

## ORIX Group Eco Service Guide





# The ORIX Group provides a comprehensive range of functions that respond to customer needs for eco products and technologies as well as energy.

## Environmental Policy

The ORIX Group will contribute to resolving environmental and energy issues through business operations that meet the needs of customers and society. This commitment will direct our efforts as we continue to expand the range of our business and grow.

### Activity Targets

1. Provide new Eco Services that contribute to the resolution of the environmental and energy issues faced by customers and society.
2. Maintain an understanding of the environmental impact of our business and work to reduce this impact while complying with environmental regulations.
3. Improve employee awareness and knowledge to ensure environmental initiatives that match the characteristics of each business are implemented.
4. Provide appropriate information regarding legally mandated disclosure and environmental initiatives.

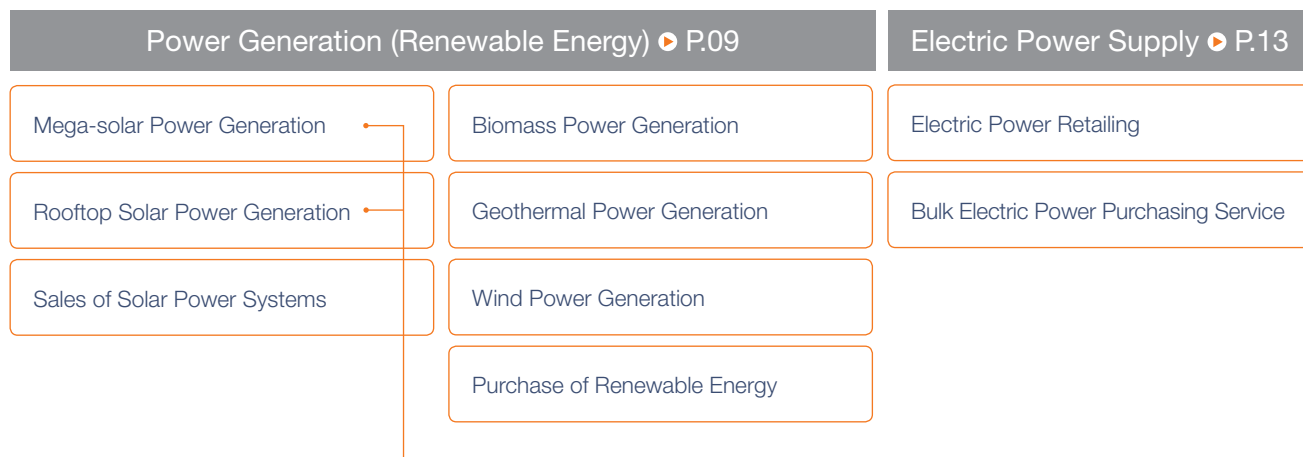


Mega-solar power plant built on the  
former site of Makurazaki Airport  
Makurazaki Former Airport Site No.1  
and No.2 Power Plants



# ORIX Group Eco Services

## Energy Business ▶ P.07



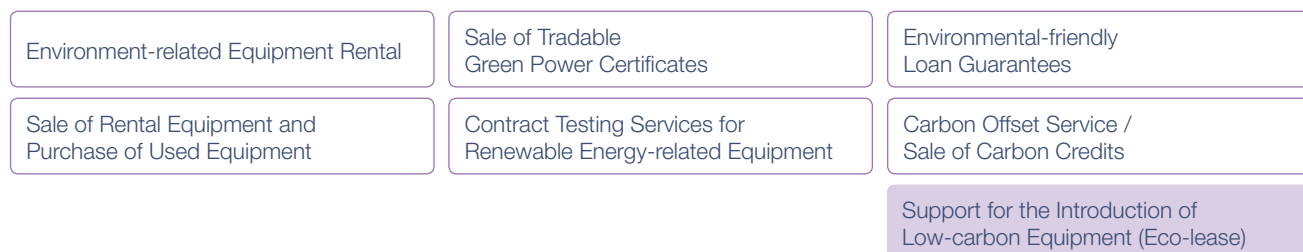
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## Eco-friendly Real Estate Business ▶ P.25

- |   |  |
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| <ul style="list-style-type: none"> <li>Logistics Facilities</li> <li>Artificial Light Plant Factory</li> <li>Office Buildings</li> <li>Aquariums</li> </ul> | <ul style="list-style-type: none"> <li>Kyocera Dome Osaka</li> <li>ORIX Theater</li> <li>Golf Courses</li> </ul> |
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- SANGO ORIX—Okinawa Coral Reef Restoration Project
- Enosui ECO
- Thai Local Subsidiary Protecting the Environment on Company Trips



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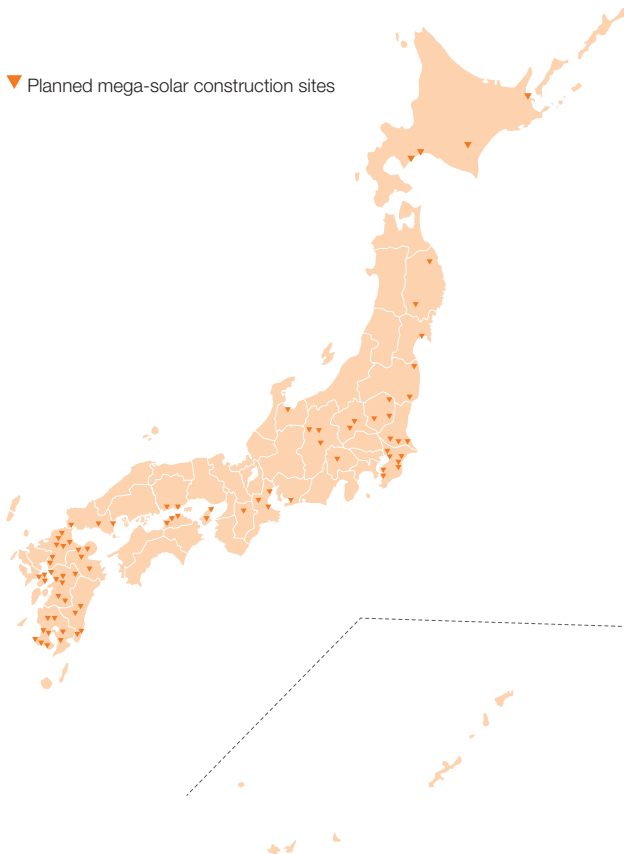
- Establishment of an Environmental and Energy Investment Fund in Asia
- Power Generation Business in the Philippines, GBPC
- U.S.-based Energy Service Company, Enovity, Inc.



IN FOCUS

## The Solar Power Generation Business

▼ Planned mega-solar construction sites



## Mega-solar



**78** sites  
across Japan

Combined maximum output

**424,000kW**  
(424 MW)

## Rooftop Solar Power Generation



**156** locations  
across Japan

Combined maximum output

**72,000kW**  
(72 MW)



Projected annual power generation of  
544.29 million kWh

Equivalent to the annual power consumption of

approximately **151,200**  
**ordinary households**

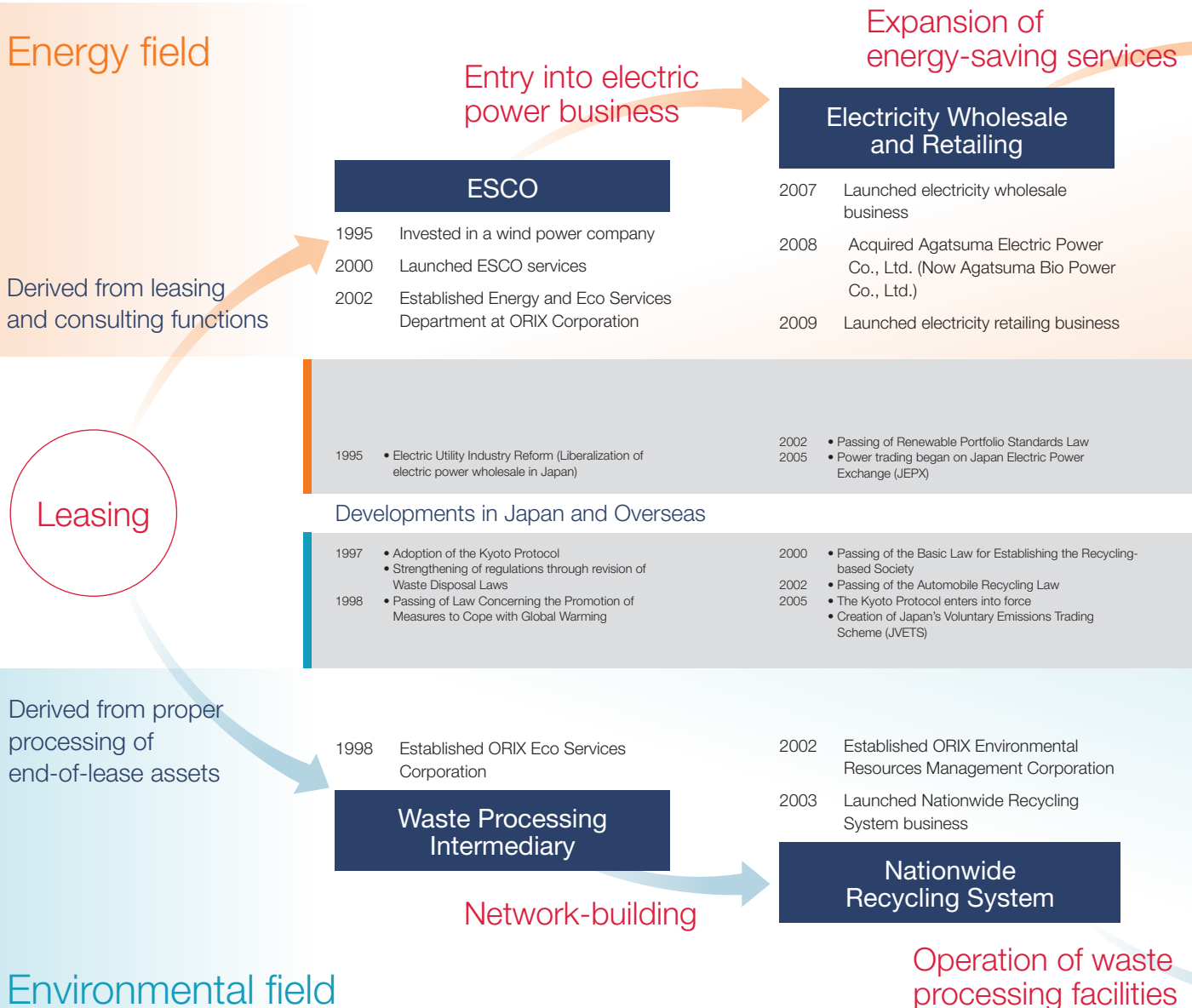
\* Calculation based on consumption of 3,600 kWh a year per household  
Source: Electricity Statistics Information, The Federation of Electric Power Companies of Japan

