

# Bio-methane – A renewable gas source

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[www.ofgem.gov.uk](http://www.ofgem.gov.uk)

As regulator of the gas networks in Great Britain, Ofgem has statutory duties to protect the interests of existing and future consumers. Their interests include reducing green house emissions and ensuring security of supply.

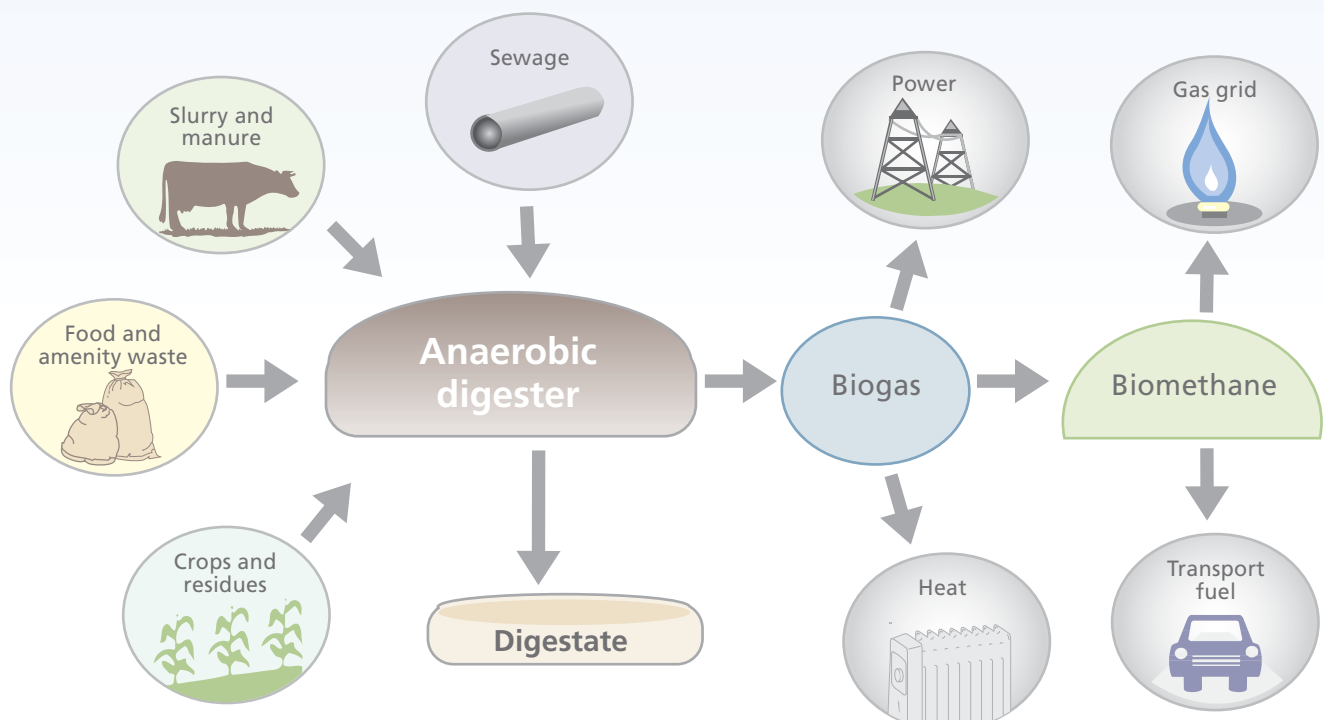
Bio-methane is a renewable gas source which can reduce carbon emissions and enhance GB security of supply.

## ► Bio-methane – what is it?

Bio-methane is derived from **Biogas** which is produced from plant or animal waste. A process called anaerobic digestion is used whereby waste is stored in tanks without oxygen. These tanks include micro-organisms, which digest the waste to produce biogas.

Biogas can be burned to create electricity and heat. Alternatively biogas can be processed to remove the carbon dioxide, producing bio-methane.

**Bio-methane can be fed directly into the gas network** and used in the same way as natural gas, to provide heat and power to homes and businesses.



