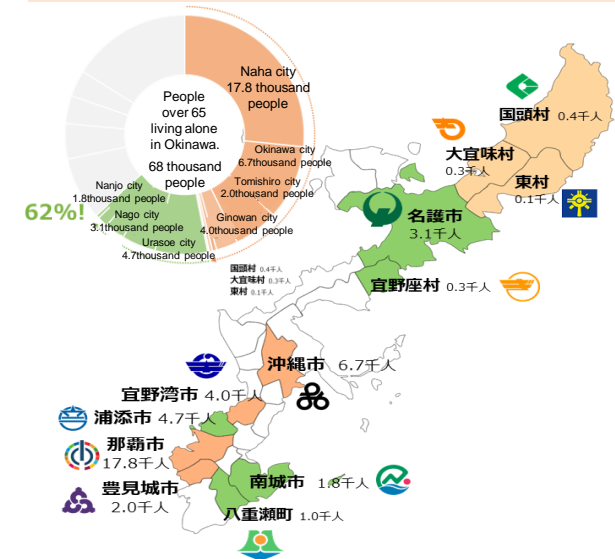
- We will develop our lifestyle support business, which utilizes cutting-edge technologies to realize a safe and secure society.

## ✓ Development of Mimamori (caring family monitor) Service

- We established "Okiden C plus C Corporation" to commercialize Mimamori Service which would utilize cutting-edge technology (May 2021).
- It utilizes state-of-the-art IT technology that can analyze indoor Wi-Fi signals using AI without using a camera or microphone, to understand human movements and breathing during sleep.
- At present, 12 municipalities, including Naha City, are implementing the "Demonstration Project for Establishing a System for Monitoring the Elderly Utilizing IT." In order to build an optimal business, verification and examination are being conducted on the ideal way of monitoring (Self-help by family members, public assistance by local governments, and mutual assistance by local communities), system development, and construction arrangements.



Covers 62% of single-person households aged 65 and over living in the prefecture in 12 municipalities.

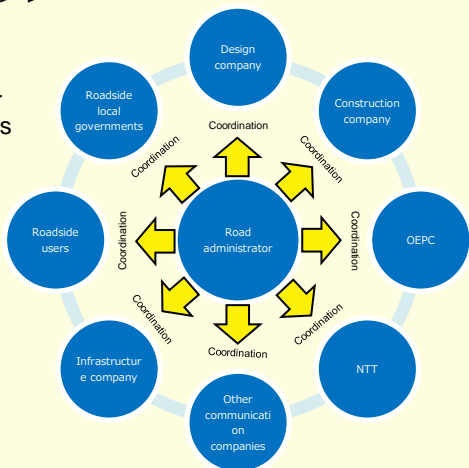


# Group Business (Examples of Initiatives: Acceptance of Comprehensive Orders for Construction of Common Cable Tunnels, etc.)

- The OEPC Group will act on behalf of the road administrator as a "consulting service" for consultations with related parties that are troublesome to coordinate.
- The OEPC Group proposes smooth development of common cable tunnels, by accepting comprehensive orders in combination with the design and construction work.

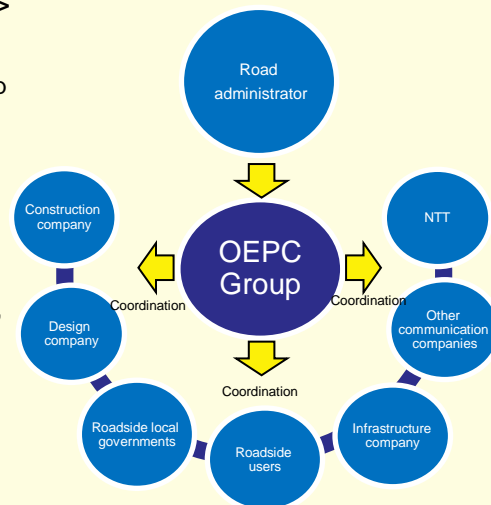
## << Conventional Method >>

- ✓ It takes time to make coordination, because the road administrator conducts all of the consultations with the related parties concerning the development of common cable tunnels.
- ✓ Since the design and construction are ordered individually, it takes a long period of time to complete the development due to many time lags and reworks.

