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The Island

Power station that doesn't waste waste

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India and China have been doing it for years. Cow dung is used to generate power for household needs. A small number of farmers in the United Kingdom have also been doing the same.

But now the idea is taking off in the UK on a commercial level. Near the town of Holsworthy, Cornwall, in south-west England, the UK's first commercial power plant to be fired by cow dung and food waste is under construction. The seven million pounds sterling station will feed electricity into the national electricity grid and provide hot water for the town.

Generating electricity from waste has emerged as an important means of protecting the world's environment. More electricity from such waste means that less coal or oil has to be used for generating electricity which, in turn, means a cut in emissions of carbon dioxide.

Carbon dioxide is a "greenhouse gas" which contributes to global warming. Coal burning accounts for about a third of total carbon emissions. Following the Kyoto summit on climate change in December 1997, the UK government is committed to reducing emissions of greenhouse gases by 20 per cent by 2012. In particular, it is seeking to cut down emissions from coal-fired power plants.

When the Holsworthy power station is com-

pleted in late 2000, dung will be collected from 50 farmers around Holsworthy who between them have 3,500 cows and other cattle.

About 300 tonnes of waste a day will be taken to the plant. Most of this raw material will be cow dung but around 20 per cent will be organic food waste in the form of surplus pastry from pie factories in nearby towns. This waste food should help to improve the yield of the methane.

The plant will have two "digesters" to heat the waste to 52 degree Celsius (C) in order to release methane from the material and the gas will then be siphoned off to power gas engines that will produce electricity.

Dung will still remain — minus the methane — and be available to farmers to spread on their fields. When the farmers collect it from the plant, the dung will be more pleasant to handle - it will have lost its smell and be less toxic.

The plant will provide 2.5 megawatts of electricity each year for the national grid. Hot

water will be fed from the plant to 300 homes, two schools, a hospital and a swimming pool in Holsworthy.

The project is being run by a company called Holsworthy Biogas Limited which has been developed over the last five years by a

which plans to eventually open a visitors' centre to allow viewing of the plant. The remaining money for the plant is being raised from other sources.

Heat from waste is the aim of another innovative project in the UK, the Lerwick Waste To

Energy plant in Scotland's Shetland Islands. An initiative of the Shetland Islands Council, the project uses an incineration plant which burns mostly municipal waste in a grate incinerator with a waste heat boiler. Here, hot water is produced which is then fed to the Lerwick District Heating Scheme.

The waste consists of paper, glass, steel and aluminium cans,

garden waste and other household materials. Clinical waste, from hospitals, clinics, doctors and dentists is also used. Some of the waste comes from nearby Orkney Island. The plant therefore disposes of waste and generates hot water.

It is designed to treat about 26,000 tonnes of waste a year. This is burnt in the incinerator at the rate of up to 3.6 tonnes an hour at 850

degrees C. The grate is activated through a hydraulic oil system comprising storage tank, pump, pipe work and controls.

Water in the boiler tubes is heated to 115 degrees C and pumped into the district heating system. This uses a large centralised boiler to distribute heat to houses and other buildings through underground pipes. Heat from the hot water, and not the water itself, is transferred through the pipes.

When the pipes enter a building, a heat exchanger takes heat out of the system and transfers it to the building's internal wet heating system. With this system, consumers enjoy lower initial capital expenditure - heat exchangers are often 40 per cent cheaper than conventional heaters - and lower heating costs.

For the environment the benefits are considerable. The system helps to conserve fossil fuels and uses a readily available and sustainable fuel source: waste. If this had to be buried in the ground it would biodegrade to greenhouse gases.

This 9.4 million pounds sterling project has attracted 4.3 million pounds from the European Regional Development Fund and 700,000 pounds from the European Commission's Thermie programme. The people of Lerwick are in good company with their heating system - a smaller district heating system heats Prime Minister Tony Blair's home, No. 10, Downing Street. — (London Press Service)

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