



# Environment

## Environmental Management

### ■ Environmental Policy and Goals (Updated September 25, 2012)

#### Environmental Policy

ORIX Group strives to understand the needs of customers and society, contributing environmental and energy solutions through business. We will continue to adapt to change brought about by business expansion and growth.

#### Goals

1. Provide new ecological services that contribute environmental and energy solutions.
2. Understand the impact of business activities on the environment, complying with environmental laws and regulations in order to reduce environmental impact.
3. Raise employee awareness and knowledge in order to respond to environmental issues based on our nature of business.
4. Provide and disclose information on matters required by environmental laws and regulations.

### ■ Environmental Activity Management Structure

In order to promote environmental activities with more relevance to ORIX's business, ORIX has put in place the following management structure:

- The person responsible for environmental activities shall be the Head of Treasury and Accounting Headquarters and the department responsible for policy and plan formulation will be the ORIX Corporate Planning Department.
- Other relevant departments shall be the Legal and External Relations Department, Energy and Eco Services Business Headquarters and Corporate Communications Department.
- The structure covers domestic Group companies and involves cooperation between each domestic Group company, especially those in business fields with large environmental impacts. The management structure keeps abreast of developments in the environmental sector as well as related legal developments, and develops responses or initiatives in response to such developments.



### ■ ISO14001 Status

ORIX currently possesses ISO14001 environmental management system certification for the following locations.

Company	Acquisition Date
Ubiteq Inc.	Oct. 2004
ORIX Environmental Resources Management Corporation (Yorii Plant)	Jan. 2009
ORIX Eco Services Corporation (Funabashi Plant)	Jun. 2014
ORIX Eco Services Corporation (Kasukabe Plant)	Feb. 2017

## Environment and Energy Business: Energy Business

We entered the environment and energy business by investing in the wind power generation business in 1995. We subsequently expanded into a broad range of operations including energy-saving services, electric power retailing, and renewable energy generation. We began to commercialize renewable energy when the Great East Japan Earthquake of March 2011 led us to predict that Japan's energy business and electricity generation mix would change. We had already established the organization to accelerate our renewable energy business when the feed-in tariff system was first introduced in July 2012. We proceeded to construct a nationwide network for selling solar power generation systems and to acquire the land needed for mega-solar projects. By acting quickly and boldly investing our time and resources into this field, ORIX successfully established a profitable business model ahead of our competitors. Currently, we are engaged in various renewable energy businesses such as solar, biomass, geothermal and wind power.

Renewable energy is well positioned to become an important market with a global scale due to the ever growing need for clean energy and call for reduction in carbon emissions, exemplified by the growing number of companies that have committed to RE100.\* In particular, the renewable energy market in Asia is expected to expand in line with the increase in electricity demand, and we are taking advantage of the know-how we have cultivated in Japan to pursue business opportunities in this promising market.

\* An initiative of a global group of companies started in 2014 by The Climate Group, an international environmental NGO. Members aim to procure 100% of their electricity from renewable sources. As of September 2019, there are 203 member companies.

### Renewable Energy Business (Japan)

#### Mega-solar power generation business

We lease idle, unused land throughout Japan that is owned by municipalities, companies and other organizations, on which we construct and operate large-scale solar power generation facilities. These mega-solar projects have a maximum output of over 1,000kW (1MW).

Mega-solar facilities are long-term projects that generate power for 20 years after the construction and start-up period and involve numerous stakeholders during this long period. As the business owner, ORIX focuses on safe and stable management of all aspects of the project.

Operation and maintenance (O&M) are key to stable power plant operations. ORIX outsources solar power plant maintenance and administration to highly reliable industry players and monitors the status of each plant at all times using remote monitoring systems to maintain high standards and maximize efficiency in our power generation.

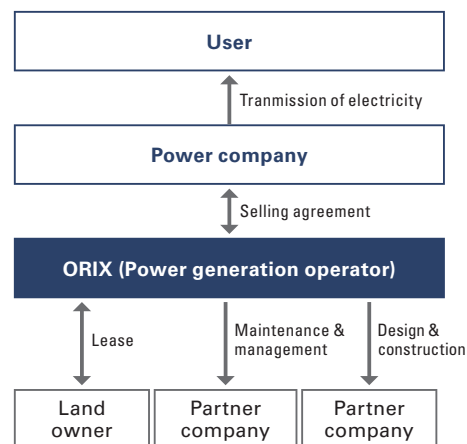
#### Roof solar power generation business

ORIX operates a "rented roof" solar power generation business, utilizing roofs rented out from clients who own large facilities such as factories and warehouses. Unlike ground-mounted solar panels, rooftop-mounted panels do not require development or other preparation of the land, allowing for easy installment and power generation within a short construction period.

In addition to enabling energy generation, the benefit for customers who install rooftop solar panels include effective use of a resource that normally does not produce profit and improved efficiency of air conditioning systems, as solar panels can act as thermal barriers.

From the initial facility design stages, ORIX supports the installment of rooftop solar panels that maximize output. This involvement includes proposals at the design and construction stage of the client's facility to help maximize the solar generating value of the facility or for the use of lightweight panels when roofs are structurally incapable of supporting heavy panels.

#### Mega-solar power generation business



#### Data

Total maximum output of mega-solar power generation business and roof solar power generation business

Secured projects: Approx. 1GW

In operation: Approx. 840MW

(As of March 31, 2019)

As this business involves the installment of systems into facilities owned by our clients, we ensure safe and secure construction by having dedicated personnel advise and oversee the work of contractors. As for the maintenance and administration of the power generation system, we select and commission highly reliable O&M contractors.

This initiative also involves the use of roofs of facilities owned by ORIX, including commercial facilities.

