

# Appendix 8.1 Noise Consultation

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**From:** Simon Waddell

**Sent:** 25 March 2020 15:51

**To:** [REDACTED]

**Subject:** Energy Isles wind farm - supplementary consultation re: noise

Good afternoon Ian,

Thank you for your time earlier. As discussed, I provide below our proposed method for setting noise limits at noise-sensitive receptors (NSRs) where potential cumulative effects with the existing Garth wind farm may occur. Text from our current draft is provided below, setting out our proposed noise limit apportionment approach:

The 2019 EIA Report considered cumulative compliance with noise limits. The noise limits considered were those derived from a baseline monitoring at in support at the proposed development at NSR1 – NSR4 and at NSR6 (refer to attached figure). At NSR5 the existing noise limits due for Garth wind farm were applied\*. Potential cumulative noise effects with Garth wind farm have been identified at NSR5 – Gutcher. At all other NSRs potential cumulative effects with Garth wind farm have been determined through prediction to be negligible/not occur.

Cumulative effects arising from the two single turbines at Sellafirth were been addressed in the 2019 EIA Report in the derivation of the noise limits from background levels, whereby predicted noise levels from these turbines were subtracted from the measured background level recorded at the Sellafirth monitoring location. This approach is maintained in the 2020 assessment.

In line with best practice, and to protect the Proposed Development and existing Garth wind farm from potential future changes in the cumulative situation, this assessment goes one step further, and determines a noise limit specifically applicable to the Proposed Development. The Institute of Acoustics' Good Practice Guide (IoA GPG) describes methods by which noise limits may be apportioned between cumulative developments, according to different scenarios.

In the scenario whereby an existing wind farm is present, consented to the full ETSU limits, then one of the following alternative approaches may be applied:

- **Consent the new wind farm to noise limits 10 dB below that of the existing wind farm** – this approach is robust, however, it is potentially over-conservative if the existing wind farm is operating at substantially below its noise limits and there is therefore 'headroom' available for use by the new wind farm; or
- **Significant presented headroom** – where there is *significant headroom* (margin of 5 – 10 dB suggested by the IoA GPG) between the noise level of the existing wind farm and its noise limit, then the new wind farm may use this headroom.

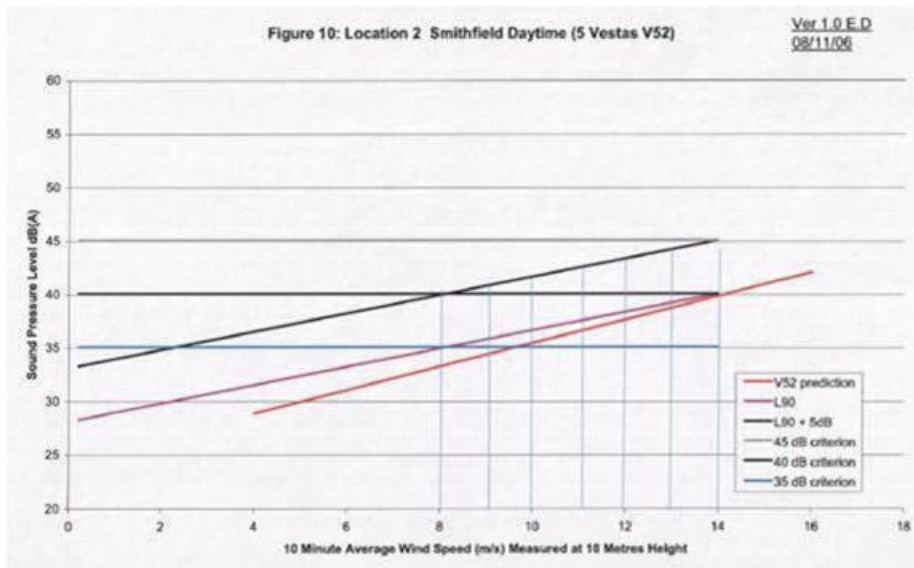
This assessment adopts the second approach; while it has been established that the Proposed Development has a negligible contribution to total noise levels at NSR5, a noise limit 10 dB below the consented ETSU limits is considered highly conservative, and potentially restrictive to future turbine model choice for the Proposed Development. The approach followed is set out in detail below:

- The sound power levels for the installed model of turbine (Enercon E44) are provided for Garth Wind Farm on the OIC planning portal as part of the discharging of its planning conditions. These have been used to model operational noise from Garth Wind Farm.
- The predicted levels due to Garth Wind Farm have been subtracted from the consented noise limits, such that headroom may be identified at each integer wind speed.

- Headroom of >5 dB identified at all wind speeds.
- Predicted levels due to Garth Wind Farm, plus a +2 dB 'cautious prediction' correction, have been logarithmically subtracted from the total ETSU limit to determine the residual limit applicable to the Proposed Development. The cautious prediction allows a further margin of safety to Garth Wind Farm predictions, allowing for any increases in turbine noise over time.

