

Takuma Group 12th Medium-Term Management Plan – An Overview

FY 2018 to 2020

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1. Reflections on the 11th Medium-Term Management Plan

1) Initiatives to implement policies

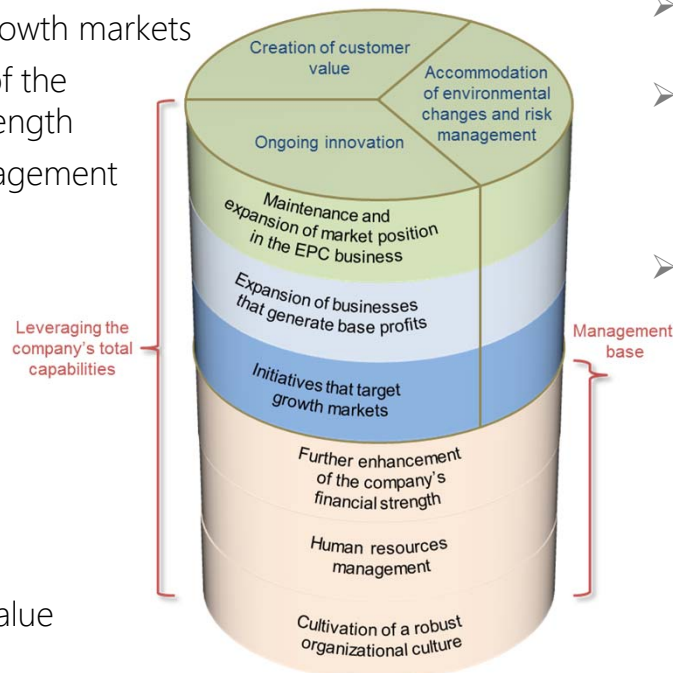
Initiatives of the 11th Mid-Term Management Plan (2015 to 2017)

Theme

Build upon our previous results to further improve our business in terms of both quantity and quality in order to achieve sustained growth.

Policies

- Maintenance and expansion of market position in the EPC business
- Expansion of businesses that generate base profits
- Initiatives that target growth markets
- Further enhancement of the company's financial strength
- Human resources management
- Cultivation of a robust organizational culture



Perspectives

- Creation of customer value
- Ongoing innovation
- Accommodation of environmental changes and risk management

Results and issues

- In our EPC business, we established a certain position in the markets we serve by steadily harnessing robust demand to drive orders.
- We built a foothold to expand our presence by capturing orders for multiple large biomass power plants and sludge-fueled power plants.
- Businesses that generate base profits allowed us to generally achieve the profit targets outlined in the plan, contributing to stable consolidated earnings.
- Preparing a stage for overseas expansion and developing human resources continue to be important issues.
- We maintained a certain level of equity ratio thanks to continued profitability.
- Efforts to secure adequate manpower, for example through mid-career hires, as a way to accommodate growth in orders faced difficulty due to a shortage of workers. Tight labor conditions persisted.
- Compliance and CSR awareness spread throughout the Group thanks to ongoing initiatives.



