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ALFA

Policy recommendations to unlock biogas potential in livestock farming

SEPTEMBER 2025

POLICY BRIEF





Policy Recommendations to Unlock the Biogas Potential of European Livestock Farming

SEPTEMBER 2025



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Abbreviations

C	Challenge
CAP	Common Agricultural Policy
CAPEX	Capital Expenditure
CO ₂	Carbon Dioxide
COD/BOD	Chemical Oxygen Demand / Biological Oxygen Demand
DSO	Distribution System Operator
ETS2	EU Emissions Trading System 2
FIT	Feed-in Tariff
IED	Industrial Emissions Directive
NECP	National Energy and Climate Plan
PR	Policy Recommendation
RED III	Renewable Energy Directive III
RES	Renewable Energy Sources
RRP	Recovery and Resilience Plan

Key messages

Drawing on insights from six EU countries (Belgium, Denmark, Greece, Italy, Slovakia, and Spain), this policy brief outlines practical policy recommendations to accelerate the uptake of manure-based biogas across Europe. It highlights common challenges and proven solutions for making biogas a viable, accepted, and scalable part of the rural energy transition. Key messages include:

1. **Cutting permitting times is essential to boost biogas deployment:** Lengthy and fragmented permitting remains the single largest barrier to biogas rollout across Europe. Streamlined and predictable approval processes would reduce uncertainty, accelerate project development, and ensure that viable initiatives are not lost due to avoidable delays.
2. **Public acceptance should be a prerequisite, not an afterthought:** Even technically and financially sound projects can face resistance if local communities are not engaged. Transparent communication, awareness campaigns, and involvement of trusted local actors are key to countering misconceptions and building trust from the outset.
3. **Provide fair financing opportunities across the sector, especially for small-scale farms:** Current support schemes often favour large-scale installations, leaving smaller farm-based or cooperative projects at a disadvantage. Tailored financial tools and predictable incentives are needed to unlock replication potential and secure private investment.
4. **Support that continues beyond approval ensures projects succeed in the long run:** Biogas plants require long-term stability, not just initial funding. Advisory services, cooperative structures, and follow-up support can ensure that installations remain viable, well-managed, and integrated into local value chains.
5. **Strong feedstock partnerships mean stronger, more reliable plants:** Secure and cost-effective feedstock supply is essential for plant viability. Cooperative collection models and logistics hubs can reduce costs, stabilise input flows, and strengthen collaboration between farmers and other stakeholders.
6. **Robust regulation can unlock the market potential of digestate and CO₂:** Clear and harmonised rules for digestate use and recognition of biogenic CO₂ as a valuable by-product would create new revenue streams and circular economy benefits. Coherent regulation at EU and national levels is crucial to support soil health, carbon markets, and sustainable farming practices.

Summary

The ALFA project worked across six European countries (Belgium, Denmark, Italy, Greece, Spain and Slovakia) to support the upscaling of manure-based biogas. By delivering tailored advisory services to farmers, cooperatives, and other cases, ALFA uncovered both the common barriers that hold the sector back and practical recommendations that can accelerate its deployment. Across all ALFA countries, the potential is clear, but deployment is slowed by complex permitting, limited tailored finance, unclear rules on digestate and CO₂ use, and low public awareness.

The policy recommendations presented in this brief are drawn from real-world experience and consultations and represent the most common needs expressed by stakeholders on the ground, alongside emerging approaches that show promise for replication. While national contexts differ, these recommendations point to a shared agenda for enabling biogas to play its full role in the energy transition and circular economy.

By acting on these recommendations, policymakers can unlock significant rural, environmental, and socio-economic benefits. The lessons from ALFA's work demonstrate that with the right enabling conditions, manure-based biogas can become a reliable, socially accepted, and locally driven part of Europe's renewable energy future.

Introduction

Biogas in the EU

Biogas production in the European Union has been steadily expanding, driven by renewable energy targets, decarbonisation strategies, and agricultural sustainability policies. The Renewable Energy Directive III underscores the importance of renewable gases, including biogas and biomethane, in meeting the EU's climate ambitions, while REPowerEU sets the highly visible target of 35 billion cubic meters of biomethane annually by 2030, with a strong focus on agricultural feedstocks (EC, 2025)¹. These commitments establish a favourable legislative direction at the EU level, linking biogas to both energy security and agricultural resilience.

