Report on established policy, market and society stakeholder hubs in the 7 target countries.

Deliverable 3.1

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GREENMEUP

Funded by the European Union

Document control sheet

Project	GreenMeUp - Green biomethane market uptake
Call identifier	HORIZON-CL5-2021-D3-02: Sustainability and educational aspects for renewable energy and renewable fuel technologies
Grant Agreement n°	101075676
Coordinator	CRES - Centre for renewable energy sources and saving foundation
Work package n°	WP3
Work package title	Stakeholders´ engagement
Work package Leader	DBFZ - Deutsches Biomasseforschungszentrum gemeinnützige GmbH
Document title	Report on established policy, market and society stakeholder hubs in the 7 target countries.
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Reference period	01/08/2022 – 31/07/2023
Due date	31/07/2023 (Month 12)

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Abbreviations

AD: Anaerobic digestion
CAP: Common Agriculture Policy
Capex: Capital expenditure
CBM: Compressed biomethane
CNG: Compressed Natural Gas
CRES: Center For Renewable Energy Sources
CZ Biom: Czech Biomass Association
DEDA: Gas distribution network operator in Greece
EBA: Estonian Biogas Association
EU: European Union
FiT: Feed-in Tariff
GBER: General Block Exemption Regulations for State aid
GoO: Guarantee of Origin
GreenMeUp: GREEN bioMEthane market UPtake
GWh: Gigawatt hour
HU: Hungary
INCE: Central European Initiative – Executive Secretariat
LBA: Latvian Biogas Association
LBM or BioLNG: Liquified Biomethane
LNG: Liquified natural gas
MW: Megawatt
NEKP: National plan of the Czech Republic for energy and Climate
NGO: Non-Governmental Organisation
Opex: Operational expenditure
PIGEOR: Polish Economic Chamber of Renewable and Distributed Energy
RePowerEU: Joint European Action for more affordable, secure and sustainable energy
RES: Renewable Energy Sources
R&D: Research and Development
RO: Romania
RS: Serbia
TSO: Transmission System Operator
TWh: Terawatt-hour
UK: United Kingdom

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Executive Summary

The GreenMeUp project aims to support the wider market uptake of biomethane at European level. In particular, in the seven target countries participating in the project. To this end, one of the strategic fronts is the engagement of key stakeholders in the integration of biomethane in the energy and transport sectors, including market players along the value chains, as well as policy and societal actors. Stakeholders´ engagement in national hubs is a multi-actor approach that sustains the detailed analysis of each country´s biomethane framework conditions and current and future market opportunities. It also serves as a participatory platform for integrating stakeholder views and expert knowledge into the project.

This report details the status and characteristics of the policy, market and society hubs in each of the target countries. It provides information on the engagement methods used, the focus of national discussions on biomethane, and the identified interests and needs of the hubs' members. In particular, it reports on the official kick-off meetings as the first milestone for the project´s hubs.

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1. Stakeholder hubs in GreenMeUp

The GreenMeUp project aims to promote the market introduction of biomethane as part of the efforts to reduce fossil fuel dependency in the EU and to contribute to the implementation of the REPowerEU plan. Projects efforts are focused on a selection of EU countries with high potential for biogas and biomethane production, selected at project conception and defined as target countries, including the Czech Republic, Estonia, Latvia, Greece, Poland, Spain and the Danube region (comprising Romania, Serbia and Hungary). Within each target country, this ambitious objective entails analysing the status quo of biomethane, identifying possible barriers and proposing necessary solutions and measures (political, technological, social) to facilitate its market development in the coming years.

For this end, the participation of interested or affected parties in the decisions that are being made is essential. A multi-actor approach has been selected and put into practice, namely the establishment of three Hubs per country, one for Policy issues, one related to Market and finally one for Society. The Hubs are understood within the GreenMeUp as exchanged platforms between most relevant stakeholders in the biomethane sector and towards boosting the market integration in diverse end sectors (heat, electricity, and transport). As stakeholder platforms to facilitate the discussion of most challenging barriers, as well as opportunities and solutions, the Hubs have been conceived as groups of dynamic composition that need to interact with each other. This means that Hubs' members can change throughout the life of the project according to required expertise or due to identification of specific plans that might affect citizens or actors close to production and transport facilities. Through this multi-actor engagement approach, the aim is to provide a structure for stakeholder co-creation activities. In this way, stakeholders will have opportunities and spaces for a rich exchange, to understand the diverse perspectives from other stakeholders and to have a voice in the plans that are defined.

1.1 Objectives of the Policy, Market and Society Hubs in GreenMeUp

GreenMeUp´s approach to stakeholder engagement with national Policy, Market and Society Hubs have as overarching objectives the following:

- Establish a framework for mapping relevant national biomethane stakeholders, according to the current thematic of interest and national agendas.
- Offer a platform for policy, market (along the biomethane value chain) and society actors to contribute to the analysis of national biomethane market and to provide their feedback and perspectives about the implications/frameworks for its development, as well as solutions to identified barriers.
- To gain an understanding of stakeholder needs to enable a higher biomethane market uptake. This includes society needs with respect to acceptance of biomethane extension projects.
- Involve members of the Hubs in the definition of necessary policy interventions.
- Reach an informal agreement to constitute the Hubs and identify level of desired engagement.
- To deepen or create trust relationships among policy, market and society stakeholders, by means of open exchanges facilitated during co-creation activities and the understanding of different perspectives on the issue of biomethane market uptake.

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- Engagement of local community through the society hub. Especially regional actors in close proximity to biomethane production sites and grid networks.

1.2 Strategy for stakeholder engagement in national biomethane hubs

Stakeholders engagement activities and co-creation actions are aligned throughout the project with key tasks that support the analysis of the biomethane sector in target countries and the definition of strategic measures. As shown in the figure below, a total of five meetings and a final event are planned to promote exchange and discussion among the stakeholders and also as a way to disseminate the ideas and results collected by GreenMeUp.

Jan - Feb 2023	1st Meeting: first approach to stakeholders	First approach with key biomethane stakeholders to explore interest in the creation of the hubs and topics of relevance from stakeholder´s perspective.
April 2023	2nd Meeting: Hub´s Kick-off & analysis of needed policy interventions	Key policy implications from 10 advanced biomethane markets will be presented at the official kick-off meeting of the Hubs. Key focus is the feedback to the policy interventions (survey).
Nov. 2023	3rd Meeting: PESTEL Workshop	Identification of challenges as well as influencing factors that will enable the development of biomethane market in the country. Political, Economic, Social, Technological, Environmental and Legislative components will be considered.
May 2024	4th Meeting: future policy interventions	What are the necessary future policy interventions for a successful market uptake in the country? – Focus on the active value chains and untapped market opportunities
November 2024	5th Meeting: Market integration indicators	Results from SWOT analysis (interviews) and presentation of final market integration indicators.
May 2025	Final workshop	Final results from all participating countries. Lessons learned and summarized strategic actions co-created in each country for the successful market uptake of EU biomethane.

Figure 1. Planned hubs activities in GreenMeUp.

Previous to the official launch of the Hubs, stakeholders are mapped by target countries partners, based on their expertise of the national biomethane sector and of relevant institutions that could contribute with their knowledge and expertise to the identification of barriers as well as the proposal of solutions (including definition of policy interventions). The snowball technique, to ask firstly identified actors if any other stakeholders are missing or should be engaged in the process, is also used at different stages of the project, as the identification and engagement of stakeholders is an iterative process and transversal to all other planned project tasks.

