

CRITIQUE OF THE NSW ENERGY POLICY FRAMEWORK

The NSW Government is proposing a new policy framework for the assessment of large-scale solar and wind energy development and transmission infrastructure in NSW. The new policy framework provides several guidelines and documents pertaining to the assessment and management of wind energy, solar energy, and transmission infrastructure projects, as well as benefit-sharing and private agreements related to such projects.

Key guidelines and documents currently under public exhibition include:

- Draft Wind Energy Guideline, including the Technical Supplement for Noise Assessment;
- Draft Solar Energy Guideline;
- Draft Transmission Guideline;
- Draft Benefit-Sharing Guideline; and
- Draft Private Agreement Guideline.

This document has been prepared to highlight some of the key issues related to noise. For ease of reference, the headings below are titled based on the relevant guideline document and subsequent document heading, ordered as per the subject document.

Please contact us if you would like further information:

Alex Stoker	astoker@marshallday.com
Justin Adcock	jadcock@marshallday.com
Christophe Delaire	cdelaire@marshallday.com
Oskar Wesley-Smith	owesley-smith@marshallday.com

DRAFT WIND ENERGY GUIDELINE

SECTION 2.2.2 – REGIONAL CITIES – PAGE 13

Excerpt:

A development must be “located to avoid significant conflict with existing or approved residential or commercial uses of land surrounding the development”.

Comment:

- While noise is not specifically referenced, this requirement could be interpreted to apply to noise impacts.
- Noise from wind turbines is currently assessed to dwellings only, under the NSW Noise Assessment Bulletin
- Application of the above to noise impacts may require the assessment of noise to commercial receivers. This is a fundamental change from the current assessment method.

SECTION 2.4.3 – NETWORK CONNECTIONS AND TRANSMISSION LINES – PAGE 16

Excerpt:

Include network connection works as part of the SSD (state significant development) application (where possible)

“Environmental impacts of network connections, including the impacts associated with the construction of substations and above ground and underground infrastructure, should be included in the EIS. Additional approvals may be required for transmission lines”.

Comment:

- Transmission lines are typically excluded from assessment and subject to a specialist impact assessment independent from the primary wind farm planning submission.
- Incorporating assessment of noise impacts from transmission line into the general SSD application may significantly increase the complexity and extent of the noise assessment.
- The Draft Transmission Guideline indicates that *“an assessment of the construction, operational and road noise and vibration impacts of the transmission project is required”*.
- Operational noise associated with transmission lines is typically limited to corona noise (noise generated by the ionisation of air close to the transmission lines and conductors under certain meteorological conditions) and aeolian noise (wind induced noise).
- Prediction of these noise types is a complex and specialist task. There is no established Australian or International standard which defines a procedure for prediction. Additionally, noise emission data for transmission line cables is expected to be limited.
- Given the above a risk-based assessment is likely at planning stage.

SECTION 4.2 – PROCESS OF SITE-SELECTION AND PROJECT DESIGN – PAGE 22

Excerpt:

“Any projects proposed within 500 m of a passive recreation area will be required to consider additional measures for managing potential impacts, such as noise impacts on park visitors”.

Comment:

- 500 m is an arbitrary distance and does not provide a consistent level of amenity protection – the level of turbine noise at this distance will depend on turbine layout and type.
- Passive recreation area should be given a clear technical definition and not be left to interpretation.

SECTION 4.3 – MICRO-SITING AND ENVIRONMENTAL ENVELOPES – PAGE 23

Excerpt:

“Applicants must account for any variability in the siting of turbines in the EIS”.

“The applicant must assess the full effect of the highest impact scenarios within the development envelope and include these impacts in the EIS”.

Comment:

- Quantitatively assessing noise level variations for theoretical micro-siting permutations may lead to complex and unnecessarily onerous modelling requirements.
- Project layout changes during design development are normally addressed through repeat noise modelling to verify compliance with noise criteria.
- Establishing variations before all constraints have been established and mapped is not likely to be an efficient approach.