### Biomass power generation business

We operate the Agatsuma Biomass Power Plant, a wood chip-fired thermal power station in Higashiagatsuma, Gunma Prefecture. Wood chip-based combustion power generation is a method of generating electricity by burning wood chips in a boiler and rotating the turbine with the hot steam. Wood chips are a biomass\*<sup>1</sup> substitute for fossil fuels that enables reductions in CO<sub>2</sub> emissions. Further, this power plant uses thermal recycling\*<sup>2</sup> technology, increasing efficiency and reducing environmental impact. The Agatsuma Biomass Power Plant uses domestically sourced wood chips and has a power generation capacity of 13.6MW, and annual power transmission that reached 86 million kWh in the fiscal year ended March 2019.

Sourcing quality wood chips is crucial for a stable power supply. The plant uses waste wood from construction and tree trimming, and also employs thinned timber\*<sup>3</sup> that formerly went unused. We collaborate with the town of Higashiagatsuma and the local forestry association to support local forest maintenance\*<sup>4</sup> and increase the recycling rate for wood chips.

Appropriate processing of ash from combustion is also important. The plant outsources this function to recycling companies so that ash from combustion is used effectively. At the recycling plant, combustion ash is used for production of road foundation materials and solar panel installation platforms.

\*1 This refers to organic resources derived from renewable organisms, excluding fossil resources. Of these, wood-derived materials are called woody biomass and are attracting attention as environmentally friendly fuels.

\*2 Thermal recycling refers to the process of collecting and utilizing heat energy generated from combustion, rather than merely incinerating waste materials.

\*3 This refers to wood that results from thinning operations that thin out dense trees. It is not suitable for building construction materials and is regarded as wood that is difficult to effectively utilize.

\*4 This refers to practices such as planting, conservation, and thinning to aid forests in continuing to function in their role in land conservation, water source cultivation, prevention of global warming, and supply of forest products such as timber.

Agatsuma Bio Power Co., Ltd ▶▶▶ <https://agatsuma.orix-eco.jp/index.htm> (Japanese only)

### Wind power generation business

We first invested in Japanese land-based wind power generation in 1995. Since then, we have accumulated knowledge of wind power generation in Japan and overseas, and used it to research and examine developments in our wind power generation business, including offshore wind power.

- We are investing in Akita Araya Wind Farm (maximum output 8.7MW) in Akita City, Akita Prefecture.
- We are considering the feasibility of offshore wind power generation in Choshi City, Chiba Prefecture, via marine geological surveys and other means.

### Geothermal power generation business

ORIX's Beppu Suginoi Hotel in Beppu City, Oita Prefecture owns and operates a geothermal power plant with a maximum output of 1,900kW (1.9MW), which is the largest in Japan for private use. Utilizing such geothermal power generation businesses and expertise in the management of hot spring hotels, we aim to branch out into several locations nationwide and contribute to the vitalization of local communities.

Currently promoted businesses are as follows:

- We are set to begin construction of a geothermal power plant with a maximum output of 6,500kW (6.5MW) in the Minami-Kayabe region of Hakodate City, in Hokkaido with the goal of completing construction and commencing commercial operations in early spring 2022.



Agatsuma Biomass Power Plant

### Biomass power generation business

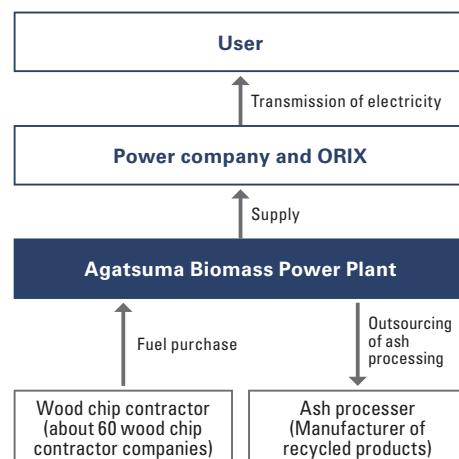


Image of Minami-Kayabe Geothermal Power Plant (Name to be confirmed)



- In Aomori City, Aomori Prefecture, and Kazamaura in Shimokita District, Aomori Prefecture, and Hachimantai City, Iwate Prefecture, ground surveys for the construction of geothermal power stations have been completed and we are now preparing for the drilling survey.
- In addition, we have entered into an agreement with the town of Hachijo, Tokyo regarding geothermal power generation and plan to start operation of a geothermal power plant with a maximum output of 4,400kW (4.4MW) in 2022.

### Support for installing solar power generation systems

As implementation of solar power accelerates worldwide, the cost per unit of power generation systems is dropping, but construction and other costs remain high in Japan, with system prices higher than in other countries. On the other hand, there is a growing shift in use from conventional sales to consumption of self-generated power, backed by amendments to the feed-in tariff system and ESG investment.

We take advantage of our direct, wholesale purchases from manufacturers and our network with construction companies nationwide to support customers' investment in solar power generation facilities at a reasonable price. ORIX provides equipment from multiple manufacturers, as well as customized procurement methods including installment payment plans, acquisition of business plan approval of the feed-in tariff system, and consultation on applying for subsidies for solar energy self-consumption system installation. We provide support throughout the process from implementation to maintenance, supporting the smooth installment of facilities for customers.

### Renewable Energy Business (Overseas)

#### Wind power and distributed solar power generation businesses in India

India's population is expected to exceed China's by 2030. Along with this population increase, high economic growth and improvement in the Indian people's standard of living are projected to lead to a rapid increase in future energy demand. The Indian government is expanding investment in both public and private sector power plant development to address this rapid growth in energy demand.

The Indian government is also developing and upgrading systems to meet increasing power demand. However, due to problems such as power transmission loss in the grid, service cannot be guaranteed during high demand in some urban areas, and power outages during peak hours occur regularly. In addition, the numerous rural areas without electricity are an issue.

- Wind power generation business in India

We are developing and operating a wind power business in India in collaboration with an Indian infrastructure development and investment company, INFRASTRUCTURE LEASING & FINANCIAL SERVICES LIMITED. In October 2019, ORIX acquired all shares of wind power generation subsidiaries and made them wholly owned subsidiaries.

This business has developed a total of 23 wind power plants in seven southwestern Indian states that have appropriate wind conditions with a total output of 873.5MW. The generated power is mainly sold to state power companies under a feed-in tariff system, and partially sold to large-scale energy consumers.

