

Friday, 8 August 2025

Project number: M230786
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Sangeetha Banakar
Environmental Compliance Coordinator
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Dear Sangeetha,

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Mt Gellibrand Wind Farm Planning Permit Technical Memorandum on Proposed Amendments to Noise-Related Conditions

1 Introduction

The Mt Gellibrand Wind Farm operates under Planning Permit No. PL-SP/05/0257, issued on 18 August 2006 (**Planning Permit**). It refers to New Zealand Standard (NZS) 6808:1998 *Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators*, Standards New Zealand for the assessment of wind turbine noise.

Mt Gellibrand Wind Farm Pty Ltd (MGWF) is proposing amendments to the noise-related conditions to reflect the shift in regulation of wind turbine noise from the Minister for Planning and the Environment Protection Authority (EPA) Victoria and ensure consistency with applicable Planning policy, including the *Planning Guidelines for Development of Wind Energy Facilities* (September 2023).

This letter sets out our technical review of the proposed amendments to the noise-related conditions issued under the Planning Permit applicable to Mt Gellibrand Wind Farm.

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2 Background

In considering the proposed potential amendment to the Planning Permit to refer to the current version of NZS 6808, being NZS 6808:2010 *Acoustics – Wind farm noise*, it is noted that some noise-related documents have been prepared that require consideration:

- Marshall Day Acoustics prepared a Noise Compliance Testing Plan for Mt Gellibrand dated 19 September 2016 (**NCTP**). The NCTP was not a requirement of the current Planning Permit but is referenced by the Noise Management Plan.
- Background noise monitoring was conducted at Mt Gellibrand in 2017. This was documented in a report prepared by Marshall Day Acoustics and dated 29 May 2017 (**Background Noise Report**).
- In accordance with the *Environment Protection Regulations*, Acciona engaged Resonate to prepare a noise management plan, as required under regulation 131E, dated 12 February 2024 (**Noise Management Plan**).

With respect to operational noise monitoring, Mt Gellibrand 'commenced operation' in September 2018. However, due to operational issues relating to grid constraints, a post-construction noise assessment will not be completed until such as time as generation at the site is deemed to be at a sufficient level to represent long-term operation.

While a post-construction noise assessment to fulfil the Planning Permit conditions has not yet been completed, Acciona commissioned two rounds of noise monitoring after the wind farm commenced operation to assess whether, under grid constraints, noise emissions were below the applicable noise limits. Two rounds of this preliminary post-construction noise monitoring were conducted with the first round occurring between August and October 2018, and

the second round occurring between November 2019 and January 2020. The noise monitoring was conducted by MDA and the results of the noise monitoring are documented within Round 1¹ and Round 2² Post-Construction Noise Analysis Reports. These Post-Construction Noise Analysis Reports concluded that the wind turbine noise levels were below the applicable noise limits during the test periods.

As per the requirements of the current Planning Permit, all noise monitoring and analysis, including the Background Noise Report and the two Post-construction noise analysis reports, have been conducted using methods based upon NZS 6808:1998.

3 Change from NZS 6808:1998 to NZS 6808:2010

The primary noise-related change as part of the proposed amendments to the Planning Permit involves the change of the relevant noise assessment Standard from NZS 6808:1998 to NZS 6808:2010. Overall, the change from NZS 6808:1998 to NZS 6808:2010 has negligible impact on the effective noise limits that apply to a wind energy project. The two standards use similar methods to quantify background noise, set noise limits (with a standard base noise limit of 40 dB) and to quantify and assess wind turbine noise emissions. As such, the amendments are not anticipated to have any noticeable effect on the allowable noise level from the Mt Gellibrand Wind Farm.

While the overall effect of the change in allowable levels into the area is a number of changes that will require consideration by MGWF when addressing the noise with these proposed amendments. These are:

- **Change of noise metric from L_{A95} to L_{A90} :** NZS 6808:2010 uses the L_{A90} metric to quantify both background and wind turbine noise, which will result in a marginally higher measured wind turbine noise level and background noise level than the L_{A95} metric used by NZS 6808:1998. It will be necessary for the previous background noise monitoring results and noise limits, as set out in the Background Noise Report, to be updated such that they are based on the measured noise levels.
- **Special audible characteristics:** NZS 6808:2010 sets out more modern and prescriptive procedures for the quantification and assessment of special audible characteristics than NZS 6808:1998. This includes a tonality assessment procedure with a sliding scale penalty of up to 6 dB, rather than the fixed 5 dB penalty prescribed by NZS 6808:1998, and an interim objective amplitude modulation assessment method. The NCTP, which is referenced by the Noise Management Plan, already references more modern approaches such as those specified in NZS 6808:2010, such that the impact of this change for Mt Gellibrand Wind Farm is not expected to be significant.

