26 February 2021

Department of Environment, Land, Water and Planning
Lodged electronically: Engage Victoria; windfarmnoise@epa.vic.gov.au

Dear Department,

Changes to the regulation of wind farm noise in Victoria

We welcome the opportunity to provide feedback on the proposed package of regulations governing the management of wind farm noise in Victoria, which has been released by the Department of Environment, Land, Water and Planning (DELWP) for consultation.

The Clean Energy Council (CEC) is the peak body for the clean energy industry in Australia. We represent and work with over 800 of the leading businesses operating in and servicing the wind, solar, hydro, renewable hydrogen and energy storage sectors, and are committed to accelerating Australia's transition to a clean energy future.

With some of the oldest wind farms in Australia and the most wind farms of any state, Victoria is in many senses, the historic home of the wind industry in Australia. In the two decades since the wind sector began in Australia, at least 29 wind farms have been built and commissioned in the state. Individually and collectively, these wind farms today make a very significant and growing contribution to regional communities through local contracting, direct employment, community grants and benefit sharing programs.

Indeed, since just 2017, Victoria's wind industry has built, commenced construction or committed to over 3 GW of new wind farm capacity, worth almost $5 billion, and creating construction jobs for around 3,200 people.

We look forward to continuing to make a positive contribution to the communities in which we operate. The careful design and responsible operation of wind farms is part of the way in which our industry manages and minimises its impacts on communities. Wind farms are designed to comply with stringent noise standards which ensure they can achieve quiet operation for surrounding residences.

The CEC and our members acknowledge that a clear and explicit framework, which is consistent across all wind farms, can enhance confidence for industry that the settings they have in place will protect them from opportunistic legal challenges. The existing framework has allowed for the exploitation of loopholes in the noise management regime including the vagaries of the *Public Health and Wellbeing Act 2008* which has allowed findings of nuisance even where compliance with the New Zealand Standard and a project's planning permit conditions have been demonstrated. We therefore welcome the recent passing of legislation to remove wind farm noise as a possible source of 'noise nuisance' under the *Public Health & Wellbeing Act 2008.*

A clear framework will also benefit Victorian communities, by ensuring the risk of wind farm noise will be responsibly managed throughout the life of projects and that communities better understand operator's obligations.

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The development of an explicit framework will be particularly important with the introduction of the *Environment Protection Act 2017* which includes a requirement that businesses demonstrate compliance with the General Environmental Duty which aims to *'reduce the risk of harm from your activities to human health and the environment and from pollution or waste, as far as reasonably practicable'.*

Following consideration of the options set out within the Regulatory Impact Statement released as part of this consultation**, the CEC agrees that obligations for reducing the risks of noise emissions should be prescribed in new regulations (rather than through the permissions regime)**. We consider that new regulations will enhance the clarity and consistency of obligations placed on wind farm proponents and operators to demonstrate the responsible management of noise emissions from wind farms.

In transferring wind noise compliance obligations into direct regulations however, it is important to acknowledge that the underlying rationale for this change is the need for clarity for operators and communities. This review has not been driven by the need for more onerous regulations on the wind industry. The industry has been lobbying the Victorian Government for more than five years to seek a change to the compliance regime of wind farms, handing over the responsibilities for compliance monitoring from local councils to the EPA, which is better equipped to perform the role.

The industry considers that on the whole, the existing noise management framework in place today – with the New Zealand Standard the cornerstone of that framework – offers appropriate protection of neighbouring communities. Indeed, in his latest Annual Report for the 2019 calendar year, the National Wind Farm Commissioner noted that:

> *'…Most complaints were about proposed wind farms or wind farms under construction, with only five complaints about operating wind farms received during the year. The comparative data also shows significantly less concerns raised about health impacts and noise from wind turbines in 2019. Since the inception of the Office in 2015, the ongoing reduction of complaints reporting these issues indicates that these matters may no longer be a primary concern for many community members.' (pg.12)*

Within this context of very low levels of complaints relating to operating wind farms (5 across Australia) and wind farm noise (10 in Australia in 2019)[1], and a steady decline in these complaints over time, **there is no evidence-based justification for significant new noise compliance burdens to be placed on the Victorian wind industry**. Rather, **the fundamental purpose of the Victorian Government's regulatory review and the implementation of any new regulations should be to provide enhanced clarity** in relation to how noise emissions from wind farms are to be appropriately managed.