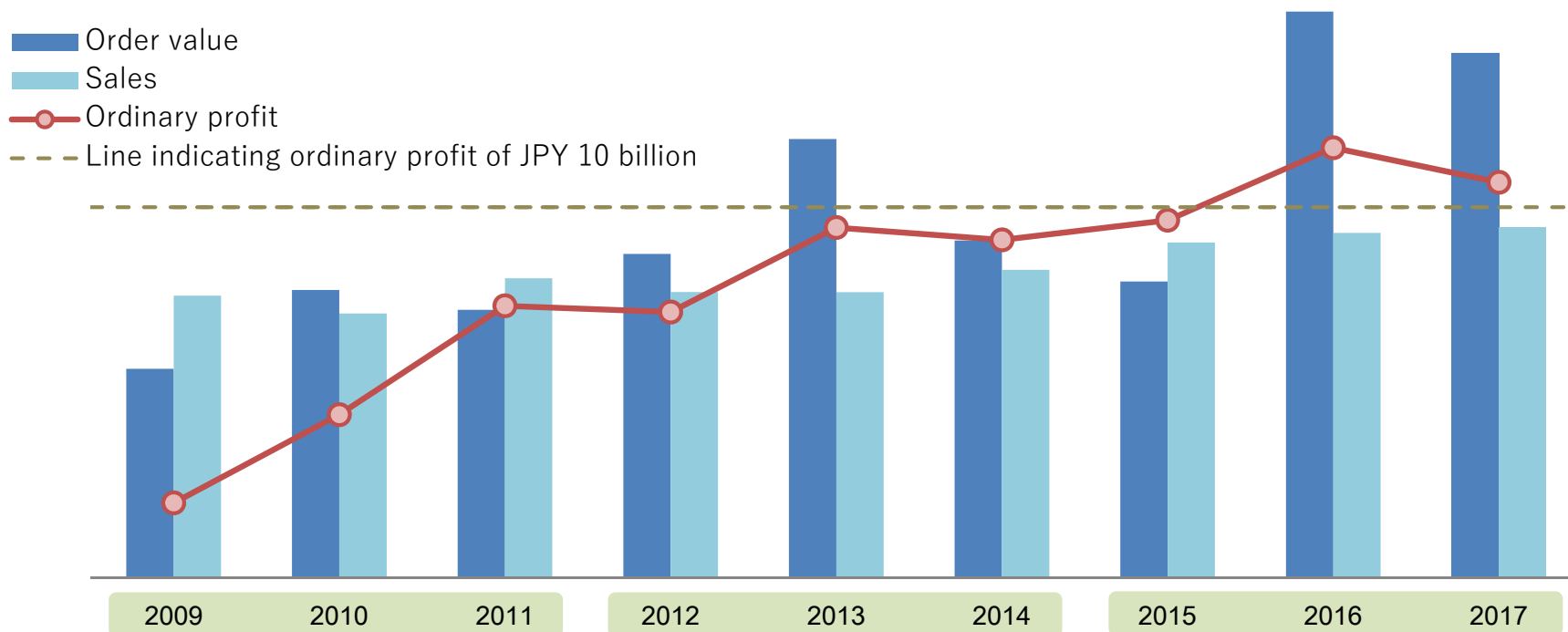
Biomass Power Plant



Sewage Sludge-Fueled
Power System

1. Reflections on the 11th Medium-Term Management Plan 2) Quantitative results

- Business volume expanded steadily against a backdrop of robust demand. Order value significantly exceeded the plan, while the order backlog grew to the JPY 200 billion level.
- In terms of quality, we achieved the level of profit outlined in the plan and made smooth progress toward our goal of reaching ordinary profit of JPY 10 billion in FY2020.



(Billion JPY)

	9 th Medium-Term Management Plan results (2009 to 2011)	10 th Medium-Term Management Plan results (2012 to 2014)	11 th Medium-Term Management Plan results				11 th Medium-Term Management Plan targets
			2015	2016	2017	Total	
Order value	257.8	371.0	99.9	191.0	177.1	468.0	400.0
Sales	285.2	296.5	113.0	116.3	118.1	347.5	360.0
Ordinary profit	13.7	25.7	9.6	11.6	10.6	31.9	27.0
Order backlog	78.1	152.5	139.4	214.1	273.0		—

*Order backlog figures are provided for the last year of each Medium-Term Management Plan and for the end of each fiscal year.

2. Business Environment

- We expect to see continued robust demand in the Group's principal business domains.
- At the same time, the business environment is expected to undergo major changes over the medium and long term, including changes in demand in response to evolving national policies and the structure of society, increased reliance on comprehensive contracts due to a trend to outsource government services, and increasing sophistication and diversity in customer needs.

