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From Grass to Biogas: Benefits and Challenges of a Circular Business Model

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ABSTRACT:
This paper investigates the feasibility and challenges of converting municipal grass clippings into biogas, drawing on empirical insights from the Power Bio (https://gate21.dk/projekt/powerbio/) project in Denmark and Sweden. Using field trials, stakeholder workshops, and two rounds of municipal surveys, we map the grass-to-biogas value chain and identify critical success factors and barriers to implementation.
The study identifies variations in municipal practices, evaluates logistics and contamination challenges, and examines technical adaptations at biogas plants.
Findings show that while biogas conversion is technically viable and environmentally beneficial, institutional fragmentation, lack of standardization and adaptive planning, logistical timing, and equipment constraints limit scalability. We outline suggestions for a business case and an action plan to support municipal integration into bioenergy systems, contributing to circular economy and climate mitigation agendas.

Keywords: Environmental performance, Biogas, Grass biomass, Circular economy, Renewable energy, Municipal waste valorization

1. Introduction

The rising urgency to decarbonize energy systems and reduce organic waste calls for innovative valorization strategies that align with circular economy principles. Among various bioresources, municipal grass clippings offer untapped potential for biogas production through anaerobic digestion. This study investigates the practical feasibility, environmental benefits, and governance implications of integrating grass biomass into local biogas systems in Denmark and Sweden. Drawing on the Power Bio project, the paper empirically assesses operational constraints and outlines policy measures for scaling such initiatives.

While biogas from manure and organic waste streams is well established in both Danish and Swedish energy systems, the potential contribution of municipal grass clippings remains largely underexplored. Existing practices often leave grass to decompose on-site or divert it to compost or landfill, bypassing its energy potential. Yet empirical trials and stakeholder dialogues conducted in the Power Bio project suggest that grass from public green areas can be efficiently collected and anaerobically digested—if logistical, technical, and institutional conditions are met. This study builds on field experiments, stakeholder workshops, and municipal surveys to assess whether a viable grass-to-biogas

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value chain can be established, and under what specific operational and governance arrangements such a transition can be realized. It also examines the critical importance of collection timing, biomass purity, scale coordination, and establishing contractual frameworks in order to transform sporadic initiatives into structured municipal valorization strategies.

2. Literature review

The conversion of grass into biogas represents an opportunity to address market demands for renewable energy and the need to reduce reliance on virgin resources. Anaerobic digestion has long been recognized as a cornerstone in sustainable waste-to-energy strategies, offering both environmental and economic co-benefits (Holm-Nielsen et al., 2009). This literature review explores the benefits, challenges, and essential considerations for establishing a business model focused on grass to biogas production.

One of the primary benefits of utilizing grass biomass for biogas production lies in its potential to mitigate greenhouse gas emissions associated with traditional fossil fuel consumption. Grass is generally considered a carbon-neutral source of energy, offering a sustainable alternative to meet energy requirements (Mondal et al., 2024; Li et al., 2024). The conversion process of biomass to biogas not only repurposes waste that would otherwise contribute to landfill and greenhouse gas emissions but also promotes local energy solutions, enabling communities to invest in homegrown energy sources and reducing import dependency for fossil fuels (Abed et al., 2022; Langsdorf et al., 2021). This can lead to economic benefits, including decreased waste management costs and the substitution of conventional energy sources with renewable biogas, fostering new revenue streams for local economies (Martana et al., 2025).

The development of grass-based biogas systems, however, is fraught with challenges. One significant barrier is the seasonal variability in grass availability, which challenges supply stability and can limit the consistency of biomass feedstock supply (Qiao et al., 2020). Additionally, the quality of biomass can be inconsistent, influenced by various conditions such as climate and soil type, affecting biogas yields. Effective pretreatment methods to enhance biomass digestibility and conversion efficiency are necessary, yet can be complex and costly (Woo et al., 2019; Loow et al., 2015). The need for supportive infrastructure, including logistics for collection and processing, is also critical, as efficient supply chain management ensures the timely and economically feasible operation of biogas plants (Kim & Yoo, 2021).

