

Introduction of Small and Distribution Type Biogas Generator Using Renewable Energy (Biogas by Methane Fermentation) as Fuel



Ohara Ironworks Co., Ltd



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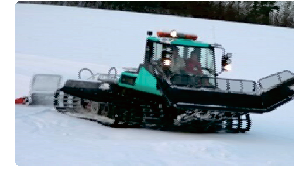
1. Company Profile

Ohara Ironworks Co., Ltd

- 1) Head Office : Nagaoka-city, Niigata
- 2) Established as Drilling equipment Maker in 1907
- 3) Main Business Item



- ① Snowgroomer
 - For Skiing slope
 - For Self-Defense Forces
 - For South Pole



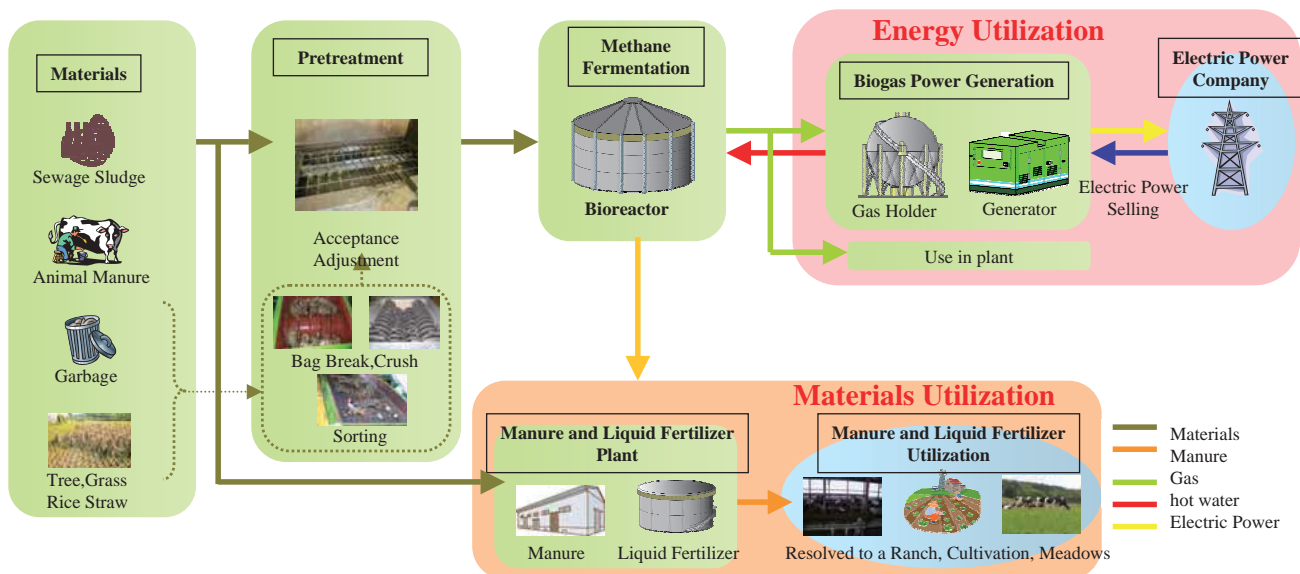
- ② Environmental Business
 - Water Disposal, Refuse Disposal Plant
 - Biogas Power Generation System
 - Apparatus, Design, Manufacture, Construction



2. What is Biogas Power Generation System?

■ Biogas Power Generation System

Biodegradable Organic Matter → Methane Fermentation → Biogas (Methane Gas) → Power Generation





2. What is Biogas Power Generation System?

■ Background of the conventional biogas Power generation plant (in Japan)

Many Introduction Examples of the Methane Fermentation

- For Animal Manure
- For Volume Reduction of Sewage Sludge etc...