Yet, the level of market maturity varies sharply across Member States. Denmark has emerged as a frontrunner, successfully integrating biomethane into its gas grid at scale through stable long-term support schemes. By contrast, countries such as Greece and Slovakia remain in the early stages of market development, with only a handful of operational plants and limited support frameworks. This unevenness shows that while the EU sets overarching targets, national frameworks, particularly permitting systems, funding mechanisms, and grid access rules, ultimately shape the pace of deployment.

¹ EC (2025), "Biomethane." Available [here](#).

At the same time, Europe is only realising a fraction of its technical potential. Current production accounts for just 2.65% of what could be achieved with available feedstocks, according to recent research (Bumharter, C. et al., 2023²). Much of this untapped potential lies in manure- and residue-based feedstocks, which align closely with both the Common Agricultural Policy's (CAP's) goals on climate and nutrient management and with ALFA's emphasis on circular, waste-based solutions.

Unlocking this resource is less a question of technology than of regulatory streamlining, farmer engagement, and financial support, precisely the areas highlighted by the ALFA countries as critical barriers.

Finally, new opportunities are emerging in the form of small-scale, farm-based digesters. These models, which are particularly attractive to livestock farmers, directly mitigate methane emissions, recycle nutrients, and generate local value (Bumharter, C. et al., 2023). Unlike industrial-scale approaches that risk public opposition or feedstock competition (when demand increases for a feedstock, but supply doesn't), they embed projects within communities and distribute benefits more equitably. Such decentralised systems illustrate how biogas and biomethane can simultaneously advance climate action, rural development, and circular economy objectives, provided the enabling environment supports their deployment. Upcoming Circular

The ALFA Project

The ALFA project worked in six European countries, (BE, DK, GR, ES, SK, IT³) to accelerate manure-based biogas deployment. Each national hub engaged across diverse European contexts. Each

national hub engaged directly with farmers, cooperatives, and other actors, providing tailored advisory services on technical, financial, and business issues. This hands-on approach revealed both common challenges, such as complex permitting and limited financial support for small-scale projects, and country-specific issues shaped by local market maturity, regulations, and public acceptance. Our activities within the ALFA regions, helped us in developing practical recommendations that reflect the actual conditions and can be replicated or scaled across diverse European contexts.

In addition to its national hub activities, ALFA is part of a Biomethane Cluster⁴, consisting of other EU-funded projects aiming to unlock the potential of biomethane and other renewable gases.

Biogas and Biomethane: A connected pathway

Manure-based biogas, the focus of ALFA's work, delivers clear benefits in decentralised energy supply, nutrient recycling, and greenhouse gas mitigation. Produced primarily through anaerobic digestion of manure and other agricultural residues, it can be used directly for heat and power generation at the local level, reducing dependence on fossil fuels and supporting rural economies (EBA, 2025⁵).

However, when upgraded to remove carbon dioxide and other impurities, this same biogas becomes biomethane, which can be injected into the natural gas grid, used as a transport fuel, or stored for flexible use across multiple sectors. This upgrading potential means that manure-based biogas projects are directly relevant to broader EU renewable gas strategies, particularly the REPowerEU target of producing 35 bcm biomethane annually by 2030.

² Bumharter, Cornelis, David Bolonio, Isabel Ameiz, María Jesús García Martínez, and Marcelo F. Ortega. 2023. "New Opportunities for the European Biogas Industry: A Review on Current Installation Development, Production Potentials and Yield Improvements for Manure and Agricultural Waste Mixtures." *Journal of Cleaner Production* 388 (February): 135867. <https://doi.org/10.1016/j.jclepro.2023.135867>. Available [here](#).

³ In addition to the six original ALFA countries (Belgium, Denmark, Greece, Italy, Slovakia, and Spain), stakeholders from other countries, including Germany, the Netherlands, Portugal, and Ukraine, also participated in project activities.

⁴ The following projects are part of the biomethane cluster: [BIOMETHAVERSE](#), [SEMPRE-BIO](#), [HYFUELUP](#), [METHAREN](#), [GreenMeUp](#), [CarbonNeutralNG](#), [FlexSNG](#), [PRODIGIO](#), [BIOStar2C](#) (website not available), [ETIP-B2O22-2025](#), [Photo2fuel](#), [Value4Farm](#).

⁵ About Biogas and Biomethane | European Biogas Association. Available [here](#).

