



# Wind Farm Noise Compliance in Victoria, Australia

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## Why you should be interested.

*Recent changes to wind farm noise / planning approvals in Victoria, Australia –*

- *From 4 October 2018 new permit applicants for wind energy facilities will be required to submit a statutory environmental audit of their pre-construction and post-construction noise assessments.*
- *This change is intended to give the community and industry more confidence about noise compliance for future wind energy facilities.*

# Who am I, what am I going to talk about?

*Acoustician. Nominated specialist in one of the earliest EPA Auditor Reviews of its kind in Victoria*

*Unpack wind farm noise compliance and what the new changes mean for wind farm noise compliance in Victoria*

# What needs to be complied with?

## *Wind Farm Planning Permit.*

### NOISE LIMITS

22. Construction of the wind energy facility must comply with noise criteria specified in the EPA *Noise Control Guidelines, Construction and Demolition Site Noise*, Publication 1254, October 2008 at any dwelling existing on land in the vicinity of the proposed wind energy facility as at the date of the issue of this permit to the satisfaction of the Minister for Planning.

23. Except as provided below in this condition, the operation of the wind energy facility must comply with New Zealand Standard 6808:2010, Acoustics – Wind Farm Noise (the Standard) as modified by this condition to the satisfaction of the Minister for Planning.

In determining compliance the following requirements apply:

- a) The operator must ensure that at any wind speed, wind farm sound levels, determined in accordance with the Standard at noise sensitive locations (as defined in the Standard) do not exceed a noise limit of 40dB LA90,10min or background (LA90,10min) plus 5dB, whichever is greater.
- b) Compliance must be assessed separately for all-time and night time. For the purpose of this requirement, night time is defined as 10.00pm to 7.00am, and
- c) Where special audible characteristics, including tonality, impulsive sound or excessive amplitude modulation occur, the measured noise level with the identified special audible characteristics will be modified by applying a penalty of up to + 6 dB L90 in accordance with section 5.4 of the Standard.

Any dwelling on the subject land may be exempt from this condition. This exemption will be given effect through an agreement with the landowner and must be registered on title, unless varied through the written consent of the Minister for Planning. Such dwellings will be known as host dwellings.

← Planning permit noise conditions

← Compliance with NZ Standard

← Noise Limit at nearest residences – around 40 dB (noise level similar to library)


