Biomethane:

An Immediate Clean Power Solution for Data Centre Energy Needs

REA

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Executive Summary

The UK is facing a defining moment - to decarbonise the electricity system by 2030 whilst simultaneously positioning itself as a global leader in AI.

Yet lengthy grid connection queues, legacy infrastructure and extensive, fragmented regulatory planning processes risk diverting AI-driven economic investment overseas or locking in high carbon energy sources, undermining the UK's Net Zero mission. Thus, a fundamental question arises: how can the UK meet its ambition to be one of the world's leading AI economies whilst supplying energy sustainably, securely, and at scale?

Cultivating an attractive investment landscape for data centres requires competitively priced, dispatchable and low-carbon energy supplies that utilise existing infrastructure - bypassing the multi-year grid connection queue. Behind-the-meter biomethane is increasingly recognised by data centre developers as an immediate, clean power solution; evidenced by 86 formal enquiries submitted by developers to gas distribution networks between August 2024 and July 2025.[1] Integrated alongside other renewable technologies, biomethane serves as a vital clean-power enabler, ensuring rising data centre demand is met with reliable, low-carbon power.

Key Takeaway

As an immediate, clean power solution for data centres, biomethane:

1. Bypasses grid queues

2. Delivers resilient, dispatchable power

3. Provides price certainty and strengthens ESG credibility

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Barriers to AI-Driven Economic Growth

Key takeaway: Data centres require fast access to competitively priced, low-carbon power that can support their continous energy load profiles

Securing fast access to a reliable, high-capacity power supply remains the principal constraint on UK data centre growth; as demonstrated by the Uptime Institute's 2025 Global Data Centre Survey which ranked power availability and cost among the top five challenges cited by operators.[2] Yet despite recent reforms by Ofgem, a heavily congested grid queue leaves developers waiting 5-10 years for access to electricity. The resulting power uncertainty undermines project bankability, as energy capacity arrives asynchronously with developer's operational timelines. Even after securing a connection, developers often face additional grid reinforcement payments and costly use-of-system charges.

These infrastructure constraints are compounded by a planning system that is struggling to keep pace with the scale and technical complexity of modern hyperscale data centre projects.[3] Securing planning consent takes an average of 18 months, with environmental concerns and inadequate community engagement driving opposition.[4] Consequently, developers are left to weigh the costs of waiting in the UK queue and battling complex planning procedures, against transferring their capital overseas - particularly to EU markets with more competitive electricity costs.[5]

Simultaneously, developers must respond to increasingly stringent sustainability disclosure requirements. Frameworks such as the EU Corporate Sustainability Reporting Directive and the UK's Sustainability Reporting Standards have heightened financiers' expectations for transparent, credible Scope 1 and 2 emissions reduction strategies. Thus, conventional routes to power via fossil-fuel generators are increasingly shunned in favour of robust, clean energy solutions.

Against this backdrop, operators are seeking alternative power solutions capable of delivering immediate, low-carbon energy without lengthy grid connection queues or additional costly infrastructure investment.

How Can Biomethane Address These Issues?

Key Takeaway: Behind-the-meter biomethane is an immediate, reliable, low-carbon energy solution that bypasses grid connection queues.

In light of these challenges and disclosure obligations, biomethane excels as an immediate, commercially viable power solution which can strategically accelerate progress towards CP2030 while supporting AI growth targets.

1. Avoid Connection Queues

While standard grid connections face 5-10 year delays, on-site generation using biomethane can be deployed in just 12-18 months - proving its commercial viability as a rapid, clean power solution.[1]

2. Compatible with Existing Infrastructure

Chemically indistinguishable from natural gas, biomethane can readily displace fossil-fuel derived gas without any additional, bespoke infrastructural modifications or expenses to existing gas engines or pipe network[9]. Utilising well-established infrastructure effectively enables the national gas grid to function as the UK's largest battery, capable of storing more than 650 GWh of energy per day.[7]

3. Dispatchable, Reliable Power

Data centre operators are prioritising resiliency as harsher penalties from outage events are introduced. Biomethane offers a consistent, reliable 24/7 'baseload' supply profile, and a degree of dispatchability to match data centre demand profiles.

4. Mutual Economic Benefits

Biomethane offers data centres immediate, low-carbon power at predictable costs, avoiding traditional grid connection delays. In return, long-term data centre offtake agreements provide the revenue certainty needed to unlock new biomethane investment. Analysis by Ceres Energy demonstrates that securing private investment could save over £602 million/year in government subsidies by reducing reliance on the Green Gas Support Scheme. Future Biogas proves the commercial and technical viability of this approach, having developed the UK's first unsubsidised biomethane plant (page 6).

5. Strengthens Net Zero Credibility

Amidst tightening sustainability compliance requirements and mounting scrutiny from investors, planners and local communities, developers must be able to substantiate their environmental claims[6]. Biomethane independently accredited under the Green Gas Certification Scheme, offers developers robust evidence to substantiate the following common disclosure requirements -

a. Additionality - confirming that supply is linked to new production capacity built specifically to meet data centre demand