India pledged at COP 21 (the 21st Conference of the Parties to the Framework Convention on Climate Change) to generate 40% of its total power from sources other than fossil fuels by 2030. To achieve that goal, India is targeting a total output of 100,000MW using solar power by 2022 and total output of 60,000MW using wind power.

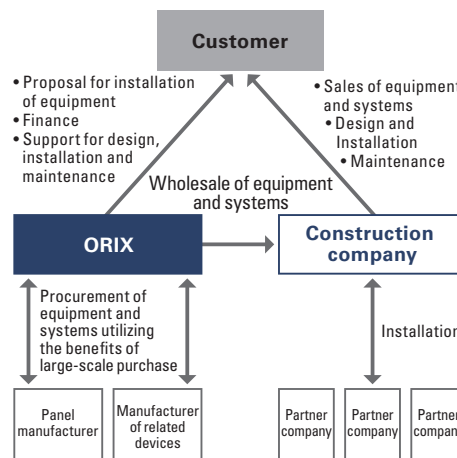
- Distributed solar power generation business in India

In India, we are working on a distributed solar power generation business with the

#### Data

Total capacity of sold panels: 835MW  
(As of March 31, 2019)

### Support for installing solar power generation system



SUN Group, a local mid-sized conglomerate. This involves installing solar power generation equipment on the roofs of buildings or small-scale structures, and the use of the generated electricity by that building or structure. Power generation near sites of electricity demand can limit power transmission loss. Furthermore, electricity from the power company can be used when solar power is insufficient, such as at night or on days with low sunshine. Distributed power generation utilizing sunlight is locally produced and locally consumed, can be installed in small spaces and does not require the costly investment of transmission and distribution infrastructure. This is useful in India where there are many off-grid regions. Based on these advantages compared to the traditional transmission and distribution structure, further demand is expected.

### Hydropower generation business in Vietnam

In Vietnam, demand for power is expected to grow along with the economy. To secure its power supply, the Vietnamese government set a target in 2016 of 7% GDP growth by 2030, formulated its Seventh National Power Development Master Plan to meet the power demand, and is developing new power sources. However, this power development also entails many large-scale coal-fired power generation projects, raising concerns about environmental impact. The Vietnamese government has therefore introduced a feed-in tariff system and other preferential measures to promote the development of renewable energy sources such as solar, wind and biomass.

ORIX has a stake in Bitexco Power Corporation (“BPC”), a hydropower generation company in Vietnam. BPC hydropower plants are either in operation or under construction in 20 locations in Vietnam as of March 2019. The largest player in the hydropower generation business, BPC has a gross power capacity of 895MW.

In Vietnam, electricity demand is growing by more than 10% annually on average, and in 2030 the demand is expected to be triple that of 2015. Against this backdrop, the Vietnamese Government has a policy of gradually liberalizing the electricity market in order to meet the strong demand for electricity. ORIX employs its expertise in renewable energy and electric power retailing to continue to promote business in Vietnam.

### Solar power generation business in the U.S.

We collaborate with IGS Solar to install solar panels on the roofs and land of properties including commercial facilities and schools, and then sell the generated electricity to the host. Panels are installed or under construction at 48 properties in eleven states throughout the U.S., with a projected total output of 50,000kW (50MW) as of March 2019.

ORIX Corporation USA ▶▶▶ <https://www.orix.com/>

### Overseas geothermal power generation business

Geothermal power development is attracting attention globally—not only in North America and Europe, but also in emerging countries in Asia, Africa, Latin America and elsewhere—as a renewable energy generation method that can provide a long-term, stable power supply that is sustainable, unlike fossil fuels.

We are an investor in Ormat Technologies, Inc. (“Ormat”), which runs a geothermal power generation business among other businesses.

Ormat is the world’s only vertically integrated geothermal company that engages in the design, manufacture, sales, and installation of geothermal power generation facilities. It also independently carries out geothermal resource development and geothermal power generation. The company’s geothermal power generation facilities have established an installation record with total cumulative output of approximately 2,900,000kW (2,900MW) worldwide and hold about 82% of the world’s binary power generation installation capacity, the leading share. In addition, Ormat is developing its business not only in the U.S. but also in Central America and Africa, and has a total generating capacity of 947,000kW (947MW) as of March 2019. Through capital



The Dak Mi 4 Power Station which is owned and operated by BPC



The McGinness Hills Complex Power Plant owned and operated by Ormat





participation, we plan to strategically collaborate with Ormat to promote geothermal power generation businesses in Japan and Asia.

Ormat Technologies, Inc. ▶▶▶ <https://www.ormat.com/>

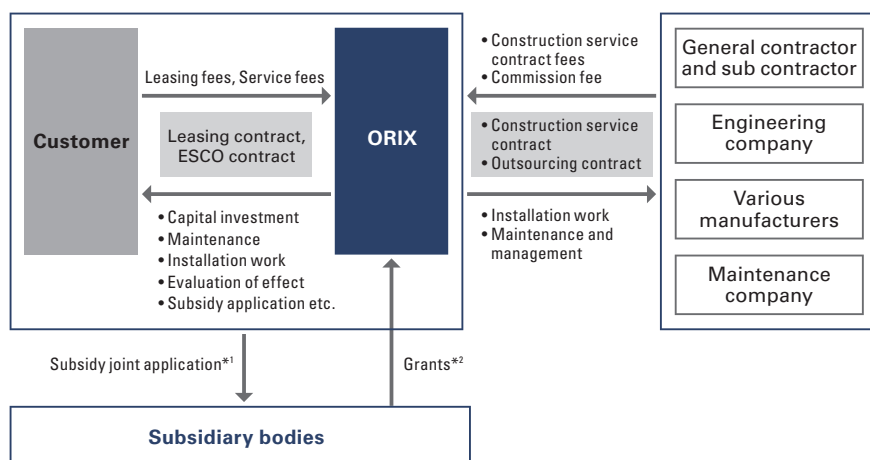
## Energy-saving Services (ESCO Services)

Energy-saving services seek to realize energy savings and reductions in CO<sub>2</sub> emissions through increased productivity. The services are offered when our customers update or establish new production facilities in factories and buildings.