# How is compliance assessed?

*Wind Farm Planning Permit.  
More noise conditions....*

## NOISE COMPLIANCE ASSESSMENT

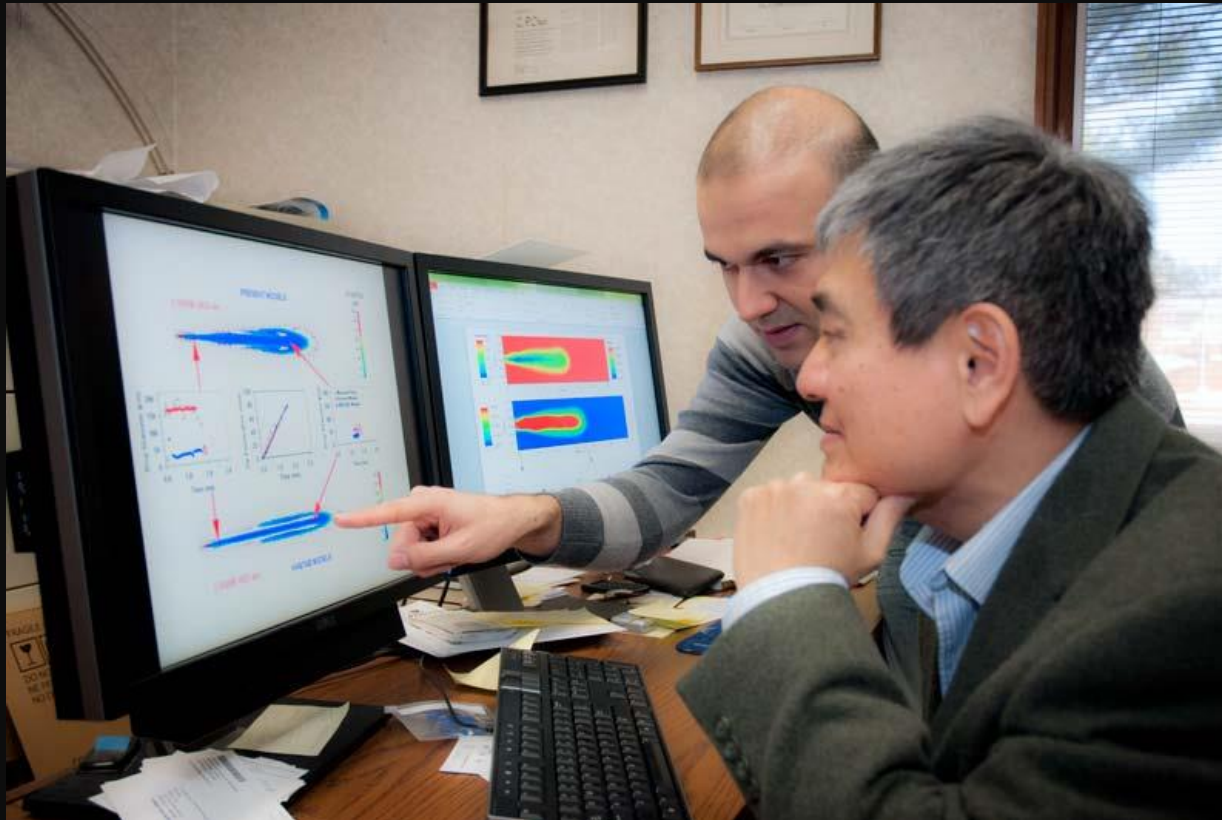
24. Before the development starts, a noise compliance testing plan must be prepared by a suitably qualified acoustics expert to the satisfaction of the Minister for Planning

