

R2Gas Workshop:

Biomethane – The most evident renewable fuel today

On 25 April 2023, 14 experts from the whole biomethane chain of custody discussed the actual status of the relevant renewable gas, its development and policy, the potential and the limits of biomethane production as well as the business opportunities. Apart from the specialists of R2Gas, speakers from six different companies and organizations presented their entities' views. Four major topics were tackled ranging from policy to application. The speakers together with the audience reaffirmed the various studies presented, proving the importance of this sustainable energy, especially in the light of the desired independence from Russian fossil gas. The technology – even though well established for years - still bears considerable growth potential even under the strictest environmental conditions.

WI. The workshop, held in Vienna on the 25th of April 2023, was the first organized by the private Research Centre for Renewable Gases (**R2Gas**), a non-profit association, seated in Vienna. 65 leading experts of the EU biomethane industry gathered in Vienna to discuss the relevant issues and future development of biogas. Participants discussed the input presentations under consideration of the whole production and market chain. The valuable exchange of information and independent knowledge will help future development and formulation of further biomass projects. The workshop was divided into four sessions: 1) Frame conditions; 2) Technologies; 3) Input materials and 4) Markets. Under each topic three to four contributions were presented.

Frame conditions

Currently, biomethane is a hot topic in the European Union and subsequently also in the member states. In total six new or renewed legislations are on the table in which biomethane is concerned in one way or another. Recently, the target for biomethane was set by the REPowerEU programme: The production of 35billion cubic meter by 2030; a target that is also expected to be anchored in the gas package. Other legislations in discussion are RED III/IV; CO2-standards for cars and vans as well as for heavy duty vehicles; fuel EU Maritime and Alternative Fuel Infrastructure. Austria, who is advanced in the national biomethane legislation, was presented as an example of a member state. Equally important is the cross-border gas registration including guarantees of origin which was presented on the basis of the central and eastern gas exchange.

Technology

Anaerobic digestion has become a standard technology especially for electricity production. But in view of the ending subsidies for power production as in the case of Germany, the change to biomethane production is a perfect option to further use the biogas plant. The subsequent liquification allows a more efficient (dense) storage and an even broader application of biomethane, e.g. in shipping and heavy duty transport. Further two presentations highlighted two new technologies. Through gasification of solid biomass, the so called syn gas – a composition of mainly hydrogen and carbon monoxide - is produced allowing to synthesize biomethane as well. Austria will continue this pathway with the Advanced Biofuel Lab. The goal is to install 9 commercial plants and to produce a significant amount of green gases in the mid-term. Power to gas is another new technology for the production of methane. The most applied process is the electrolysis producing hydrogen followed by the Sabatier reaction forming methane. At the workshop a new and promising

technology under development was presented called bioelectro-chemical process without electricity consuming steps.

Input Materials

Pre-condition for a sustainable biogas production is the utilization of sustainable biomass. By 2030 onwards, the conventional by-products might become a limiting factor. Three contributions discussed alternatives such as a technological approach where improved digestion systems can handle difficult degradable material. The application of crop grown on marginal land and sequential crop, grown instead of inter-species fallow land. Even more promising is the application of ample available algae for the concomitant production of proteins and biogas.

Markets

Nothing happens without a real functioning market. To build it up, several factors must play together for a business case as was presented in the last four contributions. Supply and demand must be balanced at competitive costs over an extended period of time to build a business case; an optimized market chain including producers, grid operators and traders and gas utilizers must be guaranteed; a pan European harmonized registering system for renewable gas certificates including guarantees of origin and sustainability and at last stable prices for the “green value” and broadly accepted benefits from by-products are all such mandatory factors.

The contributions will be shortly available for free on the website of R2Gas.