In some cases, the application of NZS 6808:2010 to a wind farm that has already undergone assessment under NZS 6808:1998 may require consideration of a change in wind speed reference height to hub height and/or a change in data filtering processes to remove extraneous noise. However, for Mt Gellibrand Wind Farm, the Background Noise Report has already been conducted with consideration of hub height wind speeds³ and using modern data filtering processes consistent with NZS 6808:2010. As such, these considerations are not considered relevant to Mt Gellibrand Wind Farm.

¹ MDA, 16 October 2019, *Mt Gellibrand Wind Farm – Post-Construction Noise Analysis – Round 1*, Rp 002 20180282

² MDA, 25 August 2020, *Mt Gellibrand Wind Farm – Post-Construction Noise Analysis – Round 2*, Rp 002 20180282

³ The Background Noise Report references analysis to a wind speed reference height of 90 m above ground, which is marginally higher than the hub height wind speed of 87.5 m. If the background noise data is not able to be re-referenced back to hub height wind speed, then this difference is not anticipated to have any significant effect on the outcomes and would in fact be conservative.

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It is noted that NZS 6808:2010 also introduces provisions for a reduced 35 dB L_{A90} limit to be applied at lower wind speeds in high amenity areas, with no equivalent provisions existing in NZS 6808:1998. However, this is not considered relevant to Mt Gellibrand Wind Farm as the site and surrounds are in a Farming Zone as defined by the Colac Otway Planning Scheme and EPA Victoria Publication 3011 recommends that the high amenity noise limits should not apply to dwellings in a Farming Zone.

As a result of the amendments to the Planning Permit, it would be necessary for the following modifications to occur to existing assessments and reports relevant to Mt Gellibrand Wind Farm:

- The Background Noise Report would require an update to present the outcomes of the reassessment of background noise levels consistent with NZS 6808:2010, and any implications for the applicable noise limits.
- The Noise Management Plan would need to be updated to reflect the changes in the applicable version of NZS 6808, and to ensure that the noise monitoring and assessment procedures are consistent with the requirements of NZS 6808:2010.
- To the extent that any of the previous post-construction noise monitoring data obtained for the Post-Construction Noise Analysis Reports is to be relied upon, it will be necessary for it to be reanalysed in a manner consistent with NZS 6808:2010.

4 Commentary on proposed amendments to conditions

Table 1 sets out our commentary on the proposed amendments to the noise-related planning conditions. In addition to the changes summarised in Table 1, changes are also proposed to Complaint response and blade shadow flicker conditions to which we have not commented on as they are outside of our area of expertise.

Table 1 Commentary on proposed amendments to noise-related planning conditions

Condition	Condition with amendments	Commentary
15	Except as provided below in this condition, the operation of the wind energy facility must comply with the New Zealand Standard NZS 6808:20101998 "Acoustics – Wind Farm NoiseThe assessment and measurement of sound from wind turbines" (the New Zealand Standard) in relation to any dwelling existing at the date of this permit, to the satisfaction of the Minister for Planning. In determining compliance with the New Zealand Standard, the following will apply:	This proposed modification changes the effective noise standard from NZS 6808:1998 to NZS 6808:2010, as per the intended amendment to the Planning Permit. Section 3 summarises the acoustic implications of this change.
15a (amended)	Compliance will be assessed in accordance with methodology specified in the Noise Management Plan prepared for the wind energy facility under the Environment Protection Regulations 2021 (Vic) as amended from time to time. The Environment Protection Authority is responsible for compliance and enforcement of wind turbine noise under the Regulations.	This proposed modification ensures consistency with the <i>Environment Protection Regulations</i> by requiring that all compliance noise assessments must be carried out in accordance with the Noise Management Plan prepared under Regulation 131E.

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Condition	Condition with amendments	Commentary
15a (existing)	The sound level from the wind energy facility, when measured outdoors within 10 metres of a dwelling at any relevant nominated wind speed, should not exceed the background level (L₉₅) by more than 5dBA or a level of 40dBA L₉₅, whichever is the greater.	This part of the existing Condition 15 is not required as the noise limits are set in NZS 6808:2010, which is referenced in the amended version of Condition 15 above. This part of the existing Condition 15 also refers to noise metrics that are only relevant to NZS 6808:1998 and not to NZS 6808:2010.
15b (existing)	When sound has a special audible characteristic, the measured sound level of the source shall have a 5dB penalty applied.	This part of the existing Condition 15 is not required as penalties for special audible characteristics are defined in NZS 6808:2010, which is referenced in the amended version of Condition 15 above. This part of the existing Condition 15 also refers to a fixed 5 dB penalty, which is only relevant to NZS 6808:1998 and not to NZS 6808:2010.
15c (existing)	Compliance at night must be separately assessed with regard to night time data. For these purposes the night is defined as 10.00pm to 7.00am. For sleep protection purposes, a breach of the standard set out at 14(a), for 10% of the night, amounts to a breach of the condition.	This existing condition is inconsistent with NZS 6808:2010 and the <i>Environment Protection Regulations</i> and therefore its removal would ensure consistency with the current wind turbine noise assessment requirements in Victoria. It is noted that separate night time assessments should still be undertaken in accordance with NZS 6808:2010 where the night time background noise levels are deemed markedly different from other times of day. However, these assessments would be carried out in accordance with NZS 6808:2010 rather than the existing condition which deviates from the NZS 6808 methodology.
15b (amended) – replaces existing condition 16	Condition 15 does not apply if an agreement has been reached with a specific landowner through which the landowner accepts predicted noise levels and/or otherwise agrees to the implementation of appropriate acoustic attenuation measures installed for the landowner to ensure a reasonable level of acoustic amenity in relation to the indoor habitable areas of any dwelling, and acknowledges that the operation of the wind energy facility may still generate noise in outdoor areas on the land which may from time to time exceed the New Zealand Standard. In such circumstances, the permit holder must enter into an agreement with the Minister for Planning and the registered proprietor of the land pursuant to Section 173 of the Planning and Environment Act 1987 (Section 173 Agreement) to provide that any dwelling on the land should not be occupied by persons other	The proposed modification removes the requirement in the current Planning Permit for noise agreements to be in the form of a Section 173 Agreement. With this modification, any agreement would need to be in a manner consistent with that required by Regulation 131 of the <i>Environment Protection Regulations</i> . It is understood that there are no current agreements at Mt Gellibrand Wind Farm that remove or modify the applicable noise limits, such that this condition would only come into effect if a noise agreement were entered into by a landowner in the future.