SECTION 5.2.1 – NOISE AND HEALTH – KEY PRINCIPLES – PAGE 30

Excerpt:

“Noise levels from wind energy projects should be minimised and must not exceed the higher of 35 dB(A) or the existing background noise level (LA90 (10 minute)) plus 5 dB(A)”.

“The noise assessment must consider any cumulative effects on affected residences, including noise from existing or proposed wind energy projects”.

“Noise levels must not exceed Leq 50 dB(A), at passive recreation areas within National Parks, when in use”.

Comment:

- The current NSW Noise Assessment Bulletin includes the following wording:

“Proponents of wind energy projects are required to consider the potential noise impacts of a wind energy project at all stages of the project, including during the site selection and project design phase, where the development should be designed to minimise noise impacts”.

This is subtly different to the new concept of minimising noise levels which is likely to be more onerous. The concept of minimising noise levels infers that efforts should be made to reduce noise levels in all cases, even if compliance with the noise criteria is demonstrated.

- Clarification would be useful on the concept of cumulative assessment – this was not previously required under the NSW Noise Assessment Bulletin.
- It is expected that cumulative noise from wind turbines would be considered under the Technical Supplement for Noise Assessment, and cumulative noise from ancillary components of nearby projects would be assessed separately under the Noise Policy for Industry.
- No reference or clarity is provided for the suitability of applying 50 dB L_{Aeq} to the assessment of wind turbine noise to passive recreation areas. This approach appears to align with passive recreation amenity noise levels detailed in Table 2.2 of the NSW EPA’s NPfi. The NPfi states that noise from wind energy generation is excluded from the policy.

SECTION 5.2.2 – NOISE AND HEALTH – ASSESSMENT – PAGE 30

Excerpt:

“The applicant must ensure that the noise generated by the project (including the wind turbines and any ancillary infrastructure including batteries), does not exceed the higher of 35 dB(A) or the existing background noise level (LA90 (10 minute)) plus 5 dB(A)”.

Comment:

- This wording and its associated intent require clarification. This infers that wind turbine noise and ancillary noise must be assessed cumulatively against the quoted noise levels. This wholly contradicts the guidance provided by the Technical Supplement for Noise Assessment, which requires separate assessment of ancillary infrastructure noise under the Noise Policy for Industry. It is critical that assessment direction is consistent through all policy documentation.

Excerpt:

“In the unlikely event that excessive or repeated low frequency noise is found to be a characteristic of the project, a 5 dB(A) noise penalty should be added to the predicted or measured noise level from the project”.

Comment:

- Low frequency noise is atypical for a modern wind turbine. Prediction and measurement of low frequency noise is subject to multiple technical challenges and high levels of uncertainty. Further commentary is provided under section *Draft Technical Supplement for Noise Assessment - Section 3.3 - Low Frequency Noise – Page 11*.

Excerpt:

“Applicants are required to regularly monitor noise levels during the construction, operation and decommissioning of a project to ensure that noise levels do not exceed these limits and address any community concerns in a timely manner”.

Comment:

- ‘Regularly’ should be appropriately defined to limit the potential for differing interpretations.

DRAFT TECHNICAL SUPPLEMENT FOR NOISE ASSESSMENT

GLOSSARY OF KEY TERMS – PAGE 4

Excerpt:

Decibel (dB)

“A measure of sound level. The decibel is a logarithmic way of describing a ratio. The ratio may be power, sound pressure, voltage, intensity or other parameters. In the case of sound pressure, it is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure squared to a reference sound pressure squared”.

Decibel (A-weighted; dB(A))

“Unit used to measure ‘A-weighted’ sound pressure levels. A-weighting is an adjustment made to sound-level measurement to approximate the response of the human ear”.

Decibel (C-weighted)

“C-weighting is an adjustment made to sound-level measurements that takes account of low-frequency components of noise within the audibility range of humans”.

