

Wind Turbines

Wind turbines convert the power of the wind into electricity, using rotating blades to drive a generator. The electricity produced can be used directly, used to charge batteries or linked directly into the national grid.

The power of a wind turbine increases exponentially in relation to the speed of the wind, and the diameter of the blades. This makes larger turbines with higher wind speeds more cost effective - the energy payback for larger turbines in windy places is multiplied.

There are two types of domestic-sized micro wind turbine:

- mast mounted: these are free standing and are erected in a suitably exposed position
- roof mounted: these are smaller than mast mounted systems and can be installed on the roof of a home

Micro wind turbines may be eligible for Smart Export Guarantee – see Factsheet 4.o

If they are connected to the grid in a location with high wind speeds, consumers can sell excess or surplus generated electricity to an electricity supply company, and earn an added export tariff. If a wind turbine is not connected to the grid, surplus electricity can be stored in a battery. Wind turbines need to be appropriately sited. The issue of intermittency has to be taken into consideration, as well as amenity issues in terms of noise and visual amenity.

NB - Wind turbines need to be sited in appropriately windy and usually exposed locations to operate optimally. Approved installers can advise on the best locations and should be able to provide fairly accurate predictions on energy outputs. Energy outputs for wind are very site-specific, so at least a three month period of advance wind speed testing is recommended, as well as certified products and installation.

The presence and location of a house will have a significant effect on the performance of a micro wind or roof-mounted turbine. The possibility of vibration effects from a roof-mounted turbine should also be investigated.

Wind turbines are not permitted within conservation areas, World Heritage Sites, sites of special scientific or archaeological interest, or within the curtilage of a listed building. Written approval re size and design must be obtained from the planning authority.

Advice on siting and design is available at
www.scotland.gov.uk/resource/doc/150324/0040009.pdf