**Data**

Number of contracts  
Approx. 750

(As of March 31, 2019)



\*1 Cooperation of the customer, who is our joint applicant, is required for application procedures and asset management.

\*2 This service does not guarantee the attainment of subsidies. We may be required to return the subsidy if we have not complied with the application guidelines.

Because subsidies come from public funds, there are restrictions on property disposition and reporting obligations, and unapproved changes in plans or failure to achieve certain results can lead to demands to return subsidies.

In the case of a joint application, if ORIX returns a subsidy, the customer will be required to pay the amount equivalent to the subsidy returned (unless ORIX is liable for the causes of the return of subsidy).

### [Examples of Provided Service]

Type of Service	Description	Example of Implementation
Energy saving service in production facilities	Provision of productivity improvement and energy saving services for the overall facility mainly through renewal of the production equipment, which is the main energy consuming equipment of the facility.	Energy saving by updating production equipment for beverages or chemicals and updates for industrial furnaces and injection molding machines.
Electrical/heat supply service	Introduction of co-generation facilities aimed at stable procurement of power, business continuity plans (BCP), and cost reduction.	In addition to introducing high efficient boilers, introducing more effective uses of waste heat.
LNG fuel conversion	Conversion of fuels used in factories from heavy oil to LNG (liquefied natural gas) with low environmental impact, for the purpose of reducing CO <sub>2</sub> .	Reduction of CO <sub>2</sub> emissions (example reduction level of about 10% to 25% after conversion).
Energy saving service for factory utilities	Introduction of energy-saving equipment to energy-intensive factories, mainly through updating utilities.	Introduction of high efficiency utility equipment (air conditioning equipment, lighting equipment, boilers, etc.) to reduce energy consumption (example reduction of about 10% to 35% after introduction).
Energy saving service for commercial facilities and office buildings	Introduction of energy-saving equipment tailored to different types of facilities.	Introduction of high efficiency utility equipment (e.g. air conditioning equipment, lighting equipment, refrigeration equipment, energy management system (EMS) equipment) (example reduction of about 5% to 35% after introduction).
Energy saving service for local governments	ORIX has been selected as the representative business entity of various municipalities' ESCO projects introducing various energy-saving facilities tailored to different types of facilities.	Reduction of energy costs by introducing BEMS, CO <sub>2</sub> concentration control/fan volume control in air conditioning units, high efficiency lighting equipment, filtration system controls, etc. (example reduction rate of about 10% to 15% after introduction).

## ■ Sale and Lease/Rental of Solar Panels, Electricity Storage Systems and Other Products

ONE Energy conducts wholesaling, leasing, rental and other services for solar panels and electricity storage systems. The combined use of solar panels and electricity storage systems allows customers to save electricity generated by solar power for private use, sell surplus electricity, and prepare for power outages. It can also help mitigate the risk of higher electricity fees resulting from increases in surcharges for renewable energy.\*

\* Renewable energy power promotion surcharge

ONE Energy Corporation ▶▶▶ <https://oneenergy.co.jp/> (Japanese only)

## ■ Initiatives for Establishing Distributed Energy Networks

The growing use of renewable power generation is moving the supply of energy from centralized supply by large-scale power plants to distributed supply by smaller-scale, regionally dispersed power plants that supply power to nearby areas. This shift is gaining traction globally, and a shift to distributed energy is also expected in Japan, where the Great East Japan Earthquake highlighted energy supply limitations and the weaknesses of the conventional centralized energy supply system. The advantage of decentralization is that it helps to disperse energy supply risks and reduce CO<sub>2</sub> emissions by optimally combining various supply capabilities (e.g., renewable energy, cogeneration) based on regional characteristics. In addition, through the use of distributed energy, consumers who had previously been exclusively users of energy can now become suppliers of energy, making the energy supply and demand structure more flexible.

ORIX already owns power supply facilities that contribute to a distributed energy network spanning over 600 locations throughout Japan, including renewable energy power plants such as solar (mega solar and rooftop), wind power and biomass. We have also installed approximately 10,000 residential-use stationary storage batteries and provide residential solar power generation equipment. We expect the power supply facilities we own and services we provide to contribute to the stability of the expanding distributed energy network. In addition, we will explore the development of electric vehicles that can serve as a new power source and medium and large stationary storage batteries. As the owner of distributed power generation and supply assets and resources that support the efficient consumption of electricity and the stable use of new energy-producing resources, ORIX will continue to be a major player in establishing distributed energy supply networks.

## Environment and Energy Business: Environmental Business

In our environmental business, we expect the transition to a circular economy and “stock-based society” (a society that emphasizes long-term use of assets rather than short-term use) will re-invigorate the waste processing and recycling industry. Consequently, we will strengthen our existing integrated value chain from collection and transportation to intermediate processing and final disposal by expanding processing facilities at final disposal sites to address the expected increase in intake volume. In the general waste market, which has high entry barriers due to waste regulations, we are planning to construct a new biogas power plant mainly for processing food waste, wastepaper and other business-related general waste. It is scheduled to come online during the fiscal year ending March 2022. In addition, we aim to enter the business of recycling incombustible waste for local governments with the objective of receiving



Yorii Plant, ORIX Environmental Resources Management Corporation



orders to process waste in lieu of municipal recycling centers. Our facilities would also double as centers for receiving large amounts of waste in the event of a disaster.

ORIX's waste treatment and recycling businesses are as follows.

## ■ Waste Recycling and Disposal Support Business

In Yorii, Saitama Prefecture, ORIX Environmental Resources Management operates a zero emission facility\* (Yorii Plant) that uses cutting-edge thermal decomposition, gasification and reforming methods as a private finance initiative in Saitama Prefecture. The main feature of the facility is that it achieves a 100% recycling rate by reducing waste to reusable resources through the process of melting or gasifying waste at approximately 2,000°C. It is capable of processing 450 tons of waste per day, making it one of the largest private-sector incineration and melting facilities in Japan.