Comment:

- ISO 1996-1:2016¹ defines basic quantities for the description of environmental noise and sets out appropriate standards of symbology. Per ISO 1996-1:2016, frequency weighting should be applied to the descriptor symbology, not the unit of measure i.e. XX dB L_{Aeq} not XX dB(A).
- Both A-weighting and C-weighting were developed to approximate the response of the human ear, albeit at different sound levels; A-weighting being low level (20 - 55 dB), and C-weighting being above 85 dB. They are designed to bring sound level meter readings to closer conformance to the relative perceived loudness of sounds. On this basis the definition used for A-weighting also applies to C-weighting.

Excerpt:

Residence

“A lawful and permanent structure erected in a land-use zone that permits residential use (or for which existing use rights under the EP&A Act apply) where a person/s permanently reside and is not, nor associated with, a commercial undertaking such as caretakers’ quarters, hotel, motel, transient holiday accommodation or caravan park”.

Comment:

- The Technical Supplement appears to use the term ‘dwellings’ (which is not defined in the glossary) and ‘residences’ interchangeably. The NSW Noise Assessment Bulletin refers solely to dwellings. A single definition should be used throughout the Technical Supplement document.
- The currently provided definition of ‘residence’ is specific, requiring permanent occupation, and excluding other receiver types in which sleeping typically occurs i.e. hotel, motel, etc. It is recognised that this generally aligns with the ethos adopted in the NPfI, which indicates a relaxation of 5 dB over typical residential amenity noise levels.
- The definition explicitly places intermittently occupied residences e.g. holiday homes, secondary residence, in a similar amenity category as hotels, motels etc. It also alludes to the concept that an unoccupied residence would be exempt from assessment. Whilst this appears to be an attempt to provide clarity on assessment for a developer and acoustic consultant, it would potentially constitute a change to the method by which assessments have previously been conducted. Under the NSW Noise Assessment Bulletin, in the absence of specific definition, all houses would typically be considered dwellings, regardless of occupation.
- Further clarity should be provided on this matter to avoid variations in interpretation.

¹ ISO 1996-1:2016 *Acoustics - Description, measurement and assessment of environmental noise - Part 1: Basic quantities and assessment procedures* <https://www.iso.org/obp/ui/#iso:std:iso:1996:-1:ed-3:v1:en>

SECTION 2 – ASSESSMENT FRAMEWORK – PAGE 6

Excerpt:

“The NSW Government has adopted the South Australian EPA’s Wind farms environmental noise guidelines (published in 2009 and updated in 2021) (the SA Guidelines) as the basis for assessing and managing noise from wind energy projects in NSW”.

Comment:

- The 2021 version of the SA Guidelines² is adopted. Similar to the NSW Noise Assessment Bulletin, the Technical Supplement does not explicitly incorporate any future updates to the SA Guidelines.
- This means that noise measurement data analysis is now based on wind speed binning, consistent with the methods discussed in International Standard IEC 61400–11³. This supersedes the regression analysis method adopted by the previous 2009 version of the SA Guidelines.

SECTION 2.1 – SCOPING AND PRELIMINARY ASSESSMENT – PAGE 6

Excerpt:

“As part of the project scoping stage, applicants should undertake an indicative noise impact assessment of noise levels expected at all receivers. The indicative noise assessment must be included in the Scoping Report and request for the Secretary’s Environmental Assessment”.

Comment:

- Clarity on whether scoping applies to wind turbine noise only (and not preliminary assessment of ancillary infrastructure e.g. battery energy storage facilities) would be beneficial.

SECTION 2.2 – ENVIRONMENTAL IMPACT STATEMENT – PAGE 7

Excerpt:

“A comparison of the predicted noise levels against the criterion at each integer wind speed for the most affected non-associated dwellings to the wind energy project that are expected to exceed 35 dB(A)”.

Comment:

- This infers a separate consideration of the ‘most affected’ non-associated dwellings (see previous item regarding consistency between dwellings and residences). Wording should be revised to clarify intent.
- The statement “*exceed 35 dB(A)*” may be prone to misinterpretation. It would be more accurate, and less prone to misinterpretation if more specific wording was used e.g. “*that are expected to experience noise levels higher than the 35 dB(A) base limit component of the criteria*”.
- Generally, the wider section does not mention assessment of ancillary infrastructure, construction noise or traffic.

