

Integrating biogas in the sustainable future of rural areas

The EBA welcomes the publication of the European Commission's (EC) roadmap for the adoption of the Communication on a Long-Term Vision for rural areas. EBA associates have strong ties to rural areas and have been producing renewable energy – i.e. biogas – for over 10 years. Biogas is indeed a primary driver of circular economy at local level and we are eager to interact with the EC services responsible for adopting the communication for the whole duration of the consultation.

Biogas helps farmers to drastically reduce the negative externalities of their activities and allows them to recycle organic nutrients and restore the fertility of soil. Biogas is also getting more and more important for the sustainable management of municipal solid bio-waste and it allows Member States to achieve their recycling targets. The EBA and its members believe that biogas and biomethane are a crucial resource for the present and future of rural areas.

According to the EC demographic report¹, some regions face a twin-challenge of low income and rapidly declining population. These regions are mainly rural areas. At the same time, current projections predict that the population will age and decline in the long run and gravitate towards urban areas. The EC does not plan to reverse this trend and prefers to develop a long-term strategy that facilitates structural adaptation to the future society.

A horizontal demographic policy must be developed and implemented in coordination with the main directions of political economy, sustainable development and growth. Given the rural nature of the strategy, we believe that, in drawing it up, the EC should also pursue the objectives of the CAP. In particular, we hope that the strategy will mobilise the necessary resources to achieve the objective of Article 39 (b) of the Treaty on the Functioning of the European Union "ensuring a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture". In the abovementioned demographic report, the EC identifies a correlation between low income in rural areas / high income in cities and the emptying of the countryside / increasing urbanisation. These data confirm that the CAP supports farmers but that the resources invested are not sufficient to ensure the sustainable development of rural areas. To reverse this trend, larger investments are needed, or more efficient ones.

Poor productivity and international competition for agricultural commodities are the reasons behind low income in rural areas, according to an OECD study² cited by the EC demographic report. The abandonment of the countryside is linked to low wealth and desertification and soil degradation, as the JRC points out in a 2018 study³. Investments in digitalization, internet connections and renewable energy serve to boost rural area productivity, as the OECD suggests in its study and we hope that the EC is ready to listen to the recommendation of the OECD. The EBA is ready to ease the exchange of information between the EC and the European renewable gas sector to ensure that the future of rural areas is sustainable. Moreover, we warmly suggest aligning the

¹ European Union (2020), *Report on the impact of demographic change*
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0241&from=EN>

² OECD (2018), *Policy note Rural 3.0 – a framework for rural development*
<https://www.oecd.org/cfe/regional-policy/Rural-3.0-Policy-Note.pdf>

³ JRC (2018) *Agricultural Land Abandonment in the EU within 2015-2030*
<https://ec.europa.eu/jrc/sites/jrcsh/files/jrc113718.pdf>

Communication on the future of rural areas also with (i) the upcoming methane strategy⁴, (ii) the current discussion about the regulatory framework for certification of carbon removals⁵ and (iii) the announced carbon farming⁶ initiative.

Biogas plants allow many European farmers to convert their conventional activities into sustainable agriculture to supply the bioeconomy, according to a newspaper survey⁷. Indeed, based on the testimonies collected by the author in Northern Italy, numerous farmers were led to grow starchy/sugar crops, oil crops, ligno-cellulosic crops, herbaceous crops and arboreal crops in order to survive market changes. The development of such cultures has allowed farmers to continue their activity, but it also posed new challenges to the preservation of the environment and the biodiversity, and it created a negative impact on food security. However, new techniques based on crop rotations and cover crops are proving successful to reduce the use of herbicides, increase the carbon capture of the soil, favour conservation of pollinators and enhance efficient usage of land for crops production⁸. Constant research, investments and advisory services are nonetheless crucial to adapt the crop rotations to different climate and regional conditions. In addition to contributing to the attainment of the renewable energy targets – 20% by 2020 – these farmers have often benefited from the digestate from the biogas plant.

The digestate is an organic fertilizer recognized by the European Regulation on Fertilizing Products and which is rich of organic carbon. By regularly returning organic carbon to soil, farmers can improve its quality, health and fertility, and replace mineral fertilizers, which are a cost factor, with an organic product, that can also be used in organic farming. EBA kindly highlights that biogas promotes agroecology in agriculture and restores soil health and fertility, thus reducing land-abandoning and enhancing the development of the local communities. The EBA therefore would warmly suggest the EC to assess the role of renewable gas for the sustainable future of rural areas.