Total number of projects planned, under construction, or in operation as of June 30, 2014

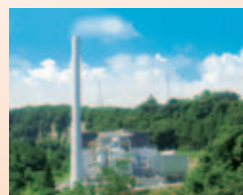
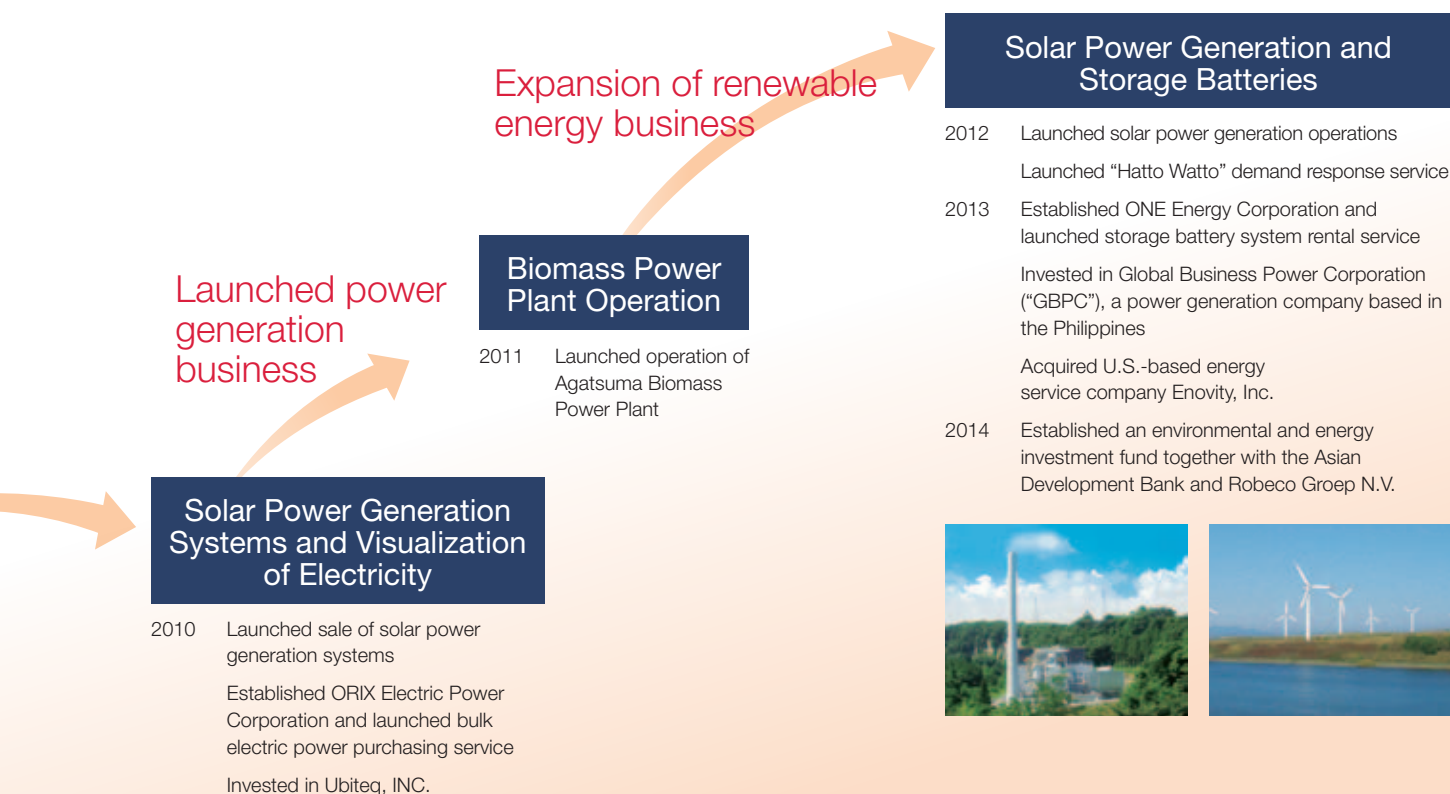
# Progress and Development of Environment and Energy Businesses

## From Leasing to Neighboring Business Fields and Beyond

Since its foundation in 1964, starting from the leasing business, ORIX has evolved its business by continuously expanding into neighboring fields and acquiring a wide range of expertise. In the field of environment and energy, from its first investment in a wind power generation business in 1995, ORIX has expanded its environment and energy-related businesses across a wide area including waste processing, energy conservation services, electric power supply, renewable energy, and metal resources.



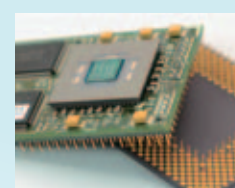
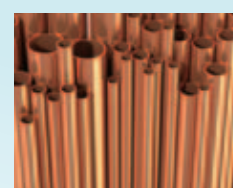




- 2006 Launched operations at ORIX Environmental Resources Management's Yorii Plant
- 2008 Acquired Kanematsu Kankyo Co., Ltd., renamed Funabashi Eco Services Corporation (Now ORIX Eco Services Corporation)  
Launched Carbon Offset service

## Waste Processing Facility Operation

**Launched metal resources business**



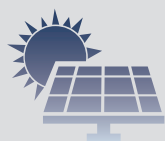
- 2010 Established strategic alliance with the Chinese Academy of Sciences
- 2011 Invested in Chinese water utility operator, China Water Affairs  
Won contract to participate in the cooperative preparatory study for a JICA PPP infrastructure project relating to sewage systems in Indonesia and Vietnam  
Launched metal resources business at ORIX Eco Services Corporation
- 2013 Merger of ORIX Eco Services Corporation and Funabashi Eco Services Corporation

## Metal Resources Business

# Energy Business

The ORIX Group is responding to the energy needs of customers in a variety of fields, extending from upstream to downstream areas of the energy business. Specific fields include the small- and large-scale generation of energy from renewable sources, supply of lower-priced electricity, and provision of energy-saving services.

## Power Generation (Renewable Energy)



**Solar Power Generation**  
(distributed and utility-scale)



**Biomass Power Generation**



**Geothermal Power Generation**



**Wind Power Generation**

## Electric Power Supply



**Electric Power Retailing (PPS)**



### Solar power generation (maximum output capacity)

(Total for mega-solar and rooftop solar power generation projects planned, under construction, or in operation as of June 30, 2014)

**496,000**  
kW (496MW)

### Electric power retailing

(Fiscal year ended March 31, 2014)





Bulk Electric Power  
Purchasing Service

## Energy Conservation / Storage Batteries



ESCO services



Demand Response  
Service



Storage Battery  
System Rental  
Services



### ESCO services (CO<sub>2</sub> reduction)

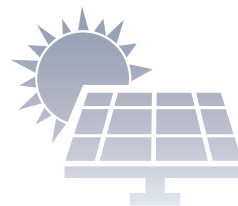
(Volume of planned CO<sub>2</sub> reduction calculated at the inception of ESCO contracts for the fiscal year ended March 31, 2014)

**519.71**  
million kWh

**152,500**  
t-CO<sub>2</sub>

## Power Generation (Renewable energy)

The ORIX Group is contributing to the prevalence of renewable energy including solar power, biomass, geothermal, wind, and other renewable energy sources.



### Mega-solar Power Generation

ORIX Corporation Kyuko-Lease Inc.

#### Large-scale solar power plants on disused land owned by local government and companies

ORIX is renting disused land owned by local government, companies, and other landowners across Japan to build large-scale mega-solar power generation facilities (mega-solar) that will have maximum output capacities of more than 1,000 kW (1 MW).



Deer Lake Country Club Mega-Solar Power Plant (Kanuma, Tochigi Prefecture)

#### Case Study

##### Mega-solar and motorsports side-by-side

MSF Co., Ltd.

ORIX is constructing a mega-solar power plant with a maximum output of 21,967 kW (21.9 MW) over an area of 420,000m<sup>2</sup> at Tokachi Speedway (Sarabetsu village, Kasai, Hokkaido), which is operated by MSF Co., Ltd. Completion is planned for December 2015.

The speedway opened in 1993 as the only internationally recognized circuit in Hokkaido. In recent years, fewer people have been using the circuit, and the mega-solar scheme offers MSF a unique way to generate revenue by making effective use of idle land while continuing to operate the circuit. ORIX is promoting this project to realize the “Coexistence of Renewable Energy and Motorsports” at the circuit, which is an iconic feature for the village of Sarabetsu.



Image of completed project

##### Turning a disused airfield into a mega-solar power plant

Makurazaki, Kagoshima Prefecture

In September 2014, ORIX and the Kyudenko Corporation commenced operations of the mega-solar power plant Makurazaki Former Airport Site No.1 and No.2 Power Plants, with a maximum output of 8,218 kW (8.2 MW), which they had constructed on the former Makurazaki Airport site. The project became the first mega-solar power plant in Japan that utilizes a former airport site.

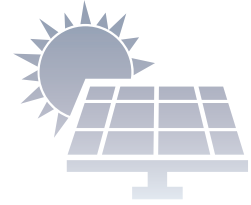
Makurazaki Airport opened in January 1991 as Japan's first commuter airport. In light of mounting annual budget deficits for the management and operation of the airport, as well as future fiscal soundness and the financial burden to be borne by local residents in the city, Makurazaki City closed the airport at the end of the fiscal year ended March 31, 2013. ORIX and Kyudenko have used the former airport site to develop a mega-solar power plant.

Through donations made to Makurazaki City and the tertiary sector, the two companies have also used the airport terminal building to provide a space for tourists and educational purposes relating to the plant, as well as an astronomical observatory, as a way to contribute to the local community.



Completion ceremony



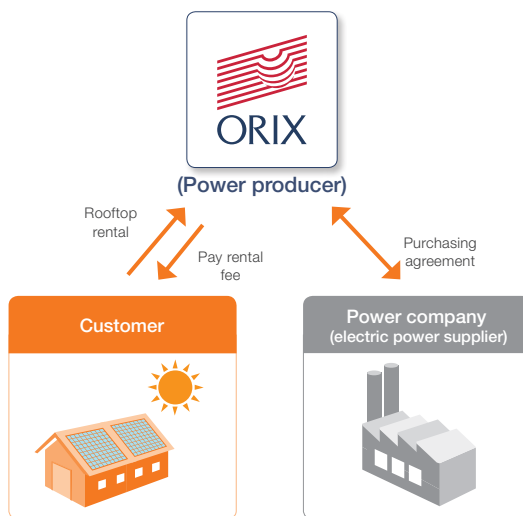


## Rooftop Solar Power Generation

ORIX Corporation Kyuko-Lease Inc.