	Current 3-year period (12 th Medium-Term Management Plan)	Future (medium and long term)
Waste treatment plants (Japan)	<ul style="list-style-type: none"> • Renewal and service life elongation demand will continue as facilities age. • There will continue to be demand for more efficient energy use and additional functionality (development of disaster prevention and peripheral facilities, etc.). • Comprehensive contracts for plant operation, for example in the form of DBO and O&M arrangements, will become more common. 	<ul style="list-style-type: none"> • Renewal and service life elongation demand will eventually fall off. • The market will contract due to the aging and shrinking of Japan's population. • The trend to outsource government services (by making use of the private sector) will gain momentum.
Water treatment plants (Japan)	<ul style="list-style-type: none"> • Renewal demand will increase as sewage treatment plants age. • Demand for converting sewage sludge into energy will grow. • PPP arrangement (that make use of the private sector) will be embraced by the sewer industry. 	<ul style="list-style-type: none"> • Comprehensive contracts for plant construction and operation, such as PPP/PFI arrangements, will become more common. • There will continue to be demand for energy conservation, energy creation, and resource use.
Boiler plants (Japan)	<ul style="list-style-type: none"> • There will continue to be demand from FIT projects. • The number of plants targeted for maintenance will continue to grow as more plants come online. • Demand for plant operational management and O&M will grow. 	<ul style="list-style-type: none"> • Demand for renewable energy will continue as society works to achieve a new energy mix by 2030. • Use of regional distributed biomass will continue. • There will continue to be a certain level of demand for renewal and fuel conversion of existing plants.

*DBO : Design Build Operate / O&M : Operation & Maintenance / PPP : Public Private Partnership / PFI : Private Finance Initiative / FIT : Feed-in Tariff

