ProBioPol

Promoting and Supporting Implementation of Biogas-Polygeneration:

A systematic Approach towards Sustainable Energy Consumption in Romania

ProBioPol is an official Project of the EC, founded from the Community's Sixth Framework Programm (Contract No. TREN/07/FP6EN/S07.73851/038387)

What is Biogas ?

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Biogas is the gas that is the product of the digestion of organic materials under anaerobic conditions. Substrates such as manure, sewage sludge, municipal solid waste, biodegradable wastes or feedstock are transformed into methane and carbon dioxide.

Typical composition of biogas

- **Matter**
- **Methane, CH_4** 50-75 %
- **Carbon dioxide, CO_2** 25-50 %
- **Nitrogen, N_2** 0-10 %*
- **Hydrogen, H_2** 0-1 %
- **Hydrogen sulphide, H_2S** 0-3%
- **Oxygen, O_2** 0-2 % *

*often 5 % of air is introduced for microbiological desulphurisation

The process of **anaerobic digestion** is done by methane bacteria.

Biogas Technology (1): Basics

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Biogas-Plants have two main products, the first is the Biogas itself, furthermore there is the digestate (the liquid and solid residues after fermentation).

Biogas consists of 50 to 70 % of methane. It has a caloric value of about 23 MJ/m³ (methane 35,8 MJ/m³), so one m³ contains the same amount of energy as 0,6 litres of oil. Usually it is combusted in combined heat and power sets (Cogeneration Plants). Biogas can be stored, bottled and transported in the same ways as natural gas so that the existing infrastructures can be used.

Biogas is very flexible in it's potential use. This guarantees a maximum of efficiency and on the long term, Biogas is a RES, which will play an important role in European infrastructure for energy supply and mobility. This meets EU-policy goals

Biogas Technology (1): Placement

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- Biogas plants should be near to the feedstock: A biogas plant with an installed power of 350 kW_{el} has a need of about 10.000 tons of feedstock per year, corresponding to 500 lorry cargoes. Each km of transport of feedstock has to be paid for.

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- Problems due to bad odours can be avoided by intelligent technology and placement

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→ Placement is the first point to be thought about when thinking about a biogas plant

Thank you for your attention !