It is important that the prescribed regulations retain the fundamental principle of risk-based management practices. To assist businesses with interpreting their obligations under the GED to 'reduce the risk of harm', the Environment Protection Authority (EPA) released an industry guidance note in October 2020[2] which explained that '*"reasonably practicable" means putting in controls that are proportionate to the risk'*. This risk management approach is also seen in section 6(2) of the Act, which provides risk-based factors that must be considered when determining what is reasonably practicable:

(a) the likelihood of those risks eventuating;
(b) the degree of harm that would result if those risks eventuated;

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[1] Note: Noise complaints may have been raised about prospective as well as operating wind farms.

[2] Publication 1741.1 October 2020

(c) 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;
(d) the availability and suitability of ways to eliminate or reduce those risks; and
(e) the cost of eliminating or reducing those risks.

Adding further clarity to best practice regulatory design, the Victorian Government notes in its Guide to Regulation (2016) that regulation should be:

1. effective in addressing the underlying causes of harm
2. cost effective
3. proportionate to the harm or risk to the community
4. flexible to accommodate changes in technology, markets, risks and community views
5. consistent with the Government's priorities to enhance Victoria's liveability and growth in productivity and employment
6. consistent across Government to avoid unnecessary overlap and duplication
7. clear and easily understood by business and the community

In evaluating the Government's proposed regulatory package, the CEC finds that while some of the measures proposed are well-calibrated obligations (i.e.. post-construction noise assessments, noise management plans, annual statements), the requirement for mandatory, periodic noise assessments of all wind farms in the state does not meet the Government's own principles of best practice regulation, in that it is not cost-effective measure and it is not a proportionate response to the risks. Instead, it represents an untargeted, heavy-handed and arbitrary approach to environmental risk management, which does not efficiently address the underlying need to provide enhanced clarity to industry and community about the appropriate compliance regime.

In this submission, we provide a review of the proposed elements of the regulatory package, and outline how an amended package of regulations can provide the risk-based, noise management framework required to ensure that wind energy facilities appropriately manage their risks and obligations in their host communities.

A summary table outlining the CEC's high-level responses to the list of regulations/measures proposed can be found in Appendix 1.

1. Wind farms are designed and managed to be quiet neighbours

The New Zealand Standard designs out harmful noise emissions from year zero

Wind farms are designed to be quiet neighbours. Under the New Zealand (NZ) Standard 6808:2010 (and 6808:1998 for older wind farms) which is the relevant noise standard for wind farms operating in Victoria, wind farms are required to adhere to stringent noise limits. Specifically, they should not exceed the background sound level by more than 5 decibels (dB), or a level of 40 dB $L_{A90(10\ min)}$[3], whichever is the greater. Further, for "high amenity" locations, a more stringent standard is applied whereby the sound from the wind farm during the evening and night-time should not exceed the background sound level by more than 5 dB or a level of 35 dB $L_{A90(10\ min)}$, whichever is the greater.

To place these limits in context, 40 dB is typical of a quiet residential area with only light traffic and natural sounds such as the wind in the trees. By contrast, sound levels alongside an urban road would typically be between 60 to 70 dB during the day and around 50 to 60 dB at night[4].

[3] The A-frequency-weighted L90 centile level (expressed as LA90(10 min)) is the metric used in the Standard for wind farm sound. This metric avoids sound measurements being dominated by sound levels only present for a small part of the time and reduces contamination by the sound of wind on the microphone when levels are being measured.
[4] New Zealand Wind Energy Association

Compliance is confirmed through the post-construction assessment

An important aspect of wind farm planning and design is the specialised modelling that takes place in the early design phase to ensure that the proposed wind farm will be able to operate in accordance with these stringent standards for the local context. This matter is considered at length when planning applications are assessed, and the ability to comply with the relevant NZ standard is a condition of the planning permit for projects that are approved. Wind farm operators must then demonstrate that the wind farm is operating in accordance with these noise standards following commissioning ('post construction noise assessment'). Since 2018, the results of this post-construction noise assessment have typically been subject to a further peer review by an EPA-accredited acoustician. We note that these requirements are also provided for in DELWP's *Policy and Planning Guidelines for the Development of Wind Energy Facilities*, which many wind farms took up voluntarily, indicating the positive attitude that wind energy operators have towards post-construction assessments.