SECTION 3.1 – NOISE LIMITS FOR RESIDENCES – PAGE 8

Excerpt:

“The predicted equivalent noise level (LAeq,10 minute), adjusted for tonality and low frequency noise in accordance with these guidelines, should not exceed 35 dB(A) or the background noise LA90(10 minute)) by more than 5 dB(A), whichever is the greater, at all relevant receivers for wind speed from cut-in to rated power of the wind turbine generator and each integer wind speed in between”.

Comment:

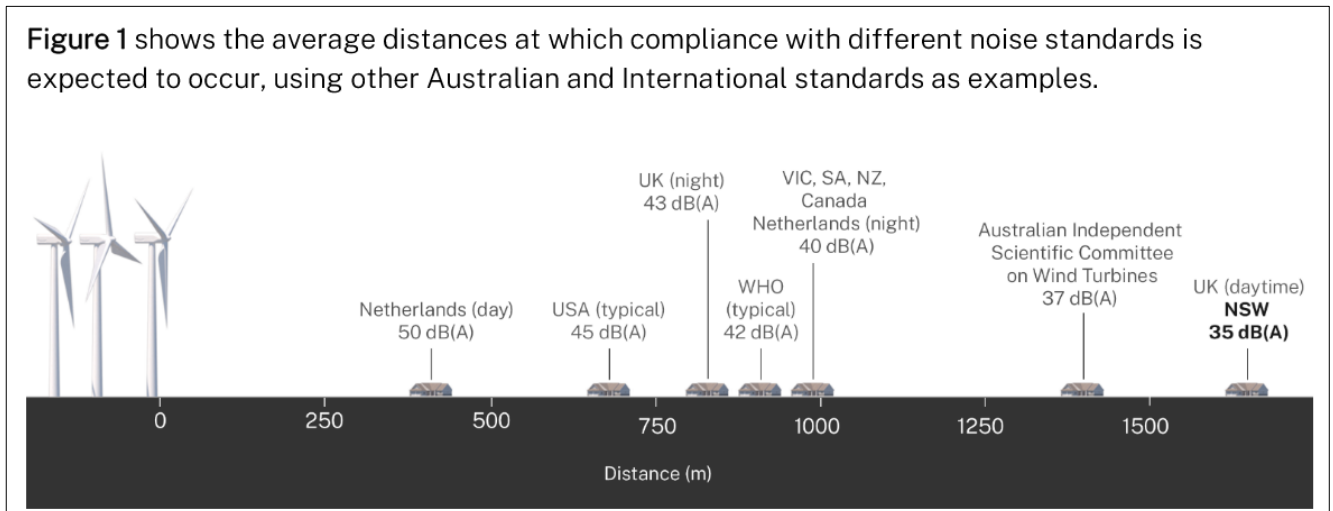
- The current wording could be misconstrued to understand that an adjustment for tonality and low frequency noise is required as a matter of course. The inclusion of ‘if required’ would reduce this risk.

² South Australian EPA *Wind farms environmental noise guidelines*, updated November 2021

³ IEC 61400-11:2012 *Wind turbines - Part 11: Acoustic noise measurement techniques*

SECTION 3.1 – FIGURE 1 – PAGE 9

Excerpt:



Comment:

- This image has been used in the current NSW Noise Assessment Bulletin but is questionable in that it potentially sets up false expectations – a predicted noise level of 35 dB L_{Aeq} can be achieved at distances much less than 1500 m depending on the wind turbine layout and type. The figure title should at least say that the actual distance where this level is achieved in practice can vary significantly according to site specific factors and the type of turbine being considered.
- Additionally, different jurisdictions often use different parameters and assessment methodologies and therefore cannot be compared in such a simplistic manner⁴.

