Greenearth Hydro

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Case Study: 5.5 kW Turgo Hydropower Scheme

Location: Tylwch, Llanidloes, Wales

Installed: February, 2012

Total Fall (Gross Head): 44m

Design Flow: 20 litres/second

Turbine Type: 2 nozzle Turgo, Direct Drive

Generator: 5.5 kW Induction, 4-pole, Single Phase

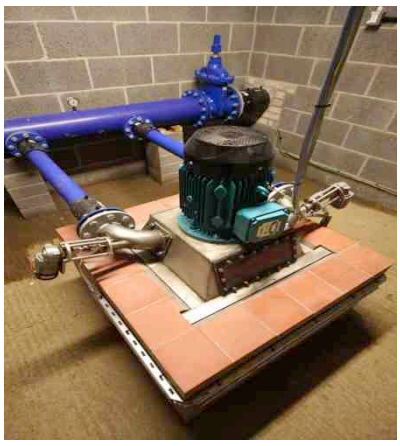
Penstock: 630m of 200mm HPPE Pipe

The powerhouse.

The penstock dropping to the powerhouse.

The water jet exiting the spear valve nozzle to strike the runner

This scheme utilised the site of an existing culvert as the location for the intake. The penstock was brought at a shallow angle along the side of the valley, before falling sharply down to the powerhouse. The system will give an estimated annual Energy Production of 26 MWh, enough to supply 7 typical UK homes, and saving around 14 tonnes of Carbon Dioxide from being released into the atmosphere each year. The electricity is used by the customer, with excess exported to the National Grid, providing an alternative revenue stream for the farmer worth around £6,700 / year. This is index-linked so that it will increase each year in line with inflation, and the scheme will pay for itself in 7-8 years.



The powerhouse layout.

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