The waste passes through various processes for reuse as resources such as material for asphalt paving (slag) and a road de-icing agent (industrial salts). The purified syngas produced during melting is used to fuel a high-efficiency power generator at an on-site power generation facility, and surplus electricity is sold to a power company.

Zeeklite Co., Ltd., a subsidiary of ORIX Environmental Resources Management, operates one of the largest controlled landfills in Japan. ORIX Environmental Resources Management has thus established an organization that provides final disposal in addition to waste incineration and melting to address a wide range of corporate and local government waste requirements.

\* A facility that achieves zero waste emissions by breaking down waste into raw materials and effectively using them.

ORIX Environmental Resources Management Corporation  
▶▶▶ <https://www.orix.co.jp/resource/> (Japanese only)

## ■ Support for Reuse, Recycling and Proper Disposal of Unwanted Goods (Nationwide Recycling System)

ORIX Eco Services has built a Japan-wide network for integrated support for the collection, reuse, recycling, and proper disposal of unwanted goods. The company supports the processing of unwanted goods with locations throughout Japan by centrally managing selection of disposal companies and allocation of their vehicles, price assessment upon sale, cost reduction proposals, and administrative work related to proper disposal. This support helps ensure uniform quality of collection and recycling nationwide as well as preventing improper disposal.

We meet diverse customer needs with a network for proper disposal that includes companies involved in collection and transportation, sale of used products, intermediate disposal and recycling.

## ■ Metal Recycling (In-House Disposal Facilities)

ORIX Eco Services operates intermediate disposal facilities in Funabashi, Chiba Prefecture and Kasukabe, Saitama Prefecture that mainly handle metal waste such as machinery and office automation ("OA") equipment.

The company sorts high-quality metals from machinery and other waste composed of multiple metals by conducting all stages of disposal from collection and storage to primary processing and material recycling. For machinery that contains rare metals, such as OA and information technology equipment, the company conducts all stages of processing from disassembly and data erasure to breaking down into raw materials, as well as sorting of materials for recycling.

ORIX Eco Services Corporation ▶▶▶ <https://www.orix.co.jp/eco/> (Japanese only)

### Data

Amount processed:

Approximately 120,000 tons

(Fiscal year ended March 2019)

Materials processed:

Approximately 70% industrial waste and  
30% general waste

(Fiscal year ended March 2019)

Types of resources reclaimed from waste:  
slag, metal, metal hydroxide, industrial salt,  
sulfur, purified syngas, electricity



## Providing Products and Services with Outstanding Environmental Performance

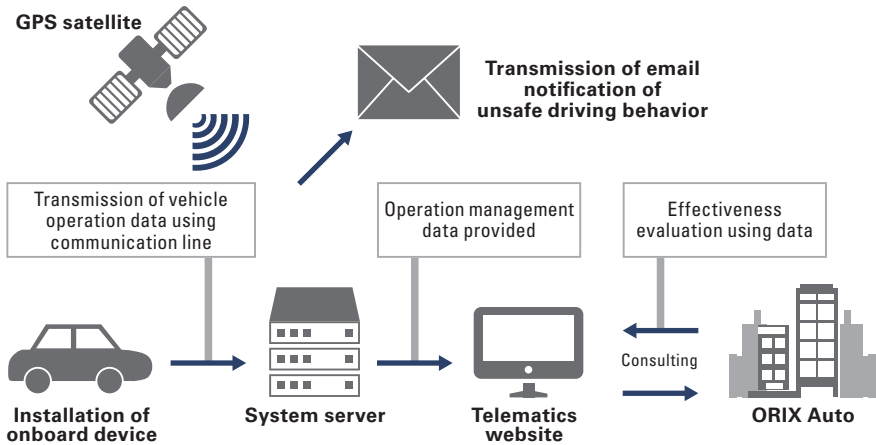
### Introduction of Electric and Hybrid Vehicles in Our Car Rental and Car Sharing Businesses

ORIX Auto promotes the development of a sharing economy through the operation of car rental and car sharing businesses at approximately 2,800 locations nationwide. Of the approximately 71,000 vehicles under our management, we have introduced approximately 10,500 electric or hybrid vehicles (as of March 31, 2019). We provide customers with vehicles that offer superior environmental performance.

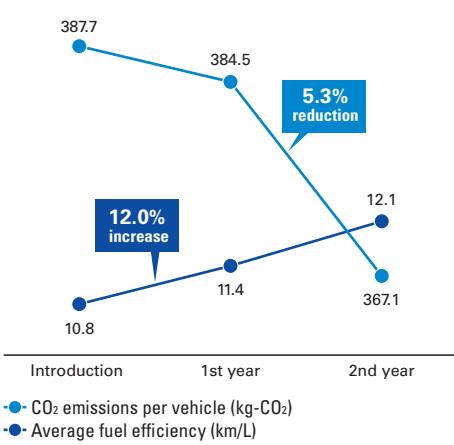
### Telematics Service

In ORIX Auto's "e-Telematics" service, an onboard device with communication and GPS functions, is installed in customer vehicles to visualize their operating status. The onboard device collects information in real time on driver behavior, including driving speed and rapid acceleration or deceleration as well as data such as fuel consumption and CO<sub>2</sub> emissions. The service then analyzes this driving data to reduce the environmental load from vehicle use.

Specifically, an email is set to a designated recipient upon the occurrence of unsafe driving behavior, such as excessive speed or rapid acceleration or deceleration. Drivers will therefore want to drive more carefully to avoid receiving such emails, leading to safe, environmentally sound driving that reduces fuel costs, improves fuel economy and reduces CO<sub>2</sub> emissions.



