



## Project Information Sheet

### Algal treatment of biogas digestate and feedstock production (AlgaeBioGas)

<b>Programme area:</b>	Water, Green Industry
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<b>Partners:</b>	KOTO, production and trading company, ltd., Slovenia
<b>Website:</b>	<a href="http://www.algaebiogas.eu">www.algaebiogas.eu</a>
<b>Benefits (max. 150 characters incl. space):</b>	Improved quality of biogas digestate liquid part, feedstock produced, CO <sub>2</sub> and nutrients cycled on site, excess heat effectively used and odour reduced
<b>Keywords:</b>	Biogas, algae, wastewater
<b>Sector:</b>	Green Business
<b>Type of solution</b>	process, technology
<b>Duration:</b>	01/09/2013 – 31/08/2016
<b>Budget:</b>	€ 925 371 (EU contribution: 50%)
<b>Contract number:</b>	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 has been built at biogas plant in Slovenia started 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, CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub> 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, CO<sub>2</sub> emissions up to 1.100 t CO<sub>2</sub> annually and significantly reduce NO<sub>x</sub> and N<sub>2</sub>O emissions. There are almost 15000 biogas operators in EU; we estimate that some 10% of them are ready for our technology today.

By M19 we have constructed the 100m<sup>2</sup> demonstration centre and it has been operating for 7 months now. We collect and publish all the data from the demonstration centre. A lot of experience with operation has been collected and we are progressively optimizing operating parameters.

Initial business planning was done and initial market data was gathered. A comprehensive market and legislation analysis has been completed. First customer visits were very successful and some dissemination activities also resulted in good feedback.