



## **Minutes – Delburn Wind Farm Community and Stakeholder Consultative Committee Meeting 6**

**30/08/2021**

**Zoom meeting**

**5:00-7:00pm**

Attendees:

- Anthony Boxshall (Chair)
- Graeme Wilson (Delburn)
- Trevor Hoare (SSF)
- Ian Hill (Landcare Network)
- Lorraine Bull (GCCN)
- Peter Mooney (GTLC)
- Hugh Thompson (HVP)
- Elizabeth Radcliffe (OSMI)
- Ruth Harper (Secretariat)
- Stacey Clark (Observer, EPA)
- Daryl Marks (Landcare, observer)

Apologies: Tony Wolfe (Coal Industry Worker), Chris Milne (Boolarra), Cathryn Thompson (SSF), Wendy Farmer (Voices of the Valley), Matt Ryan (Observer), Heather Butler (Mirboo North), Charlie Solomon (GLaWAC), Rhain Bateman (WGCMA), Mike Timpano (LVA).

### **Minutes**

#### **Agenda Item 1: Welcomes, aims for tonight**

The Chair opened the meeting by acknowledging the traditional owners of the lands that we were meeting on, being various and including Gunaikurnai and Wauthurong, and paid his respects to their elders past, present and emerging.

The Chair revisited his expectations in relation to interactions within the committee. The Chair reviewed the purpose of the meeting – to update Committee members on the planning process, and to discuss wind farm noise and health implications related to wind farm noise.

#### **Agenda item 2: Introduction, Observers and Conflicts of Interest**

The Chair welcomed all participants and introduced Daryl Marks from the local Landcare network.

No Conflicts of Interest were declared.

#### **Agenda item 3: Review of Actions arising from last meeting**

There were no new actions arising. The Chair reminded members of the rolling actions.

#### **Agenda item 4: Update on planning**

It was noted that the public exhibition and statutory comment period has ended. DELWP received 718 submissions on the project, 689 public submissions and some statutory referrals. 430 of the public submissions were supportive and 279 objections.



It was asked where the public can access the submissions for viewing as they are usually available in the DELWP head office. Due to Covid restrictions, anyone wishing to view the submissions should request an electronic copy from DELWP at [development.approvals@delwp.vic.gov.au](mailto:development.approvals@delwp.vic.gov.au)

There was a discussion regarding the CFA submission as a referral authority. The Chief Officer provides the official CFA submission. Local brigades are asked to not submit on behalf of CFA, but individual CFA members are permitted to provide individual submissions.

It was asked who all the statutory referrals were. They are as listed below:

- Air Services Australia
- APA (Australian Pipelines Authority)
- CASA (Civic Aviation Safety Authority)
- CFA (Country Fire Authority)
- DELWP Pipeline Regulator
- Department of Transport
- EMV (Emergency Management Victoria)
- EnergySafe
- ERR (Earth Resources Regulation)
- EPA (Environmental Protection Authority)
- Latrobe City Council
- South Gippsland Shire Council
- Baw Baw Shire Council
- GLaWAC (Gunai Kurnai Land and Waters Aboriginal Corporation)
- WGCMA (West Gippsland Catchment Management Authority)
- Worksafe

The directions hearing has been scheduled for September 13<sup>th</sup>, and the panel hearing will begin roughly a month after that and will go for around 4 weeks.

The Chair asked the Committee to reflect on their experience of the public exhibition period, in particular their interactions with their communities during that time, questions and feedback they received.

Gippsland Trades and Labour Council has requested a presentation from OSMI providing a detailed update on the project.

There was a discussion on the Latrobe City Council listening post, special meeting and subsequent submission. In this context, it was noted that the any Council submission holds the same weight as a public submission.

**Agenda item 4: Presentation on noise from OSMI**



Liz Radcliffe (OSMI) provided a presentation on noise covering:

- how wind farm noise is regulated in Victoria (including the new EPA regulations here link),
- the noise assessment process including how background noise is assessed,
- allowable noise limits and noise prediction models, and
- infrasound and the potential impacts of noise/infrasound on health.

The presentation is available [here](#).

Questions followed as below.

**Are there any planned reviews or amendments to the NZ noise standard? Given it is from 2010 is it due of an update?**

Not that OSMI are aware. OSMI to follow up.

**Does the EPA website discuss General Environmental Duty?**

Yes. Read more at <https://www.epa.vic.gov.au/for-business/new-laws-and-your-business/general-environmental-duty>

**What is the permitted noise level for HVP operations?**

OSMI/Hugh Thompson to follow up.

**Are there data/graphs that show noise levels at each location against the time of day (to show background noise levels at night vs at day)?**

The comment was made that noise levels at night are what really count. These details are in the full technical noise report, which can be found [here](#).

