

Easy Hydro



- ✓ **Theme:** Energy efficiency, energy generation, rural electrification
- ✓ **Solution:** Modular and off-the shelf available hydropower
- ✓ **Technology:** Centrifugal pumps used as turbines

easyhydrosolutions.com

Description of the venture

Easy Hydro is a spin-out based at Trinity College Dublin which originated from the experience of the Dŵr Uisce and REDAWN research projects. Its members have accumulated a unique expertise in the design, selection and installation of hydraulic pumps running as turbines for either energy recovery in water networks or small-scale hydropower schemes.

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Easy Hydro

Description of the technology

The low cost and simple maintenance needs make our devices the perfect choice for many Run-of-River sites to conveniently exploit previously untapped hydropower resources thus generating CO₂-free baseload renewable electricity. Our devices are particularly suited to sites where intakes and pipelines already exist as well as those where the intake and generation are co-located (e.g. bypassing a waterfall).

The type of turbine proposed is reliable and widely tested and consists of standard pumps running in reverse as turbines (PAT – Pumps As Turbines) which only cost a fraction of a conventional custom-made hydro turbine.

Features:

- ✓ The turbines consist of **standard water pumps** running in reverse mode
- ✓ **Certified with use with potable water**, can be supplied with parts in stainless steel, bronze or super duplex on request
- ✓ Range of power output from **1 to 500kW+**, range of flows from **15 to 3,600+ m³/h**, range of pressure from **1 to 300 bar**.

Benefits:

- ✓ **Low installation cost**, just a fraction than a conventional hydro turbine
- ✓ **Modular system**, plug and play
- ✓ **Easy maintenance**, same as a regular water pump
- ✓ **Fail-safe bypass installation**, hands-off operations

Value:

- ✓ **Exploiting an untapped hydropower potential**
- ✓ Generating baseload **electricity needs** without **CO₂ emissions**



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



RawMaterials

Examples of practical applications of Pumps As Turbines (PAT)



The Easy Hydro turbines are suitable for Energy recovery from any pressurized water network:

- Drinking water networks
- Irrigation networks
- Skiing resorts relying on artificial snow
- Mining sector
- Industrial cooling systems

Application chart

The minimum required pressure corresponds to 1 bar or 10 m of water column, and the available flow rate must be equal or above 4 l/s. According to the pressure and flow parameters, these devices can produce power outputs ranging from a few kilowatts up to hundreds of kilowatts.

