Poultry Litter Power Generation Project as an Environment-conscious Business

September 30th 2010

Nishinippon Environmental Energy Co., Inc.
Outline of NEECO

Kyushu Electric Power Co., Inc.

- Established: May 1951
- Paid-in Capital: 237.3 billion JPY
- Employees: 12,465
- Power Supplying Facilities: 22,943 MW
  - Thermal: 10; Nuclear: 2
  - Hydro: 139; Geothermal: 6 etc.

Nishinippon Environmental Energy Co., Inc.

- Established: Nov. 1990
- Paid-in Capital: 1,010 million JPY
- Employees: 72
- Major Lines of Business:
  - Environment/Energy businesses
  - New Energy Power Generation (→ Poultry Litter Power Generation)
  - Consulting business
  - Energy Solution business (ESCO etc.)

100% Subsidiary Company

Japan: Land area 378,000 km², Pop. 128 million
Annual broilers production: Approx. 630 million birds
Southern Kyushu is a leading broiler production region
Miyazaki Pref. is the second leading broiler producing prefecture in the country.
(⇒ Approx. 250,000 tons/year of poultry litter is generated)

National broiler production by prefecture (unit: %, 10,000 birds)
(Source: Ministry of Agriculture, Forestry and Fisheries 2008)
# Methods of processing Poultry Litter

<table>
<thead>
<tr>
<th>Methods</th>
<th>Direct Recycle to Farmland</th>
<th>Compost</th>
<th>Incineration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic</td>
<td>Return to soil as manure</td>
<td>Fermentation Plant</td>
<td>Incineration Plant (Boiler)</td>
</tr>
<tr>
<td>Stacking in open space</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment Effect</td>
<td>Bad odor,</td>
<td>Bad odor (fermentation process)</td>
<td>Capable of thermal cracking of odor-generating substances and reducing volume of litter (to 1/10)</td>
</tr>
<tr>
<td>Future</td>
<td>Inappropriate disposal and storage of poultry litter is prohibited by law (since Nov.2004)</td>
<td>Excessive manure and shortage of application are issues in area where poultry industry is prosperous</td>
<td>Drawing attention for its favorable environmental characteristics</td>
</tr>
</tbody>
</table>
Values of Poultry Litter Power Generation Business

Reduction of Environmental Impact
- Thermal cracking of bad odor substances
- Reduction of volume of waste by Incineration of poultry litter

Contribution to global environmental preservation
- Conservation of fossil fuels
- Reduction of CO₂ emission by power generation using carbon neutral biomass

Contribution to further development of broiler industry
- by processing poultry litter in a stable and environment-conscious method.
Outline of Miyazaki Project

Business Scheme

MAFF*/Miyazaki Pref.

Guidance

Subsidies

Electricity

Poultry Litter

Project Co.

Miyazaki
Biomass Recycle

KEPCO

Fertilizer Co.
Agri. Co-op.

NEECO

Poultry Farmers

O&M Contract

Ash

Outline of MBR

<table>
<thead>
<tr>
<th>Business Objectives</th>
<th>Sales of electricity and incinerated ash generated by poultry litter incineration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Kawaminami, Miyazaki, Japan</td>
</tr>
<tr>
<td>President</td>
<td>Mr. Yoshiyuki BABA (president of NEECO)</td>
</tr>
<tr>
<td>Paid-in Capital</td>
<td>100 million JPY</td>
</tr>
<tr>
<td>Shareholders</td>
<td>Farmers 54%, Broiler Co. 4%, NEECO 42%</td>
</tr>
<tr>
<td>Incineration Cap.</td>
<td>132,000 metric tons / year</td>
</tr>
<tr>
<td>Generation Cap.</td>
<td>11,350kW</td>
</tr>
<tr>
<td>Established</td>
<td>May 2003 (Started commercial operation in May 2005)</td>
</tr>
</tbody>
</table>

* MAFF: Ministry of Agriculture, Forestry and Fisheries
The System of Miyazaki Plant
Bird’s eye view of Miyazaki Plant

Land Area: approx. 10,000m²
Photo of Miyazaki Plant (1)
Photo of Miyazaki Plant (2)
7ton-truck (with dumping unit)

25ton-truck (without dumping unit)

Poultry litter burning in the furnace

Property of Poultry Litter

Ave. Heating Value: Approx. 2,000 kcal/kg (LHV)

Ave. Moisture Content Approx. 43%

* Heating Value of Coal Approx. 6,200 kcal/kg (LHV)
Operating Conditions

Operated 5 years without major problems

⇒ Availability: approx. 90% (including major maintenance period)

Major Awards

• Excellent Biomass Utilization Awards (2005)
  ➢ MAFF Rural Development Bureau Chief Award
• The 11th New Energy Awards (2006)
  ➢ NEF Chairman Award
• The 5th Eco-Products Awards (2008)
  ➢ Special Jury Award (Eco Service Category)
• The Best 100 New Energies (2009)
  ➢ METI, NEDO Selected
• Kyushu Environment Business Awards (2009)
  ➢ Excellent Award

Others

• Used as class material by local schools
• Visited by 3,880 people (until March 2010)
Conclusions

Poultry power generation is ⋅⋅⋅

○ Drawing a lot of attention nationwide for its values including environmental preservation, contribution to development of broiler industry, etc.

○ Very effective method for processing poultry litter in Japan where environmental problems (bad odor, Nitrogen contamination) are emerging.

○ To be introduced to other countries or regions suffering from same kind of environmental problems.
Location

Namakkal District, Tamil Nadu

Chennai
Outline of Project

<table>
<thead>
<tr>
<th>Description of Business</th>
<th>Biomass power generation (fuel: poultry litter + wooden biomass) (IPP)</th>
</tr>
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<tbody>
<tr>
<td>Project Company</td>
<td>Orient Eco Energy Limited</td>
</tr>
<tr>
<td></td>
<td>Shareholders (Shareholding Ratio)</td>
</tr>
<tr>
<td></td>
<td>Orient Green Power Company Limited (60%)</td>
</tr>
<tr>
<td></td>
<td>Nishinippon Environmental Energy Co., Inc. (40%)</td>
</tr>
<tr>
<td>Location</td>
<td>Namakkal District, Tamil Nadu, India</td>
</tr>
<tr>
<td></td>
<td>(380km Southwest of Chennai)</td>
</tr>
<tr>
<td>Power Output</td>
<td>7,500kW</td>
</tr>
<tr>
<td>Fuel</td>
<td>poultry litter + wooden biomass</td>
</tr>
<tr>
<td>Power Purchaser</td>
<td>Tamil Nadu Electricity Board (TNEB)</td>
</tr>
<tr>
<td></td>
<td>/ other distribution companies</td>
</tr>
<tr>
<td>Scheduled Start of Commercial Operation</td>
<td>FY 2011</td>
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</tbody>
</table>
Thank you very much for your Attention!!

New Business Development Dept.

Nishinippon Environmental Energy Co., Inc.