The comment was made that the exclusion of some extraneous data points could be viewed by the sceptical as benefitting OSMI.

It was clarified that the data points that are removed are louder anomalies, such as frog/bird calls and similar seasonal noise which are not present all the time. Removing these data points brings the line of best fit down to effectively lower background noise levels, thereby meaning that the allowable noise limit for the wind farm is actually lower rather than higher.

Background noise testing has been done at 9 different locations. Locations are chosen to be as close as possible to the most noise sensitive receivers (homes). Results can't be averaged over the project area as each site has quite specific background noise levels. If the project is approved further background noise testing may be required prior to construction.



A post construction noise assessment is required to demonstrate that the 'as built' noise levels are consistent with the predictive modelling and comply with statutory limits. If allowable noise levels are exceeded by the wind farm a noise management plan would be required to be developed and implemented. This would involve meeting certain operational requirements such as curtailment if required. It is not in the developer's interest to generate a predictive model that understates the projects noise outputs when built.

The point was raised that the real issue is whether or not people will hear the wind farm at night, as that is when it is likely to cause sleep disturbance which may lead to health issues.

It is possible that a wind farm that is compliant will be heard by some people at some times at night under certain specific conditions (e.g. background noise levels, wind direction, windows open, etc), but it is also important to note that the predicted noise levels modelled are essentially a worst-case scenario – the maximum noise level that would be audible any time. It is not expected or even possible that the wind farm would generate those noise levels all the time.

It was noted that the predicted noise levels are for outside the home – and that houses will attenuate noise by about 10 dB – that is the noise levels from the wind farm will be approximately 10dB lower inside, when the windows are closed. With the windows open this would be around 5dB lower, depending on the orientation of the house and construction type.

It was also noted that a sound level app can be loaded onto a mobile phone which allows the decibel level to be measured both inside and outside the home. People can do this to get an understanding of what different sound levels really mean and what the current levels are around their home. at your home at any time, so you can get an idea of your own background noise levels, inside and outside your home at any time.

**Infrasound – there was a general question about the presence of infrasound.**

Infrasound is everywhere, and is produced by movement, e.g. wind, the ocean, cars and machinery. The amount of infrasound generated by wind turbines is lower than that produced by many other sources including the ocean.

It was asked what range of **frequencies are in the turbine blades 'swoosh' noise**, which OSMI will follow up and report back to the CSCC at the next meeting.

There was a discussion on the Flinders University sleep study.

There was also a **question regarding the sound output from larger turbines**. The noise output from larger turbines is comparable to that from smaller turbines, however, due to their larger capacity, fewer are required, so there are overall fewer point sources of noise. This is reflected in the noise modelling. Additionally, some of the older turbine models had noisy components. It is contemporary practice to require turbine manufacturers to provide warranties regarding the sound output of their turbines.



The Chair **questioned whether there were any non-noise related health issues** associated with turbines. OSMI to follow up next meeting.

#### **Next meeting**

The options are flora and fauna or visual. The preference is for the flora and fauna to involve a field visit, so a decision on the topic will be made when we have more of an idea around lockdown restrictions.

The consensus in the Committee was to hold off having a discussion on the approach to the Community Development Fund until after a decision on approval has been reached, but that the Predevelopment fund focused on storm recovery should be progressed. OSMI to advertise and process for evaluation and allocation of funds – to be discussed further next meeting.

#### **OSMI/HVP Actions**

- Confirm whether there are any planned reviews or amendments to the NZ noise standard, given it is from 2010
- Confirm the permitted noise level for HVP operations
- Find out what range of frequencies are in the turbine blades 'swoosh' noise
- Discuss any non-noise related health issues associated with turbines
- OSMI to advertise the Pre-development fund encouraging projects associated with recovery from June 2021 storms.

#### **Rolling Actions**

- All committee members to communicate widely about the CSCC seeking further members particularly from communities local to the planned wind farm, highlighting the desire for a diversity of opinions.
- Committee members to send ideas about topics you would like covered at future Committee meetings to [csc@delburnwindfarm.com.au](mailto:csc@delburnwindfarm.com.au). There is no limit on the number of items a committee member can nominate.
- All committee members to review the Managing Conflict of Interest information online site <https://osmi.com.au/consultative-committee> and advise the Chair of any potential, perceived or actual conflicts of interest that before the next meeting.



