Planning Panels Victoria

Latrobe City, Baw Baw Shire and South Gippsland Shire Planning Permit Applications

Delburn Wind Farm

Panel Report

Planning and Environment Act 1987

7 February 2022

VICTORIA State Government

Planning and Environment Act 1987

Panel Report under section 97E of the PE Act

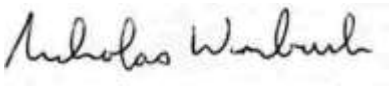
Delburn Wind Farm Planning Permit Applications

Latrobe City Council PA2001063 (wind energy facility and associated elements), PA2001065 (terminal station)

South Gippsland Shire Council PA2001066 (wind energy facility and associated elements)

Baw Baw Shire Council PA2001064 (wind energy facility and associated elements)

7 February 2022



Nick Wimbush, Chair

Amanda Cornwall, Member

Phil West, Member

Planning Panels Victoria

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Glossary and abbreviations

AFAC	Australian Fire and Emergency Services Authorities Council
AHD	Australian Height Datum
Applicant	Delburn Wind Farm Pty Ltd
BAL	Bushfire Attack Level
BESS	battery energy storage system
BMMP	Bushfire Mitigation and Management Plan
BMO	Bushfire Management Overlay
Bushfire Risk Assessment	*Wind Farm Bushfire Risk Assessment in support of the planning application 2020*
CASA	Civil Aviation Safety Authority
CEMP	Construction Environmental Management Plan
CFA	Country Fire Authority
CFA Guidelines	*CFA Guidelines for Renewable Energy Installations 2021*
CHMP	Cultural Heritage Management Plan
Council	Latrobe City Council
CPEMP	Construction Phase Emergency Management Plan
DDO#	Design and Development Overlay (Schedule Number)
DELWP	Department of Environment, Land, Water and Planning
DoT	Department of Transport
DTV	Digital Television
EE Act	*Environment Effects Act 1978*
EES	Environment Effects Statement
EMI	electromagnetic interference
EMO#	Erosion Management Overlay (Schedule Number)
EMP	Emergency Management Plan
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESO#	Environmental Significance Overlay (Schedule number)
FDI	Fire Danger Index
FFDI	Forest Fire Danger Index

FFG Act	*Flora and Fauna Guarantee Act 1988*
FRC	Fire Risk Consultants
FZ	Farming Zone
GRZ	General Residential Zone
HEMS	Helicopter Emergency Medical Service
HVP	Hancock Victorian Plantations Pty Ltd
K2M	K2 Management Australia
LGA	Local Government Authority
LRA	Latrobe Regional Airport
LVIA	Landscape and Visual Impact Assessment
MDA	Marshall Day Acoustics
MDA Assessment Report	*Environmental Noise Assessment*, Marshall Day Acoustics (MDA), 26 January 2021
MDA Monitoring Report	*Background Noise Monitoring*, Marshall Day Acoustics, 20 October 2020
Minister	Minister for Planning
Native Vegetation Guidelines	*Guidelines for the removal, destruction or lopping of native vegetation* DELWP, 2017
NBN	National Broadband Network
NRZ	Neighbourhood Residential Zone
NVRR	Native Vegetation Removal Report
OLS	Obstacle Limitation Surfaces
OPEMP	Operational Phase Emergency Management Plan
PAN-OPS	Procedures for Air Navigation Services – Aircraft Operations
PCRZ	Public Conservation and Resource Zone
PE Act	*Planning and Environment Act 1987*
PPF	Planning Policy Framework
PPRZ	Public Park and Recreation Zone
Project	Delburn Wind Farm
RDZ1	Road Zone Category 1
REZ	Renewable Energy Zones
RLZ#	Rural Living Zone (Schedule Number)
SAA	Seen Area Analysis

SCA	Strzelecki Community Alliance Inc
SLO#	Significant Landscape Overlay (Schedule Number)
Standard	*New Zealand Standard NZS6808:2010, Acoustics - Wind Farm Noise*
Structure Plan	Moe-Newborough Town Structure Plan
SUZ#	Special Use Zone (Schedule Number)
TIA	Traffic Impact Assessment
TMP	Traffic Management Plans
VCAT	Victorian Civil and Administrative Tribunal
VPO	Vegetation Protection Overlay
Wind Farm Guidelines	*Policy and planning guidelines for development of wind energy facilities in Victoria July 2021*

Overview

Project summary	
The Project	Delburn Wind Farm
Brief description	Four planning permit applications have been made across three Local Government Areas including Latrobe City (PA2001063 – wind energy facility and PA2001065 – terminal station), South Gippsland Shire (PA2001066) and Baw Baw Shire (PA2001064). Approval is sought for: - use and development of land for a 33-turbine wind energy facility and associated activities - use and development of land for a utility installation (terminal station) - removal of vegetation - creation or alteration of access to a Road Zone Category 1 - business signage. Twenty eight of the turbines and the terminal station are located within Latrobe City, four in South Gippsland Shire and one in Baw Baw Shire.
Project land	The project land is located entirely on freehold land owned by Hancock Victorian Plantations Pty Ltd and is located in south east Victoria (approximately 150 kilometres from the Melbourne CBD).
The Permit Applicant	Delburn Wind Farm Pty Ltd
Responsible Authority	Minister for Planning
Public notice	19 July to 18 August 2021
Submissions	Total number of submissions: 722 (283 opposing, 436 supporting and 3 neutral)

Panel process	
The Panel	Nick Wimbush (Chair), Amanda Cornwall and Phil West
Directions Hearing	By videoconference: 3 September 2021
Panel Hearing	By videoconference: 18, 19, 20,21, 25, 26, 27 and 28 October and 3, 4, 5 and 12 November 2021
Site inspections	Unaccompanied, 14 October 2021 Accompanied, 24 November 2021
Parties to the Hearing	Refer Appendix B
Citation	Delburn Wind Farm [2022] PPV
Date of this report	7 February 2022

Executive summary

The Delburn Wind Farm (the Project) is a 33 turbine wind farm approximately seven kilometres south of Moe in Gippsland proposed by Delburn Wind Farm Pty Ltd (the Applicant). The Project site is approximately 4,800 hectares and is privately owned by Hancock Victorian Plantations Pty Ltd (HVP) who use the land for rotating plantation timber crops, primarily pine trees.

Each wind turbine would be a maximum of 250 metres above ground level to the blade tip at their highest point with a generator of between 5.5 and 6.0 megawatts. The Project would have associated native vegetation removal, visitor facilities, maintenance depot, cabling, road access upgrades, wind monitoring towers and a terminal station. The Project also includes a grid-scale battery energery storage system (BESS).

The Project is largely located within Latrobe City with a small number of turbines in Baw Baw Shire and South Gippsland Shire. Four planning permit applications were lodged as follows:

- Wind Energy Facility
  - Permit Application PA2001063: Latrobe Planning Scheme
  - Permit Application PA2001064: Baw Baw Planning Scheme
  - Permit Application PA2001066: South Gippsland Planning Scheme
- Terminal Station
  - Permit Application PA2001065: Latrobe Planning Scheme

Under clause 72.01-1 of the Victoria Planning Provisions the Minister for Planning is the Responsible Authority for wind energy facilities.[1] The Minister called in the planning permit applications on 21 March 2021.

The applications were on public exhibition between 19 July and 18 August 2021. During this time 713 public submissions were received, of which 426 supported the Project and 287 objected and nine submissions were received from referral authorities or other agencies.

The majority of objections came from submitters who would be in proximity to the wind farm while many of the supporting submissions were drawn from across the Latrobe Valley and beyond.

Issues raised in objecting submissions included (not in any order):

- wind turbine noise
- landscape, views and amenity
- increased risk of bushfire and constraints on aerial firefighting
- biodiversity
- impacts on traffic from blade throw and driver distraction
- property values and economics
- human health
- aviation safety
- electromagnetic interference
- community engagement
- planning controls.

Issues raised in supporting submissions included (not in any order):

- jobs and employment

[1] Energy generation facility with an installed capacity of 1 megawatt or greater.

- positive economic benefits
- vontribution to addressing climate change via developing renewable energy
- air quality benefits over fossil fuel energy generation
- any negative impacts are outweighed by the overall positive benefits.

The Panel was appointed by the Minister for Planning to consider the applications and submissions. The Panel Hearing ran for 12 days via videoconference and the Panel heardevidence from experts in aviation safety, bushfire, biodiversity, acoustics and landscape.

The planning framework for wind farms in Victoria is long established and generally facilitative of their development subject to adequate consideration of a range of planning issues, articulated in the *Policy and planning guidelines for development of wind energy facilities in Victoria July 2021* (the Wind Farm Guidelines).

The Delburn Wind Farm is different to the many other applications for wind energy facilities that have been considered by local government, planning panels advising the Minister and the Victorian Civil and Administrative Tribunal (VCAT) in recent years. These differences include:

- it is the first major proposal in a plantation environment that is bushfire prone
- the relatively densely populated context for the wind farm (1,267 dwellings within five kilometres of the nearest turbine)
- the significant scale of the turbines; at approximately 250 metres tall to blade tip.[2]

The density of dwellings in the vicinity of the proposed wind farm with a high proportion of lifestyle properties is different to other Projects.[3] Here it is apparent from submissions there is a high degree of expectation of significant amenity protection.

By any measure the turbines proposed will be very large. The implications of scale are most likely to be felt in visibility of the turbines; that is they will be visible for very long distances and people in proximity to the Project will be able to see in some cases many turbines. While visibility does not always equal impact, for those who consider the Project an imposition on their environment, it may well be so.

The Panel considers the following issues are either not of concern or can be effectively managed through micro-siting or the application of suitable planning permit conditions:

- wind turbine noise
- native vegetation removal and biodiversity
- traffic impacts (including blade throw)
- electromagnetic interference.

Other issues including human health and the impact on property values the Panel considers are either outside the remit of its considerations or there is little evidence to suggest a significant level of impact.

Other issues the Panel considers require considerable thought are discussed below.

[2] The Panel understands the largest turbines at an onshore wind farm in Victoria is the Murra Warra Wind Farm located in sparsely populated farmland between Horsham and Warracknabeal with a maximum height to blade tip of 220 metres.

[3] The Golden Plains Wind Farm planned near Geelong is located on cleared flat farmland with 135 existing dwellings within 3 kilometres of a turbine. It has planning approval for 215 turbines of up to 230 metres high.

Landscape and visual impact

Given the scale of the proposed turbines they will be highly visible from many locations out to a considerable distance. This must be balanced with the lack of specific recognition of landscape significance for the project site in the relevant planning schemes.

There are many properties, a significant number of which are lifestyle properties, that will have extensive views of the wind turbines. For most of these properties the views to the turbines can be effectively screened by voluntary landscape plantings. There are a number of residences that will have relatively close views to a large number of turbines and given the landscape and topography, mitigation screening will be impossible. This will be a residual negative impact of the Project to those submitters if they consider the impact negative.

Bushfire considerations

The area has significant recent bushfire history and is designated bushfire prone under the relevant planning schemes. A simple review of the landscape and settlement patterns shows that bushfire risk is very significant without any consideration of the wind farm applications.

Bushfire concerns in submissions went to two major issues:

- increased risk of ignition from turbines, the BESS and other project operations/infrastructure
- suggested limits on aerial firefighting due to the presence of turbines
- consequent to the above increased risk to human life.

The issues attracted substantial interest in the submissions and Hearing. Local Country Fire Authority (CFA) volunteers (who are residents) shared distressing stories of their experiences in combating major blazes in this part of the Strzeleckis and their fears for the future.

The Panel's role is to consider whether the wind farm (including the BESS) will make the fire risk and difficulty in firefighting, greater. Based on the best evidence and the submissions from the CFA the Panel is not convinced that this is the case. The wind turbines will be designed with fire detection and suppression mechanisms. Aerial firefighting pilots will not be adversely affected by the presence of the wind turbines.

The Panel believes risk to human life is appropriately prioritised by the Applicant being required to restrict operations on high Fire Danger Days and other conditions and requirements including in-nacelle fire suppression equipment. Wind farm roads, surveillance and the additional firefighting capacity will improve firefighting capacity on low to moderate bushfire days.

The Panel found the information provided about the siting and fire-safety measures for the BESS was inadequate for it to recommend in favour of it at this stage.

Aviation safety

There is an unresolved issue around flight paths to and from the Latrobe Valley Airport for some turbines in the northern part of the proposed wind farm. This is an issue that requires close attention and may need changes in turbine height or location for this part of the project if it were to proceed. Permit conditions have been applied to ensure the requirements for safe air operations in the area.

