



### Legislative framework

<b>Country:</b>	United kingdom
<b>Date start:</b>	December 2016
<b>Date finished:</b>	March 2017

### Substrate regulations

			<b>Explain restrictions and/or exceptions</b>	<b>Source of information</b>
<b>Animal byproducts (ABP)</b>	<i>Does the country apply ABP-legislation?</i>	YES/NO	AD plants that are treating animal by-products, including waste food, will need an approval from the Animal and Plant Health Agency (APHA) under Animal By-Products legislation. Regulation (EC) 1069/2009 on the handling and use of animal byproducts permits the use in AD of low-risk animal by-products which are essentially material passed fit for purpose, but no longer intended for human consumption. High-risk material such as dead/fallen stock cannot be used in AD. Permissible AD plant treatment and hygiene standards are set out in the Implementing Regulation (EC) 142/2011. The EU rules are administered and enforced in England by the Animal ByProducts (Enforcement England) Regulations 2011 (SI 2011/881). There are certain limited exceptions where AD plants treating animal by-products, including food waste, will not need to have an approval from APHA. [17]	Regulation (EC) 1069/2009 Regulation (EC) 142/2011 Animal ByProducts Regulations
	<i>Is this material allowed in biogas production?</i>	YES/NO		
<b>Waste water treatment plants</b>	<i>If yes, are there any restrictions to spreading the digestate from that production?</i>	YES/NO	The treated sludge biosolids can be spread according to the European Commission's (EC) Sewage Sludge Directive	86/278/EEC Sludge (Use in Agriculture)



			(86/278/EEC) transposed through the Sludge (Use in Agriculture) Regulations in conjunction with the requirements of the Safe Sludge Matrix. The Safe Sludge Matrix describes what treatment different sludges must undergo to be allowed to be spread on different types of crops. [17][18]	Regulations The Safe Sludge Matrix
<b>Agricultural materials (not included in ABP)</b>	<i>Are there any restrictions for this material?</i>	YES/NO	<p>According to the EU Waste Framework Directive 2008/98/EC is the management of waste through for example AD subject to a requirement for a permit, to minimize the risk of harm to human health and the environment. In the Environmental Permitting Regulations 2010 are exemptions from the permit requirements stated. [17]</p> <p>Plants using slurry and manure generated on-site and/or crops grown specifically for use as feedstock for AD are not considered waste and do not have to apply for a waste permit. [17]</p>	<p>EU Waste Framework Directive 2008/98/EC</p> <hr/> <p>Environmental Permitting Regulations 2010</p>
<b>Bio-waste / organic waste material (not included in ABP)</b>	<i>Are there any restrictions for this material?</i>	YES/NO	<p>Waste-derived digestate which meets the end of waste criteria set out in the Quality Protocol for anaerobic digestate can be used as a non-waste product, as set out in the Environmental Permitting Regulations. [17]</p> <p>However, waste-derived digestate which does not meet these criteria are classified as waste and can be used only under the terms of an environmental permit. [17]</p>	<p>EU Waste Framework Directive 2008/98/EC</p> <hr/> <p>Environmental permitting Regulations 2010*</p>
<b>Monitoring</b>	<i>Who takes care of the monitoring of these regulations?</i>	The Environment Agency (EA) The Animal and Plant Health Agency (APHA) for ABP legislation.		

\*These regulations apply to England and Wales.

**On Waste and Non-waste**



AD plants are assessed in terms of whether the output is considered waste. When a material is considered waste according to the EU Waste Framework Directive its management (e.g. its treatment by AD or spreading on land) requires an environmental permit and must follow waste management regulations.

Incoming substances that are not considered waste, such as manure generated on-site and crops grown specifically for AD, generate a digestate that not is considered waste, a non-waste digestate.

The digestate from incoming substances that are considered waste, may be eligible for an exemption from the environmental permit and waste management regulations if it fulfills the end of waste criteria set out in the Quality Protocol for AD, e.g. AD treated waste from dairy products industry. The digestate is then considered a non-waste digestate.

