Biomethane Market Remains Buoyant

Article written by Lucy Hopwood, June 2023

With a suite of European renewable energy policies and regulations introduced over the past two decades to reduce our reliance on fossil fuels and support the transition to a low-carbon energy system, last year was an important one for green gases such as biomethane and hydrogen. Both Europe and the UK published a number of policy documents to refocus existing strategies and policy frameworks on energy security and to reduce reliance on Russian gas.

A secure, domestic low-carbon energy system is the ambition of each and every nation in Europe, but the potential varies vastly depending on the size, nature and maturity of the target countries and each sector, respectively. As strategic business consultants, guiding clients through the complex and ever changing policy, regulatory and market landscape in the bioeconomy, it is essential that we keep abreast of changes and evaluate the impact on or opportunities for our target sectors. This article summarises some key recent activities relevant to biomethane, and looks at the future of the anaerobic digestion (AD) industry in the UK.

Despite the UK opting to leave the EU single market and customs union at the end of 2020, many of the Regulations and Decisions are directly applicable as law in an EU Member State, so as a Member State, these types of legislation automatically apply to the UK and continue largely unaffected. Other types of EU legislation, such as Directives, are indirectly applicable and require domestic implementation before becoming law in that country – this is often achieved by making Statutory Instruments rather than passing primary legislation in the UK. All EU legislation which applied directly or indirectly to the UK prior to Brexit has been retained in UK law and is now known as 'retained EU legislation'.

Ongoing renewable energy policy and regulation derived from retained EU law and UK statute, includes the UK's binding commitments to:

- Reduce greenhouse gas emissions by 78% by 2035, compared to 1990 levels; and
- Achieve a 100% reduction of greenhouse gas emissions by 2050 compared to 1990 levels (the "net zero" target) in the Climate Change Act 2008 (2050 Target Amendment).

The **European Green Deal (EGD)** sets out plans for Europe to be the first climate-neutral continent by 2050. The EGD was announced in December 2019 and was followed by a series of legislative proposals presented by the Commission to adapt and align the EU legal framework with the climate targets set in the EGD. Among the proposals presented by the Commission were the Farm-to-Fork Strategy and the Fit-for-55 Package, both of which have a direct connection to the AD sector.

The **Farm-to-Fork Strategy**, presented in May 2020, aimed at making food systems more sustainable. The Strategy presented AD as a holistic solution, to reduce methane emissions and generate renewable energy at farm-level, whilst also reducing the use of pesticides and nutrient loss, in parallel to promoting a circular bio-based economy.

The **Fit-for-55 Package** was announced in July 2021, with the aim to achieve the reduction of GHG emissions by 55% by 2030, as set out in the earlier **Climate Target Plan 2030**. The second batch of proposals of the Fit-for-55 Package was released in December 2021, promoting the demand and production of renewable and low-carbon gases, such as biogas, amongst other things.

Subsequently, in October 2020, the European Commission adopted the **Methane Strategy**, aimed at reducing methane emissions across Europe, which represent 5% of global GHG emissions. Over 50% of Europe's methane emissions comes from the agriculture sector, so the strategy suggests the use of agricultural waste (along other types of waste) for the production of biogas.

The **Renewable Energy Directive (RED)**, first introduced in 2009 as the legal framework for the development of renewable energy across all sectors of the EU economy, was superseded by Directive (EU) 2018/2001 **(RED II)** in June 2021. The revision introduced a new legally binding target of 32% for renewable energy by 2030. A new revision of the Renewable Energy Directive – **RED III** – was then proposed by the EU Commission in July 2021, to increase the target to 40%. Although the UK has now been released from the renewable energy targets under RED II following Brexit, the UK-EU Trade and Cooperation Agreement includes a commitment to promote energy efficiency and the use of energy from renewable sources, reaffirming targets and ambitions across Europe and the UK.

In May 2022, the Commission presented **REPowerEU**, as a roadmap towards the rapid reduction of dependence on Russian oil and gas. The plan is based on three pillars: diversification of Europe's energy supply, energy saving, and production of cleaner energy. REPowerEU and the **Biomethane Action Plan** which was published alongside it obligates Member States to implement actions to accelerate uptake across Europe. The **Biomethane Industrial Partnership (BIP)** was launched on 28 September 2022, to support the achievement of the EU target of 35 bcm of biomethane by 2030 and to create the preconditions for a further ramp-up of its potential towards 2050. For context, in late 2021, European biomethane production capacity was 3.6 billion cubic metres – just over 10 per cent of the 2030 goal – and total European gas consumption was 412 billion cubic meters.