Strategically, this dual-use potential multiplies the return on investment in biogas. Plants designed or retrofitted for upgrading can switch between local energy use and biomethane production depending on market conditions and infrastructure availability. This flexibility allows rural producers to benefit from both local energy security and participation in higher-value, long-distance markets. For policymakers, it means that investments in permitting reform, advisory services, and public awareness campaigns are not just supporting one segment of the renewable gas market, they are building capacity for the entire biomethane value chain.

By aligning national and local policies for biogas with enabling measures for biomethane, such as streamlined permitting, fair and accessible financing, and clear rules for digestate and CO₂ use, policymakers can ensure that today's decentralised projects are ready to connect to tomorrow's larger-scale renewable gas markets.

Beyond Energy: Social and environmental value of biogas and biomethane

While biogas and biomethane are increasingly recognised as essential components of Europe's renewable energy mix, questions are often raised about the sustainability of their expansion. Concerns typically focus on scenarios where deployment is driven by energy crops or large-scale industrial facilities, which can lead to land-use conflicts, biodiversity pressures, or limited local benefits. These risks cannot be ignored, but they do not define the entire sector.

ALFA's work across several EU countries demonstrates that a different pathway is both possible and desirable. Here, biogas and biomethane are developed primarily through manure management, agricultural residues, and other unavoidable waste streams. This approach directly

reduces methane emissions from livestock systems while contributing to nutrient recycling and soil health. It avoids competition with food production and aligns energy generation with circular economy principles. Equally important is to highlight the benefits of farm- and community-based projects that embed value locally. These projects create rural jobs, diversify farmer income, and strengthen cooperation among stakeholders. When farmers and cooperatives are in the lead, the energy transition becomes a tool for empowerment rather than an external burden.

The social dimension is also at the forefront. Public resistance often arises when communities perceive projects as imposed or disconnected from their priorities. By contrast, ALFA's target regions stress the importance of transparency, local participation, and proactive communication. Site visits at plants, awareness-raising campaigns about the benefits of biogas and tackling misperceptions, and the involvement of trusted local actors are practical steps that build trust. In this way, public acceptance is not an afterthought but a foundation of deployment.

Taken together, these insights show that biogas and biomethane can follow a sustainable pathway when developed responsibly. The challenge is not whether to expand these technologies, but how so that to ensure long-term legitimacy and success in Europe's renewable transition.

Challenges to deployment

While the potential for manure-based biogas is significant across the ALFA countries, several recurring barriers hinder its expansion. The challenges (Cs) identified in ALFA arise from both policy and market conditions, and their impact varies by country, however, they are common enough to demand coordinated action. A list of the relevant challenges follows.

C1: Administrative complexity

Permitting procedures are often slow, fragmented, and unpredictable. In countries with decentralised governance, such as Spain and Belgium, rules may differ between regions, be unclear, or subject to

change. Even in more centralised systems, multiple agencies may be involved, and response times can be lengthy, delaying project implementation and, in some cases, jeopardising access to time-limited support schemes.

C2: Limited access to finance

Access to suitable financing remains a major hurdle, particularly for small scale and cooperative projects. Existing support mechanisms frequently prioritise large-scale installations, while smaller units face high capital costs and limited loan availability. In some countries, banks are reluctant to finance projects due to perceived risks or past underperformance of biogas plants.

C3: Regulatory gaps for by-products

Rules governing the use of digestate and captured CO₂ are often unclear, inconsistent, or overly restrictive. This creates barriers to developing stable markets for these by-products, limiting their contribution to the circular economy. In certain countries, stakeholders reported uncertainty over nutrient content standards or restrictions on land application, further complicating their use.

C4: Low public awareness and social acceptance

In several ALFA countries, public awareness of biogas benefits is low, and misinformation can fuel local opposition. In some cases, negative perceptions stem from earlier poorly managed projects, leading to a lack of trust in new developments. Limited communication and

engagement from project developers can exacerbate these challenges, slowing down permitting and reducing community support.

C5 - Feedstock logistics constraints

Collecting and transporting manure and agricultural residues remains a logistical challenge, especially where farms are small, scattered, or lack cooperative structures. Transport costs, seasonal availability, restrictive regulations to import manure and competing uses for residues all affect the stability of feedstock supply chains, reducing the economic viability of plants in some regions.

ALFA's Policy Recommendations

The following recommendations are derived from the work of the six ALFA regions and reflect both common challenges across countries and targeted actions that can deliver tangible results. Each Policy Recommendation (PR) directly addresses one of the challenges identified in the previous section.