SECTION 3.2 - NOISE LIMITS FOR OTHER LAND USES – PAGE 9

Excerpt:

"The predicted noise level, adjusted for tonality and low frequency noise in accordance with these guidelines, should not exceed L_{eq} 50 dB(A), at passive recreation areas within National Parks (when in use) for wind speed of 4m/s or cut-in speed, whichever is the greater".

Comment:

- This introduces specific consideration of national parks. The requirement for consideration of 4 m/s or cut in-speed means it is unclear if this applies at higher wind speeds as well.
- No clarity or referencing on the basis of applying 50 dB L_{Aeq} to the assessment of wind turbine noise to passive recreation. This appears to align with passive recreation amenity noise levels detailed in Table 2.2 of the NSW EPA's NPfl.
- No evidence is provided that amenity noise levels detailed in Table 2.2 of the NSW EPA's Noise Policy for Industry are suitable for the evaluation of wind turbine noise. Both the SA Guidelines and the NSW Noise Assessment Bulletin establish that noise from wind turbines is sufficiently different from typical industrial noise to warrant specific guidance, assessment requirements and noise criteria. Consequently reference to industrial noise policy i.e. Noise Policy for Industry, for evaluation of wind turbine noise is contradictory.
- The Noise Policy for Industry specifically states that noise from wind energy generation is excluded from the policy.

⁴ Koppen, E.; Fowler, K. *International Legislation for Wind Turbine Noise*; EuroNoise: Maastricht, The Netherlands, 2015 <https://www.conforg.fr/euronoise2015/proceedings/data/articles/000225.pdf>

Excerpt:

“This criterion will typically be achieved at setback distances of 500 metres”.

Comment:

- Compliance or otherwise at 500 m is highly dependent on wind turbine layout, wind turbine sound power level, hub height, topography, and several other factors.
- Setback distance is not a good basis for screening noise impacts. See earlier comments in section *Draft Wind Energy Guideline - Section 4.2 – Process of Site-Selection and Project Design – Page 22*.

Excerpt:

“It is rare that wind energy projects impact on other non-residential receivers. In cases where other sensitive receivers are impacted, then Table 2.2 of the NSW EPA Noise Policy for Industry can provide guidance on the acceptability of such noise to those receivers”.

Comment:

- Use of guidance is ambiguous and does not provide surety to a proponent. If noise criteria apply to non-residential receivers, then it should be clearly stated.
- No evidence is provided that amenity noise levels detailed in Table 2.2 of the NSW EPA’s Noise Policy for Industry are suitable for the evaluation of wind turbine noise. Both the SA Guidelines and the NSW Noise Assessment Bulletin establish that noise from wind turbines is sufficiently different from typical industrial noise to warrant specific guidance, assessment requirements and noise criteria. Consequently, reference to industrial noise policy i.e. Noise Policy for Industry, for evaluation of wind turbine noise is contradictory.
- The Noise Policy for Industry specifically states that noise from wind energy generation is excluded from the policy.

SECTION 3.3 - SPECIAL NOISE CHARACTERISTICS – PAGE 9

Excerpt:

“For consistency in NSW, assessment, prediction and compliance of tonality objectives should be undertaken in accordance with ISO 1996.2: 2017 Acoustics — Description, measurement and assessment of environmental noise — Part 2: Determination of sound pressure levels using measured or similar representative data. The survey method described in Annex K (comparison of 1/3rd octave levels) assessed at integer wind speeds provides an acceptable screening test”.

Comment:

- Annex K of ISO 1996.2:2017⁵ provides an objective test for the presence of a prominent third octave tone within a dataset. While the dataset may comprise measurements or noise level predictions by way of a recognised method of calculation such as ISO 9613-2:2024⁶ this should not be conflated with a prediction method for tonality and stating as such is likely to cause confusion.
- It should be noted that Annex K requires an evaluation of the frequency range 25 Hz to 10 kHz however most outdoor propagation calculation methods do not satisfy this full range.
- The ISO 1996.2:2017 survey method is not specifically suited to wind farm developments. A method based on one-third octave bands may not always detect perceptible tones from wind farm noise; this may mean that legitimate maintenance issues are not flagged
- It is important to note that the tonality assessment indicated in the NPfl is under ISO 1996-2:2007⁷ (not 2017). Further, the NPfl specifically requires an assessment of tonality considering unweighted or Z-weighted measurements. This is different to common practise in other states, and arguably the content of ISO 1996-2:2017 (the wording in this document is not helpful). The Technical Supplement does not indicate whether the precedent of adopting Z-weighted data, per the NPfl,