### Solar power generation using the rooftops of customer facilities

ORIX is engaged in solar power generation business by renting the roofs of factories, warehouses, and other large-scale facilities owned by customers and installing solar power systems on them to generate electricity. ORIX will achieve efficient power generation by not just conducting large-scale solar power generation on disused land but by also taking full advantage of customer-owned facilities. For the customers' part, in addition to being able to use their assets effectively, customers will benefit from reduced air conditioning needs at their facilities due to the heat-shielding effect of the solar panels, and also improved roof lifespan. ORIX is also developing solar power generation businesses using the rooftops of commercial facilities and other properties owned by the ORIX Group.



Onoken Co., Ltd. Fukuoka Branch (Fukuoka, Fukuoka Prefecture)

### Case Study

#### Rooftop solar power generation project with combined maximum output of 2.2 MW at 26 fishing cooperative facilities

##### Saga Prefecture Fishery Cooperative Federation

ORIX is building a solar power generation business with a maximum output of 2,250 kW (2.2 MW) using the rooftops of 26 locations owned by the Saga Prefecture Fishery Cooperative Federation (Saga, Saga Prefecture), such as seaweed processing plants and shipment collection points. The project is expected to generate approximately 2.36 million kWh per year, equivalent to the annual power consumption of 655 ordinary households\*. The coastal areas of the Ariake Sea receive abundant sunshine compared with the other areas of Japan, and Saga Prefecture Fishery Cooperative Federation agreed to participate because the project is environmental-friendly as the power will be generated from renewable energy. The cooperative was also impressed by the heat-shielding effect of the solar panels.

\* Calculation based on consumption of 3,600 kWh a year per household  
Source: Electricity Statistics Information, The Federation of Electric Power Companies of Japan



Saga Prefecture Fishery Cooperative Federation, Hayatsue Branch Office, Cooperative Facility (Saga, Saga Prefecture)

#### Solar power generation with a maximum output of 2.1 MW

##### Nihon Yamamura Glass Co., Ltd.

ORIX has rented the rooftop of the Saitama Plant of Nihon Yamamura Glass Co., Ltd. (Amagasaki, Hyogo Prefecture) and installed a solar power generation system with a maximum output of 2,164 kW (2.1 MW), which is now in operation. The project is expected to generate approximately 2.4 million kWh per year, equivalent to the annual power consumption of 666 ordinary households\*. Nihon Yamamura Glass agreed to participate because the project would contribute to the wider adoption of renewable energy.

\* Calculation based on consumption of 3,600 kWh a year per household  
Source: Electricity Statistics Information, The Federation of Electric Power Companies of Japan

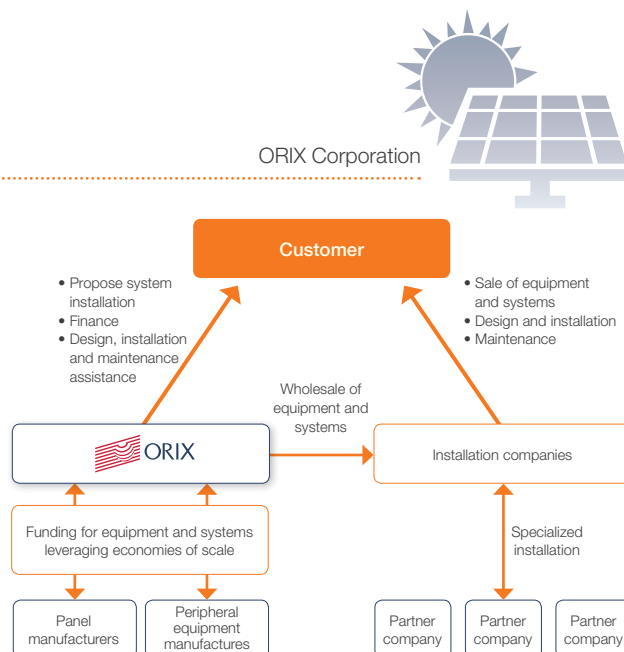


Nihon Yamamura Glass Co., Ltd. Saitama Plant (Koshigaya, Saitama Prefecture)

## Sales of Solar Power Systems

### ORIX provides total support for customer's power generation

ORIX supports its customers investing in solar power systems by providing such products at low cost through leveraging economies of scale using their network of installation companies nationwide and procuring equipment directly from manufacturers. ORIX assists customers with the smooth introduction of systems by providing everything from project design to post installation maintenance on a one-stop basis. This includes selecting appropriate equipment from multiple manufacturers, funding solutions appropriate to the customer including leasing, installment loans, financing and rental, as well as other services such as providing support for obtaining facility certification for the feed-in-tariff system.



### Case Study

A power generation business making effective use of logistics center rooftops

#### CO-OP NET

ORIX sold and installed a solar power generation system with a maximum output of 729 kW to CO-OP NET (Saitama, Saitama Prefecture), a federation of six consumer cooperatives in the Kanto-Shinetsu region. The CO-OP NET group has switched to an energy policy of avoiding reliance on nuclear power, and aims to increase the adoption of renewable energy within the group.

In fiscal year 2014, the group plans to introduce new solar power generation systems at its Oyama Refrigerated Goods Collection Center (maximum output 794 kW) and its Okegawa Refrigerated Goods Collection Center (maximum output 318 kW).



CO-OP NET Togane Refrigerated Goods Collection Center

## Biomass Power Generation

### Biomass power generation utilizing wood chips

Agatsuma Bio Power Co., Ltd. operates the Agatsuma Biomass Power Plant, a wood chip-fired thermal power station located in Gunma Prefecture. Wood chip-fired power generation works by using wood chips as fuel to heat a boiler and then using the steam from the boiler to power a turbine to generate electricity. The use of biomass as an alternative to fossil fuels not only helps to reduce CO<sub>2</sub> emissions but also enables environmental-friendly power generation through the use of thermal recycling\*<sup>1</sup> technology. The Agatsuma Biomass Power Plant has a maximum output of 13,600 kW (13.6 MW), with annual power transmission of 88 million kWh\*<sup>2</sup>. Converted to ordinary household electricity use, this equates to the annual power consumption of approximately 24,400 households\*<sup>3</sup>.

\*1. Thermal recycling refers to the process of collecting and utilizing heat energy generated from combustion, rather than merely incinerating waste materials.

\*2. Fiscal Year 2013 Track Record

\*3. Calculation based on consumption of 3,600 kWh a year per household

Source: Electricity Statistics Information, The Federation of Electric Power Companies of Japan

Agatsuma Bio Power Co., Ltd.



Agatsuma Biomass Power Plant



## Geothermal Power Generation

ORIX Corporation



### Power generation using geothermal energy

The Suginoi Hotel (Beppu, Oita Prefecture; operated by the ORIX Group) owns and operates one of the largest private geothermal power generation facilities in Japan. The Suginoi geothermal power generation facility uses geothermal heat and has a maximum output of 1,900 kW (1.9 MW). The electricity generated by the plant is used to power all of the hotel's electrical installations, and is able to supply one-third of the power used during peak hours.

Capitalizing on the geothermal power generation know-how obtained at the Suginoi Hotel and its experience operating hot springs hotels, ORIX has begun surveys in several hot spring areas such as Hokkaido and Aomori prefectures, aiming to construct small-scale geothermal power generation facilities with maximum outputs of around 2,000 kW (2 MW) to commercialize geothermal power generation.



Suginoi geothermal power generation facility

## Wind Power Generation

ORIX Corporation



ORIX has invested in 4 wind power generation projects with a total of 34 wind turbine units. The combined maximum output of these units is 35,950 kW (35.9 MW).

Akita Araya Wind Farm (Akita, Akita Prefecture)	6,800 kW
Tachikawa Wind Farm (Shonai, Higashitagawa District, Yamagata Prefecture)	3,200 kW
Goto-Kishiku Wind Power Plant (Goto, Nagasaki Prefecture)	1,200 kW
Nikaho Kogen Wind Power Plant (Nikaho, Akita Prefecture)	24,750 kW



Akita Araya Wind Farm

## Purchase of Renewable Energy

ORIX Corporation

ORIX purchases electric power generated by customers from renewable energy by adding a premium to the feed-in-tariff purchase price. The purchased electric power is supplied to customers through the electric power trading business.

# Electric Power Supply

ORIX helps to reduce customer power costs through a low-cost power supply service.

## Electric Power Retailing

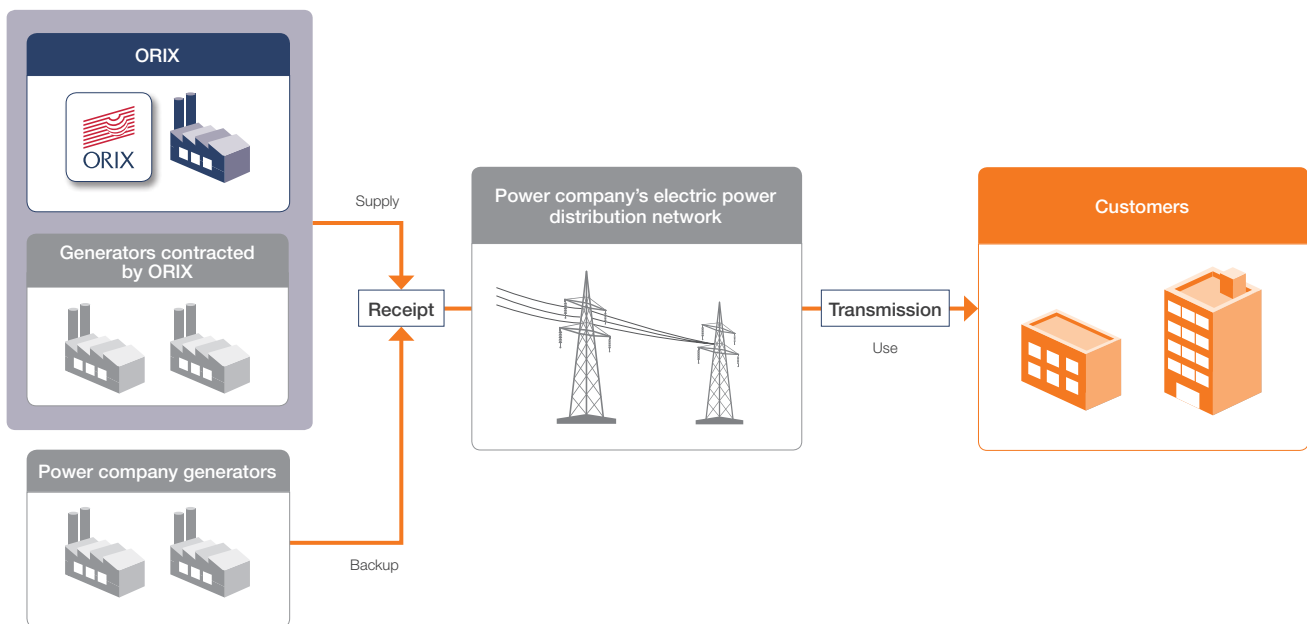
ORIX Corporation



### Supplying low-cost electric power to businesses as a PPS

As a power producer and supplier (PPS)\*, ORIX supplies low cost electric power, mainly to private businesses in need of high-voltage power within the transmission areas of Tokyo Electric Power, Chubu Electric Power, Kansai Electric Power, and Chugoku Electric Power. Moreover, ORIX provides website that offers customers access free of charge to information on their monthly electricity usage and charges, as well as a visible log of the electricity they are using in 30-minute intervals. Such data is available to the customer for both viewing and downloading. Customers with multiple contracts also have access to the electricity usage data in a table format that is easy for comparison among the facilities.