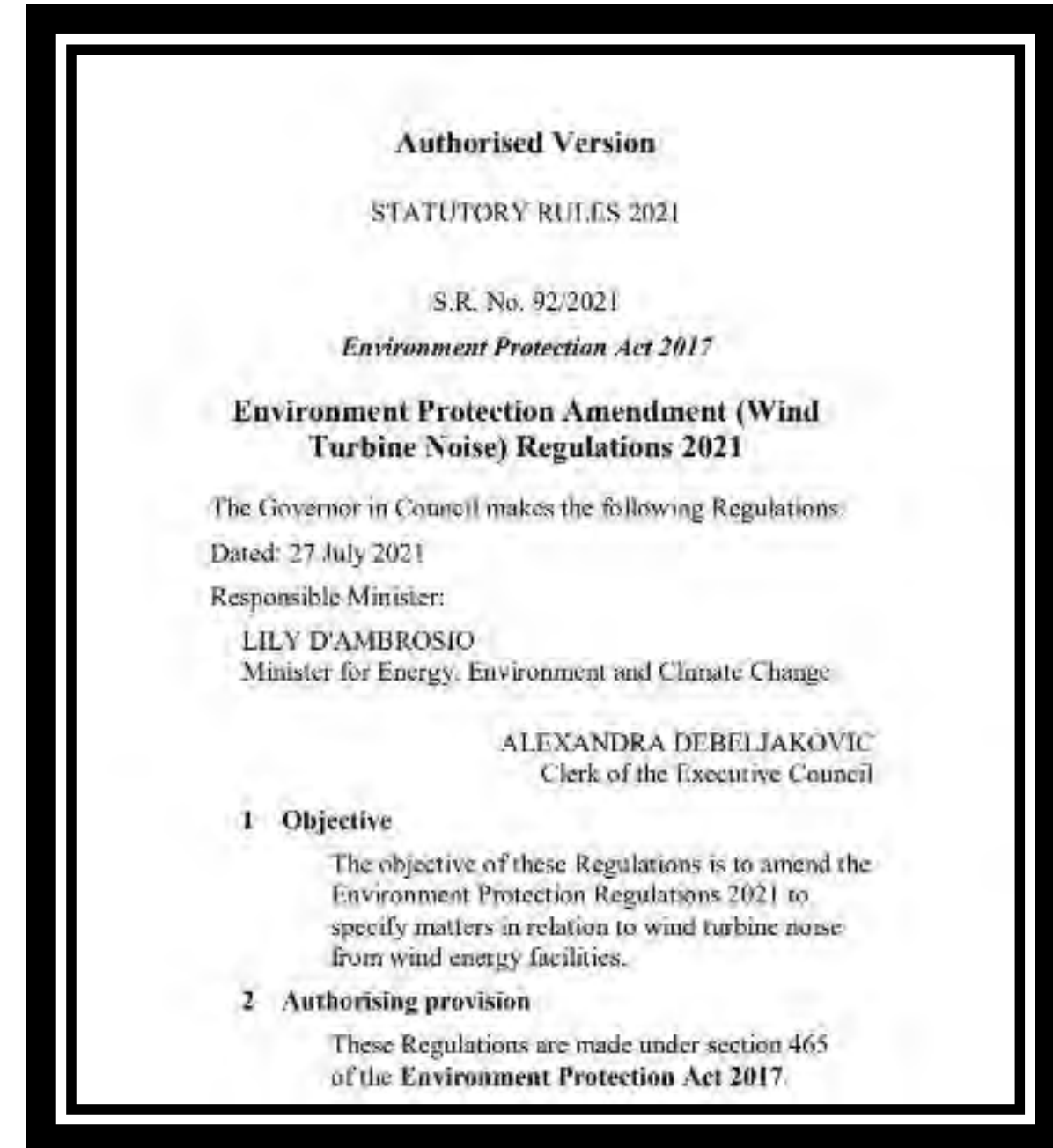
# Delburn Wind Farm Noise and Health

Community and Stakeholder Consultative Committee Meeting - August 2021

# How is wind farm noise regulated?



- The Environment Protection Amendment (Wind Turbine Noise) Regulations 2021 came into operation on 1 August 2021.
- The new regulations do not change the noise limits for wind turbine noise but do set additional measures to demonstrate compliance.
- Local councils (or DELWP, for dept issued permits) will no longer be responsible for responding to noise concerns nor enforcing noise limits, this is now the responsibility of EPA.
- Noise and other emissions from wind farm turbines are no longer subject to the Nuisance provisions of the Public Health and Wellbeing Act 2008.