⁵ ISO 1996-2:2017 *Acoustics - Description, measurement and assessment of environmental noise - Part 2: Determination of sound pressure levels*

⁶ ISO 9613-2:2024 *Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors*

⁷ ISO 1996-2:2007 *Acoustics — Description, measurement and assessment of environmental noise — Part 2: Determination of environmental noise levels*

should be adopted. Consideration of A-weighted spectra is typical for wind turbine noise assessment. This could result in different tonality assessments for wind turbines compared to ancillary infrastructure, under the same standard, within the same submission.

Excerpt:

“Note: Narrow band analysis using the engineering method in ISO1996-2:2017, Annex J may be required by the consent / regulatory authority where it appears that a tone is not being adequately identified, for example where it appears that the tonal energy is at or close to the third octave band limits of contiguous bands”.

Comment:

- The trigger for narrow band analysis being based solely on instruction from the consent/regulatory authority seems impractical and/or unnecessarily restrictive.
- It would be prudent for any compliance study to include attended observations or listening checks by a suitably qualified acoustic engineer to determine if tones are a feature of the sound. If the attending engineer identifies these characteristics, and they are not evident with the third octave method, assessment should be based on narrow band.

SECTION 3.3 - LOW FREQUENCY NOISE – PAGE 11

Excerpt:

“In the unlikely event that excessive low frequency noise is found to be a repeated characteristic (i.e. noise from the wind project would be repeatedly greater than 60 dB(C)) of the wind turbine noise, 5 dB(A) should be added to the predicted or measured noise level from the wind energy project”.

Comment:

- This approach appears to, generally, be a carry through from the current NSW Noise Assessment Bulletin.
- The draft guideline acknowledges low frequency noise is present in all types of environmental noise and that measurement data supports that low frequency noise is typically not a significant feature of modern wind turbines.
- The chosen thresholds appear to have been derived from work largely related to combustion power plants⁸. Evidence to support these values as suitable thresholds for wind farms appears to be limited. Studies⁹ indirectly referred to by the draft guideline specifically indicate design limits or regulatory goals are not warranted for low frequency noise from wind farms and suggest higher values of 70 dB L_{Ceq}, if limits must be considered.
- A 5 dB penalty is proposed to be added to the measured or predicted noise level if the criterion is exceeded. However, the DEFRA document¹⁰, referenced in the NSW Noise Assessment Bulletin, is not specific to wind farms, and explicitly states that the proposed criterion should not be used as a definitive test for low frequency levels. Specifically, the DEFRA document states:

“It is, but rather in the sense of guidance to help determine whether a sound exists that might be expected to cause disturbance. Some degree of judgement is required by the EHO [Environmental Health Officer] is both desirable and necessary in deciding whether to class the situation as a nuisance and is likely to remain so. One of the main reasons is that, from the control cases, it is clear that problems do not necessarily arise when the criteria are exceeded. Indeed, we can conjecture that genuine LFN complaints occur only in a few such cases. Therefore, factors like local knowledge and understanding of the broader situation are likely to remain important aspects of the assessment. [...]”

Excerpt:

“However, at the discretion of the applicant, a more detailed assessment can be carried out to demonstrate that low frequency noise is not a repeated characteristic. This assessment must be undertaken using Fact Sheet C of the Noise Policy for Industry (NSW EPA, 2017). Minor modifications to this approach are required for wind energy projects”.