To keep stakeholders engaged with the Hubs and the foreseen activities, it is essential to identify their main interests and needs and try to meet them as far as possible within the framework of the project activities already established. While the analysis tools have already been established for future Hubs meetings, such as the PESTEL tool and SWOT analysis, flexibility will be allowed in the thematical focus and key areas of the biomethane market each country wishes to analyse in more detail. In this way, the Hubs and project efforts will be leveraged to give impetus to the countries' biomethane agendas.

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2 Methodological approach

2.1 Mapping of stakeholders – Database

For the mapping of stakeholders, a mapping structure has been provided by DBFZ, after its revision by partners involved in this task. The structure follows first a value chain perspective, to consolidate all necessary stages for the final utilisation of biomethane, as well as actors outside of the supply chain, which are relevant for any analysis of the production and market entry, as well as its enabling conditions. The applied mapping structure includes three levels of characterisation to better detail the type of stakeholders identified. This is particularly useful to ensure a balanced participation among the different stakeholder groups and to have an overview of the areas of expertise addressed by the engaged Hub members.

As the mapping and engagement of stakeholders is an iterative process during the whole duration of the project, the mapping structure is considered a living table and will be also revised periodically to identify potentially missed categories and sub-categories. The mapping structure utilised by the target countries for the initial stakeholder mapping before the kick-off can be consulted in Annex I: Structure for stakeholder mapping.

As a result, the mapping and characterisation of potential Hub members, following the mapping structure provided, was carried out by the Hub coordinators on a common template placed on the project's online file-sharing platform used by all project partners. This constitutes currently the target countries stakeholders´ database and its utilisation is strictly restricted to the effects of GreenMeUp Hubs, their activities and communication.

2.2 Establishing objectives, expected results and governance structure

While the project has defined overarching objectives and expected outcomes from the stakeholders' engagement activities, the Hubs in each target country need to define the key objectives of their activities according to the identified needs and interest of their engaged stakeholders. For this, the first two stakeholders' meetings in each target country have been the base to identify the key thematic focus for future meetings, the expectations of stakeholders and whether additional ones should be included in the Hubs. In order to support the task of explaining the Hub concept to stakeholders in each country and to present the type of activities planned in GreenMeUp, DBFZ provided the Hub coordinators with a guide for the planning of the kick-off meeting. In this, the key objectives of the meeting and expected results were indicated, as well as a plan for the Kick-off meeting agenda. Additional information to facilitate the communication of the definition of "Hubs" and their objectives, as understood in the project, were also provided to Hub coordinators in a presentation format to be used during the kick-off meeting.

Finally, a guidance for the Hub coordinators to identify an internal and simple structure to coordinate the Hubs' activities was provided by posing the following questions:

- Who is/are the Hub coordinator(s)? Please detail the information indicating specific group(s) within the institution or department/area leading the Hub's activities.

- What are the channels for communication (e-mail, social media, etc)?

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  - Between the Hub coordinator and the members of the Hubs
  - Among Hub members who would like to establish collaborations.

- Apart from the Hub coordinator, who else is closely involved in taking decisions for and within the Hubs? For instance, to define the topics of discussion (agenda).
  - Are there specific Hub members playing a strong advising role? And if not yet defined, what is the plan? (e.g. consulting key decision with ministries and other market experts?)

In this report, the set objectives and key thematic areas from each target country Hub are presented, as well as the characterisation and defined governance structure.

3 Stakeholder Hubs in GreenMeUp

Target countries in GreenMeUp have launched in the first half of 2023 their national biomethane Hubs, composed by a Policy, a Market and a Society Hub. This is with the exception of Spain, which due to the current national political dynamics and change of government has decided to postpone the official initialization of the Hubs to August of 2023. Information about the exact dates of launching events, formats utilised and participants is found below in Table 1.

Table 1. ***GreenMeUp Hubs Kick-off meetings.***

Target country	Hubs' Kick-off Meeting	Format	Number of attendants
Estonia	07 March	Online	29
Czech Republic	25 April	Onsite (Czech Ministry of Environment)	22
Poland	09 May	Online	19
Latvia	11 May	Online	31
Danube Region	24 May	Online	39
Greece	29 May	Onsite (Greek Ministry of Environment and Energy)	25
Spain	Hub´s Kick-off meeting to be held in autumn 2023		

After the first efforts to engage key stakeholders from the biomethane market or enablers of it in each target country Hub, following common lessons learned, potential risks and corrective actions have been identified:

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Lessons learned:

- Targeted stakeholders show interest in participating in Hubs meetings and foreseen analysis and are expectant of project results. However, involving them in this new platform requires to shape the focus and discussions to the topics in which members are most interested in.
- By including presentations and subjects of interest for the Hubs' members, shared views and suggestions were discussed and found as valuable input to the governmental officials for biomethane policy drafting.
- Stakeholders are very interested in shaping the discussion about the biomethane market and foremost in identifying necessary steps to enable its further development.
- The stakeholder engagement approach utilised promotes a mixed set of skills, experiences and backgrounds, as well as attracting thinkers and doers from diverse areas. This constellation of stakeholders tends to increase creativity and fosters a culture of innovation.
- There is a need to further support the collaboration among stakeholders and to promote the exchange of experience and good practices.

Possible risks for the Hub activities:

- Decrease in interest to participate in Hub activities with low level of involvement.
- Lack of continuos participation of members in each of the planned meetings. In thi case the continuity and transfer of knowledge will be challenged.
- Low interest from the hub members to contribute with the feedback to planned analysis in the project.
- Key policy stakehodlers not discussing fully the current biomethane market and the responsibilities that generate, especially in joint meetings with Market and Society Hubs (or with other countries in the case of the Danube Region).
- Explicit to the Danube Region: decline in numbers of engaged stakeholders in the (joint) Danube Biomethane hub due to the language barrier
- Explicit to Poland: discouragement caused by waiting too long for the effects of activities for the deployment of biomethane in Poland.

Corrective actions to successfully engaged targeted stakeholders in GreenMeUp activities

- Reinforce an space of open discussion in each Hub meeting, in which Market and Society Hub members can take their concerns, as well as their ideas and suggestions.
- For Market and Society Hubs´ members to know that the Policy Hub will hear and receive their suggestions and will take them into consideration for policy drafting.
- Maintain active communication with Hub members before and after meetings, and remind them of the Hub´s benefits, such as direct contact with key actors of the biomethane market in the country or region and their possibility to contribute to future solutions.
- Consult Hubs´ members on decision-making.
- Promote individual contacts, exchange and cooperation among Hubs' members.

Below are the reports from each of the target countries on the development of their Policy, Market and Society Hubs with the exception of Spain, which will have its official kick-off meeting in autumn 2023 and its report will be annexed to this one shortly after the meeting. Each report includes the objectives set, the central topics of discussion, details on the first two meetings with the members of the Hubs, synthesizing the main conclusions, as well as the current constellation of stakeholders participating as members. Finally, the organisational structure or governance defined in each country is explained.

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3.1 Stakeholder Hubs in Czech Republic

3.1.1 Objectives and targeted stakeholders of the Czech Republic Hubs

The Czech Republic counts with five (5) biomethane stations currently operating, while others are expected to be launched by the end of 2023. It is estimated to hold a potential of annual biogas production of 20-25 TWh to the end of 2030, which together with biomethane production would cover about 30% of the national natural gas consumption. While the country´s biogas development is a promising basis towards the fulfilment of the EU targets set out in the REPowerEU, it will require a steady upgrade of the existing 400 biogas plants, as well as around 100 wastewater treatment plants and 70 landfill gas plants for biomethane production.