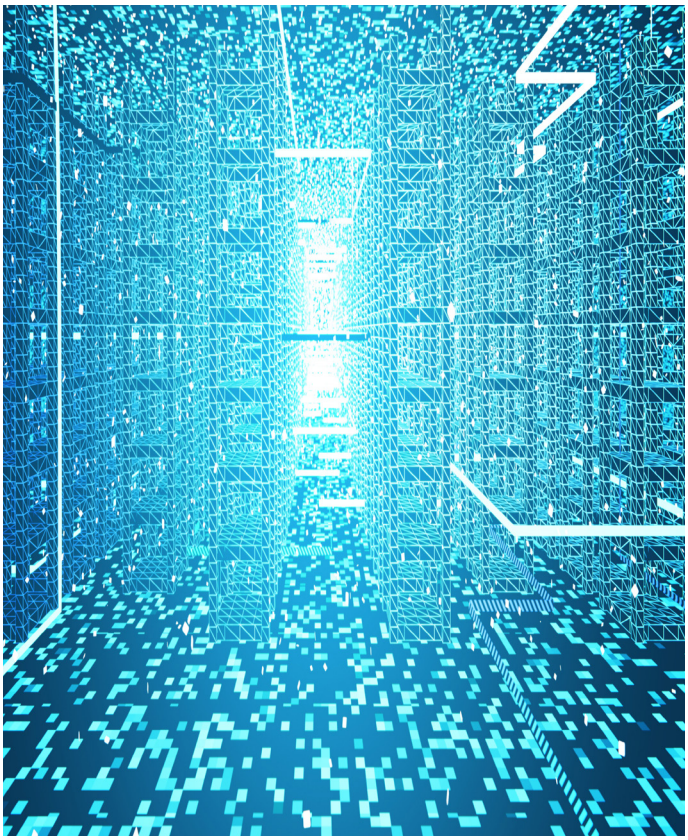
b. Traceability - evidencing the entire lifecycle from feedstock source to end use

c. Auditability - supports Scope 1 and 2 reporting through independently verified lifecycle assessments

d. Local compliance - emissions control, monitoring, and noise mitigation built in.[8]

e. Monitoring, measuring and verification - accurate reporting of fugitive emissions ensures that certified biomethane meets the Environment Agency's standards, and guarantees that carbon savings are not negated.[9]

This creates a robust, auditable sustainability narrative to strengthen stakeholder confidence, reduce the ESG reporting burden and support smoother planning and investment decisions.



Policy Recommendations to Align AI & Net Zero Ambitions

To strategically harmonise progress towards policy goals that both support renewable energy and economic growth, the REA recommends:

1. Prioritise sustainable data centre development

Prioritise data centres that commit to long-term offtake agreements with low carbon energy generators, co-location with renewables and storage, heat reuse and demand flexibility, ensuring new demand accelerates rather than constrains the energy transition.[10]

2. Aligning energy planning with AI growth targets

Currently, the Governments AI ambitions are not accurately reflected in NESO's strategic energy plans.[1] Accurately incorporating data centre demand projections into the Strategic Spatial Energy Plans, Centralised Strategic Network Plan, and Regional Strategic Energy Plans, will harmonise national and regional planning and reduce the risk of grid constraints deterring AI investment.

3. Include biomethane under the UK Emissions Trading Scheme (ETS)

Extending the UK ETS to recognise biomethane as a low carbon fuel, in alignment with the EU ETS, will ensure carbon pricing mechanisms support investment and rapid scaling of the biomethane industry.

Case study: Future Biogas & AstraZeneca

Pioneering the UK's First Unsubsidised Biomethane Plant

Intent and Goal Setting

AstraZeneca set out with one of the most ambitious Paris-aligned carbon targets in the healthcare sector, committing to a 98% reduction in absolute Scope 1 and 2 greenhouse (GHG) emissions by 2026 and a 50% reduction in absolute Scope 3 emissions by 2030 (from a 2019 baseline).

To get there, they applied the Avoid > Reduce > Substitute > Sequester framework, questioning every process, challenging entrenched technologies, and refusing to rely on easy wins like unverified offsets. They developed a target approved by the Science-Based Targets initiative (SBTI), developing a Paris-aligned pathway, ensuring targets were measurable, transparent, and aligned with the best available global climate science.

Biomethane was recognised as the only ready-to-use and scalable means of decarbonising gas demand today.

Careful Planning & Partnership

AstraZeneca sought to drive new additional biomethane capacity that truly added capacity to the energy system. They wanted to claim full responsibility and ownership over the carbon savings. Together, Future Biogas and AstraZeneca committed to an intensive planning process that involved:

- Transparent accounting and open-book collaboration.
- Long-term contracts that supported local farming communities and sustainable feedstocks.
- Integrating carbon capture technologies to remove emissions at source.
- Best practice standards, monitoring, verification and third-party accreditation to hold all parties to account.

This was not a transactional arrangement – it was a strategic, long-term partnership, with both sides fully invested in the outcome.

Execution

The result was the Moor Bioenergy Plant in Lincolnshire – the UK's first unsubsidised biomethane plant. By operating without subsidy, the project avoided any perception of greenwashing, ensuring AstraZeneca's actions were rooted in genuine climate impact.

The facility now supplies over 100 GWh of unsubsidised biomethane to fulfil AstraZeneca's UK gas demand, displacing 18,000 tonnes of CO_2e emissions per year.

The plant also incorporates carbon capture, with captured CO_2 either repurposed industrially or permanently sequestered underground, further enhancing climate benefits and displacing another 14,000+ tonnes of CO_2 typically derived from fossil fuels.

Results & Impact

Through Future Biogas, AstraZeneca is:

• Decarbonising healthcare by removing fossil gas from critical R&D and manufacturing operations.

• Strengthening UK green energy capacity, adding new unsubsidised generation to the energy mix.

• Championing systemic change, showing how bold private investment can scale renewable gas without subsidies.

• Inspiring others to follow suit, proving that unsubsidised, industry-grade biomethane is commercially viable today.

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The report is available on the REA website, here
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