\* PPS refers to electricity suppliers of specified scale that supply electric power on a contractual basis to customers in need of more than 50 kW through the power lines of power companies and other suppliers of electric power. PPS stands for Power Producer and Supplier.



## Topics

Participation in Council for Freedom of Electricity Choice in Osaka

ORIX Corporation

ORIX is participating in the Council for Freedom of Electricity Choice in Osaka (hereinafter, "the Council"), which comprises the Osaka Prefectural Government, Osaka City, and 10 PPSs. Eyeing the full liberalization of the electricity retail market in 2016, the Council was established in April 2014 with the aim of developing an environment that enables electricity consumers to choose optimal power suppliers and services. The initiative is the first in Japan to set up a council comprising members from the government and PPSs. The Council will disseminate information through its website and by hosting seminars on the services of PPSs, along with a wide array of information on reducing electricity procurement costs. The Council's activities will also include providing opportunities for matching companies and PPSs.

Through its participation in the Council, ORIX will provide customers in Osaka Prefecture with services that help to reduce electricity bills and conserve energy.



## Bulk Electric Power Purchasing Service

ORIX Electric Power Corporation



### Creating “intelligent homes” through the Bulk Electric Power Purchasing Service

ORIX Electric Power purchases low-cost, high-voltage bulk electric power from power companies and redistributes it as low-voltage power to condominiums. This “Bulk Electric Power Purchasing Service” enables lower electricity charges for customers.

Furthermore, in April 2013, ORIX Electric Power was appointed as a HEMS\* aggregator in connection with the “FY 2012 Government Subsidy Program to Promote Acceleration of the Introduction of Intelligent Homes,” which is being promoted by the Ministry of Economy, Trade and Industry. From September 2013, ORIX Electric Power has been installing free smart meters at all condominiums where the Bulk Electric Power Purchasing Service has been installed, and is providing the “EneVista” service to encourage efficient energy use and reasonable power consumption.

The EneVista service provides a website where customers can keep track of weather information and power usage updated every 30 minutes. The service also enables users to figure out the optimal service charge scheme based on their past usage history, and assigns “power conservation points” to people who help to conserve power during times when supply is short due to strong demand.

In April 2014, ORIX added a new function that enables electricity usage and charges to be viewed on an intercom system fitted with an Internet browser function. Currently, a subsidy is available from the Ministry of Economy, Trade and Industry to provide one-third of the costs of installing this new type of intercom. By installing an eligible device, condominium management associations can reduce the cost of installation while promoting the installation of smart condominiums.

\*Home Energy Management System

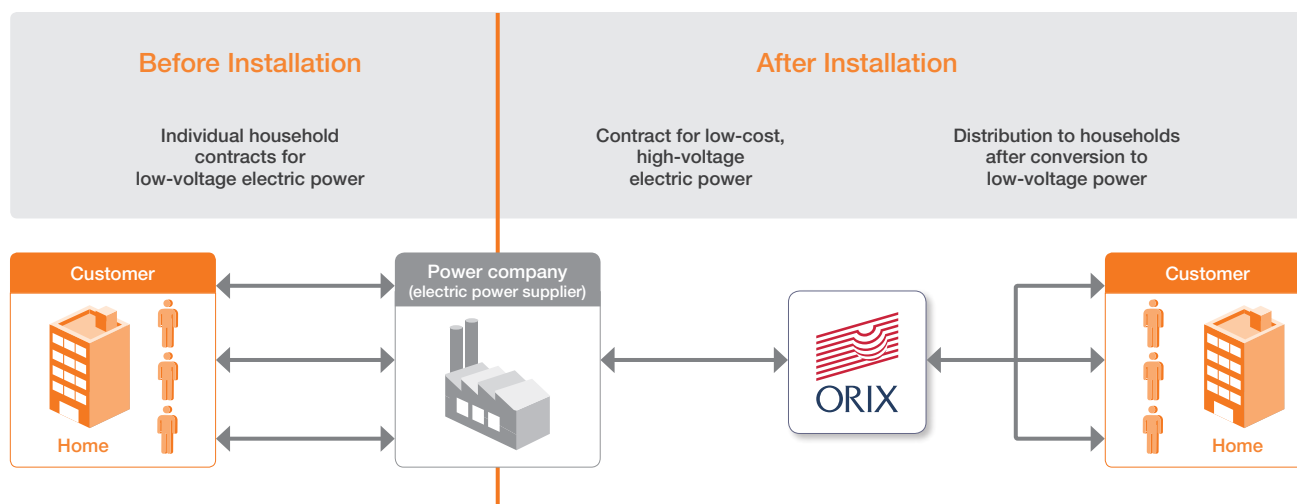


Image of EneVista customer webpage



Visualization of electricity usage using intercom screen

# Energy Conservation

The ORIX Group is helping customers to conserve power, increase asset value, and cut costs through services such as ESCO and the visualization of electricity consumption.

## ESCO Services

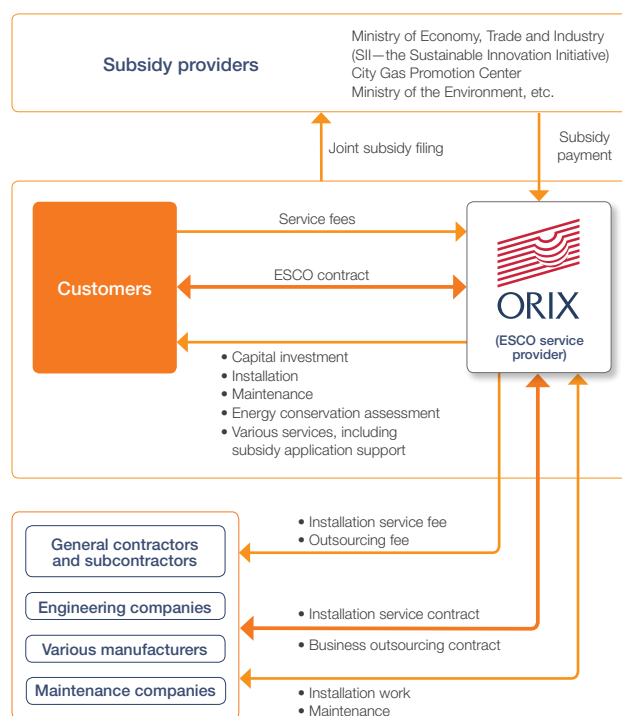
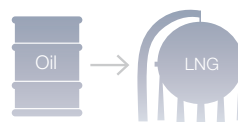
**Proposing ESCO services customized to the needs of various facilities, including factories, warehouses, commercial facilities, and hotels**

ESCO\* are comprehensive services pertaining to energy efficiency in buildings, which achieve energy cost reduction without compromising the existing use of the building. Energy cost reductions attributable to ESCO services themselves cover various costs including the installation costs for energy-efficient equipment, maintenance costs, and the cost of assessing the energy conservation benefits. Consequently, many private-sector companies and local governments are demanding ESCO services as a means of simultaneously conserving energy and reducing running costs with no up-front costs.

ORIX offers one-stop services ranging from energy assessments that determine customer energy usage to the proposal and implementation of energy conservation solutions. ORIX also provides ESCO services customized to the needs of various facilities including factories, warehouses, commercial facilities, and hotels. In order to maximize energy conservation benefits, ORIX selects the best equipment and items for the customer without being limited to a particular manufacturer. After installation, ORIX provides continuous support including operation and maintenance of equipment, energy conservation monitoring and verification, and operations consulting.

\*Energy Service Company

ORIX Corporation



### Case Study

**12.9% reduction in CO<sub>2</sub> emissions at a customer's Hokkaido plant compared with fiscal year 2011 (fuel conversion project)**

Sato Foods Industries Co., Ltd.

ORIX installed a liquefied natural gas (LNG) satellite tank at the Hokkaido plant of Sato Foods Industries Co., Ltd. (Niigata, Niigata Prefecture), switching the plant from type A oil and liquefied petroleum gas (LPG) to LNG, which has a lower environmental impact. The Hokkaido plant was the largest user of type A oil and LPG of all plants in the Sato Foods group, and had the strongest needs for measures to reduce CO<sub>2</sub> emissions. This switch in boiler fuel has resulted in a 12.9% reduction in CO<sub>2</sub> emissions compared to fiscal year 2011. Furthermore, the project has been selected to receive assistance from the Ministry of Economy, Trade and Industry.



LNG satellite tank introduced at the Hokkaido plant

**VOC\* processing equipment (regenerative thermal oxidizer) enables effective use of energy**

Mitsubishi Plastics, Inc.

ORIX installed a regenerative thermal oxidizers (RTOs) at the Tokyo manufacturing division of the Ueda plant of Mitsubishi Plastics, Inc. (Chuo-ku, Tokyo), as part of its energy-saving strategy. The RTOs can process VOCs efficiently. They incinerate the VOCs, and recover the waste heat from this process in the forms of hot and cold water to use energy efficiently. This enables them to reduce gas consumption and CO<sub>2</sub> emissions.



VOC processing equipment (RTO) installed at the Tokyo plant of the Ueda plant

\* Volatile Organic Compound. These substances are believed to cause photochemical smog, a form of air pollution.