PR1: Streamline and simplify permitting (C1)

Lengthy, fragmented, and unpredictable permitting processes create major barriers to biogas deployment. National and regional authorities should establish clear, time-bound procedures for project approvals, ideally through a single point of contact. In decentralised countries, the priority should be to make regional permitting procedures clearer, faster, and more efficient, rather than seeking homogeneity across regions. Simplified permitting will particularly benefit small-scale and cooperative projects, which often lack the resources to navigate complex administrative systems.

PR2: Tailored financial support for small-scale projects (C2)

Existing support schemes often favour large installations, leaving farm-based or cooperative plants without viable funding options. Policymakers should introduce targeted financial instruments, such as low-interest loans, grants, or loan guarantees, specifically adapted to smaller-scale business models. Stability and predictability of support schemes are essential to encourage long-term planning and attract private investment.

PR3: Support cooperative feedstock supply models and logistics (C5)

Stable feedstock supply is essential for plant viability, but small farms face high logistical costs. Incentivising cooperative approaches, such as joint manure collection systems or shared pre-treatment facilities, can reduce costs and ensure reliable feedstock flows. Public support for cooperative infrastructure and coordination mechanisms can also strengthen rural collaboration and economic resilience.

PR4: Clarify and standardise rules for digestate and CO₂ use (C3)

Digestate is a valuable fertiliser substitute, and captured CO₂ from biogas upgrading can be used in food, industrial, or agricultural applications. However, unclear or inconsistent regulations limit these opportunities. Harmonising nutrient content standards, land application rules, and CO₂ quality criteria will enable market development, increase project revenues, and enhance the circular economy benefits of biogas in livestock farming.

PR5: Increase public awareness and communication to increase social acceptance (C4)

Social acceptance is critical to biogas deployment. Public information campaigns should highlight the environmental, economic, and local benefits of biogas, with a focus on climate action, nutrient recycling, and rural job creation. Early engagement with communities, transparent communication on plant operations, and showcasing successful demonstration sites can help counter misinformation and build trust.

PR6: Guarantee grid access and infrastructure support (C5)

Limited and costly access to gas and electricity grids is a recurring obstacle, especially in Spain, Slovakia, and Greece, while Italy stresses the need to align infrastructure with biomethane upgrading. Without fair and affordable connection rules, even viable projects cannot scale. Policymakers should require Distribution System Operators (DSOs) to take responsibility for connection pipelines, recognise renewable gas infrastructure as a public interest, and ensure transparent, non-discriminatory access.

Table 1 provides a consolidated overview of the challenges (C1–C5) and corresponding policy recommendations (PR1–PR6) identified across the six ALFA countries.

Table 1. Identified Challenges & Policy Recommendations per ALFA Hub

PRs ⁶ / Cs ⁷	BE	DK	GR	IT	SK	ES
PR1 / C1						
PR2 / C2						
PR3 / C5						
PR4 / C3						
PR5 / C4						
PR6 / C5						

⁶ **Policy Recommendations (PRs)**

PR1: Streamline and harmonise permitting, **PR2:** Tailored financial support for small-scale projects, **PR3:** Support cooperative feedstock supply models and logistics, **PR4:** Clarify and standardise rules for digestate and CO₂ use, **PR5:** Increase public awareness and social acceptance, **PR6:** Guarantee grid access and infrastructure support

⁷ **Challenges (Cs)**

C1: Administrative complexity, **C2:** Limited access to finance, **C3:** Regulatory gaps for by-products, **C4:** Low public awareness and social acceptance, **C5:** Feedstock logistic constraints

Cross-country patterns and observations

The results presented in Table 1 point to two clear priorities shared across all the ALFA countries: *PR1 - Streamline and harmonise permitting* and *PR5 - Increase public awareness and social acceptance*. The first recommendation reflects a common challenge across all participating countries - administrative complexity, lengthy approval timelines, and inconsistent regional requirements create uncertainty for investors and developers, slowing the pace of deployment. Streamlining and standardising permitting processes, especially in decentralised governance contexts, are consistently seen as measures that could unlock significant growth.

Equally prominent is *PR5 - Increase public awareness*, which emerges as a decisive factor for the success of biogas initiatives. Even when projects are technically sound and financially viable, they can face strong local resistance if communities are not well-informed or engaged.

