Appendix I

Technical Response to DWER

EMAIL TRANSMITTAL

REF:	33752-2-24117-06
TO:	Shire of Dandaragan
ATTENTION:	Rory Mackay
ADDRESS:	RoryM@dandaragan.wa.gov.au
	Louis Fouche
CC:	Louisf@dandaragan.wa.gov.au
FROM:	George Watts
DATE:	21 November 2024
SUBJECT:	**PARRON WIND FARM** **SUPPLEMENTARY ACOUSTIC INFORMATION**

Rory,

We have reviewed the Department of Water and Environment Regulation (DWER) Environment Noise Branch (ENB) comments – attached as **Attachment A** on the Noise Impact Assessment (our Ref : 33167-4-24117-06) prepared by Herring Storer Acoustics and lodged to support the Parron Wind Farm development application. Herring Storer and the applicant have considered the comments and undertaken additional technical assessment to respond to DWER comments and assist the Shire of Dandaragan to accommodate this into the planning assessment. An updated Noise Impact Assessment has been prepared and is attached in **Attachment B** for the Shire of Dandaragan's consideration.

In summary the DWER comments have been responded to and supports the proposed approach of securing landowner agreements and preparing a noise management plan to be implemented through construction and operations of the wind farm would appropriately address the relevant noise management outcomes. To assist with your review of the update Noise Impact Assessment, a summary of the responses to the specific technical questions raised by the DWER that have been accommodated into the revised Noise Impact Assessment is provided below to assist with your review of the updated Noise Impact Assessment.

Advice – 3.1 Noise Modelling

The queries raised by the DWER have been addressed in our revised report (our Ref 33167-5-24117). The query was in regard to the methodology and wind turbine type/mode that was utilised in our modelling – with the details now included in the updated revised report.

Advice – 3.2 Applicable Criteria and Assessment

Criteria

The DWER advice notes that it is "unfortunate" that both the Noise Regulations and the SA Guidelines are referenced in the Western Australian Planning Commission (WAPC) *Position Statement : Renewable energy facilities March 2020*, and states that the requirements of the Noise Regulations remain the criteria to be met.

Response :

It is accepted that noise emission from one premise to another, in Western Australia, are governed by the *Environmental Protection (Noise) Regulations 1997* (Regulations) – however it is noted that the Regulations were not developed for, nor appropriate for noise sources that vary significantly with wind speed – such as wind turbines and farms.

Whilst compliance with the Regulations may be required once a wind farm is in situ, for planning purposes, the use of the SA Guidelines has become industry standard – not only in the Western Australian context, but Australia wide.

It is noted that the purpose of assessing the noise impact of the proposed wind farm is to ensure that the development does not emit "unreasonable noise".

The *Environmental Protection Act 1986* (EP Act) defines "unreasonable noise" as follows:

For the purposes of the Act, noise is to be unreasonable if –

a) It is emitted, or the equipment emitting it is used, in contravention of –
   i) this Act;
   ii) any subsidiary legislation made under this Act; or
   iii) any requirement or permission (by whatever name called) made or given by or under this Act;

b) having regard to the nature and duration of the noise emissions, the frequency of similar noise emissions from the same sources (or a source under the control of the same person or persons) and the time of day at which the noise is emitted, the noise unreasonably interferes with the health, welfare, convenience, comfort or amenity of any person; or

c) it is prescribed to be unreasonable for the purposes of the Act.

The Regulations is a subsidiary legislation of the EP Act, and therefore is defined under section a) above, however, the noise impact of a wind farm – and if the noise impact is unreasonable – should be determined under section b) above by utilising the SA guidelines for reference, on the basis that this guideline is utilised for practically all wind farms in Australia (and overseas) for assessment purposes in relation to if the noise impact is unreasonable.

The above is especially pertinent when the assessment tools allowed for in the Regulations do not allow for a thorough consideration of a noise emission that varies with wind speed.

Definition of a "Stake Holder"

The DWER have provided an alternative view on "R4" and "R24" as being "stake holders" for the wind farm development.

This is on the basis that the premises that these two residential locations are located on are not proposed to host wind turbines associated with the Parron wind farm, and as a result, noise level impacts need to be assessed to these locations. Despite a neighbour agreement between the owners of these premises and the proposed wind farm.

This interpretation by the DWER is not a reflection of the situation, as the presence of a commercial agreement, and associated compensation, for a land area to act as a noise buffer area has precedence for not only wind farm developments, but also mining and industrial uses. The presence of a turbine does not limit the ability for there to be a landowner agreement in place.

It is further noted that such agreements are also an important part of the protection of the wind farm – once developed – from sensitive premises encroachment. Hence, the interpretation by the DWER is questionable, not only for this wind farm development, but for all developments that use such mechanisms for the development of buffers surrounding land uses that are noisy by their nature.

Notwithstanding the above departure in opinion of the definition of a "stake holder" further analysis of the noise impact of the proposed wind farm has been undertaken, accounting for wind directions. The basis for this further analysis is that the modelling methodology utilised in our assessment considers all wind directions blowing at one time, which is conservative and physically impossible.

Hence, an assessment of each cardinal wind direction (and 45 degrees between each cardinal direction) was carried out, with the results of this analysis included in our revised report (our Ref: 33167-5-24117-06). The average wind direction of the area was then utilised to ascertain what the actual noise impacts would likely be at "R4" and "R24" during the night period, as the DWER ENB review was on the basis of comparison of modelled noise levels against the night period (10pm – 7am) criteria of the Regulations.

The average wind direction during the night period was found to be such that the noise levels at "R4" would be expected to be 0.5 – 2 dB lower and 3.5 – 6 dB lower at "R24". Hence, even if the Regulations was the applicable criteria for assessment purposes, the noise levels at "R24" would be significantly under night period criteria and either below, or marginally (0.5 dB) in excess at "R4".

Given that both "R4" and "R24" have landowner agreements in place with the proposed wind farm, and the "actual" wind conditions that could possibly occur during the night period are such that compliance with the Regulations is likely met, the DWER suggestion that consideration of noise control of the wind farm is required for these locations is not necessary, with the risk of adverse noise impacts demonstrated to be insignificant.

We trust this clarifies the queries, however, should you have any further questions, please do not hesitate to contact this office.

Yours faithfully,
for **HERRING STORER ACOUSTICS**

George Watts

Att.

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

November 2024

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Disclaimer

Acknowledgements

For more information about this report, contact Environmental Noise, Department of Water and Environmental Regulation.

Document control

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Contents

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.