# **Management Reference Materials**

# November 2014



The Okinawa Electric Power Company, Inc.

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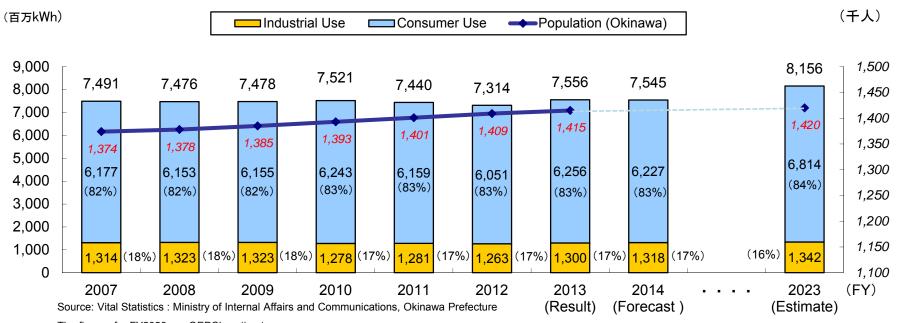
# **Characteristics of the Business Base**

		Reference Page
Demand for Electric Power	<ul> <li>Increasing demand due to population growth.</li> <li>As the proportion of energy for consumer use is high, effects of economic fluctuations are low.</li> <li>The prefectural economy has been growing sustainably thanks to the implementation of Okinawa promotion measures.</li> </ul>	2 2 14,15
Competition	<ul> <li>OEPC is outside the framework of wide-area power interchange because it has an isolated system.</li> <li>Most of privately-generated power is for captive consumption, so no excess power resources are available.</li> <li>Demand sizes are small.</li> </ul>	3
Electric Power Generation Facilities	<ul> <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> </ul>	4-6
Fuel	<ul> <li>As fossil fuels are the only fuels used, high commodity prices exert a great influence.</li> </ul>	7-9
Remote Islands	The fuel cost accounts for a large portion of the total cost. This high cost structure has led to constant loss recording.	10-11
The Environment	Dependent on fossil fuels with a high environmental burden.	12



## **Demand for Electric Power**

# Stable growth is forecasted for demand for electric power, centering on increased demand for consumer use accompanying population increases.



The figures for FY2023 are OEPC's estimate.

Okinawa (%)				
Annual Average	Growth Rate	2002-2012	2012-2023	
Demand for Electric Power	<b>Consumer use</b> 0.7(0.8)		1.1(1.1)	
	Industrial use	0.3(0.3)	0.6(0.6)	
Tota	al	0.6(0.7)	1.0(1.0)	

Nationwide (Excluding	(million kWh,%)	
2002	2002-2012 Annual Average Growth Rate	
834,591	844,276	0.1

Source: The Federation of Electric Power Companies of Japan

Note: The figures in the parentheses indicate post temperature correction.

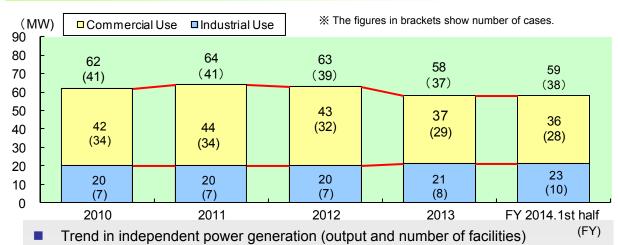


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# **Competition with Private Power Generation Operations**

- The proportion of private power generation in Okinawa is 2%
- Progressive Energy Corp's share of private power generation in commercial use sectors is 44%
   (As of September 30, 2014)

## Trend in the Permitted Output of Private Power Generators



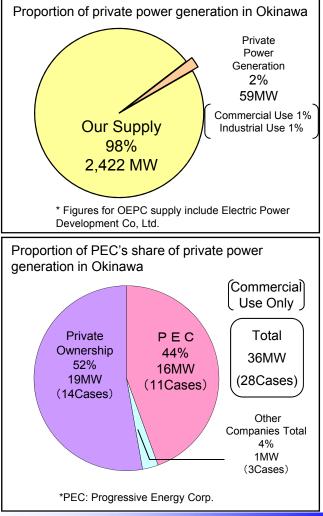
	FY 2011	FY 2012	FY 2013	FY 2014.1 <sup>st</sup> half
Switch to power purchase	-1MW	-3MW	-6MW	-2MW
	(-1Case)	(-3Cases)	(-3Cases)	(-1Case)
Switch to independent power generation	3MW	2MW	α	2MW
	(1Case)	(1Case)	(1Case)	(2Cases)
Total	2MW	-1MW	-6MW	α
	(0Case)	(-2Cases)	(-2Cases)	(1Case)

\* Totalizing only continuously used power generators interconnected to the company's power grid.
 \* Excluding wind power, solar power and the company's facilities.



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# Status of market penetration by private power generators



# **Power Generation Facilities** (Yoshinoura LNG Thermal Power Plant)

- OEPC constructed its first LNG thermal power plant from the viewpoints of securing stable supply of electricity, increasing energy security, environmental measures and venturing into gas-related business.
- Generator No.1 started commercial operation in November 2012 and Generator No.2 started commercial operation in May 2013.
- Multi Gas Turbine Power Plant will be established for the primarily purpose for starting power grids in case that entire the Main island of Okinawa loses all electricity sources .



## **Purpose of Construction**

- Responses to steady increase of electricity demand in Okinawa
- **Diversification of fuels**
- Improve energy security ⇒
- Environment measures •
- Reduce CO2 and avoid significant increase in ⇒ environment related cost
- Development into gas supply business



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[Outline of the power plant construction plan]							
Name	Yoshinoura Thermal Power Plant	Yoshinoura Multi Gas Turbine Power Plant					
Location	Nakagusuku-son, Okinawa Prefec	cture					
Power generation capacity	251,000kW × 4 power generators	35,000 kW × 1 plant					
Fuel	Liquefied natural gas (LNG)	LNG, kerosene, bio-ethanol*					
Storage facilities	140,000kl $\times$ 2 stations						
Scheduled start of commercial operation	Generator No.1: November 27, 2012 Generator No.2: May 23, 2013	March 2015					
Fuel procurement	Contractor: Osaka Gas Co., Ltd. Contract period: 27 years from FY2012 (main source of supple Gorgon Project in Australia) Contracted quantity: About 400,000 t/year Terms of delivery: Delivery on ship's arrival (EX-Ship)						

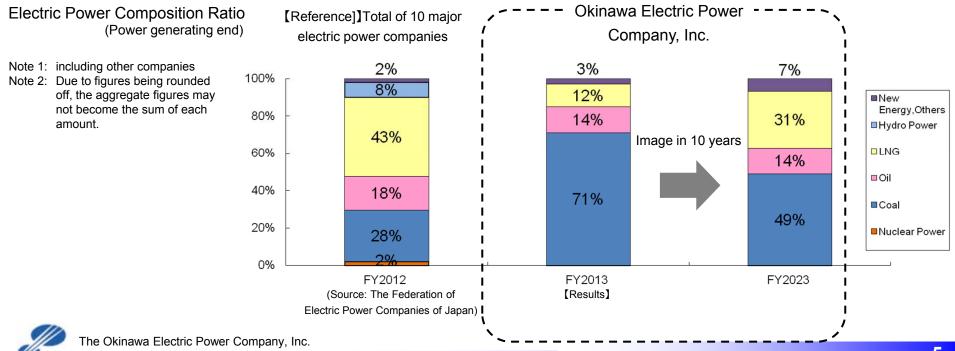
[Outling of the new relant construction plan]



# **Power Generation Facilities** (Power Supply Composition)

## **Power Supply Composition**

- The composition of electric power source is highly reliant on fossil fuel, as developing nuclear or hydroelectric power generation is difficult in Okinawa due to the reasons of geographic condition and the small scale of demand. Accordingly, fossil fuels; petroleum, coal and LNG, are the only source for the composition.
- We have secured long-term power supply capacity, the improvement of energy security, and effective countermeasures for global warming issues by commencing the operation of Yoshinoura Thermal Power Plant, our first plant using LNG.



# **Power Generation Facilities** (Reserve Capacity)

## **Generation Reserve Capacity**

#### Demand-supply balance of maximum electric power (August)

(Thousand kW、%)

	2013 【Result】	2014 【Result】	2018	2023
Peak Load	1,432	1,396	1,464	1,515
Supply Capacity	2,271	2,180	2,102	2,241
Reserve Capacity	839	784	638	726
Reserve Margin(%)	58.6	56.2	43.6	47.9

Note :As for 2014, the July was described above, when the maximum three-day average electricity took place.

- A high generation reserve margin is necessary for such reasons as the inability to exchange power with other electric power companies because of OEPC's isolated system and the responsibility to provide stable supply as a public utility.
- The power supply reserve is achieved by securing the equivalent reserve capacity of the largest unit so that it is possible to provide stable supply even if the largest unit breaks down.