Misconceptions about odour, environmental impact, and safety remain common, often rooted in past negative experiences. The urgency of this issue, however, differs across regions: while in some contexts (e.g., Spain or Italy) public awareness and acceptance remain critical barriers, in others it is acknowledged but less pressing compared to permitting or financing challenges. To counter this, stakeholders recommend targeted awareness campaigns, open days at biogas plants, transparent communication, and the use of trusted local actors to

A second tier of recommendations, *PR2 - Tailored financial support* and *PR6 - Guarantee grid access and infrastructure*, also appears prominently across multiple regions. These reflect recognition that access to finance remains a structural barrier for smaller-scale, farm-based, and cooperative projects, which are often excluded from existing schemes designed for large plants. Again, the severity of this barrier varies: for example, smaller-scale projects in countries like

Slovakia and Greece face more acute financing challenges, whereas in more mature markets (e.g. Denmark), issues around finance are not the primary bottleneck. *PR6* builds on this by addressing the infrastructure barriers that frequently block deployment, particularly the high costs and uncertainties of grid connection. Ensuring fair and transparent access rules, clarifying the role of DSOs, and investing in local collection and injection capacity are essential to unlock the sector's growth potential and enable manure-based biogas to scale into biomethane markets. Additionally, *PR4 - Clarify and standardise rules for digestate and CO₂ use*, meanwhile, appears consistently across almost all target regions. Regulatory ambiguity, restrictions on use, and underdeveloped market frameworks currently prevent digestate and CO₂ from being fully valorised.

Other recommendations emerge as more context-specific but no less important within their respective national settings. *PR3 - Support cooperative feedstock supply models and logistics* features strongly in countries where fragmented farm structures and high transport costs undermine project viability. It should be noted, that Denmark appears to be at a more advanced stage of biogas deployment, with fewer critical barriers reported compared to other countries, a sign of the country's mature regulatory framework, established infrastructure, and long-standing policy support.

Alignment with the EU Policy Landscape

ALFA's recommendations are not developed in isolation but stand in direct dialogue with the European Union's strategic objectives and legislative framework. By mapping the five core policy recommendations against existing EU initiatives (Table 2), it becomes clear that, in general, the ALFA recommendations are largely aligned with broader policy ambitions, though they also highlight differences in how these ambitions play out in practice. From RED III's permitting simplification to the

Fertilising Products Regulation (FPR) on digestate use, each challenge identified locally corresponds to active EU regulations.

Table 2. Bridging ALFA's PRs with EU Policy Frameworks and Strategies

ALFA PRs ⁷	Relevant EU Strategies / Regulations ⁸
PR1	RED III (Art. 16 on permitting simplification); REPowerEU (targets for faster rollout)
PR2	Common Agricultural Policy (CAP)
PR3	
PR4	EU Fertilising Products Regulation;
PR6	The Gas Package

To operationalise this alignment, the section below outlines the concrete EU policy frameworks most relevant to each recommendation.

- **PR1 - Streamline and simplify permitting:** A solution would be to truly enforce the RED III provisions on permitting simplification. This includes ensuring that all Member States establish digitalised procedures and a one-stop shop for producers, thereby reducing delays and uncertainty for project developers.

Moreover, in exchanges with stakeholders, it became clear that permitting complexity stems from three separate procedural lines: energy, building/construction, and environmental approvals, where progress in one often triggers or delays progress in the others. These processes are not always coordinated, leading to unnecessary delays or illogical sequencing. Moreover, responsibilities are distributed across different governance levels (NUTS 1, 2, or 3), which can slow down decision-making. Finally, permitting frameworks often apply the same

requirements to very different types of biogas plants, such as on-farm anaerobic digestion, landfill gas recovery, or industrial biogas facilities, despite their vastly different designs and environmental impacts. This “one-size-fits-all” approach creates unnecessary administrative burdens, particularly for smaller-scale farm-based projects.

