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Appendix 6

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Environmental Noise Assessment

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Resonate

Hazelwood East BESS

Environmental Noise Assessment

M250375RP1 Revision C

Friday, 26 June 2026

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The information, findings, and recommendations are based on the conditions and data available at the time of preparation. Any opinions or recommendations expressed are subject to the assumptions, limitations, and conditions as stated. Any reliance on external information has been accepted in good faith as being accurate and valid.

Table of Contents

1	Introduction	2
2	Project description	3
2.2	Nearby dwellings.....	3
3	Legislation, policy and guidelines.....	5
3.1	Environment Protection Act 2017.....	5
3.1.1	General Environmental Duty	5
3.1.2	Unreasonable noise	5
3.4	EPA Victoria Publication 1996	7
4	Assessment method	9
4.1	Noise prediction methodology.....	9
4.2	Noise sources	9
5	Assessment results	11
5.1	Predicted noise levels	11
5.2	Low frequency noise and adjustments for noise character	12
6	Cumulative noise assessment	13
6.1	Cumulative noise limits	14
6.2	Cumulative noise assessment	16
7	Conclusion	18
	Appendix A—Receivers	19
	Appendix B— Noise Contour Map	23

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1 Introduction

Voyager Renewables is proposing the development of the Hazelwood East Battery Energy Storage System (Hazelwood East BESS), to be located at 545 Tramway Road, Hazelwood North, opposite the Hazelwood Terminal Station. Voyager has engaged Resonate to undertake an environmental noise assessment for the site to inform compliance with the applicable noise limits, as well as the cumulative noise limits in relation to other nearby industrial facilities.

This report presents the outcomes of the environmental noise assessment against the requirements of the *Environment Protection Regulations* (EP Regulations) and EPA Victoria Publication 1826.5 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* (Noise Protocol), and assesses compliance against applicable prescribed noise limits.

The assessment is based on the following details:

- Site layout received from the client on 18/05/2026
- Battery container noise source levels based on manufacturer data received from the client on 20/05/2026 and 04/06/2026
- Inverter source noise levels based on manufacturer data received from the client on 29/04/2026
- Substation transformer noise levels with reference to AS/NZS 60076-10 *Power transformers Part 10: Determination of sound levels*
- 10 m resolution ground elevation data obtained through Elvis database on 16/11/2024
- Noise sensitive areas (NSA) based on data received from the client 30/09/2025
- Available acoustic reports from nearby commercial and industrial premises for the assessment of cumulative noise.

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2 Project description

3 of 24

Table 1 Distance between NSAs and BESS facility

Receiver ID	Address	Easting	Northing	Approximate distance to proposed BESS facility (m)
R339	600 Tramway Road North 3840	450110	5762239	1000
R244	125 Boldings Road Hazelwood North 3840	451361	5761720	1200
R006	45 Boldings Road Hazelwood North 3840	450595	5761740	1200
R119	15 Boldings Road Hazelwood North 3840	450309	5761796	1200
R270	90 Church Road Hazelwood North 3840	451348	5764142	1300
R017	40 Boldings Road Churchill 3842	450593	5761621	1300
R015	92 Church Road Hazelwood North 3840	451395	5764148	1400
R324	30 Church Road Hazelwood North 3840	450803	5764314	1400
R326	130 Church Road Hazelwood North 3840	451888	5764018	1500
R177	145 Boldings Road Hazelwood North 3840	451544	5761555	1500
R083	65 Church Road Hazelwood North 3840	451193	5764389	1500
R013	130 Boldings Road Churchill 3842	451394	5761431	1500
R016	79 Church Road Hazelwood North 3840	451301	5764365	1500
R123	185 Boldings Road Hazelwood North 3840	451890	5761607	1600
R237	1110 Hazelwood Road Hazelwood North 3840	452623	5762634	1700
R312	1152 Hazelwood Road Hazelwood North 3840	452398	5761998	1700
R173	1152 Hazelwood Road Hazelwood North 3840	452417	5761980	1700
R030	1100 Hazelwood Road Hazelwood North 3840	452742	5762828	1800
R166	1200 Hazelwood Road Hazelwood North 3840	452325	5761789	1800

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3 Legislation, policy and guidelines

3.1 Environment Protection Act 2017

3.1.1 General Environmental Duty

The *Environment Protection Act 2017* (the Act) sets out environmental obligations and protections for Victorians. The cornerstone of the Act is the General Environmental Duty (GED), which states:

A person who is engaging in an activity that may give rise to risks of harm to human health or the environment from pollution or waste must minimise those risks, so far as reasonably practicable.

In the context of the Act, 'reasonably practicable' measures mean putting in controls to eliminate the risk of harm to human health and the environment so far as reasonably practicable. If eliminating the risk of harm is not reasonably practicable, then the risk of harm must be reduced so far as reasonably practicable. A number of matters must be considered in deciding what is reasonably practicable in the circumstances:

- the likelihood of those risks eventuating
- the degree of harm that would result if those risks eventuated
- what the person concerned knows, or ought reasonably to know, about the harm or risks of harm and any ways of eliminating or reducing those risks
- the availability and suitability of ways to eliminate or reduce those risks
- the cost of eliminating or reducing those risks

EPA Victoria Publication 1856: *Reasonably practicable* explains that, when dealing with a common risk or harm, it is possible to demonstrate that the risk has been reduced so far as reasonably practicable if well-established effective practices or controls have been adopted. The *Environment Protection Act 1987* states that where well-established practices or controls do not exist, then it is necessary to show that effective controls have been assessed and adopted.