# Requirements of the Noise Regulations

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- The regulations set out that wind farms are required to:
  - Conduct a pre-construction (predictive) noise assessment to demonstrate compliance with the New Zealand Noise Standard NZS 6808 : 2010
  - Complete a post-construction noise assessment
  - Implement a noise management plan, including a complaints management plan
  - Providing an annual statement detailing the actions that have been taken to ensure ongoing compliance with the standard
  - Conduct noise monitoring every five years.
- These requirements have been developed by government based on a regulatory impact statement and stakeholder consultation
- More information on this process can be found online:  
[Changes to the regulation of wind farm noise | Engage Victoria](#)





# Noise Assessment Process

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- The process for the noise assessment is:
  - assess the background noise levels at residential properties (receivers) around the project;
  - assessing the land zoning of the project site and surrounding areas;
  - establishing the noise criteria accounting for background noise levels and land zoning;
  - predict the level of noise expected to occur as a result of the proposed turbines; and
  - assess whether the development can meet the statutory requirements by comparing the predicted noise levels to the noise criteria.
  - Adjust the design and repeat predictive modelling as required.



# Determining background noise levels

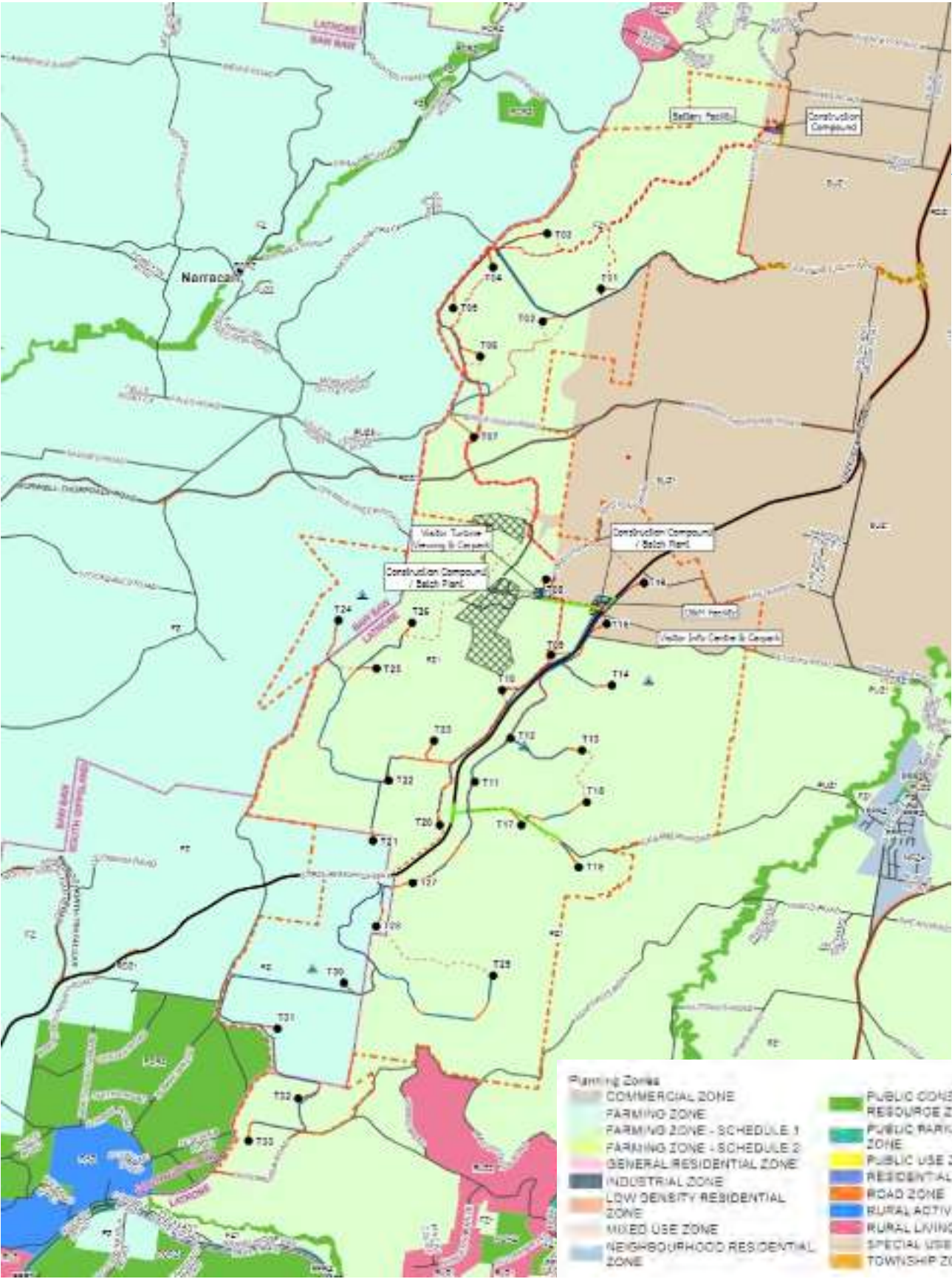
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- To determine the noise limits for the wind farm, in accordance with the NZ standard it is necessary to first determine background noise levels.
- Background noise levels were measured at 9 locations surrounding the project over a period of 6 weeks
- These noise levels need to be correlated to wind speed data as background noise varies with wind speeds as does noise generation from turbine operations.
- Data points representing extraneous noise such as birds and insects or atypical noise is removed from the assessment of background noise
- These data are then used to determine line of best fit background noise level and the subsequent noise limits that apply at each wind speed.



