BUSINESS

Case study
Huxford Holding
North Devon

RENEWABLE ENERGY 4 DEVON

Introduction

Huxford Holdings is owned by Nick Hague, who trades as a cabinet maker. The business site in North Devon is off grid and to support a number of wood working machines Nick has set up a very robust system including generators, batteries and an inverter. Nick's main aim was to reduce spend on diesel fuel used in workshop operations and the PV installation is part of an on-going off grid system development. He is hoping to install a wind turbine in future.

Project development

- Previously, Nick spent £2000 a year on diesel for the business so he wanted to be able to reduce the number of diesel generator runs per day. The original system consisted of a battery bank of 24 x 2v cells (48V total) and a Yanmar 9kW diesel generator.
- Nick was already very knowledgeable on the subject but he was having difficulty sourcing the PV cells. So he enlisted the help of RE4D to research several installers to find the right cells at the correctspecification. Nick also successfully applied for a RE4D grant towards he PV array.
- Beco Solar were able to supply the best equipment at the right price within a specified time frame and the system was installed in Sept 2007.

How the system works

The PV array that Nick installed is connected to his battery bank to charge it at times when there is sunlight. Before this the only way Nick had of charging the batteries and providing energy for the various loads on his property was by using the diesel generator. Now, by carefully managing the loads and the charging of the batteries, Nick uses far less diesel due to the input of the PV array. At peak demand times the diesel generator still kicks in, but during times when the weather is clear and there is lots of light the PV charges the batteries enough to result in a marked decrease in fossil fuel use.

A control system monitors the demand and the charge left in the batteries and manages how best to meet the demand. If there is sufficient charge in the batteries it will use this first, if not it will start up the diesel generator to increase capacity. Any excess electrical energy from the PV when the batteries are fully charged is dumped into an immersion hot water tank for the residential dwelling on site, which is a standard practice for off grid installations.

Costs and benefits

- **The 600W array will generate 540kWh pa, displacing approx. 500l of diesel, and save 1.34 tonnes of CO_2 pa.**
- **The system cost £3000 to install and Nick received a grant of £1000 from RE4D, the diesel generator use has been reduced by 25% which is a saving of £500 pa, giving a simple payback of 6 years without the grant or 4 years with the grant, at early 2008 energy prices.**

Technical details

PV cells	4 x 3160s BP 160 w per cell
Charge controller	Morning Star – T45
Installers	Beco Solar

Wider benefits

Because Nick has excellent knowledge of renewable energy systems, he was able to install the PV himself. This kept the costs lower and means that the payback period for the system will be shorter. Fortunately, he was able to use permitted development rights under the General Permitted Development Order 1995, so did not have to apply for planning permission.

"The help I was given [from RE4D] was both knowledgeable and swiftly delivered, particularly the mentoring service. Once the project was agreed upon the grant application process was dealt with swiftly and efficiently, once complete the grant was paid within a month. I would have no hesitation in recommending RE4D to anyone and wish them all success with their programme".

Further information

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For independent advice and support

Image gallery

Controllers

Battery maintenance

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