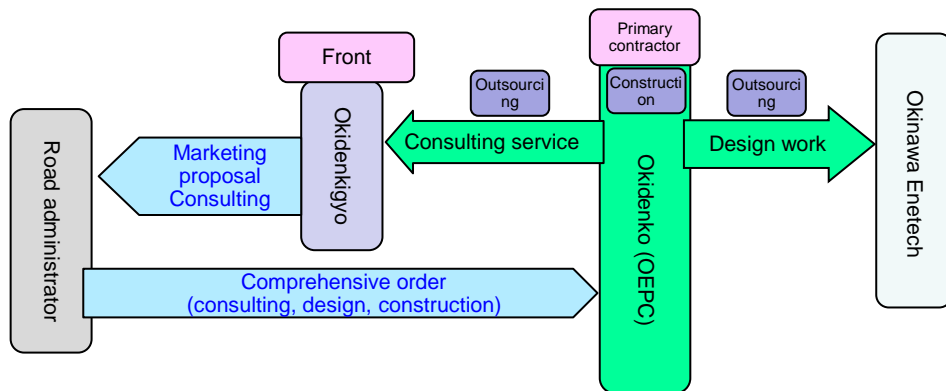


## << Proposed Method >>

- ✓ Coordination will proceed smoothly, as the OEPC Group conducts one-stop consultations as proxy with related parties on design and construction.
- ✓ There is no time lag in tendering procedures, etc., as design and construction are ordered comprehensively, while the construction period can be drastically shortened, as the business continuously progresses.



## < Illustration of Profitability through Supply Chain >



## << Division of roles >>

- Okidenko
  - Outsourced management
  - On-site construction
- Okidenkigyo
  - Contact
  - Consultation
- Okinawa Enetech
  - Design work
- OEPC
  - Group planning & management

Each company in the OEPC Group plays a role in handling each work ordered, mainly by Okidenko, the primary contractor.

# Establishment of the Emergency Management Measures Committee

- Due to continued soaring fuel prices and yen depreciation, the balance of revenue and expenditure in FY2022 is projected to be in the red at a level that has never been seen before, and there are concerns that we will not be able to continue stable business operations with conventional measures for the balance.
- In light of this situation, we established the “Emergency Management Committee” in April 2022, and are considering emergency measures for revenue and expenditure from all perspectives, based on the premise that stable supply and safety are the top priorities.

## Main considerations

Items		Contents
Cost Side	Reduction of executive compensation	<ul style="list-style-type: none"> <li>• Reduce compensation for full-time directors and executive officers by up to 10%</li> </ul>
	Curb Repair and maintenance costs	<ul style="list-style-type: none"> <li>• Based on the premise of stable supply, curb repair work based on the results of facility deterioration diagnosis, etc. and extend the inspection cycle</li> <li>• Strengthening scrutiny of repair work details and costs even more than before</li> </ul>
	Digital Transformation	<ul style="list-style-type: none"> <li>• Strongly promote "Okiden DX" by digitization of internal and external operations, and accelerate "Proactive streamlining"</li> <li>• Streamlining business operations through remote monitoring of resident on-site response, etc.</li> </ul>
	Efficiency improvement through organizational optimization and centralization of operations	<ul style="list-style-type: none"> <li>• Improved operational efficiency through consolidation of branches and sales offices and centralization of operations dispersed among offices</li> </ul>
	Reduction of fuel costs	<ul style="list-style-type: none"> <li>• Review of coal-fired power operations</li> <li>• Diversification of contracts, including diversification of coal price fixing periods and purchase of coal at fixed prices based on futures prices, to reduce the impact of market fluctuations.</li> </ul>
	Others	<ul style="list-style-type: none"> <li>• Reconsider implementation timing for less urgent system development, etc.</li> <li>• Consideration of reducing rent by reviewing the leased area of buildings</li> </ul>
Financial Side	Sale of assets holdings	<ul style="list-style-type: none"> <li>• Considering securing funds by selling assets holdings (real estate, policy stocks, etc.)</li> <li>• Some company housing and welfare facilities have already been sold</li> </ul>
	Utilization of group funds	<ul style="list-style-type: none"> <li>• Borrowing from affiliated companies to make effective use of group funds</li> </ul>
	New source of finance	<ul style="list-style-type: none"> <li>• To improve the financial base by raising new sources of finance, including hybrid corporate bonds</li> </ul>