3.1.2 Unreasonable noise

The Act also prohibits the emission of unreasonable noise and aggravated noise. The Act defines 'Unreasonable noise' in two parts. Section 3(1)(a) states that noise that is unreasonable having regard to the following:

- its volume, intensity or duration
- its character
- the time, place and other circumstances in which it is emitted
- how often it is emitted
- any prescribed factor.

Section 3(1)(b) states that noise is unreasonable noise if it is prescribed to be so. Under the *Environment Protection Regulations*, noise that exceeds the noise limits established in accordance with EPA Victoria Publication 1826.5 *Noise limit and assessment protocol for the control of noise from commercial, industrial and trade premises and entertainment venues* (Noise Protocol) is prescribed to be unreasonable noise.

Unreasonable noise occurs if noise meets the requirements of Section 3(1)(a) and/or Section 3(1)(b) of the Act.

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3.2 Environment Protection Regulations

The Environment Protection Regulations (the Regulations) are subordinate legislation that support the Act. Under the Regulations, the assessment of noise from commercial, industrial and trade premises at noise sensitive areas must be carried out in accordance with the Noise Protocol, both in terms of establishing noise limits as noise sensitive areas and in terms of the measurement of noise from the subject premises.

The noise limits set under the Regulations apply generally to noise emitted from the proposed BESS facility. The noise limits are not applicable to noise that may arise from the following sources that may be relevant to the site:

- construction works
- intruder, emergency or safety alarms or sirens
- equipment used in relation to an emergency
- non-commercial vehicles (except for maintenance activities).

The GED still applies to noise arising from the above sources but compliance with the noise limits set under the Regulations is not mandatory.

Noise sensitive areas are defined in the Regulations as:

- The area within 10 m of the external walls of dwellings (including residential care facilities but excluding caretaker's houses), residential buildings and noise sensitive residential uses.
- The area within 10 m outside the external walls of any dormitories, wards, bedrooms and living rooms of caretaker's houses, hospitals, hotels, motels, residential hotels specialist disability accommodation, corrective institutions, tourist establishments, retirement villages and residential villages.
- The area within 10 m outside the external walls of classrooms or other rooms in which learning occurs at childcare centres, kindergartens, primary schools and secondary schools.
- Within the boundary of tourist establishments, campgrounds and caravan parks that are located in rural areas.

The Regulations also define Day, Evening and Night periods for the assessment of noise, shown in Table 2 below.

Table 2 Applicable time periods

Time period	Details
Day	Monday to Saturday, 7 am to 6 pm
Evening	Monday to Saturday, 6 pm to 10 pm Sundays and public holidays, 7 am to 10 pm
Night	10 pm to 7 am any day

The Regulations define:

- Unreasonable noise as noise from commercial, industrial and time periods that exceeds the applicable noise limits from the Noise Protocol.
- Aggravated noise as noise commercial, industrial and time periods that exceeds:
 - 75 dB $L_{Aeq,30m}$ or the Noise Protocol noise limit by more than 15 dB during the day
 - 70 dB $L_{Aeq,30m}$ or the Noise Protocol noise limit by more than 15 dB during the evening
 - 65 dB $L_{Aeq,30m}$ or the Noise Protocol noise limit by more than 15 dB during the night.

The Regulations also define frequency spectrum as a prescribed factor for the purposes of establishing unreasonable noise under Section 3(1)(a) of the Act but do not provide specific guidance on assessment frequency spectrum. EPA Victoria Publication 1996 Noise guidelines: Assessing low frequency noise (EPA Victoria Publication 1996) provide detailed guidance on the assessment of low frequency noise for the purposes of establishing whether unreasonable noise is being produced.

3.3 Noise Protocol

EPA Victoria has prepared the Noise Protocol to specify methodologies for establishing noise limits for operational noise sources and for assessing noise levels against the noise limits. Compliance with the noise limits defined by the Noise Protocol is required by Regulations and is expected to assist with meeting the GED.

The Noise Protocol defines different procedures for establishing noise limits depending on whether the noise sensitive receiver is located within a major urban area or rural areas.

For rural areas, the Noise Protocol primarily defines noise limits dependent on the following:

- Time of day. Different noise limits apply for the different time periods of Day, Evening and Night.
- Land zoning of both the noise source and noise sensitive receiver used to determine the Zone Level.
- A distance adjustment is applied to the Zone Level where a noise sensitive receiver is in a different zone to a noise source.
- Type of noise source. Specific limits are set for certain noise sources, such as utilities and earth resources.

