



Project Information Sheet

Algal treatment of biogas digestate and feedstock production (AlgaeBioGas)

Programme area:	Water, Green Industry
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Website:	www.algaebiogas.eu
Benefits (max. 150 characters incl. space):	Improved quality of biogas digestate liquid part, feedstock produced, CO ₂ and nutrients cycled on site, excess heat effectively used and odour reduced
Keywords:	Biogas, algae, wastewater
Sector:	Green Business
Type of solution	process, technology
Duration:	01/09/2013 – 31/08/2016
Budget:	€ 925 371 (EU contribution: 50%)
Contract number:	ECO/12/333018

Summary

AlgaeBioGas project is focused to market introduction of algal-bacterial treatment of biogas digestate and feedstock production, an innovative technology which has significant economic and environmental benefits to biogas operators. Demonstration centre is being built at biogas plant in Slovenia and will start to operate in July 2014. We invite interested companies and individuals to visit the demonstration centre and see the technology in operation.

Algae hold great potential for energy use because of their growth rate, easy production and better utilization of sunlight compared to conventional plants, shorter lifecycles and independence from fertile agricultural land. Biogas plants are rich sources of mineral nutrients, CO₂ and heat. By algal treatment of biogas digestate, we can **improve quality of digestate liquid fraction**, reduce **energy consumption** compared to classical wastewater treatment, **solve digestate logistic problems**, **produce algae** which can be used as an energetic substrate or processed in bio refinery, **recycle CO₂ emissions**, effectively **use excess heat** and **reduce odour of digestate**. Nutrients are recovered and cycled on-site.

Expected and/or achieved results

Project technology goals: for a 1MWe agricultural biogas plant we plan to recycle 95% of nutrients in liquid phase of digestate on 3-5 ha of algal bacterial treatment facility with biomass production between 150 – 250 t/y and recycling 200 – 500 t of CO₂ emissions yearly. Produced biomass will replace 10 – 25 ha of corn out of 335 ha if only corn was used as a substrate and compared to classical bacterial wastewater treatment: we will reduce energy consumption for digestate treatment by ~140 MWh yearly, CO₂ emissions up to 1.100 t CO₂ annually and significantly reduce NO_x and N₂O emissions. There are more than 10000 biogas operators in EU; we estimate that some 10% of them are ready for our technology today.

By M9 we have completed the detailed design of the 100m² demonstration centre. Most of the construction and connection to the biogas plant has been completed, so that in the high summer season we will be performing the initial runs. Inoculation culture is ready and pilot tests completed.

Initial business planning was done and initial market data was gathered. Web-site was established.

In general project is running as scheduled, except that the demonstration centre operation is starting earlier than planned (to take advantage of the season) and some more advanced instrumentation will be installed later.