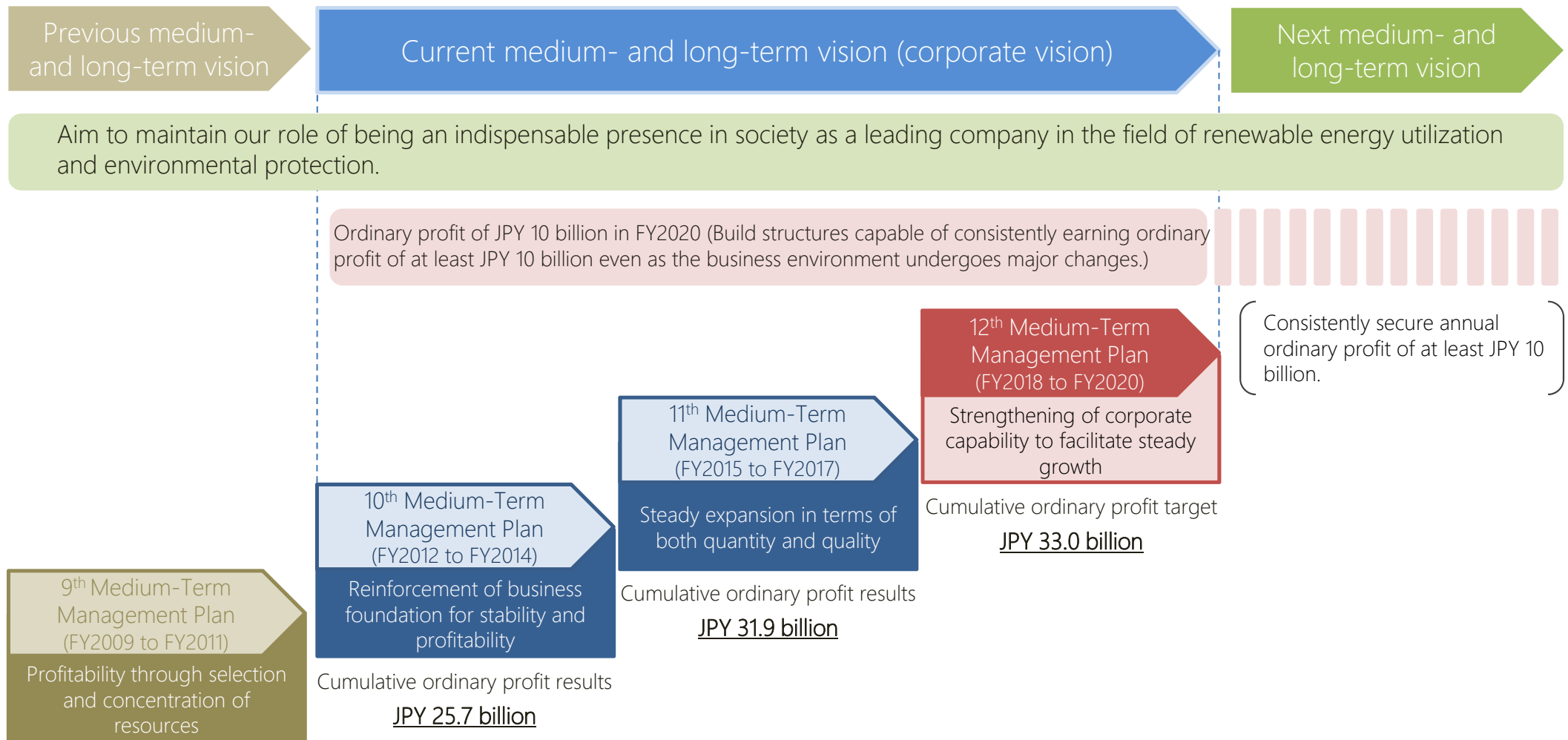
2. Business Environment

	Current 3-year period (12 th Medium-Term Management Plan)	Future (medium and long term)
Boiler plants (overseas)	<ul style="list-style-type: none"> • Demand for biomass power plants in Southeast Asia will remain robust. • Our flagship bagasse-fired boiler plants will continue to face intense competition, especially from manufacturers in countries such as India and China. 	<ul style="list-style-type: none"> • There will continue to be a certain level of demand against the backdrop of rich biomass resources. • Demand for using a variety of fuels such as EFB will grow.
Waste treatment plants (overseas)	<ul style="list-style-type: none"> • Demand for Waste to Energy will grow in Southeast Asia due to growing urbanization, and an increase in, and diversification of, waste. • Market development will be gradual due to institutional and financial issues, amongst others. 	<ul style="list-style-type: none"> • The market will expand as economies grow.
Package boilers (general-purpose boilers)	<ul style="list-style-type: none"> • A certain level of demand will continue due to factors such as renewal demand even as the Japanese market matures. • Demand for energy-conserving boilers will grow overseas particularly in emerging nations. 	<ul style="list-style-type: none"> • The Japanese market will contract due to the aging and shrinking of the country's population. • The market will expand further as emerging nations' economies grow.
Equipment and systems	<ul style="list-style-type: none"> • A certain level of demand will continue for both building equipment and semiconductor manufacturing equipment as construction demand rises and investment in the semiconductor industry expands. 	<ul style="list-style-type: none"> • A certain level of demand will continue for both building equipment and semiconductor manufacturing equipment.

*EFB : Empty Fruit Bunch

3. Positioning of the 12th Medium-Term Management Plan

- The plan represents the final stage of the current medium- and long-term vision (corporate vision), for which FY2020 is the target year.
- During its three years, we will achieve the vision and boost our corporate capabilities to prepare for steady growth in the future in response to future changes that are forecasted to occur in the business environment.



4. Policies of the 12th Medium-Term Management Plan

- By undertaking five new policies in line with the three perspectives continued from the 11th Medium-Term Management Plan, we will strengthen profitability and competitiveness while working to strengthen our management foundation, with a focus on effective use of human resources. In this way, we will strive to achieve our medium- and long-term vision while building a robust business and management foundation in response to future changes in the business environment.



4. Policies of the 12th Medium-Term Management Plan

1. Strengthening and expanding our revenue foundation

Many of the Group's products are used for a long period of time, for example for 20 or 30 years from the time of delivery. Offering high-quality after-sales service in an ongoing manner so that customers can use those products more effectively and over a longer period of time contributes to both customers' and the Group's profits, helping to create a foundation for stable, long-term earnings.

We will work to further strengthen and expand our revenue foundation by continuing to provide high-quality solutions throughout the plant and product life cycle as we meet customers' diversifying needs in an individualized manner.

2. Achieving sustained growth

Over the 80-years since the Group's founding, we have built a reputation as an essential part of society by providing products that are recognized for their value utilizing our technologies which are the core part of our company.