Wind farms are very valuable assets and they are continuously monitored and maintained

Modern day wind farms are typically designed to operate for 20-30 years. Over that time, there is no inherent reason why wind farms would become more noisy. These assets, which are typically valued in the hundreds of millions or even billions of dollars in capital value, are monitored around the clock by control centres. The turbines are subject to a continuous maintenance program, typically by a crew of wind turbine technicians who are on-site on a daily basis to implement a systematic maintenance regime to maintain the efficiency, productivity and optimal performance of the wind turbines.

With such a high degree of monitoring and maintenance, wind farms are well placed to be responsive to any unexpected mechanical failures which could produce increased noise emissions.

All wind conditions and directions including exceptional wind conditions are modelled in the design phase and assessed in the post-construction noise assessment, with obligations placed on the operator to ensure that the wind farms operate in accordance with the NZ Standard.

The key question that DELWP, the EPA and Deloitte Consulting have considered in the preparation of the Regulatory Impact Statement is in summary 'how can wind farms demonstrate that they are in fact complying with their obligations to minimise environmental risks?'.

The CEC submits that there are ways of demonstrating this proper management without the need for an arbitrary five-yearly noise assessment.

Noise Management Plans and Complaints Management Plans require wind farms to manage risks and be responsive

A Noise Management Plan is an appropriate place for the wind farm operator to identify any higher-risk locations in terms of noise emissions and to identify the plan for mitigating these risks. A Noise Management Plan should also articulate the procedures for addressing potential compliance risks and responding to complaints.

The conditions of most wind farm planning permits (and all permits more recently approved) require the preparation, endorsement (i.e. by the Minister for Planning or local Council) and implementation of a Noise Complaints Test Plan (NCTP) and a Complaints Management Plan (CMP). Typically these documents will satisfy the requirements and intent of the Noise Management Plan. These documents also typically contain obligations associated with investigating noise complaints and implementing any associated noise remediation/mitigation measures.

As such the CEC supports the preparation of Noise Management Plans however it must be recognised that existing endorsed NCTP and CMPs exist at almost all Victorian wind farms. Where these endorsed documents are in place, it should be clear that the Noise Management Plan can simply refer to the previously endorsed document. This approach will avoid duplication and also

the risk of inconsistency and uncertainty associated with having to comply with two separate documents.

The basis and underlying principle of the NZ Standard is that it prevents human health impacts. On this basis, the CEC opposes proposed Regulation 131D (2) (a) which puts the onus on wind operators to the identify and assess the risks of harm to human health from wind turbines at each asset within their Noise Management Plan. There has been extensive literature and scientific evidence that consistently finds that there is no evidence that wind farms that comply with their required noise standards cause health impacts. The Australian Medical Association released a position statement in 2014 stating categorically that *'the available Australian and international evidence does not support the view that the infrasound or low frequency sound generated by wind farms, as they are currently regulated in Australia, causes adverse health effects on populations residing in their vicinity.'*[5]

The proposed Annual Statement is an appropriate new mechanism for compliance reporting

The requirement for active management of risks through the Noise Management Plan is complemented by the Government's proposal for an Annual Statement, which is additional to the standard requirements in place for wind farm operators today. Although this mechanism appears simple, we believe that it will prove a powerful requirement, requiring operators to provide an annual statement regarding complaints management, maintenance activities and as to whether they have operated their wind farm in accordance with the required operating modes. Such a statement could be audited by the regulator where relevant through a review of the SCADA logs, which keep track of operation modes of turbines within different wind conditions.

We support the proposal for the Statement to include records of potential non-compliance events and follow-up action taken, an overview of the maintenance regime in operation (rather than detailed maintenance records which could routinely number in hundreds of pages), any unscheduled servicing events, and details of any complaints received regarding wind turbine noise.

