

Pico Energy Ltd		Case Study 004		Site name: Longaller Mill	
					
System type:	Zuppinger Waterwheel	Power output:	12 kW		
Manufacturer:	HydroWatt GmbH	Typical Generation:	70 MWh p.a.		
Client:	Mr and Mrs Beaumont	Design conditions:	H = 2.00 m Q = 1.00 m ³ /s		
Location:	near Taunton, Somerset	Commissioned:	August 2010		

Project description:

The current owners had been planning a hydropower scheme at this former mill for 20 years before the system was finally installed. Previous feasibility studies had considered various low head turbine options but all were unsatisfactory from both a cost and a planning perspective. A proposal to sympathetically update the mill with a new waterwheel generation system were submitted and permission was eventually granted to removed the existing listed wheel which was well beyond repair and unsuitable to adapt for electricity generation.

A layout was designed which enables as much of the historic infrastructure as possible to be preserved by positioning the new drive and generator on the opposite side of the wheel axle to where the old pit wheel is located.

The mill and surrounding area flood on occasion due to downstream flow restrictions. It is possible that future flood levels could reach the height of the wheel axle. With this in mind, the gearbox unit has been designed with labyrinth seals which prevent water ingress if this component is temporarily submerged.

Under the guidance of Pico Energy Ltd the scheme owners carried the site preparation and building work themselves. The scheme has now been accredited under MCS for the feed-in tariff and is earning 19.9 pence per kilowatt-hour from the FIT and a further 3 pence per kWh from the export tariff.