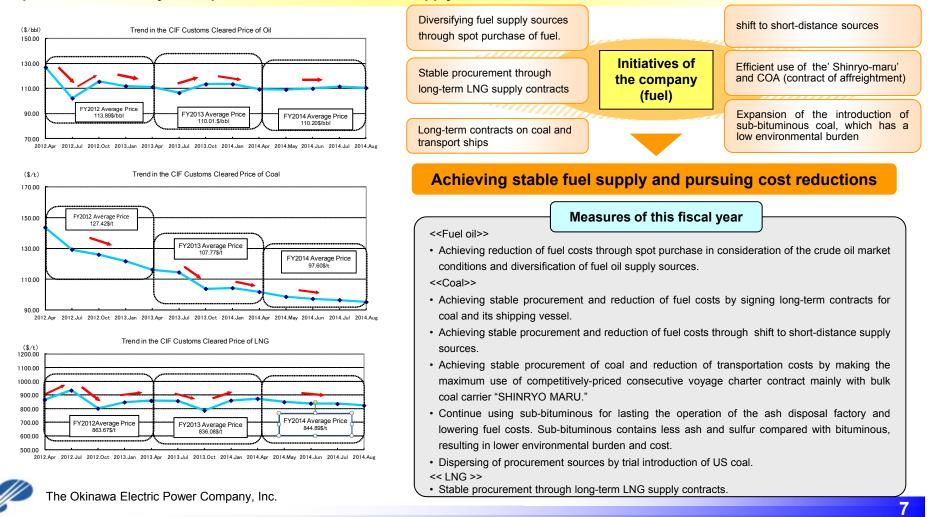


Launching the operation of Yoshinoura Thermal Power Plant would ensure long-term and stable supply.



## **Fuel**

- Movements in fuel prices have a significant impact on OEPC's performance.
- The price of oil is expected to continue a slight decline due to stronger factors pushing down oil prices such as a demand decrease caused by a slowdown in European economies, decelerating economic growth in emerging countries including China, and more production of shale oil in the US despite factors driving up oil prices including geopolitical risk from uncertain Middle-East situations.
- The price of coal is likely to drop due to weakened demand-supply.



## **The Fuel Cost Adjustment System**

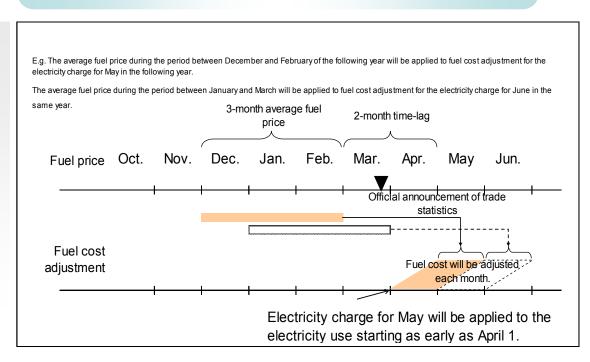
### Summary of the System

The fuel cost adjustment system was introduced for the purpose of clarifying the "internal factors" such as the results of efforts to promote management efficiency at electric power companies and reflecting "external factors" onto electricity rates such as exchange rates and oil and coal and LNG prices that alter the economic situation.

#### Range of fuel cost adjustment

- We will calculate the average fuel price based on the prices of crude oil, coal and LNG on the trade statistics during the period between five months and three months prior to the fuel cost adjustment, and electricity charge will be automatically adjusted each month by comparing the above price with the standard fuel price at the time of electricity rate revision.
- The maximum level of fuel cost adjustment will be 50%.
- There will be no lower adjustment limit.

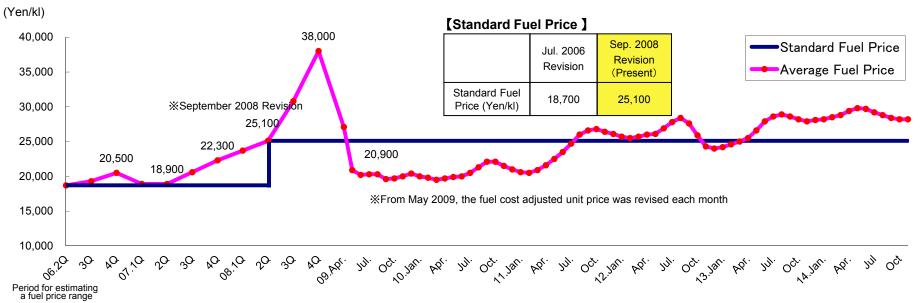
#### Conceptual drawing of the fuel cost adjustment system





## **Trend of Average Fuel Price and Standard Fuel Price**

### Trend of Average Fuel Price and Standard Fuel Price (Since July 2006)



Period for applying the Fuel cost adjustment system	13.Dec.	14.Jan.	14.Feb.	14.Mar.	14.Apr.	14.May.	14.Jun.	14.Jul.	14.Aug.	14.Sep.	14.Oct.	14.Nov
Period for estimating a fuel price range	13.Jul. ~	13.Aug. ∼	13.Sep. ∼	13.Oct. ~	13.Nov ~	13.Dec. ∼	14.Jan. ∼	14.Feb. ∼	14.Mar. ∼	14.Apr. ∼	14.May. ∼	14.Jun. ∼
	13.Sep.	13.Oct.	13.Nov.	13.Dec.	14.Jan.	14.Feb.	14.Mar.	14.Apr.	14.May.	14.Jun.	14.Jul.	14.Aug.
Average Fuel Price (yen/kI)	28,100	28,200	28,500	28,800	29,400	29,800	29,700	29,200	28,800	28,400	28,200	28,200
Average Crude Oil Price(yen/kl)	66,766	68,454	69,659	70,681	72,153	72.768	72,356	71,039	70,549	70,397	70,738	71,016
Average Coal Price(yen/t)	10,608	10,413	10,373	10,430	10,682	10,851	10,858	10,708	10,469	10,120	9,919	9,816

[Method of calculating Average Fuel Price]

Average Fuel Price =  $A \times \alpha + B \times \beta$  A : Average crude oil price per kiloliter in each quarter B : Average coal price per ton in each quarter

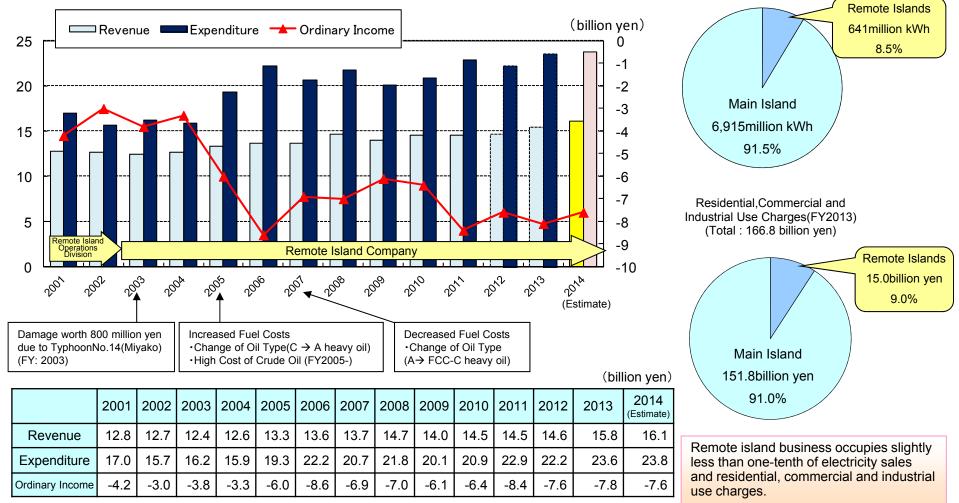
\* α and β are coefficients in Provisions of supply to calculate the average fuel price. (Reference α:0.2410, β:1.1282 Provisions of supply Sep. 2008 effective)



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# Improvement of Remote Island Income and Expenditure [1/2]

## Movements in Remote Island Revenue and Expenditure



Electricity Sales (FY2013) (Total : 7,556million kWh)

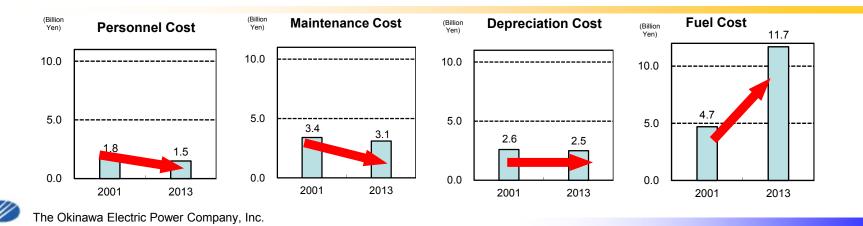


# Improvement of Remote Island Income and Expenditure [2/2]

- The region has a high cost structure because of such reasons as having small islands scattered about a vast sea area and the narrow scale of the economy.
- In order to construct a system enabling fast implementation of measures to improve inequalities in income and expenditure, a Remote Island Operations Division was launched in FY2001 and from FY2002, this was converted into the Remote Island Company.
- Establishing remote control system for power generation plants in Miyako and Ishigaki.
- Revising the procedures for regular inspections on electric power supply facilities.
- Purchasing other companies' idle facilities and moving idle facilities of own company.
- Switching from A heavy oil to FCC-C heavy oil.
- Fuel costs are greatly increasing due to the soaring price of crude oil in recent years.