## “Hatto Watto” Demand Response Service

ORIX Corporation

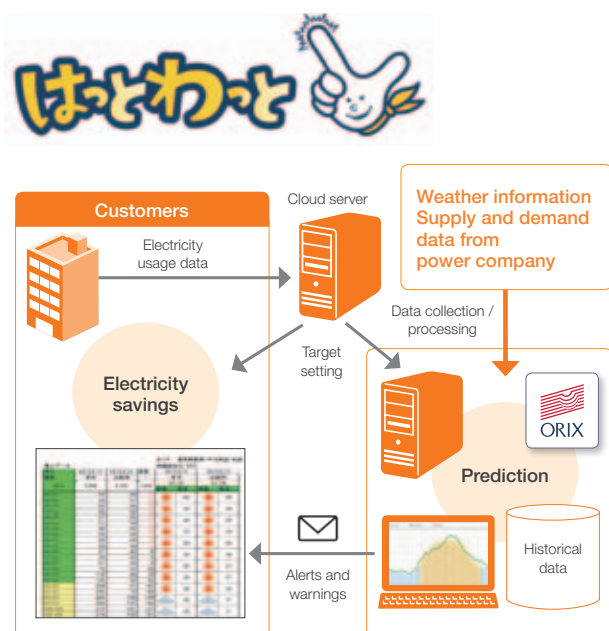


### Supporting the reduction of peak electricity demand and electricity use

ORIX's “Hatto Watto” service supports the reduction of customers' peak electricity demand and electricity consumption. Through this service, ORIX provides customers with an optimal power conservation plan by examining historical electricity usage data and reviewing electricity supply contracts and other conservation measures. In addition to providing electricity consumption and weather information in 30-minute intervals in real time over the Internet, “Hatto Watto” will also predict electricity consumption for the following day based on previous consumption patterns and the weather forecast. “Hatto Watto” alerts customers when they are close to exceeding planned consumption amounts by sending an email warning before the planned amount has been exceeded.

ORIX covers the cost of all equipment and data transmission charges needed for this service, and will share the cost savings derived from conserving power with customers. Customers can use this service without an initial investment, making it ideal for the customer group with electricity demand of between 100 kW and 500 kW, and where BEMS\* is not widely used.

\* Building Energy Management System



### Case Study

#### Introduction of “Hatto Watto” at an office building

Mitsubishi Paper Sales Co., Ltd.

The “Hatto Watto” service was introduced at Mitsubishi Paper Sales' head office building in Chuo-ku, Tokyo. ORIX set reduction targets for the building and offered information on predicted electricity consumption reflecting weather and other conditions, as well as energy conservation advice. While monitoring electricity consumption data in real time on the service's website, Mitsubishi Paper Sales is able to optimize the conservation of energy based on “Hatto Watto” energy conservation alerts and warnings.



Head office building of Mitsubishi Paper Sales Co., Ltd.

## Electricity Visualization and Automated Control Services

Ubiteq, INC.

### Energy conservation solutions that enable various tools from visualization of the amount of electricity in use to automated control

BE GREEN Next (previously UGS) is an energy conservation service that makes the visualization of the amount of electricity in use and its automated control possible. This service links an office's lighting, air-conditioning, and security equipment to its IT systems. This service not only allows the visualization of the amount of electricity in use but also provides automatic control functions including automatic shut down of lighting and air-conditioning in the event that electricity use exceeds the upper limit pre-specified by the customer.

ESCO Fund

ORIX Corporation

### Proposing investment schemes limited to eco-friendly capital expenditure in partnership with regional financial institutions

ESCO Funds are investment schemes limited to eco-friendly capital expenditure. ORIX is able to meet the financing needs of customers by combining its ESCO services know-how with the locally based information networks of regional financial institutions. ORIX is teaming up with The Shiga Bank, Ltd., The Kiyo Bank, Ltd., The Bank of Fukuoka, and other regional financial institutions to contribute to the vitalization of the local economy and the reduction of CO<sub>2</sub> emissions in local communities.

# Storage Batteries

The ORIX Group is contributing to the creation of a new lifestyle where electricity is stored efficiently and used wisely.

## Storage Battery System Rental Service

ONE ENERGY CORPORATION

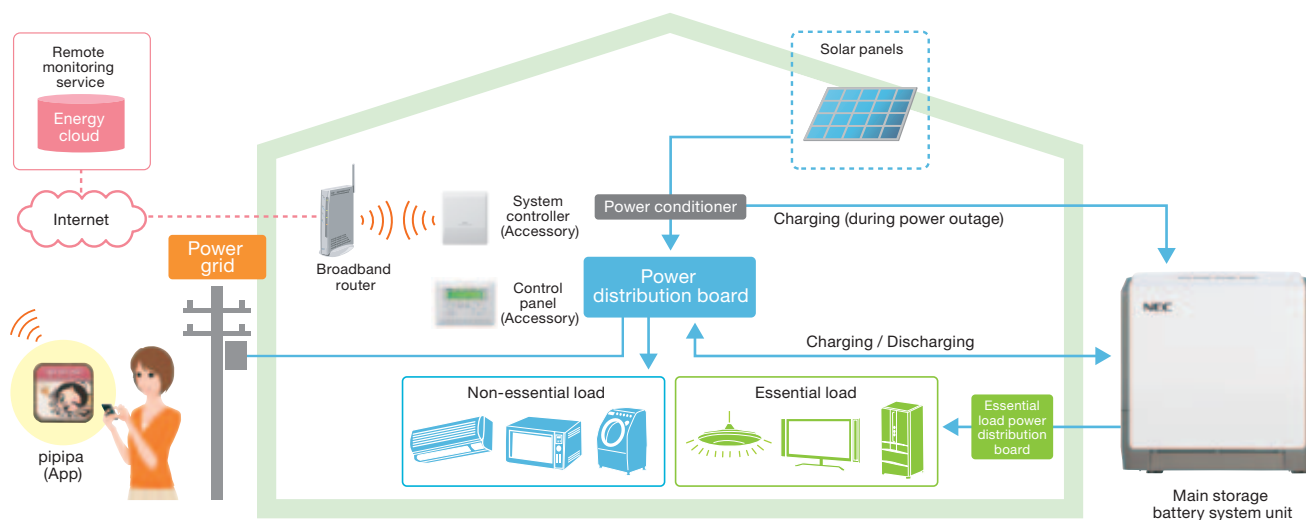


### An energy service based on rental of fixed-storage battery systems for home use

ONE ENERGY is a joint venture established by ORIX, NEC Corporation, and EPCO Incorporated to provide Japan's first home-use storage battery rental service.

The service targets detached homes, and provides rental of an entire system including NEC-manufactured fixed-storage batteries paired with an app called “pipipa,” which, through cloud data link, helps users to save electricity by visualization. The storage battery system enables customers to reduce their electricity bills by storing low-cost electricity during the night and releases it later for use during the day. This system helps to reduce peak day time electricity demand, and also provides emergency power source during power cuts.

\*As of April 25, 2013, SVP JAPAN Co., Ltd survey. For fixed-storage batteries for home use.



## Topics

### Simulated Electricity Bill Comparison Website

ONE Energy established a Simulated Electricity Bill Comparison Website that allows users to easily compare electricity bills before and after the installation of home storage battery systems, along with calculating optimal electricity billing plans that would result from such an installation.

The website calculates an estimate of the economic effect of installing a storage battery system by having users input information on their current electricity billing plans and actual electricity bills, the floor space of their homes and lifestyle patterns.

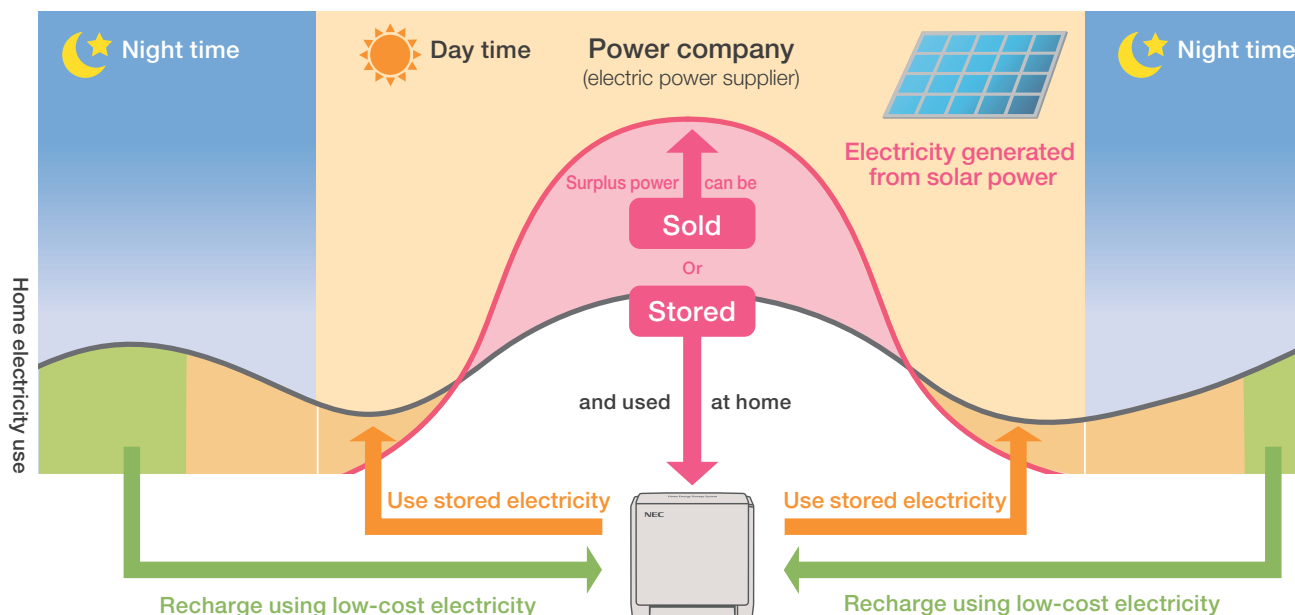


Screen shot from the Simulated Electricity Bill Comparison Website



Furthermore, households can store or sell any surplus electricity generated through the combined use of storage batteries and a solar power system. When surplus electricity is stored, the household will aim for energy self-sufficiency by reducing the amount of power purchased from the electric power company. Even when surplus electricity is sold instead of stored, since there is no double power generation\* households can sell power without reducing the purchase price.

\* Double power generation allows households to sell a greater amount of power by combining solar power systems with fuel cells or storage batteries for household use. A lower feed-in tariff rate has been set for double power generation, compared with power generated only by solar power systems.



## Customer Feedback

Mr. A from Itabashi-ku, Tokyo (ORIX employee)  
– Installing storage batteries to save on electricity bills

I had wanted to do something about my electricity bills for some time, so I decided to try the storage battery system rental service. We are a family of four, and our average monthly electricity bill exceeds ¥20,000. I thought I would try changing our billing plan with the Tokyo Electric Power Company to a peak-shift plan\* and use the storage battery rental service to save even more. As a result, in the three months since we had the system installed, even though our average electricity consumption has risen from 630 kWh to 749 kWh, our electricity bills have been ¥2,000–¥4,000 lower than before. I believe this is because we have been able to charge the storage battery with low-cost electricity during the night for use later on during the day.

\* A pricing plan for families who use a large amount of electricity and are able to shift their usage to another time during the summer peak hours (13:00–16:00). The rate for electricity during 13:00–16:00 in the summer time (July–September) is the highest at ¥54.68 per kilowatt-hour, while from 23:00 onward it is low at ¥12.16.



