



Biogas market development and regulatory framework in the Energy Community

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INTRODUCTION

1. About ECRB

The Energy Community Regulatory Board (ECRB) operates based on the Energy Community Treaty. As an institution of the Energy Community, the ECRB advises the Energy Community Ministerial Council and Permanent High Level Group on details of statutory, technical and regulatory rules and makes recommendations in the case of cross-border disputes between regulators. ¹ ECRB is the independent regional voice of energy regulators in the Energy Community. ECRB's mission builds on three pillars: providing coordinated regulatory positions to energy policy debates, harmonising regulatory rules across borders and sharing regulatory knowledge and experience.

2. Background

Decarbonized gases play an important role in diversifying energy supply and achieving net-zero economies. The EU hydrogen and gas decarbonisation package, consisting of Directive (EU) 2024/1788 and Regulation (EU) 2024/1789, was adopted in May 2024 for the EU Member States. It updates the rules on the EU natural gas market set out in Gas Directive 2009/73/EC and Gas Regulation 715/2009 and provides regulatory framework for facilitating renewable gas development. The EU hydrogen and gas decarbonisation package has not yet been adopted for the Energy Community; thus Directive 2009/73/EC and Regulation 715/2009 determine the legal basis for natural gas markets, including injection of biomethane to the gas grids. The acceptance of renewable gases, including an efficient connection of biomethane production to the transmission or distribution system was namely enabled already with the Third Energy Package, whereas their injection has been conditioned by meeting safety and gas quality requirements.

Directive (EU) 2018/2001 on promoting the use of energy from renewable sources (RED II) was adapted by the Ministerial Council Decisions (2021/14/MC-EnC of 30 November 2021, 2022/02/MC-EnC of 15 December 2022) and incorporated in the *acquis communautaire* (acquis) of the Energy Community, replacing Directive 28/2009/EC (RED).

RED II, on top of the sustainability criteria for biogases used in transport sector defined by RED in 2009, introduced a system of guarantees of origin (GO) for biogas, which provides evidence to a final customer that this biogas was produced from renewable sources. Directive (EU) 2024/1788 (RED III) and the Implementing Regulation (EU) 2022/996, which are not the part of the Energy Community acquis, set the additional rules aimed at verifying the

¹ www.energy-community.org. The Energy Community comprises the EU and Albania, Bosnia and Herzegovina, North Macedonia, Georgia, Kosovo*, Moldova, Montenegro, Serbia and Ukraine. Armenia, Turkey and Norway are Observer Countries. Throughout this document the symbol * refers to the following statement: This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Advisory Opinion on the Kosovo declaration of independence.

compliance of biogas sustainability and greenhouse emissions saving criteria and low indirect land-use change-risk criteria.

Together with National Energy and Climate Plans the above-mentioned legislation provides basic regulatory framework for further development of markets for biogas.

While the price of natural gas does not cover the costs for biomethane production (gasification of biomass and upgrading or purifying biogas) i.e. biomethane price is not competitive with the price of natural gas, biogas is usually used for the production of electricity from renewable sources, which is incentivized in accordance with directives on renewable energy. Thus, the utilization of biogas in electricity production contributes more to national targets on the consumption of renewable energy, than in the production of biomethane.

Considering the importance of the security of gas supply and variability of the natural gas prices, the production of sustainable biomethane in the natural gas system, compliant with the criteria set out in RED II, supports the national climate objectives and helps to diversify the energy supply.

3. Scope and methodology

This report analyzes the current status of market development as well as the regulatory framework for biogas used in biomethane production and includes two Energy Community Contracting Parties ('Contracting Parties')- **Serbia and Ukraine and two EU Member States Austria and Romania**. The information for Bosnia and Herzegovina, Moldova and North Macedonia was not available. In Georgia, the production of biomethane is not in place. In Türkiye, there is no regulatory framework for the production and injection of biomethane into the gas grid.

The report also provides recommendations for steps to be taken towards efficient network and biogas production development and security of gas supply, considering changes in the gas supplies to Europe and the latest amendments of the EU acquis, which are further expected to become the part of the Energy Community acquis.

The data presented in this report refers to **2023** if another year is not mentioned.

