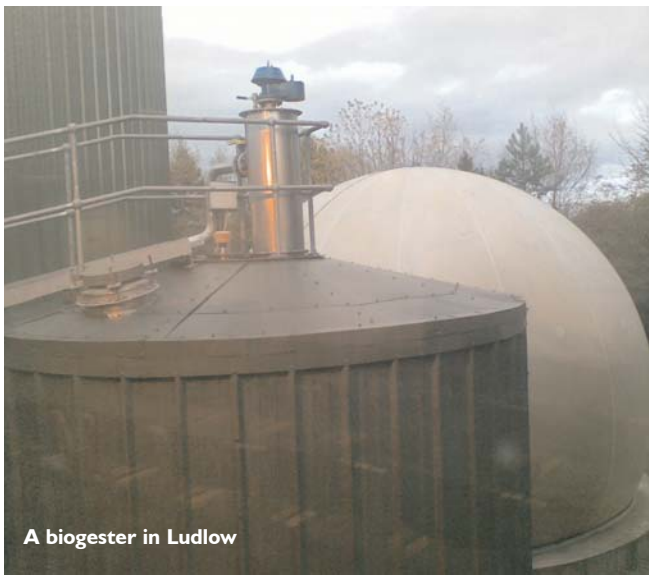
Producing energy from biomass in Leominster



A biogester in Ludlow

Every year, Britain produces over 100 million tonnes of organic waste.

With a technology called anaerobic digestion, this can be converted into useful biogas.

It is a technology in use throughout the world, although underused in the UK.

In Leominster, in the West Midlands, a project is being developed using a community co-operative model to construct and operate a digester.

Project

Anaerobic digestion is a way of producing biogas - essentially methane and carbon dioxide - from organic waste. It is a well-proven renewable energy and waste management technology which is widely deployed in many countries, both developed and developing, although it is in its early stages in the UK.

The UK produces over 100 million tonnes of organic material per year that could be used to produce biogas. This breaks down as follows:

- 12-20 million tonnes of food waste (approximately half of which is municipal waste collected by local authorities, the rest being hotel or food manufacturing waste);
- 90 million tonnes of agricultural material such as manure and slurry;
- 1.73 million tonnes of sewage sludge.

The anaerobic digestion of food waste, livestock slurries, sewage sludge together with energy crops to produce biogas could contribute approximately 10-20 TWh of heat and power by 2020. This represents 3.8% - 7.5% of the renewable energy the UK requires by 2020.

In the West Midlands, a number of digester projects are underway. A technology demonstrator project supported by Defra has been operated in Ludlow by Shropshire Council since 2007, largely fed by waste food (www.biogengreenfinch.co.uk/food_waste/default.asp).

With the support of Advantage West Midlands, a digester whose gas will be used to produce electricity for Leominster's schools, hospital and leisure centre is being planned.

It is planned to use food waste from pubs and restaurants along with grass silage to produce biogas and eventually electricity. The scheme is being led by Project LeAD (Leominster Anaerobic Digester).

Leominster's Enterprise Park is a possible location for a future plant, which will be operated as a "community co-operative" with local people owning and operating it. This could be the first community-owned digester in the country. Residents will have the chance to invest in the plant, with organisers hoping to bring together 1,000 local people, as stakeholders, to negotiate a better tariff from a renewable energy supplier.

The biogas would be piped through a combined heat and power scheme to the town's hospital, school and leisure centre, providing electricity and heat - through hot water. It would help to reduce heating bills and lower the town's carbon footprint. Excess electricity would be sold to the National Grid. Another end product will also be nutrient-rich compost for farmers.

Project leads

LeAD is being developed as a Towards Transition Leominster project and will be a community co-operative: local people will own and operate the plant.

The project team is working closely with Sharenergy - which is delivered by Energy4All, a national not-for-profit company owned by the renewable energy co-ops it creates.

Advantage West Midlands (the local Regional Development Agency) provides funding for Sharenergy to develop renewable energy projects right up to and through planning consent. The project is then built using community finance via a public share offer and owned by a community co-op. This model is one which has already been proven to work for wind power around the UK.

Sharenergy is not a grant scheme. The projects developed will be financed by the community: that is, by public shareholders who put in £250 to £20,000 of their own money, see a decent return on investment and get control over how the project is run.

For more information on the project, contact:
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Location

Leominster is located in the heart of the border countryside, where England and Wales meet along Offa's Dyke.

The market town of Leominster (pronounced 'Lemster') dates back to the 7th Century and has a population of 11,000 (www.leominster.co.uk/about.htm).