The establishment of the Czech Republic Biomethane Hubs is a step towards engaging national biomethane actors to identify together the best path towards beneficial business environment and set targets for a more favourable biomethane market. After discussing the needs of the stakeholders, the following was defined:

- Key objectives: To foster the exchange of perspectives between the different interested parties for the national biomethane development, in particular the connection between public administration and the private sector. This includes to bring together a broad range of experts (from biogas/biomethane plant operators to the government to our Hubs). This diverse format allows to get an objective picture of the biomethane situation and the individual barriers to progressive development.
- Key thematic focus: Jointly identify applicable measures to overcome main existing barriers to biomethane development in the country. It includes to deal with strategic plans at national level, the potential of the sector and how to integrate it into different industries. Likewise, is of key importance the discussion of the application of the National plan of the Czech Republic for energy and Climate (NEKP) and with it, the shares of biogas and biomethane to increment the RES final consumption shares in the coming years.

3.1.2 Characteristics of Czech Republic Biomethane Hubs

The hubs in Czech Republic were established based on two engagement meetings. A first discussion meeting was held on 07 March 2023 with presentations about the biomethane developments in Denmark and Italy as benchmark and good examples, as well as presenting the current biomethane projects in Czech Republic and discussing about future prospects. This first meeting counted with 17 attendants from the three groups Market, Policy and Society and allowed to identify main barriers to the national biomethane development from the perspectives of policy representatives, supply and distribution sectors and representatives of operators and farmers. The three Hubs launched officially on 25 April 2023 with an in-person meeting on the Ministry of Environment premises. An introduction to the project and the working principles of the hubs, as well as planned activities were presented. Exemplary approaches to promoting biomethane in several EU countries (Germany, Italy, France, Denmark, Sweden and the UK) were also presented by EBA. The emphasis was placed on discussing about the future of energy in Czech Republic with emphasis on biogas and biomethane. In particular, this discussion is contributing to understanding the requirements to update the National plan of the Czech Republic in energy and climate (NEKP).

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The total participants in the hubs are 33 stakeholders, divided between 11 participants in the policy hub, 16 participants in the market hub and 6 participants on the society hub. Further details about interest and needs of the currently engaged stakeholders are found below in Table 2.

Table 2. Engaged stakeholders in the Czech Republic Biomethane Hubs

Institutions	Interests and needs
Policy Hub	
Chamber of the RES (KOZE) Ministry of Agriculture (MZE) Energetical regulation office (ERÚ) Ministry of Environment (MŽP) Ministry of Industry and Trade (MPO)	Discussing solutions to the lengthy procedures and approval processes that are influenced by rules set at European level for the use of renewable energies. Anchoring the position of bioenergy in the highest national strategic documents (update of NEKP in 2023). Coordination in the preparation of strategic documents.
Market Hub	
Agro 2000 Agrikomp Envitec Hutira Meryden GasNet Weltec biopower ZD Litomyšl ZD Maleč Renofarmy Prodeval SUR LIE	This Hub includes representatives of companies operating biomethane stations or biogas stations interested in future upgrades to biomethane. Furthermore, companies supplying biogas purification technologies and the most important representative of gas distribution (GasNet). The interest is especially in the area of profitability of biomethane purification operations. The companies offering biomethane technology strive to make biomethane as popular as possible. Discussing about more stability in the legislative environment for the operation of biogas and biomethane plants.
Society Hub	
EBW Czech university of life sciences (ČZU) Czech gas association (ČPS) Union of modern energy (SME) Economical magazine (Ekonomický deník)	The Society Hub consists mainly of the Czech Gas Association, which is a very active and key partner, a university representative, a media representative and a company dealing with biomethane projects. Working with the Czech university of life sciences to teach the subject "Renewable Resources" taught at the Faculty of Agrobiology Food and Natural Resources, as part of increasing knowledge and capacity building. Cooperation among Society Hub in the field of social acceptability and especially quality information not only on the university campus but also in the media sphere.

3.1.3 Governance structure

The hub coordinator for the Czech Republic Hubs is the Czech Biomass Association (CZ Biom). CZ Biom is responsible for organising Hubs meetings, facilitating communications and cooperation among the hub's participants. It also provides guidance based on its expertise in the biogas and biomethane sector and collect feedback from the exchanges with engaged stakeholders.

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The communications channels established are e-mails and the project´s social media channels, as well as direct contact through personal meetings or calls. CZ Biom ensures that all Hub´s participants receive the documentation of each meeting, and summarises conclusions and topics of importance for the following exchanges. These topics of importance identified in the first two meetings will be included in the agendas of upcoming events with the Hubs. All meetings are held in Czech to facilitate the exchange among stakeholders, except the presentations of invited international experts.

3.2 Stakeholder hubs in the Danube Region

3.2.1 Objectives and targeted stakeholders of Danube region´s Hubs

The Danube region, which in the GreenMeUp project spans Hungary, Romania and Serbia, has the potential to develop a significant biomethane market due to its agricultural resources and waste management needs. However, the specific market situation in the Danube region, including the level of biomethane production, infrastructure development, and policy support varies from country to country.

Bearing in mind the specificity of the region, the Central European Initiative – Executive Secretariat (INCE), with the strong support from experts in field from Hungary, Romania and Serbia, has been able to identify relevant stakeholders in each of the three countries. Initial contacts with stakeholders were established at a national level, leading up to formation of a joint cross-border structure – the Danube Biomethane Hub.

The overall starting point of discussion with the stakeholders is that the market for biomethane has been (slowly) growing in recent years due to several factors, including increasing awareness of climate change, the need to reduce greenhouse gas emissions, and the promotion of renewable energy sources. However, the deployment of biogas technologies is still quite limited in the Danube region notwithstanding the significant potential.

Based on the Danube Biomethane Hub kick-off meeting held with identified policy, market and societal stakeholders, as well as the preliminary encounters organised on a national level, the following is to be considered for the hub activities:

- Key objectives: to build a consolidated stakeholders' network in the biomethane production/consumption sphere that will jointly identify current barriers, discuss possible solutions and advocate for policy improvements;
- Key thematic focus: address low developments but high potentials of bioenergy in the Danube region and make it more visible to the key decision-makers. Map production capacities and feedstock availability (on both case study and national levels), and discuss regulatory frameworks and incentivising financial support mechanisms, in order to shed light on the benefits of a well-functioning biomethane market.

3.2.2 Characteristics of the Danube Region´s Biomethane Hubs

The Danube Biomethane Hub was launched on 24 May 2023, as a unique structure assembling relevant stakeholders from three countries: Hungary, Romania and Serbia. The first official meeting was held online, gathering relevant actors that represent all the stages of the biomethane value chains, to analyse the framework conditions and market dynamics in countries with currently low biomethane production but high market potentials, and jointly elaborate a set of policy recommendations to prompt market uptake and

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improve the public acceptance of biogas. However, initial preliminary contact with a major part of these stakeholders had already been made on a national level:

- in Hungary: online consultation held on 1 March 2023;
- in Romania: bilateral talks and e-mail exchange;
- in Serbia: bilateral talks and e-mail exchange.

