

## Position paper on Biomethane

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### Biomethane will contribute to a sustainable energy system

In the transition towards a low-carbon energy system GIE believes that gas and gas infrastructure will have a key role in a low carbon sustainable energy system and in the transition towards such a system. GIE is therefore dedicated to develop a gas infrastructure that allows renewable gasses to be transported safely and cost-efficiently throughout Europe and thereby contribute to achieve the decarbonisation of the European energy mix.

Renewable gases can be produced through several different processes and can be created using many different sources of energy. Typical examples include biogas made from anaerobic digestion and gasification or hydrogen produced from renewable electricity, which can be injected to a certain extent directly into the gas network or transformed into synthetic natural gas.

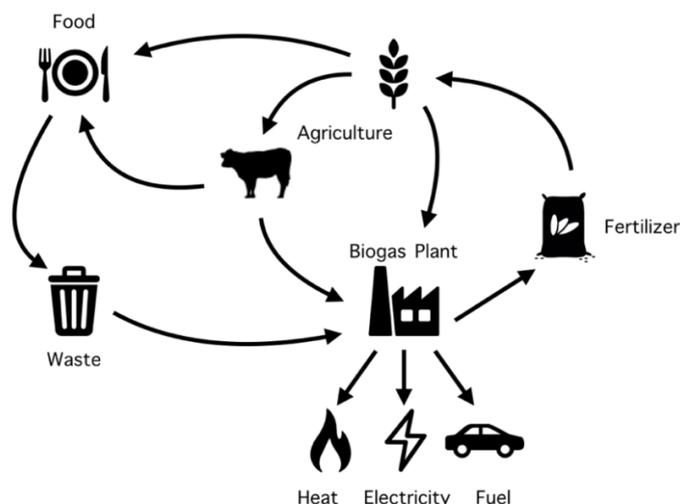
In order for the raw biogas to be injected into to the natural gas grid CO<sub>2</sub> and other impurities are removed or by cleaning and methanation of syngas from thermal gasification of biomass. In both cases the gas is upgraded to comply with the national specifications i.e. biomethane. This allows it to be injected into the European gas grids, where it has the same wide range of application as natural gas.

Therefore, by treating the renewable gas to meet the required specifications, it can be injected into the gas grid, stored easily and delivered directly to the consumer.

### Biomethane a multi-purpose energy source

Biomethane is a renewable energy with multiple purposes and thus carbon reduction benefits as it can be used across many sectors such as electricity generation, industry, heating/cooling and in all modes of transportation from passenger cars to trucks or ships. Furthermore, the production of biomethane embraces the idea of circular economy as it transforms waste streams from e.g. agriculture and wastewater treatment, into energy while simultaneously ensuring that the nutrient is recirculated back to the farmland.

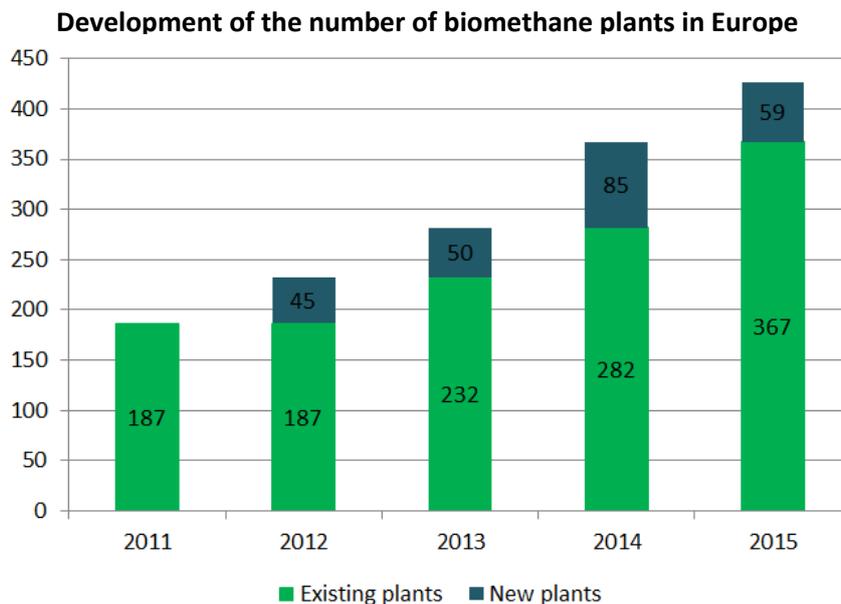
Closed loop with biogas plant as a link between waste and resources



Source: Platform Biogas Action

By coupling biomethane production with Power-to-Gas (P2G) production carbon reduction benefits can be achieved as the CO<sub>2</sub> which is removed from the biogas can be used in P2G processes (methanation) and the waste heat can be utilised in the district heating system or in the biogas plant itself. This will greatly increase the overall efficiency of both processes as well as the amount of renewable gas produced.