### Environmental Benefits of e-Telematics



### Data

Number of vehicles with e-Telematics and e-Telematics PRO: 161,000 (As of March 31, 2019)

### Real Estate Development Business

ORIX's real estate business segment conducts real estate development and offers buildings with high environmental performance. The buildings and logistics facilities that ORIX has developed have earned high praise for environmental performance and acquired certifications such as LEED\*<sup>1</sup> and CASBEE.\*<sup>2</sup>

Completed in September 2016, the ORIX Ueno 1-chome Building is conveniently located near six different train stations with access to six different train lines all within a walking distance of six minutes. In addition to creating a friendly working environment, we are committed to environmental performance and business continuity planning, and the property has acquired LEED and CASBEE certifications. The building is an office space that encourages innovation by offering a rooftop garden where workers can enjoy verdant greenery and a nice view. It also has parking and a shower room for bicycle commuters.



ORIX Ueno 1-chome Building (Taito-ku, Tokyo)

\*1 An environmental performance index developed by the U.S. Green Building Council. It aims to promote the global development of sustainable buildings with excellent energy efficiency. "LEED-CS" has five environmental



categories and two bonus categories consisting of approximately 50 evaluation criteria. The evaluation is based on the total value of each index.

\*2 Comprehensive Assessment System for Built Environment Efficiency: An evaluation system in Japan that evaluates and ranks the environmental performance of buildings. The comprehensive evaluation includes criteria on usage of environmentally friendly equipment and materials, energy saving efforts, provision of a comfortable indoor environment and consideration for the surrounding area. The buildings are given an overall rank ranging from S, A, B+, B- and C.

For information on our other properties, please refer to the ORIX website.

[https://www.orix.co.jp/grp/en/sustainability/three\\_r/](https://www.orix.co.jp/grp/en/sustainability/three_r/)

ORIX Real Estate Corporation ▶▶▶ <https://www.orix-realestate.co.jp> (Japanese only)

## DAIKYO and ANABUKI CONSTRUCTION are proactively promoting the creation of environmentally friendly homes, with the aim of realizing comfortable, healthy lives and a low-carbon society.

In its Strategic Energy Plan, the Government of Japan has set a policy goal of achieving ZEH (defined below) for more than half of the new, built-to-order stand-alone houses constructed by 2020 and ZEH (on an average basis) for all newly constructed houses, including ready-built houses and multiple-dwelling houses, by 2030. ZEH is an acronym for a net zero energy house, meaning a house that aims to reduce its balance of annual energy consumption to zero or less by means of energy savings through the introduction of high-performance insulation materials and energy efficient equipment, as well as energy creation from electricity generation using solar power or other methods.

DAIKYO obtained Japan's first "Nearly ZEH-M\*1" certification for Lions Ashiya Grandfort, a pioneer among ZEH condominiums that was completed in May 2019. The property reduces primary energy consumption\*2 by 32% as a result of energy savings from improved insulation performance and high-efficiency power generation using a next-generation fuel cell (ENE-FARM). By using solar power to generate 48% of its primary energy consumption, it achieves a reduction of more than 80% of primary energy consumption through energy savings and energy creation.



Lions Ashiya Grandfort (Ashiya, Hyogo)

In addition, ten DAIKYO and ANABUKI CONSTRUCTION projects were selected in September 2018 for the Ministry of Economy, Trade and Industry's Fiscal 2018 High-Rise ZEH-M Demonstration Project, the first open solicitation for proof-of-concept condominium projects that promote ZEH. In addition, 11 properties were selected for the Ministry of the Environment's Fiscal 2019 High-Rise ZEH-M Support Project. All the selected properties are condominiums that adopt "ZEH-M Oriented" standards to maintain a comfortable indoor environment by significantly improving insulation performance and introducing more efficient facilities and systems while reducing the annual primary energy consumption of the entire building, including common areas, by 20% or more.

\*1 Nearly Zero Energy Mansion. A condominium (or mansion, as called in Japan) that complies with Nearly ZEH-M guidelines and achieves a reduction of 75% or more in primary energy consumption through energy savings and energy creation.

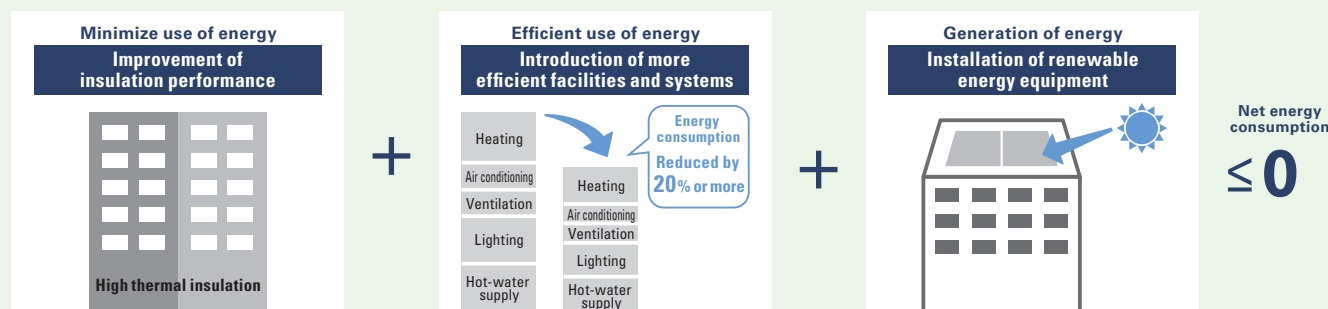
\*2 Energy consumption across different functions as calculated through thermal conversion of HVAC equipment, hot water heaters, lighting and other equipment through both the construction and use phase of the building.

ZEH initiatives (Lions Mansion website) ▶▶▶ [https://lions-mansion.jp/areaspecial/zeh\\_m/](https://lions-mansion.jp/areaspecial/zeh_m/) (Japanese only)

DAIKYO corporate website ▶▶▶ <https://www.daikyo.co.jp/english/index.html>

### ZEH-M Conceptual Diagram

ZEH-M (ZEH Mansion) is a framework for achieving zero net energy consumption in buildings through improvement of insulation performance, introduction of more efficient facilities and systems, and installation of renewable energy equipment.



