Renewable gases in the European Green Deal

The European Biogas Association (EBA) warmly welcomes the ambition of the new European Commission to strive for climate-neutrality by 2050. This is both a big challenge and opportunity for Europe, and will only be possible with holistic and comprehensive policies which make full use of sector coupling and integration models. Renewable energy will need to replace fossil energy and Europe will at last need to implement a polluter-pays-principle, taking account of the full spectrum of pollutants, including CO_2 to NOx emissions and particulate matter. **Biogas, biomethane and other renewable gases (hereafter referred to as 'renewable gases') will play a key role in helping Europe's transition to a clean energy system with a genuinely resource-efficient and circular economy. Renewable gases will enable carbon-neutral (or even carbon-negative) Europe with zero pollution by 2050.**

According to several recent studies[1] the potential of biomethane from anaerobic digestion and biomass gasification produced in the EU will be around 100-120 billion cubic meters (bcm) by 2050 (about 1,200-1,400 TWh). Together with increased energy efficiency, and renewable hydrogen, the European gas supply can be 100% renewable in 2050. In order to reach this full potential by 2050, the development of renewable gases, still a nascent activity, must be broadly deployed and significantly accelerated to bring down the cost.

European policies must be aligned and made fit for purpose across all sectors, on and off the grid. Among other policies, what is needed is, on the one hand, energy **prices which reflect all climate and environment externalities (CO_2 & air pollutants, biodiversity)**, and, on the other, **an EU target for renewable gases reflecting a clear commitment to increasingly green the gas supply**. This would encourage EU Member States to unlock their national potential of renewable gases which would generate ample benefits: adequate waste management, resource-efficient agriculture and displacement of fossil energy triggering significant emission savings. A European-wide target should also build on and support at the same time the implementation of existing policies including the Waste Framework Directive (source separation of bio-waste) and the Common Agricultural Policy (greening measures and the use of renewable energy on farms).

Renewable gases are a key enabler of sector integration:

- They can help cities and municipalities to establish a **local and circular bio-economy**: organic residues, such as food waste, are separated and fermented in anaerobic digestion plants producing biogas and, once upgraded, biomethane, reducing emissions (food waste generates about 8% of global greenhouse gas emissions[2]). Biomethane can then be used to fuel for instance urban garbage trucks; thereby reducing noise pollution and improving air quality when replacing diesel-powered trucks. Furthermore, scaling up renewable gases is estimated to create 600,000–850,000 additional direct jobs and 1.1–1.5 million indirect jobs by 2050[3]

[1] Navigant "Gas for climate: the optimal role for gas in a net-zero emissions energy system"; Trinomics "Impact of the use of the biomethane and hydrogen potential on trans-European infrastructure"; CERRE "Future Markets for Renewables Gases & Hydrogen : Biomethane from AD and gasification"

[2] FAO (2011), IPCC (2019)

[3] Navigant : "Gas for Climate - Job creation by scaling up renewable gas in Europe"

