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## Application of 'smallBIOGAS' to 3 pilot case studies in Ireland

**BIOGAS<sup>3</sup>**

Sustainable small-scale biogas production from agro-food waste  
for energy self-sufficiency

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**Authors:**

BIOGAS<sup>3</sup> Consortium

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**CONTACT:**

Coordinator	Begoña Ruiz (AINIA)
Telephone	+34 961366090
E-mail	bruiz@ainia.es
Website	www.biogas3.eu

## Table of contents

General statements .....	3
Annexes: Results of the application of `smallBIOGAS` to 3 pilot case studies in Ireland (pdf-files).....	4

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## General statements

The tool smallBIOGAS has been tested in three pilot case studies for the next countries: France, Germany, Italy, Ireland, Poland, Spain and Sweden.

The pilot cases presented have been carried out in order to test the tool and evaluate the viability of small-scale AD installations under different scenarios in the mentioned countries. The data used to create the scenarios has been obtained from the questionnaires (task 2.2) and additional companies interested in the project BIOGAS<sup>3</sup>.

As a result of pilot cases application, all the partners have prepared a list of remarks and comments regarding functionality of the tool, as well as suggestions for modifications. The remarks and suggestions have been - where possible – applied for the tool improvement.

In addition to that, it is possible to identify small-scale AD viable scenarios. Next, it has been included the main conclusions related to viability of small-scale AD as well as a description of pilot case studies in **Ireland**.

It could be concluded that the application of small-scale in Ireland could be very successful. The test cases used show that biogas can profitably be applied in smaller scale situations if certain criteria are met. Key to success of this are the following:

- Capital Cost. Quoted prices from biogas companies are very high – this is largely due to the factor of larger scale plants being built in the UK and Northern Ireland where biogas is heavily subsidized. Because plants in the UK and NI are very profitable the cost of construction and the size of projects have risen considerably. Dedicated biogas plant builders are seeking considerable profits to construct smaller plants. This additional cost is making it difficult to employ dedicated biogas building companies. Instead the smaller scale type biogas plants will need to rely on some own construction – this will not be a problem in farm settings where the farmers are used to carrying out a variety of construction work, the only labour cost required will be from specialists such as electricians, equipment installers, gas installers, among others.
- Gas usage:
  - Onsite thermal – Utilising boilers and absorption chillers the biogas could be used to meet onsite heating and cooling demands. This would be particularly interesting for dairy farms and food producers who have high heat demands.
  - Electricity generation – to make this successful in meeting onsite demands net metering will be required, or alternatively by integrating the Renewable Energy feed-in tariff.

The detail of each pilot case will be presented one by one in the annexes of this document. All are available in English language.

## Annexes: Results of the application of `smallBIOGAS` to 3 pilot case studies in Ireland (pdf-files)

As a result of the application of `smallBIOGAS`, two pdf-files for each pilot case study have been created. The reference file number includes also the letter 'S' in case of pdf-file with the summary of substrates used for the process of biogas production.

The reference file numbers for Ireland are 263-BG3, 263-BG3S, 388-BG3, 388-BG3S, 406-BG3 and 406-BG3S.

Below it has been included a description of the pilot case studies carried out for Ireland.

*Table1. Description of the case studies and agroindustry addressed*

Case study						Agroindustry addressed	
Ref. Nr.	Location	Objective	Comments	Substrates	Biogas use	Farm	AFI
263-BG3	Co. Kerry	Digesting pig slurry from the finishing unit (higher dry matter content) and using the resulting biogas to meet onsite demands for weaner house heating.	Successful plant in operation for 12 years. Biogas plant made by converting over ground slurry store. Work done by the farmer. Some additional work may be required for gas cleaning as boiler is heavily corroded. Also tank insulation needs to be repaired after storm damage.	Pig Slurry  Total amount: 9 180 t/year	Boiler  150 kW	x	
388-BG3	Co. Laois	Meet onsite demands for electrical and thermal energy by digesting cow slurry.	Proposed plant will operate largely on cow slurry from 100 cows but may need additional substrates during the summer months while cows are on grass. Heat will be used for dairy wash water and for domestic heating.	Dairy cow slurry  Total amount: 1 200 t/year	CHP engine  8 kW	x	
406-BG3	Co. Cork	Meet onsite demands for thermal energy by digesting cow slurry. Digestate will be separated to allow for better nutrient management and reduced transport costs.	Farmer plans to build herd to 1200 cows, housed all year around. Milk from own herd and another herds will be pasteurised and processed on site. It may be suitable to consider CHP for the site however at this stage the proposer wishes to utilise heat for milk processing and potentially digestate fibre drying. CHP may be difficult due to weak electricity grid in the area.	Dairy cow slurry  Total amount: 29 800 t/year	Boiler  540 kW	x	x