

Shadow Flicker – the request by Mr Archbold for review

The attached note responds to the request by Mr Archbold for a review in respect of shadow flicker.

It concludes that only T11 lies within range for any possibility of effects and further concludes that, even then, any potential for impact is negligible. In so doing it applies a number of conservatisms and thus the conclusion is the more robust.

The Note also ignores – again conservatively - the rotational speed of the turbine and thus the fact that modern turbines operate at levels below 1hz. As noted in the Companion Guide to PPS 22 – and irrespective of distance from the turbine - this is well below the levels at which the effects spoken to in the Companion Guide can occur (see Companion Guide CD 75 at pages 176 to 177, paragraphs 73 et seq, particularly paragraph 77).”

Bond Pearce
4 September 2008



NPC Technical Note

Site: Steadings Wind Farm
Subject: Shadow Flicker Assessment for Public Inquiry
Reference: NPC_HJB_Steadings_180708 docx

Introduction

This technical note responds to a request made by Mr Archbold at the Steadings Wind Farm Public Inquiry.

Mr Archbold requested that the issue of shadow flicker be reviewed at a location in Great Bavington, which lies to the south-east of the proposed wind farm development.

Shadow Flicker Modelling

This location is illustrated on Figure 1 below.

The companion guide to PPS22 states that the effect of shadow flicker is proven only to occur within a distance of ten times the rotor diameter. As a rotor diameter of up to 90m is proposed for Steadings Wind Farm, shadow flicker was calculated out to a distance of 900m from each turbine. T11 is the only turbine to lie within this distance (879m). The assessment therefore focussed on the potential impacts from T11.



Figure 1: Modelled Location in relation to Turbine Locations (Pink circle shows 900m radius)

The flicker modelling presented here was carried out in the industry standard wind farm assessment package WindFarmer. The results of modelling for the location given above were as follows:

Total hours of shadow flicker per year:	13
Maximum hours per day:	0.5 (predicted between 1830 and 1900 on 5 th May)

This result represents the worst case incidence of shadow flicker at the assumed location. It does not account for the following factors, all of which will have the effect of reducing the actual hours of occurrence:

- Hours of direct sunshine or thin cloud cover
- Shutdown of wind turbines due to wind conditions
- Orientation of turbine rotors due to wind direction
- The dimension of the window apertures
- Shielding by buildings, trees etc in the direction of the view towards the closest turbines. This is directly relevant for the Manse and Easter Cottage

Further, it is stated in correspondence from Mr Archbold (letter of 20th June 2008) that T11 is likely to be wholly or partially obscured from The Old Manse.

To the extent that T11 is wholly or partially obscured, this will have the effect of reducing or entirely negating the predicted shadow flicker occurrences.

Summary and Conclusion

It has been shown that the property at Great Bavington would, even under worst case conditions, be subject to a very low frequency of occurrence, amounting to an annual total of 13 hours, with a predicted daily maximum of 0.5 hours. In all the circumstances the actual occurrences are predicted to be at negligible levels.