

Local Sustainable Energy Systems

Woking Borough Council's approach to local sustainable energy systems is to supply customers on private wire combined heat



and power (CHP) networks as well as implementing energy and environmental services in both the public and private sectors. The key to the Council's success so far is the combination of technical innovation (such as CHP, absorption cooling,

private wire systems etc); partnership with the private sector; and the use of the national scheme for electricity trading. The starting point is an energy services concept.

Energy Services Concept

The energy services concept is not the provision of electricity and gas but energy services, i.e., heating, cooling, lighting, power, etc., and intrinsically includes the primary energy plant. Thameswey Energy Ltd's approach to energy services is to use the customer's own brown energy costs to calculate and provide them with a green energy services proposal in place of their brown energy supplies. Green energy is more expensive than brown energy because of the higher cost of the plant but Thameswey Energy Limited is able to provide green energy services for the same costs as brown energy services through the payback on the green energy plant by the sale of heating, cooling and electricity to the customer.

The energy services prices agreed at the start of the long term contract are indexed linked so the benefits are maintained throughout the length of the contract.

There is also a transfer of risk from the customer to Thameswey Energy Ltd of the primary energy plant and Thameswey Energy Ltd will be responsible for the design and implementation of the plant, financing, maintenance, etc., as well as the green energy and stand by and top up supplies which offer customers further security of supply.



Combined Heat and Power

Combined heat and power (CHP) recovers heat as well as generating electricity providing efficiencies of up to 90% instead of the central power stations/national grid system which can be as little as 25% efficient at the point of use. CHP is not new or unique but its application in conjunction with mixed green technologies/systems and direct supply to local communities is both innovative and unique.

Heat Fired Absorption Cooling

Chilled water is generated by hot water through a process of absorption at very low pressure which causes the water to boil at 2°C. Heat is provided by the CHP and green electricity is therefore generated from the requirement for cooling as well as heat. No CFCs, HCFCs or HFCs are used as water is used as a refrigerant in a sealed system.

Electricity Trading

Conventional electricity trading in the UK is by means of licensed generation, distribution and supply via (NETA) the New Electricity Trading Arrangements. In simple terms, central power stations feed their electricity into the national grid allowing electricity to be taken out at various points around the country. This electricity is traded by the utilities attracting transmission and distribution losses, Transmission Use of System (TUOS) and Distribution Use of System (DUOS) charges (for transmitting electricity from the power stations to the national grid and for distributing electricity from the national grid to the customer), Fossil Fuel Levy, VAT and the Climate Change Levy for non-residential

customers. These are not shown on electricity bills, but account for about 60% of domestic and small to medium enterprises' electricity bills.

CHP and renewable energy generators embedded in the local distribution network are normally treated as if they were central power stations and attract the above charges. This is the primary barrier to green energy and the reason why CHP and renewable energy cannot very often achieve financial viability. The Council's approach is to avoid this trading system by taking advantage of the Electricity (Class Exemptions from the Requirement for a Licence) Orders 1995 and 1997.

The Exempt Licensing regime enables small generators to supply customers on site and over private wire (plus a limited de minimis capacity over public wires) up to the capacity of each embedded generator. By avoiding the 'NETA' trading charges Thameswey Energy Limited is able to use this 'price gap' in addition to the efficiency of CHP to make CHP and related green technologies financially viable and still able to provide green energy to local customers at or below the market rate for brown energy.

Partnership with the Private Sector

Although the Council had been successful in implementing small scale local community energy systems, to fully capitalise on its green reputation and achieve the potential of its innovation, it needed the finance and expertise of the private sector to finance and implement large scale projects. This need led to the formation of Thameswey Ltd and Thameswey Energy Ltd.