Source: Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry (ZEH Roadmap Examination Committee for Condominiums)

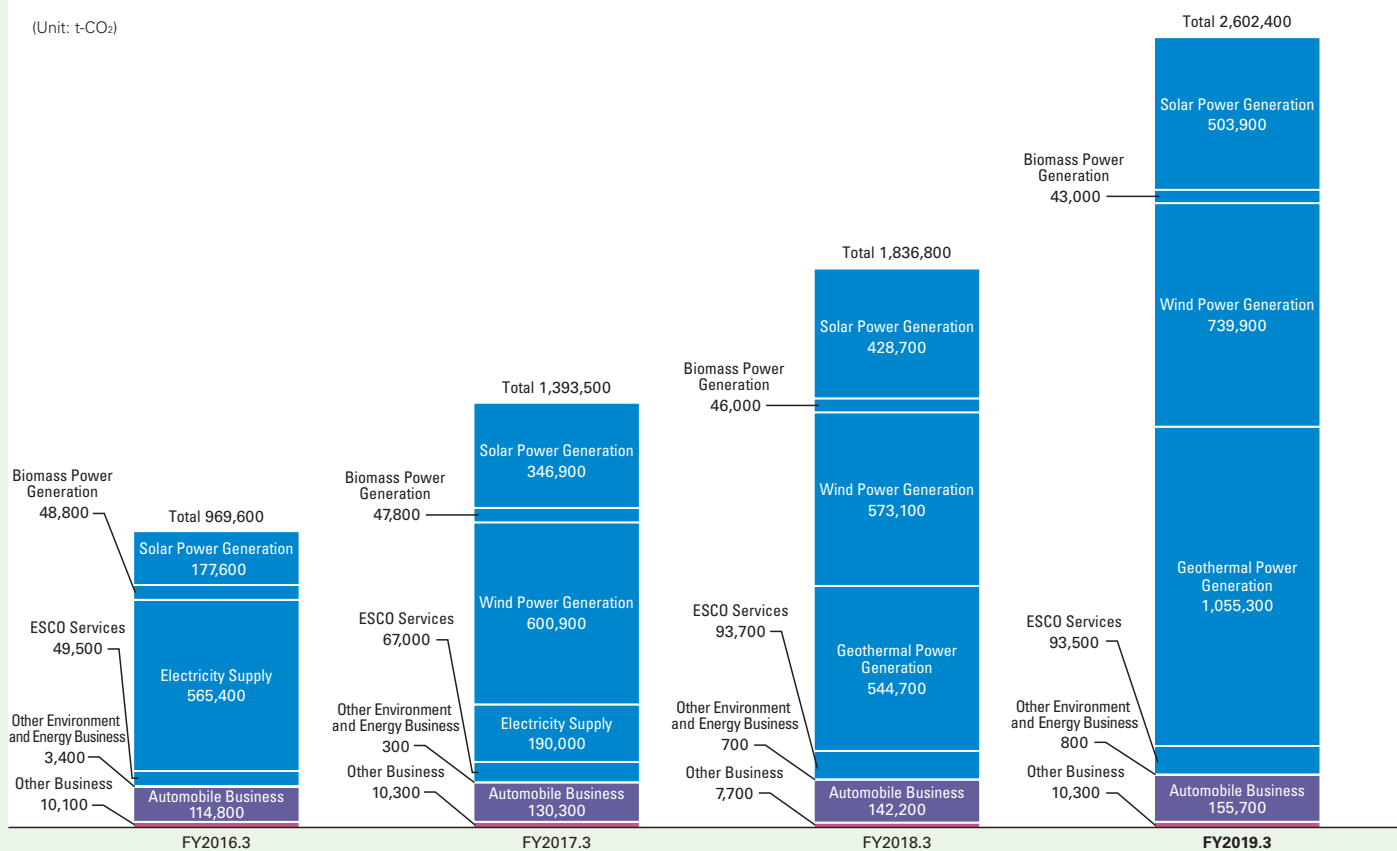
## Reduction of Environmental Impact in Business Processes

ORIX is working to reduce the environmental impact of its business processes. Please refer to the link below for specific initiatives.

[https://www.orix.co.jp/grp/en/sustainability/environment/business\\_processes.html](https://www.orix.co.jp/grp/en/sustainability/environment/business_processes.html)

# Environmental Performance Data

## ORIX Group CO<sub>2</sub> Emission Reduction Contribution



### Environment and Energy Business

- **Solar Power Generation**  
Reduction calculated from sales of power generated from mega-solar and rooftop solar power
- **Biomass Power Generation**  
Reduction calculated from sales of power generated from wood chip-fired thermal power stations
- **Wind Power Generation**  
Reduction calculated from sales of power generated from wind power plants

- **Geothermal Power Generation**  
Reduction calculated from sales of power generated from geothermal power plants
  - **Electricity Supply**  
CO<sub>2</sub> emissions reductions through acquisition of rights to CO<sub>2</sub> emission reductions from overseas or other companies
  - **ESCO\* Services**  
Providing ESCO Services reduces CO<sub>2</sub> in conjunction with customers' reduced energy use
- \*Energy Service Company