Overall conclusions

The Panel has undertaken a careful analysis of planning policy and other relevant Government policy and concludes that on balance, considering the net community benefit of renewable energy, policy supports the issuing of the permits for the Delburn Wind Farm. Therefore, under the provisions of the planning schemes, the permits for the wind energy facility and terminal station should be issued.

At this stage, the Panel does not support planning approval for the battery energy storage system. The Panel considers lessons from the Victorian Big Battery fire should be considered before planning approval for a BESS in this location is given.

This conclusions around the planning provisions do not mean there will be no detrimental effects on some people. There are impacts on a relatively densely settled community that are likely to produce negative outcomes which will be ongoing and may result in lifestyle changes for some community members who do not welcome the significant change to the landscape and environment the project will bring. The difference for this project is that there are a significant number of 'near neighbours' with lifestyle properties who expect their views to be protected, compared to other wind farm developments.

Recommendation

Based on the reasons set out in this Report, the Panel recommends:

1. **The Minister for Planning issue the following planning permits for the Delburn Wind Farm with conditions consistent with those attached in Appendix D to this report:**
   a) **Wind Energy Facility**
      - **Permit Application PA2001063: Latrobe Planning Scheme, without the battery energy storge system**
      - **Permit Application PA2001064: Baw Baw Planning Scheme**
      - **Permit Application PA2001066: South Gippsland Planning Scheme**
   b) **Terminal Station**
      - **Permit Application PA2001065: Latrobe Planning Scheme**

1 Introduction

1.1 The Panel

On 31 August 2021 on behalf of the Minister for Planning (the Minister), the Department of Environment, Land, Water and Planning (DELWP) referred submissions under section 97E(1)(a) and 97E(1)(b) of the *Planning and Environment Act 1987* (PE Act) to a Panel requesting a Hearing. [4]

The Panel comprised:

- Mr Nick Wimbush, Chair
- Ms Amanda Cornwall
- Mr Phil West.

The Panel was supported by Senior Project Officer of Planning Panels Victoria, Ms Kimberly Martin and records its thanks for her efforts in ensuring a smooth process was run.

The Panel records its thanks to all parties throughout the lengthy Hearing process, including difficulties due to COVID-19 and severe weather impacts.

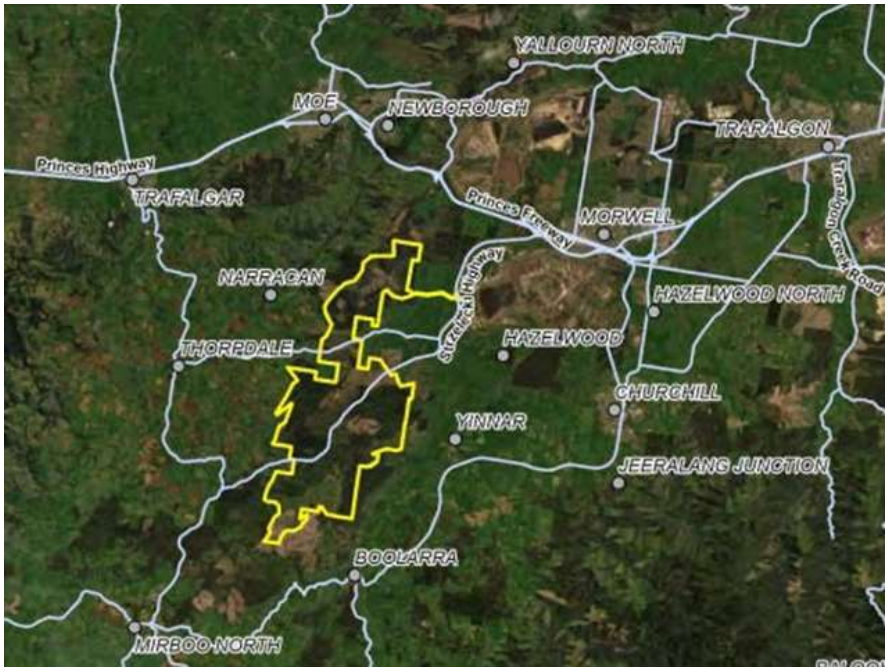
1.2 The Applicant and project summary

The Delburn Wind Farm (the Project) applicant is Delburn Wind Farm Pty Ltd (the Applicant).[5] The Project is proposed to be located in Gippsland in south east Victoria (approximately 150 kilometres from the Melbourne CBD) within land owned by Hancock Victorian Plantations Pty Ltd (HVP). The land is currently used primarily for timber production purposes. The general Project area is shown in Figure 1.

[4] Documents 1, 4 and 8.

[5] The arrangement for the Project development and ownership are described in the Applicant's Part A submission (Document 33). The Project is being developed jointly by OSMI Australia Pty Ltd and Cubico Sustainable Investments (a Canadian superannuation fund).

Figure 1 Project area[6]



The Project layout is shown in Figure 2 and will comprise:

- thirty-three wind turbines with a maximum height of 250 metres to the blade tip and an adjacent hard stand area, with each turbine comprising a tower, nacelle, hub and rotor blades
- thirty-three transformer kiosks contained within the tower or nacelle of the wind turbine
- three permanent wind monitoring masts with a maximum height of 180 metres above natural ground level (to be at the selected wind turbine hub height)
- one 'development' wind monitoring mast with a height of 160 metres above natural ground level, to be removed from the site during the construction phase
- an operations and maintenance building
- a BESS facility of up to 50 megawatts over 1.2 hectares located west of Varys Track
- approximately 41 kilometres of site access tracks comprising 30 kilometres of existing forestry access tracks to be upgraded and 11 kilometres of new tracks
- approximately 120 kilometres of underground 33 kV electrical reticulation and fibre optic cabling connecting the wind turbines to the substation, including cable junction boxes (located above or below ground level)
- two visitor information and viewing areas
- major upgrade to one intersection off the Strzelecki Highway (Creamery Road)
- minor upgrades to approximately 4.5 kilometres of local roads, including minor hard standing at two intersections off the Strzelecki Highway (Golden Gully Road and Smiths Road)
- business identification signage
- a terminal station west of Varys Track to connect the Project to the existing 500 kilovolt transmission line[7] at approximately the same location as the BESS

[6] Applicant Part A Submission, page 5 – Document 35.

[7] Known as Option B. The Applicant advised at the Directions Hearing the Option A (east of Varys Track) was no longer being pursued.

- removal of 12.344 hectares (wind energy facility) and 1.657 hectares (terminal station) of native vegetation.

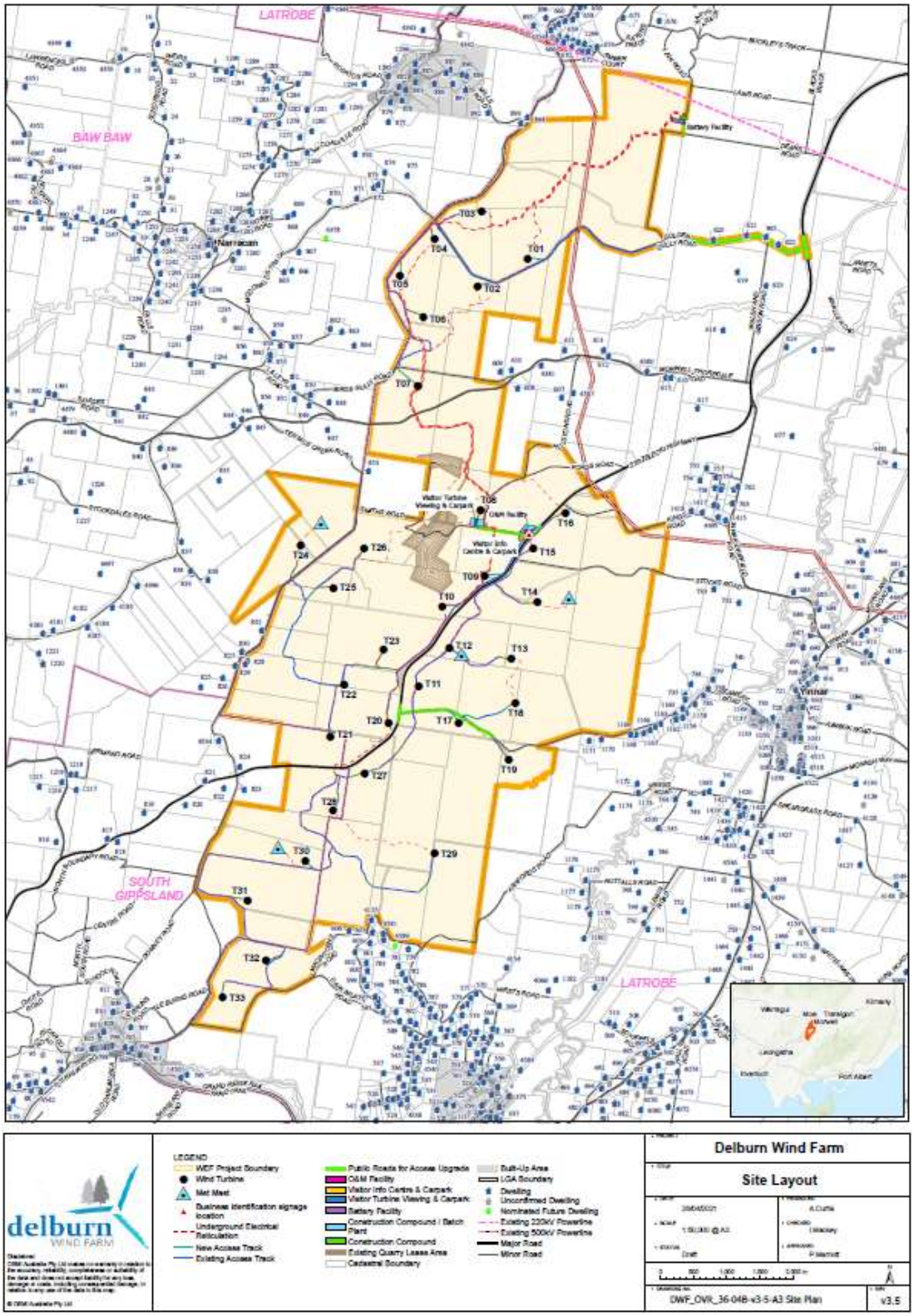
Four planning permit applications are needed for the Project across three Local Government Areas (LGAs) including Latrobe City, Baw Baw Shire and South Gippsland Shire as follows:

- Wind Energy Facility
  - Permit Application PA2001063: Latrobe Planning Scheme
  - Permit Application PA2001064: Baw Baw Planning Scheme
  - Permit Application PA2001066: South Gippsland Planning Scheme.
- Terminal Station
  - Permit Application PA2001065: Latrobe Planning Scheme.

The specific planning permit triggers for the applications are set out in Chapter 9.

Most of the Project including 28-turbines, the terminal station and the BESS are located within Latrobe City. One turbine is proposed in Baw Baw Shire and four turbines are proposed in South Gippsland Shire.

