SI Baltic Sea Neighbourhood Programme

WORKSHOP 2

# Polish biogas sector development: drivers and barriers

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Polish Biomethane Organization

The Polish Biomethane Organization (POB), established on September 6, 2022, brings together industry experts and representatives of leading fuel, energy, and heating groups operating in the domestic market. The primary goal of POB is the development of the biomethane market, which can accelerate the energy transition process and help the country achieve independence from energy imports.

OUR GOALS

- The creation and development of a comprehensive knowledge and legal framework for the biomethane industry,
- Undertaking and supporting actions to promote the growth of the biomethane sector and its significance in the decarbonization process of the Polish economy,
- Influencing the development of Polish and EU legislation that regulates and supports the advancement of biomethane utilization,
- Shaping optimal organizational, legal, and technical solutions to facilitate the development of biomethane applications, the implementation of modern production technologies, and the use of biomethane, as well as models for contracting, sourcing, and supplying biomass, including its certification,
- Representing the economic and social interests of associated members at the national, EU, and international levels.

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**Ecotechnologies Laboratory:**

- Provides research that concern the processes of methane fermentation, composting, technologies focused on deodorization, reduction of greenhouse gas emissions, methods of organic waste management and wastewater and leachate treatment.
- Largest biogas research laboratory in Poland with over 220 batch reactors and 6 continuous reactors.
- Equipped with 16 composting bioreactors of volumes ranging from 50 to 1000 dm3.
- Over 3500 different materials analysed as substrates for biogas production.

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- **Polish Energy Policy** for 2021-2030 assumes an increase in the share of RES in the country's energy mix to 23.5% by 2030.
- Poland is one of the few EU countries where in spring 2025 there is still not a single working biomethane plant.
- The situation is better in the case of the biogas market – the municipal biogas sector is generally experiencing stagnation (despite thevery great interest of local governments).

**Biomass could generate more than 20% of Poland's total energy consumption.** Poland has the fifth most biomass incentives in the EU.

Projected size of the Polish biogas market around 2035:
10-13 thousand installations with an average capacity of 0.5 MWe or several hundreds biomethane plants with bigger size.

| Poland | |
|---|---|
| **Number of agricultural biogas plants** | **~160** |
| **Electric power installed** | **0.17 GW** |
| **Main substrate used** | **farmyard manure** |

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# Polish biogas sector in figures:

- **388 biogas installations** in Poland (including 166 agricultural ones).
- **638 mln m3 biogas/year** – amount of agricultural biogas produced annually in Poland (KOWR data for March 2024)
- **35 mld m3 biomethane/year** EU production target for 2030

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# Biogas substrates availability: potential of Poland

- The most available substrate: farmyard manure - over 90 million tonnes of manure and slurry (from over 130 mln tonnes produced);
- 8 million tonnes of cereal and rape straw (out of a total of over 30 mln tonnes produced annually);
- 4 million tonnes of maize straw (from over 6 mln tonnes produced);
- over 10 million tonnes of waste from food processing, sugar factories, slaughterhouses, dairies, distilleries, and refood, i.e., expired and rotted food);
- over 9 million tonnes of waste from the municipal sector (organic fraction of municipal waste, green waste, sewage sludge);
- over 1.5 mln ha of non-cultivated or degraded surface.

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# Barriers:

- Weak policy and regulatory framework for biogas and biomethane production.
- Unsure financial support for the production and use of biogas and biomethane.
- Lack of modernisation of gas and electricity grids and infrastructure.
- Low public awareness and level of knowledge about biogas production.

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# Possible directions of Polish biogas sector development

small cogeneration installations

larger biomethane plants with access to the network or a bioLNG condensing unit

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**Biomethane plant in Brody experimental farm**

- Start of fermentation proces: Spring 2025;
- Capacity of production: 700,000 $m^3$ bioCH4/a, 200 kWe;
- Challenges to connect with local gas grid.

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# PBO Report: ‘The Potential of biomethane Production in Poland

## Biomethane production potential from agri-food sector waste*


ESTIMATED BIOMETHANE PRODUCTION POTENTIAL IN POLAND

16 bilion m³

REALISTIC BIOMETHANE PRODUCTION POTENTIAL IN POLAND

9 bilion m³

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# Challenges for Poland:


- Legislation and changing administrative decisions: long and complicated procedures including consultations and different permits;
- The lack of free connection capacity for RES installations;
- Public resistance.

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# High bioCH4 FIP price for plants up to 250 m3/h + guarantees of origin

**2024 amendment to the Renewable Energy Sources Act - key changes**

The introduction of new support mechanisms for the biomethane sector significantly improves investment conditions and provides stability and predictability for producers.

**Guaranteed price for biomethane – first bioCH4 OPEX support in Poland**

The amendment introduces a guaranteed price mechanism for biomethane plants (up to 250 m3/h):

- **545 PLN/MWh** - for agricultural biogas
- **538 PLN/MWh** - for biogas other than agricultural biogas.
- Duration: **20 years**, which ensures long-term profitability of the investment.
- Revaluation mechanism - **annual indexation** of the tariff to the rate of inflation, in line with the recommendations of the European Commission.
- Size optimizing models are available for the bioCH4 projects maks. 500 m3/h.

