

Prior to applying for the Low Carbon Buildings Grant, you must undertake energy efficiency measures to ensure that you are minimising your energy requirements. Specifically,

- Insulate loft to 270mm
- Install cavity wall insulation
- Fit low energy light bulbs
- Install basic controls for your heating system.

Details on micro-generation certification on products and technology for the assurance of consumers can be found at:

<http://www.greenbooklive.com/page.jsp?id=4>

Work is currently underway to finalize standards for hydro turbines. For more details on hydro electricity, please visit:

www.british-hydro.co.uk or call 01202 880333

http://www.energysavingtrust.org.uk/generate_your_own_energy/types_of_renewables/hydroelectricity

www.tvenergy.org or call 01635 817420

<http://www.berr.gov.uk/energy/sources/renewables/explained/hydroelectric/page17469.html>

To obtain a copy of this leaflet on tape or in large print please telephone (01296) 585112



Photograph courtesy of Spencer Latham

For development in conservation areas:

<http://www.helm.org.uk/upload/pdf/89410-EnergyConservation1.pdf>

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Renewable Energy: Installing Small Hydro Electric – A Guide for Householders

Introduction to Small Hydro

Hydro-power systems convert potential energy stored in water held at height to kinetic energy (or the energy used in movement) to turn a turbine to produce electricity. The most recognised form is a water wheel. Advantages are that, with the exception of droughts, they produce energy 24/7.

With the 'low-head' type of hydropower in the South East we avoid the need for damming, and avoiding possible ecological damage to the area is ensured by limiting the diversion of water, e.g. not more than 20% of flow. Hydropower is clean and non-polluting and the water is not changed, merely diverted.

A micro hydro plant is one below 100 kW. Improvements in small turbine and generator technology mean that micro hydro schemes are an attractive means of producing electricity.

Requirements:

Hydroelectric systems can be connected to the local electricity grid, or can be part of a stand-alone power system. In a grid-connected system, any electricity generated in excess of consumption on site can be 'sold' to electricity companies.

In an off-grid hydroelectric system, electricity can be supplied directly to the user or via a battery bank. Source must be relatively close to where the power will be used, or to a suitable grid connection.

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 (or head) that the water falls. Broadly speaking a scheme is worth pursuing if a head of 1.5m or more is available.

The scheme's actual output will depend on how efficiently it converts the power of the water into electrical power (maximum efficiencies of over 90% are possible but for small systems 70% is more realistic).

Total system costs can be high but often less than the cost of a grid connection and with no electricity bills to follow.

Planning:

For more information contact AVDC Planning on 01296 585431 or contact TV Energy on 01635 817420 for more details or visit:
http://www.energysavingtrust.org.uk/generate_your_own_energy/planning_permission_for_renewable_energy_technologies

AVDC's Historic Buildings Officers can be contacted on 01296 585383 or 01296 585888 for advice regarding the installation of renewable energy systems in Listed Buildings and Conservation Areas.

Considerations:

Hydro costs are very site specific and are related to energy output. There is a need for access to a river with adequate flow.

Systems can be low, medium or high head dependant upon source water and local condition. For low head systems (not including the civil works - so assuming there was an existing pond or weir), costs may be in the region of £4,000 per kW installed up to about 10kW and would drop per kW for larger schemes.

For medium heads, there is a fixed cost of about £10,000 and then about £2,500 per kW up to around 10kW - so a typical 5kW domestic scheme might cost £20-£25,000. Unit costs drop for larger schemes.

Payback:

The time for the initial investment to pay itself back is very dependent on the site specifics, project scale and the price of electricity. In one example the payback time was about 6 years.

Household Grants:

A maximum of £1,000 per kW of installed capacity, subject to an overall maximum of £2,500 or 30% of the relevant eligible costs, whichever is the lower.

Householder grants are available until June 2010 on a first come first served basis from:
www.lowcarbonbuildings.org.uk