Digestate from substances that are considered waste and that are not eligible for an exemption, are considered waste and hence does the management require an environmental permit and must comply with waste management regulations. [17]

### Alternative handling

				Explain restrictions and/or exceptions			Source of information
What alternative handling processes are allowed?	X	Composting	X	Combustion	X	Landfilling	
	Another?						
Regulations	Are there regulations to reduce the incentive of alternative handling? (ex. no organics allowed in landfills)			YES/NO	<p>There is an EU directive that states that by 2016 the maximum amount of landfilled organics should be below 35 % of the amount of organic waste generated in 1995. [10]</p> <p>When dumping waste in a landfill you have to pay landfill tax on top of ordinary landfill fees. [8]</p>		The Landfill Directive

### Building regulations

	Explain restrictions and/or exceptions	Source of information



<b>Guidelines</b>	Are there any documents of guidelines for construction of biogas plants?	YES/ <del>NO</del>	<p>For communities that want to build an AD plant; from Ace:</p> <ul style="list-style-type: none"> <li>• <i>Energy farms anaerobic digestion - How to develop a community-led agricultural anaerobic digester.</i> [30]</li> </ul> <p>The Government supported the creation of a webpage that is to contain relevant information when building an AD plant:</p> <ul style="list-style-type: none"> <li>• <a href="http://www.biogas-info.co.uk/">http://www.biogas-info.co.uk/</a> [31]</li> </ul>	
	If yes, Are they widely used?	YES/ <del>NO</del>	<p>Different governmental webpages explain certain parts of the process respectively, quite detailed and understandable. A conclusion is therefor that when wanting to build an AD plant one probably gets information from there. Another option is asking advice from a Local Council.</p>	
	Are there any documents of guidelines for the construction of systems for the produced gas? (Security, upgrading, gas pipelines etc.)	YES/ <del>NO</del>	<p>The Department of Energy &amp; Climate change has published a guide on how to connect to the gas grid 2009:</p> <ul style="list-style-type: none"> <li>• <i>Biomethane into the Gas Network: A Guide for Producers</i> [32]</li> </ul> <p>The Renewable Energy Association (REA) wrote 2010 a report on connection of AD plants to the power grid:</p> <ul style="list-style-type: none"> <li>• <i>Connection of Anaerobic Digestion Generators to Distribution Networks in Great Britain</i> [33]</li> </ul>	
<b>Permission process</b>	Is the permission process for small and medium scale biogas plants easier/faster?	YES/NO	<p>A fast track application service for house building is about to be launched, but it doesn't seem to apply to building AD plants. [28]</p>	



	<i>Describe the process:</i>	<p>Different rules apply to the different countries within the UK. But in general, to build an AD plant you will need a Planning Permission and a building regulations approval. The planning seeks to guide the way UK towns, cities and countryside develop. Building Regulations set standards for the design and construction of buildings to ensure the safety and health for people in or about those buildings. [25]</p> <p>The planning permission application (including development plan) is sent to the local planning authority which decides whether to grant the planning permission based on the development plan. It will not take into account whether local people want it. [26]</p> <p>The building regulations application is sent to a building control body which can either be a local council or a private approved inspector. For building an AD plant the Full plan application applies. Detailed drawings are to be submitted together with the relevant fee for the work being undertaken. [27]</p>	<p>Town and Country Planning (General Permitted Development)</p> <p>The Building Regulations</p>
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## Handling of products

			Explain restrictions and/or exceptions	Source of information
<b>Digestate</b>	<i>Are there any regulations for the spreading of digestate from biomethane production?</i>	YES/ <del>NO</del>	<p>The non-waste digestates can be spread directly to land without being subject to waste management controls. [17]</p> <p>The waste digestates can only be spread directly to land if they have a permit or an exemption from a permit. [17]</p>	<p>EU Waste Framework Directive 2008/98/EC</p> <p>Environmental Permitting Regulations 2010</p>
	<i>Are there any regulations for transporting of digestate from biomethane production?</i>	YES/ <del>NO</del>	<p>Non-waste digestates are not subject to any transportational regulations. [19]</p> <p>In the Waste Framework Directive, the collection, transport, recovery and disposal of waste are restricted.</p>	<p>EU Waste Framework Directive 2008/98/EC</p>