The Danube Biomethane Hub's kick-off meeting gathered 39 participants in total. Best practices for biomethane supportive policies in leading EU countries were shared by the European Biogas Association policy officer, followed by an overview of biomethane market potential in three Danube region countries presented by distinguished professors from the University of Szeged, the University of Life Sciences in Timisoara, and the University of Novi Sad respectively. Representatives from three bioeconomy pillars - policy, market and society – were given a space to discuss diverse opportunities but also the key barriers of the biomethane production process in their respective countries.

Bearing in mind the language diversity of the members of the Danube Hub, the idea is to have continuous contact with the stakeholders on a national level and in national language, while the joint meetings of the Danube Biomethane Hub will be held online and in English. Furthermore, members of the Policy, Market and Societal Hubs are all merged for the joint meetings, while there could be organised separate consultations if/when necessary. Data is to be collected and analysed through desk analysis, stakeholders' inputs and experts' conclusions.

Below in Table 3 is a list of actors currently engaged in the Danube Biomethane Hub, while the list of identified/targeted stakeholders is broader. The Danube Biomethane Hub remains an open structure for interested stakeholders to join during the project's lifetime.

Table 3. Engaged stakeholders in Danube Biomethane Hub (HU: Hungary; RO: Romania; RS: Serbia)

Institutions	Interests and needs
Policy Hub	
▪ Climate Policy Institute (HU) ▪ Ministry of Environment (RO) ▪ Timis County Council (RO) ▪ Association for the intercommunity development (ADI) Ecoland Bihor (RO) ▪ Ministry of Environmental Protection (RS) ▪ Provincial Secretariat for Energy, Construction and Transport (RS)	The importance of policymaking should not be underestimated, due to the constant addition of new inputs, technologies, and objectives. In short, waiting for better future solutions could hinder the adoption of any solution at all. Furthermore, the topic of marginalised land and unused agricultural land would need dedicated regulations. Balancing the grid as another task for policymakers.
Market Hub	
▪ Hungarian Biogas Association (HU) ▪ E-A Energy Consulting Kft (HU) ▪ Power-to-Gas Hungary Kft. (HU) ▪ AGRANA (HU) ▪ APA TARNAVEI MARI (RO) ▪ Maxagro Lact (RO) ▪ Genesis Biotech (RO) ▪ Genesis Biopartner (RO) ▪ Maxagro Lact (RO)	It was noted a remarkable percentile difference in the selling price between biomethane and direct energy generation - a gap that could deter investors. It remains important to address possible financial mechanisms to support the industry. The market presence of big biomethane farms vs. small ones (and access to advanced technologies) is another point of interest.

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▪ Elektroprivreda Srbije (RS) ▪ Serbian Biogas Association (RS) ▪ Chamber of Commerce and Industry of Vojvodina (RS) ▪ PGI Biogas (RS) ▪ Green Mile Teaam d.o.o. (RS) ▪ CROTEH d.o.o. (RS) ▪ Drlja 1967 doo (RS) ▪ PTOG - PowerToGas (RS) ▪ HiTES Holding GmbH (DE/RS*) ▪ SM Energy DOO (RS) ▪ Global seed doo (RS) ▪ Budućnost doo Bačka Palanka (RS) ▪ REGAZZ BV (NL/RS*)	There is a great agricultural potential. However, feedstocks which are not yet produced and not yet available for biogas should be considered a common concern for the whole Danube region.
Society Hub	
▪ University of Szeged (HU) ▪ Green Policy Center (HU) ▪ MCC Climate Policy Institute (HU) ▪ University of Life Sciences in Timisoara (RO) ▪ Politehnica University Timisoara (RO) ▪ ADID Timiș (RO) ▪ University of Novi Sad (RS) ▪ University of Belgrade, Institute for chemistry, technology and metallurgy (RS)	Additional environmental and social factors need to be uncovered— in addition to the availability of feedstock. Looking at the technology not only through an economic lens, but through the benefits it may bring. The importance of energy independence, especially in the view of current geopolitical considerations, was discussed.

3.2.3 Governance structure

The Danube region addressed in the GreenMeUp project encompasses the geographical area of three countries: Hungary, Romania and Serbia. Therefore, the governance structure is designed in a following manner:

- **National Hubs** – national groups of work have been established in each of the three countries. Communication with the stakeholders on a national level is operated by three experts in field - from the University of Szeged (HU), University of Life Sciences in Timisoara (RO), and from the University of Novi Sad (RS), respectively.
- **Joint Hub** – the Danube Biomethane Hub is the key overarching Hub that gathers stakeholders from all three national groups of work. The Hub coordinator is the Central European Initiative – Executive Secretariat (INCE), located in Italy. INCE is responsible for organising joint meetings, providing guidance and coordinating with the three experts for obtaining necessary feedback from the stakeholders.

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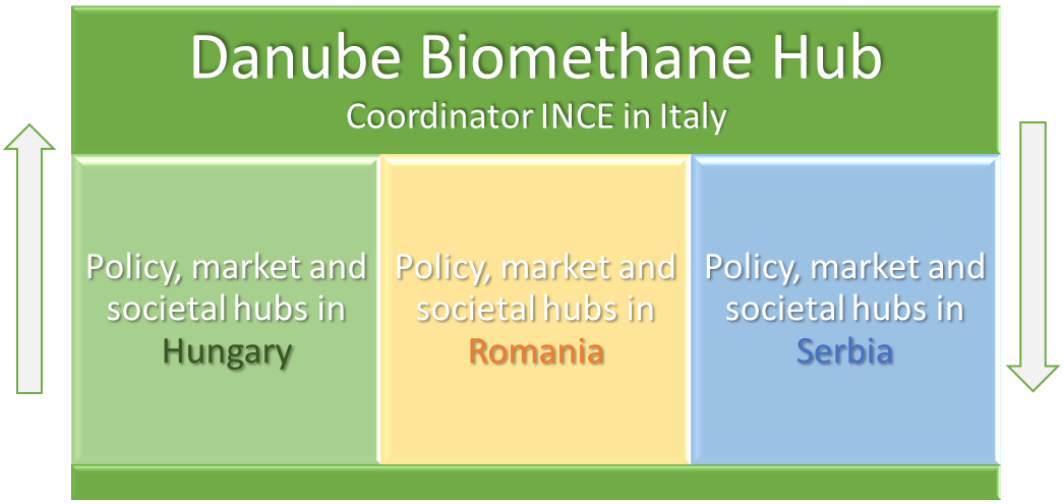

Figure 2. Danube Region´s governance structure.

The official channels of communication within the Hub are e-mails, online meeting platforms and telephone calls. The Hub members are informed about the project's social media channels, to keep up to date with the diverse GreenMeUp activities.

The Hub coordinator, INCE, organises the joint meetings, held online and in English, and invites the hub members directly. The agenda is set up with the support from three national experts. In addition, the national meetings and/or consultations are held either in smaller groups or through bilateral contact with country experts in national language. The Danube Biomethane Hub is envisioned as an accessible structure – open to new members that may be identified or engage at a later stage. Furthermore, the possibility to organise some joint meetings in presence during the project's lifetime is in discussion. The main idea behind this governing structure is to enable cross-border opportunities in a bottom-up approach**.**

3.3 Stakeholder Hubs in Estonia

3.3.1 Objectives and targeted stakeholders of Estonia´s Hubs

Estonia counts with 8 biomethane plants in operation and 9 biogas plants active. In addition to that, several biomethane plants are currently in the planning phase. At the moment, the main national strategy for market uptake is focused on the technological update of existing plants and the development of new ones. The main barrier in the development of biomethane is connected to the lack of injection capacity to the natural transmission gas grid and underdeveloped LNG/LBM market. Currently, there are 28 CBM filling stations in Estonia, and 6648 vehicles running on biomethane or natural gas. Moreover, the Estonian Biogas Association has been working on the development of a Biogas Roadmap 2030, and the Estonian government is elaborating new support mechanisms.

