

Energy

Mapping Warwickshire's Renewable Energy Resources

Overview

Objective:

1. To identify the potential renewable wind energy resources available in Warwickshire.
2. To identify and raise awareness of opportunities to develop wind energy in order to meet the regional 5% (of consumption) renewable energy target (taking into account designated areas).

Main Partners: **Halcrow, Warwickshire County Council.**

Audience: Renewable energy project developers, strategic planners.

Rationale: Government support for renewable energy such as wind has never been stronger and has developed in the context of both an increasing awareness of the need to address global climate change, and the rapid depletion of fossil fuel resources. Supplies of indigenous fuels, primarily North Sea Oil and Gas are running out and it is forecast that the UK will rapidly become a net importer of energy, with the non-renewable energy sector becoming reliant on supplies of natural gas from the former USSR and North Africa. The rapid deployment of renewables can play a key role in both reducing the consumption of non-renewable resources, reducing climate change and enhancing the security of supply. Advances in turbine technology have both helped to make lower wind speed sites viable, and have addressed issues of noise and reliability, meaning that the development of projects outside the traditional upland areas is rapidly becoming feasible.

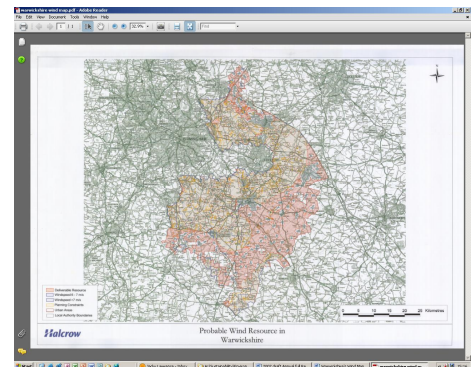
Web Link:

<http://www.warwickshire.gov.uk/Web/corporate/pages.nsf/Links/A1967A42D43BEA6802572E20057781F>

Warwickshire's Wind Map

The wind resource in any particular area is determined by 3 key factors: wind speed, available land area and turbine technology (size, availability etc.). This map shows areas in Warwickshire with a wind speed of 6.5 metres per second (m/s).

The NOABL dataset is based on data from 65 meteorological stations across the UK and provides an estimate of the annual mean wind speed (AWMS) for every square kilometre in the UK. The map below was produced with NOABL data for a height of 45 m above ground level and GIS technology.



Wind power developments may be restricted by economic constraints and land use & planning designations e.g.

- i. Urban areas, plus 500 m buffer
- ii. Major roads (motorways and A-roads), plus 100 m buffer
- iii. Protected areas:
 - ❖ Areas of Outstanding Natural Beauty (AONB)
 - ❖ National Parks, plus 1500 m buffer
 - ❖ National Nature Reserves (NNR)
 - ❖ Special Protection Areas (SPA)
 - ❖ Special areas of Conservation (SAC)
 - ❖ Sites of Special Scientific Interest (SSSI)
 - ❖ Ramsar Sites
 - ❖ Ancient woodland
 - ❖ Green Belt
 - ❖ Special Landscape Areas (SLA), and
 - ❖ Areas of Great Landscape Value (AGLV)
- iv. Airport exclusion zones (approximately: a circular exclusion zone radius of 6 km for major civil and military; 3 km for minor civil/commercial airports and 1 km for heliports).
- v. Woodland.

The map below shows the deliverable wind resource in Warwickshire after the above constraints have been taken into account (marked in red).