Few Examples of the Profit Inflection of the Biogas (Generation)

- 1) Only High Power, Expensive Biogas Generator
- 2) Difficulty of the Maintenance



Restrain the Introduction to the Small Scale Site Occupying Most of Japan
→ Control Profit Inflection of the Biogas



3. Technology of Ohara

Small and Distribution Type Biogas Generator

BG60A

50/60kW 50/60Hz



BG30A

25/30kW 50/60Hz

- 1) Remodel the Commercial Diesel Engine Generator
【High Marketability of a Product and Parts】
→Reduction of the Initial Cost
→Everybody Can Maintain (Low Running Cost)
- 2) Small Size, Small Output **25kW,50kW**
- 3) High Generating Efficiency **35%**
- 4) Applicable to Various Sites by Number Control and Output Control



3. Technology of Ohara

■ Remodel the Commercial Diesel Engine Generator

1) The Engine Technology Cultivated by Snowmobile Development



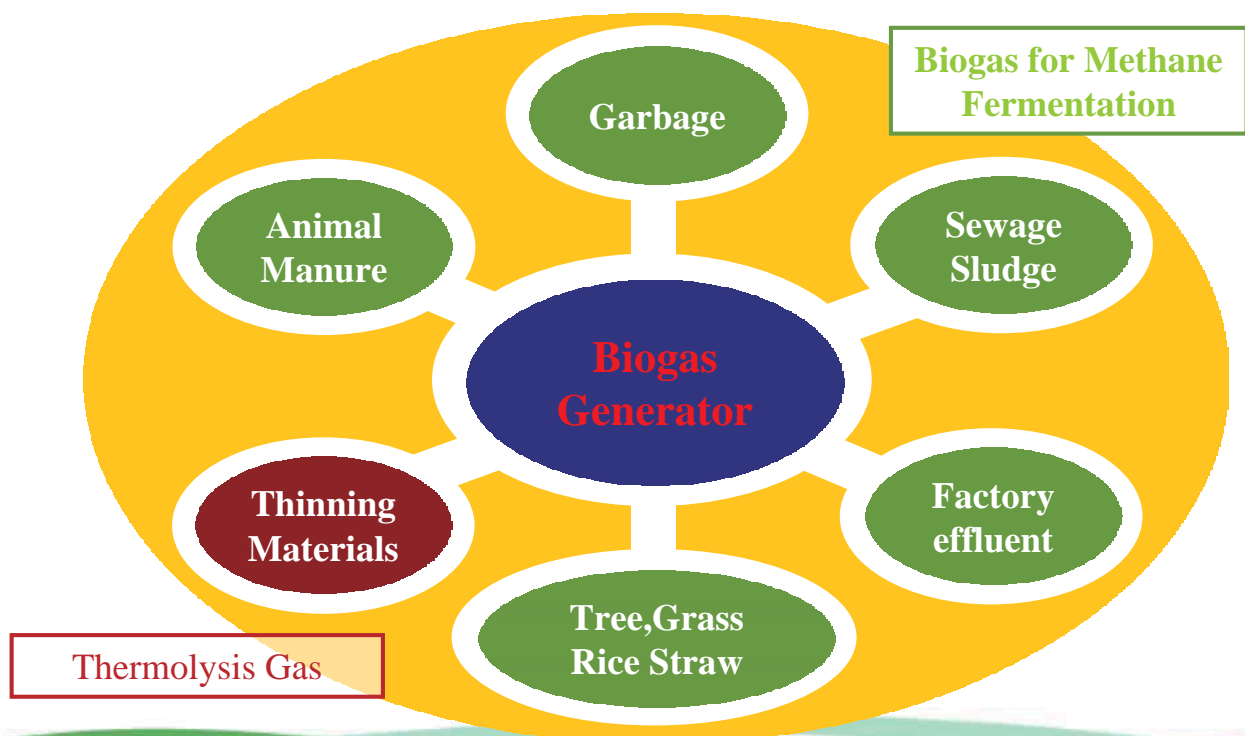
2) Technical Collection of the Company in Niigata

- Base Machine is Made in Hokuetsu Industries in Niigata.
- Made in Niigata New Technology Spread, Utilization System Registration Product