Moreover, biogas has been important for over 10 years for the European energy mix. A European Parliament report (2016)⁹ estimated that, in 2010, 10% of renewable energy came from agriculture. Comparing the Parliament's data with Eurostat's data¹⁰, we note that renewable energy production has increased by 27% in 2018. However, although drawing an overall positive image for bioenergy from agriculture, the report fails to recognize two additional benefits of biogas. First, biogas prevents methane emissions – a very powerful greenhouse gas – from livestock sector and manure management. Second, agricultural crops remove CO₂

⁴ European Union (2020), *Roadmap - Ares(2020)3600489*

<https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12504-EU-Methane-Strategy>

⁵ European Union (2020) *New Circular Economy Action Plan* – “The Commission will explore the development of a regulatory framework for certification of carbon removals based on robust and transparent carbon accounting”

https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

⁶ European Union (2020) *Farm to Fork Strategy* – “Farming practices that remove CO₂ from the atmosphere contribute to the climate neutrality objective and should be rewarded, either via the common agricultural policy (CAP) or other public or private initiatives (carbon market). A new EU carbon farming initiative under the Climate Pact [expected in Q3 2021] will promote this new business model, which provides farmers with a new source of income and helps other sectors to decarbonise the food chain”

https://ec.europa.eu/food/sites/food/files/safety/docs/f2f_action-plan_2020_strategy-info_en.pdf

⁷ Cavarzan Elia (2020), *Il grande affare del biogas nelle campagne venete*, Internazionale <https://www.internazionale.it/reportage/elia-caverzan/2020/07/16/biogas-affare-veneto>

⁸ Biogasdoneright® model was firstly introduced in Italy by Consorzio Italiano Biogas (CIB) as an agroecological transformation of the conventional production to sustainably supply biomethane. Additional crops are grown before or after the harvest of the main crop on the same agricultural land without requiring additional land for food and feed production. For instance, evidence shows that maize, triticale, wheat, or ryegrass silage can all be produced as additional (second) crop before or after the harvest of the main crop on the same field.

<https://www.consorziobiogas.it/wp-content/uploads/2017/05/Biogasdoneright-No-VEC-Web.pdf>

⁹ European Union (2016), *Renewable energy in EU agriculture* EPRS | European Parliamentary Research Service

[https://www.europarl.europa.eu/RegData/etudes/ATAG/2016/593546/EPRS_ATA\(2016\)593546_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2016/593546/EPRS_ATA(2016)593546_EN.pdf)

¹⁰ Eurostat – SHARES (Renewables)

<https://ec.europa.eu/eurostat/web/energy/data/shares>

concentrations from the atmosphere – i.e. via the natural photosynthesis. Therefore, agriculture is not only carbon neutral. If current accounting system would sum together (i) renewable energy generation with (ii) methane emission reductions and (iii) atmospheric carbon removals, agriculture could be a carbon negative activity.

Current estimates have found that when manure from livestock farming is introduced into the anaerobic digestion plant, considerable CH₄ emissions are prevented and renewable gas (biogas) is produced. If all manure produced in Belgium were managed in this way, the agriculture sector would generate renewable heating for 1 million Belgians, offsetting 1.2 million tonnes of CO₂ every year¹¹. Just like biogas, bioLPG also offers opportunities for consumers that are not connected to the gas grid to meet their heating and cooking needs. BioLPG was launched in 2018 and currently being supplied in 9 different European countries. For rural areas that are located off-the-gas grid, bioLPG also offers a cost-effective heat decarbonisation solution for domestic and industrial consumers. A significant share of rural dwellings in the EU currently rely on heating oil and coal for heating purposes. Switching away from more polluting solid and liquid fuels like heating oil and coal to LPG offers CO₂ savings and improves local air quality. Moreover, on top of renewable heating and cooking, biogas has many others application and can help decarbonise also electricity and power sectors as well as energy-intensive industries. Biofuels are especially crucial to decarbonize the transport sector in maritime, aviation and heavy-duty vehicles, for which electrification solutions are still far from being viable by, due to too high-costs.