Addressing these logistical and operational challenges requires the implementation of a robust business model that incorporates considerations for collection, adaptive planning and harvesting synchronization, processing scalability, contractual arrangements and economic viability. An effective biomass business model should include policies for financial support and incentives (Aksoy et al., 2010). These could encourage investments in necessary infrastructure and technology developments, such as advanced catalytic conversion methods that improve biomass utilization efficiencies (Ardhiansyah et al., 2024). Additionally, integrating periods of peak biomass availability with innovative pretreatment techniques can optimize conversion processes and enhance the overall productivity of biogas plants (Vlachos et al., 2010).

In conclusion, literature indicates that while the pathway to utilizing grass biomass for biogas production is complex and fraught with challenges, it presents a viable strategy for contributing to the circular bioeconomy. With effective management of supply chains, technological innovations in pretreatment and processing, and supportive policies, grass-derived biogas can emerge as a stable contributor to renewable energy markets, ultimately meeting both local energy needs and broader sustainability goals.

3. Methods and Case

Denmark and Sweden have been at the forefront of biogas innovations, making them ideal contexts for examining grass-to-biogas initiatives. This study is grounded in an empirical case analysis of the Interreg Öresund–Kattegat–Skagerrak Power Bio project, which piloted the use of municipal grass clippings as a biogas feedstock. We draw on both quantitative and qualitative data collected from multiple municipalities in Denmark and southern Sweden between 2023 and 2025, in collaboration with technical partners (Gate 21, DTU) and biogas industry stakeholders. By leveraging these real-world investigations, the research teases out tacit operational knowledge and informs a proposed business case for integrating grass from public green areas into existing biogas value chains. Our approach systematically maps the grass-to-biogas supply chain, identifies critical success factors and bottlenecks, and formulates an action plan to maximize feasibility under local conditions.

The project involved 10 Danish municipalities and one Swedish city (Malmö), enabling cross-contextual comparison of governance structures, operational constraints, and biogas practices. Of these, six municipalities provided full empirical input through surveys, documented test activities, or stakeholder logs. These are presented in Appendix A.

A mixed-methods design was employed. Field trials were conducted to test the practical logistics of grass collection and digestion. For instance, Hørsholm Municipality harvested approximately 5 hectares of natural grassland in August 2024 and delivered the cuttings to a biogas plant (Ringsted Biogas) within 24 hours; the material was deemed suitable and was successfully fed into biogas production. In another trial, Malmö Stad collected about 13 tons of grass clippings in summer 2024 and sent them to the Söderåsens Bioenergi biogas facility in Bjuv, Sweden, demonstrating technical feasibility of using fresh grass as feedstock. These pilots highlighted on-the-ground requirements; notably that grass should be collected immediately after mowing to preserve methane potential. They also revealed practical constraints: one municipality (Køge) found that the volume of roadside grass available in its area was too low to pursue a dedicated biogas supply effort on its own, underscoring the importance of scale in economic viability.

To complement the field experiments, we gathered operational data and stakeholder insights directly from those involved in the grass-to-biogas chain. The receiving biogas plant Ringsted Biogas participated in evaluations of the delivered grass, testing its biogas potential and checking for contaminants such as heavy metals to ensure the resulting digestate would be agronomically safe. These tests confirmed that grass from public green areas can be processed at the biogas plant provided it is sufficiently fresh and clean, reinforcing the notion that feedstock quality and timing are pivotal. However, a critical barrier remains the presence of physical contaminants, such as litter, metals, and plastic debris, which are frequently found in roadside grass clippings. Biogas operators, such as Ringsted Biogas, report that unless pretreatment systems or strict quality controls are in place, such contaminants can render the material unusable (Meeting notes, 2023). This concern is echoed by Greater Bio (an earlier project) data, which documents that impure roadside grass was rejected by Audebo Miljøcenter and redirected to incineration, despite being collected under municipal contracts (Dyreborg Martin et al., 2022). These findings stress the need for establishing quality standards and developing contamination-mitigating infrastructure or process redesigns to ensure feedstock integrity and compliance with regulatory thresholds. Without such safeguards, plant efficiency may be compromised, deterring operator participation and investment. The biogas plant also offered practical feedback on logistics: based on their trials, Ringsted Biogas estimated a maximum feasible collection radius of about 50 km for grass deliveries (beyond which transport costs and emissions become prohibitive) and indicated that they would consider paying for grass feedstock if it met certain certification criteria for sustainable biogas production. Additionally, the plant explored technical adaptations to handle grass delivered in baled form, signaling willingness to invest in equipment upgrades (such as automated bale splitters) should a steady supply of baled grass be secured.