We will create customer value by continually developing unique technologies, services, and business models based on Takuma's strengths such as the technologies, track record, experience, and expertise that we've accumulated through our business activities to date. In addition, we will work to secure sustained growth by securing and creating competitive advantages as we respond quickly to changes in the business environment, such as evolving customer needs and emerging social issues.

3. Increasing productivity, for example by reforming business processes

The nature of the Group's businesses is undergoing major evolution as the business environment changes, for example due to changes in social structure such as the shrinking and aging of Japan's population and the emergence of more advanced and diverse customer needs as well as social issues.

We will strive to improve productivity, make effective use of human resources, and further increase the level of value we provide by fundamentally reviewing and rebuilding business processes that have become increasingly complex in order to accommodate these changes while focusing on businesses with higher added value (which will help us create and provide value).

4. Using human resources effectively

We will work to hire and train the diverse workforce that will be essential as we develop the Group's businesses going forward. At the same time, we will strive to create an environment that keeps individual employees engaged in their work and able to make full use of their skills and abilities (by cultivating a healthy workplace culture, reforming individual awareness, and facilitating fulfilling workstyles).

5. Continuing to pursue compliance management

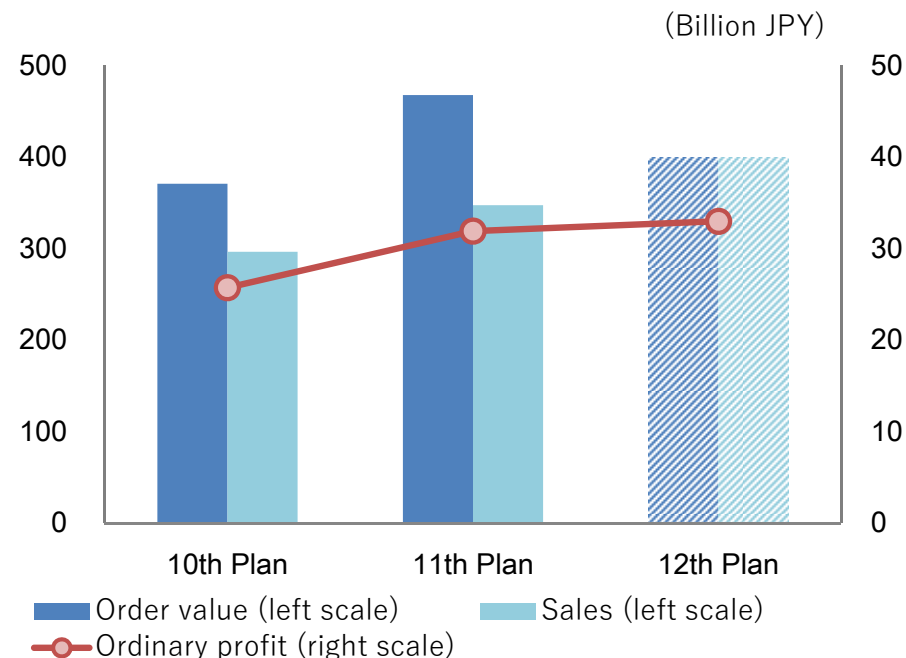
The Group considers compliance to be a key foundation of its corporate activities, and we've worked to spread awareness and foster adoption of good practices by including compliance as a policy in the last several Medium-Term Management Plans.

Awareness of the importance of compliance has steadily taken root among our employees thanks to ongoing awareness-raising and educational activities, and we will continue to pursue such initiatives to ensure that the trust we've built up in our quality and integrity remains unshakable. In addition, we will work to further spread and improve compliance awareness throughout the Group by effectively implementing and utilizing mechanisms such as our internal reporting system and CSR awareness survey.

5. Financial Target

Target:
3-year cumulative consolidated ordinary profit of JPY 33 billion

The 12th Medium-Term Management Plan, which represents the final stage of our current medium- and long-term vision, establishes the above targets to guide our achievement of the vision's goal of consistently earning ordinary profit of JPY 10 billion while simultaneously directing the company to utilize all its resources to build a robust business and management foundation in response to future changes in the business environment.