Most of the Estonian biogas potential lies in agricultural feedstocks. According to a 2014 Estonian biomethane resource study carried out by the Development Fund, it is estimated that Estonia has the resources to produce up to 4.7 TWh (=483 mln Nm3) of biomethane a year, the raw materials for which would mainly be biomass from grasslands (83%), waste from agricultural production (9.8%) and the rest is

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coming from municipal waste and landfill gas. The production target by year 2030 is to produce at least 1 TWh of biomethane, but in the year 2022 it was 170 GWh. According to those numbers, Estonia would still have room for another 30-40 biogas plants, each producing around 3-4 million Nm3 of biomethane per year.

The Policy, Market and Society Hubs establishment in Estonia responds principally to the interest of exchanging with all key stakeholders in the biomethane sector about the opportunities at hand and applicable measures to increase the market uptake of biomethane in the country. After discussing current needs and opportunities in the first two Hubs meetings, the following is to be considered:

- Key objectives: to engage various stakeholders from policy, market, operators and other associations involved in gaseous fuel and biomass sector in the discussion to improve the sectoral development;
- Key thematic focus: Introduction of the newest technologies and what implementing them would entail. Key topics will include grid-injection uptake, LNG production and usage uptake, as well as biomass and waste management framework building.

3.3.2 Characteristics of Estonia´s Biomethane Hubs

In Estonia, two engagement meetings were organised with the Policy, Market and Society Hubs, the second meeting being the official launch event. On March 7 2023 the first meeting took place with an introduction about the GreenMeUp project and presenting the current national biomethane production and market situation. An overview about hydrogen production and the potential for hydrogen co-generation to be used alongside biomethane was also part of the first meeting and shaped the discussion. A representative of the Ministry of Economic Affairs gave a presentation in which he provided an overview of the **framework being developed for biomethane market uptake** and also sought the opinions of other stakeholders on what should be done by the government. Following this presentation, the Estonian Gas Union proposed the idea that biomethane market entry in Estonia should be done by using more gas in heavy road transport.

During the second meeting, the focus was on biomethane and hydrogen injection into the grid with presentations from the University of Tartu and the Estonian Transmission System Operator (TSO) Elering AS. According to Elering AS, new injection points are planned and work is also underway to adapt the high-pressure grid to a possible biomethane export. With the current amount of biomethane produced, the grid will not be too sensitive to O2 levels and will have enough space for additional injections. However, problems may arise if biomethane production increases in Estonia and more producers start injecting their production into the grid. Following the presentations, another discussion round was held where conclusions were drawn on further measures.

To make meetings more interesting for stakeholders each of them have a topic about biogas and biomethane market integration possibilities. After presentations, discussion rounds are allowing stakeholders to point out strengths and weaknesses of the presented technology and find out which solution would be the best and most needed for consumption uptake and production profitability.

Out of 40 stakeholders mapped, 29 participants took part on the first meeting and 29 in the second meeting, with representatives from all three main stakeholder groups (policy, society and market). The next meetings will focus mainly on the Market and Society Hubs. As defined target, the efforts will be directed towards those actions that have strong potential to improve the market uptake, which after these two meetings with stakeholders have been defined as uptake of biomass collection from unused land and BioLNG market uptake for providing gaseous fuels for long haul transport and agricultural machinery. The list of currently engaged stakeholders in the three Hubs of Estonia are as found below in Table 4.

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Table 4. Engaged stakeholders in the Estonian Biomethane Hubs	
Institutions	**Interests and needs**
Policy Hub	
Ministry of Economic Affairs Ministry of Rural Affairs Ministry of Environment	Given the existent national roadmap for biomethane market uptake, policymakers' highest expectation is to get feedback from market and society for suggestions what is needed for the next steps.
Market Hub	
Estonian Gas Union Alexela AS Elering AS Jetgreen OÜ	The Market Hub's interest is to share information with policymakers and biomethane providers to get a better idea of where to take the business. The biggest obstacle for the advancement of the Estonian biomethane market is the lack of government support. During the next meetings, the Market Hub will be able to express the key problems, bottlenecks and setbacks during the meetings and this information will be transmitted to the Policy Hub for them to know which are the required measures.
Society Hub	
Tartu City Government The Estonian Renewable Energy Association Tepsli OÜ Greenkauf Konsult OÜ The Association of Car Companies Estonian University of Life Sciences Tartu Regional Energy Agency Enerhack Foundation MTÜ Estonian Association of Hydrogen Technologies Estonia Methane Cars Club Estonian Biofuels Association Estonian Hydrogen Association Pae Farmer OÜ Kobrit OÜ Bioneer.ee	The main interest of the Society Hub is to get a better picture of what will happen in the green fuel market in the coming years and how is it going to affect their businesses and daily lives. The Society Hub has representatives from the transportation and agricultural industries, who will be the end-users of produced biomethane and suppliers of biogas feedstock.

3.3.3 Governance structure

The Estonian Biogas Association (EBA) is the overarching hubs coordinator, however responsibilities have been distributed among the most active partners as follows: The Market Hub is coordinated by the Chairman of the Gas Union. The Gas Union unifies most market players within the country´s gas sector. The Social Hub is coordinated by the Estonian Biogas Association and the Policy Hub is coordinated by the Ministry of Climate (former Ministry of Economic Affairs and Communication). Based on the experience of the hub coordination team, Hubs´ meetings should always be organised together to avoid the risk of low participation or loss of interest from the participants. Promoting communication between the three Hubs is

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the best strategy to keep stakeholders in the Estonian Biomethane Hubs interested in the planned GreenMeUp activities.

Between the coordinators' team, the established communication channels are e-mail and online video calls. All specific tasks are sent to the members via e-mail and meetings have taken place on the Teams platform. The minutes of meetings and presentations are uploaded to Estonian Biogas Association homepage eestibiogaas.ee. EBA has made the mail list of Hubs participants public, so that participants can cooperate and collaborate with each other.

The participants of the Hubs gave the mandate to EBA to decide on the structure of the Hubs and define the goals. These, decisions and others such as the agenda for Hub´s meetings or other topic of discussion is prepared in advance by EBA and then consulted with the Hub coordinators and the Hub´s participants.

3.4 Stakeholder Hubs in Latvia

3.4.1 Objectives and targeted stakeholders of Latvia´s Hubs

In Latvia the biogas and biomethane sectors do not count yet with a comprehensive strategy in place. While the country operates 49 biogas plants, the biomethane production is currently represented only by one single plant, which primarily produces for its own use as transport fuel. This is due to lacking incentives to the biomethane production, such as a comprehensive Feed-in Tariff (FiT) and Guarantee of Origin (GoO) system specifically designed for biomethane production and consumption. Based on the national goal to increase the share of renewable energy sources (RES) in the transport sector by 7% in 2030, the biomethane production is expected to cover around 3-5% of the total energy consumption to that year.

Stakeholder involvement through Latvian biomethane Hubs as proposed by the GreenMeUp is a unique approach that will contribute to identifying together with national experts and stakeholders along the supply chain and potential biomethane users what actions are needed to develop the market in Latvia. This format will facilitate discussions among different stakeholder groups.