FINDINGS

1. Overview of biogas production and biomethane injection into the transmission and distribution grid

Table 1 provides information on general indicators of biogas production and biomethane injection into the TSO/DSO grid. The total amount of biogas production in **Austria** was not available, but it can be concluded that the sum of the biomethane production and the biogas used for the production of electricity (*685 091 MWh in 2022, 697 144 MWh in 2023*) was much higher than the amount of biogas production in **Romania** (*306 000 MWh in 2022*) and **Ukraine** (*1 294 MWh in 2022, 1 447 MWh in 2023*). At the same time, it was comparable with the amount of biogas production in **Serbia** (*609 215 MWh in 2022, 627 272 MWh in 2023*).

Austria has the biggest number of biogas plants among analyzed countries (*286 in 2022, 316 in 2023*). Although with the lowest level of biogas production, **Ukraine** has more biogas plants than **Romania and Serbia**: 83 biogas plants are located in **Ukraine**, 37 - in **Serbia** and 28 - in **Romania**.

Biogas production relies on the following main technologies²: biodigesters (including centralised digesters at small, medium or large scale and decentralized digesters at household scale), landfill gas recovery systems, and wastewater treatment municipal plants.

Ukraine, Romania and Serbia have reported about utilization of digestion technologies with biomass produced in agricultural sector. Also, in **Romania** the sludge from water treatment plants is used in anaerobic digestion and there is biogas collection at landfills and solid waste dumpsites in **Ukraine**.

In **Austria, Romania, Serbia and Ukraine** biogas is used for the production of electricity.

In **Austria and Ukraine** biogas is also used for biomethane production- there are 14 plants connected to the TSO/DSO grid in Austria, while in Ukraine there is only one. But unlike in **Austria**, in **Ukraine** there was no biomethane injection into the grid (TSO/DSO) in the reporting period.

² <https://www.iea.org/reports/outlook-for-biogas-and-biomethane-prospects-for-organic-growth/sustainable-supply-potential-and-costs>

Table 1 Biogas production and biomethane injection into the TSO/DSO grid

<i>MWh/year, units</i>	Austria		Romania		Serbia		Ukraine	
	2022	2023	2022	2023	2022	2023	2022	2023
Biogas production	NA	NA	306,000	213,000	609,215	627,272	1,294	1,447
Biomethane production	136,809	134,039	NA	NA	0	0	0	0
Biogas used for the production of electricity	548,282	563,105	273,000*	176,000*	34,799	33,858	1,294	1,447
Technologies for biogas production	NA	NA	anaerobic digestion - biological waste, energy crops, sludge from water treatment plants		agricultural biogas generation plants		anaerobic digestion in reactors, biogas collection at landfills and solid waste dumpsites	
Number of biogas plants	272 - electricity production, 14 - biomethane production	302 - electricity production, 14 - biomethane production	28		37		83	
Number of biomethane plants connected to the grid (TSO/DSO)	14		0		0		1	

* Biogas used for electricity and heat generation

2. The regulatory framework for biomethane injection into the transmission and distribution grid

RED III stipulates that "*Member States may grant production facilities for biomethane priority to connect*" (articles 41 and 45) and that "*Requests for the grid connection of renewable gas production should be assessed within reasonable time limits and monitored by the relevant regulatory authorities. It should be possible to prioritise connection requests at transmission and distribution level for renewable gas production over connection requests for the production of natural gas and low-carbon gas*". However, as mentioned above, this directive is not the part of the Energy Community legislation.

The Directive 2009/73/EC, which is replaced in the EU, but still valid for the Energy Community Contracting Parties, defines (Preamble [26]) that concrete measures should be taken "*to assist the wider use of biogas and gas from biomass, the producers of which should be granted non-discriminatory access to the gas system, provided that such access is compatible with the relevant technical rules and safety standards on an ongoing basis.*"

Romania, Serbia and Ukraine have reported that they do not apply special connection rules, network charges and support schemes for biomethane injection into the TSO/DSO grid. But during 2022 – 2023, in **Ukraine**, the NRA made some decisions to foster biomethane connections to the TSO/DSO grid: special conditions for connecting the reverse flow compressor stations of biomethane producers and reduction of molar fraction of oxygen content for gas allowed for injection into the grid.