Compliance assessment to be undertaken by qualified Acoustician



# Preliminary Modelling – Wind Farm Noise Prediction

## Computer modelling to produce contours

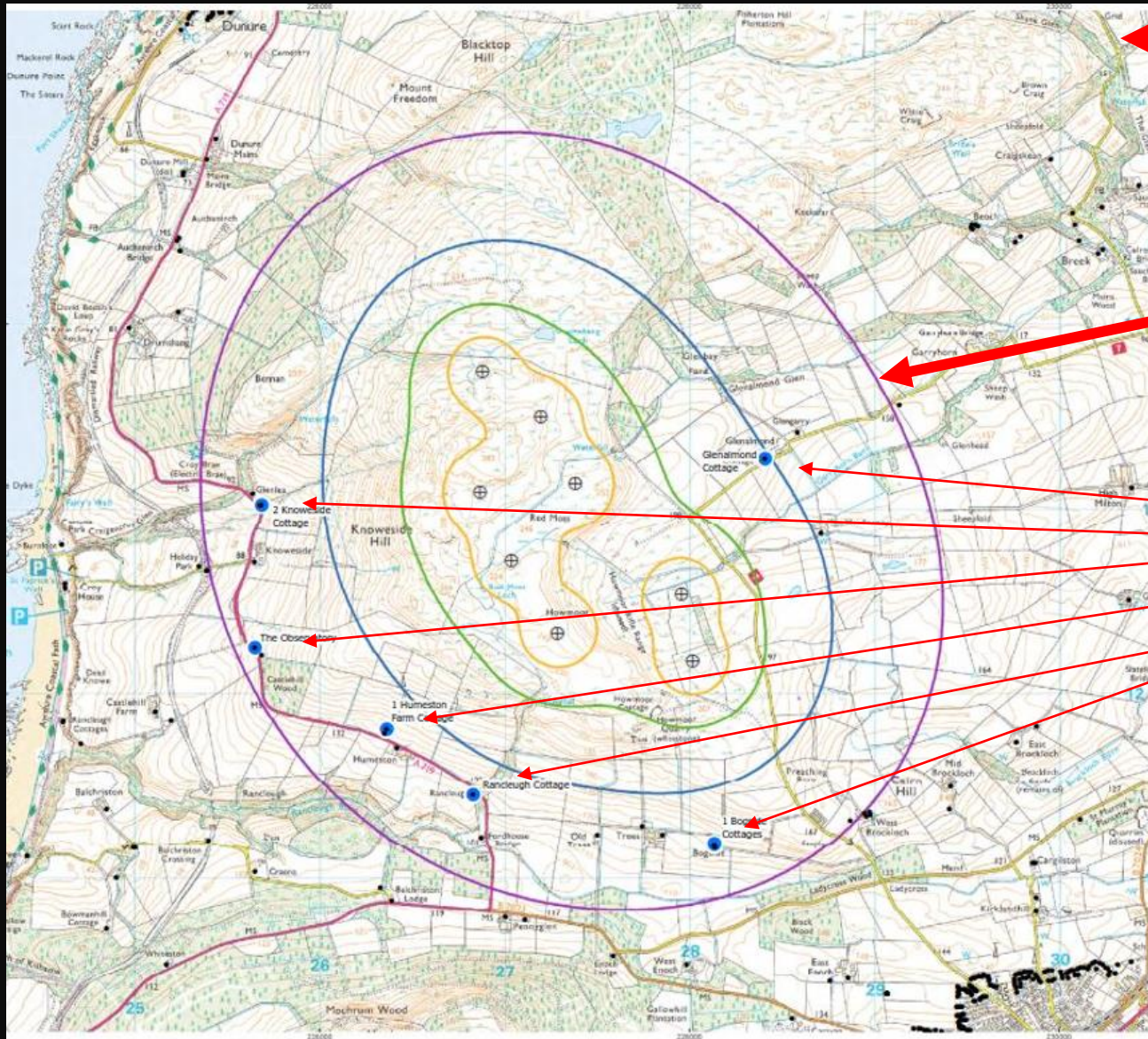


### Model inputs:

- site layout
- turbine dimensions
- turbine source noise
- ground attenuation
- atmospheric attenuation
- terrain effects



# Identification of noise sensitive locations



Noise Contour Plot produced via noise propagation modelling

35 dB noise contour line (purple line)

Identification of noise sensitive residences potentially affected by operation of wind farm