Background noise levels may be taken into account in establishing noise limits in rural areas where the noise sensitive receiver is located within a 'background relevant area.' Background relevant areas are those rural areas where background levels may be higher than usual on a consistent basis and include areas, e.g. areas where freeway or highway traffic is a significant audible background noise source. If a noise sensitive receiver is located in a background relevant rural area, then the noise limits are set at the higher of the noise limit determined using the land zoning methodology above or:

- The background noise level plus 8 dB for the Day period
- The background noise level plus 5 dB for the Evening period
- The background noise level plus 5 dB for the Night period.

For the current project, noise limits have been determined based on a utility and a sensitive receiver in a Farming Zone, as per the EPA Regulations. The adopted noise limits are shown in Table 3 below.

Table 3 Environmental noise limits for normal operation

Noise sensitive area	Time period	Zone Level (FZ1)	Distance adjustment	Background Level	Background relevant area?	Noise Limit
		dB LAeq	dB	dB LA90		dB LAeq
All receivers in (FZ1)	Day	45	0	34	No	45
	Evening	39	0	34	No	39
	Night	34	0	28	No	34

3.4 EPA Victoria Publication 1996

EPA Victoria Publication 1996 provides guidance on the assessment of low frequency noise from commercial, industrial and trade premises. As frequency spectrum is a separate prescribed factor under the Act, operational sources with the potential to produce a higher relative level of low frequency noise should be separately assessed against this guidance in addition to the noise limits applicable under the Regulations.

EPA Victoria Publication 1996 defines low frequency noise as that occurring between the frequency range of 10 Hz and 160 Hz. It provides noise thresholds, in one-third octave bands, with levels above the threshold indicating a potential risk of problematic low frequency noise that would require further consideration, investigation and potentially mitigation.

Table 4 presents the low frequency noise thresholds for predictions and measurements conducted outdoors. The outdoor threshold levels are based on indoor thresholds with an assumed façade noise reduction, as specified by EPA Victoria Publication 1996. For the purposes of this assessment, the outdoor thresholds have been adopted but, should a risk of exceedance be identified, further investigation of the specific building façade could be undertaken to assess whether it offers a greater attenuation of low frequency noise than assumed by EPA Victoria Publication 1996.

Table 4 Outdoor low frequency noise thresholds

Outdoor noise level in dB L _{eq} at one-third octave band centre frequency in Hz												
10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
92	89	86	77	69	61	54	50	50	48	48	46	44

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4 Assessment method

4.1 Noise prediction methodology

An environmental noise model for noise emissions generated by the proposed BESS site was developed using a proprietary noise modelling software package, SoundPLAN version 9.1.

The environmental noise prediction methodology provided in the international standard ISO 9613-2 was adopted for the prediction model. The methodology takes the following into considerations:

- geometrical divergence
- atmospheric absorption
- ground effect
- reflection from surfaces
- screening by obstacles. (e.g. solid structures such as noise walls, buildings)

The ISO 9613-2 methodology provides a prediction representative of conditions where the receiver is downwind of the source in a light breeze or under a moderate ground-based temperature inversion.

In order to assess potential tonality effects, all sources were modelled using 1/3rd octave-band spectra.

4.2 Noise sources

The following equipment, configured as per the site layout shown in Figure 2, is proposed for the Hazelwood East BESS site:

- 394 x battery containers
- 148 x inverters on 74 skids
- 74 x 9 MVA medium-voltage (MV) transformers
- 2 x 350 MVA high-voltage (HV) transformers

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Figure 2 BESS site layout

Source noise levels for each unit are shown in Table 5 below.

Table 5 Source noise levels

Item	Sound power level in dB L _w at 1/3 octave band centre frequency (Hz)																							Overall	
	50	63	80	100	125	160	200	250	315	400	500	630	800	1k	1.25k	1.6k	2k	2.5k	3.15k	4k	5k	6.3k	8k	10k	dB L _{WA}
Battery container	77	76	76	77	92	79	76	82	76	77	76	77	79	77	75	74	72	70	68	67	65	66	67	63	86
Inverter	53	59	60	62	64	62	65	63	69	71	72	69	72	70	67	66	65	78	83	65	71	82	71	70	88
HV transformer	96	97	99	105	112	103	92	84	82	84	82	81	78	77	76	72	72	72	65	65	65	60	61	62	98
MV transformer	77	78	80	86	93	84	73	65	63	65	63	62	59	58	57	53	53	53	46	46	46	41	42	43	79

The source sound power levels for the battery containers and inverters are based on manufacturer data supplied by the client that is understood to represent a potential candidate equipment design for Hazelwood East BESS. The final equipment selection would be based on a competitive procurement process that would occur after planning approval such that the final selections may differ. As such, the source levels have been increased by 3 dB to account for future flexibility in equipment selection. In Resonate's experience, the adopted source levels are consistent with typical available BESS equipment used in Australia.

The sound power levels for the HV transformers are based on a sound power level that is midway between the "standard maximum" and "reduced maximum" empirical calculation for 350 MVA transformers in *AS/NZS 60076-10 Power transformers Part 10: Determination of sound levels*. The sound power levels for the MV transformers are based on the "standard maximum" for a 9 MVA transformer from the same source.

It is noted that additional equipment may be installed at a BESS site beyond that assessed in this report. However, based on previous experience any additional equipment would have sound power levels significantly lower than (more than 10 dB below) the noise sources identified above. As such, these noise sources would not contribute to the overall site sound power levels.