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# Amendment to the RES Act - Conditioning of biomethane

**Purpose of the amendment**

The bill aims to address the technical challenges of conditioning biomethane to meet the requirements of certain regional gas networks.

**Main challenges:**

- Biomethane naturally reaches 39 MJ/m³ while some local networks require 41 MJ/m³.
- Lack of clear rules for enriching biomethane with other gaseous fuels (propain).
- Some local gas networks require additional enrichment of biomethane with nitrogen.
- Uncertainty regarding the inclusion of enriched biomethane in the support system (auctions, FIP).

Current regulatory and technical barriers in some regions hinder the development of the biomethane market there.

**Position of the Polish Biomethane Organisation (POB)**

POB is positive about the bill, but points out the need for clarification of key issues:

- **Who should be responsible for conditioning?**

Gas network operators, not producers.

- **Inclusion of agricultural biomethane in the new regulation.**

Necessary correction of article 25 point 3a of the RES Act.

- **Clarification of the enrichment of biomethane.**

Regulation of the addition of nitrogen and other gaseous fuels in the implementing rules.

**Effects of the changes on the biomethane market**

- Removing legal and technical barriers - facilitating the connection of biomethane to the grid.
- Stable investment conditions - greater predictability and access to finance.
- Accelerated development of the biomethane sector as part of the energy transition.

**PBO hopes that our demands will be taken into account and declares full commitment to further work on the law in Parl.**

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# Draft law amending the RES act on bioCH4 auctions

- *Auction system – for biomethane installations above 1 MW.*
- *New definition of direct biogas pipeline – included in the RES Act.*
- *Two-size auction baskets.*
- *First auction in late 2026.*

**Position paper of the Polish Biomethane Organization:**

- Definition of gaseous fuel - the PBO opposes the exclusion of liquefied and compressed biomethane from the category of gaseous fuels if they are not supplied by the gas grid.
- Deadline for feeding biomethane into the grid - request to extend the deadline to 60 months due to the complexity of the connection procedures.
- Market competitiveness - PBO opposes restrictions on substrates used for biomethane production.
- Support for biomethane collection points - the need for legal solutions to facilitate their development.

**The objective of these changes is to open the market and create stable conditions for the development of the biomethane sector.**

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# Draft law amending the RES act on bioCH4 auctions

## Biomethane Auction System – Key Features of the draft law:

- **Volumes of support**

- The planned support will cover the production of around 300 million m³ of biomethane per year (~3,100 GWh) in first 2026 auction.
- This implies the construction of around 50 new plants with an average capacity of 2.8 MW (electricity equivalent).

- **Role of the URE (regulatory office)**

- Responsible for organising, conducting and adjudicating the auctions.
- The process will be conducted on an analogous basis to the current renewable electricity auctions.

- **Purpose of the auction system**

- To create predictable investment conditions for the biomethane sector.
- To stimulate market development and increase biomethane production in Poland.

- **Who can benefit?**

- Biomethane producers in renewable energy installations that feed gaseous fuel into the gas grid.

- **Obligations of beneficiaries**

Commencement of biomethane production within 4 years of the auction result (PBO proposes 5 years).

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# PBO Report on bioCH4 Projects Developments in Poland

**Status of the work:**

An analysis of planned investments in biomethane facilities in cooperation with Gaz-System is currently underway and will be finished in March 2025. The process is at an final stage - data is being collected from individual municipalities, but responses from authorities are still coming in.

Preliminary results of the analysis – **projects to be ready for 2026 auction:**

- Number of planned investments with environmental permit already obtained: **30**
- Number of planned investments at the stage of obtaining an environmental: **40**
- Total installed capacity: more than **150 MW (M300 m3/y)**
- bioCH4 volume range of individual investments: **from 125 m3/h to 2000 m3/h (average 450 m3/h).**

**The final report will provide a comprehensive overview on the development status of the biomethane sector in Poland.**

**Note:** Due to ongoing work on the report, the results presented may still be subject to significant changes. The data received is continuously verified with regard to the actual purpose of the investment - we check, whether it concerns a grid bioCH4 , bioLNG or bioCNG, for example. In addition, the current stage of project implementation is analyzed, taking into account, among other things, the status of environmental and construction permits.

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# Expertise and analysis in the biomethane sector

The Polish Biomethane Organisation provides research and analysis to support the development of the biomethane sector in Poland.

- **The report 'Biomethane Production Potential in Poland'**

Estimates the potential biomethane production at 9 billion m³ per year.

- **Analysis of biomethane investments**

Includes projects at the stage of obtaining permits.
Identifies real potential for development of new biomethane facilities ready for first and next auctions.

**PBO provides key data and recommendations to support biomethane development in Poland.**


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