

Stedings Wind Farm**Comments on Submission by Mr Short contained within a PPT presentation.**

On the 30th October 2008, I received a copy of a PowerPoint Presentation which I understand was presented by Mr Short at the Stedings Wind Farm Public Inquiry.

Although I was not present at the Hearings when Mr Short presented his evidence, I do have a number of comments with respect to the presentation.

1. These figures which detail the noise assessment which I provided for Great Bavington and upon which Mr Short has shaded red when the predicted noise level exceeds an absolute noise level of 35 dB L_{A90} or the background level plus 5 dB.

Mr Short has apparently ignored and certainly has not indicated within the presentation that the range of noise levels which are considered acceptable within ETSU-R-97 are between 35 - 40 dB L_{A90} . Therefore, his Figures are only relevant if one is considering an absolute noise level of 35 dB L_{A90} . If 40 dB L_{A90} is considered more relevant then a significant proportion of the coloured areas would be removed.

2. Wind Shear Figures

The data which Mr Short has analysed is based upon the wind speed measurements collected for the Ray site during the background noise survey period. Having spoken with the applicants for the Ray site, I can confirm that this was a relatively low wind speed period, i.e. thus in so far as it has an effect, it will tend to over-emphasise the potential periods of wind shear which might be considered high.

Moreover, I have also undertaken an assessment of the potential for the Stedings Wind Farm to exceed the ETSU-R-97 Noise Criterion, using actual wind speed measurements from the anemometer currently installed at the Stedings site and using the noise prediction

algorithm which I have outlined, i.e. warranted sound power level, hard ground conditions, 10C and 70% humidity, and an allowance for the effects of wind direction¹.

These predictions are summarised within Attachment 1 which details the derived wind shear for each ten minute periods during the Amenity Hours for the hub height wind speed and the predicted noise level as compared with the ETSU-R-97 Amenity Hours Noise Criterion (the greater of 40 dB L_{A90} or background L_{A90} + 5 dB). The predictions cover the period when it has been suggested that high wind shear may occur during the Summer and early Autumn months.

A summary of this analysis indicates that, even with the worst-case noise prediction, hard ground (+2 dB over average level) and warranted sound power level (+ 2 dB over measured sound power level of candidate wind turbine) there is a risk of less than 7% of this occurring for a majority of months. If one additionally considers the safety factors within the noise prediction, then any such risk is negligible and it is unlikely such an exceedence will occur.

	Amenity Hours Only		
	% Exceedence		
	MDH Prediction	MDH Prediction + 1 dB	MDH Prediction - 4 dB
May	6.08	22.62	0.00
June	4.60	14.97	0.00
July	6.58	24.79	0.00
August	6.08	24.94	0.00
September	14.08	38.26	0.00
October (partial)	0.88	5.21	0.00

¹ This allows for a maximum of 10 dB reduction of a receptor location which is directly upwind of a wind turbine. Table 1 below details the attenuation for different wind direction relative to the line between the turbine and receptor location.

In any event, the wind turbines can be controlled to ensure that compliance with the requirements of ETSU-R-97 are maintained even in the unlikely event that an exceedence were to occur once the wind farm is constructed and operating.

3. Figure detailing Source Sound Power Levels of Wind Turbines

The data presented by Mr Short for the Repower MM82-2MW wind turbine is wrong and underestimates the noise levels by 1 – 2 dB at various wind speeds across the operating range of the wind turbines.

1 Sound Power Level REpower MM82

1.1 Sound Power Level according to IEC for different Hub Heights

HH	V_{10}^1 [m/s]	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0
59m	L_{WA}^2 [dB(A)]	89,2	93,2	99,6	101,7	102,6	103,8	104,8	105,5
69m	L_{WA} [dB(A)]	89,4	93,4	99,8	101,8	102,8	103,9	104,9	105,5
80m	L_{WA} [dB(A)]	90,0	94,0	100,0	102,0	103,0	104,0	105,0	105,5
100m	L_{WA} [dB(A)]	90,6	94,6	100,2	102,2	103,1	104,1	105,1	105,5

All sound power levels above are based on wind speeds of V_{10} at 10 m height. The data of the noise level are based on the requirements of the IEC 61400-11: Wind turbine generator systems – part 11.

The calculation of the wind speed in 10m height is based on a roughness length of 0.05m, equivalent to a vertical wind shear coefficient of 0.14.