## ► Why is renewable gas important?

### Lower carbon emissions

Injecting **renewable gas** (bio-methane) into the local gas networks can make our gas supply less carbon-intensive than using imported natural gas. This can help the UK Government's 2020 commitment to meet 15 per cent of final energy demand from renewables, and reduce UK carbon emissions by 34 per cent.

## ► Connecting bio-methane to the gas network

Gas has traditionally entered the UK from offshore pipelines or via Liquid Natural Gas (LNG) delivered by ship. The gas networks are engineered to transport this gas on high pressure pipelines (the transmission networks) to lower pressure local distribution networks where gas is delivered to customers.

Connecting bio-methane to the gas network presents a number of new challenges for the current networks. Bio-methane producers are likely to want to connect to the local distribution networks where gas does not normally enter. This raises a number of questions about: how the low pressure network can accommodate injections of bio-methane; the investment required to make the network accommodate bio-methane effectively; and ensuring the quality of bio-methane entering the network is the same as the rest of the gas in the gas network.

We are working closely with the Government, which recently published its Anaerobic Digestion Strategy, the network companies, the Health and Safety Executive (HSE), bio-methane producers and other interested stakeholders, to consider these issues and ensure bio-methane can enter the gas network as efficiently as possible.

### Investment in innovation

Bio-methane producers seeking connection to the gas grid have benefitted from our Innovation Funding Incentive, where funding (0.5% of the network companies' allowed revenue) is made available to network companies for research and development.

Britain's first bio-methane-to-grid plant opened in October 2010. The plant, located at Didcot, received support under Ofgem's innovation funding incentive. It is a joint venture between Centrica, Scotia Gas Networks and Thames Water and uses sewage to produce enough biomethane to heat around 200 local homes.

From 2013, substantial innovation funding will be provided for the network companies through Ofgem's new RIIO price control model (Revenue=Incentives + Innovation + Outputs). The Network Innovation Allowance allows companies to spend between 0.5% to 1% of their allowed revenue on innovation funding. There is also an Network Innovation Competition, where the gas network companies' compete for up to £20 million per year of innovation funding.

### Increasing security of supply

Using domestically produced biomethane will **diversify gas sources**, reducing our increasing dependence on imported fossil fuels as North Sea gas fields are depleting. This should help make the UK's energy supply more secure and less exposed to supply and price shocks.

### The Renewable Heat Incentive

The Government announced details of the Renewable Heat Incentive (RHI) in March 2011. The Renewable Heat Incentive offer incentives for renewable heat generation. It includes long-term tariff support for bio-methane connecting to the gas network.

The Department of Energy and Climate Change is responsible for RHI policy and expects the regulation underpinning the scheme to be approved by Parliament in Summer 2011. Ofgem E-Serve will be responsible for administering the scheme and is currently working to develop the administrative processes required for the scheme launch.

### Ensuring gas quality

The amount of energy released when a volume of gas is burned is known as the **calorific value** (CV). Because gas meters measure the volume of gas, not its energy content, the CV of the gas in the gas network needs to be consistent to ensure customers get the amount of energy they pay for.

Bio-methane has a lower CV than the required gas system CV. It therefore has to either be blended with conventional gas where the location permits or have propane (a non renewable gas) added to bring the CV up to standard.

National Grid is currently considering a proposal to blend biomethane with natural gas to increase the CV at a particular location.

## ► Connecting bio-methane to the gas network continued

### Ensuring accuracy of gas quality/ volume measurement

Calorific value measurement equipment is required to ensure the right quality gas enters the gas network. Under the current arrangements the entrant would pay for all the required capital expenditure

CV measuring equipment may be expensive for small scale producers. The Calorific Value Liaison Group, an industry working group, looks at new measurement equipment and appropriate measurement standards for biomethane.

### Appropriate charges for grid injection equipment and gas entry

The benefit of a bio-methane producer connecting to the network at any point varies according to the size of plant, location of the gas network entry point, whether it is a high or low pressure entry point and the level of demand.

Seasonal demand for gas (which is higher in winter) can also create a challenge for bio-methane producers, as they produce a relatively constant amount of bio-methane year round and storing the bio-methane gas is currently not economical.