The CEC considers that the four pillars outlined above – (1) A wind farm designed to comply with the NZ Standard, (2) A post-construction noise assessment which confirms that the wind farm operates in compliance with the standard, (3) Provision and implementation of Noise and Complaints Management Plans, and (4) Provision of an Annual Statement outlining the wind farm's performance – represents an appropriate package of regulations for the risk-based management of noise emissions. This is because it places the onus on the operator to demonstrate that they are actively managing their risks and to regularly report on their performance, which is backed up by powers for the EPA to investigate complaints or request further follow-up action by the operator at any time under the *Environment Protection Act 2017.*

2. The proposal for periodic, five-yearly noise assessments is excessive and unnecessary

With a robust framework already in place, and very low levels of community concern relating to wind farm noise, the CEC considers that the proposal for mandatory five-yearly testing of wind farms in Victoria is excessive, arbitrary, expensive, and unlikely to provide meaningful improvements in community confidence in the continuous compliance of wind farms.

The approved wind farm noise testing methodology is complex and costly

Under the New Zealand Standard noise limits are calculated based on 'background noise levels' plus 5 dbA. Therefore, for a noise assessment to be undertaken post-construction which complies strictly with the New Zealand standard it must either:

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[5] https://ama.com.au/position-statement/wind-farms-and-health-2014

1) Turn turbines off and measure for a minimum of two weeks, but typically between 4-6 weeks to ensure background noise levels at receivers across a full range of wind speeds and directions are established, or

2) Involve an 'attended on/off test' which involves turning wind turbines on and off repeatedly over several weeks to re-establish background noise levels at receivers.

Either approach is very expensive if background noise levels are required to be re-established post construction. Revenue losses are likely to be significant. Were a 100 MW wind farm to be required to turn off for a full six weeks, we estimate that it could cost the wind farm in excess of $2 million in lost electricity generation revenue[6]. If attended on-off tests are undertaken to reduce lost revenue, this is very labour intensive and costly.

No other testing methodology is explicitly allowed for within the New Zealand Standard. Intermediate testing is not excluded under the New Zealand standard however it is also not explicitly allowed. As such, even if the testing regime proposed as part of the Regulatory Impact Statement is accepted, it is submitted that the resulting assessment report which has not re-established background noise levels may be exposed to litigation or enforcement action from third parties.

The Regulatory Impact Statement advises that the highly resource-intensive assessment option of 'an attended on/off test' will not be required for the proposed periodic testing regime, on the basis that background noise levels are "unlikely" to change over the 25 years post-construction, allowing the wind farm to run a simpler, less costly two-week test every five years. This claim is misleading and incorrect. Wind farm operators and wind farm acousticians consulted by the CEC confirm that it is not uncommon for background noise levels at dwellings/sensitive receivers to change, and in fact they often increase over a period of years:

> *"Based on our experience, and considering the typical contributing sources…it is relatively common for background noise levels to change between noise monitoring periods at a given location. In some cases, the changes may be limited to specific wind speeds, but in other cases the changes may occur more broadly across the entire wind speed range."*
>
> *-Tom Evans, Technical Director, Resonate Consultants*
> *(See the full letter from Resonate Consultants at Appendix 2)*

This will mean operators will be commonly required to conduct on/off background noise testing at dwellings in order to confirm that increased noise readings recorded at those locations are occurring at the receiver location as opposed to the wind energy facility.

The Regulatory Impact Statement assumes that this periodic test would only take two weeks. While the New Zealand Standard does generally require at least ten days of data, suggesting that two weeks would be enough, in practice acousticians will generally need to collect data over a longer period. Accordingly, it is not uncommon for these tests to take between 4-6 weeks depending on what is required by the acoustician to gather data in a sufficient range of wind conditions.

Notwithstanding that the CEC considers a blanket, five-yearly testing regime to be heavy-handed regulation, the CEC recommends that the Victorian Government should ultimately articulate through regulation, and/or supporting regulatory instruments (eg. a Compliance Code made under Part 5.3 of the Environment Protection Act) that in the event that the EPA requires additional noise monitoring following completion of the post-construction noise monitoring, that the use of monitoring at intermediate locations is an acceptable methodology. This is the approach taken in

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[6] Assumes the wind farm operates at 35 per cent capacity and earns $60/MWh or electricity. The revenue losses would be significantly higher were the wind farm exposed to higher electricity market prices.

NSW where the South Australian Standard which is applied to pre- and post-construction assessment is varied by the NSW Government for subsequent testing (see its *Wind Energy: Noise Assessment Bulletin*[7]), to specifically allow for intermediate testing. We also note that the EPA Victoria *Noise Protocol*[8] supports this approach.