As part of the empirical foundation for the study, two structured survey rounds were carried out in 2023 among participating Danish municipalities. The first survey focused on establishing the baseline conditions—so-called *status quo*—with regard to grass cutting practices, equipment, collection logistics, and end-use of biomass. This initial mapping provided a systematic overview of local routines, volumes, and contractual arrangements. The second survey was conducted after an in-person workshop in May 2023 and was designed to gather more detailed and reflective input on municipalities' operational readiness, ambitions, and perceived barriers for participating in grass-to-biogas value chains. These responses provided fine-grained insights into how technical, ecological, and institutional factors vary across local contexts and informed the development of customized action plans and demonstration activities for each municipality. Together, the two survey rounds enabled a comparative understanding of both prevailing practices and future potential within the participating jurisdictions.

Finally, the study incorporated a participatory workshop methodology to capture the breadth of perspectives across the value chain. A full-day workshop in April 2025 convened representatives from municipalities, transportation contractors, researchers, and biogas plant operators. Participants were asked to collaboratively populate a business model canvas for the grass-to-biogas system, mapping each segment of the value chain (from biomass supply to end-use of biogas and digestate) and identifying perceived barriers, risks, and opportunities. A follow-up session in June 2025 was held to validate the insights gathered, update any information gaps, and refine the proposed business case elements. This iterative co-creation process ensured that the analysis was grounded in practical realities and benefited from the collective experience of practitioners. In addition, Power Bio partners maintained continuous dialogue and material exchanges (e.g., sharing equipment logs, cost figures, and performance data), further enriching the empirical evidence base for the study.

The case study is based on data from Denmark and Southern Sweden as part of the Power Bio project. This warrants caution as to generalizability as specific variations in terrain, equipment, or policy across regions may affect broader applicability of the proposed models and need to be adequately analyzed and taken into consideration in each case.

4. Analysis and Identification of the Business Case

The investigation identified the conversion of municipal grass clippings into biogas as a promising pathway in the circular bioeconomy. Cut grass from roadside verges, parks, and nature reserves is an abundant, renewable, yet largely untapped resource in many municipalities. At present, most of this grass biomass is treated as waste – it is often left on the ground, hauled to composting facilities, or occasionally used as animal fodder – meaning its considerable energy and nutrient value remains unexploited. By diverting these grass clippings into anaerobic digestion, municipalities can produce biogas and generate valuable biofertiliser. The Power Bio project's empirical findings reinforce this potential: field tests in Denmark and Sweden demonstrated that, when grass is properly collected and promptly delivered, existing biogas plants can readily co-digest it with other substrates. In these trials, fresh municipal grass was successfully processed into biogas, confirming that this biomass can be a viable feedstock under real-world conditions.

The value chain of grass-to-biogas is mapped as illustrated in figure 1:

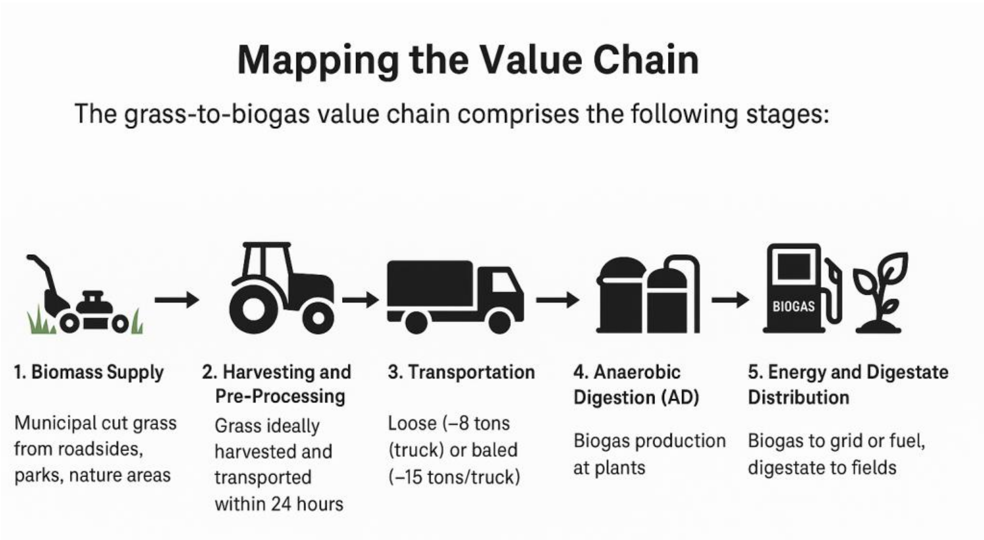

Figure 1: The Grass to Biogas value chain. Own elaboration based on Power Bio project.

The empirical analysis draws on detailed surveys conducted across several municipalities, including e.g. Rudersdal, Vallensbæk, and Strandparken, as part of the Power Bio project (2025). These revealed a high degree of variation in grass handling practices, ranging from on-site baling for biofuel use (Strandparken IS) to storage and subsequent landfill with uncertain offtake (Rudersdal Kommune) (Power Bio Project, 2025). In addition to contractual fragmentation, several municipalities encounter challenges related to end-user acceptance criteria and certification. For instance, some municipal plots are not eligible for ICC/CO_2-certification, limiting the ability of biogas plants to monetize the resulting gas via carbon trading schemes (Biogasgruppe, 2023). Furthermore, infrastructural incompatibilities, such as the absence of collection capacity that meets purity standards, create regulatory hurdles and inhibit participation in established biogas supply chains. These constraints highlight the need for harmonized public procurement templates, certification-ready collection procedures, and municipal investment in contaminant-minimizing equipment. Halsnæs exemplifies a semi-structured model with baled grass from natural areas reused for agricultural purposes, albeit without formal policy or biogas integration. In contrast, Greve was undergoing a contractual transition during the study period, initially reporting uncertainty about logistics, biomass end-use, and partner roles to having outsourced all grass cutting at the end of the study period. This underscores the diversity in approaches and that while some municipalities have practical systems in place, others remain constrained by procurement cycles, resource limitations, or coordination gaps (Power Bio Project, 2025). While some municipalities operate under political mandates to enhance biodiversity through timed cutting and collection, others face constraints due to limited internal capacity or machinery. The logistics of collection, particularly allowable storage time and transport practices, emerged as critical design parameters in assessing the scalability of biogas valorization pathways.

Notably, only a subset of municipalities have secured structured pathways for biogas conversion or alternative valorization of grass biomass. The absence of offtake agreements and the relatively low volume in some municipalities (e.g., <1 ton/year in Vallensbæk) pose limitations to economies of scale and investment justification. Furthermore, technical constraints—such as outdated mowing equipment or lack of integrated harvesting-logistics systems—undermine operational feasibility in several contexts. These structural frictions must be addressed to move from pilot demonstrations to replicable solutions across municipalities. Initiatives such as policy harmonization, procurement reform, and standardized tenders could institutionalize biogas delivery. Formal agreements could possibly encourage investment in the infrastructure needed.

One of the most illustrative empirical cases involved a full-scale test by Hørsholm Municipality, where approximately 4.5 hectares of grassland were mowed. The cut biomass was collected and delivered in loose form to Ringsted Biogas within 24 hours. The material was successfully processed and confirmed to be free of contaminants such as heavy metals, reinforcing its suitability for biogas digestion (Power Bio Project, 2025; Logbog Hørsholm, 2025).