The Energy Network Association's Distribution Network Entry group discusses use of system and connection charging as well as all other regulatory and operational issues affecting connecting to the gas grid.

This group has been considering charging issues associated with facilitating the entry of bio-methane onto the gas networks, for example, for injection and compression equipment. A modification proposals for changing charges for distributed gas has recently been raised by National Grid. Any changes will need approval by Ofgem, following consultation with stakeholders.

## ► Review group on issues associated with Biomethane Connection

The industry is taking the lead on considering the technical issues relating to connecting biomethane onto the gas network. Building on the experience of the first bio-methane to grid plant at Didcot, stakeholders have suggested there could be some potential regulatory barriers that need to be addressed.

Ofgem is therefore liaising with stakeholders to understand these concerns and we are facilitating a working group with industry representatives to consider the potential barriers. It is expected that the review group will complete an initial assessment by autumn 2011.

The review group is likely to consider the following:

- Is the current connections policy that applies to biomethane appropriate?

- The appropriateness of the ongoing transportation arrangements that apply to biomethane
- Whether CV measurement for biomethane accurately reflect the current and future needs of the gas industry
- Appropriateness of the current requirements for gas quality monitoring
- Do the current transporter systems adequately support biomethane projects
- Which aspects of the proposed arrangements are open to competition and which require a regulated solution

## ► Further information on getting connected

Guidance for biomethane producers to get gas onto the network was published by DECC in December 2009: **Biomethane into the gas network: a guide** for producers available at [www.decc.gov.uk](http://www.decc.gov.uk)

Prospective producers of biogas/biomethane can seek advice and further information from the Gas Distribution Networks in their area. This includes seeking information of projects that may be eligible for investment under the Innovation Funding Incentive for Sustainable Development.

<b>National Grid Gas</b>	<a href="http://www.nationalgrid.com/uk/Gas/Connections">www.nationalgrid.com/uk/Gas/Connections</a> E-mail: <a href="mailto:renewablegas.ukd@uk.ngrid.com">renewablegas.ukd@uk.ngrid.com</a>
<b>Northern Gas Networks</b>	<a href="http://www.northerngasnetworks.co.uk/cms/839.html">www.northerngasnetworks.co.uk/cms/839.html</a> E-mail: <a href="mailto:biomethanequeries@northerngas.co.uk">biomethanequeries@northerngas.co.uk</a> Telephone: 0113 397 5340
<b>Scotia Gas Networks</b>	<a href="http://www.sgn.co.uk">www.sgn.co.uk</a> E-mail: <a href="mailto:bio.methane@sgn.co.uk">bio.methane@sgn.co.uk</a>
<b>Wales &amp; West Utilities</b>	<a href="http://www.wwestutilities.co.uk">www.wwestutilities.co.uk</a> E-mail: <a href="mailto:connections@wwutilities.co.uk">connections@wwutilities.co.uk</a>
<b>The Energy Networks Association (ENA)</b>	<a href="http://www.energynetworks.org">www.energynetworks.org</a> E-mail: <a href="mailto:gas@enaconsulting.org">gas@enaconsulting.org</a> Telephone +44 (0) 20 7706 5100

Potential investment can also be sought from the **Technology Strategy Board (TSB)**: [www.innovateuk.org](http://www.innovateuk.org)  
E-mail: [competitions@tsb.gov.uk](mailto:competitions@tsb.gov.uk)

## ► Further information on the Renewable Heat Incentive scheme

For further information on the Renewable Heat Incentive policy please see the DECC website – [www.decc.gov.uk](http://www.decc.gov.uk).

Ofgem E-Serve is currently developing the processes and systems required to effectively administer the scheme. We launched a consultation on how Ofgem intends to administer the scheme at the end of June 2011. This provides an opportunity for all

stakeholders to comment on how we propose to administer the scheme. The consultation closes 5th August 2011. We expect to be able to accept applications from 30 September.

For further information please see the Renewable Heat Incentive page on our website – [www.ofgem.gov.uk](http://www.ofgem.gov.uk)

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