Figure 2 Site Layout Plan



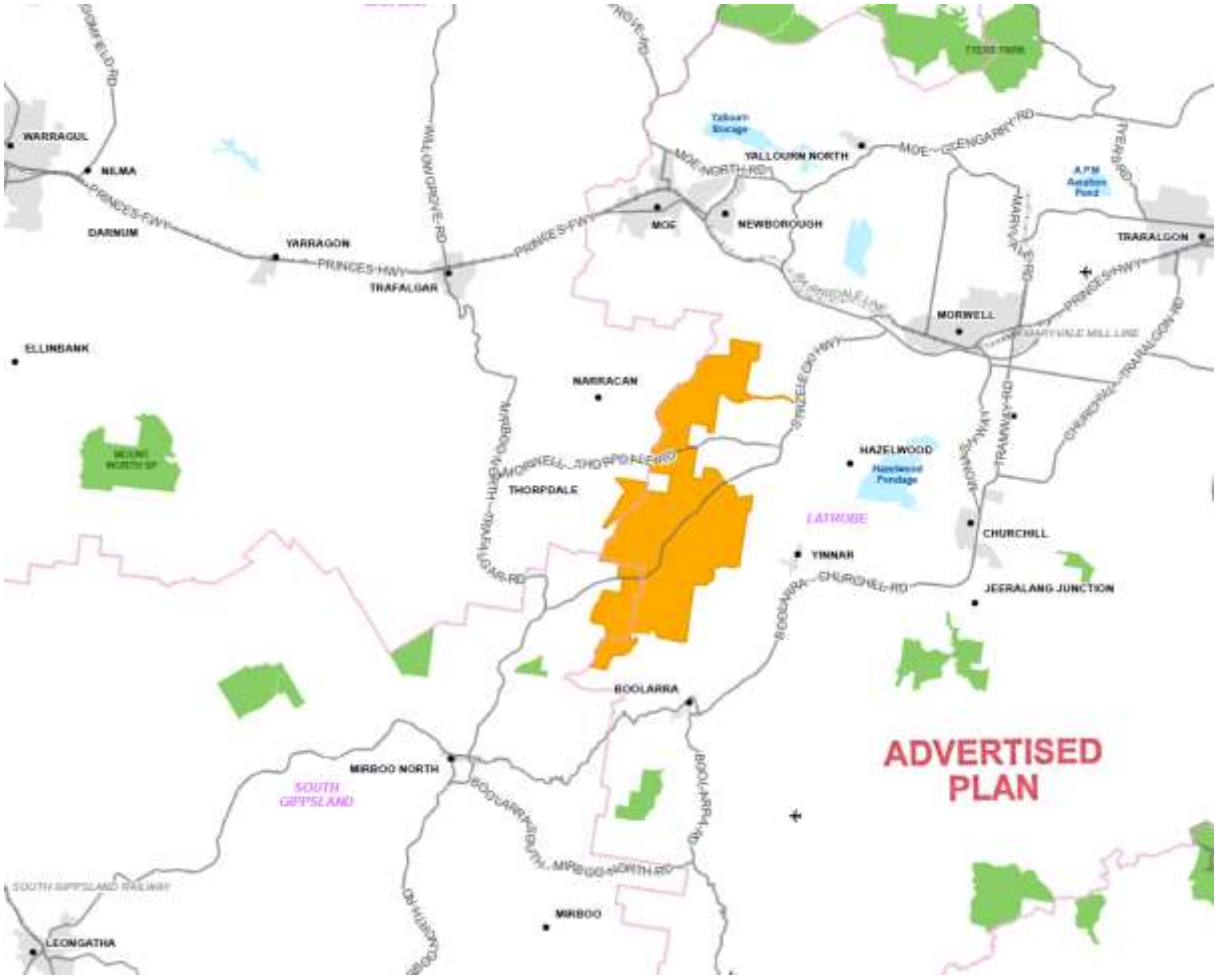
(i) The subject land and surrounds

Nearby towns and rural communities include Trafalgar, Narracan, and Coalville to the northwest, Thorpdale to the west, Hazelwood to the northeast, Yinnar and Churchill to the east, and Boolarra and Mirboo North to the south. Moe and Morwell are situated to the northwest and northeast.

The Project area is irregular in shape and spans across a total area of 4,778 hectares with 4,183 hectares in Latrobe City. Figure 3 provides a Project area overview within the wider regional context. The plantation in which the site is located has been established since the 1960s and comprises a mixture of pine and blue gum plantations and remnant native vegetation.

At its highest point, the Project Site is approximately 350 metres Australian Height Datum (AHD).

Figure 3 Regional context[8]



There are no dwellings located within one kilometre of a proposed turbine. There are 104 dwellings within two kilometres of a turbine and 1,267 dwellings within five kilometres of a turbine.[9]

The surrounding context comprises largely cleared land used for agricultural and grazing purposes and rural living and lifestyle properties. Outside the Project area there is remnant vegetation to the southeast within the Darlimurla Forest, to the north within the Sayers Trig Bushland Reserve and to the south within the Mirboo North Regional Park.

Two coal fired power stations and associated coal mines are located to the east and northeast of the Project area. The Hazelwood mine is located two kilometres to the east and was closed in March 2017. The mine is in the process of decommissioning. Yallourn is located three kilometres to the northeast and is currently operational.

8 Planning Permit Application Report, Figure E.1 (PDF page 12), June 2021, DB Consulting and SJB Planning.
9 Applicant Part A Submission, page 6 – Document 35, citing figure 2.7 in the Planning Report.

The following airfields and aerodromes are within Gippsland:

- Latrobe Valley registered aerodrome 16 kilometres northeast (Latrobe Regional Airport)
- Leongatha Aerodrome (uncertified) 35 kilometres southwest
- Yarram registered aerodrome 49 kilometres southeast
- West Sale registered aerodrome 60 kilometres northeast
- East Sale military aerodrome 75 kilometres east.[10]

1.3 The planning permit applications

(i) Background and chronology

The Minister determined that an Environment Effects Statement (EES) under the *Environment Effects Act 1978* (EE Act) was not required, subject to conditions which are outlined in Chapter 5.[11]

The Minister is the Responsible Authority (or decision maker) for Planning Permit applications PA2001063, PA2001064, PA2001065 and PA2001066.

The applications were lodged with the Minster on 23 December 2020. On 21 March 2021, under section 97B(1)(a) of the PE Act, the Minister determined to call-in the applications to ensure that the assessment of all four applications were considered through a streamlined, single assessment process.

Under section 97E of the PE Act the Minister referred objections and submissions to a Panel appointed under Part 8 of the PE Act. Under section 97E(4), the Panel must report its findings and set out its recommendations for the applications to the Minister.

(ii) The applications

As detailed in Section 1.2 of this Report, the planning permit applications seek approval for:

- use and development of land for a 33-turbine wind energy facility and associated activities
- use and development of land for a utility installation (terminal station)
- removal of vegetation
- creation or alteration of access to a Road Zone Category 1
- business signage.

Specifically, the wind energy facility applications across the three LGAs are proposed as:

- Latrobe City Council (PA2001063) includes:
  - twenty-eight wind turbines
  - two visitor information and viewing areas
  - BESS facility
  - one major and two minor intersection upgrades and local road upgrades
  - 10.591 hectares of native vegetation removal.
- Baw Baw Shire Council (PA2001064) includes:
  - one wind turbine
  - 0.083 hectares of native vegetation removal.

[10] Aeronautical Assessment, Chiron Aviation Consultants,14 July 2020

[11] The Commonwealth Minister for the Environment also determined that the Project is not a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

- South Gippsland Shire Council (PA2001066) includes:
  - four wind turbines
  - 1.670 hectares of native vegetation removal.

The proposed terminal station located within Latrobe City Council (PA2001065) includes:

- 220 kilovolt terminal station infrastructure, including gantries, switchyard and transformers
- control and amenities buildings
- business identification signage
- 1.657 hectares of native vegetation removal.

(iii) Cultural Heritage Management Plan

A Cultural Heritage Management Plan (CHMP) was required under the *Aboriginal Heritage Act 2006*. The CHMP must be approved prior to the issuing of any planning permits for the Project. Submitters requested access to the CHMP, but the Applicant advised that as it contains elements of cultural heritage sensitivity it would not be provided.

The Panel was advised by the Applicant that the CHMP was approved by the Registered Aboriginal Party, the GunaiKurnai Land and Waters Aboriginal Corporation, on 12 July 2021.

1.4 Summary of submissions

A total of 722 submissions were received in response to the public notification of the applications under section 53(1) of the PE Act including referral authority responses. Of these approximately two-thirds supported the Project and one third were in opposition. The Panel has reviewed all the submissions; it does not respond directly to each one individually but has considered the issues raised. Submissions were received from:

- local councils including Latrobe City Council, Baw Baw Shire Council and South Gippsland Shire Council
- government agencies and departments, including the Department of Transport (DoT), AusNet Services, DELWP – Environment Portfolio, Air Services Australia, APA Group, Civil Aviation Safety Authority (CASA), Country Fire Authority (CFA) and Environment Protection Authority (EPA)
- community / environment organisations and interest groups
- Agriculture and horticulture growers and operators
- commercial and business operators, including tourism
- individuals.

All submissions have been considered irrespective of whether the submitter presented at the Hearing. Key issues raised by objecting submitters included:

- biodiversity and impacts on wildlife, particularly the Strzelecki Koala and birdlife
- landscape and visual impacts, particularly on nearby residents given the attractive environment of the area and the likely visibility of the turbines given their size
- noise from the wind turbines and potential impacts on amenity and health
- increased bushfire risk from the Project (including the BESS) and its potential to limit aerial firefighting responses
- traffic and the potential safety impacts of driver distraction and blade throw onto roads, particularly the Strzelecki Highway

- electromagnetic interference (EMI) affecting radio, television and internet services and emergency services
- impacts on health including noise, mental stress and other suggested health impacts from turbines
- risk to aviation from the turbines, and particularly emergency service aircraft
- economics and loss of property value
- decommissioning and the need to ensure the site is properly rehabilitated
- poor or lack of effective community engagement.

Many objecting submitters clearly expressed the view that they are not against renewable energy or even wind farms but considered this is not an appropriate location for the Project because of its impacts.

Supporting submissions to the Project raised issues including:

- limited negative impacts on the local community
- the need to transition the Latrobe Valley and society more broadly to a clean energy future away from fossil fuels
- the renewable energy contribution the Project will make to the electricity grid
- likely improvements in community health and air quality as the area transitions away from fossil fuel generators.

1.5 Procedural issues

(i) The Moe urban area

Background

Clause 52.32-2 of the Latrobe Planning Scheme lists a range of conditional prohibitions for wind energy facilities. The table in clause 52.32-2 refers to a schedule which in turn contains:

> Land where a Wind energy facility is prohibited
> All land within five kilometres of a residential zone, an industrial zone, a business zone or a special purpose zone in the urban areas of Moe, Morwell and Traralgon.

The Strzelecki Community Alliance (SCA) submitted that as the wind farm will be within 5 kilometres of Moe, the wind farm is prohibited. Some other submitters adopted the SCA position.

Submissions

The SCA position is outlined in their Part B submission.[12] In summary the SCA argued that the land the Project sits on is within 5 kilometres of Neighbourhood Residential Zone (NRZ) in the urban area of Moe.

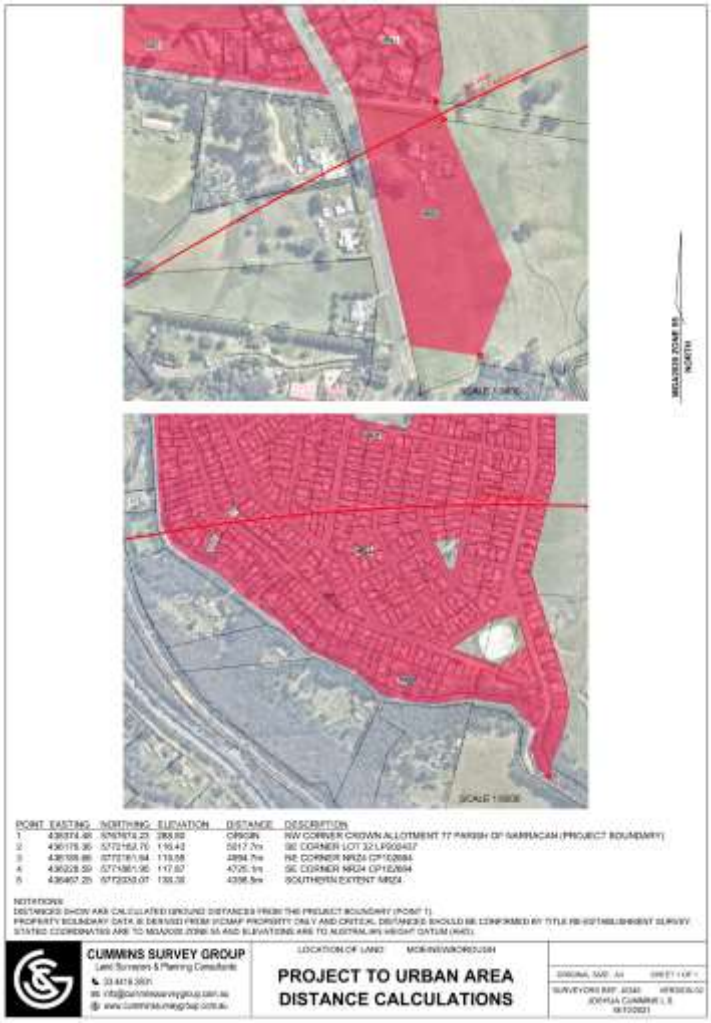
SCA submitted that all the land where the Project sits should be included in the consideration under the schedule to clause 52.32; an approach consistent with that taken by the Applicant's own experts. The 5 kilometre measurement should thus be taken from the northernmost part of the land. The point used for measurement by Mr Cummins for SCA was the northwest corner of Crown Allotment 77.[13]

[12] Document 65.

[13] See PDF page 182 of 338 in the certificates of title attached to the exhibited applications. Lot 77 is the large allotment west of Varys Track.

It submitted that the 5 kilometre distance from the land impinged on two residential areas as shown in Mr Cummins plan (see Figure 4 below, one being on the southern edge of Moe and the other being in Newborough) and thus the Project is prohibited.

Figure 4 Measured distances from Project land[14]



SCA submitted that the NRZ Schedule 4 area at 149 Coalville Road, Moe South (as shown in the upper plan of Figure 4) is almost entirely within the 5 kilometre prohibition area defined in the planning scheme. It submitted:[15]

> "Urban area" should be given its ordinary and common meaning: the region surrounding a township including suburbs. Its meaning should be distinguished from a 'rural area'. The urban area of Moe does not mean the urban centre of Moe.