5 Assessment results

5.1 Predicted noise levels

Table 6 presents the predicted noise levels from the BESS at the nearby NSAs, along with a comparison of the noise level against the day, evening, and night-time period noise limits. Noise contours maps are presented in Appendix B.

Predicted noise levels from the BESS are expected to be the same for all time periods, since BESS operations are currently anticipated to be similar for the day, evening and night periods using the current candidate equipment. Therefore, the night period represents the worst-case noise limit for the BESS.

Table 6 Predicted noise levels (Hazelwood East BESS only)

Noise sensitive area	Predicted noise level ⁽¹⁾ , dB LAeq	Tonality adjustment, dB	Effective noise level ⁽²⁾ , dB LAeq	Day / Evening/ Night limit, dB LAeq	Compliance: Day / Evening / Night
R244	32	+2	34	45 / 39 / 34	✓ / ✓ / ✓
R177	31	+2	33	45 / 39 / 34	✓ / ✓ / ✓
R015	31	+2	33	45 / 39 / 34	✓ / ✓ / ✓
R270	31	+2	33	45 / 39 / 34	✓ / ✓ / ✓
R006	31	+2	33	45 / 39 / 34	✓ / ✓ / ✓
R339	31	+2	33	45 / 39 / 34	✓ / ✓ / ✓
R326	31	+2	33	45 / 39 / 34	✓ / ✓ / ✓
R237	30	+2	32	45 / 39 / 34	✓ / ✓ / ✓
R123	30	+2	32	45 / 39 / 34	✓ / ✓ / ✓
R312	30	+2	32	45 / 39 / 34	✓ / ✓ / ✓
R013	30	+2	32	45 / 39 / 34	✓ / ✓ / ✓
R173	30	+2	32	45 / 39 / 34	✓ / ✓ / ✓
R017	30	+2	32	45 / 39 / 34	✓ / ✓ / ✓
R119	30	+2	32	45 / 39 / 34	✓ / ✓ / ✓
R166	30	+2	32	45 / 39 / 34	✓ / ✓ / ✓
R030	29	+2	31	45 / 39 / 34	✓ / ✓ / ✓
R299	29	+2	31	45 / 39 / 34	✓ / ✓ / ✓
R324	29	+2	31	45 / 39 / 34	✓ / ✓ / ✓
R083	29	+2	31	45 / 39 / 34	✓ / ✓ / ✓

(1) Predicted noise level without adjustments (i.e. tonality adjustment).

(2) Including tonality adjustment

The above results indicate that predicted noise levels from the BESS are predicted to comply with the noise limits at all noise sensitive areas.

5.2 Low frequency noise and adjustments for noise character

Based on our previous experience with BESS projects, the controlling noise from BESS is in the mid-frequency range such that compliance with the relatively low Noise Protocol noise limits in rural areas for BESS typically results in low frequency noise below the applicable outdoor thresholds. Consideration of low frequency noise from the substation transformer would be required during detailed design, however this is expected to be manageable using common control measures.

Based on a preliminary review of the predicted noise spectra at receivers and the predicted A-weighted noise levels of 34 dB or lower the noise levels from the site are consistent with that previous experience. The predicted low frequency noise levels for the noise sensitive area with the highest predicted low frequency noise levels are shown in Table 7 below for the frequency range of 50 Hz and up, and compared to the outdoor thresholds from EPA Victoria Publication 1996.

Table 7 Low frequency noise assessment

Noise sensitive area	Predicted noise level, dB L _{eq} at one-third octave band centre frequency in Hz					
	50	63	80	100	125	160
<i>EPA Victoria Publication 1996 threshold</i>	50	50	48	48	46	44
R244: 125 Boldings Road	32	32	33	28	40	38
Below threshold?	✓	✓	✓	✓	✓	✓

As shown in Table 7, the predicted noise levels are 6 dB or more below the thresholds across the frequency range of 50 to 160 Hz. It is noted that source noise levels in the 10 to 50 Hz range are not available for the assessed equipment, however noise levels for electrical equipment are typically lower at frequencies below 50 Hz while the EPA Victoria Publication 1996 thresholds increase. As such, we would expect that a BESS with low frequency noise levels below the thresholds in the frequency range of 50 to 160 Hz would also have noise emissions below the thresholds at lower frequencies.

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6 Cumulative noise assessment

Noise emissions from the Hazelwood East BESS must be managed to ensure that the cumulative noise levels from all nearby industrial sources do not exceed the prescribed limits at NSAs in accordance with the Regulations. Where an NSA is influenced by multiple noise sources, compliance with the Noise Protocol limit is determined by the combined contributions of all sources, with limits depending on the existing noise environment.

In the case of Hazelwood East BESS, each industrial facility is subject to separate noise limits, based on its proximity to each NSA and planning Zone where the facility is located. The Latrobe City Planning Scheme designates Special Use Zone (SUZ1) for brown coal mining and associated industries, which is considered equivalent to Industrial Zone 3 (INZ3) for noise assessment purposes. The following existing and future industrial operators around the Hazelwood East BESS are listed by the Department of Transport and Planning (DTP) and are shown in Figure 1.