	<i>Is there a system for certification of digestate from biomethane production?</i>	YES/ <del>NO</del>	British Standards Institution (BSI) Publicly Available Specifications (PAS) 110 (BSI PAS 110) is a standard that all non-waste digestates are obliged to comply. Otherwise they will be considered waste and be subject to waste management controls. The input material, AD technology, quality of digestate and information that is required to be supplied to the digestate recipient are specified in the standard. [19]	BSI PAS 110
<b>Electricity</b>	<i>Do you need permission to sell the electricity on the grid?</i>	YES/ <del>NO</del>	You need to apply for a Generation License to be able to generate electricity for the purpose of giving a supply to any premises or enabling a supply to be given. Regulations are written in the Electricity Act and amended in the Energy Act. [21]	Electricity Act 1989 Energy Act 2004
<b>Heat</b>	<i>Are there regulations for selling heat?</i>	YES/NO	There are regulations for the use and burning of gas (see below), but nothing found about regulations for selling heat.  To be eligible for the Renewable Heat Incentive (RHI) the owning company must be certified by the Microgeneration Certification Scheme. [22]  The Gas Appliances Directive regulates the use of gaseous fuels and the EU regulation 2016 regulates the burning of gaseous fuels. [23]	Regulation (EU) 2016/426 on appliances burning gaseous fuels Gas Appliances Directive
<b>Biomethane</b>	<i>Is there a standard for using biomethane in vehicles?</i>	YES/NO	There is hardly any biomethane used as vehicle fuel in the UK [24] and neither any specific standard for biomethane used as a vehicle fuel.	
	<i>Is there a standard for injecting biomethane into the grid?</i>	YES/ <del>NO</del>	The rules and tariffs for biogas are the same as for the use of natural gas. The technical safety criteria and rules are set out in the Gas Safety Management Regulations 1996 and the Gas Safety Regulations 1998. [12]  Injection of biomethane into the	The Gas Safety Management Regulations The Gas Safety Regulations



			grid requires that once biogas has been upgraded to biomethane, it is further conditioned, metered and compressed before injection. Conditioning includes odorisation, and adjustment of the calorific value by the addition of propane to meet gas quality standards. [10]	
	<i>Is there a permission process for selling standardized biomethane?</i>	YES/NO	There is no special license or permission process for generating or selling biomethane. To be allowed to transport gas through pipes you have to apply for a transporter license however. [21]	

### Environmental goals

		Explain restrictions and/or exceptions		Source of information
Climate	<i>What are the overall goals for reducing greenhouse gas emissions?</i>	In the Renewable Energy Directive, which is an EU directive, it is set that 15 % of gross final energy consumption 2020 should be from renewable sources. [12]		Renewable Energy Directive
		In the Climate Change Act it is set that the net UK carbon account for the year 2050 will be at least 80% lower than the 1990 baseline. [13]		Climate Change Act
	<i>Are there goals for reducing the use of fossil fuels in the transport sector?</i>	The goal is that 10 % of transport energy will come from renewable sources in 2020. [12]		Renewable Energy Directive
Eutrophication	<i>Are there goals for reducing eutrophication due to leakage of nutrients from digestate spreading?</i>	YES/NO	The European union has made a policy to combat water pollution by nitrates from the agriculture. [34]	The Nitrates Directive
	<i>If yes, how does this reflect in the legislation on spreading of digestate?</i>	For land that is considered Nitrate Vulnerable Zones (NVZ), which are areas designated as being at risk from agricultural nitrate pollution, the guidance on “Using nitrogen fertilisers in nitrate vulnerable zones” concerning where, when and how much nitrogen that is allowed to be spread and “Storing organic manures in nitrate vulnerable zones” concerning storage facilities and storage records, must be		The Nitrate pollution Prevention Regulations 2015**



		followed. For example is 170 kg per hectare of nitrogen in livestock manure allowed to be spread in NVZ each year.[20][35][36]	
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\*\* The Nitrate pollution Prevention Regulations 2015 regulates the use of nitrogen in NVZ in England (not in the entire UK).

