Renewable Gas from biogenic and not biogenic sources in EU

Biogas Italy 15th February 2018; Rome

Jan Stambasky President, European Biogas Association



European Biogas Association: >7000 stakeholders



EBA Statistical Report

Overview of the European Biogas Industry



EBA Statistical Report 2017

nber from 48 to 330 units during the same

number from 44 to 330 units outing the same unite period (+282 units). In 2016, biogas plants based on landfill waste

I+ce2 units), in 2010, bloges plants based on samon waste were still the most numerous, with a total of 351 units (40% were sus one music numerous, with a totar or 551 units (40% of the total number), closely followed by plants based on

Cth.

Fricultural substrates (38%), as highlighted in figure 2-FR.

Agriculture Sewage Landfal

mber of plants per feeds

Agriculture Sewage Landfill Other nce (left) and IEC per feedstock in 2016 (right) in the bioges

73

ince (left) and nu

EBA and Eurostat data also show that the num con ano curostat oata also sitovi trat tre numoer of otogas plants in France has greatly developed since 2010 (earliest EBA data). The total number of plants

əns in 2010 to 873 in 2016 (+375 units, see figure 2-

rose from 498

Evolution of the Number of Biogas Plants in Europe



Electricity Production from Biogas in the EU28



Evolution of Biomethane Plants in Europe



European Biomethane Map

81 52



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Statistical Report of the EBA 2017

- Annual 120 + pages report
- Extensive analysis of the European biogas and biomethane sectors (coverage of 32 EU countries)
- Detailed analysis of 23 EU countries providing updated statistics and national legal background evolution
- Based on the expertise of national associations and industries
- AVAILABLE AT EBA
- Only **400,- Euro**



EU Biomethane Industry

Overview of the European Biomethane Industry



2G Biomethane from Biogas? BiogasDoneRight!

HUMAN INFLUENCE: Sources of Emissions

Energy production remains the primary driver of GHG emissions





Biogas Done Right?

- ✓ Farm profitability improved? Yes!
- ✓ Farm resilience improved? Yes!
- Food production maintained or enhanced? Yes!
- New stable jobs created? Yes!
- ✓ Farm less dependent on external fertilizers? Yes!
- ✓ Renewable energy exported to the rest of society? Yes!
- Practical approaches to biogas validated? Yes!
- ✓ Soil fertility improved? Yes!
- ✓ Potential for net greenhouse gas reduction? Yes!
- ✓ Innovation continuing? Yes!

VENBIOGAS DONE RIGHT? YES!!



European Biomethane Industry



Why Biomethane (and not H₂)?

- Existing infrastructure, feed-in without any restrictions at any time: Pipelines, network, facilities, storage in caverns/aquifers, gas turbines, appliances compatibility, ...
- 3,5 times higher storage capacity: Hydrogen needs much more space (or pressure...) for the same amount of energy
- Existing and affordable consumer applications CH₄ is already an universal energy carrier - CNG cars and busses, CNG/LNG trucks, ships, industry
- > Methane is also a *raw material*!
- Flexibility: depending on the market situation and the infrastructure, energy can be transferred between different energy carriers.



Biomethane Statistics & P2M Capacity



Synergy with Biomethane Production



European Biogas Association

Source: Sterner, M.; et. al.: Renewable (power to) methane, Fraunhofer IWES, Germany

Synergy in Process Integration

- Methanation produces heat, which can be perfectly integrated into the upstream gas production facilities, thus heat is fully utilised
- Biological P2M process can be integrated even more, and to replace the raw biogas upgrading process (Viessmann)
- Gasification offers large scale process integration
- Carbon efficiency dramatically increases in both processes: P2M process integration significantly improves the CO₂ footprint of biomethane, thus enabling greening more natural gas



Shall We Exploit Lithium or Carbon???



Working Together...



Enabling the European Biomethane Market



Gas For Climate



The Gas for Climate group was established to develop and communicate a vision on the benefits of using renewable gas and gas infrastructure in meeting the Paris Agreement climate change target

Session III: Kees van der Leun - ECOFYS



European Renewable Gas Registry



- The Complete Documentation has been developed
- Submitted to the EC in December 2017



Conclusions

- Biomethane industry is a strong and mature partner for green electricity, with considerable production capacities today, and sound potential for the future
- Power-to-Methane technology has no limits in conventional gas industry and its implementation is cheaper and quicker
- Power-to-Methane technology and biomethane production are much synergetic, easily integrated, and with tremendous potential in utilization of existing CO₂ streams



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