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Energy Management

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ENERGY EFFICIENT SOLUTIONS
FOR INDUSTRY

Green Energy

New turbine gets
the 'green' light

Combined Heat & Power

And the award goes to...

Waste Management: Confucius reigns



Variety is the spice of life when it comes to green electricity

Doug Stewart, Green Energy UK, is looking to change the perception of green electricity in the UK and looks into the alternative methods that are being used to create it

Think of green electricity and it is likely you'll imagine a wind turbine or solar panel. However, Green Energy UK (GEUK), supplier of 100% renewable and 100% green electricity, is trying to change the perception of green electricity by introducing diverse green electricity sources to the national grid.

Green Energy UK founder and chief executive, Doug Stewart, has set out to 'green up' the national grid by replacing electricity drawn out by his customers with green generated electricity. Only five of Green Energy UK's 30 generator partners use wind or solar power to create electricity. The rest are pioneering the use of hydro, biomass, landfill gas, waste materials, anaerobic digestion and cleaner, greener combined heat and power (CHP).

Many of these generators have diversified their business and invested in green electricity production. This provides free power for themselves and additional income from Green Energy UK who buy the surplus electricity and feed it into the national grid.

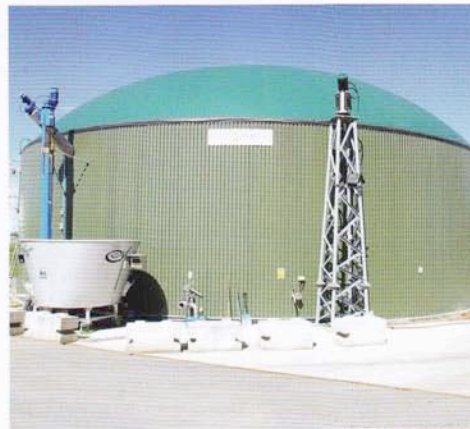
Gask Farm, Aberdeen

Andrew Rennie's anaerobic digester began producing renewable electricity in 2006. It generates 320kWh of electricity per hour from pig slurry. The farm uses just 40kWh of this electricity with the rest being exported to the national grid.

Once inside the digester, micro-organisms eat through the pig slurry, converting its greenhouse gasses into a biogas that is burnt. The resulting heat powers a turbine that forms electricity. The leftover material is without greenhouse gasses and is used as environmental compost.

Longma, Hereford

The Hereford-based electricity generator has provided a free waste vegetable oil collection service since 2003. Longma recycles the oil into environmentally friendly biofuels for



Below: the Gask Farm, anaerobic digester

generating electricity in CHP units.

The heat generated by the CHP units is used to heat the factory and neighbouring buildings. For every 100 litres of waste oil Longma collects, 90 less litres of fossil fuels is burnt.

Guy and Wright, Hertfordshire

Each day, tomato grower, Guy and Wright, chop up approximately 50 tonnes of organic waste, putting it into six 400 tonne underground anaerobic digesters. Inside, micro-organisms break down the waste which produces a biogas that is burnt to heat the greenhouses and power the turbines that create the electricity that GEUK puts



Above: Guy and Wright chop up approximately 50 tonnes of organic waste daily to go into its underground anaerobic digesters (below)

into the national grid. The resulting CO₂ exhaust from burning the biogas is pumped into the greenhouse and acts as a feed for tomatoes.

Aberdeen Heat and Power and Aberdeen City Council

Aberdeen City Council's green energy project has reduced fuel costs for over 700 local residents. Three CHP units provide heat and hot water creating green electricity that GEUK puts into the national grid.

This has resulted in an 80% cut in residents' fuel bills. The running costs for a multi-storey flat in Aberdeen were around £38 per week, and the total CO₂ emissions were 1,597 tonnes per annum. With CHP units in place, heating costs are now £7.75 per week, and the total CO₂ emissions have reduced by 45% to 936 tonnes per annum.



Enviropower Plant, Sussex

Situated at the Rabbit Group's head office in Sussex, the Enviropower is the first British-based initiative of its kind, using demolition and construction waste to create renewable electricity capable of powering up to 10,000 homes. Normally this waste would emit methane as it biodegrades, but the Enviropower plant diverts 48,000 tonnes of this waste away from landfill each year.

The waste is put through a biomass process where the greenhouse gas is captured through thermal treatment and burnt to produce the electricity. The waste residue is recycled and made into pellets and bricks that go back to the Enviropower plant to be used as fuel to make electricity.

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