- **PR2 - Tailored financial support for small-scale projects:** Support schemes should be designed to avoid favouring a single type of farm-size or feedstock. In particular, they must not favour large-scale projects or exclude livestock manure, which represents a crucial resource for both methane mitigation and renewable gas production. Through targeted rural development measures, the CAP can ensure that equal access to finance for both small and large-scale projects, and that manure-based biogas becomes not only a climate tool, but also a new income stream for livestock farmers.
- **PR3 - Support cooperative feedstock supply models and logistics:** Collaborative farmer-based models should be further supported under the CAP to provide financial and organisational backing to farmer cooperatives, manure hubs, and regional bioenergy clusters, ensuring more effective feedstock mobilisation.
- **PR4 - Clarify and standardise rules for digestate and CO₂ Use:** For digestate, a review of the EU Fertilising Products Regulation (FPR) is urgently needed. Current criteria are overly rigid and difficult to comply with, especially for smaller-scale producers, falling short of the circular economy objectives the regulation was meant to

⁸ Policy Recommendations (PRs)

PR1: Streamline and harmonise permitting, **PR2:** Tailored financial support for small-scale projects, **PR3:** Support cooperative feedstock supply models and logistics, **PR4:** Clarify and standardise rules for digestate and CO₂ use, **PR5:** Increase public awareness and social acceptance, **PR6:** Guarantee grid access and infrastructure support

⁸ EU strategies and regulations listed in this table are drawn from the official European Commission webpage and related legislative documentation.

support. The ongoing evaluation of the FPR must deliver a comprehensive revision introducing requirements that are both scientifically sound and operationally feasible. In the interim, the EC should encourage Member States to adopt clear national legislation granting end-of-waste status and legal certainty for all digestate-derived products, including organic fertilisers and soil improvers. These frameworks should be simple to implement and avoid unnecessary administrative burden.

- **PR5 - Increase public awareness and social acceptance:** policymakers should leverage the Common Agricultural Policy (CAP) rural development programmes to co-finance initiatives that bring biogas closer to the public. This includes supporting demonstration farms, organising open days at biogas plants, and running targeted awareness campaigns. These activities can showcase tangible benefits such as reduced greenhouse gas emissions, nutrient recycling, and new income streams for farmers. Importantly, trusted local actors (e.g., cooperatives, advisors and municipal authorities) should be actively involved in delivering messages, ensuring communication is transparent, relatable, and responsive to community concerns.
- **PR6 - Guarantee grid access and infrastructure support:** This recommendation is directly linked to the implementation of the Gas Package, which must ensure transparent and fair rules for biogas/biomethane grid access, as well as infrastructure investment for collection, upgrading, and injection.

Moving ahead

The evidence gathered through the ALFA countries demonstrates that manure-based biogas can play a central role in Europe's transition to a low-carbon, circular economy, but only if the most pressing

administrative, financial, and societal barriers are addressed in a coordinated manner. The policy recommendations outlined in this brief provide a practical roadmap for unlocking this potential.

Moving forward, EU and national policymakers should prioritise measures with broad cross-country consensus, such as streamlining permitting processes and improving public awareness, while also supporting targeted interventions that respond to specific market and regulatory contexts. A balanced approach is essential: EU-wide frameworks can ensure consistency and market stability, while national adaptation will allow each Member State to leverage its unique agricultural structures, resource availability, and governance systems.

Key takeaways

- Cutting permitting times is essential to boost biogas deployment
- Public acceptance should be a prerequisite, not an afterthought
- Provide fair financing opportunities across the sector, especially for small-scale farms
- Support that continues beyond approval ensures projects succeed in the long run
- Strong feedstock partnerships mean stronger, more reliable plants
- Robust regulation can unlock the market potential of digestate and CO₂

References

EC (2025), "Biomethane." Link [here](#).

Bumharter, Cornelis, David Bolonio, Isabel Amez, María Jesús García Martínez, and Marcelo F. Ortega. 2023. "New Opportunities for the European Biogas Industry: A Review on Current Installation Development, Production Potentials and Yield Improvements for Manure and Agricultural Waste Mixtures." *Journal of Cleaner Production* 388 (February): 135867. <https://doi.org/10.1016/j.jclepro.2023.135867>. Available [here](#).

European Biogas Association (EBA), 2025, About Biogas and Biomethane. Available [here](#).

Appendix

The following pages include the individual policy briefs developed by each ALFA hub. These documents reflect the national perspectives and recommendations gathered through hub-level engagement. While they are presented separately here, their insights were consolidated to inform the common policy recommendations highlighted in the main body of this brief.

Policy Brief

Belgium

September 2025

Author

White Research (WR)



Context

Biogas production in Belgium is well developed, with nearly 200 installations across the country, mainly located in Flanders. The majority are agricultural units, often small-scale pocket digesters on dairy farms. While the technology is proven, the biogas sector still faces a number of structural challenges, particularly regarding authorisations, financial support, and trust in cooperative models. Regional differences (Flanders, Wallonia, Brussels) result in diverse approaches to support schemes and permitting frameworks.