For those reasons, the production of biomethane is a proven technology which is in widespread usage in many Member States. During the last years the amount of biomethane plants in the EU has grown significantly as shown in figure 1.



Source: EBA Statistical Report, 2016<sup>1</sup>

## Biomethane in the European gas grid

Once biogas is produced, the most cost-effective option is to use it near the point of production to meet local requirements for heat and/or power. Where there is insufficient local demand, upgrading the biogas to biomethane for injection into the gas grid can be a useful alternative. Europe has an extensive gas grid totalling 2.2 million kilometres with more than 300 biomethane plants injection into the gas network. Upgrading biogas to biomethane and injecting it into the gas grid ensures an optimised and cost-efficient way to transport and distribute “clean” energy. In order to drive the development and thus ensuring a cost-efficiently connection and usage of the gas infrastructure to transport and store biomethane, the TSOs are actively developing and implementing tools and user-friendly connection procedures in accordance to the needs of biomethane producers.

By injecting biomethane into the gas grid, it can be stored and thus provide “green” flexibility as it can be delivered directly to the consumers when and where it is needed. Furthermore, as biomethane holds similar specifications as natural gas, existing gas consumers, e.g. individual households, can convert to low-carbon fuel without further investments in new appliances.

GIE believes that the gas infrastructure and gas market model are in an ideal position to ensure that biomethane can be injected locally but traded and utilised globally. GIE therefore supports the

<sup>1</sup> EBA Statistical Report, 2016. Stambasky, J., Pfluger, S., Deremince, B., Scheidl, S. - Statistical Report of the European Biogas Association, Brussels 2016

development of biomethane through market based mechanisms in order to take full advantage of the benefits brought by the gas grids. It is therefore important to ensure that biomethane can be traded and utilised where it is most valued without compromising transparency or the risk of double counting.

Based on the many inherent benefits of biomethane GIE supports the continuous development of the European market for biomethane and is dedicated to support the development of increasing the share of biomethane in the European natural gas grids when and wherever it is deemed rational.

## **Biomethane constitutes a new way of operation**

From the point of view of gas infrastructure operators, it is important to notice that the integration of biomethane constitutes a new way of “thinking” as it is produced decentralized in the downstream sector as opposed to today’s large natural gas producers. Furthermore, due to varying gas qualities between biomethane and natural gas it is important to determine what the grid can handle safely in terms of e.g. varying gas quality standards, requirements for measuring, inhibiting cross border gas flow etc. In order to reduce the grid access costs etc. GIE is dedicated to work with research institutions that are looking into the possibility of modifying gas quality requirements to be better suited to renewable gas such as biomethane - all without compromising the safety for consumers, grids and storages.

## **Challenges**

To facilitate the injection of biomethane in the European gas grids, a number of challenges must be overcome:

- Lack of a common European biomethane market.
- Different, non-coherent certifications models in the different countries, making it difficult to trade biomethane across national borders.
- Varying gas quality standards and requirements for measuring increasing the costs of building new plants and inhibiting cross border gas flow. For the injection of biomethane in the natural gas networks it is important that a higher harmonisation at EU-level is achieved, which does not compromise safe operation nor creates unnecessary barriers for injection and transportation.
- Different methods and rules for injection of biomethane also increase the costs of building new plants.
- The stakeholder relations of the gas sector are based in a long history, which does not necessarily give the right attention to the voice of the new users of the gas system such as biogas producers, biomethane upgraders and potential biomethane consumers; thus, the challenge is to ensure that whole value chain of the new biomethane users is taken into account in the current gas stakeholder relations.
- The political attention on biomethane and other renewable gases is not very high, as the focus is often on renewable electricity production; there is a need for a level playing field between the different renewable solutions.
- When assessing that cost it is important that the many described inherent benefits are accounted for instead of being compared 1:1 with other renewable energy sources.
- Lastly, as the current costs of biomethane (as it is the case with many renewable technologies) are higher than natural gas and given the fierce competition with other renewable energy-sources, it is important to promote and ensure political support for R&D,



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demonstration projects, and a consistent and stable regulatory support framework that allows the biogas industry (including new markets and business models) to develop and become more competitive and efficient until reaching maturity.

A number of European stakeholders and organizations are working to overcome some of these challenges.

## **Solutions**

To help overcome these challenges GIE will:

- Continue to bring focus on the challenges facing biomethane injection into the transmission grid, and work to overcome these challenges.
- Ensure the attention of the EU commission and other policy makers of the challenges that biomethane is facing.
- Stringently face the obstacles to grid access that the rules imposed are creating for the biomethane producers.
- Support any Marcogaz/GERG/EBA activity that is aimed at increasing the knowledge of biomethane related issues regarding safe operation of the grid.
- Support the development an European biomethane market in order to take full advantage of the benefits brought by the gas grids.
- Support any initiative that will establish an independent, transparent and trustworthy documentation scheme for mass balancing of biomethane distributed along the European gas infrastructure.