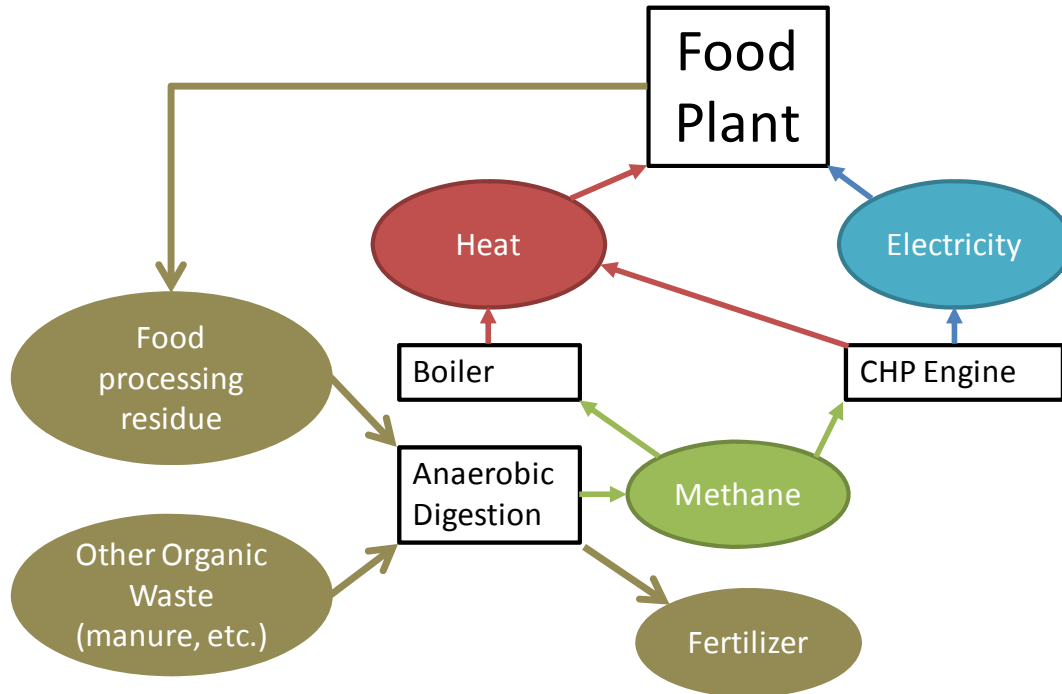


## BIOGAS<sup>3</sup> – Sustainable Small-scale biogas production from agro-food waste for energy Self-sufficiency

### Biogas<sup>3</sup> cycle



#### What is the BIOGAS<sup>3</sup> project?

**Intelligent Energy – Europe (IEE)** is a research program, launched in 2003, that offers help to organisations willing to improve energy sustainability. Europe wants to create better conditions for a more sustainable energy future in areas as varied as renewable energy, energy-efficient buildings, industry, consumer products and transport. BIOGAS<sup>3</sup> (Sustainable Small-scale biogas production from agro-food waste for energy Self-sufficiency) is a new project, launched in 2014, in this European context. Its main objective is to promote the sustainable production of renewable energy from the biogas and the energy diversification. This latter arises from organic waste, which could be agricultural residues but also food and beverage industry waste. The project focuses on small-scale concepts for energy self-sufficiency.

#### What is the biogas?

Biogas is a renewable energy with a very small carbon footprint. It is actually a blend of gases produced from biodegradable materials such as recycled waste and by the breakdown of organic matter in a non-oxygenated environment. This process, called anaerobic digestion, involves anaerobic bacteria and fermentation. It is mainly methane and carbon dioxide with small amounts of hydrogen sulphide, moisture and siloxanes.

Anaerobic digestion for biogas production is a well-known technology used in municipal waste and wastewater treatment plants. Indeed, the energy released by the biogas can be used as a fuel but also converted into electricity and heat. Thus, this technology has multiple benefits:

- **Economically:** energy savings due to self-consumption of thermal and electric energy and waste management cost savings,
- **Energetically:** reduced losses due to near use,
- **Environmentally:** reduction or zero transport for raw materials, CO<sub>2</sub> emission abatement, reduction of the carbon footprint,

The purpose of the project is to apply this interesting technology to agro-food waste, forced to conclude that the agro-food industry is only slightly affected by these methods of energy production. Moreover, there are still strong differences between the EU-27 member states concerning biogas plants implementation in this sector. Thus, the project could assist in the standardization of knowledge and expertise for the use of this technology.

### What is the project plan?

The project concentrates on the agro-food sector and will first analyse the needs of food industries in terms of energy, as well as the difficulties encountered when considering installing a biogas production facility. Second, the necessary tools to address these needs will be developed, including:

- Models for business collaboration
- Models for energy demand management
- Small-scale process design for food industries
- Promotion, trainings (face-to-face and on-line), awareness and networking

Third, **on-field actions** will be carried out to promote this small-scale concept and to bring the developed tools to the end-users. A specific programme of face-to-face activities with the most promising implementation sites will be conducted.

## Agri-food industries could benefit for a free assessment of the potential of biogas use for their own situation

### Who are the project's actors?

AINIA, a Spanish technology centre specialized in the agro-food sector has initiated this project and works now with several partners allowing a cross-collaboration between different European countries. All key actors are represented: agro-food industry associations (FIAB - Spain, ACTIA - France, Technoalimenti - Italy), research centres dedicated to agro-food industry and bioenergy (AINIA - Spain, JTI - Sweden, UNITO - Italy, IFIP - France), bioenergy associations (IrBEA - Ireland), and training and dissemination specialists oriented to renewable energies (RENAC - Germany, FUNDEKO - Poland). At last, the project is expected to provide valuable information to national and European policy makers and may help to develop renewable energy policies and legislation.

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