Challenges and barriers

- Lengthy and complex authorisation procedures, especially in Flanders where policies about nitrogen limits creates difficulties in issuing permits for new plants.
- Reduction of green certificates in Wallonia in recent years leading to uncertainty.
- Financing difficulties for small and micro-digesters, with banks hesitant to support projects.
- Lack of trust and difficulties in setting up cooperation models among farmers.
- Negative perception and skepticism among farmers in Wallonia, where early projects were inefficient, causing long-term scepticism among farmers and financial institutions.

ALFA's Policy Recommendations

- 1 Simplify permitting procedures in Flanders, particularly for small-scale farms using their own feedstock and with low environmental impact.
- 2 Adapt the Walloon framework to better support pilot projects and simplify authorisation with a single contact point for farmers.
- 3 Provide tailored subsidies for small and mid-scale biomethane plants, beyond large industrial projects.
- 4 Strengthen advisory and information services to improve confidence among farmers and banks, especially in Wallonia.
- 5 Support the development of farmer cooperation models through facilitation and adapted financial instruments.



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Policy Brief

Denmark

September 2025

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Context

Denmark has a long history of biogas development supported by regulation and subsidy schemes. Biogas production links energy generation with manure and organic waste treatment, with co-digestion widely used. Since 2012, upgrading to biomethane and injection into the natural gas grid has been possible, accelerating sector growth. In 2023, biogas covered 45% of Denmark's total gas consumption. While the sector has expanded rapidly, framework conditions remain decisive for future growth.

Challenges and barriers

- Very long processing times to obtain permits, with multiple approvals required for large installations.
- Local resistance to new plants due to odour and manure/feedstock transport concerns.
- Stagnation in sector growth in 2023 due to deteriorated framework conditions.
- Current development highly dependent on export market conditions.

ALFA's Policy Recommendations

- 1 Refund CO₂ levy for biogas, verified by origin guarantees.
- 2 Tighten CO₂ requirements for the transport sector beyond ETS2 quota, similar to Germany.
- 3 Enforce CO₂ displacement requirements for gas suppliers for heating, inspired by the Dutch model.
- 4 Implement climate footprint rules for transport infrastructure, like building regulations.
- 5 Introduce a minimum 50% deduction in CO₂ emissions for livestock manure digested in biogas facilities before levy determination.
- 6 Stop Evida's injection tariff proposal and replace with a green tariff model.
- 7 Halve biogas tender fund duration to 10 years, reduce subsidy reliance with origin guarantees, and bring forward last tenders to expire in 2026.



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Policy Brief

Italy

September 2025

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Context

Most Italian biogas plants have a capacity of 650 - 1000 kW, incentivised for 15 years. In recent years, focus has shifted from power generation to biomethane production, driven by FITs and CIC. About 85% of plants are located in the North, reflecting larger farm structures. Smaller farms in the South face greater barriers to investment. Local opposition also exists, particularly in Sardinia, where NIMBY resistance is strong. Support schemes include feed-in tariffs (FIT) for electricity and biomethane, as well as certificates (CIC) for biomethane used in the transport sector.

Challenges and barriers

- Expiring incentives after 15 years, creating profitability risks.
- Plant sizes make upgrading to biomethane challenging.
- High operation and maintenance (O&M) costs incompatible with electricity market conditions.
- Administrative bottlenecks: unpredictable timing of procedures (e.g. distributor's connection quotes).
- Regional barriers: strong NIMBY opposition in some regions; Regions can interfere/modify the authorisation process.

ALFA's Policy Recommendations

- 1 Establish deadlines to align administrative procedures with incentive schemes.
- 2 Shift from energy-only production to grid services, using anaerobic digesters as flexible storage and balancing tools.
- 3 Introduce conto capitale incentives for key equipment (e.g., electrolyzers).
- 4 Harmonise biomethane rules and incentives with those for e-fuels, to enable biological conversion of green H₂ to biomethane in digesters.
- 5 Ensure new incentive schemes for continuity of operation in older plants (>15 years).
- 6 Introduce technical standards that allow reverse-flow in gas networks



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Policy Brief

Greece

September 2025

Author

Q-PLAN International
(Q-PLAN)



Context

The Greek biogas-biomethane sector remains still underdeveloped despite policy/investment efforts made. 80 operational plants (mainly wastewater and agro-industrial), the livestock sector's role remains small. Biomethane upgrading is still scarce, hindered by high capital costs, complex permitting, limited technical know-how, lack of grid infrastructure, and the absence of a stable legal framework. In practice, there is no market to support the operation of an agricultural biomass supply chain.