- Key objectives:
  - To improve the communication and cooperation among biomethane national stakeholders
  - To identify and communicate to the decision-makers key biomethane market development issues requiring strategic action.
  - To define measures for biomethane market creation and possibly a road map.
  - To improve public knowledge and awareness about biomethane as a resource, its benefits and role in achieving sustainable energy goals.

- Key thematic focus: identification of necessary actions from policy to the development of biomethane in the country and supportive market incentives. Measures to reach a higher knowledge and awareness among different stakeholders. Discussing with all relevant stakeholders in the biomethane sector about the main hindering factors to a higher biomethane production, such as lack of national policies establishing specific biomethane targets, incentives for the upgrading of existing biogas facilities and its promotion in the transport sector and feedstock availabilities, which are strongly tied to fragmented agricultural activities.

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3.4.2 Characteristics of the Latvia´s Biomethane Hubs

The first Hubs meeting took place on 06 March 2023 with 11 participants from various organisations, such as the Latvian Biogas Association, the Latvian Renewable Energy Federation, the natural gas transmission and storage operator in Latvia, the gas supply system operator, the Association of Latvian Fuel Dealers and the Ministry of Transport. The meeting provided a brief overview of the GreenMeUp project, its objectives and relevance, as well as the latest data on the biomethane market development in Europe. In the second part of the meeting, the participants shared their ideas and responses to three questions:

1) What actions are required to foster the biomethane market in Latvia?
2) What are the main challenges and barriers to the development of biomethane?
3) What investments are necessary to achieve the REPowerEU goals in Latvia?

The second Hubs meeting was held on 11 May 2023 with 32 participants from different organisations. The meeting, which was the official Hubs launching event, presented the key objectives of Latvia's Hubs and facilitated a discussion on the main opportunities and obstacles in the national biomethane market. Currently, the three Latvian Hubs count with a total of 15 organisations from 27 identified as relevant to participate. Since not all the identified stakeholders participated in the first two Hubs meetings, it is essential to involve the remaining organisations during following planned activities. The Latvian Biogas Association (LBA) will continue to invite representatives from these organisations to the Hubs´ meetings to ensure a balanced representation of different parties. In particular, representatives that will contribute to the Market and Society Hubs. The LBA will persist in identifying and engaging relevant organisations for these two Hubs. At present, the institutions involved in the three Latvian Biomethane Hubs are as listed below in Table 5.

Table 5. Engaged stakeholders in the Latvia's Biomethane Hubs

Institutions	Interests and needs
Policy Hub	
Ministry of Transport Ministry of climate and energy State Environmental Service Ministry of economics Ministry of environment and regional development Ernst&Young Latvia Meta Advisory Latvian Biogas Association Latvian Renewable Energy Federation	Informal way to engage in the discussions with other stakeholders about the sector development. Access to information about best practice examples in other countries with regards to biomethane market development.
Market Hub	
Conexus Gaso Virši-A Host Latvia Latvian Fuel Trades association Egg Energy	Possibility to exchange the views of the market needs and discuss it with relevant stakeholders from the Policy Hub. Contacts for biomethane plant development projects.
Society Hub	

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Meta Advisory Latvian Biogas Association Latvian Renewable Energy Federation Latvian Fuel Trades association	Opportunity to identify necessary actions to increase public acceptance and awareness of renewable energy projects.

3.4.3 Governance structure

In Latvia, the coordinator for the Policy, Market and Society Hubs is the Latvian Biogas Association (LBA). As structure to facilitate the coordination of activities for the Hubs, explicit roles have been distributed internally. A member of the LBA´s Board has been designated as spokesperson and responsible for the content for the Hubs and a project manager is in charge on setting the Hubs meetings, including sending the invitations, documentation of the meeting and to maintain the communication with Hubs' participants after the meetings.

The primary communication channel for Hubs members is e-mail, as it is the most convenient method for information exchange among involved institutions. LBA has been in charge of setting the initial activities of the Hubs and defining its organisational structure. For the subsequent Hubs meetings, it is planned that stakeholders could participate in the agenda setting process and some organisations' expertise could be utilised for defining the next actions. For instance, Meta Advisory has extensive experience in communication activities in renewable energy issues, which could be beneficial in the context of the Hubs' work and the identified challenges in the biomethane market development process in Latvia.

3.5 Stakeholder Hubs in Greece

3.5.1 Objectives and targeted stakeholders of Greece´s Hubs

Greece is still lagging behind in biomethane production, although there is a significant number of biogas plants. The main reason for this is the lack of a legislative and regulatory framework that would organise the market. The proposed biomethane target for 2030 is estimated at 1.5 - 1.7 TWh. To reach this target will be necessary to strengthen the competitiveness of the biomass market, establish an operating model for the biomass, biogas and biomethane supply chains and convert 48 of 58 existing biogas units into biomethane units (0.5 TWh), while at the same time installing 52 new biomethane plants (1 TWh).

- Key objectives: to gather all interested and relevant to the biomethane market stakeholders, record their needs and barriers that hinder the development of the biomethane market, identify strengths and opportunities and finally suggest priorities in the regulatory framework, so as to assist policymakers in drafting country-tailored policy measurements and financing mechanisms that would allow the kick-off of the biomethane market in the country.

- Key thematic focus areas identified in the discussions were:
    - Feedstock procurement: Organisation of the biomass supply, provision of the digestate to the farmers, development of Biomass Trade Centres in the case of solid biomass for gasification, involvement of the Ministry of Rural Development and Food.

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- Natural gas grids infrastructure: DEDA manages natural gas distribution networks at medium and low pressure in 7 Regions, 45 Municipalities and 75 Municipal units, in the whole territory. This picture is expected to change significantly in the coming years 5 years, through a wider extension of natural gas network.
- Organisation of the market: simplification of the licensing procedure, set-up of a tariff for biomethane (levelized cost of energy), financial support of investments for biogas upgrading and biomethane distribution infrastructure, for developing demonstration projects for AD-biogas upgrading and gasification units, etc.

3.5.2 Characteristics of the Greece´s Biomethane Hubs

The first preliminary Hubs' meeting was held online on the 17 October 2022 and was attended by 16 persons, representing mostly the Market Hub. The meeting was a joint meeting during the first meeting of the 'Support RepowerEU' project, funded by the European Union via the Structural Reform Support Programme and in cooperation with the Directorate General for Structural Reform Support of the European Commission. The objective of that meeting was the identification of suitable investments and reforms and the preparation of a national action plan for decreasing the dependency on Russian fossil fuels by 2030, in the context of the Recovery and Resilience Plans and in accordance with the REPowerEU Plan.

The topics of the event were:

- What are the main obstacles that burden the fast and unhampered independence of the country on the Russian imports of natural gas, in the area of interest of each Hubs' members
- Which reforms should be drafted for overcoming the identified objectives
- Which kind of investments are considered necessary to assist in overcoming the identified objectives.

According to the discussions a holistic legislative framework should be prepared and adopted covering different aspects, such as most suitable business models for hydrogen and biomethane, defining technical specifications for transmission, storage and ejection of renewable hydrogen and biomethane into the natural gas infrastructure, among others. It was suggested among necessary reforms to adopt officially the National Hydrogen and Renewable Gases Strategy that will outline properly the end uses of hydrogen and renewable gases, as well as designing a support scheme for the promotion of biomethane. This holistic framework will require also of specific investments to support demonstration projects, required infrastructure for the deployment of biomethane and to support the development of effective supply chains on biofuels, bioliquids and biomass addressing simultaneously any issue of agricultural land use.

