

Ireland's Draft Biomethane Strategy

Article written by Andrea Muñoz García, February 2024

Ireland's AD industry is in the initial stages of development, with only a few tens of biogas plants currently in operation, and just three plants focused on the production of biomethane. The injection of biomethane in the Irish gas grid commenced in 2020; this is in contrast to key players in the European biomethane landscape, Germany, Denmark, and the UK, who have been injecting biomethane into the grid for over a decade.

Nonetheless, Ireland and its AD potential has attracted the interest of a range of key stakeholders. Recently, **the European Commission identified Ireland as the country in the EU with the highest potential per capita for biomethane development**. Investors and AD developers are also looking at Ireland, as it presents major development opportunities, due to its nascent status, and with significant amounts of readily available agricultural products and by-products, widely used as feedstock for AD. In September 2023, Gas Network Ireland (GNI) published the Biomethane Energy Report, which highlighted that **176 prospective producers had an interest in developing projects in Ireland**, outlining a potential to produce 14.8TWh of biomethane every year.

From a demand perspective, **data centres are seen as one of the main drivers for the development of the sector**. The Government's Statement on the Role of Data Centres in Ireland's Enterprise Strategy stipulated that new data centres should be able to meet their own energy demand through on-site generation running on renewable sourced fuels, such as biomethane, when supply becomes more widely available. Additionally, the Electricity Supply Board (ESB) Networks has proposed that data centres that provide flexibility to the electricity grid should be required to have renewable gas purchase agreements with Irish producers.

The Irish Government has also taken steps towards the development of the sector, by setting legally binding targets, which commit to an annual production of biomethane of 5.7TWh. In addition, the Irish Government also relies on AD to meet other targets such as a 25% reduction of emissions in the agricultural sector. Moreover, in 2023, the Irish Government **committed to the implementation of a Renewable Heat Obligation (RHO)**, which is expected to support the development of the biomethane market in the country.

The most recent Government update was **the release of a public consultation to gather views on Ireland's Draft Biomethane Strategy** and its future implementation. The final version of the Strategy, which was originally expected by the end of last year, will be published at the end of quarter one of 2024, according to the Minister for Agriculture, Food and the Marine, Charlie McConalogue.¹

What does the Draft Biomethane Strategy say?

The Draft National Biomethane Strategy intends to set up an adequate framework for the delivery of the biomethane targets set by the Irish Government and aims for Ireland to have a developed biomethane industry by 2030. The actions set by the Strategy are expected to be included in future versions of the Climate Action Plan to ensure delivery.

The Strategy has been built around five interlinking pillars, including: Sustainability, Demand for Biomethane, Bioeconomy and Circular Economy, Economics of Biomethane, and Enabling Policy Requirements. The key aspects of the Strategy described below are linked to one of these pillars.

¹ <https://www.gov.ie/en/press-release/4ff5e-ministers-announce-public-consultation-on-national-biomethane-strategy/>

The Irish Government sees **biomethane as an opportunity that goes beyond the production of renewable energy** to meet the set targets. One key aspect of this agri-centric Strategy is to provide farmers with options for the diversification of their activities and revenue streams. This is, in turn, expected to stimulate the rural economy, and to contribute towards meeting the “extremely challenging” target of reducing by 25% the emissions from the agriculture sector, which in 2022 were responsible for 38% of the country’s total greenhouse gas (GHG) emissions. The development of domestic biomethane production is also seen as an opportunity to improve Ireland’s energy security, as the country currently imports 75% of its gas from the UK. Considering the target set by the Government, and assuming that the fossil gas demand will decrease over the next decade, 5.7TWh of biomethane could represent up to 20% of the Ireland’s gas demand in 2030, and up to 62% by 2040. Furthermore, the Government expects that a well-developed biomethane sector would have positive environmental effects including soil restoration, through the adoption of multi-species swards and a reduction in the use of pesticides, and lead to improvements in the quality of water and air, as well as enhancing the country’s biodiversity.