Mr. A. of Itabashi-ku, Tokyo

Ms. B of Setagaya-ku, Tokyo (ORIX employee)  
– Storage batteries in preparation for emergencies

I decided to sign up for the storage battery system rental service to prepare for emergencies. When I thought about the risk of power outages, not only from natural disasters like earthquakes and extreme weather but also from transmission problems and various other causes, it made me feel concerned about my heavy reliance on electricity for my mobile phone, toilet, home appliances, automatic garage door, and the system that opens and closes our storm shutters.

The storage battery system rental service helps to save money on electricity bills by saving electricity during the night when the price is cheap and then using it during the day. Also, at my house we are also using a solar power generation system, which makes it even more economical. We have prioritized selling the electricity on our storage battery system, and currently our revenue from electricity sales is higher than our electricity cost, so we are receiving a net profit of between ¥1,000 and ¥2,500 a month. The system gives me peace of mind in terms of preparation for emergencies, but I am certainly noticing the economic benefits too.

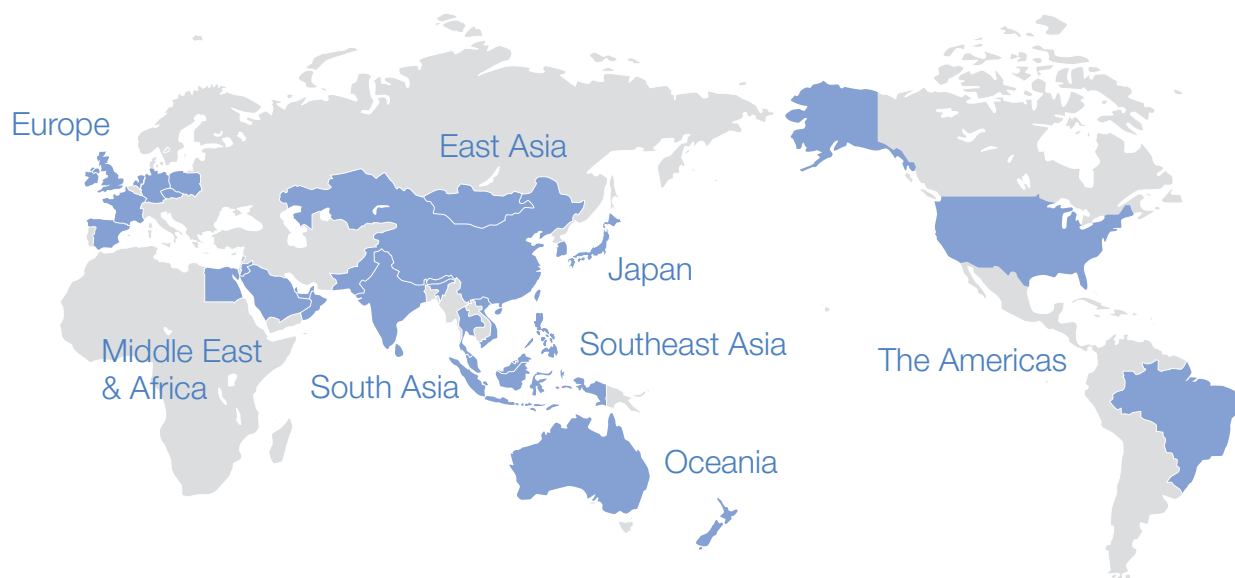


Ms. B. of Setagaya-ku, Tokyo

# Overseas

Starting with its entry into Hong Kong in 1971, the ORIX Group has gone on to establish bases in 36 countries and regions around the world, and is now conducting global operations. Capitalizing on know-how cultivated in the environment and energy-related business in Japan, ORIX is aggressively engaging in this business in emerging markets particularly in Asia, where strong demand is anticipated.

## The ORIX Group's Global Network



## Main Initiatives Overseas

### Establishment of an Environmental and Energy Investment Fund in Asia

#### Joint operation with Robeco Groep N.V. and the ADB

In August 2014, ORIX together with Group asset management company Robeco Groep N.V. and the Asian Development Bank (ADB) jointly established Asia Climate Partners (ACP), a private equity fund targeting environmentally supportive, low-carbon transactions throughout Asia. ACP will invest in renewable energy, clean technology, natural resource efficiency, water, agriculture, forestry, and other climate-friendly companies and transactions, which are expected to expand in Asia going forward.

### Topics

#### RobecoSAM—A global leader in SRI assessment and rating

In July 2013, the ORIX Group welcomed a new member, RobecoSAM, a specialist in socially responsible investment (SRI)\*<sup>1</sup> whose operations include asset management and company research and rating services. RobecoSAM assesses about 3,000 leading global companies, focusing on their sustainability from an ESG\*<sup>2</sup> perspective. It announces the best-performing companies each year. Moreover, RobecoSAM and the U.S. company S&P Dow Jones Indices LLC jointly operate the leading global SRI share price index, the "Dow Jones Sustainability Index." Since its establishment as a specialist in sustainability investments in 1995, RobecoSAM has garnered worldwide recognition for these operations, and has established a strong position in this field.



\*1. Investment in companies that contribute to sustainable development of society based on the idea that such companies will be valued in the market and will increase their performance.

\*2. Environment, Society, and Governance. There is a focus on whether or not management gives consideration to these, as they are issues that involve the sustainability of companies in order to maintain and realize a sustainable society.

## Power Generation Business in the Philippines, GBPC

### Investment in GBPC and strategic alliance with a major commercial banking group the Metrobank Group on energy-related business

ORIX formed a strategic alliance in the Philippines to jointly pursue energy-related business with the Metrobank Group, by acquiring from them 22% of issued shares in Global Business Power Corporation (GBPC), a Philippine power generation company.

GBPC is a power generation company based in the Visayas region, the central area of the Philippines where the islands of Panay and Cebu are located. As an independent power producer (IPP) focusing mainly on coal-fired power plants, GBPC owns and operates power plants with a total installed capacity of 627 MW (share of installed capacity of 487 MW), which supply base load electricity in the Visayas region. In the Philippines, demand for electricity is increasing in line with the country's population growth and economic development. For that reason, GBPC is also developing new power sources. While supporting GBPC's business expansion, ORIX will promote a broad range of businesses in the Philippines by leveraging its expertise in areas including power generation using renewable energy, electric power retailing and energy saving services developed in Japan.

\* ORIX acquired a further 2% of the shares from Metrobank Group, bringing its stake in GBPC to 22% including the 20% stake acquired in June 2013.



Power Plant on Panay Island



Power Plant on Cebu Island

## U.S.-based Energy Service Company, Enovity, Inc.

### Expanding building energy services in Asia based on U.S. know-how

The U.S.-based energy services company Enovity, Inc. joined the ORIX Group in September 2013. Operating mainly in California, U.S., Enovity provides services for publicly owned facilities, large office buildings, and commercial facilities based on advanced know-how and technology and optimizes energy costs at every stage of a building's lifecycle, from energy saving building design to introducing systems for managing energy usage, as well as providing facility operations and maintenance.

With the goal of preparing themselves for higher energy prices in the future and reducing environmental impact, more and more companies are setting targets aimed at controlling energy consumption and reducing CO<sub>2</sub> emissions. This is particularly the case among global companies from the U.S. and elsewhere that are expanding their businesses globally.

Looking ahead, it is expected that energy -saving measures will be implemented at production and business locations in Asia and other regions. In addition to supporting the expansion of Enovity in the U.S., the ORIX Group aims to expand its environment and energy business in Asia by leveraging its overseas network and the expertise of Enovity.



Maintenance work on power generation facilities installed in an office building basement



# Resources and Waste Business

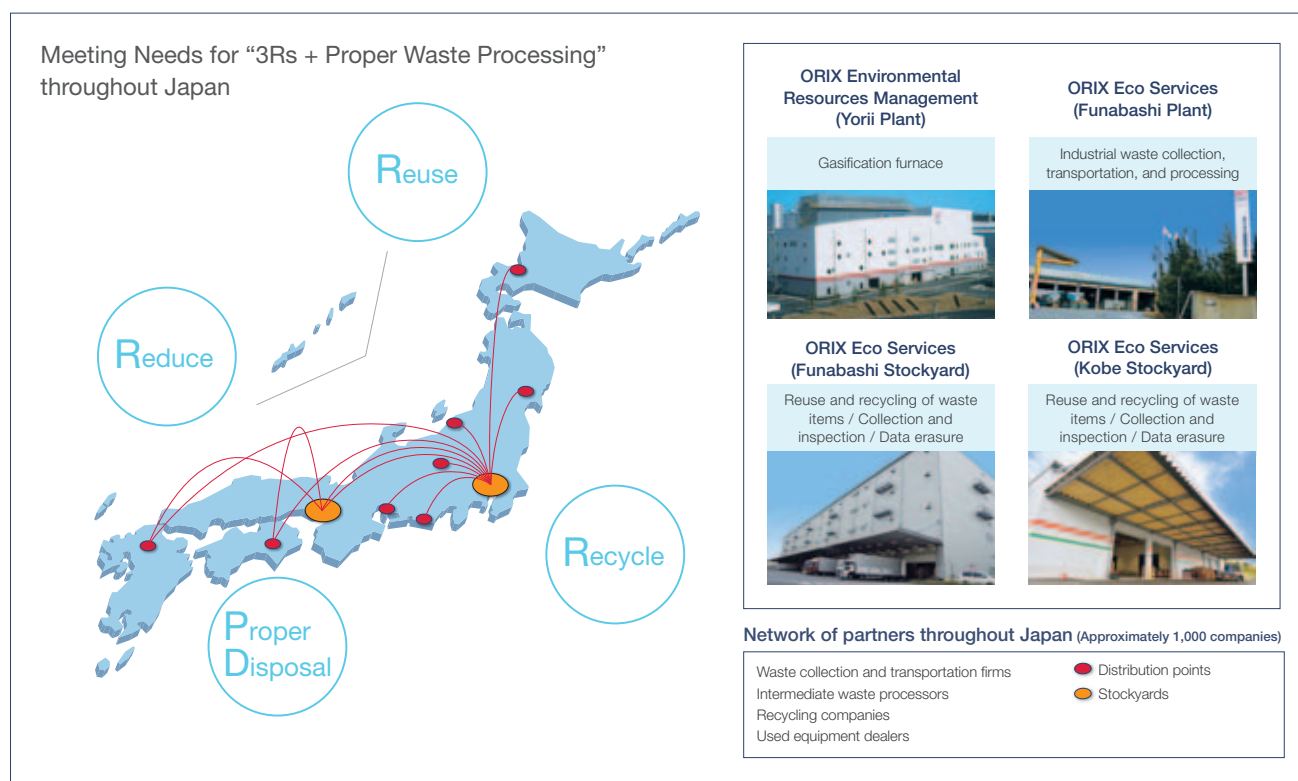
ORIX offers customers a one-stop service for all their 3R\* and waste processing needs by leveraging the unique network and know-how cultivated through its leasing business.