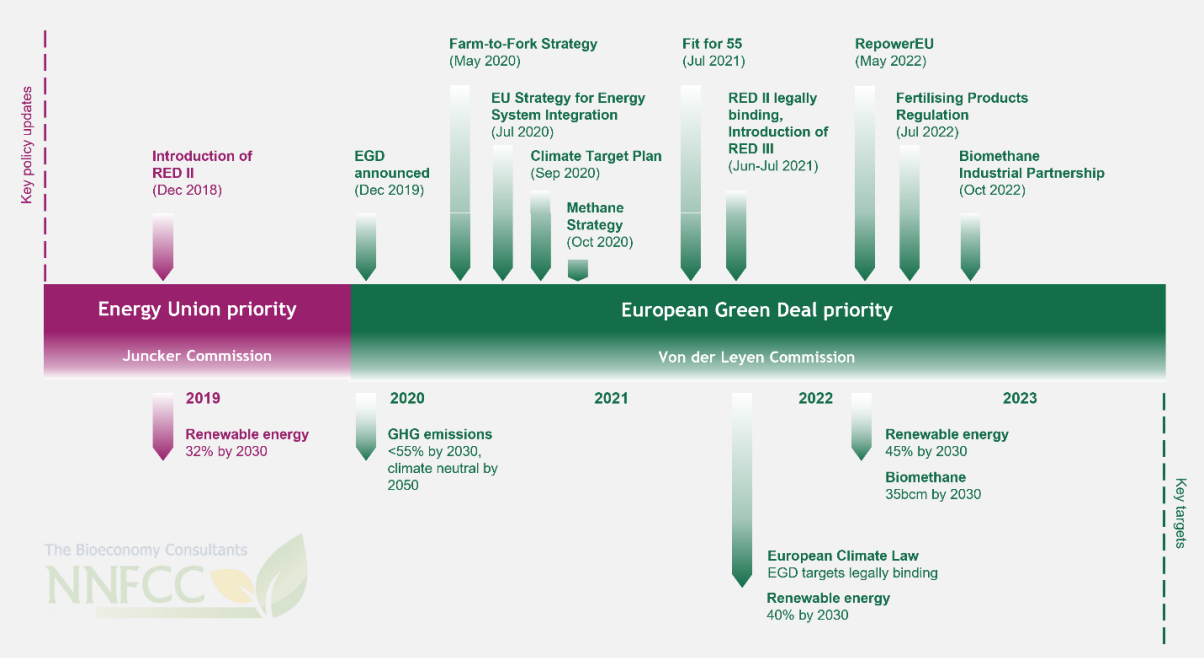

Figure 1: summary of relevant policy documents, milestones and targets at a European level.

Many companies active in the UK biomethane sector are signed up to the BIP, looking to accelerate uptake in the UK alongside the ramp-up elsewhere in Europe. The **Powering Up Britain** package launched on 30th March 2023, included the **Energy Security Plan**, the **Net Zero Growth Plan** and the **Carbon Budget Delivery Plan**, as well as the government's responses to the **Independent Review of**

Net Zero and to the Climate Change Committee's **2022 Progress Report**. Alongside this, the government also published the 2023 **Green Finance Strategy**, which seeks to ensure the necessary finance flows to the UK's net zero, energy security and nature economies, and the **Nature Markets Framework** to engage the private sector to mobilise green finance towards nature.

Although it is evident that AD and biomethane can not only improve energy security, reduce emissions, and help to decarbonise the energy system, but also benefit the farming and food industries by offering additional or alternative markets, resources, and revenue streams in challenging economic times, the above Package failed to recognise its potential.

Deployment in the AD and biomethane industry has slowed in recent years, as fuel and energy prices have been volatile, which in turn has hampered the feedstock market, whilst the financial support mechanisms that kick-started sector growth (namely RO, FIT and RHI) have closed and successor support is both narrow in scope and limited in time. The **Green Gas Support Scheme (GGSS)** launched in November 2021, with a budget to support an additional 2.5 – 3TWh of injection capacity over its four year duration. From a starting point of around 3.5 TWh of injection capacity in 2022, the UK has ambitions to achieve a trebling of capacity by 2030, so GGSS only gets the sector part-way there. Questions remain about what happens post-GGSS and how else deployment could be encouraged, to achieve these ambitions.

The intention of GGSS was to provide support for new AD capacity, using predominantly waste feedstock to produce biogas which would subsequently be upgraded to biomethane for grid injection, to maximise carbon reductions whilst benefitting from economies of scale, and achieving greater efficiencies compared to combined heat & power (CHP) facilities. However, as feedstock is so fundamental to the success of an AD project, without an accessible, stable and secure supply, new capacity will not attract investment. Lengthy delays to the rollout of mandatory separate food waste collections across England which has coincided with the economic crisis and prolonged drought conditions in 2022, has led to a hiatus in the feedstock market, with waste becoming more competitive, processing residues becoming more costly and agricultural supplies being in short supply. As a result, both development and operational costs have increased dramatically, and whilst a temporary spike in energy prices was seen throughout 2021-22, the market has settled back to a new steady norm.