In support of the proposition that 149 Coalville Road is within the urban area of Moe, it submitted, the land is:[16]

- identified as being in the Parish of Moe
- in Moe South which has the same postcode as Moe
- identified by the ABS as being in the 'significant urban area' of Moe
- shown on Latrobe Planning Scheme maps as being in the urban area of Moe

[14] Document 65a. The red line is said to be 5 kilometres from the north west corner of Crown Allotment 77.
[15] Document 65, para 15.
[16] Document 65, para 17 and attachments to the submission.

- part of the Moe-Newborough urban area as demonstrated in relevant planning policy including the Moe-Newborough Town Structure Plan (the Structure Plan).

SCA submitted this was a threshold legal issue and the Panel Hearing should not proceed until the matter was considered and a ruling made.

The Applicant provided a submission on the issue; identifying that the two key issues are what constitutes the *urban area of Moe* and what is *the land* the Project sits on.[17] It provided a summary of the development and history of the planning scheme provisions relevant to the issue.

It submitted that the land at 149 Coalville is not within the urban area of Moe and provided an extract from the Structure Plan map from clause 11.01-1L-3MN in support of this proposition (see Figure 5).

The Applicant submitted that the NRZ land in question is south of Borrmans Street, which is the southern boundary of the Structure Plan in this area. It submitted the land is:[18]

- used and developed for rural living purposes, and not for any recognised urban purpose (notwithstanding its NRZ zoning);
- outside the Moe town boundary;
- not identified as any category of residential land in the Structure Plan, including as long term future residential land; and, indeed;
- located in what is recognised as a separate settlement – Moe South – in each and every plan contained in clause 02.04 and is expressly recognised as a rural living precinct in clause 02.03-1.

The Applicant submitted the land used for a wind energy facility should be read as the land containing the infrastructure of the facility (the turbines and other infrastructure used to generate electricity from the wind) despite the definition of wind energy facility at clause 73.03 being inclusive.[19]

This was put succinctly in the advice from White & Case as follows:[20]

> In our view the land used to generate electricity by wind force is the land upon which the turbine sits, which will ultimately form the leased premises. Whilst the whole lot is referenced in the permit, not all of the lot is leased or used to generate wind energy. In fact, for this project, the area of the land that is not subject to the foundations of a turbine is used for plantation purposes and is not used to generate wind. It is only the footprint of the turbine that becomes the leased premises for the wind energy facility, which is the land used to generate electricity. …

[17] Document 64b. Note White & Case lawyers provided legal advice on these matters to OSMI in August 2021 (Document 44a) which is consistent with the submissions in the Hearing.

[18] Document 64b, para 26.

[19] Document 64b, para 32 onwards.

[20] Document 44a, page 2, advice to OSMI.

Figure 5 Extract from Moe – Newborough Structure Plan showing 149 Coalville Road[21]

The Applicant concluded that the 5 kilometre prohibition distance is met comfortably from the nearest turbine (T03) to the urban area of Moe, being the southernmost point of the NRZ north of Borrmans Street east of Coalville Road.[22]

Lastly, the Applicant submitted that if the argument about the land for the wind energy facility was not accepted, it could be resolved through a condition on the permit as it was not a condition precedent for the application. In its view such a condition would have not practical effect to the layout of the wind farm.

Discussion and conclusion

After hearing submissions, the Panel determined in the Hearing that the prohibition distance in clause 52.32-2 should be ventilated, but the merits consideration was not required prior to the Hearing of submissions on the applications more broadly. Detailed reasons for this position were provided.[23]

The Panel considers there are two distinct questions to be answered: what is the southern extent of the Moe urban area, and what is the land that the wind energy facility would sit on if approved?

The urban area of Moe

In the absence of an agreed definition of 'urban area', the Panel considers the most relevant objective test is the boundary provided for Moe in the planning scheme, that is the Structure Plan boundary included in the planning scheme at clause 11.01-L-3MN.

[21] Clause 11.01-1L–3MN. The Panel has inserted the black arrow showing the approximate location of 149 Coalville Road.
[22] See attachments to Document 44a.
[23] Document 57.

This clearly shows the southern boundary of Moe – Newborough as being at Borrmans Street. The Panel therefore does not accept that 149 Coalville Road, despite its residential zoning, could be considered as part of the Moe urban area. Whilst in the NRZ it is clearly not shown in policy in the planning scheme as being suitable for future more intensive development of an urban nature.

Even if a more generic definition of urban area is taken, for example a 'built up area', it is difficult to see how the property at 149 Coalville Road Moe South would fit such a definition.

It is indistinct where the Structure Plan boundary along Borrmans Street sits, whether the northern, central or southern boundary of the road reserve. The Panel considers a centreline approach reasonable as is commonly done with land use zones[24], and therefore the 5 kilometres should be measured from the centreline of the Borrmans Street road reserve north of 149 Coalville Road.

SCA, as shown in the lower plan in Figure 4, submitted that there is a significant area of Newborough around Shanahan Parade within 5 kilometres of the northern end of Crown Allotment 77. This area was not pursued strongly in submissions but the Panel notes that Latrobe City Council considers Moe-Newborough either is or will be a single settlement in the planning scheme.[25]

The reference to the Moe urban area in the schedule to clause 52.32 does not refer to Moe-Newborough so the Panel does not think the prohibition applies more broadly than to Moe itself.

The Panel is thus satisfied that the 5 kilometre prohibition even to the northern end of Crown Allotment 77 has been met and there is no impediment based on the schedule to clause 52.32 to refuse the wind energy facility application in Latrobe City.

The land

The Panel notes SCA's submissions that all of the land subject to the permit applications should be considered as being used by the wind energy facility. Thus, the northern boundary of all of the plantation area is the measurement point for the 5 kilometre exclusion zone as discussed above.

The Panel does not accept this submission. It would be inconsistent with the aims of the planning scheme through clause 52.32 to manage the amenity impacts of wind turbines from the land boundary rather than the source of amenity impact, that being largely the turbines themselves.

Clause 73.03 defines, in part, the following elements as being the 'land' used for a wind energy facility, "… *any turbine, building or other structure or thing used in or in connection with the generation of electricity by wind force".*

It is difficult to see a point, for example, just inside the northern boundary of Crown Allotment 77, as being the land used for a wind energy facility.

If the Project is approved, the Panel understands the Applicant will lease part of the land for the wind energy facility for turbines and associated infrastructure. The Applicant is not leasing the entirety of the land, the balance of which will remain in productive plantation use by HVP. This land logically in the Panel's view is the land used to generate electricity from wind energy, not the entirety of the lots in the application containing the broader plantation.

[24] For example see the boundary between the NRZ and RLZ on Borrmans Street west of Coalville Road.

[25] See clause 02.03-1 of the Municipal Planning Strategy.

Is the wind energy facility prohibited in Latrobe City Council

In the Panel's view the wind energy facility, whether measured from the nearest turbine or the northern boundary of Crown Allotment 77, is not prohibited in Latrobe City under the schedule to clause 52.32.

The Panel considers the logical measurement point for determining whether the wind energy facility is within 5 kilometres of the Moe urban area is the land leased for the turbines, in this case the land to be leased for Turbine 03.

The Panel does not consider there is a need to condition the planning permit.

(ii) Objection to Applicant providing Hearing support

Submitter Ms Annette Thompson objected to the Hearing being 'hosted' by the Applicant online. The reasons for this in summary were:[26]

- the Panel's independence could not be guaranteed if the Applicant was running the Hearing
- the Panel is publicly funded and it is inappropriate to have the Applicant take on Government responsibilities and is intimidating to submitters
- there is already evidence of the Applicant influencing DELWP decisions prior to the Hearing
- past panels have been run in independent venues and this should occur here.

The Panel considered the objection and responded that the Panel Hearing would proceed as scheduled on videoconference. The reasons included:

- it is usual practice for Panels to direct that proponents and applicants assist in the logistical arrangements for Hearings, whether on videoconference or face to face
- hearings via videoconference have been occurring successfully throughout the COVID-19 pandemic for small and large matters
- because the Applicant is hosting or has contracted out the hosting of the Hearing does not mean they have control of the proceedings; this remains with the Panel.[27]

1.6 The Panel's approach

(i) General approach

The Panel has assessed the planning permit applications against the principles of net community benefit and sustainable development, as set out in clause 71.02-3 (Integrated decision making) of the Planning Scheme.

The Panel considered all written submissions made in response to the planning permit applications, observations from site visits and submissions, evidence and other material presented to it during the Hearing. It has reviewed a large volume of material and has had to be selective in referring to the more relevant or determinative material in the Report. All submissions and materials have been considered by the Panel in reaching its conclusions, regardless of whether they are specifically mentioned in the Report.

[26] Document 12.
[27] Document 21.

This Report deals with the issues under the following headings:

- Planning context
- Landscape and visual impact
- Noise
- Biodiversity
- Traffic
- Bushfire
- Other issues
  - Electromagnetic interference
  - Blade flicker
  - Aviation impacts
  - Economic impacts and property values
  - Decommissioning
- The planning permits.

(ii) Issues not considered in detail

Many submissions to the applications raised general issues of human health including negative mental health concerns, stress about the process, and alleged health impacts from wind turbines.

Noise impact on human health is well documented, and there are numerous regulatory standards for noise across society, including for wind turbines. Noise is addressed in detail in Chapter 4.

Other submissions in support of the Project noted the existing and demonstrated health impacts (air quality) from electricity generation from coal in the Latrobe Valley and submitted that the Project would contribute to an improvement in health outcomes over time.

Other impacts on human health said to be caused by wind farms have been addressed in many panel reports and Victorian Civil and Administrative Tribunal (VCAT) decisions over the past 15-20 years. The most recent detailed exploration of these issues was in the Golden Plains Wind Farm EES Inquiry in 2018.[28] In essence that Inquiry found that among the material published by research agencies and in recent court cases there was nothing to suggest there was an evidentiary basis for refusing or modifying the Project on human health grounds.

No new evidence of health impacts was brought before this Panel. The Panel therefore generally adopts the position of the Golden Plains Inquiry in relation to human health.

1.7 Hearing

The Hearing for the Project was convened by videoconference using the online platform Zoom.

Ten expert witnesses were called, and three expert meetings were held prior to the Hearing commencing.[29]

The Panel extends its thanks to the Applicant and its contractors for assisting the facilitation of the online Hearing.

[28] *Golden Plains Wind Farm EES Inquiry* (EES) [2018] PPV 97, at Section 13.6.

[29] Sometimes called 'conclaves' in this report. Expert meetings were held for bushfire (Document 46a), landscape and visual (Document 46b) and Noise (Document 46c). In these meetings experts in a similar field of expertise meet to discuss areas of agreement and disagreement.

The Hearing was recorded (audio only) at the request of the SCA and no objections to recording were received.

1.8 Site inspections

The Panel undertook two site inspections as shown in Table 1, observing all relevant COVID-19 restrictions.

Table 1 Panel site inspections

Date	Attendees	Summary
14 October 2021	Panel.	Unaccompanied inspection of the Project area and surrounds.
24 November 2021	Panel, PPV Senior Project Officer, Applicant, DELWP, Latrobe City Council, CFA, SCA, landowners and submitters.	Accompanied visits to individual properties in the Project area at the invitation of landowners along with viewing of virtual reality imagery at the Applicant's main office in Mirboo North.

2 Planning context

This Chapter explains the overarching legislative and planning policy framework for wind energy facilities. Legislation and planning policy relating to specific issues are discussed in other Chapters of this report.

2.1 Legislative framework

Victorian government legislation and planning policy on climate change, renewable energy, noise, biodiversity protection, water, road management and catchment and land protection apply to the project.

The legislation referred to in this report is Victorian legislation unless indicated otherwise.

2.1.1 Planning and Environment Act

The PE Act provides a framework for planning and regulating the use, development and protection of land in Victoria. It sets out the procedures for assessing and determining planning permit applications. Section 4 of the PE Act contains the objectives of planning in Victoria that guide all planning decisions (including decisions on whether to issue a planning permit), including:

- to provide for the fair, orderly, economic and sustainable use, and development of land
- to provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity
- to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria
- to conserve and enhance those buildings, areas or other places which are of scientific, aesthetic, architectural or historical interest, or otherwise of special cultural value
- to balance the present and future interests of all Victorians
- to ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land.

The matters a Responsible Authority must consider when deciding whether to grant a planning permit include the planning objectives set out above and a range of other matters described in Chapter 9.

2.1.2 Climate change

The *Climate Change Act 2017* provides a foundation to manage climate change risks and support Victoria's transition to a net zero emissions climate resilient economy.