⁸ G.F. Hessler Jr., 2005, “Proposed criteria for low frequency industrial noise in residential communities”, J. Low Freq. Noise, Vib. Active Control 24(2), 97-105 <http://tinyurl.com/Hessler-2005>

⁹ Hessler D.M.& Hessler G.F., 2011, ‘Recommended noise level design goals and limits at residential receptors for wind turbine developments in the United States’, *Noise Control Engineering Journal*, 59(1), 94-104 <http://tinyurl.com/Hessler-2011>

¹⁰ Moorhouse A T, Waddington D C, Adams M. *Proposed criteria for the assessment of low frequency noise disturbance*. UK Department for Environment, Food and Rural Affairs; December 2011

Comment:

- Application of Fact Sheet C of the NPfl is not evidenced as being appropriate for wind turbine noise. The practicalities of acquiring noise data at these frequencies, and the accuracy of the measurements conducted to acquire the data, is limited.
- “*Minor modifications*” should be clearly defined with an associated method of application to reduce variation in interpretation.

SECTION 3.3 - PENALTIES FOR SPECIAL NOISE CHARACTERISTICS – PAGE 12

Excerpt:

“Typically, monitoring campaigns designed to identify special noise characteristics would be not greater than one week”.

Comment:

- If narrow band tonality requires investigation, monitoring periods of more than 1 week are normally needed to address intermittent tonality as these characteristics are typically highly dependent on wind conditions at the time of the survey.
- This item sets up false expectations with respect to how quickly a detailed tonality assessment can be completed.

SECTION 3.4 - NOISE FROM ANCILLARY SERVICES – PAGE 12

Excerpt:

“Noise from ancillary operation sources such as electrical substations and battery energy storage facilities should be assessed against the NSW Noise Policy for Industry”.

Comment:

- Comments within the main Wind Energy Guideline should align with this, as discussed in *Section 5.2.2 – Noise and Health – Assessment – Page 30*.

SECTION 4 – MANAGEMENT AND MITIGATION – PRIVATE AGREEMENTS – PAGE 12

Excerpt:

“Applicants commonly negotiate agreements with private land holders as a measure to manage impacts where noise limits may not be achievable. Where such an agreement is in place, the nature, extent and duration of the agreement will factor into the consent authority’s consideration of the assessment. Further information, including a template agreement and advice for landholders, can be found in the Draft Private Agreement Guideline (2023)”.

Comment:

- It would be useful to provide clarity with respect to the application of private agreements to ancillary noise assessment under the NPfl.
- The NPfl does not have an inherent mechanism recognising private agreements. The Technical Supplement for Noise Assessment should provide a clear indication whether a negotiated agreement with a private land holder can be implemented in a situation where noise limits applicable to ancillary infrastructure, such as battery energy storage systems, may not be achievable. This would establish a similar precedent to the management of wind turbine noise impacts.

SECTION 5 - NOISE MONITORING - USE OF ALTERNATIVE/INTERMEDIATE NOISE MONITORING LOCATIONS – PAGE 13

Excerpt:

“Where the use of an intermediate assessment location is proposed, a robust transfer function between the intermediate noise monitoring point and the sensitive receivers it represents needs to be established. Any intermediate noise monitoring locations should be identified in the site / project specific compliance assessment methodology required by conditions of consent along with details of the transfer function. Where possible, intermediate noise monitoring points should be at an easy to access public location. Such intermediate assessment locations provide regulators with the added benefit of being able to make their own indicative short-term measurements in response to complaints or queries”.

Comment:

- Additional guidance or clarity should be provided on how the transfer function should be documented. Is it sufficient to refer to noise contours and noise predictions? Current wording leaves significant room for interpretation which should be minimised.
- Easy to access public locations for intermediates is typically very unlikely (suitable/accessible locations are normally on private land).
- Significant security risks are associated with placing noise monitoring equipment in publicly accessible locations.