The official kick-off meeting of the Greek Hubs was held on the 29 May 2023 in person, in the Ministry of Environment and Energy offices, and was attended by 25 persons, representing mostly the Policy and Market Hubs. The meeting focalised in discussing the existing opportunities that can be exploited to promote biomethane, such as the adoption of the RED Directive into a national law, and the allowance of the use of biomethane and other renewable gases into the natural gas grid, among other options. The secondary goal of the meeting was on identifying key policy priorities regarding the promotion and use of biomethane. Among those identified are the regulation about digestate, which currently is not considered as "biological material and promote incentives for the use digestate as fertilizer and the production of biogenic CO2. Another of the identified policy priorities is the consideration of LNG and CNG (Compressed Natural Gas) in the holistic legislative framework and to keep biomethane priorities in line with the CAP´s policy regulations.

CRES will continue its efforts towards involving mapped stakeholders in the further discussions about relevant implementation of opportunities. Foremost, to reach a wider involvement of the Social Hub in

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following events. Below in Table 6 a detailed description of the members of the three Hubs, their interest and needs are detailed.

Table 6. Engaged stakeholders in the Greek Biomethane Hubs

Institutions	Interests and needs
Policy Hub	
Ministry of Environment and Energy (YPEN) EYDAM – Just Transition Special Authority NTUA	- Interested in knowing the market needs before proceeding to draft the new legislative and regulatory framework - Expecting from GreenMeUp to set a constant contact with the market actors and the society so as to assure that the suggested policies effectively address the market needs
Market Hub	
BIOENERY THESSALIA S.A. BIOGAS MEGARA S.A CHITAS FARM S.A ELLACTOR HELLABIOM -Hellenic Biomass Association NORTHERN GREEK S.A RESOLUTIONS FTHIA ENERGY S.A MESOPOTAMIA ENERGY S.A EPILEKTOS BIOGAS FARSALA S.A ΕΥΔΑΠ HABIO - Hellenic Association of Biogas Producers KAFSIS BIOGAS S.A RAM EUROPE	- Interested in knowing the preparatory legislative and regulatory framework - Expecting from GreenMeUp to be in constant contact with the policymakers and the society so as to assure that their needs will be fulfilled, the biomethane market will deploy in good economic and environmental terms, while they will enjoy a high society acceptance.
Society Hub	
HABIO - Hellenic Association of Biogas Producers HELLABIOM -Hellenic Biomass Association Greenpeace EYDAM – Just Transition Special Authority	- Interested in being involved in the biomethane market and enjoy the societal benefits it offers - Expecting from GreenMeUp to be informed on the biomethane market developments first hand.

3.5.3 Governance structure

CRES is the Hub coordinator for all three Hubs in Greece. In the Market Hub CRES is supported by DEDA, operator and managers of the natural gas distribution network in Greece and in the Policy Hub by the Ministry of Environment and Energy. All Hubs are meeting together so as to allow a fruitful and efficient dialogue among all interested parties in the biomethane market.

Within CRES, the Market and Society Hubs are coordinated by the Division of Renewable Energy Sources from the Biomass Department. The Policy Hub is coordinated by the Division for Energy Policy and planning in the Energy Systems Analysis Department. In collaboration with the leader of the Biomass Department, the coordinators of each hub are responsible for deciding on the topics to be discussed in each meeting, setting

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the place of the meeting, the invitations and the meeting agenda and facilitate the initiatives taken after each meeting.

The most frequent channels of all communications are phone calls and e-mails. Meetings are scheduled to be physical, preferably hosted by the Ministry of Environment and Energy or CRES.

The Policy hub is also supported by the Ministry of Environment and Energy that hosts the hub meetings and plays a crucial role on the discussion topics. In the Market Hub, DEDA is playing a strong advising role on the topics to be discussed and decisions to be made, whereas all members are equally and actively participating.

3.6 Stakeholder Hubs in Poland

3.6.1 Objectives and targeted stakeholders of Poland´s Hubs

In Poland, while the installed capacity of biogas installations is over 266 MW (140.35 MW agricultural biogas plants on 31st December 2022[1]), there is no biomethane production yet. There are several projects on hold, ready for implementation, until national legislation provides a support system that will generate investor confidence.

Stakeholder involvement through Poland´s biomethane Hubs is a welcome approach to attract experts with a diverse set of skills and knowledge, to sharing diverse perspectives regarding the biomethane potential and therefore promoting new insights on the topic.

- Key objectives:
  - To analyse the current national biomethane situation and identify the key areas in need of strategic actions
  - To identify the key aspects for the successful deployment of biomethane in Poland
  - To identify the preferred market pathways
  - To identify the societal perspectives on biomethane (particularly at local level).

- Key thematic focus:
  - biomethane in transport as alternative market pathway for biomethane in gas grid
  - analysis of the proposed regulations on biomethane and giving recommendations
  - possible actions to increase social acceptance for biogas and biomethane.

3.6.2 Characteristics of Poland´s Biomethane Hubs

From the institutions first mapped and that also expressed an interest in launching the biomethane market in Poland, 20 representatives of companies and institutions joined the first GreenMeUp project meeting organized by PIGEOR on 02 March 2023. The event was held online via the Microsoft Teams platform. There were three presentations in the meeting agenda. The first of them concerned the GreenMeUp project, its goals and planned activities in Poland. The topic of the second presentation was the state of development of the biomethane market in Europe. The last presentation was an introduction to the discussion about the main obstacles hindering the process of launching the biomethane market in Poland.

[1] www.kowr.gov.pl *KOWR (National Center for Agricultural Support)*

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One of the significant barriers indicated during the meeting was the lack of regulations on biomethane. Participants of the meeting also talked about the need to determine priorities and development directions by the government. In Poland there is a very limited possibility of connecting to the gas grid due to the lack of technical possibilities, but also due to the lack of clear rules for the division of the costs of the connection. The cost associated with the expansion of the gas network is also an important barrier. A possible solution to this problem would be the legislative obligation of gas network operators to implement certain investments in terms of connecting biomethane installations.

The second meeting was the official Kick-off event of the Polish Biomethane Hubs, with the participation of 19 representatives of companies operating on the biogas market interested in biomethane and institutions involved in creating biomethane regulations. It was held online via the Microsoft Teams platform on 09 May 2023. Its main topics were planned changes to the RES Act regarding biomethane. During the meeting, information on Poland's Biomethane Hubs was provided. Particular attention was paid to the goals to achieve by the Hubs. One of the most important points of the meeting was the speech of a representative of the Ministry of Climate and Environment on the provisions regarding biomethane in the draft amendment to the RES Act, which has just been submitted to the Polish parliament. It includes, e.g., the definition of biomethane and the rules for providing support in the form of the FiP tariff for biomethane producers injecting it into the gas grid. Only installations up to 1 MW will be entitled to the FiP tariff, but this limit may be increased in the future due to the planned changes in the GBER. An auction support system will be prepared for larger installations. During the discussion opinions appeared on the expected impact of the fixed price for biomethane injected into the gas grid on the price of biomethane used in transport. The importance of proper calculation of the reference price for biomethane based on real CAPEX and OPEX costs was also emphasized.