We work out new measures to stabilize supply and improve the balance of revenue and expenditure while pushing ahead with ongoing various measures

- Reducing fuel consumption by introducing renewable energies (Retractable wind power generators, etc.).
- Effective utilization of waste oil. etc.



## Addressing the global warming issues

- Introducing hydro or nuclear power is difficult in Okinawa Prefecture due to reasons including the region's geological and geographic characteristics and constraints on the scale of demand
  - → Dependency on fossil fuels (oil, coal, etc.)
  - Introduction of LNG thermal power, which creates low CO<sub>2</sub> emissions (Yoshinoura Thermal Power Plant)
  - Implementation of operation tests toward stable operation of wind and solar power generation
  - Promotion of multi-fuel operation with biomass energy
  - Operation of small hydro power generation facilities
  - Efficient operation of thermal power plants
  - Equity participation in carbon funds taking advantage of the Kyoto Mechanism
  - Investment for CCS survey research
  - Promoting energy saving on the demand side (by offering EcoCute services, etc.)
  - (Reference) CO<sub>2</sub> emission coefficient of OEPC

	Unit	FY 1990	FY 2010	FY 2011	FY2012	Average of FY2010 – FY2012*	FY2013
Actual CO <sub>2</sub> emission coefficient	kg- CO <sub>2</sub>	0.865	0.935	0.932	0.903	0.924	0.858
Adjusted CO <sub>2</sub> emission coefficient	/kWh <sup>-</sup>	_	0.692	0.692	0.692	0.692	0.763
Rate of change(compared with FY1990)	%		-20.0	-20.0	-20.0	-20.0	—

• OEPC had set a self-imposed target for CO2 emission reduction that the company should reduce "after-adjustment emission

intensity between FY2010 and FY2012" by roughly 20% on average from the actual figure in FY1990, and achieved the target.

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## Okinawa's Economy

## **OThe current state of affairs**

The prefectural economy has expanded, as a whole, with private consumption and tourism-related businesses staying firm and construction-related businesses being resilient.

## **OProspects**

Regarding the outlook, the prefectural economy is expected to continue to expand, with construction-related businesses being resilient in addition to private consumption and tourismrelated businesses staying firm.

#### Trends in Main Economic Indicators (Rates of Growth)

				(%)
Indicators		FY2014		
	1st Half	2nd Half	Total	1st Half
Sales by large-scale retailers	14.3	8.9	11.4	6.8
No. of new car sold	5.5	22.8	13.4	0.6
Wholesale shipments of household appliance	20.1	23.6	21.8	-12.4
New residential construction starts	21.0	31.3	26.1	-5.2
Value of public works contracts	9.1	0.6	4.7	23.6
No. of Inbound tourists	12.8	9.3	11.1	10.3
Total unemployment rate	-0.8	-1.3	-1.1	-0.3
Value of corporate failures	75.6	-55.5	-35.2	-23.6

Note 1: The figures for 'Sales by large-scale retailers' are calculated from the values given in preliminary figures for September 2014 on an all-store base.

Note 2: The figures for 'Wholesale shipments of household appliance' are an estimate.

Note 3: The figures for 'Total unemployment rates' are raw data, and points of change of Year-on-Year are listed.

Source: Okinawa General Bureau, Okinawa Prefecture, Ryugin Research Institute, and others.



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## 2 Economic Growth of Okinawa Prefecture under the Okinawa Promotion Plan

- The "Okinawa Promotion Plan" was implemented during the period from FY2002 to the end of FY2011. During the period, the prefecture's GDP posted an average increase of roughly 1.9% per annum, outpacing the nationwide average.
- With implementation of a variety of action plans under "Basic Plan of Okinawa 21st Century Vision (Okinawa Promotion Plan)", which started in FY2012, the prefecture expects the steady growth of its economy and an increase in demand for electric power.

Annual Ave	(billion yen)				
	FY2002	FY2011	Annual Average Growth Rate FY2002-FY2011	FY2012	FY2013
Prefectural GDP	3,534.8	4,200.3	Approx. 1.9%	(2.9%) 4,321.0	(2.7%) 4,437.4
National GDP	479,870.8	514,159.9	Approx. 0.8%	(0.7%) 517,583.1	(2.3%) 529,251.9

Sources: Okinawa prefecture

Economic and Social Research Institute, Cabinet Office

Note: Figures for FY2012 and FY2013 are estimates. The Rate in parentheses for FY2012 and FY2013 are the Rate of Growth year on year.

#### Basic Plan of Okinawa 21st Century Vision (Okinawa Promotion Plan)

In May 2012, the "Basic Plan of Okinawa 21st Century Vision (Okinawa Promotion Plan)" was formulated under the initiative by the Okinawa Prefectural government.

Through the implementation of various measures that are developed based on this plan to take advantage of regional characteristics of Okinawa Prefecture, gross production in Okinawa in FY2020 is estimated to increase about 1.4 times compared with that in FY2010 to 5,100 billion yen.



## 3

## **Okinawa Promotion and Development**

### **Okinawa Promotion and Development**

- The government shows a positive attitude toward Okinawa promotion and development, saying "it will continue to implement Okinawa promotion and development measures in a comprehensive and active manner as a part of the national strategies," in the "Basic Policies for Economic and Fiscal Management and Reform" (a cabinet decision on June 24, 2014).
- In addition, the government announced its commitment to earmark at least 300 billion yen out of its budget every year for Okinawa Prefecture's development until the end of FY 2021 when the "Basic Plan of Okinawa 21st Century Vision (Okinawa Promotion Plan)" would end.

## FY2015 Budget for the Okinawa Promotion and Development

The FY2015 budget for the Okinawa promotion and development is expected to rise 29.3 billion yen from the previous fiscal year to 379.4 billion yen.

<Major items>

Lump	-sum Subsidy		186.9 billion yen				
	Subsidy for Special Measures (for developments of information and services)	Industrial promotion and developments such as tourism, information & communication industries, etc.	90.9 billion yen				
	Subsidy for Public Investments (for developments of public facilities and equipment)	Okinawa urban monorail development, etc.	96.0 billion yen				
Expe	nditures for Developments of Public Systems, etc.		156.9 billion yen				
	Construction of additional runways of Naha Airport		33.0 billion yen				
	Developments of social infrastructure such as roads, ports, etc. which sup	port the prosperity of industry and tourism.	123.9 billion yen				
Okina	awa Institute Science & Technology Graduate University		21.9 billion yen				
North	Northern Region Promotion & Development Project 5.1 billion y						
Detai	etailed investigations of issues related to introduction of railway, etc. 0.21 billion yen						
Other	Others (costs for promoting the use of former military land, Okinawa Development Finance Corporation subsidies, opening of international conventions, etc.) 8.41 billion yes						



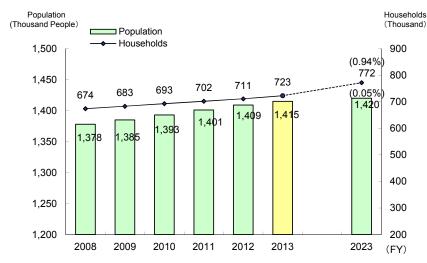
Source: Rough estimate of budget for Okinawa promotion and development for FY2015 (Okinawa General Bureau, Cabinet Office)

## **Population Growth Outpacing Nationwide Average**

Okinawa Prefecture is witnessing an increase in its population, while nationwide population is declining. The prefecture expects the moderate upward trend would continue.

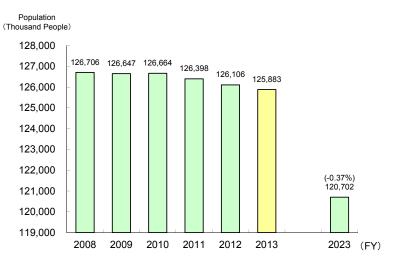
#### Trend of Population and Households in Okinawa

4



- Source: Population: The actual results are from the Ministry of Internal Affairs and Communications. The figures for FY2023 are our estimate. No. of households are based on the number of household electric lighting (actual results and estimate)
- Note: The figures in the parenthesis of Population and Households indicate annual average growth rate from FY2013 to FY2023

#### Trend of Population (Excluding Okinawa)



Source: the Ministry of Internal Affairs and Communications, National Institute of Population and Social Security Research

Note: The figures in the parenthesis of Population indicate annual average growth rate from FY2013 to FY2023

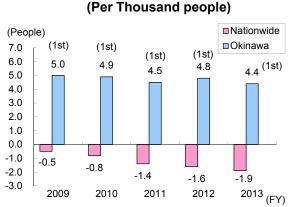
Due to the stability growth of household numbers in association with the increasing population, residential demand increases are expected.



