

Pico Energy Ltd	Case Study 001	Site name:	Lemsford Mill
			
System type:	'Zuppinger' Waterwheel	Power output:	15 kW
Manufacturer:	HydroWatt GmbH	Typical Generation:	65 MWh p.a.
Client:	Ramblers Holidays Ltd	Design conditions:	H = 2.00 m Q = 1.35 m ³ /s
Location:	Lemsford near Welywn Garden City, Hertfordshire	Commissioned:	August 2005
<p>Project description: The listed former textile mill situated on the River Lea is the head office of the Ramblers Holidays Ltd who undertook a program of significant refurbishment in order to provide modern business premises for their 45 full-time staff prior to moving in in 2005. A feasibility study showed that hydropower could meet a significant part of the buildings energy consumption and compared options using conventional turbines with a modern waterwheel. It was decided that a modern waterwheel was the most appropriate solution due to the considerable aesthetic benefit as well as cost-effectiveness compared to the turbine options. The new wheel has dimensions are very similar to those of the original which had disappeared which enabled a close fit into the existing wheel pit.</p> <p>The wheel operation is regulated by a control system which monitors upstream water level and adjusts the position of an overshot sluice gate and a second relief channel sluice gate. An auxiliary power system enable the inlet sluice to close and water levels to be maintained upstream via the relief sluice in the event of disruption to mains power. The system is simple to operate and requires very limited maintenance.</p> <p>The power produced is exported to the grid on a net metering basis. This means that the power is consumed in the building if sufficient demand exists and otherwise exported. The system has been registered with OFGEM for award of ROCs since 2006. The building refurbishment with waterwheel was recently both regional and national winner of the British Council for Offices awards in the 'small project' category.</p>			