(Unit: Billions of yen)

	10 th Medium-Term Management Plan results				11 th Medium-Term Management Plan results				12 th Medium-Term Management Plan
	2012	2013	2014	Total	2015	2016	2017	Total	FY2018 to FY2020
Order value	109.2	148.0	113.7	371.0	99.9	191.0	177.1	468.0	JPY 400 billion (approx.) (3-year cumulative total; reference value)
Sales	96.3	96.3	103.8	296.5	113.0	116.3	118.1	347.5	
Ordinary profit	7.1	9.4	9.1	25.7	9.6	11.6	10.6	31.9	Target: JPY 33 billion (3-year cumulative total)

6. Core Business Units and Emphasis of Future Activities

Municipal Solid Waste Treatment Plant Business

Business Environment

- As facilities age, there is ongoing robust demand for renewal and service life elongation.
- Volume is growing for DBO projects as well as O&M services for existing facilities.

Emphasis of Future Activities

- Strengthen the profitability of our plant operation business.
- Further strengthen initiatives to prolong the service life of facilities.



Waste-to-Energy Plant
DBO Project
Treatment capacity: 174 tons/day
Generating capacity: 3,800 kW



Waste-to-Energy Plant
Primary equipment improvement project
Treatment capacity: 810 tons/day
Generating capacity: 17,200 kW

Water Treatment Plant Business

Business Environment

- There is growing demand for sludge incineration plants that conserve and create energy.
- There is increasing use of PPP/PFI arrangements in the sewer business.

Emphasis of Future Activities

- Strengthen the competitiveness of our sludge-fueled power system.
- Scale our waste management expertise horizontally to other businesses.



Sludge-Fueled Power System
Demonstration Plant
Treatment capacity: 35 wet tons/day (with moisture content of about 70%)
Generating output: About 100 kWh/h



Moving bed upflow continuous sand
filtration system (high-speed)
Treatment capacity: 29,500 m³/day

6. Core Business Units and Emphasis of Future Activities

Boiler Plant Business (Japan)

Business Environment

- FIT demand remains robust.
- The number of plants targeted for maintenance is increasing as facilities are completed and transferred to customers.
- There is growing demand for plant operational management and O&M.

Emphasis of Future Activities

- Capture new orders for FIT biomass plants.
- Strengthen our maintenance structures.
- Scale our waste management expertise horizontally to other businesses.



Wood Chip Biomass Power Plant
Generating capacity: 22,100 kW



Wood Chip Biomass Power Plant
Generating capacity: 1,990 kW

Boiler Plant Business (Overseas)

Business Environment

- Demand for biomass power plants in Southeast Asia remains robust.
- Our flagship bagasse fired boiler plants continue to experience intense competition.

Emphasis of Future Activities

- Capture orders continually by creating competitive advantages.
- Strengthen the ability of our local subsidiary (SIAM TAKUMA) to carry out its business operations.



Bagasse Fired Boiler Plant (Thailand)



Bagasse Fired Boiler Plant (Thailand)

6. Core Business Units and Emphasis of Future Activities

Waste Treatment Plant Business (Overseas)

Business Environment

- There is a growing need for proper waste management and energy utilization against a backdrop of growing urbanization, increase of waste volume, and diversification of waste characteristics.

Emphasis of Future Activities

- Build structures to facilitate collaboration with partner companies.
- Build schemes for entering new markets.



Waste-to-Energy Plant (UK)
Treatment capacity: 1,370 tons/day
Generating capacity: 36,650 kW



Waste-to-Energy Plant (China)
Treatment capacity: 1,600 tons/day
Generating capacity: 30,000 kW

Package Boiler Business

Business Environment

- We're continuing to see a certain level of demand in Japan, particularly in terms of renewal demand.
- The need for energy-conserving boilers is increasing overseas, particularly in developing nations.

Emphasis of Future Activities

- Maintain and expand our domestic business.
- Expand our overseas business.



Super Eqs
EQi Series



Super Vacotin Heater
GTL Series