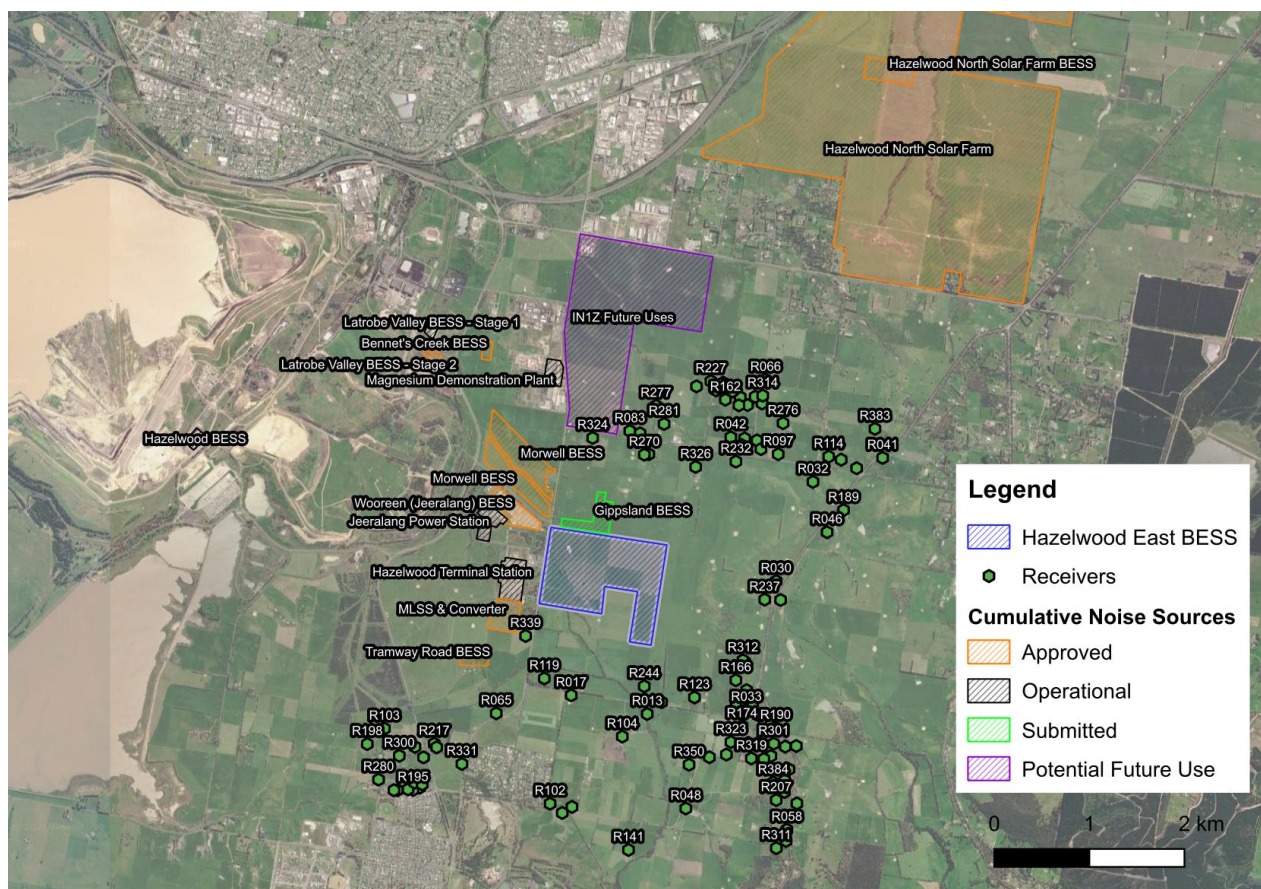


Figure 3 Existing and future industrial noise sources considered in cumulative noise assessment

Operating noise sources

- Hazelwood Terminal Station (SUZ1)
- Hazelwood BESS (South-west) (FZ1)
- Jeeralang Power Station (SUZ1)
- Magnesium Demonstration Plant (INZ2)

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Approved future sources

A review of approved, but not yet operating, industrial noise sources in the area identified the following sources:

- Latrobe Valley BESS (INZ2)
- Bennet's Creek BESS (INZ2)
- Wooreen BESS (SUZ1)
- Hazelwood North Solar Farm and BESS (FZ1)
- Morwell Solar Farm (FZ1)
- Marinus Link Switching Station and Converter Station (MLSS & Converter Station)
- Morwell BESS (INZ2)
- Tramway Road BESS (FZ1)

Permit application under consideration

A review of industrial noise sources with permits under consideration by DTP in the area also identified the Gippsland BESS (INZ2).

Potential future industrial development

There are also 56 hectares of undeveloped Industrial Zone (IN1Z) land north of Church Road and the surrounding industrial-zoned land (INZ2). Future industrial growth and expansion in the FZ1 area is likely to occur within the operational lifetime of the Hazelwood East BESS project, therefore, we have considered this land as part of our assessment of cumulative noise.