Notably, the logistics of biomass collection are pivotal for economic and practical feasibility. For example, the Greater Bio project demonstrates that transport using a flail mower is approximately 7.5 times more expensive per ton per kilometer than truck transport, primarily due to reduced speed and lower capacity. The study further underscores that minimizing the distance between mowing and collection points, increasing mowing speed, and optimizing collection capacity (such as doubling from 4 to 8 tons) can substantially reduce costs. Additionally, the presence of physical contaminants—such as metals, plastics, and aluminium cans—necessitates robust pretreatment and sorting processes prior to biogas conversion. Seasonal yield variations are also significant, with autumn harvests yielding considerably more biomass than those in spring, which should inform operational planning (Dyreborg Martin, 2023). Field studies and interviews suggest that while spring cuts (April–May) yield low biomass due to limited growth and height, autumn harvests (September) offer larger volumes but at reduced moisture content and slightly lower methane potential (Biogasgruppe, 2023). Additionally, empirical testing in the Greater Bio project confirmed that climatic conditions—such as unseasonably cold spring temperatures—further depress spring yields and render some grass unsuitable for collection due to insufficient height (Dyreborg Martin et al., 2022). These temporal variances imply that operational planning must be seasonally adaptive, potentially aligning harvest schedules with biogas plant intake needs and prioritizing autumn collection for volume-based returns.

Complementing these findings, a feasibility study in Helsingborg quantifies the biogas potential of urban grasslands, revealing that 370 hectares could supply fuel for approximately 250 biogas cars annually—a figure that could be tripled by incorporating additional sources such as wetlands and golf courses. The study emphasizes the necessity of optimizing the entire value chain, from harvesting to delivery at the biogas plant, and suggests that co-digestion with other organic waste streams (e.g., source-separated food waste) can further enhance system efficiency. Beyond energy production, the use of urban grass for biogas contributes to ecosystem services such as increased biodiversity, improved recreational spaces, and enhanced soil carbon storage, aligning with broader municipal sustainability and climate objectives (Blom et al., 2020).

The environmental case for grass-to-biogas is compelling. Grass clippings left to decompose or disposed via composting emit greenhouse gases without energy recovery, whereas anaerobic digestion captures that energy in the form of biogas while greatly reducing net emissions. A recent analysis by Swedish transport and agricultural agencies found that using roadside grass for biogas is roughly 4.3 times more climate-beneficial than the status quo of simply mowing and leaving the biomass. Likewise, a detailed study in Malmö indicated that diverting grass to biogas could cut total CO_2-equivalent emissions by up to 85% compared to fully composting the same material. These savings come from both the avoidance of methane emissions that would occur in unmanaged decomposition and the displacement of fossil fuels by the renewable biogas produced. Moreover, the anaerobic digestion process yields a nutrient-rich digestate which can be used as biofertiliser, returning nitrogen, phosphorus, and organic carbon to soils. This not only closes the nutrient loop but also contributes to soil improvement and carbon sequestration.

A quantitative comparison of climate impacts further supports the case for biogas integration. Comparative LCA studies show that grass can achieve favorable environmental and energy yields compared to other feedstocks such as manure or food waste, though outcomes vary with logistics and technology (Bacenetti et al., 2016). Analysis from the Greater Bio project calculated that anaerobic digestion of grass clippings displaces between −0.05 and +0.081 tons CO_2e per ton of biomass, depending on input quality and conversion parameters. In comparison, pyrolysis of similar biomass achieved a displacement of 0.056–0.228 tons CO_2e per ton (Dyreborg Martin et al., 2022). While pyrolysis delivers stronger CO_2 sequestration through biochar, biogas contributes via energy substitution and nutrient recycling. Thus, the relative merits of each pathway hinge on local infrastructure, policy incentives, and end-use priorities. This should be further analyzed in specific LCA and energy-efficiency studies.