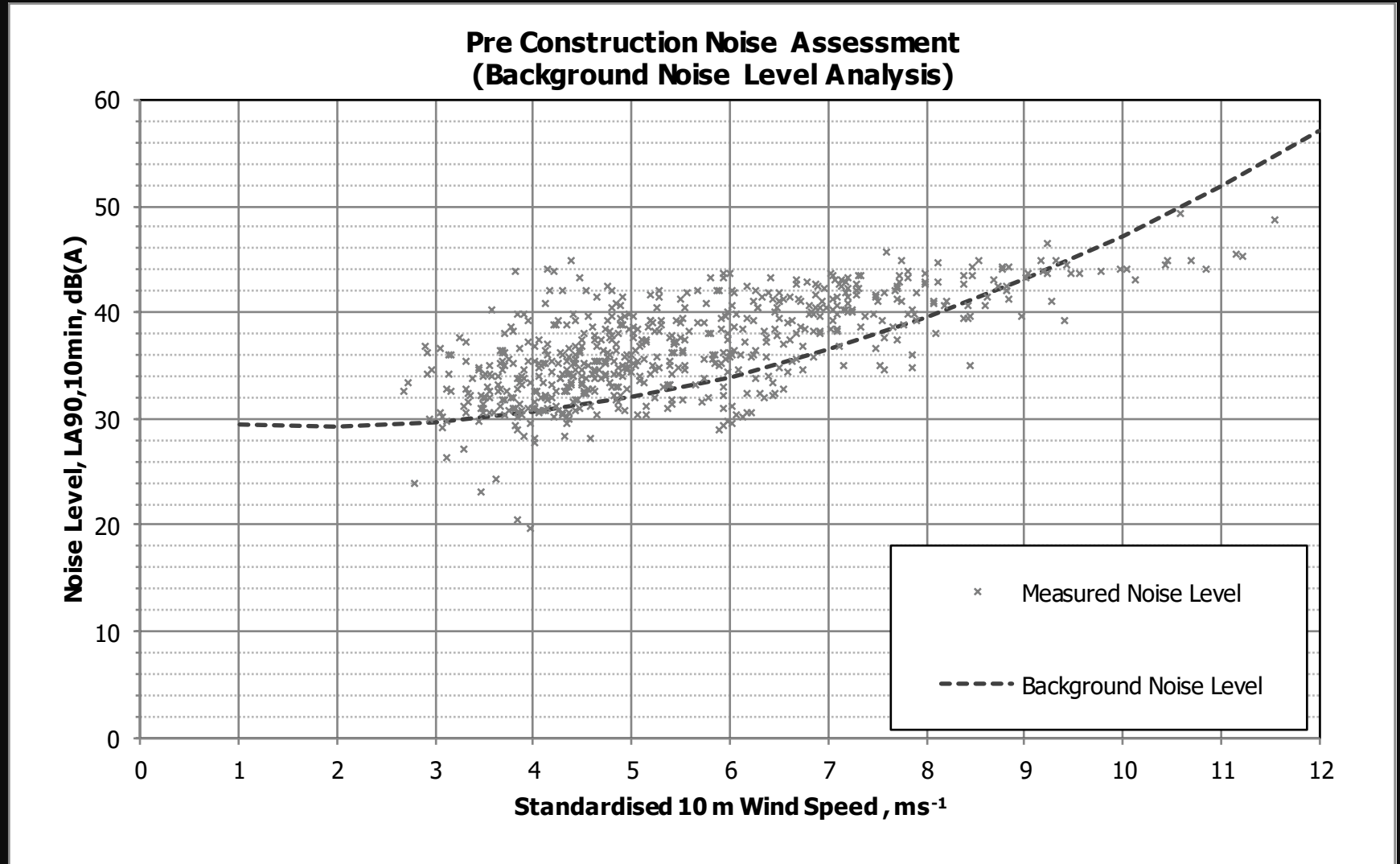


# Pre Construction Noise Survey

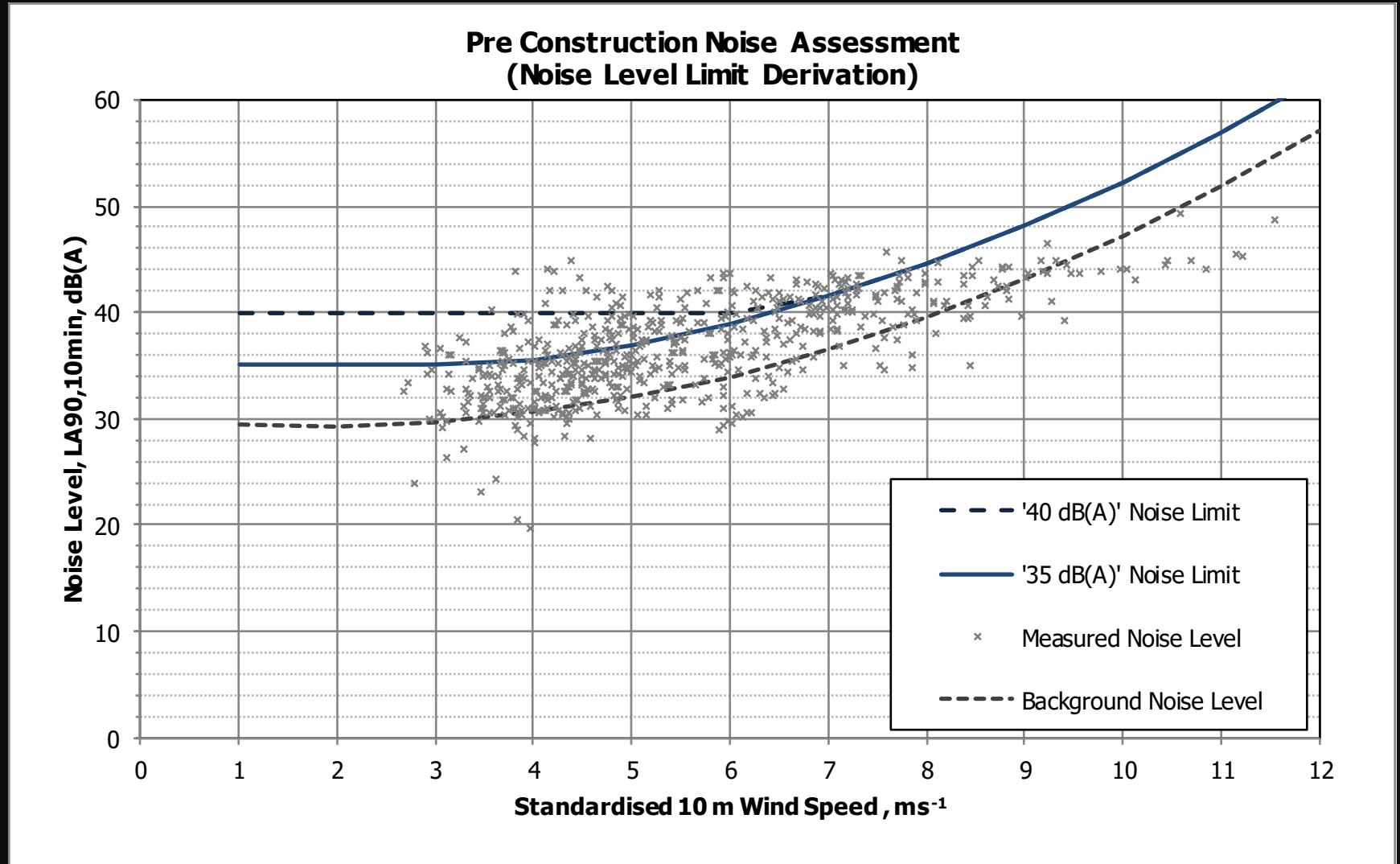




# Pre Construction noise analysis



# Derivation of noise limits



Time passes.....