SECTION 5 - NOISE MONITORING - DURATION OF MONITORING – PAGE 13

Excerpt:

“Experience has shown that for some locations in NSW, the worst-case wind direction rarely occurs. Therefore, it may be impractical to collect 500 valid data points under the worst-case conditions. Consequently, data collection should continue for up to six weeks and the valid data collected in this period shall be deemed to be an acceptable quantity in terms of worst-case wind direction. However, 2,000 valid data points should be obtained in all cases as part of the noise assessment procedure undertaken to demonstrate that the operating wind energy project complies with the applicable noise criteria and the conditions of the consent”.

Comment:

- 6 weeks is often insufficient, particularly during high levels of insect noise. The viability of obtaining 500 valid data points may also be dependent on the time of year that the survey is conducted, particularly for sites with distinct differences in seasonal wind direction trends.
- Due to approval requirements mandating specific timelines for reporting, the time of the year at which noise surveys must be conducted is frequently inflexible. That means that surveys occur during periods in which environmental conditions are unfavourable. Some recognition of these considerations in the guidelines and approval requirements would be prudent.

Excerpt:

“Whilst the SA Guideline does not nominate a minimum number of data points, it is noted that International Standard IEC 61400-11 requires a minimum of 10 data points in a wind speed bin to form a valid assessment. NSW also adopts this requirement unless otherwise justified”.

Comment:

- Checking whether this is achieved prior to demobilisation of survey equipment introduces practical complexities and an extra stage of pre-retrieval interim analysis as remote access to measurement data is not available for many project sites.

SECTION 6 - HEALTH IMPACTS – PAGE 14

Excerpt:

“In 2018, the World Health Organization (WHO) released their Environmental noise guidelines for the European Region which comprised a suite of recommendations including “reducing noise levels produced by wind turbines below 45 dB Lden, as wind turbine noise above this level is associated with adverse health effects.” The WHO recommended level of Lden 45 dB(A) is a minimum of 3.5 dB higher than the base NSW criterion and would typically be expected to equate to a level measured in NSW of around Leq 42 – 50 dB(A)”.

Comment:

- The wording of this should carefully considered. MDA’s own research on this topic¹¹ suggests that a noise level of 40 dB LAeq would equate to 39 - 44 dB Lden, and a noise level of 35 dB LAeq would equate to 34 – 39 dB Lden. Importantly, in most cases, Lden was indicated to be higher than LAeq. Where Lden was lower it was evidenced as being by around 1 dB. This is much less than implied by the Draft Technical Supplement for Noise Assessment (which appears to indicate that Lden could be up to 5 dB lower than LAeq).

Excerpt:

“This work resulted in several publications including Wind turbine sound limits: Current status and recommendations based on mitigating noise annoyance (2018). This concludes that a level of LA90,10 min (equal to 37 dB), is an approximate maximum level of noise to which residents should be exposed”.

Comment:

- We are unable to draw the same conclusions from the quoted paper. Additional clarification for the basis of the conclusion should be provided.
- The current wording also appears to be partially complete, particularly with respect to the phrasing “a level of LA90,10 min (equal to 37 dB)”.
- Ultimately the current wording has a reasonable likelihood of being misconstrued and used to argue against wind farm noise limits that are set at levels higher than 37 dB when background noise levels are elevated. Importantly, the quoted paper provides the following additional statement “the present analysis recommends the use of background noise plus 5 dBA when this is greater than the applicable constant lower maximum limit” which should be included in this section for full transparency and context.

¹¹ Adcock J., Delaire C. WHO Environmental Noise Guidelines for the European Region: conditional recommendation for wind turbine noise in the context of Australian regulations; 8th International Meeting on Wind turbine Noise in Lisbon, June 2019 <https://www.marshallday.com/media/3104/wtn-2019-who-environmental-noise-guidelines-and-australian-regulations.pdf>

DRAFT PRIVATE AGREEMENT GUIDELINE

Generally much of this guideline lies outside of MDA's purview and area of expertise. Technical review of this guideline should be referred to a planning consultant or other discipline.

On the subject of noise, MDA expects that private agreements containing technical noise related items should be reviewed by a competent technical specialist such as an acoustic consultant, with noise related items being specific to a project and the pertinent issues for the proponent and subject landholder.