6.1 Cumulative noise limits

As the noise sources have varying noise limits, it is necessary to consider the cumulative from noise sources against a single noise limit. For this assessment, the highest applicable noise limit for any individual source has been adopted to enable the assessment of cumulative noise from all sources. In conjunction with the assessment of the individual noise from Hazelwood East BESS against the applicable noise limit for that site (as per Section 5) this is considered an appropriate approach to assessing compliance with the prescribed noise limits. It is noted that each other noise source would also be responsible for individual and cumulative noise compliance.

In considering the applicable noise limits:

- the Future Development Area noise limits are based on those applicable to Industrial Zone 1 (IZ1) areas, with distance adjustments applied in accordance with the EPA Noise Protocol
- the Morwell Solar Farm noise limits were established in the Morwell Solar Farm Acoustic Report (MD150-01F01), prepared by Renzo Tonin & Associates and dated 27 July 2020. That assessment referenced the Noise from Industry in Regional Victoria (NIRV) guideline and applied limits derived from measured background noise levels at the site. According to the Renzo Tonin report, the NIRV maximum recommended noise levels, based on the measured background noise levels, are as follows:

42dB (Day time L_{A90}) + 8dB = 50dB(A)

37dB (Evening L_{A90}) + 5dB = 42dB(A)

36dB (Night-time L_{A90}) + 5dB = 41dB(A)

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Although the NIRV has been superseded by the Noise Protocol, the prescribed noise limits remain the same and these noise limits remain applicable as the highest identified noise limits for existing approval conditions. For the purposes of cumulative assessment, these legacy NIRV limits have been used as part of the cumulative assessment to represent approved contributions from existing noise sources.

The highest applicable noise limits for all sites in the area are shown in Table 8 for the worst-case night period. In all cases other than R324, the noise limits are controlled by the background-adjusted levels for the Morwell Solar Farm.

Table 8 Distance Adjusted Cumulative Noise Limits for identified nearby noise generating industrial facilities

Receiver ID	Address	Noise limit based on	Night-time Zone Limit, dB L _{Aeq}	Distance adjustment, dB	Background -adjusted noise level, dB L _{Aeq}	Night-time cumulative noise limit, dB L _{Aeq}
R270	90 Church Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R015	92 Church Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R016	79 Church Rd	Land zoning with INZ1 area	43	2	41	41
R324	30 Church Rd	Land zoning with INZ1 area	43	0	41	43
R326	130 Church Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R339	600 Tramway Rd	Background-adjusted for Morwell Solar Farm	40	1	41	41
R017	40 Boldings Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R006	45 Boldings Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R177	145 Boldings Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R173	1152 Hazelwood Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R166	1200 Hazelwood Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R237	1110 Hazelwood Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R083	65 Church Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R244	125 Boldings Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R119	15 Boldings Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R123	185 Boldings Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41
R030	1100 Hazelwood Rd	Background-adjusted for Morwell Solar Farm	34	0	41	41

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6.2 Cumulative noise assessment

Industrial noise levels from other nearby facilities have been obtained from the following acoustic reports:

- *Wooreen Battery Energy Storage System – Desktop Noise Impact Assessment* revision 4, Aurecon
- *Bennetts Creek Battery Energy Storage System – Noise Assessment Report* revision 2, Aurecon
- *Hazelwood North Solar Farm – Noise Impact Assessment*, revision 1.0, SLR Consulting
- *Tramway BESS Project – Environmental Noise Assessment*, revision 0, Resonate Consultants
- *Noise Impact Assessment - Tramway Road BESS* (referred to as “Tramway Road West BESS” here, to distinguish it from the other Tramway Road BESS site), revision 1.1, SLR Consulting
- *Morwell BESS Facility – Acoustic Report*, revision 7, Renzo Tonin & Associates
- *Marinus Link Appendix T: Technical Noise and Vibration Report*, Rp 003 20191171, Marshall Day Acoustics
- *Gippsland BESS – Operational Noise Assessment*, revision 02, WSP Consulting

For each noise sensitive area, the predicted Night period noise levels from these facilities have been added to the predicted noise level from the Hazelwood East BESS to obtain the cumulative noise level during the Night period. The results of the cumulative noise assessment are presented in Table 9 below and assessed against the Night noise limit.

Table 9 Cumulative noise assessment

Noise sensitive area	Cumulative night period noise level, dB LAeq	Cumulative night limit, dB LAeq	Compliance
R244: 125 Boldings Road	36	41	✓
R177: 145 Boldings Road	31	41	✓
R015: 92 Church Road	38	41	✓
R270: 90 Church Road	39	41	✓
R006: 45 Boldings Road	34	41	✓
R339: 600 Tramway Road	36	41	✓
R326: 130 Church Road	34	41	✓
R237: 1110 Hazelwood Road	30	41	✓
R123: 185 Boldings Road	30	41	✓
R312: 1152 Hazelwood Road	30	41	✓
R013: 130 Boldings Road	33	41	✓
R173: 1152 Hazelwood Road	30	41	✓

Noise sensitive area	Cumulative night period noise level, dB L _{Aeq}	Cumulative night limit, dB L _{Aeq}	Compliance
R017: 40 Boldings Road	34	41	✓
R119: 15 Boldings Road	37	41	✓
R166: 1200 Hazelwood Road	30	41	✓
R030: 1100 Hazelwood Road	29	41	✓
R324: 30 Church Road	40	43	✓
R083: 65 Church Road	34	41	✓
R016: 79 Church Road	34	41	✓

Based on the predicted noise levels shown in Table 9, cumulative compliance is predicted at all assessed receivers.