Section 20 of the Act requires the Victorian Government to ensure that its decisions appropriately take climate change into account:

> The Government of Victoria will endeavour to ensure that any decision made by the Government and any policy, program or process developed or implemented by the Government appropriately takes account of climate change if it is relevant by having regard to the policy objectives and the guiding principles.

The policy objectives are set out in section 22, along with six guiding principles.

Victoria's Climate Change Framework, prepared under the Climate Change Act, identifies four pillars that underpin the transition to a climate resilient and net zero emissions Victoria by 2050. The pillar relevant to the Project is:

Move to a clean electricity supply by increasing renewable energy generation.

Victoria's Climate Change Strategy (May 2021) sets interim targets to reduce Victoria's emissions from 2005 levels 28-33 per cent by 2025, and 45-50 per cent by 2030 to achieve net zero emissions by 2050.

Point one of the strategy's five-point plan is to achieve the emissions reduction targets to transition to renewable energy. The strategy includes an 'Energy pledge' that 50 per cent of Victoria's electricity will come from renewable sources by 2030.

2.1.3 Noise regulations under Environment Protection Act

The EPA became the primary regulator for operational wind turbine noise in Victoria from 1 July 2021. New noise obligations now apply for all industries under the *Environment Protection Act 2017* (EP Act). Specific noise requirements apply to wind farm operators under the *Environment Protection Amendment (Wind Turbine Noise) Regulations 2021*.

As a result, operational noise conditions are no longer required in planning permit conditions.

The *Public Health and Wellbeing Act 2008* was amended on 9 February 2021 to remove the overlap of wind farm noise regulation by excluding wind farm turbine noise from nuisance provisions.

The new arrangement for wind farm noise regulation is considered in detail in Chapter 4.

2.1.4 Water, biodiversity and catchment protection

The *Water Act 1989* provides the legal framework for managing Victoria's water resources and applies to management of surface water and groundwater resources. The Planning Application Report for the Project noted it will require a significant volume of water for construction, and fire management and a lesser volume of water for operation. Licences are required under the Water Act to extract water from a waterway.

The *Catchment and Land Protection Act 1994* requires land owners (or a third party to whom responsibilities have been legally transferred) to take all reasonable steps on their land to avoid causing or contributing to land degradation that causes or may cause damage to land of another land owner. This includes controlling noxious weed species.

The purpose of the *Flora and Fauna Guarantee Act 1988* (FFG Act) is to enable and promote the conservation and sustainable management of Victoria's native flora and fauna. Threatened species and threatened ecological communities exist along parts of some of the road reserves of roads to be used to access the Project site, and government roads within the Project site. Where removal of FFG Act species is required on public land, a permit to take listed species is required.

2.1.5 Road management

The *Road Management Act 2004* requires consent to undertake works on roads. The project will use the Strzelecki Highway and primary local roads including Deans Road, Golden Gully Road, Smiths Road and Creamery Road to access the Project site.

2.2 Planning Policy Framework

The Planning Policy Framework (PPF) for the permit applications is set out in the planning schemes of Latrobe City Council, South Gippsland Shire Council and Baw Baw Shire Council.

The PPF establishes planning principles to guide decisions on planning applications across Victoria.

The relevant policies of the PPF encourage wind energy facilities to be in suitable locations that do not result in unacceptable impacts on critical environmental, cultural or landscape values.

Significant state and regional policies are outlined below. The full list of relevant policy is included in DELWP's Part A submission.[30]

2.2.1 Clause 11 - Settlement

Clause 11.01-1S (Settlement) seeks to promote the sustainable growth and development of Victoria and deliver choice and opportunity for all Victorians through a network of settlements.

Clause 11.01-1R (Settlement – Gippsland) identifies Latrobe as Gippsland's regional city in additional to five other regional centres. The subject site is located within the Gippsland Regional Growth Plan which is shown as an area containing brown coal reserves.

Clause 11.02-1S (Supply of Urban Land) seeks to maintain access to productive natural resources and an adequate supply of well-located land for energy generation, infrastructure and industry.

2.2.2 Clause 12 – Environmental and Landscape Values

Clause 12.01-1S (Protection of Biodiversity) seeks to assist in the protection and conservation of Victoria's biodiversity. It seeks to ensure that decision making considers the impacts of land use and development on Victoria's biodiversity, including consideration of cumulative impacts and the fragmentation of habitat.

Clause 12.01-2S (Native Vegetation Management) seeks to ensure there is no net loss of biodiversity from the removal, destruction or lopping of native vegetation.

Clause 12.03-1S (River Corridors, Waterways, Lakes and Wetlands) outlines the need to protect the environmental, cultural and landscape values of all water bodies and wetlands.

Clause 12.05-2S (Landscapes) seeks to protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments.

2.2.3 Clause 13 – Environmental Risks and Amenity

Clause 13.01 – (Climate change impacts) seeks to minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning.

Clause 13.01-1S (Natural Hazards and Climate Change) seeks to identify at risk areas and consider those risks in the planning and management decision making process.

Clause 13.02-1S (Bushfire Planning) implements risk-based planning that prioritises the protection of human life.

Clause 13.03-1S (Floodplain Management) seeks to avoid intensifying the impact of flooding through inappropriately located use and development.

Clause 13.04-2S (Erosion and Landslip) seeks to prevent inappropriate development in unstable areas or areas prone to erosion.

[30] Document 50. Note that the Latrobe Planning Scheme has been translated into the contemporary policy format while this process is under way for Baw Baw and South Gippsland.

Clause 13.05-1S (Noise Abatement) seeks to ensure that noise impacts on community amenity is managed through a range of techniques including land use separation as appropriate to the land use function and character of the area.

Clause 13.07-1S (Land Use Compatibility) seeks to safeguard community amenity while facilitating appropriate commercial, industrial and other land uses with potential off-site effects.

2.2.4 Clause 14 – Natural Resource Management

Clause 14.01-1S (Protection of Agricultural Land) seeks to ensure that strategically important agricultural and primary production land is protected from incompatible land uses.

Clause 14.01-3S (Forestry and Timber Production) seeks to facilitate the establishment, management and harvesting of plantations and the harvesting of timber from native forests.

Clause 14.02-1S (Catchment Planning and Management) seeks to assist the protection and restoration of catchments, water bodies, groundwater and the marine environment including ensuring that development at or near waterways protects the environmental qualities of waterways and their instream uses. This includes the provision of appropriate setbacks from waterways.

Clause 14.02-2S (Water Quality) seeks to ensure that land use activities are sited and designed to minimise discharge to waterways and to protect the quality of surface water and groundwater.

Clause 14.03-1S (Resource Exploration and Extraction) seeks (amongst a range of other strategies) to protect the brown coal resource in Central Gippsland by ensuring that changes in use and development of land overlying coal resources do not compromise the winning or processing of coal.

Clause 14.03-1R (Resource exploration and extraction – Gippsland Coal Resources) seeks to protect the Gippsland brown coal resource and associated buffer areas via a range of strategies including ensuring that development in coal resource areas does not compromise the existing or future use of the resource.

2.2.5 Clause 15 – Built Environment and Heritage

Clause 15.01-6S (Design for Rural Areas) seeks to ensure that new development respects valued areas of rural character and minimises visual impacts on surrounding natural scenery.

Clause 15.03-1S (Heritage Conservation) seeks to ensure the conservation of places of natural and cultural heritage.

Clause 15.03-2S (Aboriginal Cultural Heritage) aims to protect and conserve places of Aboriginal cultural heritage in accordance with the requirements of the Aboriginal Heritage Act 2006.

2.2.6 Clause 17 – Economic Development

Clause 17.01-1S (Diversified Economy) seeks to facilitate growth in a range of employment sectors and support rural economies to grow and diversify.

2.2.7 Clause 18 – Transport

Clause 18.01-2S (Transport System) seeks to plan or regulate for new land uses to avoid detriment to and where possible enhance the service, safety and amenity desirable for that transport route (amongst a range other strategies).

Clause 18.02-7S (Planning for Airports and Airfields) seeks to, amongst a range of matters, ensure that appropriate planning is put in place to ensure that new use or development does not prejudice the safety or efficiency of airfields.

2.2.8 Clause 19 – Infrastructure

19.01-2S (Renewable energy) seeks to promote and facilitate the provision of renewable energy through appropriate design, consider the economic and environmental benefits to the broader community of renewable energy generation while also considering the need to minimise the effects of a proposal on the local community and environment.

2.3 Zoning and overlays

2.3.1 Zones

The Project site predominantly falls within the Farming Zone (FZ) in the Latrobe, Baw Baw and South Gippsland Planning Schemes. It is partially within the Road Zone Category 1 (RDZ1) in the Latrobe and South Gippsland Planning Schemes.

The terminal station site is located within the Latrobe Planning Scheme Special Use Zone Schedule 1 - Brown Coal (SUZ1). The purpose of the SUZ1 is to provide for brown coal mining and associated uses, electricity generation and associated uses, and interim and non-urban uses which protect brown coal resources, and to discourage the use or development of land incompatible with future brown coal mining and industry.

There is a Rural Living Zone Schedule 2 (RLZ2) area to the southeast of the Project.

Figures 6, 7 and 8 below provide a high level overview of zoning and overlays across the entire Project site.

