

Case Study: 15kW Turgo Hydropower Scheme

Location: Llanbrynmair, Mid Wales

Installed: December 2012

Total Fall (Gross Head): 56m

Design Flow: 41 litres/second

Turbine Type: 2 jet Turgo, Direct Drive

Generator: 15kW Induction, 6-pole, Single Phase

Penstock: 1,005m of 280mm HPPE Pipe



The powerhouse layout



The intake weir



The 'pigging' route and tailrace being installed

There is a history of hydropower at the farm with the site of an old water wheel still visible. The new hydropower scheme will produce 47 MWh per year, enough to supply 10 typical UK homes, and saving around 20 tonnes of carbon dioxide from being released into the atmosphere each year. The owner uses electric heating in the home and so is able to use a large percentage of the electricity with the excess exported to the National Grid. The scheme provides an alternative revenue stream for the farmer worth around £12,500 / year. This is index-linked so that it will increase each year in line with inflation, and the scheme should pay for itself in 5-6 years.