\*The "3Rs" stand for Reduce, Recycle, and Reuse.

## ORIX Group's "3Rs + Proper Waste Processing"

Leasing and rental are services that allow customers to "reduce" by providing ways of using the needed equipment for periods as long as needed. At ORIX around 80% of the approximately 280,000 lease items that reach the end of their contract each year are re-leased. For the remaining items that are not re-leased, ORIX Eco Services (OES) utilizes its unique logistics network to collect end-of-lease items from across Japan and prepare them for reuse or recycling\*. Leveraging this network and expertise, ORIX is expanding its waste processing and recycling businesses.

\* In the fiscal year ended March 31, 2014, approximately 98% of all end-of-lease items were reused or recycled. This figure was approximately 99.9% for PCs and other office IT equipment.



## Advanced Waste Processing Facility (Gasification Furnace)

ORIX Environmental Resources Management Corporation

### A facility that completely recycles waste with one of the largest waste processing capacities in Japan

ORIX Environmental Resources Management (OERM) operates a zero-emission\* plant in the town of Yorii, Saitama Prefecture, through a private finance initiative with Saitama Prefecture. The plant utilizes the latest thermal decomposition and gasification methods. Its defining feature is that it melts waste at roughly 2,000°C, which enables all of the waste to be recycled. Recycled materials include slag and metals, which are recovered, and refined syngas, which is used as fuel for highly efficient power generation at an onsite generator. OERM has voluntarily set dioxin limits for the site at one-tenth the legal limit and is utilizing this advanced system to keep dioxin emissions to a minimum. The plant can process 450 tons of waste daily and is one of the largest private-sector facilities in Japan in terms of processing volume. In addition to industrial waste from factories and offices, many local governments use the plant to process general waste, including household waste.



High-temperature reactor that melts waste

\* Zero-emission refers to recycling resources by making effective use of all waste as raw material without emitting any unusable waste.

## Nationwide Recycling System

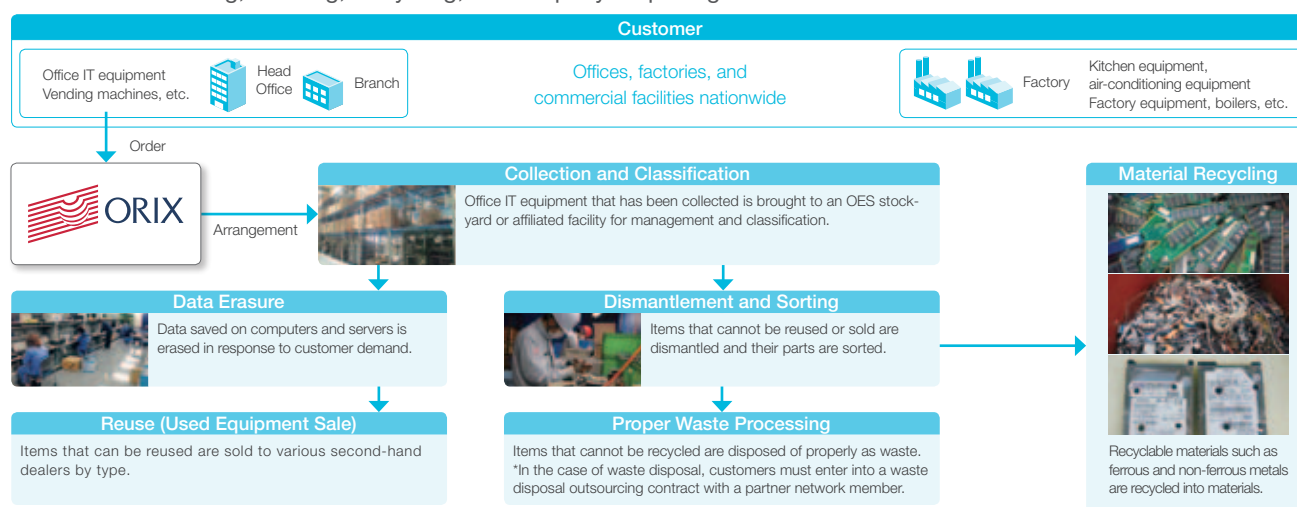
ORIX Eco Services Corporation

### A nationwide network supporting the processing of waste items

OES has built a nationwide network that allows it to offer integrated support for recovering waste items and prepare them for reuse, recycling, or proper disposal. OES supports the disposal of waste items from customers with offices throughout Japan and strives to prevent the incorrect disposal of waste by providing the same quality of collection and recycling across Japan and by selecting processing companies, arranging transportation, conducting price appraisal for waste items to be sold, proposing cost reduction measures, and centrally managing all the administrative paperwork associated with proper waste disposal.

In addition, by leveraging the ability to discern the value of metal waste honed at its intermediate metal waste processing facility (Funabashi Plant), OES is developing a metal recycling business by collecting valuable metal resources from discarded office IT equipment and machinery. OES also acts as a metal trading company and metal processor which supplies ferrous and non-ferrous metals collected nationwide as materials to the recycling market.

### Process of Collecting, Reusing, Recycling, and Properly Disposing of Waste Items



## Metal Waste Processing Facilities

ORIX Eco Services Corporation

### An intermediate processing facility primarily handling metal waste from office IT equipment, machinery, etc.

OES operates an intermediate metal waste processing facility (Funabashi Plant) in Funabashi, Chiba Prefecture. The facility conducts integrated operations ranging from the recovery of items containing metal, such as machinery that are discarded in the Kanto region, to the storage, primary processing, and creation of recycled materials. The facility generates high added value by carefully sorting high-quality metal materials. In addition to the usual compactors, the facility has a metal crusher and ring shredder to create a system capable of more-advanced metal processing. Office and IT equipment and other equipment that contains rare metals is dismantled at a manual dismantling yard and the materials are separated for recycling.

Moreover, in May 2014, OES moved its logistics base from Yachiyo in Chiba Prefecture to an area near the Funabashi Plant and has started operating it as the Funabashi Stockyard. The stockyard will be utilized as a collection area for valuable materials and strengthen its connection to the Funabashi Plant, with the aim of increasing its metal processing capabilities even further.



Compactor



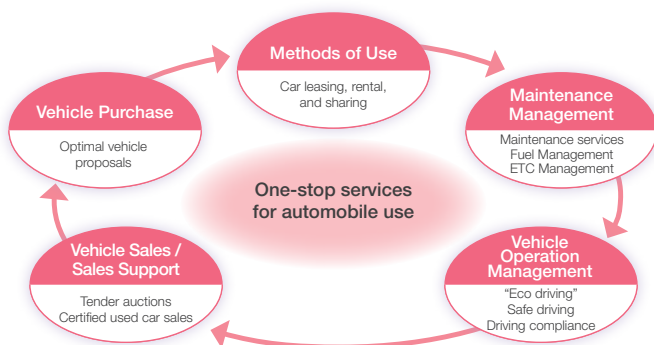
Metal crusher



Ring shredder

# One-stop Eco-friendly Services for Automobiles

ORIX Auto provides comprehensive car-related services, ranging from leasing, rental, and car-sharing services to used car sales and high value-added vehicle management services. Through these services, ORIX Auto aims to foster environmental awareness and reduce the environmental burden and CO<sub>2</sub> emissions at each stage of a car's life cycle.



ORIX Rent A Car Naha Airport branch

## Car Rental and Car Sharing (EV and HV)

ORIX Auto has introduced total of about 4,800\* vehicles comprised of electric vehicles (EV) and hybrid vehicles (HV) for car rental and car sharing across Japan. In addition, certain locations have begun renting electric-assisted bicycles as part of the "e-bike" electric-assisted bicycle rental business.



\*As of March 31, 2014

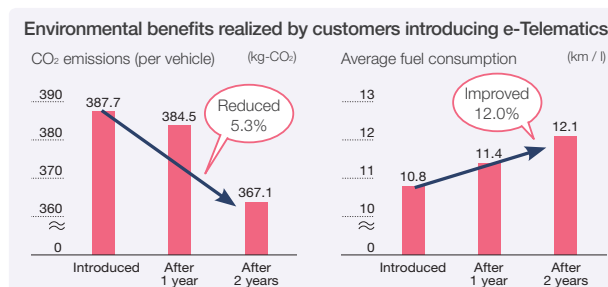
## ORIX "e-Telematics" Service

ORIX Auto's telematics service "e-Telematics" is a consulting service that is comprised of compliance, environmental, and safety aspects. This service enables customers to visualize their vehicle's operational status by installing specialized equipment on board. By providing a consulting service encompassing operational methods to verify efficiency, ORIX Auto offers one-stop support for optimal use of vehicles, proper work management, traffic accident prevention, and CO<sub>2</sub> emission reduction.



## Maintenance Services

ORIX Auto contributes to higher fuel efficiency and lower CO<sub>2</sub> emissions by performing oil change and refill as required and also checking tire air pressure as part of regular vehicle maintenance inspections. In addition, ORIX Auto also works to limit resource consumption by using recycled parts when replacing parts on damaged vehicles.



## Leasing and Sales of Used Automobiles

From among cars that have been returned upon leasing contract expiration or that have completed their useful lives in rental operations, only those vehicles that satisfy our own stringent standards are sold as "ORIX Certified Used Cars." ORIX Auto supplies reliable used cars at reasonable prices via 10 ORIX U-car stores nationwide and over the Internet.

Further, to enable customers to make use of used cars more readily, ORIX Auto also offers a "One Price Used Car Lease," that provides customers with a choice of different monthly payments and types of vehicle.



ORIX Certified Used Cars



## Other Eco Services

The ORIX Group is working to meet customer needs by offering a variety of eco services that leverage its specialized expertise.

### Environment-related Equipment Rental

ORIX Rentec Corporation

ORIX Rentec out rents power generators and portable storage batteries that can be used as power supplies during disasters and other times of emergency with rental periods starting from one day. ORIX Rentec supports customers' environmental impact measurement through its rental services by providing a range of measuring instruments. Our offerings include instruments to measure PM2.5 atmospheric fine particulate matter used by local governments across Japan and digital dust indicators used by demolition contractors to monitor for asbestos.



Measurement Equipment (PM2.5)



Digital dust indicator

### Contract Testing Services for Renewable Energy-related Equipment

ORIX Rentec Corporation

ORIX Rentec provides performance evaluations and reliability testing services for renewable energy-related products and components on a contract basis at its Kobe Testing Center. Services available include solar panel performance evaluation and reliability testing, and storage battery charging and discharging tests. Moreover, by renting testing laboratories and equipment to customers for a fixed period of time, customers can perform their own tests and inspections freely.



