Appendix H

Technical (Review) Report Advice on the Acoustic Assessment

Government of **Western Australia**
Department of **Water and Environmental Regulation**

Technical (Review) Report

Advice on the acoustic assessment for the proposed Parron wind farm development in Badgingarra, prepared for the Shire of Dandaragan.

Department of Water and Environmental Regulation

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Disclaimer

Acknowledgements

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1. Introduction

This advice has been prepared for the Shire of Dandaragan (Shire) in response to a request for comment made to the Department of Water and Environmental Regulation (DWER) dated 10 October 2024 on the proposed development application for the Parron Wind Farm (Project). The Project is located about 8 kilometres west of Badgingarra across lots 3738, 3739, 3742, 3743 and 3744 in the localities of Badgingarra and Hill River.

The Project comprises of 79 turbines of type Vestas V162-6.2 with hub height of 149 metres and associated infrastructure.

ENB notes the Project is adjacent the existing Badgingarra Wind Farm to the west (Lots 51 and 1000) and the Badgingarra National Park to the south (crown reserve R31809).

2. Documentation

In support of this request, the Shire made the following documents available which form the basis of this technical expert advice. The Shire did not request any specific advice therefore, Environmental Noise Branch (ENB) undertook a wholistic review.

Material / document name	Author	Date
Parron Wind Farm Development Application Lots 3738, 3739, 3742, 3743 and 3744 in the Badgingarra and Hill River Localities Prepared on behalf of Zephyr Energy Pty Ltd	Element	9 October 2024
ZEPHYR ENERGY PARRON WIND FARM BADGINGARRA NOISE IMPACT ASSESSMENT Document Reference: 33167-4-24117-06 *As appendix G of the Parron Wind Farm Development Application*	Herring Storer Acoustics	7 October 2024
ZEPHYR ENERGY PARRON WIND FARM BADGINGARRA BACKGROUND NOISE MONITORING Document Reference: 33363-1-24117-03 *As appendix G of the Parron Wind Farm Development Application*	Herring Storer Acoustics	16 September 2024

3. Advice

3.1. Noise modelling

The noise modelling is based on Annex D of ISO 9613-2:2024 (the Standard), which is considered appropriate. However, ENB notes there are no details of the receiver height used in the model but assumes that, consistent with Annex D of the Standard, the receiver height was 1.4 metres since a ground factor G = 0 was used.

More critically, there are no specific details on what sound power levels were used in the modelling, only a reference to an appendix presenting the selected wind turbine generator specifications. According to these specifications the selected turbines can operate in various modes, and come with or without serrated trailing edges. The noise impact assessment (NIA) must be clear which sound power levels were used to derive the predicted levels shown in Table 5.1 and the noise contours maps in Appendix D.

3.2. Applicable criteria and assessment

In Western Australia the prescribed standards for noise emissions are the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations) and, therefore, apply to wind farms.

This is echoed in the Western Australian Planning Commission (WAPC) Position Statement: Renewable energy facilities March 2020 (PoS), which states that:

> Noise emissions from renewable energy facilities, including wind turbines, are required to meet the standards prescribed under the *Environmental Protection (Noise) Regulations 1997*. The South Australian Environmental Protection Authority – Wind Farms Environmental Noise Guidelines (2009) should also be referenced for assessment purposes. These guidelines acknowledge the potential for operation in the presence of higher wind-induced background noise levels.

ENB notes it is unfortunate that both the Noise Regulations and the SA Guidelines are referenced in the same document, as this can lead to confusion on which methodology to follow to assess noise impacts. ENB's interpretation of the above is that while wind-induced background noise levels may be considered in the assessment of noise impacts, the requirements of the Noise Regulations remain the criteria to be met.

Applicable criteria

The Noise Regulations set requirements for noise emissions from one premises, or public place, when received at another premises. This is relevant in this case for the receivers:

- R5 to R7; these are within the development envelope of the Project. From the development application document, ENB understands the Project is developed as a partnership between the landowner of the land on which the Project is located, the current occupants of that land (R5 to R7), and Atmos Renewables. Therefore, the existing receivers R5 to R7 may be considered part of the same premises as the Project and the requirements of the Noise Regulations may not apply. However, receivers R5 to R7 are still residential locations and potentially family homes, so the Shire may wish to consider a target noise level of 40 dB

L_{A10} to provide some amenity protection. This target level accounts for annoying characteristics which are likely to be detected at receiver locations within the wind farm boundaries, so the adjustments for annoying characteristics as assessed in accordance with the Noise Regulations are unnecessary.

- R4, located on the adjacent Lot 51 to the west. This receiver has a wind turbine on their land associated with the existing Badgingarra Wind Farm therefore, based on the point above, the noise emissions from the Badgingarra Wind Farm at this receiver would be considered noise emissions from within the same premises. However, this receiver would be considered a separate premises from the Project, such that the requirements of the Noise Regulations apply.
- R10 and R23, located to the north of the Project, and R24, to the east, appear to be private landowners and, therefore, would be considered separate premises for the purposes of assessing noise impacts from the Project.

Receivers R1 to R3, R11 to R22 and R25 are located further away from the Project than other receivers. Therefore, compliance with the criteria at the closer receivers would demonstrate compliance at these more distant receivers.

Assessment of predicted levels

Given that most receivers are located more than 2 kilometres from the nearest wind turbine(s), annoying characteristics may not be present in the noise emissions when assessed in accordance with regulation 9.

Therefore, based on Table 5.1 of the NIA, compliance would be achieved at the relevant receivers identified, except:

- R4, where an exceedance of up to 2 dB at night-time is predicted, and
- R24, where a marginal exceedance of 1 dB at night-time is predicted.

The noise impact assessment mentions that "*The project is seeking neighbour agreements with the landowners of sensitive receptors at R4 and R24*". However, ENB recommends the Project investigates ways to mitigate the noise levels to compliance for the following reasons:

- In this case, there are no wind turbines from the Project installed on either receiver's land therefore, R4 or R24 would not be considered as being on the "same premises" by virtue of a private agreement alone.
- Treatment of noise at the source is best practice and preferred, and provides better certainty to the Project for the future. In this instance, mitigation measures could include increasing distances between source(s) and receivers or, based on the turbine specifications provided in the NIA, operate the closest turbines in an alternate mode at night-time.

4. Limitations

Technical expert advice in any field is subject to various limitations. Important limitations to the advice include:

- No computer modelling was undertaken to verify the consultant's modelled results.