Realizing this business case, however, requires surmounting several practical and economic challenges identified during the project. One key requirement is timing: to maximize biogas yields, grass must be harvested and transported to digestion facilities within about 24 hours of cutting. This necessitates changes in municipal maintenance routines, since many current contracts only mandate grass cutting (with clippings left in place) rather than immediate collection. Implementing prompt collection entails additional operations – and thus additional costs – for municipalities, from arranging rapid pick-up logistics to potentially mowing more frequently or with specialized machinery. The Power Bio trials found that the cost of grass collection is significantly higher than that of mowing alone, so any decision to collect must be justified by the benefits (e.g., energy production, climate gains, and avoided waste treatment fees) that it yields. For example, if grass clippings are sent to a biogas plant instead of to compost or landfill, the municipality may save on external composting or disposal costs. Still, careful cost-benefit evaluation is needed. In cases where only small quantities of grass are available, the economics can be marginal. These findings suggest that a viable grass-to-biogas business case may hinge on achieving economies of scale, for instance by aggregating collection from multiple municipalities.

A key determinant of economic feasibility in grass-to-biogas systems is the cost associated with mowing, collection, and transport logistics. Empirical data from the Greater Bio project in Lejre Municipality indicate that mowing and collecting roadside grass costs approximately 1,659 DKK per ton of clippings, compared to just 46 DKK per ton for mowing without collection (Dyreborg Martin et al., 2022). These findings underscore the critical importance of optimizing mowing speed, collection density, and transport logistics to ensure viable operational economics. The study highlights strategies such as using larger transport units, compressing biomass during collection, and reducing the distance between mowing and delivery points as means to reduce unit costs substantially. These insights emphasize that unless economies of scale are achieved or alternative co-financing mechanisms are introduced, the high cost of collection remains a significant barrier to upscaling.

Another crucial factor influencing the business case is the format and logistics of biomass transport. The project compared delivering grass in loose form versus in compacted baled form. Municipal field trials in both Denmark and Sweden revealed a trade-off: biogas facilities prefer loose grass because it is easier to unload and feed into digesters, but transporting loose clippings is inefficient. By contrast, if grass is baled and wrapped, a single truck can carry roughly 15 tons – nearly double the payload – greatly improving transport efficiency and reducing per-ton transportation costs and emissions. However, handling wrapped bales poses a challenge at the biogas plant end. In current practice, unloading baled grass can require manual intervention, which is too labour-intensive and costly to be sustainable. To resolve this, technical solutions are being pursued: Ringsted Biogas is trialling an automation upgrade to its equipment to mechanically unwrap and feed baled grass, aiming to make accepting baled deliveries costneutral for the plant. If successful, this innovation would allow municipalities to capitalize on the transport efficiency of baling without overburdening the plant's operations. It was also noted that baling may not be feasible in all areas – for example, Malmö's tests reported that uneven terrain in natural meadows complicates on-site baling. This insight underscores that logistical strategies must be tailored to local conditions.

Finally, policy and institutional arrangements emerged as critical to enabling and scaling the grass-to-biogas business case. The Power Bio project found that without formal coordination, even well-intended initiatives can falter. One discovery was that in some municipalities, private service contractors had independently started diverting collected grass to biogas plants, but the municipalities themselves were unaware of these efforts. This lack of transparency and agreement meant that grass utilization was ad-hoc and not integrated into municipal strategy. To ensure a consistent and traceable supply of grass for energy, formal agreements between municipalities and biogas operators are needed. For example, new procurement tenders are being developed (as seen in Rudersdal and Greve Kommune) that explicitly require grass clippings from municipal maintenance to be delivered to a biogas facility rather than discarded. Such contractual provisions lock in a feedstock stream, providing certainty to biogas plants about supply volume and quality. They also facilitate traceability and certification, allowing the resulting biogas to potentially qualify as an advanced biofuel with premium pricing in energy markets. In summary, the business case for grass-fed biogas is strongly supported by empirical evidence of technical feasibility and environmental benefit, but its success will depend on addressing logistical hurdles and instituting the right agreements and policy frameworks.