# Abolition of the Upper limit on fuel cost adjustment and Increase in Electricity Rates

- We have announced that by July, we will abolish the upper limit on free rates for high-voltage and Extra-high voltage.
- In order to continue the stable supply of electricity, which is our primary mission, we have decided to begin specific studies for the implementation of a price increase for all electricity rates, including regulated rates.

## ■ Abolition of the Upper Limit on the free rate menu

Items	Contents
Extra-high voltage High voltage (New Customer)	【Announced in April (to be implemented from June 2022)】 <ul style="list-style-type: none"><li>• Abolished the Upper Limit for new customers contracting at free rates for Extra-high voltage and high-voltage.</li></ul>
Extra-high voltage High voltage (Existing Customer)	【Announced in July (to be implemented from April 2023)】 <ul style="list-style-type: none"><li>• For customers who have been contracted at free rates for Extra-high voltage and high-voltage since before June 2022, we have been requesting the abolish of the Upper Limit since November 2022, and will remove for all eligible customers from April 2023 onward.</li></ul>
Low voltage	【Announced in November】 <ul style="list-style-type: none"><li>• Consideration of abolition of the Upper limit at free rates menu for Low voltage.</li></ul>

## ■ Commencement of Consideration of Raising Electricity Rates 【Announced in November (to be implemented from April 2023)】

- In order to maintain a stable supply of electricity, which is our primary mission, we have decided to begin specific consideration of raising all electricity rates, including regulated rates, in April\* 2023.

\* The actual implementation of the revisions to the regulated rates may be delayed, as they are subject to examination by the government.

# Characteristics of the Business Bases

<p>Demand for Energy</p>	<ul style="list-style-type: none"> <li>◆ Increasing demand for energy due to population growth.</li> <li>◆ As the proportion of energy for consumer use is high, effects of economic fluctuations are low for demand for Electric power.</li> <li>◆ Potential demand due to large-scale urban development projects.</li> </ul>
<p>Competition</p>	<ul style="list-style-type: none"> <li>◆ OEPC is outside the framework of wide-area power interchange because it has an isolated system.</li> <li>◆ OEPC has voluntarily released power of 10,000kW supplied by J-Power.</li> <li>◆ Competition is advancing due to the entry of energy suppliers.</li> <li>◆ Biomass power plant by power producer and supplier has started operation.</li> </ul>
<p>Electric Power Generation Facilities</p>	<ul style="list-style-type: none"> <li>◆ A high reserve supply capacity is required due to an isolated system.</li> <li>◆ Reliant on fossil fuels only due to difficulties to develop nuclear or hydraulic power generation.</li> <li>◆ Coal-fired thermal power generation is indispensable not only for stable supply but also for maintaining electricity rates.</li> </ul>
<p>Remote Islands</p>	<ul style="list-style-type: none"> <li>◆ OEPC supplies power to 11 isolated systems including those in the main island.</li> <li>◆ The region has a high cost structure because it has small islands and also because the scale of the economy is small. This leads to constant loss recording.</li> </ul>
<p>Measures against global warming</p>	<ul style="list-style-type: none"> <li>◆ Currently, possible measures are limited due to reasons including the region's geographic characteristics and constraints on the scale of demand.</li> <li>◆ The introduction of renewable energies contributes to reducing fuel consumption and cost on remote islands, where fuel unit price is high.</li> <li>◆ Since the systems of Okinawa area are small and independent, the limit of connection volume is likely to occur when using renewable energies.</li> </ul>

This document includes statements concerning future results. Such statements are based on calculations and predictions and are neither definite nor guaranteed. Please be aware that future results may change in accordance with changes in assumptions related to the management environment and the like.

**【Enquiries regarding this document】**

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