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Condition	Condition with amendments	Commentary
	<p>than those with an interest in ownership and management of land on which the wind energy facility is located and their families, or otherwise receive a financial benefit as a result of the location of the wind energy facility on the land, except with the written consent of the Minister for Planning.</p>	
17 (existing)	<p>Where Condition 15 is found to have been breached, the Minister for Planning shall notify the wind energy facility operator, with a request for steps to be taken to ascertain the relevant meteorological circumstances at the time of breach and to noise optimise the operation of the relevant wind turbine or turbines in such circumstances. If there is a further breach in similar circumstances, the Minister for Planning shall notify the wind energy facility operator, with a request to noise selectively shut down the operation of the relevant wind turbine or turbines in those circumstances. In circumstances where optimisation or selective shut down routines have been requested but not reasonably implemented, or have been implemented but have not prevented further instances of recorded breach, the relevant wind turbine or turbines will be required to be decommissioned and removed</p>	<p>Deletion of this condition would mean that non-compliances would be handled in accordance with the <i>Environment Protection Regulations</i>. This reflects the change of responsible authority to EPA Victoria.</p> <p>We note that the Noise Management Plan sets out how non-compliances are to be managed in accordance with the <i>Environment Protection Regulations</i>.</p> <div style="border: 2px solid red; padding: 10px; text-align: center;"> <p>This copied document to be made available for the sole purpose of enabling its consideration and review as part of a planning process under the Planning and Environment Act 1987. The document must not be used for any purpose which may breach any copyright</p> </div>
16 (amended) – replaces existing condition 18	<p>An independent post-construction noise monitoring program must be commissioned within two (2) months of the commissioning of the first wind turbine and continue for a sufficient period following commissioning of the final wind generation to allow determination of the noise level associated with the operation of the wind turbines to the satisfaction of the Minister for Planning. The program must be carried out in accordance with the New Zealand Standard as varied by conditions (a), (b) and (c) of Condition 15 above. The permit holder must pay the reasonable costs of the monitoring program.</p>	<p>The proposed modification ensures that the post-construction noise monitoring program must be carried out in accordance with NZS 6808:2010, consistent with the requirements of the <i>Environment Protection Regulations</i>.</p>

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5 Conclusion

We have undertaken a technical review of the proposed amendments to the noise-related conditions issued under the Planning Permit applicable to Mt Gellibrand Wind Farm. The proposed amendments are considered to be appropriate to align the noise-related conditions to NZS 6808:2010 and the *Environment Protection Regulations*.

As the change from NZS 6808:1998 to NZS 6808:2010 has negligible impact on the effective noise limits that apply to a wind energy project, the amendments to the Planning Permit are not expected to have any noticeable effect on the allowable noise level from the Mt Gellibrand Wind Farm and would not reduce the acoustic protection provided to residents through the conditions.

As a result of the amendments to the Planning Permit, it would be necessary for the following modifications to occur to existing assessments and reports relevant to Mt Gellibrand Wind Farm:

- The Background Noise Report would require an update to present the outcomes of the reassessment of background noise levels in accordance with NZS 6808:2010, and any implications for the applicable noise limits.
- The Noise Management Plan would need to be updated to reflect the changes in the applicable version of NZS 6808, and to ensure that the noise monitoring and assessment procedures are consistent with the requirements of NZS 6808:2010.
- To the extent that any of the previous post-construction noise monitoring data obtained for the Post-Construction Noise Analysis Reports is to be relied upon, it will be necessary for it to be reanalysed in a manner consistent with NZS 6808:2010.

Please let me know if you have any queries or wish to discuss the above.

Yours sincerely,



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