5. Conclusion

This study confirms that converting municipal grass clippings into biogas is technically feasible and offers significant environmental benefits, particularly in reducing greenhouse gas emissions and enabling nutrient recycling through digestate reuse. Empirical evidence from the Power Bio project demonstrates that, under real-world conditions, properly collected grass can be successfully co-digested at existing biogas plants in Denmark and Sweden. However, realizing the full potential of this pathway hinges on overcoming a set of interrelated logistical, technical, and institutional challenges.

One of the most critical factors influencing the success of grass-to-biogas systems is the timing of biomass collection. Grass must be harvested and delivered to biogas facilities within approximately 24 hours to maintain its methane potential. Delays lead to increased lignification and reduced digestibility, undermining energy yields. Equally important is contamination control: grass from roadsides is often tainted with litter, plastics, and metals, which can damage digestion equipment or render digestate unsuitable for agricultural use. Municipalities must implement quality assurance measures, such as pre-mowing litter removal or targeted collection from low-risk areas.

Transport format also affects economic and operational feasibility. While biogas plants prefer grass in loose form for easier processing, municipalities benefit from the greater transport efficiency of baled grass. This trade-off necessitates investment in plant-side automation—such as bale splitters—to ensure compatibility. Moreover, variations in terrain and cutting practices influence whether baling is even feasible, indicating the need for context-sensitive logistical planning.

To scale up grass valorization, several structural barriers must be addressed. Municipal procurement practices often lack provisions for grass delivery to biogas plants, and in many cases, subcontractors independently divert grass without municipal oversight. This fragmentation undermines traceability, certification, and strategic planning. Establishing formal agreements and integrating biogas delivery into tender specifications are essential steps. Such agreements not only provide biogas plants with supply security but also allow the produced biogas to qualify for certification and potentially receive premium pricing as an advanced biofuel.

The economic case for grass-to-biogas is contingent on reducing collection and transport costs. Data highlights that collecting grass can be up to 30 times more expensive per ton than mowing alone, depending on equipment type and logistics. To justify these costs, municipalities must aggregate biomass volumes—potentially through inter-municipal collaboration—or offset them via avoided composting fees and climate benefits. Optimization strategies include minimizing the distance between mowing and delivery points, compressing biomass during collection, and aligning harvest schedules with plant intake needs.

Beyond technical and logistical considerations, the policy and governance environment play a decisive role. The absence of harmonized quality standards, certification criteria, and financing mechanisms continues to constrain implementation. Coordinated policy frameworks and public-private collaboration are needed to unlock the systemic benefits of grass-fed biogas and facilitate its integration into municipal sustainability agendas.

In conclusion, while the business case for grass-to-biogas is robust in principle, its realization requires targeted interventions across operational, contractual, and regulatory dimensions. By investing in logistics optimization, contamination control, and institutional coordination, municipalities and energy stakeholders can turn an underutilized biomass stream into a valuable contributor to circular bioeconomy transitions. This insight should serve as a foundation for future research focused on automation technologies, cross-municipal cooperation, and financing mechanisms. Future research should also investigate further how adaptive harvest planning, strategic co-financing, and standardized quality control protocols could be implemented and should be prioritized. Comparative life cycle assessments should be undertaken to evaluate environmental and economic trade-offs between grass-to-biogas and other valorization pathways such as composting or pyrolysis.

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Appendix A. Summary of Municipal Grass Collection Practices

Municipality	Grass Type	Estimated Volume (tons/year)	Collection Timing	End-Use	Key Barriers
Rudersdal	Roadside, parks	Up to 145	After mowing (24h)	Unclear / landfill	No formal offtake agreements
Vallensbæk	Roadside strips	<1	Not specified	Uncertain (maybe Solrød Biogas)	Low volume; equipment constraints
Strandparken IS	Roadside, nature areas	Not reported	Within 7 days	Fodder or biogas	Manual bale handling, terrain
Halsnæs	Nature areas	~10	Autumn	Fodder/bedding	No political policy; ad hoc practices
Greve	Urban verges, meadows	Not reported	Unspecified	Unknown	New contract; lack of coordination
Hørsholm	Nature & parkland	4.5 ha tested	<24h	Biogas (Ringsted Biogas)	Transport cost, timing