Figure 6 Wind Energy Facility Zone Map

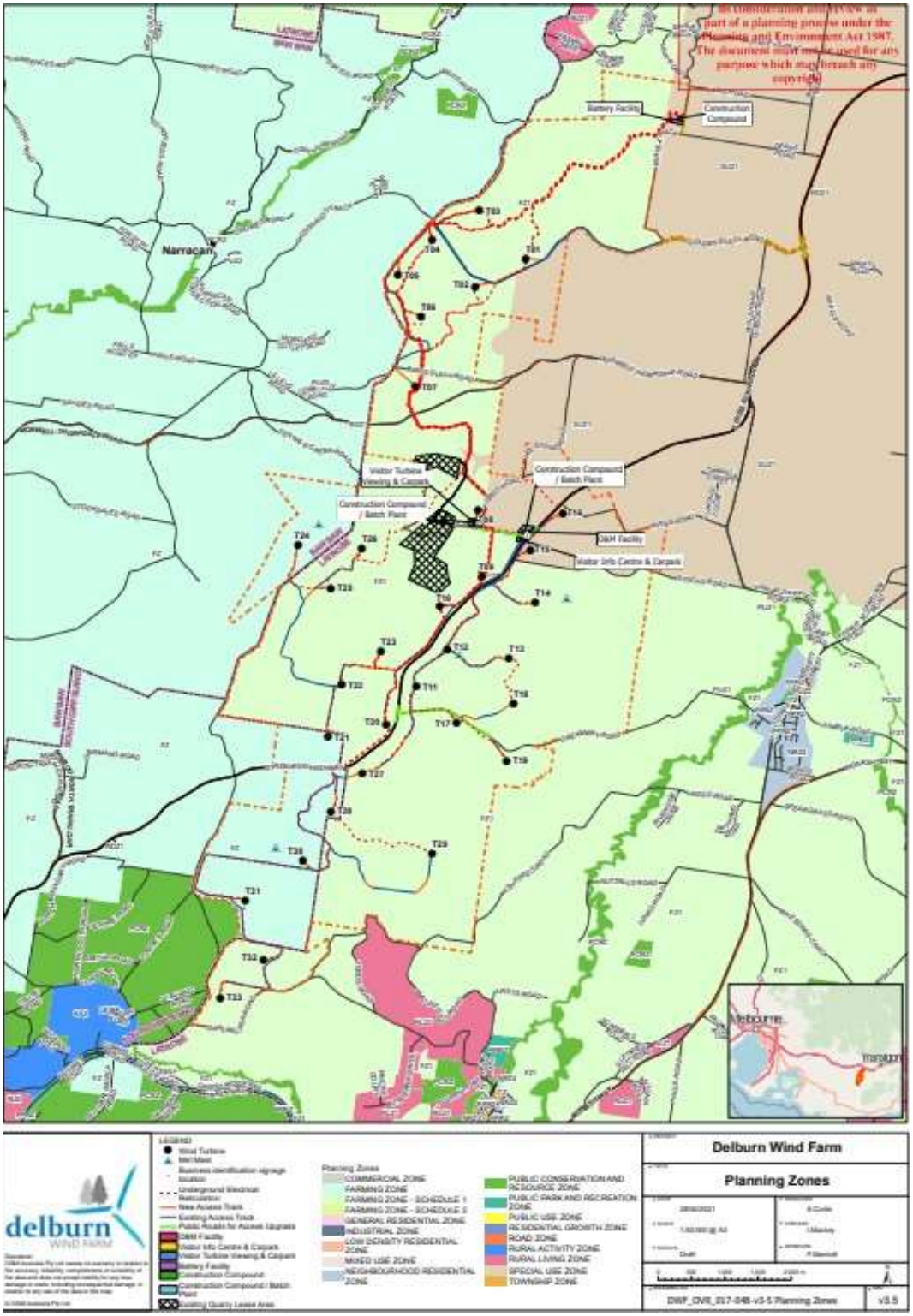


Figure 7 Wind Energy Facility Overlay Map

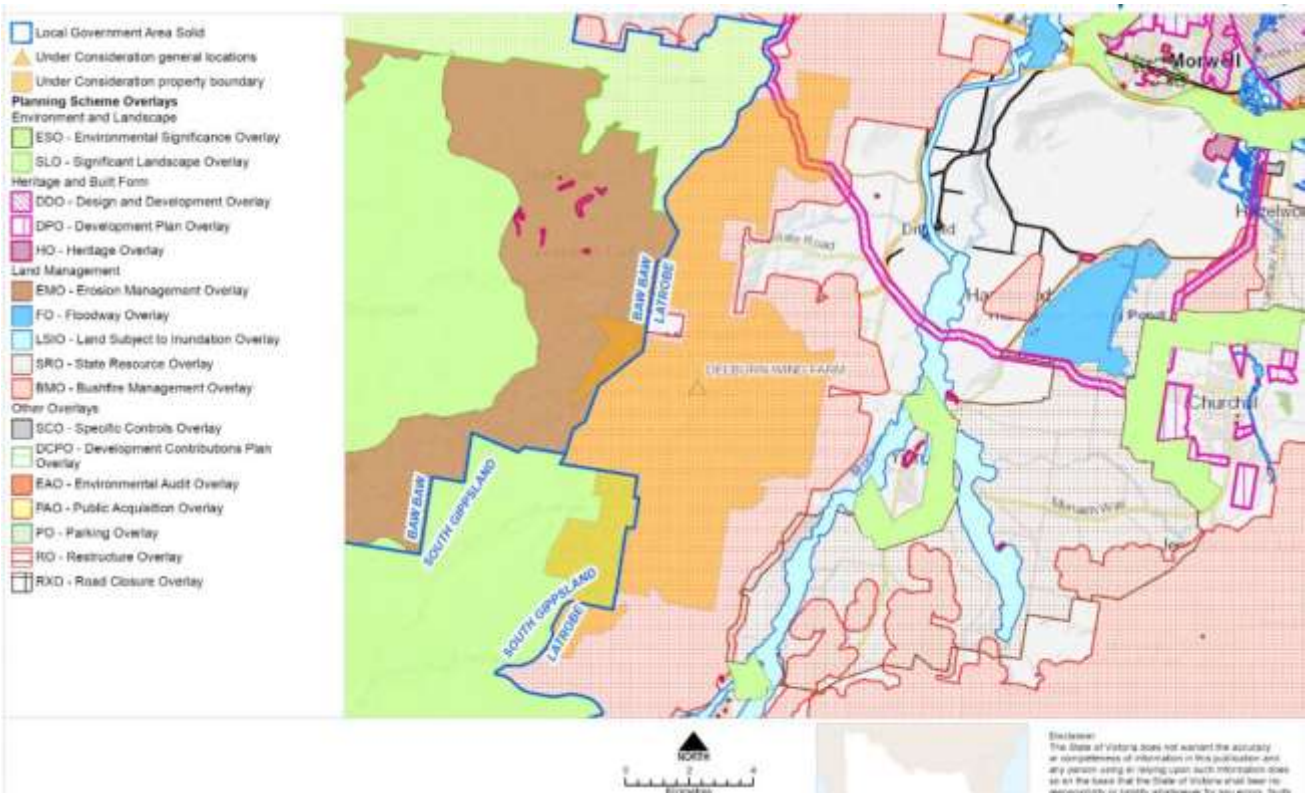


Figure 8 Terminal Station Zone and Overlay Map

2.3.2 Bushfire Management Overlay

The Project site in all three municipalities is affected by the Bushfire Management Overlay (BMO). The objectives of the BMO are:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.
- To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.
- To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.

A planning permit is not triggered for the development of a Wind Energy Facility and Utility Installation in the BMO.

2.3.3 Other overlays

The other overlay controls that apply to the Project site in each municipality are as follows:

- **Latrobe**: Design and Development Overlay - Schedule 1 (Major Pipeline Infrastructure) requires a permit to construct a building or construct or carry out works associated with a Wind Energy Facility (clause 44.02-2 of the DDO1). The objective of DDO1 is:
  > To ensure that all buildings and works and in particular buildings designed to accommodate people are sufficiently separated from high pressure pipelines to avoid a safety hazard.
- **Baw Baw**[31]: Erosion Management Overlay - Schedule 1 (EMO1) requires a permit to remove, destroy or lop native vegetation, including dead vegetation. The objective of ESO1 is:
  > To protect areas prone to erosion, landslip, other land degradation or coastal processes by minimising land disturbance and inappropriate development.
- **South Gippsland**: Environmental Significance Overlay - Schedule 5 (ESO5) requires a permit for the construction or carrying out of works, including vegetation removal. The objective of ESO5 is:
  > To identify areas where the development of land may be affected by environmental constraints. To ensure that development is compatible with identified environmental values.

2.4 Particular provisions

2.4.1 Clause 52.32 (Wind Energy Facility)

The purpose of clause 52.32 (Wind Energy Facility) is:

> …to facilitate the establishment and expansion of wind energy facilities, in appropriate locations, with minimal impact on the amenity of the area.

It provides that a planning permit is required to use and develop land for a wind energy facility unless it is in an area where a wind energy facility is prohibited.

The procedural issue as to whether the Project is prohibited on the basis of the 5 kilometre setback from the Moe Urban Area is discussed in Chapter 1.5.

[31] The Development Plan Contribution Overlay also applies but the site is located within Area 048 and for an industrial development there is no contribution attributable pursuant to clause 1.0 of Schedule 1 to the DCPO.

Clause 52.32 includes decision guidelines that the Responsible Authority must consider, and these are considered in Chapter 9. The clause also references the *Policy and planning guidelines for development of wind energy facilities in Victoria* (the Wind Farm Guidelines). Section 5 of the guidelines outlines the following matters to be considered in assessing wind farm proposals:

1. Contribution to government policy objectives
2. Amenity of the surrounding area
   a) Noise
   b) Blade glint
   c) Shadow flicker
   d) Electromagnetic interference
3. Landscape and visual amenity
4. Flora and fauna
5. Aircraft safety
6. Construction impacts and decommissioning.

2.4.2 Clause 52.17 (Native vegetation)

Clause 52.17 requires a planning permit to remove, destroy or lop native vegetation. The purpose of clause 52.17 is to ensure there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. It requires the applicant to avoid removal, minimise impacts and offset to compensate for any permitted loss of biodiversity in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* DELWP, 2017 (the Native Vegetation Guidelines).

2.4.3 Clause 71.02 (Integrated Decision Making)

The principle of integrated decision making is set out in clause 71.02-3. It states:

- Society has various needs and expectations such as land for settlement, protection of the environment, economic wellbeing, various social needs, proper management of resources and infrastructure. Planning aims to meet these needs and expectations by addressing aspects of economic, environmental and social wellbeing affected by land use and development.
- Planning and responsible authorities should endeavour to integrate the range of planning policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development for the benefit of present and future generations. However, in bushfire affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations.
- Planning authorities should identify the potential for regional impacts in their decision making and coordinate strategic planning with their neighbours and other public bodies to achieve sustainable development and effective and efficient use of resources.

2.4.4 Latrobe Planning Scheme particular provisions

Other particular provisions in the Latrobe Planning Scheme relevant to the applications include:

- Clause 52.05 (Signs)
- Clause 52.06 (Car parking)
- Clause 52.09 (Extractive Industry and Extractive Industry Interest Areas)
- Clause 52.29 (Land adjacent to a Road Zone Category 1).

2.5 Other strategic plans and policies

The following strategic plans and policies have been considered as relevant to the assessment of the Project.

2.5.1 Renewable Energy Roadmap and Action Plan

The *Renewable Energy Roadmap* is the Victorian Government's plan to accelerate development of renewable energy generation in Victoria to reduce emissions, create jobs and put downward pressure on energy prices. The Roadmap sets out the government's plan to attract Victoria's share of renewable energy investment and jobs in Australia. It outlines initiatives to accelerate the development of renewable energy projects in Victoria.

The *Renewable Energy Action Plan 2017* outlines actions the Victorian Government will take to encourage investment in renewable, affordable and reliable energy. The plan includes 23 actions across three areas:

- Creating new jobs, investment and energy sector growth
- Empowering and engaging households, businesses, and communities
- Strengthening our affordable, reliable and resilient energy system.[32]

Relevant actions include *Action 6 - Streamlining renewable energy projects processes and approvals*.

2.5.2 Renewable Energy Auction Scheme

The *Renewable Energy (Jobs and Investment) Act 2017* sets the Victorian Renewable Energy Targets. The targets are: 50 per cent of Victoria's electricity will be generated from renewable energy sources by 2030 and 40 per cent by 2025.

The Victorian Government estimates that its first competitive reverse auction scheme leveraged the generation of 2,990,300MWh per annum, created 900 jobs and reduced greenhouse gas emissions by up to 2.2 million metric tonnes.

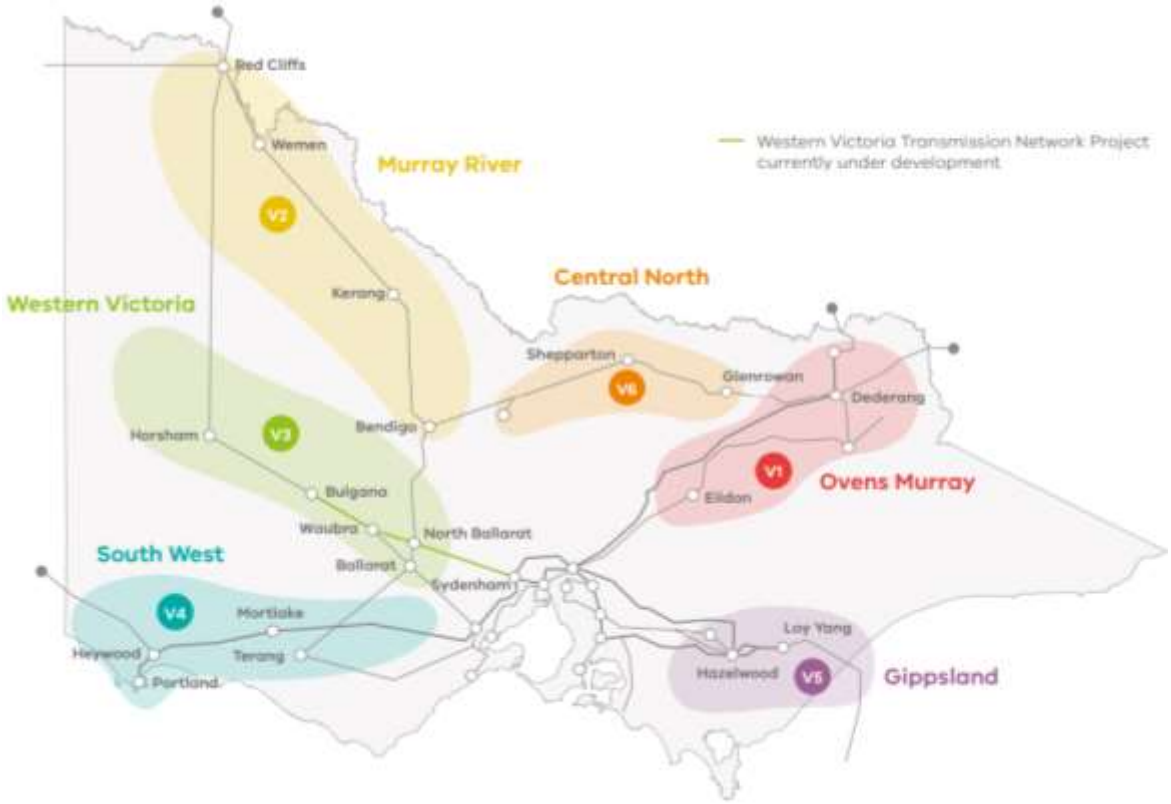
It expects a second auction scheme to create at least 2,000 new jobs, attract $1 billion in capital expenditure, and put downward pressure on wholesale electricity prices, reducing bills for every Victorian household and business.

2.5.3 Renewable Energy Zones

To facilitate the development of renewable energy, grid infrastructure, energy efficiency and decarbonisation projects, the Victorian Government released the *Victorian Renewable Energy Zones Development Plan Directions Paper* (February 2021). The Paper outlines a plan to unlock 10 gigawatts of new renewable energy capacity in Victoria, by establishing six Renewable Energy Zones (REZs). One of the REZ is proposed to be located in the Gippsland area (see Figure 9).