4. Case Study etc...

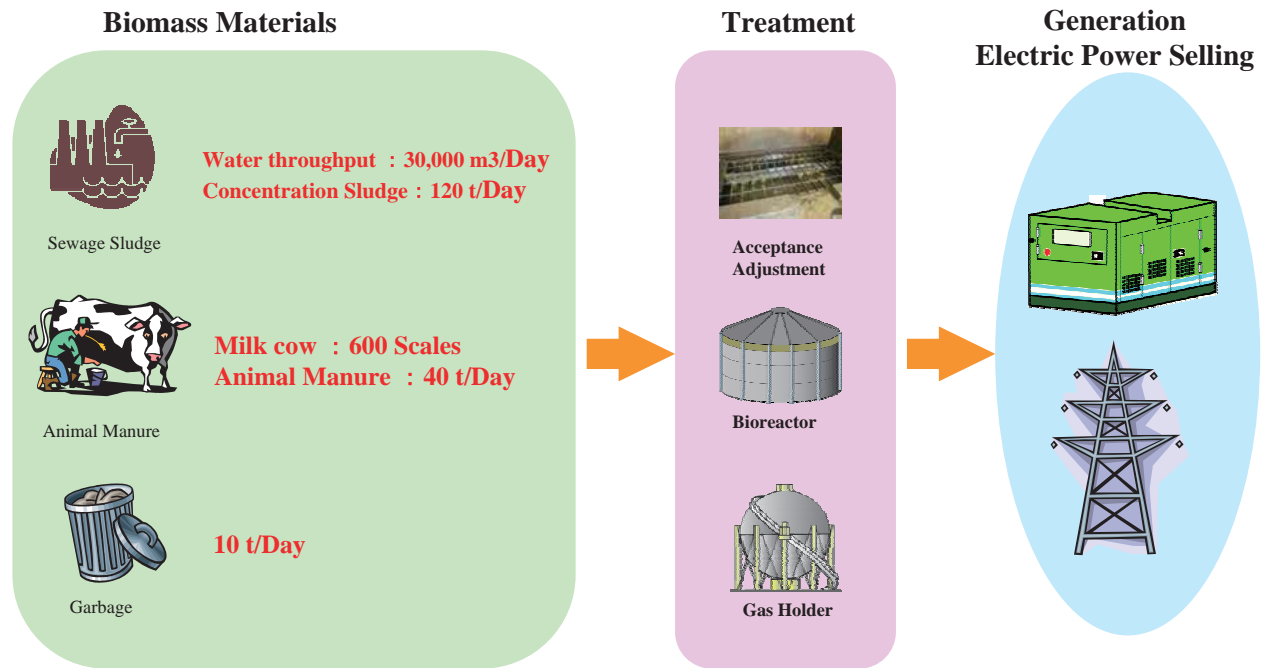
■ Biomass Materials for Biogas Power Generation System





4. Case Study etc...

Quantity of Biomass Materials necessary for Output 100kW Generation



4. Case Study etc...

FIT System Starts in Japan from July, 2012

Solar Light	10kW Over	10kW Under		10kW Under (Double Generation)	
Cost (¥)	37.8 (←42)	38 (←42)		31 (←34)	
Procurement period (year)	20	10		10	
Wind Power	20kW Over		20kW Under		
Cost (¥)	23.1		57.75		
Procurement period (year)	20		20		
Water Power	1,000kW Over 30,000kW Under	200kW Over 1,000kW Under		200kW Under	
Cost (¥)	25.2	30.45		35.7	
Procurement period (year)	20	20		20	
Geothermy	15,000kW Over		15,000kW Under		
Cost (¥)	27.3		42		
Procurement period (year)	15		15		
Biomass	Methane Fermentation	wood	wood	wood	wood
Cost (¥)	40.95	33.6	25.2	17.85	13.65
Procurement period (year)	20	20	20	20	20



4. Case Study etc...

■ FIT System Starts in Japan from July, 2012

In same 100kW/h ...

Use in plant (power purchase ¥10)
 100kWh × ¥10/kWh
 =¥1,000



FIT (Electric Power Selling ¥39)
 100kWh × ¥39/kWh
 =¥3,900

The law Maintenance Supports Profit Inflection of the Renewable Energy

■ In Russia

1) Potential demand for renewable energy

- Unconnected area to large number of center grids (Distant place inhabitants, datcha)

2) Recent legislation for the biomass profit utilization

- 2007 electricity premium schemes (Electricity wholesale purchase system)
- 2012 Biotechnological development program 「Bio 2020」

There is the construction plan of the biogas plant in the Belgold state

assume 1/4 of the domestic alternative energy the production target in the level by 2015.

A small and dispersion type biogas generation plant contributes



Thank you for your attention!



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