DERWENT HYDRO

THE COMPANY

Derwent Hydroelectric Power Limited (DHPL) is a specialist mini-hydro engineering company established in 1988. The company owns and operates 900 kW of its own plant across five schemes in Derbyshire and, in conjunction with its sister company Derwent Hydro Developments, provides site survey, design, installation and commissioning services to the UK mini-hydro industry.

Since 1988 DHPL has installed and refurbished, or is in the process of completing, 21 micro-hydro schemes, across England, Scotland and Wales, ranging from 3 kW to 350 kW. The company has refurbished and now operates six Gilkes Francis turbines in Derbyshire rated between 40 kW and 175 kW each, the oldest dating back to the 1920s.

DHPL is also a registered micro-hydro installer to the government's Clear Skies programme (Registration 2122593) and has been a Council member of the British Hydropower Association for 11 years.

Derwent Hydro's list of principal projects is summarised in the table below.

KEY PERSONNEL

Jon Needle is the founder and Director of Derwent Hydro. He has 18 years' experience in the design, construction, installation and operation of small hydro-electric schemes in the UK. He has developed, and now operates, five low-head hydroelectric sites with a combined capacity of 900kW. He has been directly involved in all the projects listed below.

Oliver Paish is a Mechanical engineer with 15 years' professional experience in the planning, research, design, testing and project management of hydropower systems, especially low-head hydropower in the UK and micro-hydro in developing countries. After 13 years at IT Power, he joined Derwent Hydro in 2003 and now specialises in the design and installation of small-scale hydro schemes in the UK.

David Nicholls is a Senior Technician who has worked on the manufacture, maintenance and repair of small water turbines and related equipment since the 1960s. He is a qualified fitter and welder and is also experienced in site survey techniques and the operation of heavy machinery.

PROJECT REFERENCES

PROJECT	Year	Power	Head	SERVICES PROVIDED
DESIGN AND FEASIBILITY				
Evesham Mill (ongoing)	2005-6	50kW	2m	Site survey, detailed design and environmental permissions for the conversion of a Victorian powerhouse into a modern hydro-scheme. Client: Private
Glenarm Estate (ongoing)	2006	150kW	40m	Site survey, and detailed design for a medium-head scheme in an environmentally-sensitive valley. Client: Antrim Estates
Dounans Centre	2005	130kW	135m	Site survey, and detailed scheme design for a high-head scheme in sensitive location. Client: The Scottish Centres
Morpeth Weir	2004	33 kW	2.4m	Site survey, scheme design and feasibility report for a weir-based low-head scheme. Client: Castle Morpeth Council
Cuckney School	2004	8 kW	4m	Site survey, scheme design and feasibility report for a micro-hydro scheme to supply a village school which successfully applied for a £21,000 Clear Skies Grant Client: Notts County Council
Ilam church	2004	8 kW	1.2m	Site survey, scheme design and feasibility report for a weir-based ultra-low-head scheme to provide heating for a church. Client: Ilam Community
Oakhurst Mills	2004	200 kW	4.5m	Site survey, scheme design and feasibility report for the installation of new low-head turbines on an industrial site spanning the River Derwent in Derbyshire. Client: Powergen
Romney Hydro-scheme	2004	200 kW	2m	Design inputs on turbine selection and fish-screen design for an innovative 200 kW project on the River Thames to supply power to Windsor Castle. Client: Npower
Guildford Mill **report available**	2003	40 kW	1.7m	Scheme design and detailed feasibility for the turbine refurbishment and electrification of a 1930s Gilkes water-turbine which successfully applied for a £60,000 Clear Skies Grant. Client: Guildford Council
Blaydon Weir **report available**	2003	45 kW	3m	Site survey, scheme design and feasibility report for a 50kW greenfield development near Gateshead. Client: Gateshead Council
Tangier Mill	2003	100 kW	2m	Site survey, scheme design and feasibility report for the installation of new low-head turbines at a historic pumping station on the River Thames. Client: Npower
INSTALLATION (ongoing)				
Cuckney School	2006	8kW	4m	Design, installation and commissioning of an 8 kW crossflow turbine to provide power for a Nottinghamshire school. Client: Notts County Council.
Itteringham Mill	2006	5kW	1.4m	Design, manufacture, installation and commissioning of an ultra-low head propeller turbine in as a siphon layout. Client: Private
Talamh Life Centre	2005	4kw	6.5m	Design, installation and commissioning of a 4 kW Francis turbine to provide power to a converted farmhouse in Scotland. Client: Talamh Life Centre
Cotton Valley Sewage Works	2005-6	15 kW	2.6m	Design, installation and commissioning of a 15 kW crossflow turbine installed in the final discharge pit at a sewage works, off-setting on-site consumption. Client: Anglian Water
Hamlyn Mill	2006	8 kW	2m	Installation and commissioning of siphonic propeller turbine in a disused sluice channel to supply power to a refurbished mill in Derbyshire. Private client.
Coniston Hydro	2006-7	200 kW	80m	System specification and intake and powerhouse design for a high head scheme in the Lake District involving 700 m of buried penstock plus installation and commissioning of Turgo turbine and control system. Private client.
INSTALLATION (completed)				
Sonning Mill	2004-5	16 kW	1.5m	Design, manufacture, installation and commissioning of aninnovative, siphonic propeller turbine at a historic mill on the River Thames. Client: The Mill at Sonning