GGSS will continue to support new development through until at least November 2025, when the Scheme is currently planned to close, but deployment will be limited if issues in the feedstock market continue. The GGSS is subject to a mid-scheme review (MSR) which provides an opportunity to revisit the eligibility and administration criteria, to ensure the Scheme continues to deliver as intended through to its closure. The MSR Consultation ran from March to May 2023 and focussed on the following areas:

- The schemes **closure date**, potentially extending beyond November 2025 to allow for delays being encountered at various points of the development and supply chain.
- The waste **feedstock threshold**, to consider the impact of the feedstock market hiatus and the appropriateness of the current 50:50 waste to product-derived gas requirement.
- The eligibility of **plant conversions and expansions**, as an option to accelerate growth in biomethane production, refocussing production on more efficient pathways.
- Mitigation requirements for **digestate, heat deductions** from biomethane production, and **fugitive emissions** monitoring and mitigation.

Additionally, DESNZ used the Consultation to gather views on a future biomethane policy framework which would follow the GGSS. Although little detail is known about successor support, it is clear that it will no longer be tariff-based, will not be funded by the Government or the tax payer, and will focus on maximum decarbonisation, as opposed to energy output or value for money. Whilst the **Renewable**

Transport Fuels Obligation (RTFO) remains available to support biomethane, recent volatility in certificate prices has further exacerbated doubt that RTFC revenue is not guaranteed or stable, so RTFO alone will not support greater deployment as such income is not considered 'bankable' by the investment community.

Given many AD facilities in the UK have developed under time-pressures, to secure support ahead of policy deadlines or to secure feedstock ahead of competition, timely planning of strategically robust projects has not always been possible. Developments have often been planned and commissioned on accelerated timeframes, sometimes in sub-optimal locations, without a feedstock strategy, and based on a standardised design which could be replicated widely to deliver quickly. As a result, there is significant scope of prioritise focus on improving the quality and performance of the sector before adding new capacity, investing in new projects and exploring new business models, and this is something the investment community has become cognisant of. The past 18 months have seen a significant upturn in M&A activity, with groups being restructured and consolidated, and individual plants being merged and managed under a portfolio approach.

It would be timely to provide the industry the opportunity to further improve output and realign with the policy focus, by broadening the scope of GGSS to allow additional biomethane capacity at existing CHP or BtG facilities to be supported. Following lengthy discussions with DESNZ prior to, during and after the MSR Consultation period, we remain hopeful that the eligibility criteria may be amended to permit this. It seems a logical and practical way of increasing biomethane capacity, whilst minimising investment risk and maximising value for money, at a time when unpredictability of markets is apparent.

Whilst the waste market remains volatile, as good quality waste becomes increasingly attractive and more competitive, there is an opportunity to look at other feedstock sources to support continued deployment. In the UK, almost 100 million tonnes of livestock manure and slurry are generated annually, with only around 3 million tonnes being used through AD and the remainder being land spread. At a time when both food and energy security are high on the agenda, nutrient management is becoming more challenging as inorganic fertiliser prices are volatile, and soil, water and air quality are major focus areas, the AD of manure and slurry seems like a sensible solution. However, currently this feedstock is not widely used as cost-effective, scalable solutions have not been available and other feedstocks have been more favourable.

There are a number of companies now offering scalable, technically robust solutions, targeting the livestock sector, to better valorise such agri-wastes, and to offer improvements to the agricultural sector which is responsible for 47% of the UK's methane emissions. Given the distribution and scale of livestock farms in the UK, it is most likely such solutions will be deployed at farm-level, as opposed to establishing large centralised processing facilities which would not be as practically feasible or financially attractive. However, to encourage uptake and adoption of agri-waste AD, where economies of scale will not be achieved, support or recognition of the wider benefits is necessary.

The greatest overall value in AD is where maximum efficiency and decarbonisation can be achieved. In all cases, all outputs, including the carbon dioxide and digestate, should be captured and fully valorised for maximum economic and environmental gain. As bioeconomy consultants, we are excited about the future, as new markets continue to evolve and greater synergies with other sectors continue to develop. Biomethane is such a versatile product and there is so much potential to build on what we've started. If you wish to discuss how you can get involved or add value to your existing activities, please get in touch with the team.

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