

GREEN ELECTRICITY

STROUD United Kingdom

It is unusual for a product to be purchased without the purchaser having prior knowledge about its origins and method of production. However, one important exception to this is electricity. Electricity is taken for granted when a machine is plugged in or a light is switched on. However, it is being bought, when the machine or light is turned on, and most people know nothing about its origins. As more and more consumers become aware of the environmental issues relating to electricity production and use, and the electricity market becomes more deregulated, consumers are likely to exercise their buying power and more 'green electricity' (i.e. electricity that has been produced from renewable energy sources and so is less harmful to the environment) will be demanded. Cities can play three roles in promoting 'green electricity': as consumers, as producers, and as promoters, incitors or legislative bodies. Stroud District Council in the UK put up a call for tenders in order to purchase renewable electricity.

GENERAL ASPECTS

Stroud is a market town of 20.000 inhabitants in Southern England. The town was established in a valley in the Cotswolds Hills where waterpower permitted the development of a woollen industry. The District Council covers the town and the surrounding area and has followed a very strong environmental policy and was awarded the "green apple" award as "Britain's Greenest Council" in 1997.

Climatic data:

Degree days (Basis 15.5 °C): 2,570

Annual mean temperature: 10.5 °C



CONTEXT

Some countries of the European Union have implemented the provisions of the Electricity Directive in a manner that does not allow small consumers to choose their electricity supplier. Consumers in Britain, Germany, Sweden and Finland now have the right to choose their supplier. Spanish consumers with a demand of more than 1MW (such as the offices of a major local authority) can choose their supplier, whilst in Ireland it is proposed that all customers who purchase electricity generated from renewable sources will be able to choose their supplier from 2000. This means that the market is fully open in nearly 50% of the Union and a very large number of local authorities could take advantage of the power to choose their supplier to promote renewable energy. Local authorities are obliged by the rules of good management of public funds to obtain the best price possible for goods it purchases. With the opening of energy markets this also applies to energy and the market has opened in stages, from sites over 1 MW in 1992 to sites over 100kW in 1996 to all sites today. Stroud District Council like other British Councils has therefore gone out to tender for its major consuming sites such as the Council offices.

EXPERIENCE OF STROUD

The Council has developed a comprehensive environmental policy. This has recently been reviewed as part of the local authority's programme to become registered to EMAS. This policy has 15 environmental objectives including energy objectives.

The environmental policy which is the driver of the EMAS programme includes energy conservation with a target to reduce energy use in buildings directly controlled by the Council by 10% by 2002 (based on 1995/6 energy use), An annual energy conservation programme is drawn up in order to manage this.

The proposal

Stroud District Council published an environmental strategy in 1995 which drew attention to the desirability of using renewable sources of energy. They had already developed a reputation as a "green" authority and they were approached by the regional electricity company in 1996 who proposed their green tariff at a slight premium for their main council offices at Ebley Mill. It has 330 staff (full time equivalent). The work is mainly administrative and includes the following functions: planning, environmental health, economic development, council tax, housing benefits, housing services, leisure/recreational services, waste collection and recycling. The local authority subscribed to this tariff which drew electricity from sources at a considerable distance from the town.

The supplier was a regional electricity company called SWEB. The scheme is called Green Electron and the premise is that for every unit of electricity used an equivalent amount of renewable energy would be purchased and fed into the electricity distribution network. The unit cost was 4.10 pence per kWh (day) and 1.54 pence per kWh (night) with the addition of 0.3 pence per kWh premium. This was independently verified by WWF. The electricity came from two hydroelectric schemes (in Devon and Derby).

The total electricity demand of the local authority is not great and only amounts to 3638,700 kWh per annum of which 554,500 kWh a year is used by the civic offices. District councils in England are not responsible for a number of activities which consume large quantities of electricity such as street lighting and educational establishments. However, the Council's main offices form a significant proportion of their demand as an individual site.

The Council offices at Ebley Mill – supplied with "green" electricity

The following year, with the opening of the market to 100 kW sites, they put out a call for tender for the supply of electricity for the Council offices which stated that they would give priority to electricity from renewable sources. The cheapest bid (of all the offers received for electricity from all sources) came from an electricity trading company, the Renewable Energy Company, based in the town.

The Renewable Energy Company founded the UK's 'green' electricity market in 1996 with the mission to help sustain the environment for current and future generations by stimulating a mass market for its product called 'Ecotricity'. Ecotricity is electricity derived from sources which are



significantly less polluting and more sustainable than those used to generate conventional 'brown' electricity. The Technologies supported by The Renewable Energy Company include wind power, hydro power, solar power, landfill gas and sewage gas. They generally only offer electricity that is fed into the local distribution network, avoiding the cost of long distance transport in the high tension grid.

They proposed that the City Council use electricity generated by renewable sources generated in the locality and this offer was accepted. A major part of the electricity purchased comes from a wind turbine situated at Nympsfield, only 15 km from the council offices and the rest comes from a landfill gas site in the neighbourhood. The Council continues to be supplied with electricity generated from renewable sources supplied by the same company.

Key to the success of the company is their ability to supply 'Ecotricity' at the same price as conventional electricity. Stroud District Council achieved not only environmental savings when they switched suppliers, but managed to save money due to the company's 'premium free' commitment.

With around 120 MW of 'Ecotricity' under contract, The Renewable Energy Company is now Europe's largest 'green' electricity company and their 'Ecotricity' customers include The Co-operative Bank, Thames Water, WWF-UK, Gloucestershire County Council and The Dome.

EVALUATION AND PERSPECTIVES

This is a small project which in itself requires no special equipment or expertise. The town has simply used the provisions that are already available to support its own environmental policy. However it is an important example since it indicates that a local authority can affect the demand for renewable energy by its own purchasing activity at no cost to itself and that it is not necessary to have a large organisation with a large demand to do it. A number of other larger local authorities in the UK, for instance Gloucestershire County Council and Leicester City Council, have also purchased electricity generated from renewable sources for part of their needs.

This has the potential to create a major demand for electricity generated from renewable sources. The consumption of electricity by local authorities represents between 3% and 5% of the total demand. In Britain – like in other EU member states with a deregulated electricity market - such a choice can have considerable effects as only a very small part of the total demand for electricity is supplied from renewable sources. Much of the demand created by selective purchase of electricity generated from renewable sources is likely to come from wind for the following reasons:

- Wind energy is currently one of the most competitive forms of electricity generation and so will be a natural choice for an electricity supplier wishing to sell electricity generated from renewable sources in a competitive market.
- Wind turbines can be erected relatively rapidly if the planning and administrative obstacles can be overcome so that capacity can be increased rapidly. This is unlike other technologies such as energy from waste and hydroelectric power where the large capital investment involved means that works can take up to a decade to complete.

The administrative (and in particular spatial planning) hurdles currently faced by wind energy projects in the UK are a real disincentive to the promotion of sales of electricity generated from renewable sources since it is difficult to see how a major increase in demand could be satisfied. There could be the need to develop a land bank of approved sites to permit the market to respond to changes in demand.

The town has developed a considerable interest in renewable energy and a proposal has also been made for a renewable energy park in the town which will be supported in principle (and by a modest grant) by the Council should it proceed.

As well as purchasing renewable energy, Stroud District Council has development policies that include renewable energy, as well as being partners in a project aimed at the production of electricity from hydropower.



The local authority's offices are based in an old water mill and in the long term they would like to generate their own electricity from this source. It is proposed to establish a community based company to exploit this resource

FOR FURTHER INFORMATION

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