

WHITE PAPER



Water Powered Technologies

Pumped Hydro Systems

October 2017

Water Powered Technology Ltd has a range of proven (Papa Pump) and new (Venturo) pumping systems which do not need any external power supplies to operate, only needing flowing water to pump water 100's metres high and over many kilometres. Could this proven 'zero energy' technology be used for pumped hydro power?

If it could, at times when the national electric grid is suffering shortages, networks of upland water storage sites can act as a reliable & environmentally friendly 'battery' - releasing water to generate power.

Stored Water Available (litres)	Gravity	Height Metres	Energy MW	Efficiency at 75%	Energy MWh
2,000,000	9.8	120	2,352	1764	0.49
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2,000,000	9.8	120	2,352	1764	0.49
1,000,000	9.8	150	1,470	1103	0.31
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1,000,000	9.8	150	1,470	1103	0.31
3,000,000	9.8	100	2,940	2205	0.61
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Total Portfolio of 10 locations: Stored Energy Value (Mwh)

4.4

Water Powered Technologies Ltd is looking for land management agencies, land owners or community partners willing to establish pumped hydro networks in upland areas. This will enable transfer flood water into, the generation of power from and be a store of water for farming or wildlife when drought returns.



To build up the necessary 3Mwh of stored power to qualify for the National Grid's STOR programme, a portfolio of small lakes needs to be established to be filled near or far by a range of 'zero energy' Papa or Venturo Pumps.

In the example above; 10 Lakes at various elevations have as a portfolio, a 'battery' strength of 4.4Mwh in stored power.

To convince the UK's National Energy Suppliers that this method of storing power is deliverable, working case studies need to be established.



Water Powered Technologies Ltd is already used to surveying, quoting and delivering on a range of single farm pumped storage installations.

However, integrating hydro turbines and telemetry for remote operation across a portfolio of lakes has not been tried yet.

The Company is looking for development partners to set up trials around the UK.

Positive Consensus; landowners and environmental groups canvassed so far show wide approval for renovating / establishing new upland water storage. For instance, in drought, excess stored water can be released to generate power and provide compensation flows for stressed local rivers and streams.



Environmentally Friendly At Every Step; The Company has worked with experts to design water storage sites which have three storage levels; the First Level is for excess water to be released to generate power. The Second Level, gives water for farmers to use in drought and the Third Level, which is never exhausted, remains for wildlife.