### Automobile Business

- **Other Business**

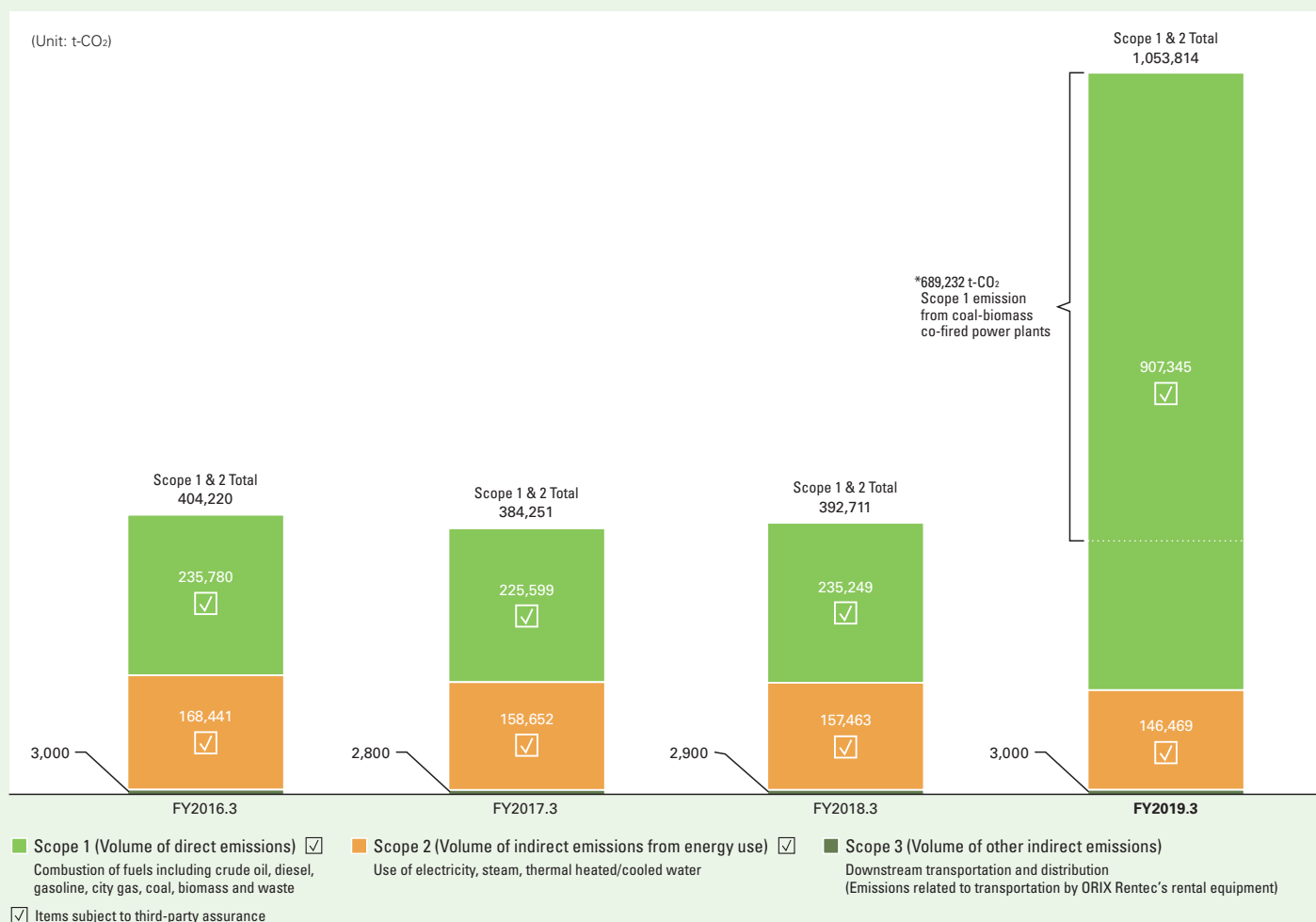
### [Scope and Concept]

Calculation Period: From April 1 to March 31 each fiscal year

Calculation Scope: ORIX Group Companies both in Japan and overseas (including affiliated companies)

- Basic Concept:
- Calculations are performed by multiplying the reduced amount of activity among customers or society as a whole due to ORIX Group's business activities by a CO<sub>2</sub> emission factor.
  - For calculation of business activities in Japan, in principle the emission factor we use is "alternate value" under the Greenhouse Gas Emissions Accounting, Reporting, and Disclosure System (Act on Promotion of Global Warming Countermeasures) (FY2016.3: 0.000579t-CO<sub>2</sub>/kWh, FY2017.3: 0.000587t-CO<sub>2</sub>/kWh, FY2018.3: 0.000512t-CO<sub>2</sub>/kWh, FY2019.3: 0.000500t-CO<sub>2</sub>/kWh).
  - For calculation of overseas business activities, in principle we use the emission factors from each country.
  - Calculations also include CO<sub>2</sub> reduction credits redeemed during the calculation period after being acquired by ORIX Group.
  - We calculate CO<sub>2</sub> reduction from affiliated companies according to our shareholding.

## ORIX Group CO<sub>2</sub> Emissions



### [Scope and Method]

Calculation Period: From April 1 to March 31 each fiscal year

Calculation Scope: Consolidated ORIX Group companies in Japan (excluding investees in principal investment business)

Calculation Method: • CO<sub>2</sub> emissions are calculated based on the "Ministerial Ordinance Concerning Calculation of Greenhouse Gas Emissions Associated with Business Activities of Specified Emitters."

- Calculated based on company rules concerning the management of environmental information.
- CO<sub>2</sub> emissions include CO<sub>2</sub> from non-energy sources, methane (CH<sub>4</sub>), and dinitrogen monoxide (N<sub>2</sub>O).
- Effective emission factor of electric power supplier based on GHG Emissions Accounting, Reporting, and Disclosure System is used for the emission factor relating to the use of electricity.

\*689,232 t-CO<sub>2</sub> Scope 1 emission from coal-biomass co-fired power plants

ORIX operates two coal-biomass co-fired power plants in Japan. One is Soma Coal and Biomass Power Plant in Soma City, Fukushima Prefecture, which started operations in April 2018. The other is Hibikinada Coal and Biomass Power Plant in Kitakyushu City, Fukuoka Prefecture, which started operations in December 2018. Maximum output of each power plant is 112MW. At these two plants, biomass is mixed with coal to account for about 30% of the total amount of fuel. This helps reduce CO<sub>2</sub> emissions compared with emissions from coal-fired power plants in the same class and contributes to lessening the burden on the environment while at the same time providing a stable, reliable supply of electricity.

### Third-Party Assurance

ORIX receives third-party assurance of its figures for direct emissions and indirect emissions from energy use from PricewaterhouseCoopers Sustainability LLC. See the website below for details.

<https://www.orix.co.jp/grp/en/sustainability/environment/data.html>