## **Okinawa Prefecture Demographics**

- The population of Okinawa Prefecture in FY2013 is on a favorable trend, with the number of natural population growth per 1,000 people being 4.4 persons, which is the highest nationwide, and the number of social population growth per 1,000 people being 0.1 persons, which is the tenth highest nationwide.
- Growth of population in the prefecture significantly exceeds the national average of -1.7 person, with 4.4 persons per 1,000 people.

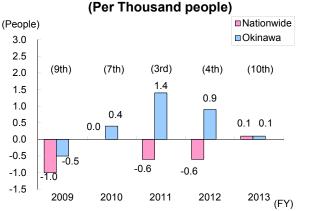
Trend in the Social Increase of population



Trend in the Natural Increase of population

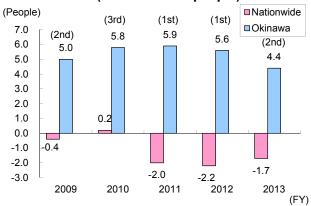
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Source: Bureau of Statistics, Ministry of Internal Affairs and Communications Note: Natural increase of population = Births – Deaths The figures in brackets in the chart show Okinawa Prefecture's national ranking.



Source: Bureau of Statistics, Ministry of Internal Affairs and Communications Note: Social increase of population = Incoming population – Outgoing population The figures in brackets in the chart show Okinawa Prefecture's national ranking.

## Trend in the Increase of population (Per Thousand people)



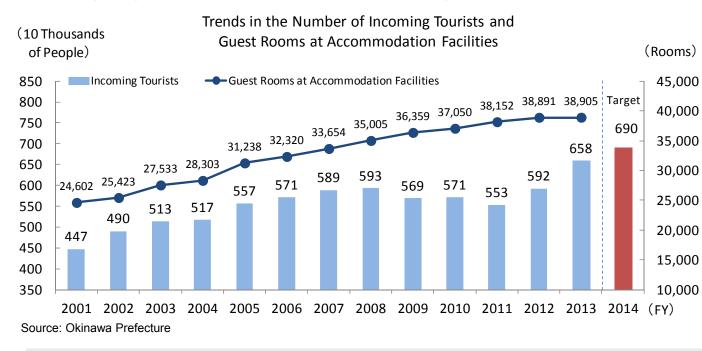
Source: Bureau of Statistics, Ministry of Internal Affairs and Communications Note: Population increase = natural increase in population + increase/decrease of population in the society The figures in brackets in the chart show Okinawa Prefecture's national ranking.



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# Trends in the Number of Incoming Tourists and Guest Rooms at Accommodation Facilities

■ FY2013 Result for incoming tourists: 6.58million people(11.1% growth rate (YoY)) ※The target figures for 2014 are 6.9 million incoming tourists



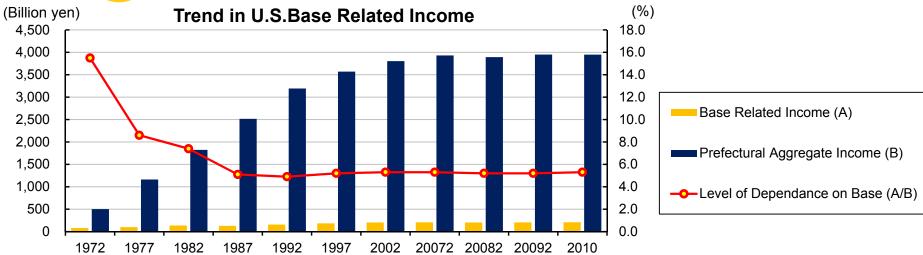
With the number of tourism related facilities (hotels, etc.) increasing in association with increased numbers of incoming tourists, increases are forecast for demand for commercial use electricity.

(1) FY2013 Result Incoming Tourists: 6.58 million including 0.63 million from overseas 11.1% growth rate (YoY) Total number of tourist arrivals rose 11.1% on the year. The number of domestic tourists showed a steady increase thanks to increased number of flights as well as the opening of the New Ishigaki Airport. Foreign tourist arrivals also rose due to increased number of flights 2 FY2014 Target Visit Okinawa Plan Incoming tourists: 6.9 million including 0.8 million from overseas Tourism revenue: 497.0 billion yen



6

## 7 Trend in U.S. Base Related Income



(Unit: billion yen、%)

									(0)	III. DIMOIT	<b>Jon</b> (707
	1972	1977	1982	1987	1992	1997	2002	2007	2008	2009	2010
Base Related Income (Charges for Land Occupied by US Armed Forces) (A)	77.7	100.6	134.6	128.2	156.3	184.0	203.3	206.7	204.2	205.6	208.6
Prefectural Aggregate Income(B)	501.3	1,163.1	1,822.6	2516.5	3,192.9	3,570.0	3,803.5	3,930.6	3,892.6	3,949.9	3,949.0
Level of Dependence on Bases(A/B)	15.5	8.6	7.4	5.1	4.9	5.2	5.3	5.3	5.2	5.2	5.3

■ U.S. Base related income has become an income source that supports the Okinawa economy.
 ■ However, the level of dependence on the bases has been falling as the prefectural economy expands, and it had fallen to 5.3% in FY2010 from the 15.5% share at the time Okinawa was

Source: Okinawa Prefecture



returned to Japan (1972).

## **Reference : Main Economic Indicators**

							FY2013										FY2014			
Indicators	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	total	Apr.	May.	Jun.	Jul.	Aug.	Sep.	1st Half
Sales by large-scale retailers	9.1	13.1	19.8	18.0	20.0	5.9	6.4	6.3	12.8	1.2	5.6	19.8	11.4	1.8	4.7	4.8	11.1	7.5	10.7	6.8
No.of new car sold	13.2	0.5	7.8	-3.7	5.8	17.2	23.5	21.9	26.1	35.4	14.1	20.5	13.4	-4.6	2.1	8.1	-8.2	-3.6	11.1	0.6
Wholesale shipments of household appliance	1.1	23.2	26.3	17.6	43.0	11.3	17.6	29.9	18.2	40.4	35.6	10.2	21.8	-8.7	-15.3	-14.2	-9.6	-16.1	-9.7	-12.4
New residential constraction starts	-2.0	-23.3	11.9	32.2	28.8	72.4	29.2	60.1	49.5	-1.7	11.7	39.6	26.1	36.2	25.0	34.1	-34.0	-5.3	-35.4	-5.2
Value of public works contracts	78.3	5.3	29.2	39.0	-13.4	-27.5	6.4	2.5	12.0	-3.4	16.6	-21.6	4.7	41.3	83.2	-2.8	18.5	2.4	35.8	23.6
No.of Inbound tourists	9.6	10.0	14.7	6.1	16.2	19.7	4.5	6.3	11.2	15.2	8.6	10.8	11.1	9.5	17.5	13.9	12.0	3.6	8.4	10.3
Total unemployment rate	-1.5	-1.8	-1.7	0.6	0.3	-1.3	-1.0	-1.1	-2.1	-1.8	-0.9	-0.6	-1.1	-1.6	-1.1	0.3	-0.1	0.0	0.8	-0.3
Value of corporate failures	271.5	-17.3	537.7	-33.6	28.1	68.0	922.4	71.7	137.3	-92.8	-47.3	-52.5	-35.2	-60.1	13.3	58.3	-66.7	34.3	-16.8	-23.6

#### Trends in Main Economic Indicators (Year-on-Year Comparison)

(Unit : %)

Note 1: The figures for 'Sales by large-scale retailers' are calculated from the values given in preliminary figures for September 2014on an all-store base.

Note 2: The figures for 'Wholesale shipments of household appliance' are an estimate.

Note 3: The figures for 'Total unemployment rates' are raw data, and points of change of Year-on-Year are listed.

Source: Okinawa General Bureau, Okinawa Prefecture, Ryugin Research Institute, and others.



## Q2. What is the Current State of U.S. Military Bases ?

## [Proportion of Demand Taken Up By U.S. Armed Forces ] (FY 2013 result) Total Demand 7,556million kWh Planned return of facilities

%Range in figures due to planned return of facilities includes partial return.

#### [Summary of U.S. Armed Forces in Okinawa]

1.4~3.5%

	No. of Facilities	32
	Area	228km
ıel*	On Base	35,657
Personnel*	Off Base	16,435
Per	Total	52,092

US Armed Forces (about 9%)

\*The figures for No. of Facilities and Area are as of the end of March 2013. The figures for personnel are as of the end of March 2013. Reference: No. of army employees: 8,664 \*As of the end of December 2013

Japan Ministry of Defense

Military Base Áffairs Division, Executive Office of the Governor, Okinawa Prefecture Labor Management Organization for USFJ Employees

#### <Ratio of demand from US military forces in Japan>

The US military forces accounted for about 9% of the total electricity demand and about 7% of revenue in the actual results for FY2013.