The CEC would welcome the opportunity to work with the Victorian Government to develop practical guidelines to provide further detail regarding the implementation of the Regulations. This could include information about possible triggers for the EPA issuing a Notice of Investigation, as well as alternative acceptable noise assessment methodologies when interim testing may be required.

The proposal for whole of wind farm testing for every wind farm, every five years, is not risk-based

In addition to the CEC's concerns about the costs associated with the proposal for periodic testing, we are also concerned that it fails to uphold the principle of risk-based environmental management in two other important aspects.

Firstly, it assumes that all wind farms in the state are equally at risk of exceeding noise standards. This does not account for the fact that some wind farms may be in very remote locations with no or very few residences/sensitive receptors surrounding the facility.

Secondly, it assumes that there are risks of excessive noise from the whole wind farm, whereas there may only be elevated risks at one or a few specific turbines which are closer to neighbouring residences. It would be excessive for an entire wind farm's noise emissions to be tested if there was in fact just one higher-risk location.

Again, in this way, the proposal for periodic testing does not uphold the principle of proportionality.

In our closing comments in relation to the proposal for periodic noise assessments, we note that if the Victorian Government were to proceed with such a measure it would be the first jurisdiction in Australia, and to our knowledge – the world – to implement such a requirement. Many other states in Australia have a General Environmental Duty in place, but none of them has a requirement for periodic noise testing. Victoria would become one of the most difficult jurisdictions in the world in which to operate some of the planet's cheapest renewable energy resource. The CEC does not consider that such a mantle would enhance the attractiveness of Victoria for renewable energy investors.

3. Transitional arrangements will need to be in place for 1 July

At present, there is no information available regarding any complementary reform to the *Planning & Environment Act 1987* in order to clarify which Act or regulations should take primacy with regards to the assessment, reporting and enforcement requirements that will apply under the two separate regulatory regimes. We note for example that as of 1 July 2021, when the proposed new Regulations are expected to take effect, unless the complementary planning reform has occurred, operators will have to continue to have to comply with existing planning permit conditions and endorsed documents including:

- Complaints Management Plans (which typically comply with very specific permit condition requirements and address not just noise complaints, but complaints related to any matters)
- Noise Compliance Test Plans
- Reporting and testing timeframes that will be inconsistent with the reporting timeframes required by the proposed Regulations

[7] https://www.planning.nsw.gov.au/-/media/Files/DPE/Bulletins-and-Community-Updates/wind-energy-noise-assessment-bulletin-2016-12.pdf
[8] https://www.epa.vic.gov.au/-/media/epa/files/publications/1826-2.pdf, see Part B, page 16

This will require urgent attention if the regulations are to proceed, in order to avoid overlap, inconsistencies, and operator and community uncertainty. In the meantime, transitional arrangements are likely to be required in order to provide interim clarity to operators and interested stakeholders.

4. Enhancing the pool of acoustical expertise in Victoria

With a large and growing wind industry, and the need for access to a suitably qualified and experienced pool of acousticians to conduct wind farm noise modelling, post-construction noise assessments and then independent peer-review audits, Victoria will need to promote the growth of the skills base within the state.

At the present time there is a small pool of qualified acousticians to carry out testing, which shrinks even further when another consultant is required to conduct an independent audit of a noise assessment.

Access to suitable expertise is an issue which will also face the EPA as it assumes the responsibility as the state's regulator of wind farm compliance from 1 July 2021. We recommend that the State Government invests in building the EPA's team of skilled acoustical experts who will be able to appropriately monitor and enforce the state's noise regulations for the wind sector. We also recommend that the regulations allow, with EPA approval, a suitably qualified independent acoustician to conduct the independent audit of a noise assessment, with the consent of the EPA. This would allow for alternative resourcing in cases where the EPA's pool of statutory auditors do not have the capacity or correct skills mix.

5. Refinement of proposed regulations

It is critical that the wording of the final Regulations is clearly drafted in order to provide clarity to all stakeholders. We note that some sections of the current drafting would benefit from review and tightening. In finalising the Draft Regulations in the coming weeks and months, the CEC strongly encourages DELWP to engage with the CEC's Wind Noise Working Group in order to ensure that the obligations placed on the industry are clearly defined to support the underlying intent.