In terms of feedstocks, as the Draft Strategy is “agri-led and farmer-centric,” an **equal mix of cattle slurry and grass silage is highlighted as key feedstock to achieve the 2030 target**. Assuming an equal mix of both feedstocks, the slurry from 1.3 million cattle, and 120,000ha of grassland would be required. Although the use of grass silage could displace up to 5% of current livestock production, the introduction of legumes or the use of multi-species swards are expected to improve yields and, therefore, minimise such displacement. Regarding other feedstocks, the Draft Strategy considers food waste as insufficient to meet the required scale; nonetheless, it estimates that up to 0.5TWh of biomethane could be produced by 2030 through industrial organic recycling of biowaste. Additionally, sewage sludge, which is already used to produce biogas, could be used to generate biomethane.

The sustainability of feedstock is a pillar of the Draft Strategy, as it does not only intend to reduce emissions from the energy sector, but also “increase environmental sustainability within the agricultural sector.” Therefore, the document establishes that **all AD plants will be subjected to the highest environmental standards, including, as a minimum, compliance with the sustainability criteria set by EU Renewable Energy Directive (RED)**. The Draft Strategy advises the development of a “Biomethane Charter” to outline key requirements, in terms of sustainability, that participants in the biomethane industry must adhere to. The Draft Strategy also reinforces the cascading principle as set in the National Policy Statement on the Bioeconomy, which indicates that higher value applications are preferred over use in energy and fuel when biological resources are used as feedstock; and discusses the co-location of green biorefineries and centralised AD plants to ensure that the full potential of the biomass is delivered. As an example, the Draft Strategy discussed protein extraction from grass prior to its use as a substrate for AD. Similarly, the document also discusses options for the sustainable management of additional AD outputs such as digestate and CO₂.

The Draft Strategy is in agreement with the National Heat Study published by the Sustainable Energy Authority of Ireland (SEAI), stating that **the optimal application for biomethane in Ireland is “the decarbonisation of operations with high direct heat demands, for which alternatives such as electrification are currently more challenging.”** Regarding other applications, the Strategy sees biomethane as an immediate option to reduce emissions from the existing HGV fleet, although in the future this is expected to be covered by electrification. Electricity generation is also flagged as an application for biomethane, in line with the Climate Action Plan 2024, which established that zero-emission gas-fired generation from biomethane and hydrogen would start operating by 2030. The generation of electricity from biomethane would require carbon capture in order to meet the requirements of the recently approved REDIII. Finally, biomethane is also seen as a key tool for the decarbonisation of the built environment, and in particular for older, or difficult to retrofit buildings.

In terms of plant size, the Draft Strategy discusses the economics associated to different plant sizes. Large-scale AD plants (40+ GWh per annum) lead to the lowest cost of production per MWh, estimated in €120 per MWh. Nevertheless, the Strategy acknowledges the value of small-scale plants, which could play a key role in the decarbonisation of agriculture through the use of on-farm feedstock and the consumption of energy on-site, despite not significantly contributing to the 5.7TWh target. Depending on the plant scale, the green premium required for biomethane would range between €50-150 per MWh. The Draft Strategy explores support mechanisms implemented by other European countries, and the use of biomethane in the EU ETS, but **no specific support mechanisms for biomethane are mentioned beyond the existing Renewable Transport Fuel Obligation (RTFO) in the transport sector, and the announced Renewable Heat Obligation (RHO) for the heat sector.**

One key priority of the Irish Government is to ensure adequate provision of resources for the key agencies involved energy transition, including the Environmental Protection Agency (EPA), to manage, on a timely manner, the large volume of permit applications (e.g., waste permit, planning permission, etc.) necessary to meet the 5.7TWh target. On this note, the Government has also committed to the development of a standardised code of practice to be followed by local authorities when assessing AD planning applications. The Draft Strategy also highlights the need to review the status of contestable works eligible to be carried out by developers, as a mean to reduce the time and cost required to connect new plants to the grid. To support developers the Government aims to develop an online portal that provides technical and financial advisory support, that also outlines the exact requirements for a project, depending on scale and feedstock. All these actions are considered as **non-financial policy enablers and are expected to significantly impact biomethane deployment in the country.**