#### <The circumstances of realignment of the US military forces in Japan>

- On May 1, 2006, the Security Consultative Committee agreed on the US military forces realignment plan and clarified the facilities to be returned to Okinawa.
- After the change of government in September 2009, two or more relocation plans for Marine Corps Air Station Futenma were studied. However, a US-Japan joint statement was released to confirm relocation to Henoko.
- On April 27, 2012, the Japanese and US governments released a joint statement on review of realignment plan for the US military forces in Japan. In this statement, the governments agreed on overseas relocation of the US Marines in Okinawa and accompanying return of five military facilities and the military zone south of the Kadena Air Base, taking a new approach of delinking relocation of Futenma Air Station.
- On April 5, 2013 the US and Japan reached a final agreement to the consolidation plan of returning Futenma Air Station as well as land and five facilities south of Kadena Air Base, with indication of the timing of return.
- On December 27, 2013, the Okinawa Prefectural Governor approved the application (applied on March 22, 2013) from the government for reclamation works to relocate Futenma Air Station at Henoko.
- On July 1, 2014, demolition of existing facilities started at a land strip in Henoko, Nago City, where construction of runways is scheduled.

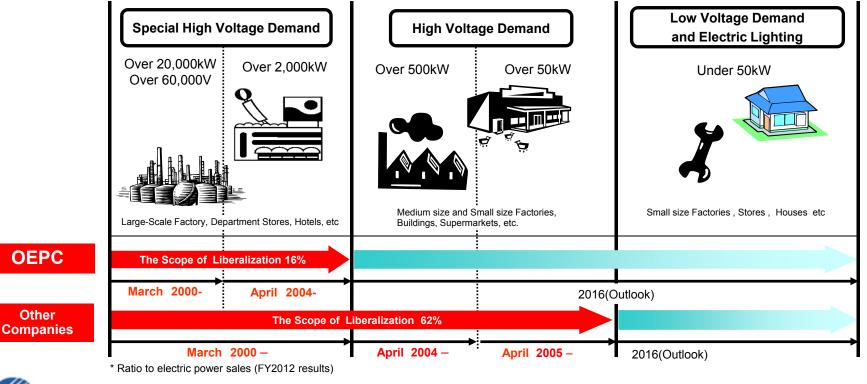
If the US military facilities are returned, demand is expected to decrease temporarily. However, demand will subsequently increase on the strength of revitalization of the local economy following redevelopment of the US military facilities site.



Source:

# Q3. What are the Effects of Liberalization of Electric Power and What is the Future Forecast for Liberalization?

- While liberalization of electricity retailing has been pursued in four steps in the electricity business system reform, the scope of liberalization of OEPC's electricity retailing has been conducted more carefully compared with that for other electric power companies.
- In the "Act for Partial Revision of the Electricity Business Act" which came into effect in November 2013, the government instructed the implementation be carried out in three stages with in-depth review in each stage to resolve issues and necessary measures to be taken based on the results of such review, targeting full-scale liberalization of the electricity retail market in 2016. The Act also states with respect to Okinawa that the electricity system that takes into account regional peculiarities would be adopted.
- The direction of the Electricity System Reform in Okinawa was studied at the fourth meeting of the System Planning Working Group under the Electricity Systems Reform Subcommittee, the Strategic Policy Committee, the Advisory Committee for Natural Resources and Energy, which led to a conclusion that Okinawa would implement full-scale liberalization of the electricity retail market with the same scope as the mainland. Assuming that widening options would be more beneficial to customers, OEPC shall cope with liberalization reform adequately.



The Okinawa Electric Power Company, Inc.

## **Q4. What are the Special Tax Measures?**

### **Currently Applied Special Tax Measures**

## 1. Alleviation of Fixed Property Tax

- Basic Law: Supplementary Provisions of the Local Tax Law (Article 15.5)
- Details: Alleviation to 2/3 of the Standard Tax Rate
- Period: April 1, 1982 March 31, 2015 (Extended for 3 years from April 1, 2012)

## 2. Exemption from the Oil and Coal Tax

- Basic Law: Special Measures Law for the Promotion of Okinawa (Article 65.2), Special Taxation Measures Law (Article 90.4.3.1)
- Details: ① Exemption from the Oil and Coal Tax for coal ② Exemption from the Oil and Coal Tax for LNG
- Period: ① October 1, 2003 –March 31, 2015 (Extended for 3 years from April 1, 2012) ② April 1, 2012 –March 31, 2015
  - (Newly added starting on April 1, 2012)

#### Need for Special treatment

Special treatment is necessary for industrial development and improving the living standards of people in Okinawa Prefecture given that there has been no changes to the conditions of remote islands such as bearing of deficit arising from structural disadvantage.

#### Revision of the Act on the Special Measures for the Promotion and Development of Okinawa

- The Act on the Special Measures for the Promotion and Development of Okinawa was revised in March 2012, and the revised law came into effect on April 1, 2012.
- In addition to the extension of the applicable period of special tax measures applied to the Company up until now (property tax relief measures, exemption of petroleum and coal tax relating to coal), the Company has become exempted from petroleum and coal tax relating to LNG.

#### Value of Tax Alleviation Due to the Special Measures

- The value of the alleviation measures in FY2013 was about 3.1 billion yen.
- The value of the alleviation measures for FY2014 is expected to be 3.7 billion yen.

# The amount of reduction based on the special measures is being returned to customers through electricity charge.

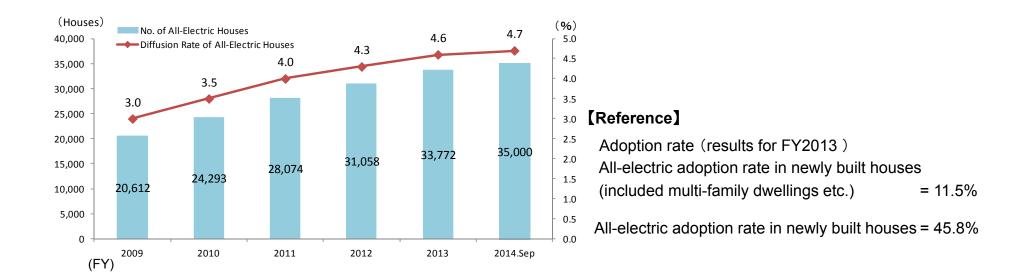


## Q5. What is the Current State of the Promotion of All-Electric Houses?

### 1. Sales target for FY2014 ⇒ All-Electric Houses 5,700 (13.80 million kWh)

### 2. Approach for the promotion and diffusion.

- ① Launching of effective promotion activities to facilitate penetration of all electrification housing brand.
- (2) Expansion of sales activity in cooperation with sub-users.
- ③ Strengthening of sales activity to collective housing and existing homes.





## Q6.What is the Current State of the New Demand Creation Through the Promotion of Commercial Electrification Equipment ?

1. Sales target (in total of three years from FY2013 to FY2015): 32 million kWh

#### 2. Actual sales results (September 2014): 7.62 million kWh

\* Electrification system (electric air-conditioning system including heat storage, electrified kitchen and electrified water heater)

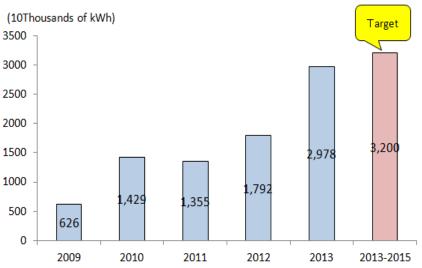
#### 3. Approach for the promotion and diffusion.

- ① Offering customers comprehensive proposals for electrification (air-conditioning, kitchen, water heater), being suitable for their power usage.
- 2 Promotion of high efficient heat-pump appliances (i.e. air-conditioning and water heater)
- ③ Strengthening of alliance with sub-users including manufacturers, contractors, design offices.

