

Prior's Croft - Local Sustainable Energy Systems

Thanks to the deregulation of the electricity market, consumers can now choose to buy their electricity from a particular source and producers can choose to supply specific sites.



Woking Borough Council has pioneered local authority production and supply of green electricity.

While some producers of green electricity have to sell to a large supplier for a price below true market value because of the small quantities produced, Woking Borough Council has established a 'private-wire' network. This acts as a mini-distribution network through which locally produced electricity can be sold directly to consumers. This allows the Council to sell the electricity for a fair price, meaning both increased profits and savings for the customer.

Woking Borough Council now owns six generating sites which produce heat and electricity for private-wire supply to residential areas, community buildings and sheltered housing.

CHP stations work at 80-90% efficiency (compared with figures of 25-35% for coal-fired power stations) by using 'waste' heat and small networks which reduce distribution losses. This higher level of efficiency means electricity is produced more cheaply.

CHP units are fuelled by natural gas to generate electricity with 'waste' heat used for community heating schemes. The Council has carefully specified each generator to suit the individual needs of the area which it serves.

Prior's Croft

Prior's Croft is the Council's smallest CHP site. It is a residential home for the elderly and the first residential area in the UK to receive hot water, heating and electricity supplied through private wires by an on-site CHP unit.

Prior's Croft houses 33 one-bedroom flats and bedsits together with common rooms and warden living areas. It is supplied by a small-scale CHP unit which produces 22kW of electricity and 50kW of heat, backed up by a 6 x 50kW boiler. Each individual flat is served by private electricity supply wire and an electricity meter. To ensure the guaranteed supply of energy, the





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private-wire network is connected to the local distribution network (connected to the National Grid) with an import/export meter to provide standby and top-up electricity while still enabling the Council to buy electricity and gas in bulk.

There has been 100% take-up of the new energy supply wherever the Council has introduced private-wire residential CHP schemes. However, to ensure savings are as comprehensive as possible, the Council has also installed double-glazed windows (with a 'u value' similar to triple glazing), cavity wall and loft insulation together with effective temperature controls; each property has its own thermostatic radiator valves, a room thermostat, cylinder thermostat and programmer controlled by the Council's central weather station.

The weather station allows the heating system to respond quickly to changes in temperature and wind chill factor keeping each flat at a minimum comfort temperature - for example 16°C at night to keep temperatures above the hypothermia level and to protect the fabric of the building.

The Secretary of State for Trade and Industry announced the Major Photovoltaic Demonstration Programme on 26 March 2002. Under this programme grants are available up to a PV capacity of 100kWp per site. The Council was successful in its grant application for PV roof projects for a number of sheltered housing schemes.

The sheltered housing PV roof projects include Nightingale Court, Prior's Croft, Sunnyside and Wesco Court. These sites will mean that renewable energy will be supplied to 117 sheltered housing households. Each site has a PV capacity of 67.7, 51.7, 99.2 and 37.5 respectively.

The net capital cost of the sheltered housing PV project will be financed by Thamesway Energy Limited with the revenue costs being met from the Housing energy services account through income received from tenants.

There is a partnering arrangement with BP Solar Ltd who is the manufacturer, supplier and installer of the PV panels used by the Council.

These projects will help contribute to Woking Borough Council's Climate Change Strategy target to reduce CO₂ equivalent emissions by 80% of the 1990 level by 2100. They will also help to contribute to the targets of purchasing 20% and 100% of the Council's electrical energy requirements from renewable energy resources and sustainable energy resources, respectively by 2010/11.