Conclusion

The CEC supports the Victorian Government's Option 1 under the Regulatory Impact Statement to move obligations for wind noise compliance into direct regulations under the *Environment Protection Act (2017).*

The underlying rationale for developing these new regulations is to enhance the clarity for industry and communities about how wind energy facilities should appropriately manage their risks and obligations in their host communities under the General Environmental Duty, so as to avoid uncertainty, conflict and legal challenges to wind farms operating in accordance with their planning permits. The transition to regulations should not be used as an opportunity to place additional onerous, costly and disproportionate compliance measures on Victoria's wind industry.

There is no evidence to suggest that wind farm noise is a significant community concern and the industry does not support the introduction of mandatory, periodic noise assessments which would expose the industry to tremendous cost and uncertainty, and which would be out of step with Victoria's commitment to targeted, cost-effective and proportionate regulation. Such a move would make Victoria the only jurisdiction in the country and indeed the world to pursue such an onerous testing burden, and would make the state an expensive and unattractive investment destination, putting at risk the state's renewable energy targets.

The CEC considers that the following four elements constitute a responsible and proportionate wind noise compliance regime:

1. Wind farm compliance with the NZ Standard
2. A post-construction noise assessment which confirms that the wind farm operates in compliance with the Standard
3. Provision and implementation of Noise and Complaints Management Plans, and
4. Provision of an Annual Statement outlining the wind farm's ongoing performance.

Thank you for the opportunity to provide this feedback on the package and we look forward to working with the Victorian Government to ensure that the Victorian wind industry can go from strength to strength with smart, targeted and efficient regulation for wind noise management and compliance.

Please don't hesitate to contact me at afreeman@cleanenergycouncil.org.au or on 0417 033 752 should you wish to discuss this matter further.

Yours sincerely,

Anna Freeman
Policy Director – Energy Generation

Appendix 1 – Summary of CEC's response to the proposed regulations

Item prescribed	Proposed regulations	CEC response
Prediction, measurement and assessment	A wind turbine noise assessment must be undertaken by a qualified acoustic consultant or practitioner in accordance with the NZ Standard and be accompanied by a report by an environmental auditor that verifies the noise assessment is in accordance with the NZ Standard.	The CEC supports this measure, which is in line with existing requirements. The CEC recommends that the Victorian Government should however, also consider explicitly articulating alternative acceptable testing methodologies to complement the New Zealand Standard, potentially through supporting guidelines.
Post construction noise assessment	An operator of a wind energy facility that commences operation on or after 1 July 2021 must ensure that a post-construction noise assessment for the facility is conducted— (a) within 12 months of the commencement of operation of the facility; or (b) in the case of a facility that commences operation in stages as set out in the planning permit or other authorising document under the Planning and Environment Act 1987, within 12 months of each stage being completed. A post-construction noise assessment must— (a) be conducted in accordance with NZS 6808:2010 by a suitably qualified and experienced acoustical engineer; and (b) demonstrate whether or not the facility complies with the noise limits determined in accordance with NZS 6808:2010; and (c) for the purposes of paragraph (b), use the pre-construction background sound level determined in accordance with the relevant noise standard. The operator must— (a) arrange for an environmental auditor to prepare a report verifying that the noise assessment has been conducted in accordance with NZS 6808:2010; and (b) ensure that a report of the post-construction noise assessment is prepared. The operator must give a copy of each report prepared under subregulation (3) to the Authority within 10 business days of the report being completed. —	Broadly agreed, with minor suggested text modifications to improve the clarity of assessment timing, applicability and noise standard. In particular, we suggest that the test be required to be conducted 'within 12 months of commissioning of the last turbine being operational', for greater clarity.
Noise Management Plan	A noise management plan for a wind energy facility must include procedures for: a) the identification, assessment and control of risks of harm to human health and the environment from wind turbine noise at the wind energy facility; and b) assessing compliance with the noise limits determined in accordance with the relevant noise standard for the wind energy facility; and c) addressing any complaints about wind turbine noise received by the operator, including who will investigate the complaint and respond to the complainant; and	The CEC supports the requirement for a Noise Management Plan, which is generally consistent with planning conditions for existing wind farms. The components of this Noise Management Plan should include: a) Identification of any high-risk noise locations for a wind farm