[32] *Renewable Energy Action Plan 2017 page 16*

Figure 9 Victoria's Renewable Energy Zones[33]



The REZs seek to allow new renewable energy projects to be connected in a timely manner, reducing risks for investors, achieving better energy affordability and reliability for consumers, helping achieve climate change goals and furthering regional economic development goals.

Development in each REZ will be facilitated under the *National Electricity (Victoria) Act 2005*. The Act was amended by the *National Electricity (Victoria) Amendment Act 2020* to allow the modification or disapplication of the national regulatory framework and allow developments to proceed without associated delays, by Order of the Governor in Council.

The Government and the Australian Electricity Market Operator have identified potential immediate priority transmission network upgrade projects to support existing and future renewable energy generation development in Victoria's REZs. The Directions Paper forecasts the delivery of a new 500 kilovolt, 65 kilometres overhead double circuit transmission line heading east from Hazelwood or Loy Yang to the coastal reaches nominally between Yarram and Sale. The new transmission line seeks to provide up to 2,100 megawatts of anticipated network capacity for future renewable energy generation projects and is expected to increase utilised renewable energy by 7,270 gigawatt-hours.

2.5.4 New Energy Technologies Sector Strategy

The *New Energy Technologies Sector Strategy: Victoria's Future Industries (March 2016)* is the Victorian Government's plan to transition to a low carbon economy. New energy technologies, which include forms of renewable energy, are a key part of this transition.

[33] *Renewable Energy Zones Development Plan Directions Paper* (February 2021) – Figure 1 page 4 of 48

2.5.5 Victoria's Regional Statement

Victoria's Regional Statement – your voice, your region, your state, 2015 establishes nine new regional partnerships that will direct regional priorities straight to government. The statement acknowledges the significant job opportunities from new energy industries and the Government's commitment to building renewable energy that will deliver major benefits for regional Victoria.

2.5.6 Gippsland Regional Growth Plan

The Gippsland Regional Growth Plan provides broad direction for land use and development in the region. It is incorporated into the Planning Policy Framework and is a reference document for the Delburn Wind Farm permit applications.

Relevant principles and key directions under the Gippsland Regional Growth Plan include:

- Strengthen economic resilience by growing a more diverse economy that is supported by new investment, innovation and value-adding in traditional strengths
- Promote a healthy environment by valuing Gippsland's environmental and heritage assets, and by minimising the region's exposure to natural hazards and risks
- Develop sustainable communities through a settlement framework comprising major urban centres that ensures residents have convenient access to jobs, services, infrastructure, and community facilities
- Deliver timely and accessible infrastructure to meet regional needs for transport, utilities and community facilities.[34]

2.6 Discussion and conclusion

It is clear to the Panel that there is a very strong emphasis in planning policy and broader Government policy that a transition from fossil fuels to renewable energy is not only sought but is to be facilitated. This includes wind energy. The wording of clause 19.01-2S (Renewable energy) of the PPF and clause 52.32 (Wind Energy Facility) is not neutral.

However, the facilitation of wind energy is not to be undertaken 'at all costs'. Clause 19.01-2S is qualified with the words "*while also considering the need to minimise the effects of a proposal on the local community and environment*".

It is apparent from the significant number of objecting submissions from people who are proximate to the Project that there has not been a comparable wind farm application in Victoria previously.

The number of dwellings in the vicinity of the proposed wind farm is very high compared to previous wind farm proposals. The Golden Plains Wind Farm the Panel understands had in the order of 135 dwellings within 3 kilometres, as opposed to the 1,267 that are proposed with 5 kilometres of the Project.

Many of these properties can be categorised as lifestyle properties with a high degree of expectation of significant amenity. It is clear there is a very strong attachment to the landscape and environment of the area amongst many objectors near the Project. A number of the smallholdings are in the FZ, possibly a legacy of past planning decisions rather than a logically planned rural living outcome.

[34] Gippsland Regional Growth Plan page 17.

To many of these residents the Project is an unwelcome intrusion. The turbines proposed will be very large and be visible for very long distances in circumstances where they are not screened by vegetation and topography. The impact of turbine visibility for those who consider the project an imposition on their environment may be significant.

Many submitters were concerned about other impacts including noise, the potential for increased bushfire risk, impacts on flora and fauna and blade throw.

If the net community benefit balance required in planning overall falls in favour of the applications, there may well be a significant portion of the local community whose attachment to the environment in this area is negatively affected.

The planning scheme requires at clause 71.02-3 the consideration of net community benefit and sustainable development. This requires a balancing exercise to determine where the net community benefit lies in any given matter, with consideration of potentially competing planning policies. It is to a large extent dependent on context, time and place.

Net community benefit as a concept has been in Victorian planning for many decades and its interpretation has been considered by many planning panels, VCAT and the higher courts. Importantly the outcome only needs to be acceptable in planning terms, not a perfect or ideal outcome. Osborn J in the Supreme Court put it thus:[35]

> The test of acceptable outcomes stated in the clause is informed by the notions of net community benefit and sustainable development. An outcome may be acceptable despite some negative characteristics. An outcome may be acceptable because on balance it results in net community benefit despite achieving some only of potentially relevant planning objectives and impeding or running contrary to the achievement of others.

Since Osborn J handed down this decision, clause 71.02-3 in the planning scheme has been modified to include:

> However, in bushfire affected areas, planning and responsible authorities must prioritise the protection of human life over all other policy considerations.

For this Project, the area is designated 'bushfire prone', as is much of Victoria, and the Panel considers this in detail later in this report. Ultimately the Panel considers that the bushfire risk to human life for communities in the area *exists now.* It is not anticipated that the Project will contribute to increased risk if implemented with the proposed bushfire mitigation and management measures.

It is also noteworthy that while the Project sits within the FZ, this is the first wind energy project in a plantation environment. The Panel has considered the implications of this and concludes that while the Project will have a small negative impact on plantation production (from infrastructure and cleared areas around turbines) it will have no impact on productive agriculture or horticulture. Subject to the consideration in detailed chapters of this report, the Panel does not hold concerns about the application specifically related to the plantation environment where it is proposed.

The density of settlement, residents' sensitivity to landscape change and the scale of the wind turbines gives the Panel some cause for concern. However, the Panel considers the policy settings as they are do not weight the landscape and visual amenity impacts of a wind farm in a location such as this higher than the Project's benefits.

[35] *Rozen v Macedon Ranges Shore Council & Anor* [2010] VSC 583 at para 171.

Overall, the Panel concludes that the net community benefit consideration results in support for the Project being approved:

- Internationally, nationally and at the state and local government level there is very strong support for increasing renewable energy and moving to a carbon neutral future and the policy settings in the relevant planning schemes reflect this.
- There is very strong facilitative support for renewable energy in planning policy, including in the Latrobe Valley.
- Planning policy requires consideration of a range of potential impacts of wind energy facilities, primarily those identified in the Wind Farm Guidelines.
- The Panel is satisfied that the potential impacts of wind energy facilities can be avoided or managed in accordance with the approach, guidelines and standards referenced in the Wind Farm Guidelines, and these matters are addressed in the body of this report.

The Panel considers the planning permits should be issued and has attached a recommended draft in Appendix D.

The Panel has not supported approval of the BESS at this stage. It is concerned there are issues with detailed design and location and findings to be incorporated from the investigation into the Victorian Big Battery fire (Moorabool). It considers such a proposal in principle may well be desirable, but it should be considered in a future planning process.

3 Landscape and visual impact

3.1 Background

3.1.1 Policies and guidelines

The following planning provisions are relevant to assessing landscape and visual impact of the Project on the site and the surrounding areas. The planning policies and guidelines apply to the viewshed of the Project, which is defined as 28.6 kilometres from the nearest wind turbine (discussed below in section 3.1.2, Landscape and Visual Impact Assessment).

Clause 12.05-2S (Landscapes) of the PPF has the objective of protecting and enhancing significant landscapes and open spaces that contribute to character, identity and sustainable environments.

As most of the land around the Project is within the FZ, the Responsible Authority is required to consider design and siting issues, including impacts on:

- the natural environment, major roads, vistas and water features and the measures to be undertaken to minimise any adverse impacts
- the character and appearance of the area, features of architectural, historic or scientific significance, or features of natural scenic beauty or importance.

Some of the land around the Project is zoned for sensitive uses including the Public Conservation and Resource Zone (PCRZ), General Residential Zone (GRZ), areas within the Rural Living Zone (RLZ) and open space areas located within the Public Park and Recreation Zone (PPRZ).

Places of interest and sensitive uses within these zones include the Bull Beef Creek Nature Conservation Reserve, Moondarra State Park, Tyers Park and residential clusters within townships and rural living.

The RLZs are in an area north west of Boolarra, two areas south of Yinnar and one in Moe South. The purposes of the RLZ include to provide for:

- residential use in a rural environment
- agricultural uses that do not adversely affect the amenity of the surrounding land uses
- protect and enhance natural resources, biodiversity and landscape and heritage values.

There are two Significant Landscape Overlays (SLOs) within the Project viewshed:

- Schedule 3 to the SLO of the South Gippsland Planning Scheme (SLO3), which is just inside the Project viewshed, protects a specific landform known as the Corner Inlet Amphitheatre.
- Schedule 1 to the SLO of the Baw Baw Planning Scheme (SLO1) seeks to protect the north face of the Strzelecki Ranges as a landscape of diversity where cleared land, remnant vegetation and timber plantations co-exist.

Several Environmental Significance Overlays (ESO) apply within the viewshed but they do not have landscape or visual objectives.

ESO1 (Areas of Natural Significance) of the South Gippsland Planning Scheme, which is outside the viewshed, seeks to conserve areas of high environmental and landscape quality and protect the views of identified significant vistas.

Wind energy facilities (Clause 52.32)

An application for a wind energy facility must include:

- a site and context analysis that includes:
  - the landscape of the site
  - existing land uses
  - views to and from the site, including views from existing dwellings and key vantage points such as major roads, walking tracks, tourist routes and growth corridors
  - nearby national parks and Ramsar wetlands and any land listed in the schedule to the clause.
- a design response that includes:
  - accurate visual simulations illustrating the development in the context of the surrounding area and from key public viewpoints
  - a description of how the proposal responds to any significant landscape features for the area identified in the planning scheme
  - an assessment of the visual impact of the proposal on the surrounding landscape and any abutting national park, Ramsar wetland or coastal area.

When deciding on an application the Responsible Authority must consider:

- the planning policy framework
- the impact on significant views, including sight lines and corridors
- the Wind Farm Guidelines.

South Gippsland Planning Scheme in clause 21.13 (Infrastructure) recognises renewable energy sources such as solar and wind power is a way for the community to address climate change through local actions. But it states there needs to be a balance between the potential benefits and negative impacts. It requires applications to consider design and siting of structures and the visual impact on the landscape, including visual corridors and sight lines.

The Wind Farm Guidelines

The Wind Farm Guidelines recognise the Victorian community places a high value on landscapes with significant visual amenity. It states site selection, design and layout of individual wind turbines should consider the significance of the landscape described in relevant planning schemes.

The guidelines state the Responsible Authority needs to decide if the visual impact of a wind farm in the landscape is acceptable. In doing so the decision maker should consider planning scheme objectives for the landscape including any ESO, Vegetation Protection Overlay (VPO), SLO or a relevant strategic study that is part of the relevant planning scheme.[36]

The decision maker must consider:[37]

- the visibility of the development
- the locations and distances from which the development can be viewed
- the impact on significant views, including visual corridors and sightlines
- the significance of the landscape as described in the planning scheme
- landscape values of nearby national parks or Ramsar wetlands
- landscape values such as areas of landscape and environmental significance
- the sensitivity of the landscape features to change.

[36] Wind Farm Guidelines, section 5.1.3.
[37] In section 5.1.3.

The guidelines define the visual impact as including the number, scale and spacing of the turbines, avoidance of visual clutter caused by turbine layout and ability to view through an array, and proximity to sensitive areas. The guidelines also suggest measures to reduce the visual impacts of wind energy facilities such as landscape vegetation screening.

3.1.2 The Landscape and Visual Impact Assessment

The *Delburn Wind Farm Landscape and Visual Impact Assessment,* 10 December 2020 (LVIA) was prepared by Alexandra Elliott of Jacobs (Appendix F, permit application documents).

The LVIA defines the viewshed of the Project as the area within 28.6 kilometres from the nearest wind turbine. It is the distance within which the 250 metre high wind turbines have the potential to take up 0.5 degrees of the vertical field of view. Turbines will be still visible beyond 28.6 kilometres.