④ Use of incentive programs

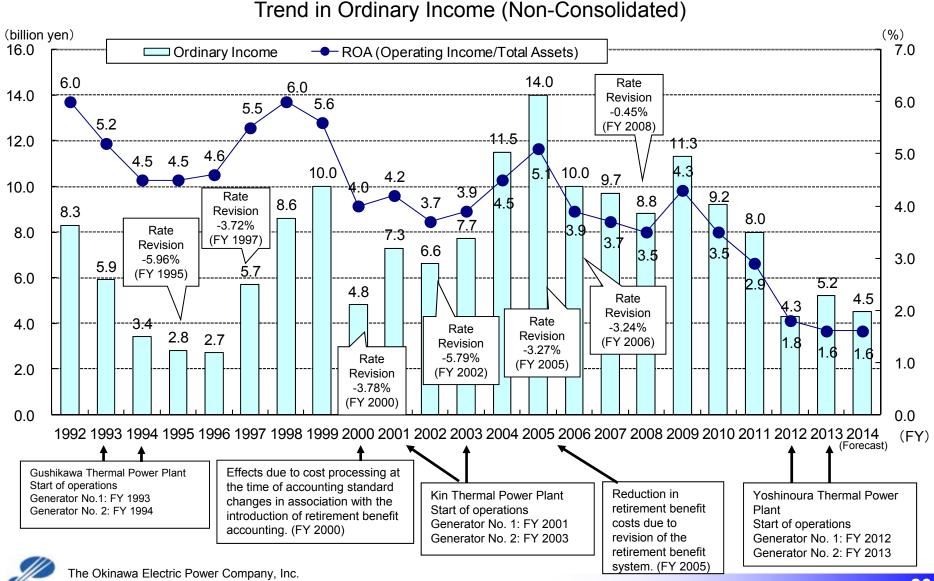
#### The demand for commercial electrification equipment



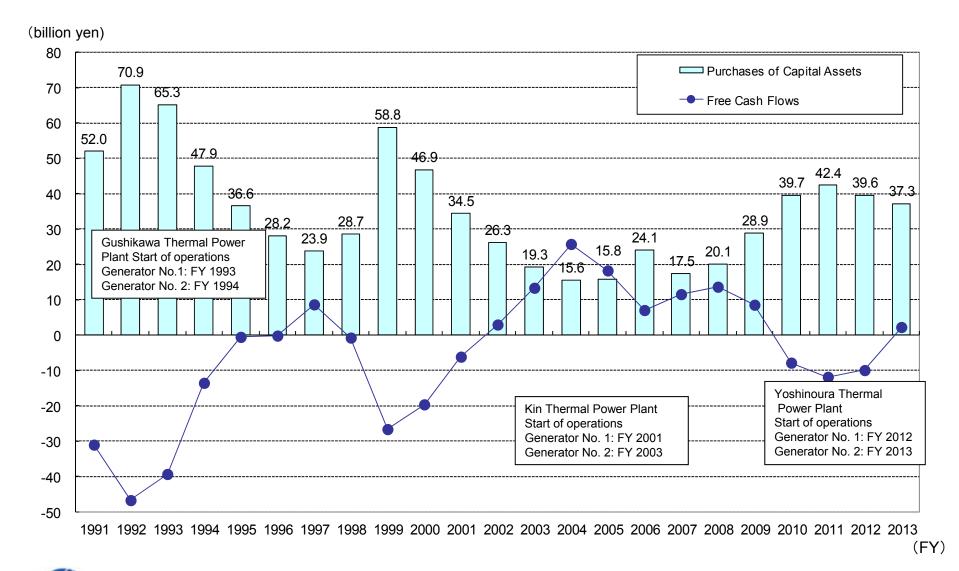




## **Q7.What is the Trend of Ordinary Income?**



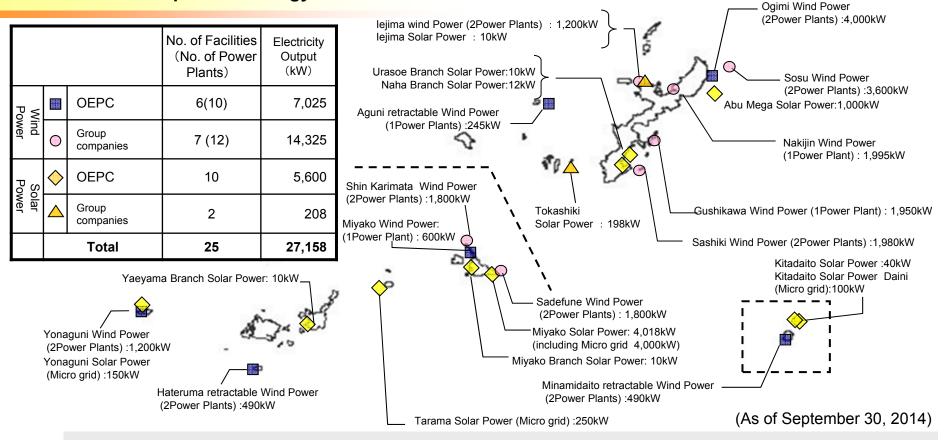
# Q8.What are the trends of the Capital Expenditure and Free Cash Flows?



The Okinawa Electric Power Company, Inc.

# Q9.What is the Status of Wind and Solar Power Electricity Generation Facilities?

### List of OEPC Group's New Energy Facilities



- OEPC Group has new energy facilities with total output of 27,158kW (wind power: 21,350 kW, solar power: 5,808 kW)
- Introducing Plan of New Energy Facilities.
  - ✓ Tarama retractable wind power (245kW, start in FY2015)

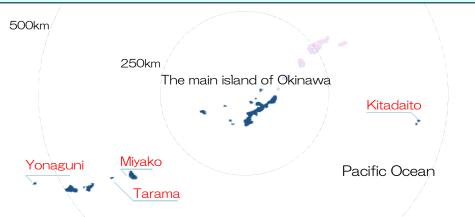


# Q10.What is the New Energy verification studies for the Remote Island Independent System?

\* NaS : Sodium-sulfur battery LiB : Lithium-ion battery LiC : Lithium-ion capacitor

#### Purpose

- Grasping the impact on the actual system of introducing large-scale photovoltaic power generation to four remote islands with systems different in size.
- Analyzing the operating data of photovoltaic power generation systems and capacitor to verify the system stabilization method for remote island independent systems.



Place	Miyako Island	Tarama Island	Yonaguni Island	Kitadaito Island
Maximum demand for electricity	About 50,000kW	About 1,160kW	About 2,160kW	About 860kW
Existing internal-combustion power	74,000kW	1,860kW	3,410kW	1,540kW
Existing new energy facilities	Solar Power 18kW Wind Power 4,200kW	_	Wind Power 1,200kW	Solar Power 40kW
Newly-established solar power generation facilities	4,000kW	250kW	150kW	100kW
Newly-established capacitor	NaS* 4,000kW LiB* 100kW	LiC* 250kW	LiC* 150kW	LiC* 100kW
Introduction ratio of Newly-solar power	8%	22%	7%	12%
Facility utilization rate(FY2013)	About 5%	About 12%	About 8%	About 13%





The Okinawa Electric Power Company, Inc.

## Q11.What is a retractable wind power generator? (1/2)

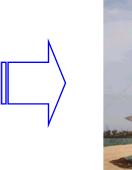
#### Overview of retractable wind power generator

Place	Hateruma/Minamidaito Island (2 Plants each) Aguni Island 1 Plant (June, 2014) Tarama Island 1 Plant (start in FY2015)
Manufacturer/country of manufacture	Vergnet/France
Rated power output	245kW
Wind speed for power rating/start-up/stoppage	13m/s (Aguni Island 13.5m/s), 4m/s, 20m/s
Number of blade	Тwo
Diameter of blade	32m (Aguni Island 30m)
Height of hub	38m

#### Advantages

- Wind power generator can be folded nearly 90 degrees so that damages by big wind in typhoon can be avoided by retracting it.
- Large-size cranes are not needed to construct the wind power generator to enable construction in hilly areas.
- Wind power generator is retractable, making it possible to perform maintenance on the ground.
- Wind power generator is supported by wires.









The Okinawa Electric Power Company, Inc.

## Q11.What is a retractable wind power generator? (2/2)

### Business Overseas Expansion of Retractable Wind Power Generation by OEPC Group Companies

- Our subsidiary Progressive Energy Corporation (PEC) carried out construction work of the retractable wind power generation facilities that OEPC introduced and is responsible for their maintenance after operations started.
- PEC strives to spread retractable wind power generation facilities to Pacific island countries, taking advantage of the knowledge of and experience in the facilities that the company has accumulated.

### Purposes

#### **International Contributions**

- Many of the Pacific island countries face the urgent need to protect themselves from damages caused by cyclones. Retractable wind power generation facilities are characterized by being less susceptible to typhoons and other natural disasters.
- Also, as these countries need to solve their dependence on fossil fuels for energy, they highly expect the benefits of natural energy generation.

#### **Contributions to Promoting Regional Economy**

By manufacturing part of retractable wind power generation facilities in Okinawa Prefecture, it can be envisaged that OEPC will contribute to promoting the regional economy.

## Concrete Efforts

- In August 2014, PEC became the first company in Okinawa to be selected as a business of "Private Technology Promotion for Social and Economic Development in Emerging Countries," which is a part of the overseas support projects, conducted by Japan International Cooperation Agency (JICA).
- In this entrusted business, with the aim of promoting the spread of retractable wind power generation facilities in the Kingdom of Tonga, PEC is engaged in activities including making proposals and conducting on-site tours to such facilities for Tongan dignitaries and engineers to deepen their understanding of the superiority of this technology.



# Q12.How do Current Electricity Rates Compare to Rates at Other Companies?

While the detailed comparison of electricity rates is not available due to limited amount of reported data, the following is the comparison of electricity rates for the main supply contracts.