Charging and discharging testing equipment



Environment testing equipment

### Sale of Rental Equipment and Purchase of Used Equipment

ORIX Rentec Corporation

ORIX Rentec sells high-quality used rental equipment that has undergone maintenance directly to customers through its expansive network, which includes regular auctions targeting used equipment dealers, its own branches, and the Internet. It also provides a purchasing service that inspects and buys equipment customers no longer need.

### Environmental-friendly Loan Guarantees

ORIX Corporation

ORIX provides environmental-friendly loan guarantees in partnership with regional financial institutions. Under this system, companies applying for such loans and guarantees can receive preferential loan terms in aspects such as guarantee fees or credit lines, based on environmental criteria such as whether they have an environmental management structure in place, such as ISO 14001, or the amounts of energy used and waste disposed. Through this system and together with regional financial institutions, ORIX endeavors to raise environmental awareness among companies and support for their environmental initiatives.

### Sale of Tradable Green Power Certificates

ORIX Corporation

ORIX sells tradable green power certificates that represent certified electric power generated using wood chips as biomass fuel at the Agatsuma Biomass Power Plant (see page 11).



### Carbon Offset Service / Sale of Carbon Credits

ORIX Corporation

As a carbon offset provider, ORIX offers a range of support services. These include everything from consultation services (and subsequent proposals) when customers develop carbon offset products to calculating CO<sub>2</sub> emissions, procuring, and managing credits (emissions rights). ORIX also issues carbon offset certificates and sells emissions rights in the form of carbon credits.



### Support for the Introduction of Low-carbon Equipment (Eco-lease)

ORIX Corporation

The Ministry of the Environment is promoting the "FY 2014 Eco-Lease Promotion Project for Households and Corporations," which subsidizes 3% or 5% of the overall lease fee for small and medium-sized businesses (and others) who wish to install low-carbon equipment using leasing. (In Iwate, Miyagi, and Fukushima prefectures subsidies may cover up to 10%.) As a designated provider of these leases, ORIX assists customers with the installation of low-carbon equipment.

# Eco-friendly Real Estate Business

The ORIX Group develops eco-friendly real estate, including office buildings, commercial facilities, logistics facilities, residences and other properties with excellent environmental performance. ORIX is also actively involved in reducing the environmental impact posed by facilities under its management, such as golf courses, hotels, and aquariums.

## Logistics Facilities

With many companies facing the task of reducing their environmental impact, there is growing demand from companies moving into our logistics facilities as tenants for energy conservation measures. ORIX's initiatives include the introduction of solar power systems and placing greenery along outer walls.

The logistics centers, Tokorozawa Logistics Center, Iwatsuki Logistics Center, Kawagoe II Logistics Center, and Inuyama Logistics Center, which were completed in 2013, were all awarded CASBEE\* Class A Ratings.

\* CASBEE, is an acronym for Comprehensive Assessment System for Built Environmental Efficiency. CASBEE is a system for objectively ranking the environmental performance of a building.



The Iwatsuki Logistics Center  
(Awarded CASBEE Saitama Prefecture Class A Rating)

## Office Buildings

The ORIX Group's Osaka Head Office (ORIX Honmachi Building) was built with concern for the environment in mind. To start with, the old buildings framework was reused. Further, tall trees and other greenery were placed within the building's grounds and on its roof. In addition, a solar power system, a high-efficiency low-maintenance multi-air-conditioning system utilizing heat pumps, and a lighting efficiency system utilizing LED were also installed. By using natural lighting, reusing water resources and installing BEMS and other environmental impact reduction technologies that contribute conservation of energy and CO<sub>2</sub> emissions at the construction stage, the building was awarded CASBEE Osaka Class S Rating, which is the highest rating available. This led to the ORIX Honmachi Building receiving the "FY 2011 CASBEE Osaka Building of the Year Award." Further, some of the technology used in the ORIX Honmachi Building has been recognized by the Ministry of the Environment in its "Cool City Center Pilot Project."



ORIX Honmachi Building  
(Awarded CASBEE Osaka Class S Rating)

## Artificial Light Plant Factory

ORIX leased an abandoned elementary school in Yabu City, Hyogo Prefecture, and has built and operates a complete artificial light plant factory inside the gymnasium, where it cultivates and sells four types of vegetables including loose-leaf lettuce. The advantage of growing vegetables in artificial light plant factories is that there is less risk of contamination by foreign substances and crops are less affected by seasons, weather, and other factors because they can be shielded from the external atmosphere and cultivated without agricultural chemicals. This has the benefits of reducing the washing process cost and impact on the environment while maintaining nutritional value. In addition, because there is no concern about soil depletion from continuous cultivation, lettuces can be grown stably with high efficiency in growing racks up to eight racks high. ORIX aims to grow approximately 3,000 plants a day and approximately 1 million plants (84 tons) a year.



Yabu lettuce factory

\* A factory that uses artificial light to cultivate plants under almost bacteria-free conditions. As cultivation is largely unaffected by seasons, weather, or other factors, vegetables can be grown stably without using agricultural chemicals. Broadly speaking, there are two types of plant factory: factories that use only artificial light and factories that use natural sunlight.

## Aquariums (Enoshima Aquarium, Kyoto Aquarium, and Sumida Aquarium)

ORIX Real Estate has been involved in the operation of the Enoshima Aquarium\* as a private finance initiative (PFI) with Kanagawa Prefecture since 2004. In 2012, it opened Kyoto Aquarium and the Sumida Aquarium, which it operates directly.

While conducting environmental-friendly facility and project management, these facilities not only contribute to the development of the surrounding area as leisure spots but also provide customers with a place to study the environment. By combining entertainment and education, ORIX Real Estate has created "Edu-tainment" Aquariums.

\* Enoshima Aquarium is a joint project between the ORIX Group and Enoshima Marine Corporation.



Large-scale tank in the Kyoto Aquarium using artificial seawater

## Kyocera Dome Osaka

This arena uses rain water for toilets and to water plants. The arena utilizes natural ventilation methods to ventilate the arena, which are similar to sea breezes.



## ORIX Theater

ORIX renovated and operates the former Osaka Welfare Pension Great Hall into a multi-purpose facility while preserving the traditional facade. It has also set up a solar power system.



## Golf Courses

Aiming for golf course operations with a low environmental impact, ORIX is working to reduce CO<sub>2</sub> emissions at Group golf courses by upgrading air-conditioning, water-heating equipment, and night-playing golf facilities, as well as switching to LED lighting. In addition, golf course grass cuttings are converted into fertilizer for use on plants on the courses, and a mega-solar project was constructed on dis-used land at the Deer Lake Country Club (Kanuma, Tochigi Prefecture).



# The ORIX Group's Eco Activities

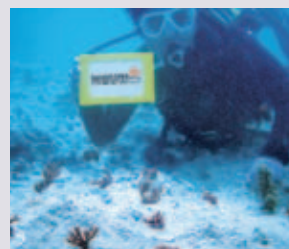
## SANGO ORIX—Okinawa Coral Reef Restoration Project

In 2008, ORIX Real Estate launched "SANGO ORIX," a project to restore Okinawa's coral reefs with the aim of protecting Okinawa's coral reefs abundant capacity to sustain biodiversity and pass pristine oceans on to future generations. At present, the project is planting coral off the shores of Okinawa. In partnership with Sea Seed LLC and Okiden Kaihatsu Company, Inc., ORIX is continuing its activities to protect and restore Okinawa's coral reefs. This includes conducting surveys to monitor and confirm the growth of the coral reefs. By July 2014, ORIX had successfully transplanted 7,600 coral seedlings of the total 10,000 scheduled.

ORIX Golf Management supports the SANGO ORIX project by collecting donations from customers at all the facilities it manages and by donating funds raised by collecting and recycling lost golf balls.

Meanwhile, ORIX Auto has teamed up with Pam, Inc., which operates "Okinawa Tour Land," a reservation site for travel in Okinawa to support the SANGO ORIX project by donating part of the sales revenues generated from hybrid car rental reservations made through the site.

Further, in February 2014, the ORIX Miyauchi Foundation conducted a "Coral Restoration Program for Children" in Urasoe, Okinawa Prefecture. One hundred children from child welfare facilities in Okinawa Prefecture participated in this program to learn about the importance of Okinawa's coral reefs through the experience of making coral seedlings for transplantation based on the theme of "What is a coral reef? Let's take part in coral reef restoration."



Coral transplantation

## Enosui ECO

The Enoshima Aquarium, located in Fujisawa City, Kanagawa Prefecture, is pursuing its own form of environment activities called "Enosui ECO." Enosui ECO is comprised of both Ecology (study of animal habitats) and Eco-Action (environment-related activities). The aquarium provides a place to learn about animal habitats in a fun way and includes exhibits explaining the biodiversity and ecosystems of the Sagami Bay and hands-on events observing and investigating tide pool organisms and jellyfish. Further, an Enosui ECO Day is held on the third Sunday of every month. On this day the aquarium conducts activities including beach cleaning and collection of bottle caps for the "Ecocap" Movement.



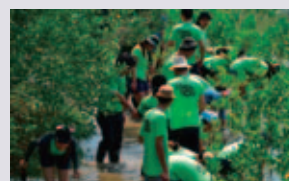
Beach cleaning activities conducted on Enosui ECO Day

## Thai Local Subsidiary Protecting the Environment on Company Trips

Since 2013, Thai Orix Leasing Co., Ltd. has positioned its company trip as an opportunity for employees to engage in social contribution activities with the objective of raising their awareness regarding environmental protection.

In 2013, employees traveled to Cha-am in southern Thailand (about 170 kilometers southwest of Bangkok) to visit the King of Thailand's second daughter's Sirindhorn International Environmental Park. Participants learned about the environmental protection activities conducted by the Thai royal family, as well as transplanting mangrove seedlings and releasing crabs into the ocean as part of activities to protect the ecosystem.

The original T-shirts that employees had designed and wore while in the park were purchased by all employees on a voluntary basis, with the entire proceeds of purchases being donated to the Sirindhorn International Environment Park.



Transplanting mangrove seedlings



## Answers, Custom Fit.

At ORIX Group, certain things are naturally inherited, regardless of the passage of time or personnel changes. One of these unchangeable factors is our approach to “breakthroughs.” It is our innate approach to think through a problem to provide an answer that matches our clients’ needs.

We share this approach with all customers, and it is manifested in our brand slogan, “Answers, Custom Fit.”

For further details about the ORIX Group’s environmental and social contribution activities, please visit our website.



[http://www.orix.co.jp/grp/en/env\\_soc/](http://www.orix.co.jp/grp/en/env_soc/)

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PJ03-2  
2014-12