Energy crops

Most farmers are familiar with the notion of supplying fuel crops to power stations. But what about becoming a power producer yourself? Kevin Lindegaard looks at an up-and-coming area.

CHP COULD YOU BE A POWER PRODUCER?

Who makes these generators? Taibott’s in Staffordshire sells a 100kW biomass generator and Biomass Engineering in Merseyside has a 250kW system that can be linked together in modules to produce a mini power station. Energiec has a licence to install a 400kW system designed by the Italian manufacturer Turboden while Belgian manufacturer Xylo want offers a range of equipment from 150kW-1.5mW.

Is my farm suitable for a CHP installation?

You should ideally have a use for the heat for a CHP scheme to be viable (see below). The ideal situation would be to have a large redundant barn where the CHP unit and fuel storage area can be housed. A 250kW unit would need an area of 10x15m and headroom of 4m. A similar space would be needed to fill a hopper every 6-8 hours.  

What can I use the heat for?

In most situations, you should look for a local use for the heat for at least 4000 hours per year. If you have farm offices you could sell heat to your tenants and other potential partners could be a local school, hotel or leisure centre. A 100kW unit would produce enough heat 0.2 acres of glasshouses and some of the heat could be used for drying crops, industrial processes and even cold storage.

Do I need planning permission?

The CHP unit can be accommodated in a barn so the only visual intrusion will come from a 3-5m high flue. The planning requirements would be broadly similar to those if you were putting a grain dryer on your farm but it is important that you talk to your Local Authority planning officers at an early stage.

What about emissions?

If you are using wood chip from round wood or energy crops then you shouldn’t need to monitor emissions. If you are using clean waste wood like sawmill by-products you might need a Part B Pollution Control permit which costs £100, although this is only required for installations larger than 400kW.

How much will it cost?

Expect to pay £2000-2600 per kW installed. So a 100kW unit would cost about £280,000 and a 250kW system would cost £650,000 including grid connection.

What sources of fuel can I use?

The cost of feedstock is crucial to the economics of this project. The purity of the wood chip and your planning permission may limit the types of material you can use.

What can I use the fuel for?

In large CHP schemes the ratio of heat production to electricity production is about 4:1, but in smaller systems it falls to 2:1 so a unit capable of producing 100kW of electricity will produce 150-200kW of heat.

Can I grow my own fuel?

At least 50ha (120 acres) would be needed for a 100kW system, so a 250kW system would need 1875t of air-dried wood for 4000 hours’ annual use – 19366t.

Are there grants to help me?

The Landfill Directive begins to come into force in 20 or 21 years’ time From bag, centralised power plants like that run on coal, nuclear, wind, wave-power or hydro, to gas fired small scale units it falls to 2:1 so a production is about 4:1, but in operation is quite inefficient (about single process. Is a very efficient way of generation of micro-generation needs. It could be much smaller community CHP power plants providing power for the local town or village community CHP power plants providing power for the local town or village, the heat for a CHP scheme to be viable.

How much fuel do I need?

A 100kW system needs about 1000t while a 250kW system would need 1875t of air-dried wood for 4000 hours’ annual use – 19366t.

Getting the gen on our tour

CHP projects can be funded through the £2m Bio-energy Capital Grants Scheme administered by the Big Lottery Fund. The funding round closes on 31st July and covers up to 40% of the costs of the project above and beyond the price of a comparable fossil fuel system. Eligible costs include the CHP, the installation and fuel storage facility. This scheme will be followed by a larger scheme of up to £350m, to be announced in the autumn of 2007. There are also government incentives to stimulate electricity production from renewables including Renewable Obligation Certificates.

Where can I get funding?

Energy Crop schemes are the best of both worlds – they offer a dual income from the sale of electricity and heat, and they earn money for your farm’s business. Find out by joining one of two Farming Wastes Tours to Austria and Germany on 16 July and 8 October.

Arranged by the Agricultural Travel Bureau and lead by one of two Austrian experts to farms, production plants and farmers’ organisations dedicated to unlocking the potential of biofuels.

Included on the itinerary are a visit to a biodiesel factory which uses oilseed rape as feedstock and an engineering company which manufactures and other to run on biodiesel.

Also planned are visits to farms, one of which grows its own rape for fuel, Bavarian farmers’ experience of growing crops for biodiesel and a farm in Austria with its own biomass plant.