	d) reducing wind turbine noise in the event non-compliance with the noise limits determined in accordance with the relevant noise standard is detected at the facility.	b) Complaints management plan, including complaints procedures c) Noise compliance test plan d) Noise remediation plan It should be recognised that the Noise Management Plan may incorporate documents that have already been endorsed under a planning permit (e.g – such as a noise compliance test plan). The CEC does not support the inclusion of Regulation 131D (2) (a). It is not appropriate to ask operators to articulate on risks to human health when the underlying premise of the Victorian Government's regulatory framework must be that compliance with the New Zealand standard provides for protection of human health.
Unreasonable noise	Wind turbine noise is unreasonable noise if it exceeds the noise limits determined in accordance with the relevant noise standard.	The CEC considers that the regulations should be established so that compliance with specified requirements fulfils a wind farm operator's duty not to cause unreasonable noise, both in the 'quantitative' sense (ie. limb (b) of the definition of unreasonable noise) and in the 'qualitative' sense (limb (a) of the definition of unreasonable noise). Section 466 of the Act allows for the creation of regulations that provide for how a duty or obligation can be fulfilled, such that compliance with those regulations deems compliance with that duty or obligation. The regulations should provide that if a wind farm complies with the requirements of these Regulations, it is deemed to have complied with the Act's unreasonable noise regime in full.

Item prescribed	Proposed regulations	CEC response
Annual Statement	A statement under this regulation must include the following information for the previous financial year— a) details of any complaints concerning wind turbine noise received by the operator and how the complaints (if any) were addressed; b) evidence that the turbine operating modes complied with any requirements contained in facility's planning permit or other authorising document under the Planning and Environment Act 1987; c) details of maintenance activities undertaken (including any unscheduled servicing events); d) details of any noise remediation actions undertaken; e) evidence demonstrating the wind energy facility has not contravened the relevant noise standard	The CEC supports the requirement for an Annual Statement by the wind farm to report on its responsible and responsive management of risks over the course of the preceding year. The components of this Annual Statement should include: a) A statement outlining whether the wind farm complied with the consented turbine operating modes b) Records of potential non-compliance events and follow-up action taken. c) An overview of the maintenance regime in operation, and any unscheduled servicing events d) Details of any complaints received regarding wind turbine noise. The CEC recommends deletion of part e) of this clause as it is likely to be interpreted by some third parties as necessitating annual noise monitoring campaigns. We submit that parts a) to d) of Regulation 131E, alongside the facility's previous post construction noise monitoring report, are all that an operator should be reasonably expected to provide on an annual basis. The inclusion of part e) will provide for litigants to seek annual noise monitoring testing and will frequently necessitate operators to respond to spurious legal actions.
Periodic Noise Assessments	An operator of a wind energy facility other than a facility described in sub-regulation must ensure that a noise assessment for the facility is conducted within 3 months of the fifth anniversary of the facility, or each of the stages of the facility, commencing operation and every subsequent 5 years. A noise assessment under this regulation must— a) be conducted in accordance with the relevant noise standard by suitably qualified and experienced acoustical engineer; and b) demonstrate whether or not the facility complies with the noise limits determined in accordance with the relevant noise standard. The operator must— (a) arrange for an environmental auditor to prepare a report verifying that the noise assessment has been conducted in accordance with the relevant noise standard; and (b) prepare a report of the noise assessment. The operator must give a copy of each report prepared under subregulation (4) to the Authority on request.	The CEC does not support a requirement for mandatory, five-yearly noise testing of wind energy facilities on the basis that this blanket regulation does not align with the risk-based and proportionate principles of the General Environmental Duty. A smarter, more efficient and targeted framework is to ensure that the operator meets its obligations to respond to noise issues/complaints promptly as they arise and takes any necessary action as required. The EPA retains an ability to require noise monitoring of a wind energy facility under Part 10 of the new Environment Protection Act (Notices), including section 273 (notice to investigate). Furthermore, it must be recognised that the testing regime proposed is based on the incorrect assumption that

		background noise levels at receivers will rarely change or increase. As such the testing regime proposed will not operate as intended and will frequently lead to on-off testing being required. To the extent that there is a justified need for an ad-hoc noise testing of a wind energy facility, the EPA has the power to issue a notice to investigate requiring an operator of a wind energy facility to conduct noise monitoring under section 273 of the Act.

