MDA renewables

SHADOW FLICKER APPRAISAL

(Please also refer to the 1:5,000 scale Shadow Flicker Zone plan at Appendix C)

Paragraph 2.32 of Annex C of TAN 8 Renewable Energy (2005) acknowledges the effects of shadow flicker. It states:

> *"Under particular circumstances the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. The shadow flicks on and off as the blades rotate. This can be disturbing for the affected residents or even have the potential of being a health problem for people who are photo-sensitive epileptics. The problem is seasonal and only lasts for a few hours per day, but needs to be investigated where any potential exists. Developers should provide an analysis of the potential for shadow flicker impacting upon nearby properties."*

The effect occurs inside buildings, where the flicker appears through a window opening. This depends on a number of factors including the distance between turbines and neighbouring properties, the position of turbine rotor blades relative to the sun, the direction of properties from turbines, the time of year, the weather conditions, and the size of windows.

An assessment has accordingly been carried out to identify whether shadow flicker arising from the proposed turbine in question is likely to affect any neighbouring properties. In this respect:

- Shadow flicker effects have been shown to only occur within ten rotor diameters of a wind turbine (paragraph 2.7.73 of NPS EN-3), and the relevant distance in this particular case is therefore 10 x 47m = 470m; and,

- In the UK, only properties within 130 degrees either side of north, relative to the wind turbines, can be affected as wind turbines do not cast long shadows on their southern side.

In November 2010, DECC commissioned consultants Parsons Brinckerhoff to produce a report to update the government's evidence base on shadow flicker. Their report was published in March 2011 and concludes that:

- Current guidance on how to assess shadow flicker remains appropriate;

- There is unlikely to be a significant impact at distances greater than ten rotor diameters from a turbine;

- On health effects and nuisance of the shadow flicker effect, it was considered that the frequency of the flickering caused by the wind turbine rotation is such that it should not cause a significant risk to health; and,

- Mitigation measures such as turbine shut down strategies that have been employed at operational wind farms have proved to be very successful.

The 1:5,000 scale Shadow Flicker Zone plan at Appendix C illustrates that there are no dwellings within 500m and within 130° of north of the turbine that could be affected. It is therefore concluded that the proposed turbine will have no unacceptable shadow flicker impact.