Renewable gas is a young but lively sector that can sustainably help rural communities to develop and grow. Also, new technologies which upgrade biogas to biomethane have been on the market for 10 years and the number of upgraded plants grew by 188% between 2011 and 2018¹². In 2018, there were also > 18.000 biogas plants in Europe¹³. Growth trends from 2009 to 2018 show that an additional increase of 50 % in the next 10 years – i.e. by 2030 – is feasible. Wastewater and sewage sludge treatment plants can also be upgraded to produce biomethane. We hope that the Commission will warmly welcome and acknowledge the potential of biomethane for the long-term sustainable development of rural communities.

Biomethane is enriched biogas. It can be used as a clean fuel, in energy-intensive industries, in domestic heating and can be injected into the national gas grid. Independent studies by CERRE¹⁴, Guidehouse¹⁵, and Trinomics¹⁶ have estimated a production of biomethane > 90 bcm by 2050, if a suitable legislative and policy framework is put in place. The future of rural areas might be coupled with a new biomethane alliance that the EC might launch with the adoption of the strategy. The novel “alliances approach” of the battery alliance, plastic alliance, hydrogen alliance, artificial intelligence alliance is very successful and democratic. Alliances are multi-stakeholders platforms. They bring investors together with governmental, institutional and industrial partners to identify technology needs, investment opportunities and regulatory barriers and enablers.

Rural areas cannot rely exclusively on landscape features in the future. Although they have been destinations for tourism and leisure for long time, the COVID-19 crisis has revealed the instability of this sector and the costs involved in adaptation. The lesson taught by the pandemic crisis should provide a strong motivation first to counter climate change in advance rather than afterwards, as the adaptation costs will be tremendously high.

¹¹ Estimations are made by the green gas platform and are based on Belgian greenhouse gas inventory 2018. <https://www.greengasplatform.be/assets/greengasplatform-fr.pdf> the publication was accessed last time in August 2020.

¹² EBA (2020) *EBA Statistical Report. European Overview 2019*

¹³ EBA (2020) *EBA Statistical Report. European Overview 2019*

¹⁴ Centre on Regulation in Europe (CERRE) (2019), *Future markets for renewable gases & hydrogen: what would be the optimal regulatory provisions?*

¹⁵ Guidehouse (2020), *Gas Decarbonisation Pathways 2020–2050. Gas for Climate*
https://gasforclimate2050.eu/?smd_process_download=1&download_id=339

¹⁶ European Union (2019), *Impact of the use of the biomethane and hydrogen potential on trans-European infrastructure*
<https://op.europa.eu/en/publication-detail/-/publication/10e93b15-8b56-11ea-812f-01aa75ed71a1>

Second, diversifying the activities in rural areas other than relying just on tourism will be crucial in the next years – i.e. promoting local circular economy and renewable energy. The EC has proposed in the Biodiversity Strategy¹⁷ a set-aside target of land in favour of landscape features. We believe that this target is inconsistent with the objectives of CAP, the Green Deal and that it would worsen the trend outlined in the demographic report – population decline and low income. Agricultural production can safeguard and provide ecosystemic benefits, provided that farmers receive adequate support to adopt agroecological practices. Stopping production would depopulate rural areas, thus depriving communities of many associated benefits. Rather, other policies and resources should be in favour of maintaining ecosystems and allowing farming communities to develop. Landscape features might be used on land already abandoned to make them fertile again. Anaerobic digestion could create 200,000–275,000 local and high skilled direct jobs and another 300,000– 400,000 indirect jobs by 2050, according an indepent report by Guidehouse¹⁸.

We would be glad to discuss with the EC alternative approaches and strategies for promoting conservation of biodiversity and ecosystem services, rather than setting a mandatory target on unproductive land. Some of the EBA members from France, Germany and Italy have already researched and introduced novelties in their cropping systems that deliver good environmental outcomes for pollinators, reduce tillage rounds as well as irrigation needs, fit with the biogas model, and allow the sector to move away from the traditional energy crops. Cover crops, annual and perennial mixed crops (wild plant mixtures), mixed crops with grain and perennial crops are very important for the natural capital. These novelties also support farmers to implement agroecology practices by substituting mineral fertilizers with organic digestate, which is a source of nutrients – e.g. nitrogen (N), P (phosphorus), or potassium (K) – for plants. Moreover, farmers can integrate the new crops either with food production – or with feed for livestock – without incurring in additional land-use change. However, an unclear and non-harmonized legislative framework, as well as inefficient and non-aligned incentives, often undermines the uptake of this best practice.

