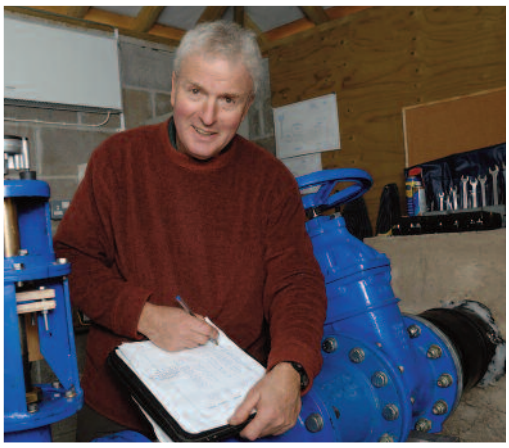
BUSINESS

Case study

Moorhaven, South Hams

RENEWABLE ENERGY 4 DEVON



Introduction

Jonathan Mathys and Andrea Peacock own and manage a 65 acre private village on the Moorhaven Estate. The project began in 2004 with an initial feasibility study produced by Segen Ltd. The client was aware of rising energy costs and wanted to reduce the carbon footprint of their business. Because of the initial capital requirement and escalating costs, the project had been on hold until the opportunity for support from RE4D arose.

Project development

The initial feasibility study suggested two options to harness potential waterpower. The favoured scheme was to abstract water from two tributaries of the river Avon, and feed the combined output to a central turbine. Unfortunately, land ownership issues complicated the development process and in consequence it was decided to revert to a "single river system" on the tributary of the river Erme. Planning permission was granted by Dartmoor National Park and an abstraction licence was obtained from the Environment Agency to take up to 120 litres of water per second from the river.

Funding applications were made to the Dartmoor National Park Sustainable Development Fund and RE4D. Although initial feedback was encouraging, delays in obtaining confirmation of financial support again threatened the project. A grant offer from RE4D rescued the project.

How the system works

The installation took place between November 2007 and March 2008 using a 250mm Pelton turbine, fed by a 180 mm pipe from the river some 450 m away, and 50m higher. The system is connected directly to the grid, the electricity produced is sold and qualifies for Renewable Obligation Certificates.

Costs and benefits

- **The total cost of the scheme was approximately £85,000, and it is expected to produce 47,200 kWh of electricity annually, valued at almost £7-9,000. This power output is equivalent to the electricity used by 10 average houses.**
- **A grant of £14,708 was received from RE4D and £4,500 from Dartmoor SDF.**
- **The simple pay-back period is about 11 years, and the carbon savings should be 83 tonnes p.a.**

Technical details

Turbine	**11kW Tepersac twin-spear-jet Pelton turbine with a 250 mm diameter runner**
Penstock	**Single pipe of 180 mm diameter**
Installer company	**Segen Ltd.**

Wider benefits

The project demonstrates the potential benefits of using hydro-power where the opportunity arises. Jonathan is proud to have persevered through "talking about it" to completion. Though the technology is simple, it has been a steep learning curve. Similar schemes could be installed in hundreds of comparable upland locations, but are often stalled by levels of red tape akin to those for much larger schemes.

Other lessons to be taken from this project include: the delays and frustrations that can come from applying for grants; for funders, an appreciation of the commitment and effort demanded of all project promoters and how disrupting uncertainty over funding can be; for project managers an awareness of the ability of such complex projects to increase in cost and to have contingencies in place.

"I will be able to market my offices as environmentally friendly, and there will be low running costs which is good for the clients as well"

Further information

Jonathan Mathys is pleased to arrange visits.
07867 542 978, mathys@btconnect.com

Segen Ltd - www.segen.co.uk/hydro/index.htm

Contact RE4D

www.re4d.org

energy@re4d.org

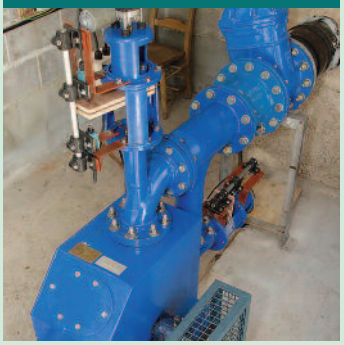
0800 512 012

For independent advice and support

Image gallery

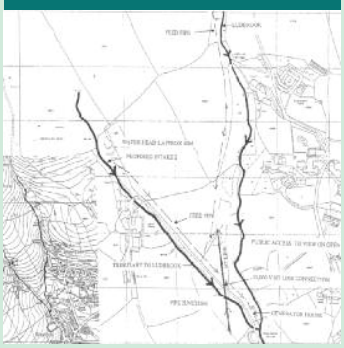
Export meter

The turbine



Turbine house

Map



Project Part-Financed by the European Union
European Regional Development Fund
Supported by South West of England Regional Development Agency
Devon County Council