## Economic framework

			Explain restrictions and/or exceptions	Source of information
<b>Investment</b>	<i>Are there subsidies that cover a part of the investment costs?</i>	YES/NO	Rural Community Energy Fund provides funding covering planning costs of projects in rural communities in England that work with renewable energy projects. [21]  No subsidy covering investment costs was however found during research.	
	<i>If yes, how big is it and where do you apply for it?</i>		Up to £20 000 is possible to get as a grant to check the feasibility of a project and £130 000 is possible to get as a loan to develop a robust business case. It is applied for at the WRAP webpage. [21]	
	<i>If yes, is the support larger for small and medium scale plants?</i>	YES/NO	[21]	
	<i>Are there other ways of financing the investment, special loans for this application?</i>	YES/NO	The UK Green Investment Bank was created by the UK Government. It invests on commercial terms, in green infrastructure within energy efficiency, waste and bioenergy, offshore wind, and onshore renewables. They do not offer low-cost loans or grants. [15]	
<b>Electricity</b>	<i>Is there a feed-in tariff system for electricity produced of biomethane?</i>	YES/NO	Installations with anaerobic digestion technologies with a capacity up to 5MW are eligible to a feed in tariff. Plants that produce both heat and power up to 2kW, are eligible as micro combined heat and power (CHP) installations. [2]	



	<p><i>If yes, how is the price determined?</i></p>	<p>The size of the tariff is determined four times a year. AD plants are divided into three tariff size groups; &lt;250kW, &gt;250 kW &amp; &lt;500kW and &gt;500kW. The size of the plant determines the tariff size. For AD plants the tariff was on average 6.40 p/kWh, the last quarter of 2016. For micro Combined Heat and power there is only one tariff size and it was 13.45 p/kWh the last quarter of 2016. [3]</p>		
	<p><i>Is there any other support for producing electricity from biomethane?</i></p>	<p>YES/NO</p>	<p>Renewables obligation (RO) puts an obligation on licensed electricity suppliers to source a proportion of their supply from renewables. Renewables Obligation Certificates (ROCs) are issued to accredited generators for the renewable electricity they generate. These are then used by electricity suppliers to demonstrate they have met their obligation. [6]</p> <p>The Renewable Energy Guarantees of Origin (REGO) scheme provides transparency to consumers about the proportion of electricity that suppliers source from renewable generation. One REGO certificate is issued per MWh of eligible renewable output. [7]</p>	<p>Renewables Obligation Order</p> <p>The Electricity (Fuel Mix Disclosure) Regulations 2005</p>
<b>Heat</b>	<p><i>Is there a feed-in tariff system for heat produced of biomethane?</i></p>	<p>YES/NO</p>	<p>Plants that produce both heat and power up to 2kW are eligible for a feed-in tariff as micro combined heat and power (mCHP) installations. [2]</p>	
	<p><i>If yes, how is the price determined?</i></p>	<p>For micro Combined Heat and power there is one tariff size and it was 13.45 p/kWh the last quarter of 2016. [3]</p>		
	<p><i>Is there any other support for producing heat from biomethane?</i></p>	<p>YES/NO</p>	<p>The renewable heat incentive (RHI) consists of two parts, a non-domestic, which is more relevant for biomethane production and a domestic. The non-domestic RHI is directed towards business, public sector and non-profit organizations. Eligible heat installations, such as biogas and biomethane plants receive quarterly payments over 20 years based on the amount of heat</p>	<p>Renewable Heat Incentive (RHI)</p>