\* The noise limits for Garth wind farm are not tabulated in the Garth EIA. We note that the fixed minimum ETSU limits were set at 40 dB daytime / 43 dB night-time, and have sought to interpolate the limits from the graphs provided in the Garth EIA appendix (attached) for Smithfield (monitoring location 2). Our interpretation of the graph and the tabulated limits we have used are shown below:

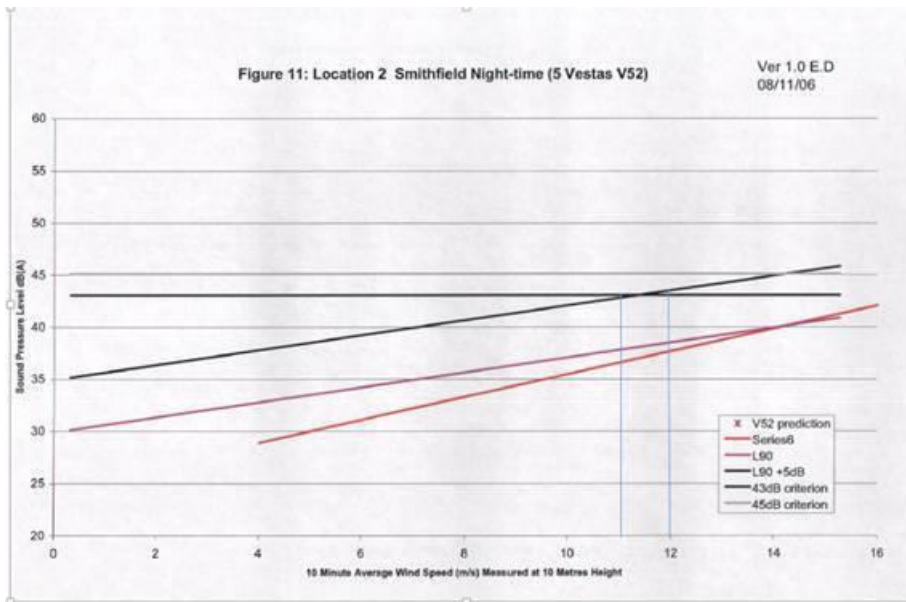
Daytime period:



Wind speed, m/s	4	5	6	7	8	9	10	11	12	13	14
Limit, dBLA90,10min	40.0	40.0	40.0	40.0	40.0	40.8	41.7	42.5	43.3	44.2	45.0

Note – 13 & 14m/s provided to show derivation of assumed limits. Noise limits will apply across range 4m/s – 12m/s in accordance with ETSU.

Night-time period:



Wind speed, m/s	4	5	6	7	8	9	10	11	12
Limit, dBLA90,10min	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.5

Derivation of noise limits:

Wind Speed, m/s	4	5	6	7	8	9	10	11	12
<b>Total ETSU limit, daytime, dBLA90,10min</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>	<b>40.8</b>	<b>41.7</b>	<b>42.5</b>	<b>43.3</b>
Predicted level due to Garth, dBLA90,10min	32.3	32.3	32.3	32.3	33.8	34.6	34.6	34.6	34.6
Headroom >5?	7.7	7.7	7.7	7.7	6.2	6.2	7.1	7.9	8.7
Cautious predicted level due to Garth, dB	34.3	34.3	34.3	34.3	35.8	36.6	36.6	36.6	36.6
<b>Daytime noise limit, dBLA90,10min</b>	<b>38.6</b>	<b>38.6</b>	<b>38.6</b>	<b>38.6</b>	<b>37.9</b>	<b>38.7</b>	<b>40.1</b>	<b>41.2</b>	<b>42.3</b>
<b>Total ETSU limit, night-time, dBLA90,10min</b>	<b>43.0</b>	<b>43.0</b>	<b>43.0</b>	<b>43.0</b>	<b>43.0</b>	<b>43.0</b>	<b>43.0</b>	<b>43.0</b>	<b>43.5</b>
Predicted level due to Garth, dBLA90,10min	32.3	32.3	32.3	32.3	33.8	34.6	34.6	34.6	34.6

Headroom >5?	10.7	10.7	10.7	10.7	9.2	8.4	8.4	8.4	8.9
Cautious predicted level due to Garth, dB	34.3	34.3	34.3	34.3	35.8	36.6	36.6	36.6	36.6
<b>Night-time noise limit, dBL<sub>A90,10min</sub></b>	<b>42.4</b>	<b>42.4</b>	<b>42.4</b>	<b>42.4</b>	<b>42.1</b>	<b>41.9</b>	<b>41.9</b>	<b>41.9</b>	<b>42.5</b>

I hope the above is clear, however, should you have any comments or queries please don't hesitate to call me. If you are happy to approve the approach provided above, please confirm by response to this email.

With thanks and regards,

Simon

Simon Waddell | **Principal Noise Consultant** | ITP Energised

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**From:** [REDACTED]  
**Sent:** 15 April 2020 10:14  
**To:** Simon Waddell [REDACTED]  
**Subject:** RE: Energy Isles wind farm - supplementary consultation re: noise

Good morning Simon

My apologies for the delay in responding to your last email. I have discussed your proposed method for determining the developments noise limits with my colleague and have confirmed that the information submitted is acceptable and in compliance with the guidelines as detailed in R97-GPG.

If you need to discuss an other details of the project please do not hesitate to contact me and I will aim to respond in a more timeous manner.

My kind regards

Ian