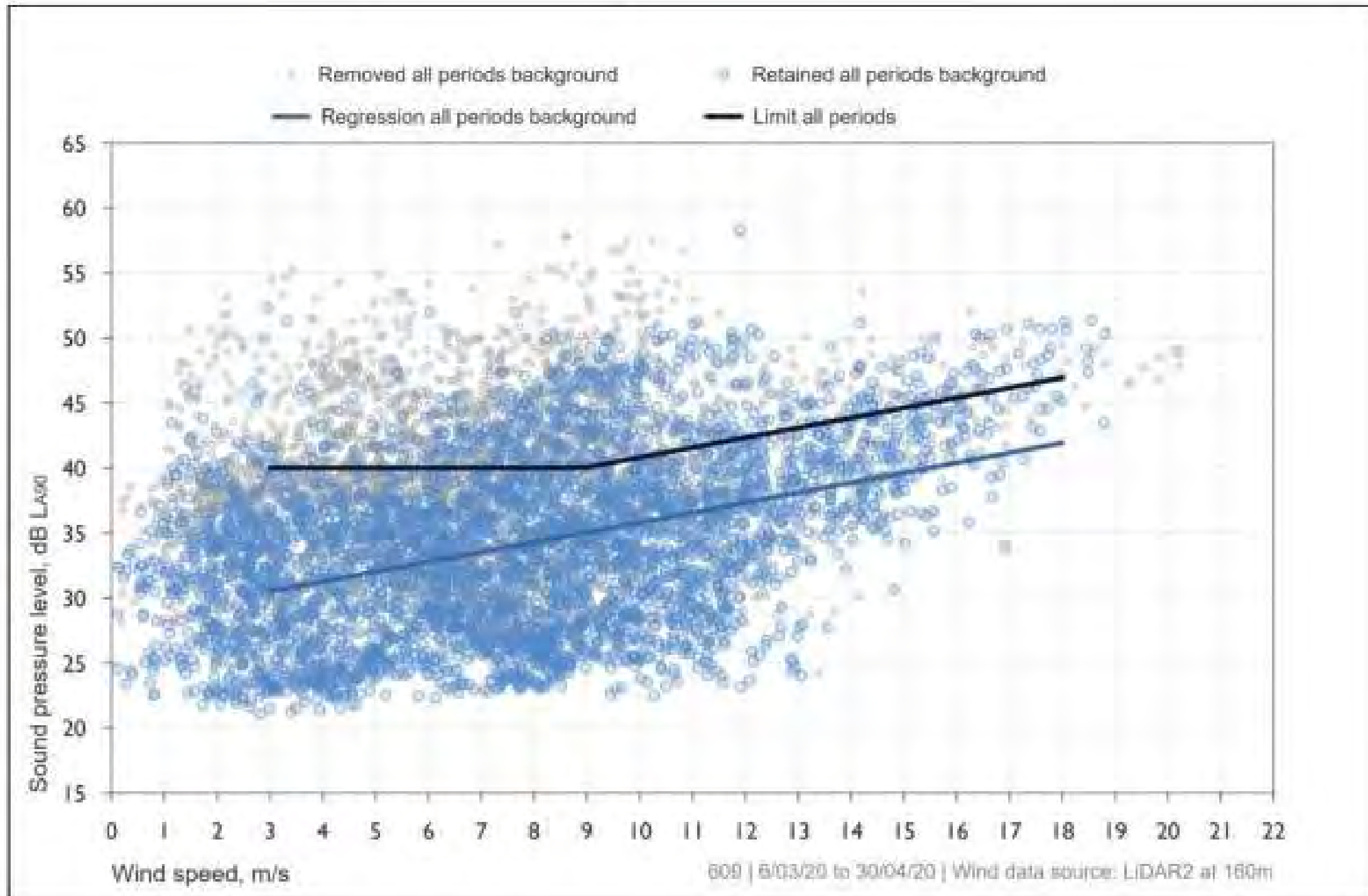
# Applicable noise limits



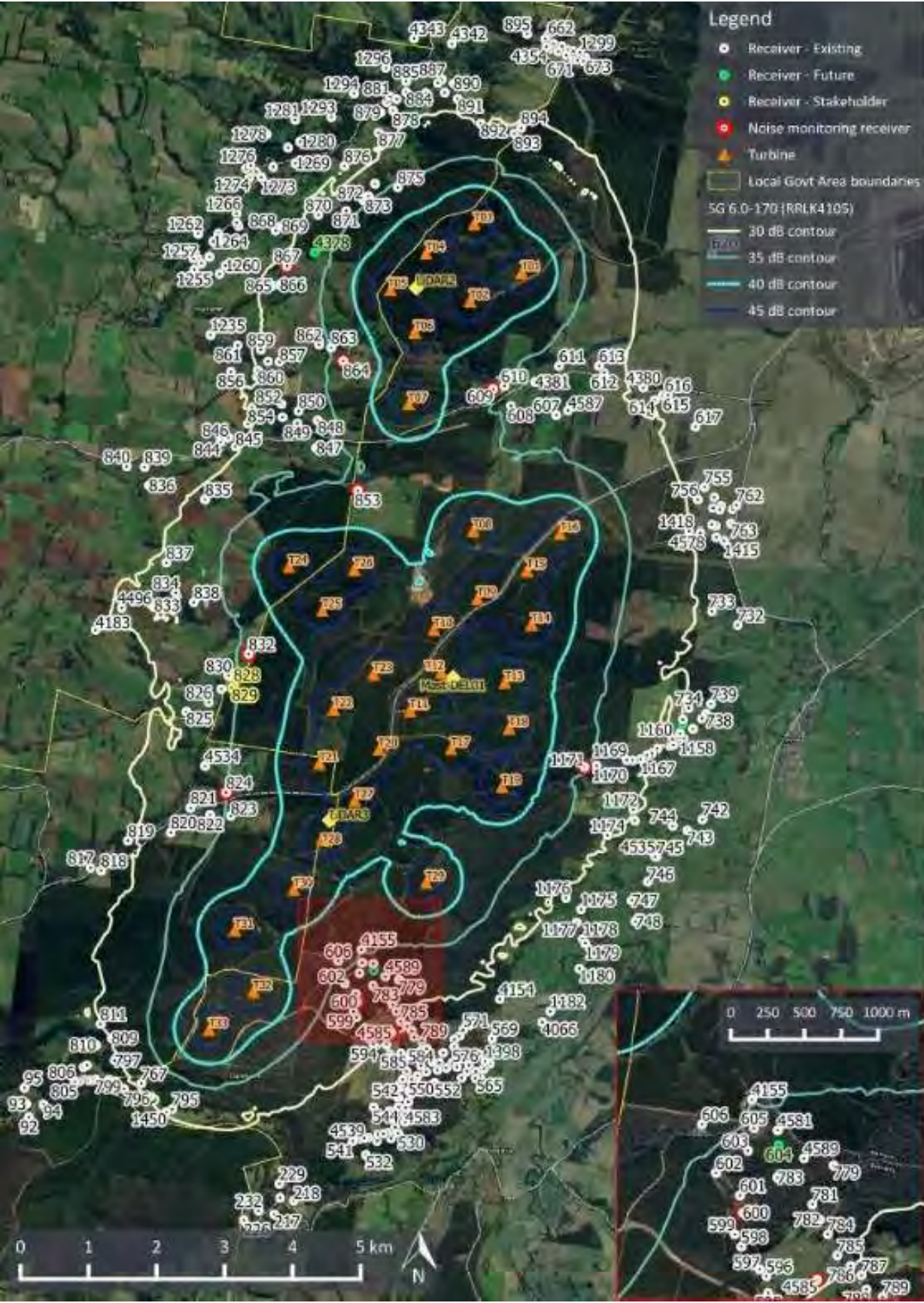
- The NZ Standard Noise specifies noise limits outdoors at noise sensitive receivers (habitable space or education space in a building not associated with a wind farm):
  - The greater of 40dB or background +5dB, and
  - In a *high amenity zone*, the greater of 35dB or background +5dB
- A *high amenity zone* is defined (through case law) in accordance with the land use planning zones. High amenity requirements apply in a Rural Living Zone, but not a Farming Zone
- Most of the properties immediately surrounding the project are Farming Zone so high amenity requirements do not apply
- However, based on community feedback, we know there are many *lifestyle properties* surrounding the project, so we have adopted a design target equivalent to the high amenity requirements.