Austria incentivizes connection of biomethane plants to the grid. Namely, the costs for the first-time connection of biomethane production plants to the distribution grid are socialized, but if the connection ratio is not exceeded (network connection ratio of up to 60 m³ CH₄ equivalent/h, connection costs for new lines to be constructed up to 3 km). The network charge (distribution level) for the injection of biomethane is *much lower* than the charge for the injection of conventional gas.

According to RED II, mandatory for the Contracting Parties to the Energy Community, and upgraded to RED III for the EU, the "*support scheme*" means *any instrument, scheme or mechanism, that promotes the use of energy from renewable sources by reducing the cost of that energy, increasing the price at which it can be sold, or increasing, by means of a renewable energy obligation or otherwise, the volume of such energy purchased, including but not restricted to, investment aid, tax exemptions or reductions, tax refunds, renewable energy obligation support schemes including those using green certificates, and direct price support schemes including feed-in tariffs and sliding or fixed premium payments.*

There are investment grants for existing biogas plants to switch from electricity generation to the biomethane injection into the public gas grid (annual funding of EUR 15 million) and investment grants for new biogas plants (annual funding of EUR 25 million) in **Austria**. The current political target is to increase the biomethane injected into the gas grid from 0,134 TWh (2023) up to 5 TWh in 2030 (for comparison: gas consumption in **Austria** was 75,6 TWh in

2023). The new proposed but not yet adopted target is 6,5 TWh in 2030, which accounts for 8,34% of the yearly gas consumption.

Table 2 The regulatory framework for biomethane injection into the TSO/DSO grid

Indicator/Country	Austria	Romania	Serbia	Ukraine
Special rules for connection	The costs for the first-time connection of biogas production plants to the distribution grid are socialized, but on certain conditions (connection ratio and length of pipeline)	no	no	no, but some decisions aimed at facilitating biomethane connections have been made by the NRA
Network charges	The network usage charge (distribution level) for the injection of biomethane is much lower than the charge for the injection of conventional gas	No benefits	No benefits	No benefits
Support schemes	Investment grants for existing biogas plants for the conversion from electricity generation to the feed-in of biomethane into the public gas grid (annual funding of EUR 15 million) and investment grants for new biogas plants (annual funding of EUR 25 million).	no	no	no
Status quo of the system for issuing the guaranties of origin	Available	in implementing phase	NA	In implementing phase
Disclosure of the share of gas produced from renewable sources	In the gas bill, the register of E-Control,	in implementing phase	NA	No disclosure, since there is no register of biomethane producers

Article 19 of RED II states, that *»for the purposes of demonstrating to final customers the share or quantity of energy from renewable sources in an energy supplier's energy mix and in the energy supplied to consumers under contracts marketed with reference to the consumption of energy from renewable sources, Contracting Parties shall ensure that the*



origin of energy from renewable sources can be guaranteed as such within the meaning of this Directive, in accordance with objective, transparent and non-discriminatory criteria».

The system for issuing the guarantees of origin is not available in **Romania, Serbia and Ukraine**. In **Austria**, guarantees of origin are issued by the national regulatory authority (E-Control) and the disclosure of the share of gas produced from renewable sources is carried out via gas bills and the register of E-Control.

CONCLUSIONS AND RECOMMENDATIONS

The largest amount of biogas production is observed in **Austria and Serbia**, but biomethane is produced only in **Austria**, where it amounts to one fourth of biogas used for the electricity production., and where support schemes are in place

The countries without the support schemes (**Romania, Serbia and Ukraine**), such as special rules for connection and network charges for biomethane producers, did not have any injections of biomethane into the TSO/DSO systems. Production of biomethane cannot compete with the current natural gas prices.

Without the support schemes and special conditions of access to the TSO/DSO system for biomethane producers, the production of biomethane may not be promising. Potential biomethane producers will keep producing biogas, because it is made profitable through the support for electricity production from renewable sources, which is still not the case for gases produced from renewable sources. Implementation of the EU Hydrogen and Gas Decarbonisation package, Directive 2018/2001/EU (RED III) and Implementing Regulation (EU) 2022/996 would provide necessary legal prerequisites for biomethane development in **the Contracting Parties**. However it will not be sufficient without intersectoral approach (energy, agriculture, waste management, industry, transport, environment) to the decarbonization agenda.