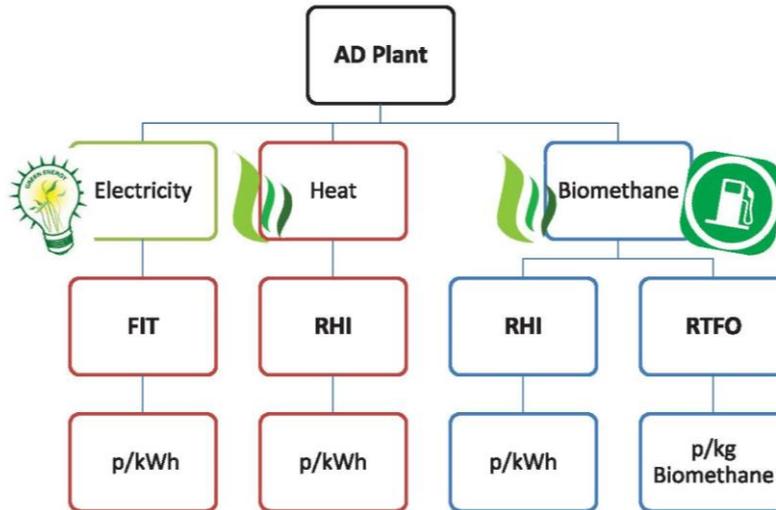
			<p>generated or energy injected into the gas grid. [4]</p> <p>The domestic RHI is directed towards households. Households that install eligible heating systems that use renewable energy sources will receive likewise quarterly payments over seven years for the amount of heat the system produces. [5]</p>	
<b>Biomethane</b>	<i>Is there a feed-in- tariff system for injecting biomethane into the grid?</i>	YES/NO	See general information about the renewable heat incentive (RHI) under heading "Heat".	Renewable Heat Incentive (RHI)
	<i>If yes, how is the price determined?</i>		The size of the payment gotten from RHI for biomethane production is based on annual amount of eligible gas injected. The size of the payment is divided into three different tiers, less than 40 000 MWh, more than 40 000 MWh but less than 80 000 MWh and more than 80 000 MWh per year. [1]	
	<i>Is there any support for producing/selling/buying biomethane as a vehicle fuel?</i>	YES/NO	<p>Under the Renewable Transport Fuels Obligation (RTFO) suppliers of transport and non-road mobile machinery fuel in the UK must be able to show that a percentage of the fuel they supply comes from renewable and sustainable sources. Fuel suppliers who supply at least 450,000 liters of fuel a year are affected. This includes suppliers of biofuels as well as suppliers of fossil fuel. [11]</p> <p>Biomethane can be regarded as a transport fuel and receive Renewable Transport Certificates (RTFCs) if it is directly supplied to the vehicle/filling station, viz. not if it is injected into the grid. [10]</p>	Renewable Transport Fuel Obligation (RTFO)
	<i>Are there taxes on fossil fuels?</i>	YES/NO	A Climate Change levy (CCL) is paid by businesses in the industrial, agricultural, commercial and the public services sectors. The rate of the CCL is based on use of electricity, gas and solid fuel. For natural gas, LPG and solid fossil fuels you pay a higher CCL rate, called Carbon Price Support rates (CPS). [9]	Climate Change levy (CCL)



	<p><i>Are there demands or support for making biomethane available at filling stations?</i></p>	YES/NO	<p>The Department for Transport is interested in the capacity of gas injected into the grid being used as a vehicle fuel and has commissioned reports on the subject. Making gas injected into the grid eligible for renewable transport certificates (see question on support for biomethane as a vehicle fuel) is inter alia explored. [10]</p>	
	<p><i>Are there any other support systems for biomethane as a vehicle fuel, or biofuels in general?</i></p>	YES/NO	<p>Not found during research.</p>	
<p><b>SME's</b></p>	<p><i>Is there support for small and medium enterprises?</i></p>	YES/NO	<p>The National Loan Guarantee Scheme was launched on 20 March 2012 and helps businesses with a turnover of £250 million or less access cheaper finance by reducing the cost of bank loans under the scheme by up to 1 percentage point. [16]</p> <p>The Department for Business, Innovation and Skills will invest up to £100 million of the Business Finance Partnership – Small Business Tranche through non-traditional lending channels that lend directly to small businesses. Businesses based in the UK and with a turnover of up to £75 million are eligible. [16]</p> <p>The Start-up Loan programme provides support to young people to help them start up their own business. The scheme provides loans and mentoring support to applicants in England aged 18-30 who would not normally be able to access traditional forms of finance for a lack of track record or assets. The average loan size is £4500. [16]</p>	



### Current UK Incentives visualized



[29]

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