



APPENDIX 12-4

TURBINE SOUND POWER LEVELS

APPENDIX 12-4. TURBINE SOUND POWER LEVELS

This Appendix presents the sound power levels of the various turbine technologies used in the assessment.

Appendix Table 12-4-1. Carrow: Nordex N163 at a hub height of 103.5m

Standardised 10m Height Wind Speed (m/s)	Octave Band (Hz) Sound Power Levels (dB re 10 ⁻¹² W)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
3	78.6	85.2	88.1	89.1	89.5	87.7	82.0	72.8	95.5
4	80.9	87.5	90.4	91.4	91.8	90.0	84.3	75.1	97.8
5	83.8	90.4	94.1	96.2	97.5	95.6	86.0	78.1	102.5
6	88.1	94.7	98.4	100.5	101.8	99.9	90.3	82.4	106.8
7	88.6	95.1	98.8	100.9	102.2	100.4	90.8	82.9	107.2
8	88.9	95.1	98.8	101.4	102.1	99.6	92.0	84.0	107.2
≥9	88.9	95.1	98.8	101.4	102.1	99.6	92.0	84.0	107.2

Appendix Table 12-4-2. Cappagh White: Vestas V112 at a hub height of 100 m

Standardised 10m Height Wind Speed (m/s)	Octave Band (Hz) Sound Power Levels (dB re 10 ⁻¹² W)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
3	80.3	84.0	88.4	87.4	85.3	83.7	80.5	68.0	93.6
4	79.1	84.9	90.4	90.6	88.4	86.5	82.8	68.5	96.0
5	82.4	89.2	93.9	95.1	93.4	91.2	86.9	71.7	100.3
6	83.9	93.9	96.5	98.9	98.1	95.3	90.0	74.1	104.1
7	84.3	95.2	97.9	100.5	99.5	96.8	91.4	75.5	105.6
8	84.7	95.3	98.0	100.4	99.5	96.8	91.5	75.4	105.6
9	88.0	95.9	97.7	100.0	99.7	97.1	91.6	75.3	105.6

Appendix Table 12-4-3. Garraghcummer: Nordex N90 at a hub height of 65 m

Standardised 10m Height Wind Speed (m/s)	Octave Band (Hz) Sound Power Levels (dB re 10 ⁻¹² W)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
3	78.6	82.7	87.1	87.5	86.0	84.9	80.9	73.3	93.4
4	82.5	86.6	91.0	91.4	89.9	88.8	84.8	77.2	97.3
5	85.6	89.7	94.1	94.5	93.0	91.9	87.9	80.3	100.4
6	89.0	93.1	97.5	97.9	96.4	95.3	91.3	83.7	103.8
7	90.1	94.2	98.6	99.0	97.5	96.4	92.4	84.8	104.9
8	90.6	94.7	99.1	99.5	98.0	96.9	92.9	85.3	105.4
9	90.7	94.8	99.2	99.6	98.1	97.0	93.0	85.4	105.5

Appendix Table 12-4-4. Turaheen: Enercon E70 at a hub height of 65 m

Standardised 10m Height Wind Speed (m/s)	Octave Band (Hz) Sound Power Levels (dB re 10 ⁻¹² W)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
3	74.2	81.2	86.8	85.8	80.9	76.2	71.2	68.0	90.8
4	74.2	81.2	86.8	85.8	80.9	76.2	71.2	68.0	90.8
5	77.0	84.0	89.6	88.6	83.7	79.0	74.0	70.8	93.6
6	82.2	89.2	94.8	93.8	88.9	84.2	79.2	76.0	98.8
7	85.1	92.3	96.9	96.5	92.0	87.0	83.1	80.2	101.4
8	87.0	95.3	98.3	97.2	94.8	90.9	84.1	77.6	103.1
9	86.8	95.7	99.9	99.7	95.1	90.4	86.2	82.7	104.5

a. Also used for Turaheen Upper

Appendix Table 12-4-5. Glencarbry: Nordex N100 at a hub height of 100 m

Standardised 10m Height Wind Speed (m/s)	Octave Band (Hz) Sound Power Levels (dB re 10 ⁻¹² W)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
3	73.0	79.4	83.5	83.5	84.4	84.5	84.3	77.0	91.6
4	75.1	81.5	85.6	85.6	86.5	86.6	86.4	79.1	93.7
5	78.6	85.0	89.1	89.1	90.0	90.1	89.9	82.6	97.2
6	82.7	89.1	93.2	93.2	94.1	94.2	94.0	86.7	101.3
7	83.3	89.7	93.8	93.8	94.7	94.8	94.6	87.3	101.9
8	84.1	90.5	94.6	94.6	95.5	95.6	95.4	88.1	102.7
9	84.4	90.8	94.9	94.9	95.8	95.9	95.7	88.4	103.0

b. Also used for Glencarbry Extension

Appendix Table 12-4-6. Glenough: Nordex N90 at a hub height of 80 m

Standardised 10m Height Wind Speed (m/s)	Octave Band (Hz) Sound Power Levels (dB re 10 ⁻¹² W)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
3	78.7	82.8	87.2	87.6	86.1	85.0	81.0	73.4	93.5
4	82.7	86.8	91.2	91.6	90.1	89.0	85.0	77.4	97.5
5	86.2	90.3	94.7	95.1	93.6	92.5	88.5	80.9	101.0
6	89.2	93.3	97.7	98.1	96.6	95.5	91.5	83.9	104.0
7	90.2	94.3	98.7	99.1	97.6	96.5	92.5	84.9	105.0
8	90.7	94.8	99.2	99.6	98.1	97.0	93.0	85.4	105.5
9	90.7	94.8	99.2	99.6	98.1	97.0	93.0	85.4	105.5

Appendix Table 12-4-7. Hollyford: Siemens SWT-3.0-101 at a hub height of 80 m

Standardised 10m Height Wind Speed (m/s)	Octave Band (Hz) Sound Power Levels (dB re 10 ⁻¹² W)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
3	81.1	92.3	96.4	100	100.2	96.8	89.4	85.1	105.1
4	81.1	92.3	96.4	100	100.2	96.8	89.4	85.1	105.1
5	81.1	92.3	96.4	100	100.2	96.8	89.4	85.1	105.1
6	83.0	94.2	98.3	101.9	102.1	98.7	91.3	87.0	107.0
7	82.8	94.7	101.4	104.7	101.4	93.5	82.6	79.3	108.0
8	82.8	94.7	101.4	104.7	101.4	93.5	82.6	79.3	108.0
9	82.8	94.7	101.4	104.7	101.4	93.5	82.6	79.3	108.0

Appendix Table 12-4-8. Glenough/Hollyford: Nordex N90 at a hub height of 80 m

Standardised 10m Height Wind Speed (m/s)	Octave Band (Hz) Sound Power Levels (dB re 10⁻¹²W)								
	63	125	250	500	1k	2k	4k	8k	dB(A)
3	78.7	82.8	87.2	87.6	86.1	85.0	81.0	73.4	93.5
4	82.7	86.8	91.2	91.6	90.1	89.0	85.0	77.4	97.5
5	86.2	90.3	94.7	95.1	93.6	92.5	88.5	80.9	101.0
6	89.2	93.3	97.7	98.1	96.6	95.5	91.5	83.9	104.0
7	90.2	94.3	98.7	99.1	97.6	96.5	92.5	84.9	105.0
8	90.7	94.8	99.2	99.6	98.1	97.0	93.0	85.4	105.5
9	90.7	94.8	99.2	99.6	98.1	97.0	93.0	85.4	105.5