Finally, the likelihood of meeting the biomethane target is explored within the Draft Strategy through high-level scenarios that represent credible pathways towards deployment. The analysis shows that “Widespread Deployment” through the deployment of numerous small plants, would require the construction of around 250 plants and truck transportation of the biomethane from production site to injection point, resulting in the most expensive taxpayer option, and being unlikely to meet the 5.7TWh target, despite the deployment of all policy enablers discussed above. On the other hand, the “Current Policy Only” scenario, in which no further biomethane policies are introduced (so, only RTFO and RHO as support mechanisms), would lead to certain level of production in large scale plants (40-60 GWh) to meet demand from sectors able to afford the green premium for biomethane. Although this would result in the lowest cost to taxpayers, it will not likely lead to achieving the targets set by the Government. According to the Draft Strategy, **the most cost-effective scenario is “Economic Deployment” which benefits from economy of scale through the construction of a smaller number of larger plants.** This scenario also assumes the deployment of all policy enablers and would allow direct connection to grid in many cases. This is also the only scenario considered by the Draft Strategy under which it is possible to meet the 5.7TWh target.

Consultation

The Government points out that no final decisions will be made in relation to the Strategy or its implementation until feedback from the Consultation has been gathered and reviewed. The online Consultation is open for a total of five weeks, until the 5th of March, and the final version of the Strategy is expected to be published in March 2024.

The Consultation includes eleven questions that seek stakeholder’s views on key actions and the proposed roadmaps for the development of a biomethane industry in Ireland. As an example, the consultation enquires about the optimal support mechanism for the country to deliver on the 5.7TWh target considering the cost and time required for delivery. The options considered include capital, operational or feedstock support, and the consultation sees these forms of support as a complement

to the announced obligation for the heat sector. The consultation also seeks views on the optimal applications for biomethane in Ireland, as well as on the optimal scenario to achieve the 5.7TWh target, from the three discussed in the consultation document: Widespread Deployment, Current Policy Only, and Economic Deployment.

Stakeholders are also asked about feedstock availability and the sustainability of the biomethane produced. Regarding sustainability, the consultation enquires about the aspects assessed by the suggested Biomethane Charter, as well as the management of the Charter to ensure adherence of relevant parties.

Concluding remarks

The Biomethane Strategy has been eagerly awaited by key players, hoping that it acts as a kick-start to the rapid development of the Irish biomethane sector, following the setup of legally binding targets and the announcement of an obligation mechanism for the heat sector over the last two years.

The Draft Strategy was prepared to aid the development of an Irish biomethane sector that is agri-led and farmer centric, through the prioritisation of farm residues and grass silage as key feedstocks. The Draft Strategy provides clues on the implementation pathway, which includes the deployment of a combination of small, and mostly large plants that help both decarbonising the agri sector and meeting renewable energy targets by making the most of the economy of scale. The Draft Strategy also points to high temperature heating as a key application for the development of the sector. However, this implementation pathway may be subject to change as a result of the feedback gathered during the consultation.

The targets set by the Irish Government in regard to biomethane are ambitious, specially within the timeframe considered. Nonetheless, there are examples of rapid development around Europe, suggesting that the targets are still within reach. In the UK for example, around 300 new plants were commissions between 2014 and 2016. In the UK, the rapid growth was attributed to both the Feed-in-Tariff (FIT) and Renewable Heat Incentive (RHI) schemes. In Ireland, the Draft Strategy suggests that Ireland intends to rely on obligation mechanisms to support the development of the biomethane sector (RTFO and RHO), although those are typically found in more developed biomethane markets. Nevertheless, the consultation does enquire about additional support, so other support mechanisms may be announced in the final version of the Strategy. Furthermore, additional revenue streams for biomethane producers are discussed within the Strategy, such as the use of biomethane in the EU ETS.

NNFCC looks forward the final version of the Strategy due to be published next month.

NNFCC

Biocentre, York Science Park, Innovation Way, Heslington, York, YO10 5NY

Phone: +44 (0)1940 217182

Email: enquiries@nnfcc.co.uk

www.nnfcc.co.uk

