

Small Town Case Study: Alternative Resources

The Guardian (Manchester); Jan 26, 2004; Paul Brown; p. 7

Next to the first fuel-cell power station in Europe stands the only statue in Britain to Sir William Grove, an almost unknown British physicist who invented what he called a liquid battery in 1839.

The power station is one of the wonders of Woking in Surrey. Scattered across the borough are mini-power stations, district heating schemes and thousands of electricity-generating cells on roofs.

This has made it a world leader in providing energy without relying on a national grid.

The town centre, including the council offices and a large Holiday Inn, are self-sufficient in energy and have a surplus to export.

At first sight Woking is an unremarkable town, unless you happen to spot the solar-powered ticket machines in the car parks, or the estates with their roofs covered with thousands of tiny photovoltaic cells.

Although the range and application of the technologies in use is impressive, it is the way it has employed the alternative sources of energy that makes it revolutionary.

As the sun goes down and electricity stops flowing from the photovoltaic cells, the combined heat and power plants start up. When the insulation in the council offices makes the meeting rooms too warm, the spare heat is used to drive the chillers which keep the staff cool.

HG Wells, who lived in Woking and wrote War of the Worlds there, would have been impressed.

One benefit of the town's fuel-cell generator is the steady supply of pure water as a by-product of hydrogen and oxygen combining to produce electricity. The Woking plant alone produces a million litres a year.

The town's energy services manager, Allan Jones, said: "The gas flares you see at oil refineries are burning hydrogen - hydrogen which is the perfect fuel for fuel cells.

"It seems madness to burn free fuel."

He believes that the era of the 1,000 megawatt coal and nuclear plants is over, and even the newest combined gas turbine plants are obsolescent.

The grid, with its massive pylons, will soon be a thing of the past.

As well as extending his power plants to more and more of Woking, Mr Jones is installing combined solar- and wind- powered street lamps as an experiment.

For the customers of Woking, especially the poorest in the community, the proof that it all works is that the electricity is 1p a unit cheaper than from the grid - and they do not have domestic boilers to maintain.

The barrier to this vision of the future is not technology but the Department of Trade and Industry (DTI).

In order to get round regulations that protected the big power station owners at the time of privatisation, Woking council has to lay private wires to all the properties that take its electricity.

Another regulation says that only 1,000 people can be supplied on each system, further protecting the monopoly of the big producers.

David Green, director of the Combined Heat and Power Association and an expert on renewables, said: "What Allan is doing in Woking is truly remarkable, and he has done it against the odds.

"Currently with the new energy bill going through the Lords, we are trying to get regulations changed to allow these small-scale renewables to flourish. Let us hope the government does not block us."

A DTI spokeswoman said that the department could not comment while amendments to the government's energy bill were still under discussion.

Mr Jones says that it all began 14 years ago when he wrote a paper on the dangers of global warming for the council.

He told fellow officers and councillors that an investment of pounds 250,000 would be paid back many times in lower energy bills.

In five years the council had achieved 20% energy efficiency; now it is 46% and rising. It saves an estimated pounds 974,000 a year in bills.

Mr Jones believes that when the world is running on fuel cells later this century Sir William Grove, the man who invented them, will be as famous as Faraday and Marconi.