We would like to highlight that the decarbonisation of the economy requires not only renewable energy but also energy efficiency. In many cases biomethane is more efficient than electricity, for instance in industrial furnaces for the separation and recycling of metals contained in solar panels. Gas can reach higher temperatures and be easily stored, consuming less than an industrial electric oven would do. Moreover, post-composting of digestate and district-heating are two industrial symbiosis practices applicable to biogas plants that reduce external energy consumption and increase efficiency. In both cases, the heat generated by a production process is reused onsite or off-premises. We also stress that biogas enables sustainable waste management based on separate collection, recycling and cost reduction. On the contrary, waste management based on disposal requires astronomical investment to reduce emissions that are harmful to the environment and pose a risk to human health.

According to a study carried by ENEA Consulting¹⁹, and quoted in the report²⁰ by the French Energy Regulator (CRE) to assess the decarbonisation of the gas sector, the value of positive externalities generated by biomethane is between 40 and 70 euros per MWh. The EBA hopes that the EC will be interested in understanding the challenges and opportunities that arise from harmoniously integrating biogas and biomethane into rural areas. To ensure the development of the sector, in conjunction with demographic

¹⁷ European Union (2020), *Biodiversity Strategy for 2030 Bringing nature back into our lives*
https://eur-lex.europa.eu/resource.html?uri=cellar:a3c806a6-9ab3-11ea-9d2d-01aa75ed71a1.0001.02/DOC_1&format=PDF

¹⁸ Guidehouse (2019), *Job creation by scaling up renewable gas in Europe. Gas for Climate*
https://gasforclimate2050.eu/?smd_process_download=1&download_id=275

¹⁹ ENEA Consulting (2017), *État des lieux du biométhane en France et pistes de réflexion pour le développement de la filière*
<https://www.enea-consulting.com/wp-content/uploads/2017/11/ENEA-biomethane-france-2017-synthese-publique.pdf>

²⁰ Commission de régulation de l'énergie (CRE) (2019), *Le verdissement du gaz*
<https://www.inrae.fr/sites/default/files/pdf/rapport-sur-le-verdissement-du-gaz-prospective-cre-1.pdf>

projections and the need to protect the environment, the EBA is ready to interact with the EC for the duration of the consultations. The EBA can involve agronomists, engineers and farmers to share details and information about their field experience.

Finally, all farmers and all rural areas need to be connected to fast and reliable internet. This is a key enabler in terms of jobs, business and investment in rural areas, and improves the quality of life in areas such as healthcare and e-government. Access to high-speed broadband internet will also allow smart and precision farming and the use of sensor technologies and artificial intelligence to be mainstreamed. It will allow the EU to fully harness its global leadership in satellite technology. This will cut costs for farmers, improve soil management and water quality, reduce the use of fertilisers, pesticides and greenhouse gas emissions, and create a healthier environment for biodiversity, farmers and citizens. This can also directly lead to the creation of new products and services that farmers and their cooperatives, by being more skilled and better equipped, will thus be able to provide society as a whole.

The Toolkit for Rural Broadband²¹ was a much-needed initiative. However, we see that full coverage of rural areas has not yet been achieved. The Farm to Fork Strategy sets target of 100% high-speed broadband coverage by 2025 but ways to achieve this relies exclusively on CAP national strategic plans. This is not enough, and it risks jeopardizing broadband availability in European rural areas: a more coordinated approach supporting knowledge exchange, capacity building, infrastructure development, and cross-border cooperation is crucial.

We are also sceptical that private investments alone will be sufficient to cover all rural areas. We hope that the European Structural Funds, Invest EU, the Union's Economic Recovery Programme, the Digital Europe Programme and Connecting Europe Facility will help to improve investments in digital infrastructure, particularly in connectivity and reliability. Rural areas in general and in the agricultural sector should not be left behind as far as future technologies are concerned – e.g. broadband (optical fibre) is also essential to prepare for the future 5G. A wider divide between cities and rural areas will broaden the current gap and make future adaptation even more expensive, as many development and green growth opportunities are lost.

²¹ <https://ec.europa.eu/digital-single-market/en/news/european-commission-joins-forces-help-bringing-more-broadband-rural-areas>