Appendix 2 – Expert advice on background noise

Resonate

Acoustics • Air Quality • EMF • Light Spill • Vibration

Thursday, 25 February 2021

Reference: *Changes to the regulation of wind farm noise* – Response to CEC regarding background noise near wind farms

Anna Freeman
Policy Director – Energy Generation
Clean Energy Council
Level 15, 222 Exhibition Street, Melbourne VIC 3000

Dear Anna,

Proposed changes to wind farm noise regulation
Response to CEC regarding background noise near wind farms

As requested, we provide comment on the potential for background noise at monitoring locations near wind farms to change between noise survey periods. We understand that your query is in relation to the proposed requirement for Victorian wind farm operators to undertake periodic noise tests at their sites every five years under the Exposure Draft *Environment Protection Amendment Regulations 2021*.

Our commentary is provided based on our experience in measuring both background noise and wind farm noise at numerous locations near wind farms around Victoria, employing the noise measurement and analysis methodologies from NSZ 6808:1998[1] and NZS 6808:2010.[2] These methodologies relate background noise at a measurement location to wind speed measured at or around the wind farm site. For wind speeds where the background noise level is 35 dB or above, then the applicable noise limit for the wind farm is set at 5 dB above the background noise level.

The NZS 6808 wind farm noise compliance assessment process requires that post-construction noise monitoring survey results be compared to pre-construction survey results. It is not possible to remeasure the background noise without shutting the wind farm down during a post-construction noise monitoring survey, so the NZS 6808 process essentially assumes that background noise levels remain consistent between the pre-construction and post-construction survey periods. Where this assumption is incorrect and background noise levels have changed, however, the accuracy of the NZS 6808 process in determining the wind farm noise level will be restricted.

In cases where the background noise level changes by 5 dB or more at a particular wind speed between survey periods, then the measured post-construction noise levels may appear to be above the applicable noise limit that was determined on the basis of the original pre-construction noise levels, regardless of any contribution from the wind farm itself. In other words, increases in background noise levels between survey periods at a noise-sensitive location can significantly limit the effectiveness of the NZS 6808 measurement methodology to assess compliance based on measurements at that location.

Background noise levels at locations near wind farms are normally controlled by local sources. Given the rural nature of most sites near wind farms, background noise is typically controlled by wind through local vegetation around the monitoring location. The higher the wind speed, the higher the background noise level from this source. Depending on the site, localised human activity sources, such as mechanical equipment or farming activities, or more distant sources, such as surf noise, may also contribute to the background noise level.

Based on our experience, and considering the typical contributing sources above, it is relatively common for background noise levels to change between noise monitoring periods at a given location. In some cases, the changes may be limited to specific wind speeds, but in other cases the changes may occur more broadly across the entire wind speed range.

We have observed that the following factors can contribute to these changes:

- **Vegetation change or growth.** As wind through local vegetation is a major source of background noise, changes in or growth of vegetation (e.g. longer grass / leaves) contributes to changes in background noise.
- **Seasonal changes.** Seasonal changes may contribute to changes in background noise due to differences in the density of vegetation with season and due to changes in a site wind profile at different times of year.
- **Other local changes.** The introduction of new local noise sources, such as air conditioners or pumps, can change the background noise at a measurement position.
- **Location changes**. Even relatively small changes in measurement position can change the background noise level, due to the distance to local sources of background noise changing. For example, while shifting a measurement position by as little 10 m may result in a negligible change in wind turbine level, given the significant distance to the wind farm, it can shift the measurement position considerably closer to local vegetation resulting in a marked change in background noise.

In our experience, one or more of these factors can contribute to marked changes in background noise over periods of less than five years and it is possible for these changes to be in the order of 5 dB for particular wind speeds. Additionally, as a number of the factors identified above relate to changes in the local environment associated with the passage of time, it is logical to conclude that changes in background noise for a particular location could increase in magnitude over periods of 10, 15 or 20 years.

Please do not hesitate to contact the undersigned if you have any questions on the above.

Yours sincerely,

Tom Evans
Technical Director