PROJECT	Year	Power	Head	SERVICES PROVIDED
Pennant Hydro-scheme	2004	10 kW	80m	Scheme design and installation of Coanda intake, Pelton turbine and control gear for high head domestic scheme. Private client.
Kilmarnock	2002	23 kW	37m	Specify and supply crossflow turbine, generator and control system for grid connection. Private client.
Oldcotes Mill	2000	3 kW	1.7m	Design and build waterwheel and control system, supply generator, install and commission. Private client.
Biddulph Park	2000	3 kW	30m	Specify, supply, install and commission grid connected pelton. Client: Staffordshire Moorlands District Council
Earthbalance Centre	1999	7 kW	13m	Design, supply, install and grid-connect asynchronous crossflow water turbine set. Client: Earthbalance
Borrowash Mill	1995	100 kW	2.7m	Design, build, install, grid-connect and operate two 50 kW propeller turbine sets. Client: DHPL
REFURBISHMENT				
Guildford Mill (ongoing)	2005-6	40kW	1.8m	Refurbishment, system design, installation and commissioning of a 1930s turbine, converted to generate 40kW of electricity in the heart of Guildford. Client: Guildford Council
Marlingford Mill (ongoing)	2005-6	12kW	2.0m	Refurbishment, system design, installation and commissioning of a 1920s turbine, converted to generate electricity for Marlingford Hall. Client: Private
Marsh Mill	2004-5	10 kW	1.4m	System inspection, diagnosis and refurbishment of a 1920s turbine at Marsh Mill on the River Thames. Private client.
Houghton Mill	2004	8 kW	1.2m	System inspection, diagnostic tests and refurbishment of a low head scheme on a National Trust mill property. Client: N.Trust
Belper Mill	1998	350 kW	3.5m	Upgrade and operate 2 x 175kW grid-connected low head Gilkes water turbine sets. Client: DHPL
Dolanog Hydro	1998	60 kW	4m	Design and supply two 500 mm propeller runners for station upgrade. Private client.
Burton Mill	1997	60 kW	1.2m	Refurbish two very low head turbines and equip with transmission and generators (one synchronous, one asynchronous), grid-connect and operate. Client: DHPL
Masson Mills	1994	260 kW	3.3m	Refurbish, grid-connect and maintain 2 synchronous low head Gilkes water turbine sets. Client: Mara Securities
Milford Mill	1990	180 kW	4m	Refurbish, grid-connect and maintain a 1930s Gilkes low head water turbine. Client: DHPL
ELECTRICAL & CONTROL				
Wallbridge Mill				Commission G59 protection equipment
Rhodeswood hydro				Commsission G59 protection equipment.
Bottoms hydro				Commission G59 protection equipment
Hartington Mill				Supply and commission generator and grid-connect controls for waterwheel.
Fountains Abbey				Specify, supply, install and commission generator and control system for use with existing historic water turbine. Client: National Trust

REFERENCES (LOCAL AUTHORITY)

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INSURANCES

DHPL's activities are covered by the following insurance policies:

Employer's liability
Public liability
Products liability

Further details can be supplied on request.