Model Unit Rates for All Companies

(As of November 2014, including fuel cost adjustments, consumption taxes, Renewable Energy Power Promotion Surcharge )

(Unit: yen/kWh)

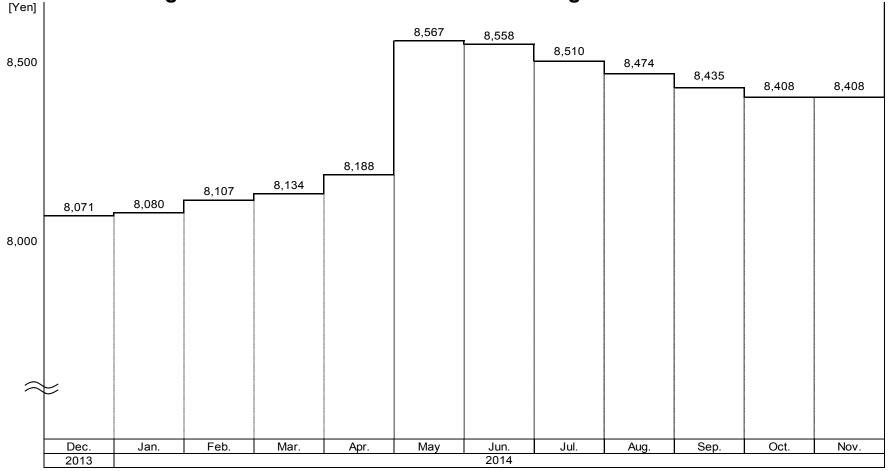
	OEPC	Co. A	Co. B	Co. C	Co. D	Co. E	Co. F	Co. G	Co. H	Co. I
Metered Residential	28.03	31.64	27.75	28.97	26.93	23.61	26.88	26.33	25.83	24.97
	8	10	$\overline{O}$	9	6	1	5	4	3	2
Model Basic Unit 300										
Commercial Use Electricity (High Voltage)	23.32	25.17	23.51	25.04	22.30	17.73	22.64	21.06	20.91	20.69
Model Basic Unit 250 (Power Factor 100%)	$\bigcirc$	10	8	9	5	1	6	4	3	2
High-voltage Power A	21.05	24.05	21.92	23.43	21.79	17.04	21.82	19.89	21.01	20.20
Model Basic Unit 250 (Power Factor 100%)	5	10	8	9	6	1	$\bigcirc$	2	4	3

Note: The circled numbers indicate price level rankings (higher numbers indicate more expensive rates).



# Q13. Recent changes in standard household electricity charges





※ 300kWh/Month.

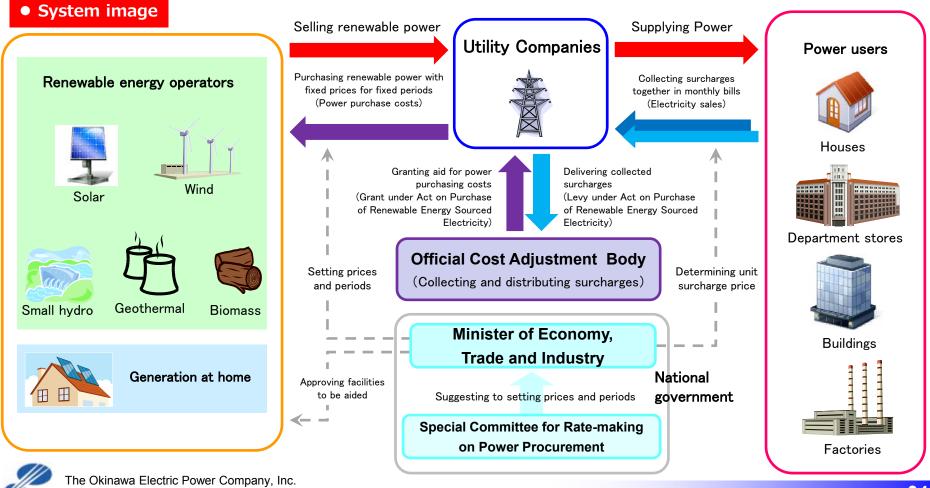
※ Renewable Energy Power Promotion Surcharge and PV Surcharge is included in electricity charges. (The surcharge system for solar energy promotion will end with bills for October 2014 to be integrated into the surcharge system for renewable energy power promotion.)

X An 8% consumption tax rate is applied since May 2014.

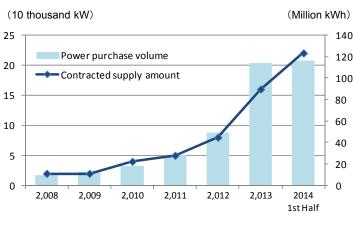


# Q14. What is the feed-in tariff system of renewable energies?

- The feed-in tariff system of renewable energies was enforced in July 2012
- In this scheme, electric utilities are obliged to purchase electricity generated from renewable energy sources at a fixed price for a specified period set by the government, and purchase cost of electricity will be paid by electricity customers as surcharge together with electricity charge.



## Q15. What is the Current Progress of Solar Power Generation?



						2008	2009	2010	2011	2012	2013	2014 1st Half
(Million kWh)		(Wh)		Main Island	4.1	5.5	7.5	10.2	13.4	18.8	21.3	
	140		140	No. of purchases (Thousand cases)		0.1	0.2	0.4	0.8	1.4	2.1	2.4
			120		Total	4.2	5.8	7.9	11.0	14.8	20.9	23.7
	- 10		100	Contracted	Main Island	1.7	2.3	3.3	4.8	6.8	14.3	19.1
		-	80	supply amount (10 Thousand	Remote Islands	α	0.1	0.2	0.5	0.9	2.0	2.8
	-	_	60	kW)	Total	1.7	2.4	3.5	5.3	7.7	16.2	21.9
	-	_	- 40	Davida averalia a a	Main Island	9.5	12.2	16.4	25.6	43.2	99.4	101.4
	_		- 0	Power purchase volume (Million kWh)	Remote Islands	0.3	0.4	1.1	2.2	5.8	14.3	14.9
	2014 1st Hal		-		Total	9.8	12.6	17.5	27.8	49.0	113.7	116.3
				* α indicate	s amoun	t below the	unit					

#### [Purchase of solar power]

\* As each unit is rounded off to the second decimal place, the total amount does not exactly agree to the sum of each amount.

\* The "Feed-in Tariff System for Renewable Energy" started in July 2012.

[Connection of solar power generation system]

- As the main island of Okinawa is small in scale and an independent grid, the volume of renewable energies from intra-area wheeling tends to reach a limit. Therefore, OEPC has set the possible volume of renewable energies from intra-area wheeling within the main island of Okinawa at around 310MW. The total volume of the facilities whose applications we received by August 7, 2014, has exceeded 310MW as the ceiling of the possible volume from intra-area wheeling.
- OEPC announced on its website on May 13, 2014 about the possible volume from inter-connection in remote islands.
- With the knowledge and information obtained from the proof tests including the "Proof and Study of Ogimi Wind Power Generation", we have been conducting study for expansion of interconnected available power. The study takes into account the evaluation of impact on power operation with actual operation results and the analysis of the results of renewable energy power generation.
- On the condition that stable supply is ensured, OEPC will keep on working for interconnection and further expansion of renewable energy.



## Q16. What are the CO<sub>2</sub> Emission Volumes by Fuel Type?

LNG (Liquefied Natural Gas) produces less carbon dioxide, a major cause of global warming, than coal or oil.

Chart: Comparison of CO<sub>2</sub> Emission Volumes by Fuel Type

Fuel Type	CO <sub>2</sub> Emission Volume Per Unit Heat Value [g-CO <sub>2</sub> /MJ] *1	vs.Coal	vs.Oil *3	CO <sub>2</sub> Emission Volume Per kWh [kg-CO <sub>2</sub> /kWh] *2	vs.Coal	vs.Oil *3
Coal	90.6	1.00	1.27	0.84	1.00	1.24
C Heavy Oil	71.5	0.79	1.00	0.68	0.81	1.00
LNG	49.5	0.55	0.69	0.41	0.49	0.60

- \*1 The values from the Law Concerning the Promotion of the Measures to Cope with Global Warming were used as the CO<sub>2</sub> emission factors to calculate g-CO<sub>2</sub>/MJ.
- \*2 Thermal Efficiency at Generation End are calculated based on OEPC's own data.
- \*3 Oil comparisons were based on type C heavy oil.



# Q17. What is the Current State of the Progress of Discussion in the Gas Supply Business ? (1/2)

# Positioning of Gas Supply Business (as an all-round energy company)

- The entry into the gas supply business with the introduction of LNG will contribute to expansion of the business domain of the Group through the entry into the thermal demand field. In addition, it will become a major turning point for operating the total energy business, which the Group positions at its core.
- The Group will be able to make a contribution to the improvement of the energy environment in Okinawa prefecture by supplying LNG, which is superior energy from the environmental and safety viewpoints.