- Renewable gases production makes European **agriculture greener, helping it to reduce greenhouse gas (GHG) emissions and making it more resource-efficient** while providing diversified income for farmers. The utilisation of manure for renewable gases production with controlled storage conditions can prevent GHG-emissions from livestock breeding. Renewable gases can replace fossil energy through self-produced biogas and use the digestate to replace chemical fertilisers. Farmers can thus reach energy self-sufficiency and / or sell their bioenergy (and bio-fertiliser) on the market. At the same time, all essential nutrients including phosphorus, nitrogen and potassium are recycled back to the soil. Renewable gases therefore have the potential to support and reward improved farming practices generating benefits that can be monetized. An additional benefit from the use of organic soil improver (bio-fertilizer/digestate) and cover crops, is that they can sequester carbon in soils. The EU Member States should be incentivised to demonstrate soil carbon savings in line with RED II (Annex VI B-34) through additional carbon credit accounting (carbon negative credits), eligible for trading within the Emissions Trading System (ETS). Finally, food security can be improved through resource-efficient farming which makes best use of digestate as a bio-fertiliser, thereby improving soil quality. This should be considered under the farm-to-fork strategy.
- Renewable gases **make transport more sustainable by utilising** bio-CNG and bio-LNG which support emissions reduction in those areas of the transport sector that are difficult to electrify, such as marine, heavy-duty and public transport. Biomethane can be used directly in existing gas vehicles and provide an advanced biofuel delivering immediate emissions reduction in the transport sector. A recent lifecycle analysis of IFPEN[4] presents bio-CNG as the most beneficial transport solution for any segment (from light vehicles to heavy trucks and buses). All European legislation (including the CO_2 standards for vehicles and the Clean Vehicles Directive) must take a full life cycle analysis into account, instead of the tank-to-wheel approach; ensuring a technology-neutral approach and material reduction in emissions and pollutants across all European modes of transport. The EBA very much welcomes the Commission's plan to extend the ETS to the maritime sector.
- In the **heating sector**, renewable gases are compatible with existing gas boilers, and so can facilitate a transition of renewable heat without the need for extensive disruption or infrastructure. Furthermore, hybrid systems, such as those utilising heat pumps and gas can be a very cost-effective route to decarbonising heat[5]. As such, renewable gases thus contribute to a cost-effective and affordable energy transition.
- In the **power sector**, renewable gases have an important role to play filling the gap when intermittent renewable energy does not deliver sufficient electricity. Renewable gases can also be stored whilst power-to-gas technology utilises surplus electricity from intermittent renewable energy sources to produce renewable hydrogen. When combined with CO_2, this hydrogen can be methanised and injected without restrictions into the existing gas grid using the existing gas infrastructure as storage. Moreover, biogenic CO_2 from biomethane plants can be captured leading to negative emissions and further highlighting the importance of biomethane's use in the future energy mix. CO_2 captured from this process can be used in different industries or, when combined with renewable hydrogen, renewable synthetic methane can be produced. Thus, biogas complements renewable electricity and makes it much more flexible and adequate to the demand.

[4] IFPEnergies Nouvelles, "LCA Study of Vehicles Running on NGV and bioNGV"
[5] Navigant "Gas for climate: the optimal role for gas in a net-zero emissions energy system"

- Renewable gases will also be needed in the **energy intensive industries**, particularly where processes which currently rely on fossil fuels cannot be electrified. These industries include, for example, refineries as well as the chemical, glass and steel industries. We look forward to a strong industrial strategy that helps to green energy intensive industries and improves their circularity/circular use of resources.

Renewable gases are thus unique, helping Europe to mitigate climate change by providing multiple knock-on effects for environment. They are ready to be deployed with great production potential as of today.

Thus, in summary, EBA encourages the European Commission to present a European Green Deal that will:

- ➔ Increase the ambition of Europe on the way to carbon-neutrality by raising the greenhouse gas reduction target to 50-55% by 2030.
- ➔ Recognise in the coming legislations the important role of renewable gases as an enabler of greenhouse gas emissions reduction, sector coupling/integration and circular economy.
- ➔ Introduce a real and effective polluter-pays-principle reflecting climate and environmental externalities (CO_2 & air pollutants), with appropriate measures that cover the Common Agriculture Policy, financial instruments (like a Carbon Border tax) and the Gas Market Directive.
- ➔ Extend the ETS to further sectors, such as maritime transport while avoiding carbon and investment leakage through adequate financial instruments.
- ➔ Enforce the role of renewable energy in all energy sectors including gas by introducing a European target for renewable gases. This target would simultaneously help to achieve the overall renewable energy target and the greenhouse gas reduction target in the RED II.
- ➔ Allow further investments in the gas infrastructure to make it fit for renewable gases.
- ➔ Compel long-term gas strategies to follow the vision of renewable gas-only consignments in European gas grids.
- ➔ Create a European market for renewable gases by removing legal barriers and distortive effects and encouraging cross-border trade of biomethane.
- ➔ Revise the Annex IX of the RED II to include sequential crops (with any starch content!) in the feedstock for advanced biofuels and include in the revision of the Common Agricultural Policy that resource-efficient use of agricultural residues, waste and secondary crops to produce renewable energy and biofertilisers on farms are supported.
- ➔ Include renewable gases in the industrial strategy to help coal dependent regions to make the transition from coal to decarbonised and renewable energy.
- ➔ Introduce lifecycle approaches in all sectors, including transport to support investments and R&D in truly clean and sustainable technologies.
- ➔ Set up research programmes which links renewable gas technologies with political objectives such as circular bio-economy.
- ➔ Introduce investment support for large-scale production of renewable gases from innovative technologies such as gasification and power-to-methane.