As of now, the Policy, Market and Society Hubs from Poland count with a total of 29 members. From these, 16 members participate in the Policy Hub, 20 members in the Market Hub and 11 members in the Society Hub, with some of the engaged stakeholders being members of more than one Hub. Although the composition of engaged stakeholders is already a good representation of interested parties at national level for the biomethane market development, the Polish Biomethane Hubs will remain open to identifying and integrating additional stakeholders, taking into consideration the current dynamic situation on the biomethane market in Poland. In the Table 7 below, the list of participating institutions for each one of the Hubs are listed and main interest detailed.

Table 7. Engaged stakeholders in Polish Biomethane Hubs

Institutions	Interests and needs
Policy Hub	
• Verbio Polska • NCBR • IOŚ • Ministry of Agriculture and Rural Development • KOWR • TGE S.A. • PIMOT • Ministry of Climate and Environment • WKB Wierciński, Kwieciński, Baehr	Opinions exchange on possible forms of support for biomethane in Poland; Impact on shaping the Polish support system for biomethane; access to knowledge on the legislative support framework for biomethane in countries with more developed biomethane markets.

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• TOTAL / Polska Grupa Biogazowa • Polska Platforma LNG i bioLNG • PIGEOR PGNiG	
Market Hub	
• Verbio Polska • BZK • Biowatt S.A. • Bio-Industry • Adler Biogaz Sp. z o.o. • PKN ORLEN S.A. • Fiorentini Polska • agriKomp Polska Sp. z o.o. • Zielona Energia Michałowo Sp. z o.o. • Gaz-System S.A. • TOTAL / Polska Grupa Biogazowa • Polska Platforma LNG i bioLNG • PIGEOR • PGNiG • Bank Ochrony Środowiska S.A. • Biogas Technology	Exchange of experience and good practices; finding solutions to identified barriers to the development of the Polish biomethane market.
Society Hub	
• Verbio Polska • NCBR • IOŚ • PIMOT • Teraz Środowisko • Adler Biogaz Sp. z o.o. • Zielona Energia Michałowo Sp. z o.o. • Polska Platforma LNG i bioLNG • PIGEOR	Increase societal acceptance of biomethane through science-based evidence and tools addressing misperception phenomena from citizens; prepare recommendations for improving societal perception of biomethane; use the good examples from the advanced countries.

3.6.3 Governance structure

In Poland the overarching Hubs coordinator is the Polish Economic Chamber of Renewable and Decentralized Energy (PIGEOR). However, responsibilities for the coordination of each Hub have been divided according to the expertise in the biogas and biomethane sector and the experience in leading cross-functional teams. The Policy Hub is coordinated by PIGEOR. The Market Hub is coordinated by TOTAL / Polska Grupa Biogazowa, the leader in the production of electricity based on biogas in Poland. The Society Hub is coordinated by a media partner, the online journal on environmental protection Teraz Środowisko.

PIGEOR is responsible of the organisation of Hubs meetings, together with the coordinators of each Hub. The individual coordinators are then in turn in charge of the documentation and maintaining communication with the members of each Hub. The main communication channels between the Hub coordinator and the members of the Hubs are e-mail and Messenger-apps (using specially created groups). The decision-making processes are leaded by PIGEOR, consulting the other two Hub coordinators and open to the suggestions from all Hub members.

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4 Conclusions

The steps carried out so far for the establishment of the policy, market and societal poles also provide information on the situation of the biomethane sector in each of the target countries. The exercise of mapping, characterising and grouping the relevant actors in the biomethane scene is already a crucial exercise to get an idea of which stakeholders are active, which are not so active and which should not be missing in future discussions on biomethane market uptake.

Now that the issues of concern have been brought forward in each country, it is important to keep track of them throughout the following years of the GreenMeUp project. Supporting in this way the concrete needs of each country, regardless of the level of development of their biomethane sectors. This will, of course, involve a continuous review of the required expertise and the integration of experts in the needed analyses or discussions.

In the following months the Hubs will be involved in the development of the PESTEL workshop (WP3), the SWOT analysis (WP2) and continue with the analysis of policy interventions (WP4). These activities are intended to deepen the elaboration of action plans or strategic actions to strengthen the sector and give the necessary impetus to its integration into the energy and transport system of each country. As well as strengthening its contribution to the goals of defossilization of the economy. From the perspective of stakeholder´s engagement, these activities and the promotion of exchange across the three Hubs serve to strengthen the links between the different actors involved in the biomethane supply chain, to raise awareness and understanding from policy and other enabling stakeholders, as well as to establish a common vision for the future.

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Annex I: Structure for stakeholder mapping

Along the value chain (market actors)

	Characterisation		
Stakeholder type	**Level 1**	**Level 2**	**Level 3**
Farmer (energy crops)	Feedstock/Substrate	energy crops	Maize silage
Farmer (non-energy crops)			Grass silage
Farmer (Livestock)			Sugar beet
Farmer (Livestock & crops)			Other
Farmer associations		biowaste	Municipal solid waste
Municipal waste collection			Industrial organic waste
Industry producing organic waste		agriculture residues	Straw
Industry producing wastewater			Manure
Wastewater treatment facilities			Other
Utilities		sewage sludge	
Another substrate provider		Other	Landscape management
			other
Upstream logistics	Upstream logistics	Substrate collection	
		Pre-treatment	
		Other	
Plant constructors			
Technology developers			
Technology providers			
Other service firms			
Biogas plant operator	Biogas plants	Agricultural biogas plants	
		Biogas from sewage sludge	
		Landfill plants	
		Biogas from Organic Municipal Solid Waste	
		Biogas from industrial solid waste	
		biogas from industrial wastewater	
		Other	
Biomethane plant operator (Methanation)	Biomethane plants (biogas purification)		
Downstream logistics	Network operators	Natural gas distribution system operators	
	Power grid operator		

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	Other transportation		
End-user of biogas	Biogas utilisation	Heat for local consumption (Boiler)	
		CHP	
		Industry using power or heat	
		District heating network	
		Other	
End-users of biomethane	Biomethane utilisation	Transportation fuel	bio-LNG
			bio-CNG
		Domestic electricity production	
		Industrial electricity production	
		Domestic heating production	
		Industrial heating production	
		Other	

Outside the value chain (including enablers and other affecting the market uptake)

	Characterisation		
Stakeholder type	**Level 1**	**Level 2**	**Level 3**
Relevant associations	Associations	Biogas associations	
		Local farmers associations	
		National farmers associations	
		Bioenergy associations	
		Energy crops association	
		Other	
Policy actors & regulatory authorities	Policy/Decision makers	Local authorities / local agencies	Energy
		Regional policy makers	Agriculture
		National policy makers	Environment
		Legal consultants	R&D + Innovation
			Transport
			(Regional) development
			Other
	Standardisation bodies	National standardization bodies	
		CEN/TC 408 - PROJECT COMMITTEE (Biomethane in transport)	
		Legal consultants & contractors	
		Other	
Financial institutions & actors providing assisting funds	Funding & Investment	Private banks	
		Development banks	
		Joint ventures	
		Equity investment funds and investors	
		Venture capital	
	Assistance funds	Technical assistance funds	

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		Country grant funds	
		Country guarantee funds	
		Other	
General public	Final consumers	Electricity consumers (households)	
		Heat consumers (households)	
		Fuel for vehicles (households)	
	NGOs	Energy NGO	
		Environment NGO	
		Agriculture NGO	
		Other NGOs	
	Other environmental and agriculture groups	Grass root movements	
		Environmentalist movements	
	Civil society organisations	(Local) citizens organisation	
		(regional) citizens organisation	
		(national) citizens organisation	
	Media	Local media outlet	
		Regional media	
		National media	

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