

IEA Bioenergy Task 37

Country Report

Brazil

Version: 03-2014

Number of Plants and Gas Produced

Plant type	Number of plants ⁽³⁾	Production (GWh/year) ⁽²⁾
Sewage sludge	5	42,25
Biowaste ⁽¹⁾	1	1,40
Agriculture	8	8,97
Industrial	4	23,75
Landfills	6	636,83
Total	24	713,2

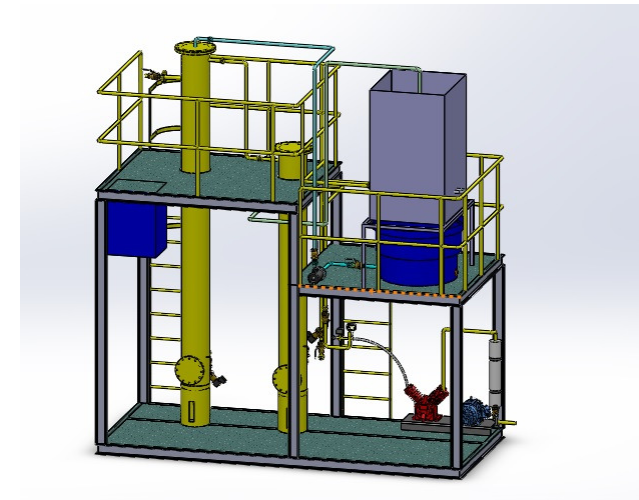
⁽¹⁾ Poultry slaughterhouse.

⁽²⁾ The energy content in the produced biogas independent of the utilisation.

⁽³⁾ Source: Bank Information Generation (www.aneel.gov.br) and cooperatives of western of Parana .

Summary of Upgrading Plants

- **Biogas Upgrading:**
 - Technologies employ: Water Scrubbing + PSA;
 1. Geographical information: Marechal Candido Rondon/PR (Ajuricaba)
 - Capacities: 50 Nm³/h;
 2. Geographical information: Monte Negro/RS
 - Capacities: 500 Nm³/h;
 3. Geographical information: Pomerode/SC
 - Capacities: 125 Nm³/h;
- **Annual production of biomethane: 27,94 GWh/year;**



Biogas Utilisation

Utilization type	GWh/year	%
Electricity	697,24 ⁽¹⁾	97,76
Heat	15,96 ⁽²⁾	2,23
Vehicle fuel	ND ⁽³⁾	-
Flare	ND	-

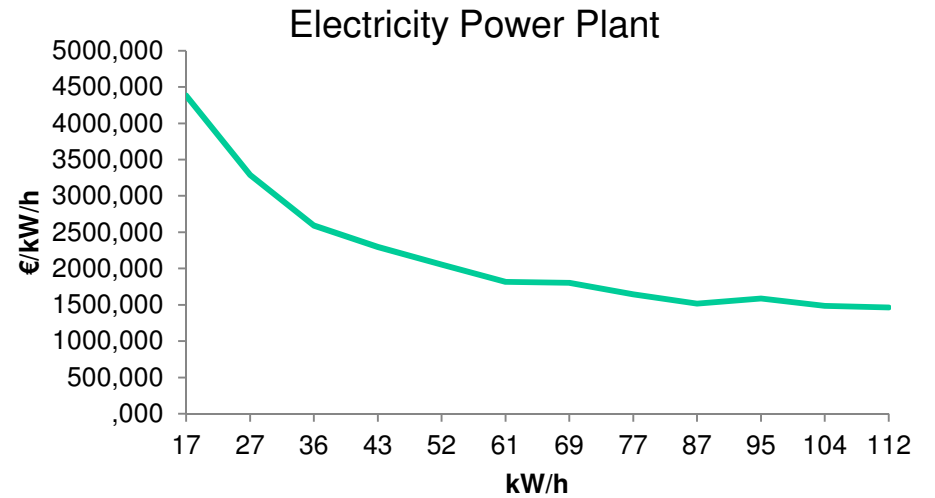
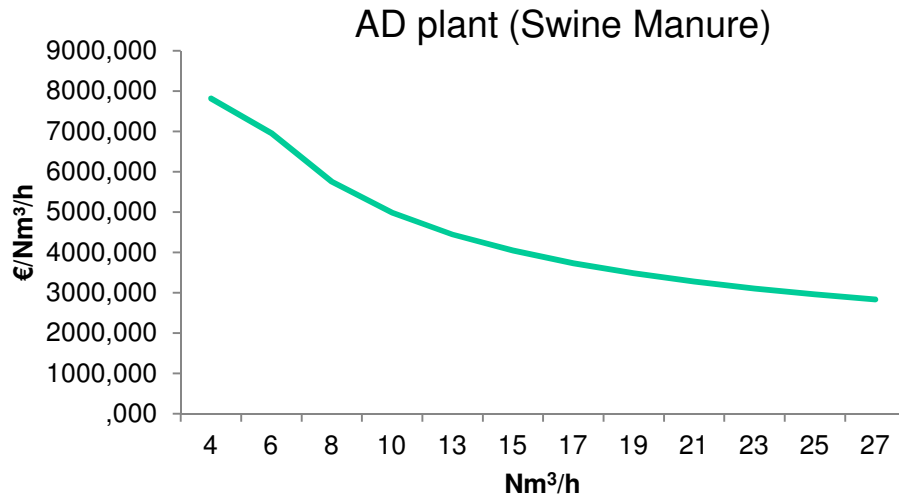
(1) Not every small isolated power generation is registered in the Bank Information Generation (ANEEL).