Planning Zones	
COMMERCIAL ZONE	PUBLIC CONSERVATION AND RESOURCE ZONE
FARMING ZONE	PUBLIC PARK AND RECREATION ZONE
FARMING ZONE - SCHEDULE 1	PUBLIC USE ZONE
FARMING ZONE - SCHEDULE 2	RESIDENTIAL GROWTH ZONE
GENERAL RESIDENTIAL ZONE	ROAD ZONE
INDUSTRIAL ZONE	RURAL ACTIVITY ZONE
LOW DENSITY RESIDENTIAL ZONE	RURAL LIVING ZONE
MIXED USE ZONE	SPECIAL USE ZONE
NEIGHBOURHOOD RESIDENTIAL ZONE	TOWNSHIP ZONE

# Establish Noise Criteria



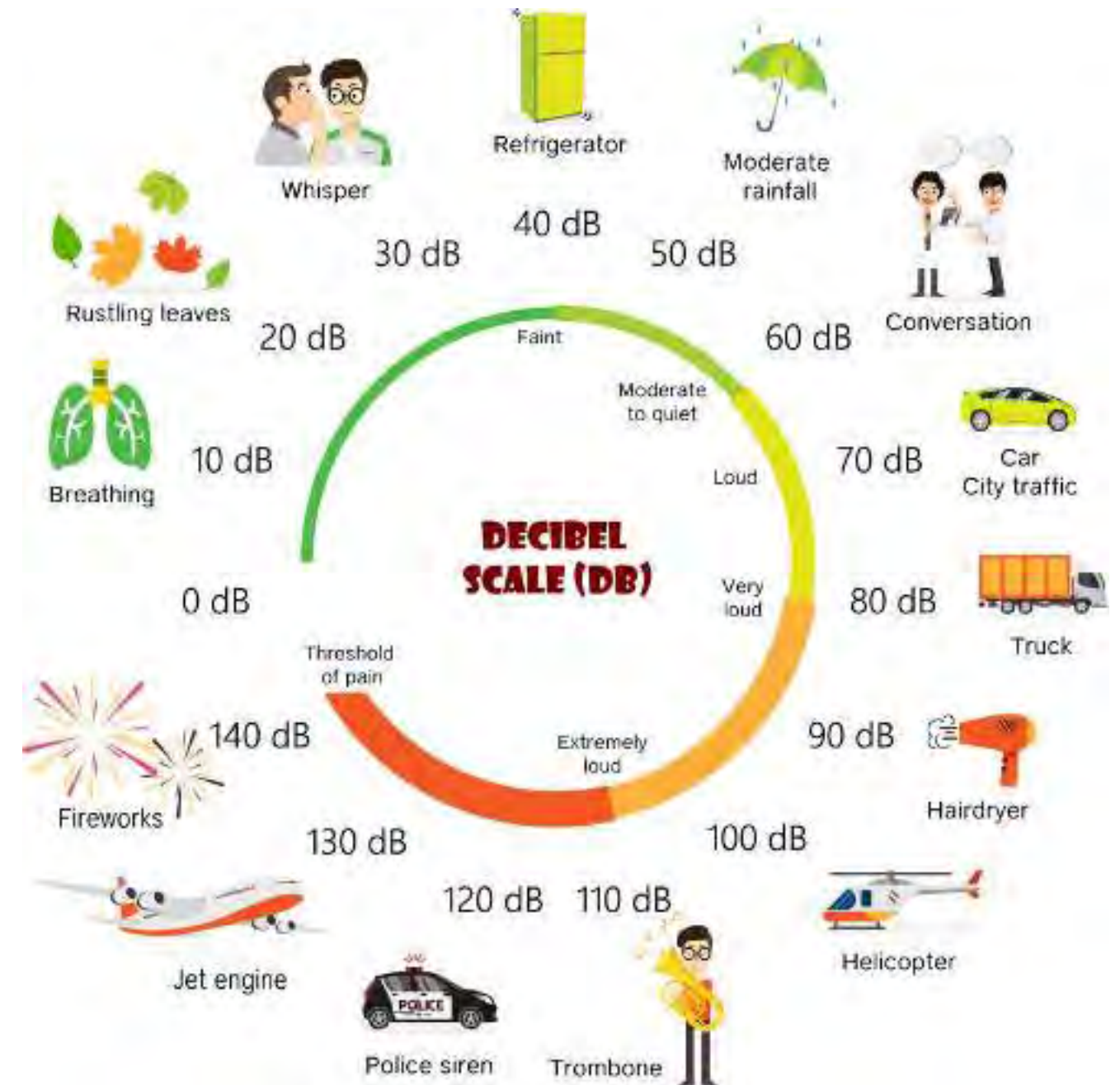
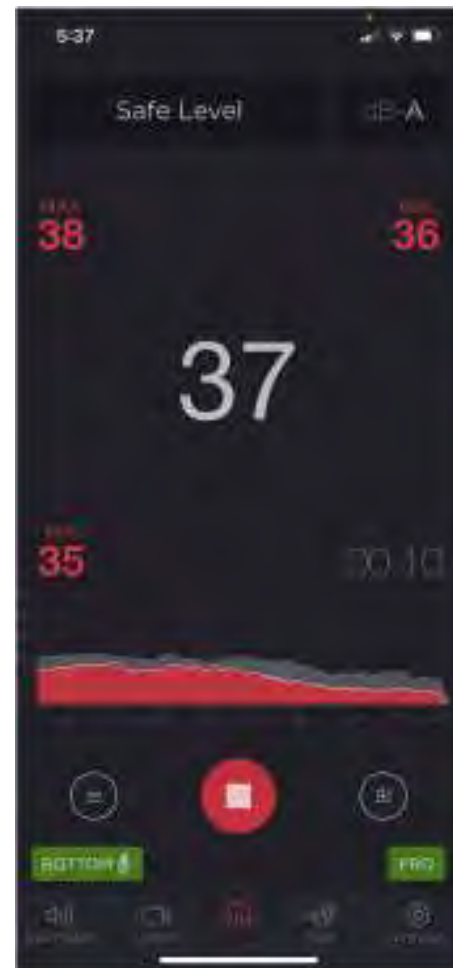
# Predictive Modelling Results



