

Advisors Toolkit

Factsheet No 6.j

Revised 16 Jan 2020

Micro Hydro

Hydro-power systems convert potential energy from water to kinetic energy (the energy used in movement) to turn a turbine to produce electricity. Micro hydro refers to generation capacity below 100kW.

Hydro power requires the water source to be relatively close to where the power will be used, or to a suitable grid connection. Hydro systems can be connected to the main electricity grid or as a part of a stand-alone (off-grid) power system. In a grid-connected system, any electricity generated but not used can be sold to electricity companies. In an off-grid system, electricity can be supplied directly to the devices powered or through a battery bank and inverter set up. A back-up power system may be needed to compensate for seasonal variations in water flow.

Energy available in a body of water depends on the water's flow rate (per second) and the height that the water falls from. The actual output will depend on conversion efficiency (the power of the water into electrical power).

Total system costs can be high but may be less than the cost of a grid connection and with no electricity bills to follow. It should be noted that in off-grid applications the power is used for lighting and electrical appliances. However, space and water heating can be supplied when available power exceeds demand.

Relevant planning authorities, including SEPA, should be consulted to ensure that site and design are acceptable and to identify any other permissions required.

Micro-hydro installations may qualify for Smart Export Guarantee - see Factsheet 4.o