(2) Data collected with the cooperatives of western of Parana.

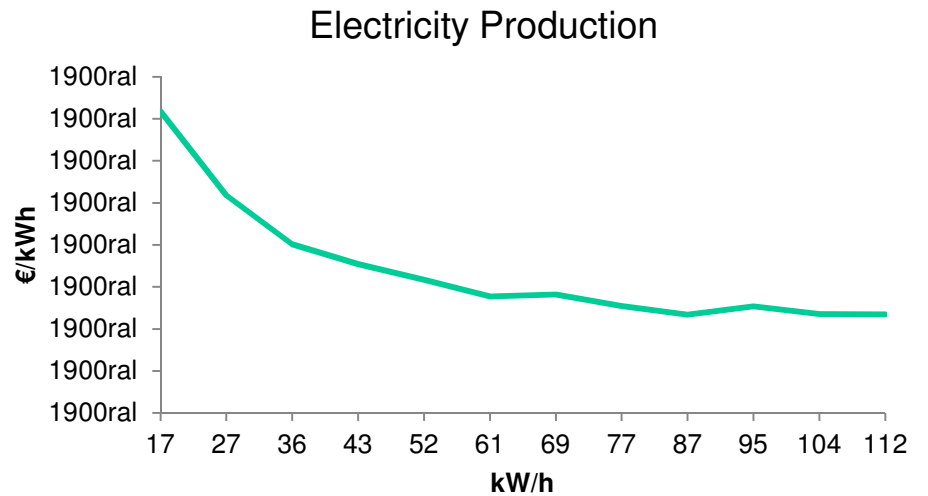
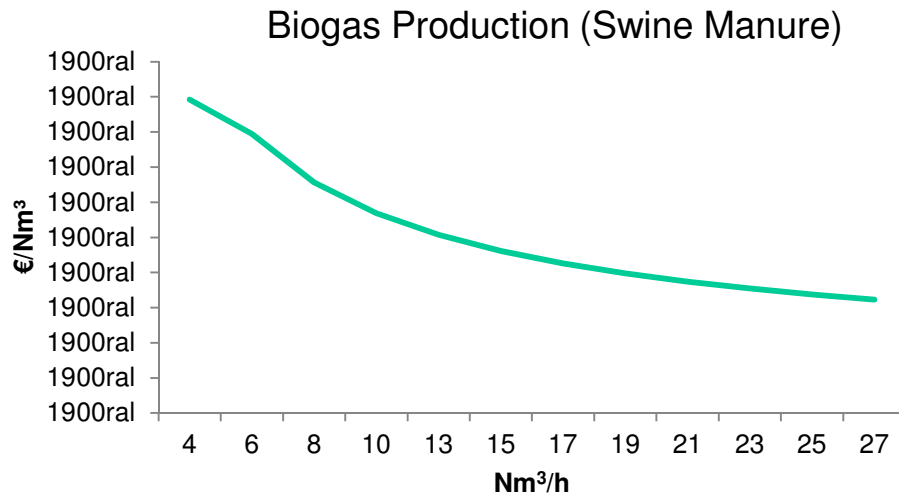
(3) Data not available.