Finance

The project will get start-up help from regional development agency Advantage West Midlands, while a bid is also being made for European Union funding.

Sharenergy projects are financed by the public thorough project co-operatives. Members of a co-operative each invest in the project, typically between £250 and £20,000. The co-operative is controlled by its members: each member gets one vote, and a board is elected from within the members to run the project.

How does it work

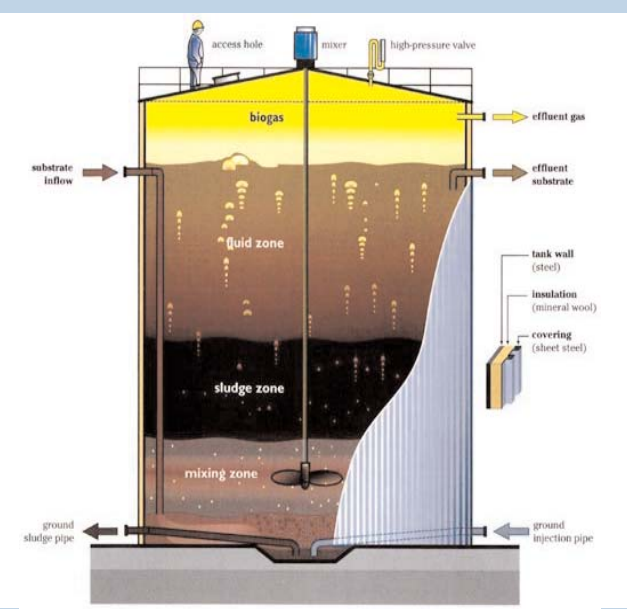
Anaerobic digestion can reduce green greenhouse gas emissions by capturing methane from the decomposition of organic materials, such as livestock manures and slurries, sewage sludge and food wastes.

Organic matter is broken down by bacteria in the absence of oxygen in a closed vessel producing biogas that can be used both for heat and power.

Alternatively, the carbon dioxide and other impurities can be removed to produce biomethane which can be used as a transport fuel or injected into the gas grid.

The digestate from the process can be used as a fertiliser.

Anaerobic Digestion can be small scale.. Alternatively it can be carried out in large centralised systems, for example to treat municipal food waste being diverted from landfill by local authorities or manures and slurries from several farms.



The profits made by the co-operative enable a return to be paid on the members investment. The level of the return depends on the exact details of the project but it is typically comparable to building society returns. By investing in renewable energy and the community, there is a 'triple bottom line': environmental, social and financial.

A number of measures exist which support the development of the market and infrastructure for anaerobic digestion. Several important ones are:

ROCs (Renewable Obligation Certificates)
Electricity from anaerobic digestion is eligible for ROCs. More information at:
www.ofgem.gov.uk/Sustainability/Environment/RenewablObl/Pages/RenewablObl.aspx

Rural Development Programme for England 2007-2013 (RDPE)
Anaerobic digestion will be eligible for support under the Rural Development Programme for England 2007-2013 (RDPE) (along with a range of other measures). The RDPE is being managed by the Regional Development Agencies. More information at:
www.defra.gov.uk/rural/rdpe/index.htm

Bio-energy Capital Grants Scheme
The Bio-energy Capital Grants Scheme supports the installation of biomass-fuelled heating and combined heat and power projects, including anaerobic digesters. More information at:
www.bioenergycapitalgrants.org.uk

WRAP Organics Capital Grant Programme
The Waste and Resources Action Programme (WRAP) Organics Capital Grant Programme provides financial assistance towards the capital costs of plant, equipment and infrastructure for food waste processing capacity, including anaerobic digesters. More information at:
www.wrap.org.uk/wrap_corporate/funding/index.html

What works well

1. Sharenergy helps develop the feasibility of the project in association with the local community group. Experts in technology, planning, ecological impact and many other disciplines are brought in to take the project all the way to the planning stage, with the local group involved in every step of the process.

2. The co-operative both raises capital through a share issue and also structures the involvement of local people in the project.

3. When the project is operational, The bulk of the profit is shared out amongst the investors. Some income goes to keep the project going, to pay operating and admin costs. The feasibility money is returned to a Revolving Investment Fund so that it can be used to start new projects Some profits may go to support good causes such as local insulation schemes - or the local rugby club!

4.The electricity produced will be sold to local people, with a preferential local tariff.

Further information

The Sharenergy website is at:
www.sharenergy.coop

Useful background information on anaerobic digestion is at:
www.anaerobic-digestion.com

Details of government policy and support for anaerobic digestion is at:
www.defra.gov.uk/environment/waste/ad