It is also noted that the predicted contribution from Hazelwood East BESS is 7 dB or more below the cumulative night limit such that the BESS itself is not a significant contributor to the cumulative noise level. The predicted levels from Hazelwood East BESS also include a +2 dB tonal adjustment but any tonal noise from the BESS could be readily masked by noise from other cumulative noise sources. As such, the inclusion of the +2 dB tonal adjustment for Hazelwood East BESS is conservative in the context of cumulative noise.

It should be noted that the cumulative noise assessment relies on noise modelling conducted by third parties (i.e. the acoustic reports included in the planning submissions for the other facilities). The outcome of this assessment could be materially different if the actual noise levels are higher than predicted by the third parties. However, changes to predicted noise levels from other sites and managing cumulative noise would remain the responsibility of the operators of those sites. Given the relatively low predicted noise levels from Hazelwood East BESS, it is not expected to result in additional cumulative constraints on other proposed projects.

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7 Conclusion

An environmental noise assessment for the proposed Hazelwood East BESS site has been conducted. The predicted noise level from Hazelwood East BESS was assessed against the requirements of the EPA *Environment Protection Regulations* and Noise Protocol.

The BESS site is predicted to comply with the applicable noise limits.

The cumulative noise assessment relies on noise modelling conducted by third parties, however given the relatively low predicted noise levels from Hazelwood East BESS, it is not expected to result in additional cumulative constraints on other proposed projects.

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Appendix A—Receivers

Receiver ID	Address	Easting	Northing
R006	45 Boldings Road Hazelwood North 3840	450595	5761740
R015	92 Church Road Hazelwood North 3840	451395	5764148
R016	79 Church Road Hazelwood North 3840	451301	5764365
R083	65 Church Road Hazelwood North 3840	451193	5764389
R119	15 Boldings Road Hazelwood North 3840	450309	5761796
R237	1110 Hazelwood Road Hazelwood North 3840	452623	5762634
R244	125 Boldings Road Hazelwood North 3840	451361	5761720
R270	90 Church Road Hazelwood North 3840	451348	5764142
R324	30 Church Road Hazelwood North 3840	450803	5764314
R326	130 Church Road Hazelwood North 3840	451888	5764018
R339	600 Tramway Road Hazelwood North 3840	450110	5762239
R002	35 Sunnyview Road Hazelwood South 3840	452546	5761128
R013	130 Boldings Road Churchill 3842	451394	5761431
R017	40 Boldings Road Churchill 3842	450593	5761621
R025	55 Mulga Road Hazelwood North 3840	452098	5764820
R030	1100 Hazelwood Road Hazelwood North 3840	452742	5762828
R032	260 Church Road Hazelwood North 3840	453124	5763869
R033	1245 Hazelwood Road Hazelwood South 3840	452437	5761482
R036	40 Thomson Road Hazelwood South 3840	452700	5761329
R040	15 Mulga Road Hazelwood North 3840	452430	5764668
R041	925 Hazelwood Road Hazelwood North 3840	453855	5764124
R042	165 Church Road Hazelwood North 3840	452257	5764330
R046	1025 Hazelwood Road Hazelwood North 3840	453275	5763343
R047	90 Thomson Road Hazelwood South 3840	452888	5760860
R048	125 Farrans Road Hazelwood South 3840	451806	5760445
R049	50 Sunnyview Road Hazelwood South 3840	452698	5760998
R054	16 Acacia Way Churchill 3842	448773	5760618
R058	170 Thomson Road Hazelwood South 3840	452870	5760230
R062	15 Titree Road Hazelwood North 3840	452402	5764319
R065	700 Tramway Road Churchill 3842	449806	5761428