Economic Data

- Investment costs



- Operating costs



Financial Support Available

- **The Low Carbon Agriculture Program, or ABC:**
 - Offers credit to producers to develop technologies to reduce the carbon dioxide emissions;
 - The target group is farmers and their cooperatives;
 - The limit credit is R\$ 1.000.000,00 by beneficiary per crop year;
 - The interest rate is 5,5% a year.
 - Deadline: 5 to 12 years with up to 3 years of grace.
- **PRONAF ECO:**
 - Credit to projects with renewable energy technology in waste treatment and effluent stations;
 - The target group is family farmers under PRONAF;
 - The limit credit is R\$ 50.000,00 by beneficiary;
 - The interest rate is 2% a year.
 - Deadline: 10 years with up to 5 years of grace.

Financial Support Available

- Research and Development (R&D) Program by National Electric Energy Agency (**ANEEL**) – Call 014/2012:
 - Strategic Project: “Technical and Trade Arrangements for Inset Generation of Electric Energy Produced by Biogas from Landfill and Wastewater in Brazilian Energy Matrix”;
 - 23 projects were registered with a total cost of R\$ 476.721.392,44. The total installed capacity is 33,71 MWp.
- Program to support the Strategic Investments in Innovation of Brazilian Companies (Inova Program) by Financier of Studies and Projects (**FINEP**) – Calls in 2013:
 - Inova Energy - ANEEL / BNDES;
 - Inova Agro - MCTI / BNDES;
 - Inova Sustainability - MCTI / MMA /BNDES.
- Recently, the state government of Sao Paulo issued a decree to remove the collection of taxes for property and equipment for renewable generation with biogas.

National Strategy

- **National Policy on Climate Change:**
 - Reduce emissions of greenhouse gases from 36,1 % to 38,9 % by 2020;
 - Budget: R\$ 6 billion;
 - One of the goals is to use anaerobic digestion to treat 4.4 million m³ of agricultural residues, providing a saving of 6,9 million tonnes of CO₂
- **Biogasfert Network:**
 - This project is a cooperation between the Itaipu Binational and the Brazilian Agricultural Research Corporation (Embrapa).
 - Budget: € 2.5 Million;
 - The main challenge of the project is developing technologies for production and use of biogas and fertilizer from treatment of animal waste under the ABC Plan
 - The network comprises 14 research organisations
 - Action Plans (PAs) of Embrapa specialise in fertiliser
 - Itaipu and CIBiogas coordinate 2 PAs: a team of experts in biogas.

National Strategy

- Brazil-Germany project to encourage the energetic use of biogas in Brazil (**Probiogas**):
 - Coordinated and executed by the National Secretariat of Environmental Sanitation of the Ministry of Cities and the German Agency for International Cooperation GIZ;
 - The main goal is to expand the energy use of biogas in Brazil in sanitation and agricultural initiatives;
 - Time scale: 5 years (2013 - 2017);
 - Budget: €10 Millions.
- **National Program on Biogas and Biomethane;**
 - Aims to institutionalize the process of production and use of biogas and biomethane in the country, in order to achieve more significant goals for the participation of these energy sources in the Brazilian energy matrix;
 - Supported by the Brazilian Association of Biogas and Biomethane.

National Strategy

- **Support for exploitation of Biogas through permanent structures:**
 - Brazilian Association of Biogas and Biomethane;
 - International Center for Renewable Energy – Biogas (CIBiogas).
- **Brazilian Association of Biogas and Biomethane:**
 - Founded in December 2013 by 18 public and private institutions from all segments of biogas in Brazil: research, production, processing, distribution;
 - The Association aims to be a channel for dialogue with civil society, the federal and state governments, municipalities and agencies responsible for planning Brazilian energy.

International Center for Renewable Energy – Biogas

ELETROBRAS,
ITAIPU and ONUDI



I World Renewable
Energy Forum
Foz do Iguaçu/BR

May/2008

RIO +20



Letter of Intent to the
Constitution
CIBiogás-ER.

June/2012

CIBiogas-ER



General Assembly
Foz do Iguaçu - BR

May/2013

International Center for Renewable Energy – Biogas

- **Mission:**
 - Develop biogas as a product;
 - Carry out biogas applications development.
- **Vision:**
 - Will be a reference Center of Biogas Energies Electric, Thermal and Automotive in 5 years.
- **Main Structure:**
 - Demonstration Units: Demonstrates full-scale viability of biogas.
 - Methodology: Territorial Management; the economy of the biogas; distributed generation; small power circuits; energy park.
 - Technology: Digesters; gas holders; pipelines; filters (upgrading); monitoring; electric and thermal energy; vehicular use; macrophyte; energy forests.
 - Capacity: Disseminate expertise in renewable energy.

Thank you!