## **Current Efforts**

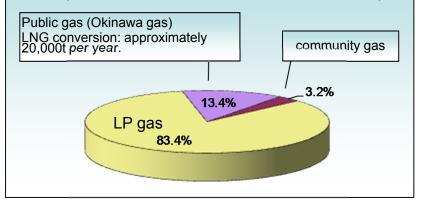
### 1 For LNG Expansion

- With respect to wholesale supply of electricity to Okinawa Gas, a general gas utility, OEPC and Okinawa Gas reached an agreement on basic issues such as the supply scheme and supply amount, and details are discussed toward the conclusion of a sales agreement.
- OEPC is also conducting sales and marketing activities to customers such as plants and hotels to achieve further demand expansion.

### ② Construction of Supply Facilities

The construction of gas supply facilities on the Yoshonoura Thermal Power Plant site started in March 2014 and is ongoing.

#### Current status of the gas business in Okinawa (Conversion of heat consumed in FY2013)



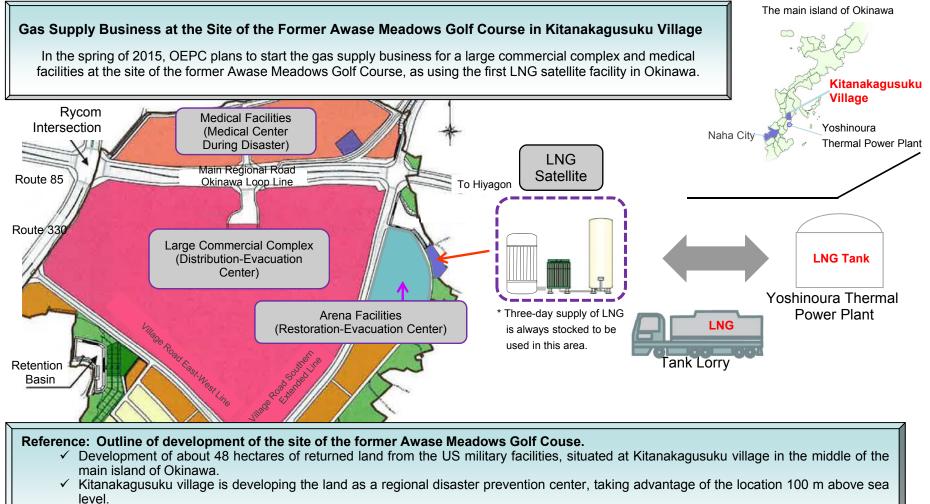
Source: Agency for Natural Resources and Energy website, Japan LP Gas Association website, Okinawa Gas

To start supplying in 2015, intensive efforts are being made.

- We plan to start gas supply to large accounts that will be users such as factories around Yoshinoura Thermal Power Plant via pipelines.
- We plan to start gas supply to large accounts that will be a commercial complex and medical facilities at the site of the former Awase Meadows Golf Course in Kitanakagusuku (6 km from Yoshinoura Thermal Power Plant) through satellite supply by tank lorries.



# Q17. What is the Current State of the Progress of Discussion in the Gas Supply Business ? (2/2)



✓ In addition to supplying electricity stably, OEPC Group aims to contribute to reinforce the function of the regional disaster-prevention center during disaster as well as promoting reduction in CO2 emissions during normal time, by establishing an LNG satellite and pipeline infrastructure for supplying gas to the customers.



# Q18. What is the Current State of the Disaster Prevention Measures ?

We have ever been addressing the removal of causes of disasters and the improvement of disaster resistant environment on a day-to-day basis in order to prevent our power facilities from accidents and to recover the damages that occurred promptly. Based on the enormous damages caused by the Great East Japan Earthquake occurred on March 11, we need to enhance disaster contingency planning by recognizing the importance of our mission, "stable supply of electric power," more than ever.

We are proceeding with practical and organizational revalidation in order to make disaster recovery complete assuming various situations as well as to aim at reviewing disaster contingency planning related to our facilities, etc. against large-scale disasters.

#### (1) Setting up of the Emergency Response Inspection Committee

In March 2011, we set up the Emergency Response Inspection Committee chaired by President, and established working groups which were organized for each relevant department as subordinate organization. We have had total of eighteen committee meetings so far to verify disaster countermeasures and recovery scenarios, as well as administrative support, for electric power systems from the viewpoint of business continuity, and we are implementing necessary measures.

#### (2) Countermeasures against typhoons

Following occurrence of the large-scale, long-lasting blackout caused by the season's 17<sup>th</sup> typhoon in 2012, we set up a panel for early elimination of obstacles to electricity supply caused by typhoon under the Emergency Response Inspection Committee, and put together countermeasures. The main measures against typhoon are as follows:

- We have already taken measures for preventing entanglement of flying objects to utility poles and electric wires and contact between trees and electric wires, which are the main cause of blackouts, by reinforcing utility poles to prevent their consecutive falls by attaching support poles and stay wires and by strengthening electric wires by replacing the existing electric wires with antifriction wires, low wind pressure wires and high pressure drop cable. In addition, we will pursue expansion of simple type remote controlled switch, which will reduce the blackout area at the time of typhoon by operating it along with the distribution automation system.
- We will also conduct a study toward improving the method of facility inspection to identify the cause of blackout after typhoon for recovering from power outage early, and work to reduce flying objects and cut trees in cooperation with local governments, etc.

#### (3) Reflecting to comprehensive disaster-preparedness drill for FY2014

As with last year, we conducted a drill in which disaster scenarios are not provided beforehand, in addition to the field drill which we have carried out previously and drills in which the result of review in the Emergency Response Inspection Committee is reflected.

#### (4) Future schedule

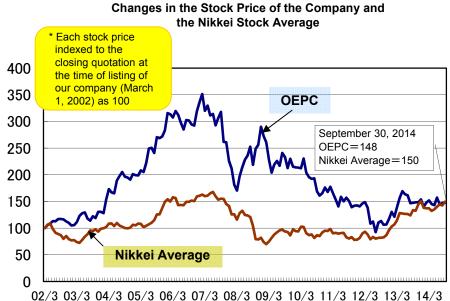
Based on the latest hazard map of Okinawa Prefecture, we will review existing disaster countermeasures and confirm how we should proceed hereafter, taking appropriate actions successively.

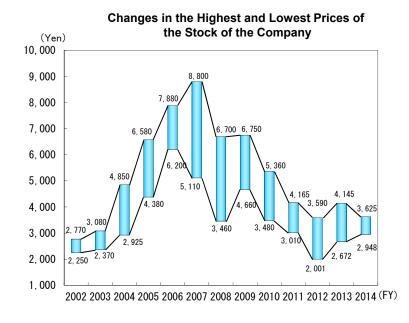


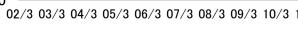
## **Change in Okinawa Electric Power's Stock Price**

Change in Stock Price (January 6, 2014~September 30, 2014)

	Okinawa Electric Power	Nikkei Average
Stock price on January 6, 2014	¥3,500	¥15,909
All-time high	¥3,615 as of June 30, 2014(+3.3%)	¥16,374 as of September 25, 2014(+2.9%)
All-time low	¥3,080 as of February 4, 2014(-12.0%)	¥13,910 as of April 14, 2014(-12.6%)
Latest stock price Closing quotation (September 30, 2014)	¥3,395(-3.0%)	¥16,174(+1.7%)







# **Earnings Per Share and Payout Ratio**

## Earnings per Share and Payout Ratio (Non-consolidated)

FY	FY		2005	2006	2007	2008	2009	2010	2011	2012	2013
Net Income	Million yen	7,591	9,163	6,398	6,590	3,635	7,293	6,872	5,050	3,098	3,917
Earnings per Share	Yen	494.77	571.05	402.25	376.84	207.89	417.26	393.36	289.08	177.35	224.21
Dividend per Share	Yen	60	60	60	60	60	60	60	60	60	60
Payout Ratio	%	12.1	10.5	14.9	15.9	28.9	14.4	15.3	20.8	33.8	26.8
Dividend Yield	%	1.25	0.85	0.82	1.53	1.15	1.23	1.58	1.75	1.87	1.72
Price Book- value Ratio	х	0.85	1.19	1.18	0.66	0.87	0.76	0.56	0.49	0.45	0.48
Price Earning Ratio	х	9.7	12.4	18.3	10.4	25.2	11.7	9.7	11.8	18.1	15.6

Date	lssued number of shares of common stock	
1992.02.10	14,728,132	Listed
1995.11.20	14,875,413	Split 1 : 1.01
1999.05.25	15,172,921	Split 1 : 1.02
2005.05.20	15,931,567	Split 1 : 1.05
2007.04.01	17,524,723	Split 1 : 1.10



## Reference

- <u>http://www.okiden.co.jp/english/index.html</u> (The Okinawa Electric Power Company Incorporated)
- <u>http://www.pref.okinawa.jp/english/index.html</u> (Okinawa Prefecture)
- <u>http://www.fepc.or.jp/english/index.html</u> (The Federation of Electric Power Companies of Japan)
- <u>http://criepi.denken.or.jp/en/</u> (Central Research Institute of Electric Power Industry)





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.

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