Receiver ID	Address	Easting	Northing
R066	80 Titree Road Hazelwood North 3840	452619	5764935
R090	1255 Hazelwood Road Hazelwood South 3840	452369	5761457
R097	225a Church Road Hazelwood North 3840	452756	5764156
R102	95 Mackeys Road Churchill 3842	450378	5760486
R103	21 Nadenbouschs Lane Hazelwood 3840	448631	5761260
R104	110a Boldings Road Churchill 3842	451133	5761193
R105	8 Acacia Way Churchill 3842	449007	5760646
R114	285 Church Road Hazelwood North 3840	453288	5764134
R123	185 Boldings Road Hazelwood North 3840	451890	5761607
R129	130 Thomson Road Hazelwood South 3840	452843	5760624
R137	35 Farrans Road Hazelwood South 3840	452230	5761011
R141	190 Mackeys Road Churchill 3842	451206	5760008
R145	20 Mulga Road Hazelwood North 3840	452853	5764751
R150	40 Sunnyview Road Hazelwood South 3840	452624	5760967
R159	18 Acacia Way Churchill 3842	448735	5760617
R162	25 Mulga Road Hazelwood North 3840	452197	5764723
R166	1200 Hazelwood Road Hazelwood North 3840	452325	5761789
R167	75 Titree Road Hazelwood North 3840	452524	5764908
R173	1152 Hazelwood Road Hazelwood North 3840	452417	5761980
R174	15 Farrans Road Hazelwood South 3840	452393	5761309
R177	145 Boldings Road Hazelwood North 3840	451544	5761555
R180	121 Mackeys Road Churchill 3842	450608	5760454
R186	125 Thomson Road Hazelwood South 3840	452974	5760505
R189	995 Hazelwood Road Hazelwood North 3840	453447	5763575
R190	50 Thomson Road Hazelwood South 3840	452745	5761293
R195	12 Acacia Way Churchill 3842	448936	5760621
R198	55 Silcocks Road Churchill 3842	448451	5761098
R201	14 Acacia Way Churchill 3842	448883	5760627
R203	195 Church Road Hazelwood North 3840	452370	5764249
R207	140 Thomson Road Hazelwood South 3840	452756	5760538
R209	60 Titree Road Hazelwood North 3840	452583	5764686

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Receiver ID	Address	Easting	Northing
R210	20 Titree Road Hazelwood North 3840	452532	5764299
R211	75 Mulga Road Hazelwood North 3840	451892	5764861
R214	30 Mulga Road Hazelwood North 3840	452272	5764810
R217	711 Monash Way Churchill 3842	449156	5761107
R218	10 Acacia Way Churchill 3842	448952	5760697
R219	1235 Hazelwood Road Hazelwood South 3840	452502	5761514
R223	730 Monash Way Churchill 3842	449044	5760963
R224	1240 Hazelwood Road Hazelwood North 3840	452328	5761558
R227	70 Mulga Road Hazelwood North 3840	452043	5764915
R229	110 Mackeys Road Churchill 3842	450506	5760391
R232	180 Church Road Hazelwood North 3840	452311	5764076
R236	545 Tramway Road Hazelwood North 3840	450627	5762637
R240	1230 Hazelwood Road Hazelwood North 3840	452339	5761686
R241	150 Thomson Road Hazelwood South 3840	452860	5760369
R251	100 Thomson Road Hazelwood South 3840	452845	5760745
R255	10 Mulga Road Hazelwood North 3840	452510	5764755
R271	55 Farrans Road Hazelwood South 3840	452050	5760982
R276	–	452805	5764481
R277	75 Church Road Hazelwood North 3840	451466	5764655
R280	9 Silcocks Road Churchill 3842	448573	5760727
R281	115 Church Road Hazelwood North 3840	451553	5764466
R282	25 Sunnyview Road Hazelwood South 3840	452459	5761135
R285	70 Sunnyview Road Hazelwood South 3840	452848	5761098
R287	711 Monash Way Churchill 3842	449181	5761069
R289	720 Monash Way Churchill 3842	448954	5761072
R293	180 Thomson Road Hazelwood South 3840	452862	5760112
R299	1125 Hazelwood Road Hazelwood North 3840	452790	5762631
R300	70 Silcocks Road Churchill 3842	448789	5760977
R301	55 Sunnyview Road Hazelwood South 3840	452727	5761128
R308	295 Church Road Hazelwood North 3840	453419	5764102
R311	190a Thomson Road Hazelwood South 3840	452760	5760036

Receiver ID	Address	Easting	Northing
R312	1152 Hazelwood Road Hazelwood North 3840	452398	5761998
R313	6 Acacia Way Churchill 3842	449032	5760680
R314	70 Titree Road Hazelwood North 3840	452590	5764767
R319	20 Sunnyview Road Hazelwood South 3840	452492	5760973
R323	25 Farrans Road Hazelwood South 3840	452277	5761142
R325	30 Thomson Road Hazelwood South 3840	452571	5761420
R331	764 Tramway Road Churchill 3842	449448	5760896
R341	315 Church Road Hazelwood North 3840	453582	5764014
R348	50 Mulga Road Hazelwood North 3840	452173	5764901
R350	80 Farrans Road Hazelwood South 3840	451837	5760903
R353	75 Thomson Road Hazelwood South 3840	452964	5761105
R359	–	452574	5764209
R360	–	452339	5764665
R383	–	453773	5764427
R384	–	452724	5760723

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Appendix B— Noise Contour Map

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Hazelwood East BESS
Predicted noise levels (including
tonality adjustment)

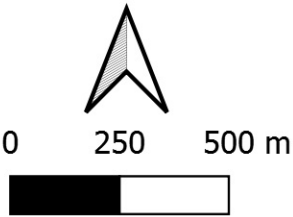
PROJECT NUMBER M250375
DRAWN BY SD
DATE ISSUED June 2026
CLIENT Voyager Energy
IMAGERY (c) Google

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Legend

- Receivers
 - BESS layout
 - Substation transformer
 - Site boundary
- Noise Level dB(A)
- 34 - 39 dB
 - 39 - 44 dB
 - 44 - 49 dB
 - 49 - 54 dB

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Datum WGS 84, Projection UTM ZONE 55