

Response from Nottingham Friends of the Earth

Proposal for two wind turbines at Brackenhurst campus, Nottingham Trent University – 11/00792/FUL

As part of Nottingham Pro-Wind Alliance we would like to support this proposal.

Background

It is recognised in national and local policy that we need to decarbonise our sources of energy. It should also be noted that the cost of electricity produced from renewables is progressively being reduced, while the cost of fossil fuel and nuclear electricity is rising. So there is a financial as well as environmental reason to invest in renewables.

The importance of decentralised renewables is recognised in Core Policy CP10. In pursuance of this policy, and of their own interest in reducing carbon emissions, Nottingham Trent University has proposed two 330kW turbines, one of which will be for community benefit. These are medium size turbines, around half the height of the largest onshore turbines. The proposed location seeks to cause the least visual impact on Southwell, Halloughton and the Brackenhurst site, as well as to avoid unnecessary impact on wildlife.

Comparison with alternative renewables

It is worth looking at the potential impact of alternative forms of local renewable energy.

A 330kW wind turbine operating at the average load factor of 27% (depending on wind speeds over the year) will average 89kW, producing around 780,000kWh per year. Two such turbines together should average 178kW over a year.

Estimates of what area of land would be required to produce given rates of energy production from different forms of renewable energy have been provided by David MacKay (Professor of Physics at Cambridge University and government Energy Advisor) in his book 'Sustainable Energy without hot air' (UIT Cambridge, 2008, page 112).

For biomass (i.e. growing vegetation to burn to produce energy) he estimates 0.5W/m². For photovoltaics, he estimates 5-20W/m². So, to match the output of two 330kW wind turbines would require 356,000 square metres of land given over to biomass production (35.6 hectares). For photovoltaics, it would require between 8,910 and 35,640 square metres of land given over to solar panels (0.9 to 3.5 hectares). These are, of course, rough ball game figures.

Wind turbines do not impact very much on the ability to use land for other purposes – whether farming, biomass production or photovoltaics. So wind can be deployed in addition to other uses.

Wind turbines should be located on sites with adequate wind speeds and minimal turbulence from adjacent structures, so that they can operate efficiently. In Newark and Sherwood the most appropriate locations will typically be on farmland. The most appropriate locations for solar panels will usually be on buildings, where rooftop and other surfaces may not be used for any other purpose so there is no additional land-take. Growing biomass will usually only be appropriate on land which cannot be used for food growing.

Visual impact

Wind turbines are relatively slender objects which do not intrude greatly on the landscape, though they are of course visible.

In relation to the sensitive areas of Southwell, there will be views from the Memorial Gardens and the Workhouse, but the proposed turbines should not greatly intrude on the landscape from that distance.

The Landscape Officer notes that there will be one view of the Minster from Corkhill Lane where at night the illuminated Minster will have the aviation lights of the Brackenhurst turbines behind. In this case, it would have to be said that the illumination is not part of the Minster's heritage. If the Minster is to be illuminated then the electricity has to come from somewhere. If there is a visual reminder of this in the form of aviation lights, is that inappropriate?

In relation to the Brackenhurst site, the University is proposing to locate the turbines on farmland away from the Hall and Park and close to a line of electricity pylons. The obvious question is, if NTU cannot generate electricity on their own farmland, where would they be expected to do this?

Other issues

Other issues such as noise, flicker and ecological impact can be dealt with by appropriate planning conditions.

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Extract from MacKay:

http://www.inference.phy.cam.ac.uk/withouthotair/c18/page_112.shtml

Power per unit land or water area	
Wind	2 W/m ²
Offshore wind	3 W/m ²
Tidal pools	3 W/m ²
Tidal stream	6 W/m ²
Solar PV panels	5-20 W/m ²
Plants	0.5 W/m ²
Rain-water (highlands)	0.24 W/m ²
Hydroelectric facility	11 W/m ²
Geothermal	0.017 W/m ²

Table 18.10