



## Overview of the Biomass Business Strategy

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Promotion-of commercialization by the selection and concentration of technology and biomass

### Basic concept

- In response to the earthquake, and nuclear accident, an important challenge is to strengthen the independent and distributed energy supply systems utilizing regional biomasses
- With a wide variety of biomasses and utilization technologies, the commercialization of technology is not clear, and which technology, biomass utilization can be effectively promoted
- Towards achieving the goals of the Basic Act for the Promotion of Biomass Utilization, focusing on cost reduction and stable supply and the sustainability criteria, we promote the commercialization of biomass utilization through technology and biomass selection and concentration. We formulate the "biomass business strategy" as a guide in order to realize the creation of regional green industries and strengthening of self-distributed energy supply system.

### Energy potential (Annual Estimate)

	<b>Scenario that the utilization rate target of 2020 has been achieved by the energy use</b>	<b>Scenario that the unused all energy are used</b>
<b>Power available capacity</b>	About 13 billion kWh (about 2.8 million households)	About 22 billion kWh (about 4.6 million households)
<b>Fuel available amount (Crude oil equivalent)</b>	About 11.8 million kL (about 13.2 million cars' gasoline)	About 18.5 million kL (about 2,080 million cars' gasoline)
<b>Greenhouse gas reductions possible amount</b>	About 4,070 ten thousand t-CO <sub>2</sub> (about 3.2% of the greenhouse gas emissions of Japan or equivalent)	About 6,340 ten thousand t-CO <sub>2</sub> (about 5.0% of the greenhouse gas emissions of Japan or equivalent)

※Note: it does not consider the sustainability criteria.

## **Technology roadmap and business model**

- Create a technology road map that assess the attained level of wide variety of biomass utilization technologies, and organize the practical technologies and biomass intensively utilized for commercialization.

Technology ...methane fermentation and composting, direct combustion, solid fuel, liquid fuel

Biomass ... wood, food waste, sewage sludge, livestock manure, etc.

- Presentation of practical technologies and examples (type, business scale, etc.) of the business model that utilizes biomass.
- ※ The practical application means a technical evaluation. It still requires the development of necessary conditions for commercialization.

### **"Strategy 1" Basic Strategy**

- Promotion of the commercialization of biomass utilization through technology and biomass selection and concentration while focusing on cost reduction and stable supply and the sustainability criteria,
- Construction of the integrated systems from raw material production, collection, transportation manufacturing and use by parties of cooperation (technology (manufacturing), raw materials (entrance), optimization of sales channels (exit))
- Creation of regional green industries and strengthening of self-distributed energy supply system.
- Provide a stable policy framework to encourage the entry of investors and operators

### **"Strategy 2" Technology strategy (manufacturing and technology development)**

- Evaluation of practical technologies that focus on leveraging the commercialization (about every two years)
- Acceleration of the development of technology aimed at practical application through collaboration of research institutions of industry, academia and government (cellulose-based, next-generation technology of algae, resource plants, biorefinery, etc.)

### **"Strategy 3" Exit strategy (the creation and expansion of demand)**

- Active use of feed-in tariff
- Promotion of biomass-related tax system to encourage the entry of investors and operators
- Promotion of greenhouse gas reduction by active use of various credit system
- Securement of the appropriate location and sales channels of biomass utilization facility
- Promotion of commercialization through the creation of high value-added products

### **"Strategy 4" entrance strategy (raw material procurement)**

- System development of upstream industries such as agriculture and forestry, which integrates the biomass utilization (Construction of the efficient collection and transportation system, such as unused thinning material)
- Construction of efficient collection and transportation system of biomass that exists

widely and thinly (e.g. Clarification of the handling of transport costs at the time of the judgment considering the power generation fuel waste, etc.)

- Development of resources for crop and plants such as high-biomass-readily degradable
- Utilization of wastes and the mixed use of a variety of biomass resources

### **"Strategy 5" individual focus strategy**

#### ① Wood biomass

- Construction of the efficient collection and transportation system for unused thinning material as well as promotion of the integrated-intensive energy use from wood-based power plants, etc., while leveraging FIT system
- Promotion of the recycling of lumber factories remainder, papermaking materials of construction wood wastes into the board raw materials and energy

#### ② Food waste

- Separation and collection of food wastes and bio gasification, mixed use with other biomass, and promotion of recycling by solid fuel, while leveraging FIT system

#### ③ Sewage sludge

- As a base for regional biomass utilization, promotion of bio-gasification system, mix use with food wastes and recycling by solid fuel while leveraging FIT system

#### ④ Livestock manure

- Promotion of recycling by mixing methane fermentation, direct combustion, and food wastes, etc. while leveraging FIT system

#### ⑤ Biofuel

- Study the concrete measures about the possibility of regional recycling biofuel use with integration of agriculture, while securing the safety, quality and ensuring an understanding of the oil industry.
- Dissemination of low concentration use through the tax system, etc., of bio-diesel fuel and the development of high-efficiency, low-cost production system
- Accelerate development of the next generation of bio-fuel production technology by industry-academia-government collaboration of research institutions

### **"Strategy 6" comprehensive support strategy**

- Creation of the green industry that utilizes regional biomass and construction of biomass industrial city towards the establishment of the regional recycling energy system (the development and sophistication of biomass town)
- Study of the plan to promote the initiatives of commercialization through business collaboration from raw material production, collection and transportation to manufacture and use. (Review of the Agriculture, Forestry and Fisheries Biofuel Act)
- Promotion of commercialization by active collaboration to the business operations of plant engineering manufacturer

### **"Strategy 7" Overseas strategy**

- Construction of the sustainable business models that utilize Japan's technology and biomass, and the development of possible next-generation technology which balances food supply, etc. at home and abroad and expansion of the technology and business model abroad, focusing on Asia

- Promotion of international standards development and dissemination aimed at the use of sustainable biomass in cooperation with relevant research institutes and industry of Japan.

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