Challenges and barriers

- High investment costs and financing difficulties, along with lengthy and complex permitting processes.
- Limited grid infrastructure for biomethane injection.
- Low awareness and weak synergies between livestock and energy actors.
- Lack of support schemes for the construction and operation of the biomethane plants.
- Limited feedstock mobilisation capacity.
- Declining farmer numbers and technical know-how gaps.
- Economic issues due to the existing electricity-based biogas plants.

ALFA's Policy Recommendations

- 1 Fast-track permitting for the upgrade process to centralise permits, land-use, and environmental assessments
- 2 Introduce digital permitting platforms with fast-track procedures for <1MW projects.
- 3 Pre-identify "low-conflict" zones (e.g., livestock-dense regions) where permitting can be streamlined
- 4 Introduce biomethane support schemes such as CAPEX grants up to 40–60% for upgrading units and manure logistics
- 5 Develop manure logistics infrastructure
- 6 Promote regional manure management hubs with local authorities
- 7 Develop clear and supportive quality standards and specifications for grid injection



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Policy Brief

Spain

September 2025

Author

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Context

Spain has significant potential for biogas and biomethane due to abundant livestock waste (49 million tons annually) and agricultural residues (9 million tons). As of 2020, Spain had 146 biogas plants with an output of 2.7 TWh, concentrated mainly in Catalonia, Madrid, and Castilla y León. Biomethane production is still emerging, with only five plants operational in 2022. Despite this potential, the sector lags behind European counterparts, largely due to regulatory uncertainty, high upfront costs, and low awareness among farmers.

Challenges and barriers

- Complex and irregular authorisation processes.
- Lack of uniformity in permitting, making investment decisions difficult.
- High upfront investment costs, which farmers generally cannot afford.
- Regulatory uncertainty discouraging stakeholders from adopting biogas technologies.
- Awareness and knowledge gap: many new market entrants lack the required awareness, expertise and struggle with regulations.
- Unequal regional transportation of manure and grid connection. Digestate regulations prevent its valorisation as fertiliser, leading to undervaluation.

ALFA's Policy Recommendations

- 1 Streamline and standardise authorisation at the national level to replace the fragmented regional system. Ensure efficiency and clarity to avoid bottlenecks.
- 2 Introduce incentive schemes, particularly for farmers, to reduce investment barriers and increase participation in projects.
- 3 Develop training programmes for farmers and stakeholders, including awareness on digestate valorisation and environmental benefits.
- 4 Support small-scale biogas plants, linking them to larger infrastructure (e.g., grids) to facilitate market development.
- 5 Raise awareness in agricultural and livestock sectors to integrate biogas into broader renewable energy adoption.



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Policy Brief

Slovakia

September 2025

Author

PEDAL Consulting



Context

In Slovakia, the National Energy and Climate Plan sets a target of 25% RES in gross final energy consumption by 2030, with a binding biomethane target of 200 million m³/year (with an ambitious scenario of 300 million m³). Biogas plants are supported through feed-in tariffs for electricity and high-efficiency cogeneration, complemented by investment calls under the Recovery and Resilience Plan (RRP). The first biomethane plant was commissioned in 2022 in Jelšava, the second one in Velke Bierovce in 2025 with two more planned for 2025.

Challenges and barriers

- High investment costs and limited subsidies, creating financial risk and phase-out of the feed-in tariff scheme for electricity generation in upcoming 3 years.
- Unstable and uncertain policy environment.
- Complex and lengthy administrative and permitting processes.
- Restrictions and willingness of farmers on digestate use and transport.
- Lack of technical training and know-how among farmers and decision-makers.
- Low social acceptance, with odour and noise complaints.
- Uncertain biomethane price on markets, discouraging investment.

ALFA's Policy Recommendations

- 1 Simplify and shorten authorisation procedures, eliminating excessive bureaucracy.
- 2 Approve exceptions for storage of certain liquid by-products (high COD/BOD).
- 3 Valorise digestate as fertiliser to boost its commercialisation and use.
- 4 Adjust incentives for digestate and animal by-product processing.
- 5 Establish regional zones for biodegradable waste generation to reduce transport distances.
- 6 Introduce post-feed-in tariff support schemes to secure viability of existing plants.



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