

## 02 How can Anaerobic Digestion & Biomethane production help solve the current energy crisis?

**Anaerobic digestion (AD) offers the UK an under-appreciated opportunity to strengthen energy security and resilience at a time of heightened geopolitical risk.** The current crisis in the Middle East has once again highlighted the UK's exposure to volatile global energy and commodity markets. Developing domestic, dispatchable energy sources should therefore be a strategic priority, and AD is uniquely positioned to contribute across gas, power, food and carbon systems.

**Biomethane currently supplies around 1% of UK gas demand, but this severely understates its potential.** A Green Gas Taskforce report published last year estimates sustainable production could reach around 120TWh, supplying a far more meaningful share of national demand if the sector were allowed to develop and overall gas consumption continues to decrease. As an indigenous, storable and flexible gas, biomethane reduces reliance on imported fossil fuels and strengthens resilience during periods of international disruption.



**Expanding biomethane production also brings important industrial and climate benefits through bioCO<sub>2</sub>.** Gas upgrading produces a high-purity biogenic CO<sub>2</sub> stream that can displace fossil-derived CO<sub>2</sub> and improve supply security for food processing, healthcare and manufacturing. Government recently stepped in with £100 million of support to restart a bioCO<sub>2</sub> plant to address potential CO<sub>2</sub> shortfalls caused by the middle east crisis. In the longer term, combining this with carbon capture and storage creates a scalable BECCS pathway, delivering negative emissions alongside energy production.

**Digestate from AD can play a growing role in reducing dependence on imported fertilisers.** Many mineral fertilisers rely on gas-intensive production processes and supply chains linked to geopolitically sensitive regions, including the Middle East. Advanced use of digestates can partially replace these products, improving food security, lowering input costs and enhancing soil health while closing nutrient loops within the UK.

**On-farm AD systems using animal manures provide an additional resilience benefit through power generation.** A distributed fleet of small-scale CHP plants can deliver reliable baseload electricity while supporting farm incomes and waste management. Unlike intermittent renewables, AD-CHP can respond to local demand profiles and enhance energy resilience at the distribution level.

**There is an opportunity to better utilise existing grid capacity.** Many rural grid connections have been reinforced for solar PV but operate with low load factors. Small-scale AD generation could make more effective use of this infrastructure, increasing utilisation without extensive new reinforcement while providing complementary generation when solar output is low.



## What are the **next steps**?

**Realising these benefits now depends on clearer and more coherent government support.** Long-term certainty for biomethane production is essential, particularly given further delays to the future support framework consultation. Government must also address technical barriers to grid injection, such as propane requirements, challenging planning and permitting requirements, and reform the Smart Export Guarantee so that small-scale AD developers have the long-term visibility needed to invest with confidence.