



Potential for Anaerobic Digestion

- **Each year, UK produces**
 - **12-20 million tonnes food waste**
 - **90 million tonnes manure and slurry**
- **~ 0.2 million tonnes of organic waste per year currently treated by anaerobic digestion**
- **Could produce at least 10-20TWh heat and power by 2020**



Current UK Situation



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- UK has '00s of AD plants that are used to treat sewage sludge.
- In operation since Victorian times.
- More recently ~30 operational for food waste & manure
- Digesters range from small on farm to 160,000 tonnes
- Rapidly developing sector.
- Significant number in development and planning stages.





Key Drivers for AD by 2020

- **Climate Change Act**
 - **Greenhouse gas emissions 34% below 1990 levels and by at least 80% by 2050**
- **EU Renewable Energy Directive**
 - **15% of UK's energy from renewable sources**
- **EU Landfill Directive**
 - **Biodegradable municipal waste sent to landfill 35% of that produced in 1995**



Government Support: Financial Incentives & Infrastructure

- **Renewables Obligation for large scale electricity**
 - Anaerobic digestion in top banding at 2 ROCs/MWh
- **Renewable Transport Fuel Obligation (RTFO)**
 - Biogas eligible renewable transport fuel
- **Feed-in tariff for electricity from plants up to 5MW from April 2010**
- **Renewable Heat Incentive from April 2011**
- **AD projects eligible for capital support under:**
 - Rural Development Programme for England 2007-2013 (RDPE)
 - Bio-energy Capital Grants Scheme
 - Organics Capital Grant Programme (WRAP)

Government Support: Demonstration Programme

£10m programme to demonstrate innovative use of technology

Company	Aim
Blackmore Vale Dairy	Process dairy waste with innovative technology and use heat and power outputs in food manufacture
GWE Biogas	Process food waste with innovative options for digestate, heat and power outputs
Langage Farm	Process dairy and food waste with innovative options for digestate, heat and power outputs
Staples Vegetables	Process vegetable waste and use heat for chill rooms
United Utilities	Upgrade of biogas for grid injection and vehicle use

Blackmore Vale Dairy



- **Location** – Shaftesbury, Dorset
- Processes around 35 million litres of milk per year sourced from 35 farms.

the project - Dairy waste from the factory will be diverted from the sewer and animal feed into an innovative anaerobic digestion plant (designed specifically for liquid flows) to reduce the carbon footprint of the factory by providing renewable electricity and heat which will be used within the business premises. BV Dairy expects to reduce its carbon footprint by 78% (from 1,840 to 400 tonnes CO₂/year).

GWE Biogas



- **Location** – Driffield, North Yorkshire
- Set up to convert up to 50,000 tonnes of organic wastes (from local commercial and industrial businesses) each year to “green” energy

the project - Main output of the planned anaerobic plant will be biogas to be used on site to generate approximately 2MW of electricity for export to the grid. Long term objective is to upgrade gas to bio-methane to supply a private heat and wire network for new housing. Digestate will reduce inorganic fertiliser use. The provisional calculated green house gas saving by the GWE plant running at full capacity is 28,340 tonnes of CO₂ equivalent. This can be expressed as 0.570 tonnes of CO₂ equivalent per tonne of food waste.

Langage Farm



The Project – waste food from the factory, household food waste and dairy manures will go towards providing renewable energy for the heating and lighting needs of the food manufacturing process. Based on existing consumption the group will save some 4,300 tonnes of CO₂. When heat absorption and further facility expansion is brought into account, the saving in CO₂ increases to some 5,700 tonnes. Digestate will be used to improve the poor quality, sandy soils in the surrounding area

- **Location** – Plymouth, Devon
- Over 250 head of Jersey and Guernsey Cows and a milk processing plant.

Staples Vegetables



- **Location** – Boston, Lincolnshire
- A large vegetables producer supplying a number of major retailers in the UK.

the Project – out of specification vegetables from the company's packhouses and fields will be used to generate renewable heat and electricity and used on site, thereby eliminating the use of 40,500 litres of heating oil and 867144 kWh of electricity from the grid each year. These are estimated to produce 100 and 470 tonnes of CO₂ respectively. Using digestate will reduce use of inorganic fertilisers in primary agricultural production saving approx 300,000 kg CO₂ equivalent.

United Utilities and National Grid



The Project - The planned installation is to divert 250 cubic metres per hour of biogas from the existing digesters to an upgrading facility. This biogas will be cleaned and compressed for injection to the national gas grid and to power converted sludge tankers. This installation is also expected to save about 3,000 tonnes of CO₂ per year by reducing the consumption of diesel and natural gas.

- **Location:** – Davyhulme Waste Water Treatment Works, Manchester
- A joint-venture between United Utilities and National Grid to expand on an existing anaerobic digestion plant.

Anaerobic Digestion Advice Portal

www.biogas-info.co.uk



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England's Official Information Portal on Anaerobic Digestion



Go straight to..

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This portal is a gateway to information on **anaerobic digestion, biogas and digestate**. Go straight to the anaerobic digestion topic you need using the menu on the left. Alternatively, select an icon below to find information for those new to anaerobic digestion, local government, industry and agriculture.

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Tools

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Start Here

Find out how anaerobic digestion

- can provide you with green heat and power
- transforms waste into useful stuff
- can be good for the environment

Local Government

Guidance for local authorities and RDAs on anaerobic digestion including up-to-date policy

Commercial & Industrial

A guide for businesses looking to become involved in the anaerobic digestion supply chain, from feedstock supply to renewable heat and power

Agriculture

Resources tailored to the needs of farmers and growers interested in anaerobic digestion



Any comments on this portal, please contact enquiries@nnfcc.co.uk



Next Steps – Implementation Plan

- **Government is about to publish the Anaerobic Digestion Implementation Plan**
- **Based on the recommendations from an independent AD Task Group.**
- **Implementation Plan will cover:**
 - Creating the Economic Framework
 - Creating the Regulatory Framework
 - Building Capacity
 - Improving Knowledge
 - Sharing Experience Internationally
 - Assessing Progress