- The results of the predictive modelling show that for the 33-turbine layout applied for all houses comply with the statutory requirements (NZ Standard)
- The design target of a high amenity outcome has been met in most cases.
- Between 5 and 12 houses depending on the turbine model selected have a modeled noise level of over 35dB, highest predicted at 36.5dB
- Provision has been made in the modelling for measurement uncertainties in manufacturer noise specifications to ensure the modelling provides a conservative assessment of 'worst-case' noise emissions.
- Compliance with the NZ Standard does not mean that the wind farm will never be heard at all locations.

# How loud is 40dB?

- You can download an app on your phone to measure noise levels yourself to give you a bit of an idea. Just search *sound level meter* in the relevant store.



# Can we believe the predictive modelling?

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One of the things we have heard is that the community don't trust the assessment undertaken by Marshall Day Acoustics because of their work at the Bald Hills Wind Farm.

- The allegation that the MDA assessments at Bald Hills are wrong is still before the courts, and we are following that case closely.
- For those members of the community who do not wish to talk to MDA, in consultation with some now former community members, OSMI appointed SONUS to be available for to the community our expense. Community members can call or email SONUS direct – we don't need to be involved nor know what was discussed.
- We also asked SONUS to peer review the MDA assessment. SONUS used some different assumptions in their modelling, however the results are comparable.
- The predictive modelling is also required to be audited by an EPA Appointed Environmental Auditor as part of the planning process.

# Infrasound

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- Infrasound are sound waves with frequencies  $<20\text{Hz}$ , and is often described as below the limit of human hearing
- Infrasound is caused by movement. Natural phenomena such as waves, wind and earth quakes all cause infrasound.
- Wind turbines and other anthropogenic structures also cause infrasound, however the levels of infrasound emitted by turbines is lower than levels emitted by many other common sources and is at levels lower than can be perceived by the human body.



# Wind Farms and Health

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- NHMRC (2015) states that after looking at over 4000 papers that “there is currently no consistent evidence that wind farms cause adverse health effects in humans”. ([NHMRC Statement: Evidence on wind farms and human health | NHMRC](#))
- The National Infrastructure Energy Commissioner, Andrew Dyer (formerly Wind Farm Commissioner) notes that while there is much concern about the potential impact of wind farms on health during a project's development, he receives very few complaints about wind farms once they are operational. Those that relate to health concerns in the main, provide only anecdotal evidence regarding stated health issues. The Commissioner and is therefore unable to draw a causation between the operation of a wind farm and a complainants reported health impacts. ([Health Matters | Australian Energy Infrastructure Commissioner \(aeic.gov.au\)](#) )
- Mr Dyer explicitly stated at a community meeting in Boolarra, if anyone who lives near a wind farm feels unwell, he advises them to see their doctor. Please do not to assume it is caused by the wind farm.
- The Wind Farm Noise Study, based at the Adelaide Institute for Sleep health at Flinders University, is investigating noise characteristics and sleep disturbances at residences located near wind farms.
  - This study is using sleep recordings of brain waves (electroencephalographic, EEG) and cardiovascular measurements in a laboratory to assess the impact of different noises. The study seeks to evaluate any possible sleep disruption and/or physiological activation in response to wind farm noise compared to other noise disturbances (particularly traffic) during sleep.
  - Recently published findings found that the wind farm ‘swoosh’ noise (swoosh refers to amplitude modulation) can be more annoying at night. Work is ongoing to determine whether this noise affects sleep quality.

# Questions?

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