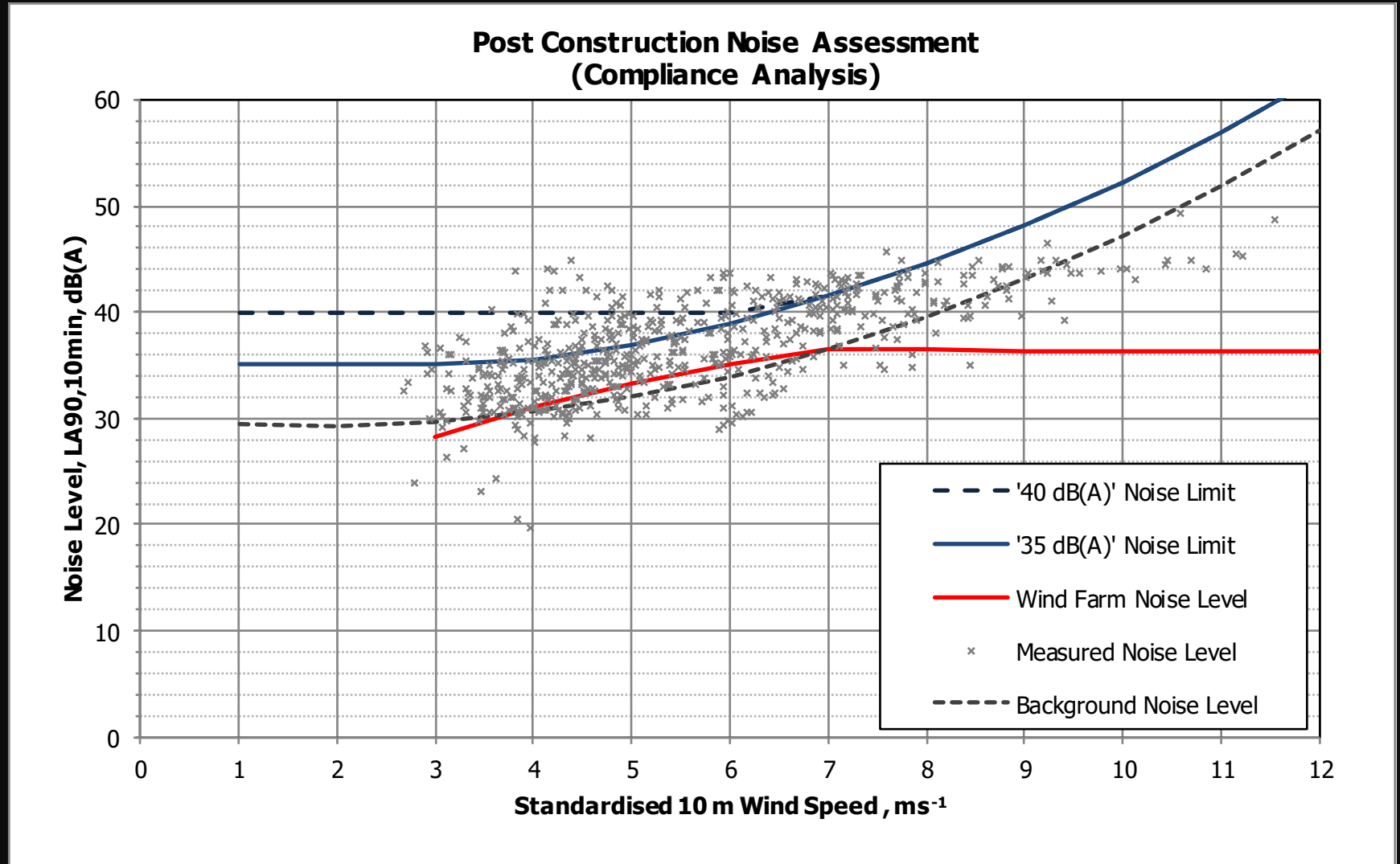
Wind Farm gets built



# Post-Construction Noise Survey



# Post-Construction Noise Analysis



# How to demonstrate compliance when necessary?

## Up until recently - EPA Auditor Peer Review

### NOISE COMPLIANCE ASSESSMENT

24. Before the development starts, a noise compliance testing plan must be prepared by a suitably qualified acoustics expert to the satisfaction of the Minister for Planning

25. The noise compliance testing plan must be accompanied by a report from an auditor accredited under the *Environment Protection Act 1970* with the auditor's

Planning Permit No. [REDACTED]

opinion on the methodology contained in the noise compliance testing plan.

When approved, the noise compliance testing plan will be endorsed by the Minister for Planning and will then form part of this permit.

Compliance assessment to be undertaken by qualified Acoustician

EPA Auditor conducts review and gives opinion on methodology of compliance assessment

With support from acoustician i.e me!



# Acousticians Supporting the EPA Auditor

- My job is to help auditor verify technical and interpretive aspects of the noise compliance assessment under review
- Auditors must provide opinion on the methodology of the compliance assessment
- Demonstrate methodology applied is in accordance with NZ Standard
- This can be difficult because...
  - a Standard that itself requires the application of discretion and judgement in its implementation.
  - ...which makes it more difficult to demonstrate compliance

# In the past, in Victoria - EPA Auditor Review (Peer Review)

- “..parties may seek to engage an environmental auditor, appointed under the Environment Protection Act 1970, to conduct an assessment and verification of wind farm noise compliance.
- Address public and industry concerns

# Future of Compliance in Victoria – Statutory EPA Audit

## Recent Changes.....Statutory requirements

TABLE 1: COMPARING CURRENT PROCESSES WITH POST MAY 2018 PROCESSES

	Current (since Jan 2016)		Post October 2018	
<b>Reviews and reports</b>	<b>Auditor involvement</b>	<b>EPA involvement</b>	<b>Auditor involvement</b>	<b>EPA involvement</b>
<b>Pre-construction noise assessment</b>	Non-statutory peer review	No direct involvement	Statutory environmental audit	Quality-assure audits; publish audit reports on EPA website
<b>Noise management plan</b>	Non-statutory peer review	No direct involvement	Non-statutory peer review	No direct involvement
<b>Post-construction noise assessment</b>	Non-statutory peer review	No direct involvement	Statutory environmental audit	Quality-assure selected audit reports; publish audit reports on EPA website



# Future of Compliance – Statutory EPA Audit

## *Take home point*

- every new wind farm planning approval in Victoria will now require environmental noise audits to be undertaken*

**Thanks! – Any Questions?**

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