The LVIA documents existing landscape and visual conditions within the viewshed, and identifies potential impacts associated with the construction, operation and decommissioning phases. It assessed the impacts of the turbines and associated infrastructure including the terminal station, BESS, wind monitoring masts, visitor information area, and operations and maintenance facilities.

Within the viewshed are different Zones of Visual Influence, which assist to assess the visibility of the turbines over varying distances. The zones are described in the table below.

The LVIA assessed impacts on residential dwellings, and from indicative viewpoints in the public domain, within 6 kilometres of the nearest turbine; the distance at which the Project has potential to be noticeable in views and can dominate the landscape.

Table 2 Zones of Visual Influence[38]

Distance to 250 metre high turbine	Vertical angle of view (degrees)	Zones of Visual Influence
>28.60 km	<0.5	**Visually insignificant – Extent of the project viewshed** Project a very small element in views, difficult to discern and invisible in some lighting or weather circumstances.
14.5-28.6 km	0.5-1.0	**Discernible, but not dominant in views** Project visible but not a dominant feature in views or the landscape.
6.0-14.5 km	1.0-2.5	**Potentially noticeable and can dominate the landscape** Where visible, Project has potential to be noticeable in views.
3.0-6.0 km	2.5-5.0	**Highly visible and will usually dominate the landscape** Project has potential to be a dominant visual element in views. Degree of visual intrusion depends on placement of turbines and factors such as foreground screening.
<3.0 km	>5.0	**Will always be visually dominant in the landscape** Dominates the landscape in which they are sited.

[38] Figure 4-4, LVIA, Appendix F to the planning permit application, Part 1, page 28.

The LVIA rates the overall visual impacts of the Project according to a 'scale of effects' based on four assessment criteria: visibility, distance, viewer numbers, landscape character and viewer sensitivity. The scale of effects is described below.

Table 3 Scale of effects for visual impacts[39]

Rating	Definition
Nil	No visible turbines.
Positive	Where the individual viewer appreciates the view of wind turbines in the landscape or the link to renewable energy.
Negligible	Minute level of effect that is barely discernible over ordinary day-to-day effects. Usually based on distance. That is, when visible in good weather, it would be a minute element in the view within a modified landscape or screened intervening topography, vegetation.
Low	Noticeable, but will not cause significant adverse impacts. Applies if several of the four assessment criteria are assessed as low.
Medium	Applies if several of the four assessment criteria are assessed as higher than "low" or the visual effects can be mitigated. Moderated by context of view and modifications within the landscape.
High or unacceptable	Extensive adverse effects that cannot be avoided, remedied or mitigated. For a publicly accessible viewpoint the assessment for all four criteria is high. For example, a highly sensitive landscape, viewed by many people, in close proximity and largely visible.

Photomontages and project imagery

The LVIA used a Seen Area Analysis (SAA) to assist in selecting the viewpoints to assess, using Geographical Information Software to map areas of theoretical visibility of the Project.

It also used traditional photomontages (making a composite photograph using multiple overlapping photos), virtual reality imagery and augmented reality imagery developed through TrueView®. The LVIA describes TrueView as proprietary software developed specifically for wind farm projects in the United Kingdom. TrueView was used to demonstrate the wind turbines in different landscape settings, viewing angles and distances and the effectiveness of vegetation and landscape screening in screening or filtering views towards the Project.

Jacobs presented the imagery to the community at community consultation days and drop ins at the information centre in Mirboo North.

Public viewpoints

In the public domain the LVIA rated the sensitivity of different landscape units within the viewshed of the Project. It identified distinct landscape character types in the area around the Project and assessed them for landscape sensitivity based on location, rarity and scenic qualities.[40]

The sensitivity rating for each landscape unit is summarised below.

[39] Panel, from information in the LVIA, Part 1, page 60.
[40] LVIA, Appendix F to the planning permit application, Part 1, pages 44-50.

Table 4 Landscape unit sensitivity levels[41]

Landscape unit	Sensitivity
Townships	Moderate – Built form and other visual elements reduce sensitivity.
Rural residential	Moderate to high – Valued for 'natural appearing' or rural landscape amenity but landscapes are modified in zones set aside for rural industries such as farming and extractive resources.
Cleared flat farmland	Low – Highly modified, contains visible infrastructure not topographically dramatic.
Cleared hilly farmland	Low to Moderate – Highly modified by clearing, rolling hills and deeply incised valleys provide diversity of framing views that are closed or confined or reveal longer views across the valley floor to elevated hills.
Industrial and mining	Low – Highly modified landscape.
Forested hills (natural)	Moderate to High – Attractive landscape with areas that appear pristine.
Forested hills (plantation)	Low to Moderate – Attractive when vegetated, European in appearance and regularly modified by timber harvesting.
Lakes and waterways	Moderate to High – Scenic qualities, passive recreational uses, and intrinsic value. Morwell River rated moderate due to modifications.
National and state parks	High – Areas that are and appear pristine. Encroaching development has increased the rarity of this landscape.

The landscape units and sensitivity ratings formed the basis for assessing the visual impact of views from publicly accessible locations.

The LVIA selected 79 viewpoints as representative of publicly accessible viewpoints. They were key vantage points on freeways, highways and tourist routes, major roads, local roads, townships, and recreation trails, parks and elevated lookouts. It used the SAA model to identify the viewpoints with the greatest potential for turbine visibility or where the locations coincided with key vantage points or viewing locations.[42]

The visual impact assessment was supported by photomontages for 10 locations, two wire frames and virtual reality scenes from six locations.

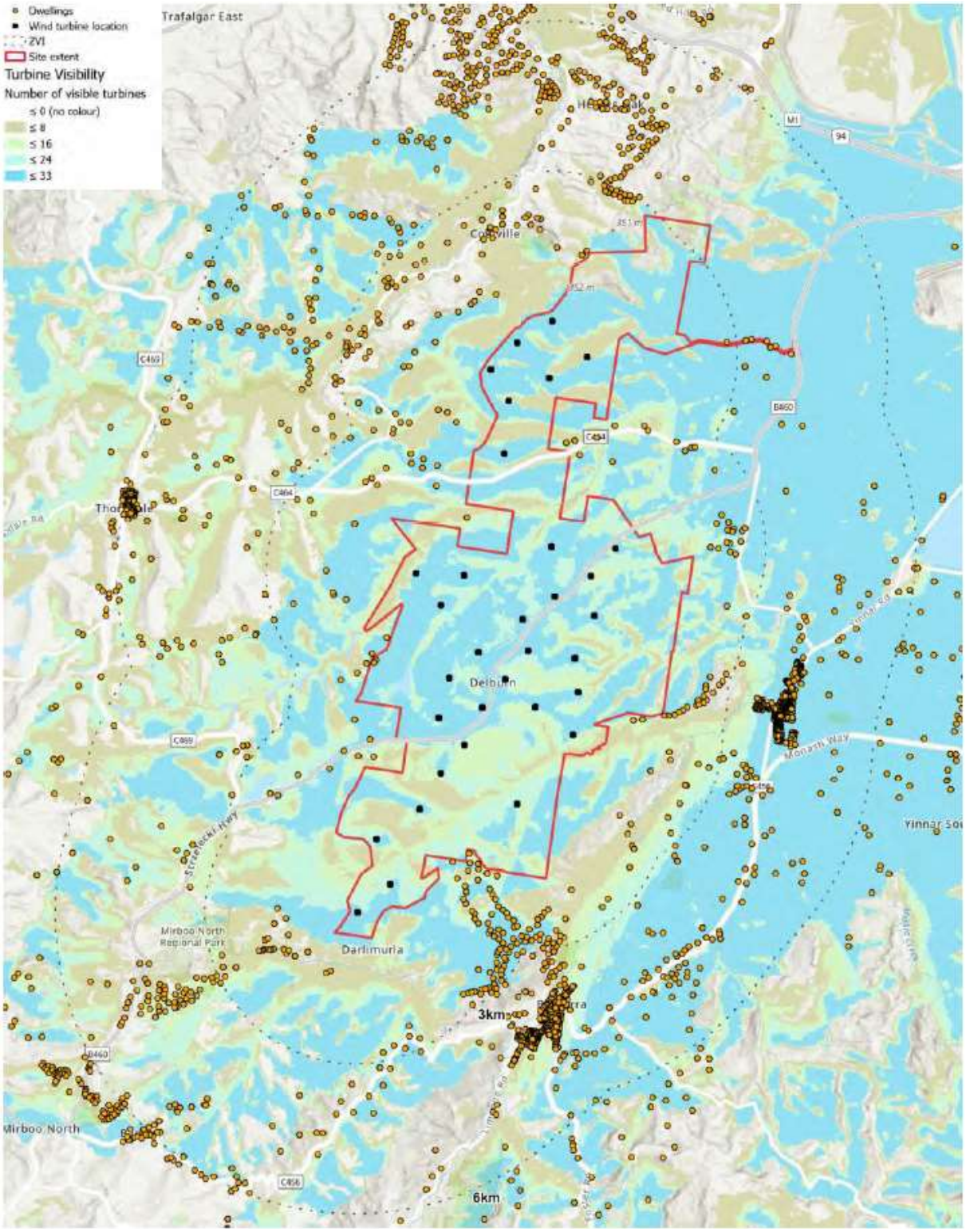
Residential dwellings

The LVIA assumed landscape sensitivity from individual residential properties will always be 'high' because homes are highly sensitive location for residents.

The LVIA found 1567 dwellings within six kilometres of a proposed turbine. It identified 317 dwellings in the high visual impact zone within three kilometres of a turbine, where a blade tip height of 250 metres would always be visible as shown in Figure 10.

[41] LVIA, Part 1, page 51, Table 6.1.
[42] LVIA, Appendix F, Part 1, page 55-56.

Figure 10 Residential dwellings within 6 kilometres of a turbine and theoretical visibility[43]



[43] LVIA, Appendix F, Figure 9-1.

Table 5 summarises the residential dwellings and their relative distance to the nearest turbine.

Table 5 Residential dwellings within 6 km of a turbine[44]

Distance to turbine	Number of dwellings
1-2 km	103
2-3 km	214
3-4 km	256
4-5 km	694
5-6 km	300

The LVIA used SAA to model the impact on dwellings within 6 kilometres of a turbine. It divided the impacted dwellings into seven clusters based on common characteristics of topography, landscape and location.

The SAA showed most of the dwellings in the areas in the north-west, part of the west and south-west of the site will have little to no theoretical turbine visibility. The topographical variation and diversity in these areas comprises steep sided rolling hills with deeply incised valleys and flatter hilltops and ridgelines. Residential dwellings and clusters tend to be set lower in the landscape and away from the elevated ridgelines.

The areas to the east of the Project set down in low, generally flat plains alongside the Morwell River have greater potential for turbine visibility.[45]

The LVIA found visual impacts will be highly variable because of the topography, orientation and proximity to vegetation. Some dwellings near turbines will have a high visual impact while their close neighbours will have none.[46]

In preparing the LVIA site visits were undertaken to 20 residential dwellings to assist with discussions about views and assess potential visual impact from residential dwellings. It assessed most dwellings as nil to low impact and for most of them landscape mitigation would be effective. The LVIA assessed five dwellings as having high visual impacts where landscape mitigation would not be possible or effective and one dwelling as having high visual impact where landscape mitigation would be possible but would remove views. A summary of the results of the impact assessments on individual dwellings are summarised in

[44] LVIA, Appendix F, Part 1, Table 9-1, page 193.
[45] LVIA, Appendix F, Part 1, page 193.
[46] LVIA, Appendix F, Part 2, page 72.

Table 6.

Table 6 Assessment of impacts on individual residential properties[47]

Characteristics of residential cluster	Visual impact on individual properties assessed
North-eastern - cleared rolling hills within the Driffield area out to cleared flat or slightly undulating farmland around Hazelwood.	#607 – **High**, mitigation unlikely. Nearest turbine 1 km. #608 – **High**, challenging to mitigate. Nearest turbine 1.6 km. #609 – **Low-moderate**. Nearest turbine 1.2 km. #4587 – **Moderate-high**, reduced to **low** with landscape mitigation. Nearest turbine 1.8 km.
Eastern – cleared flat or slightly undulating farmland. Vegetation generally limited to roadsides, wind breaks and creek lines. Most dwellings within Yinnar or along Creamery Road.	#686 – **High**, mitigation options limited. Nearest turbine 4 km, several sit above ridgeline. #747 – **Low-moderate**, reduced to low with landscape mitigation. Nearest turbine 3 km. #1177 – **Low-negligible**. Nearest turbine 2.3 km. #4533 – **Nil.** #4579 – **High**, landscape mitigation possible but would remove views to nearby hills. Nearest turbine 2.5 km.
South eastern - characterised by vegetated hills that will filter or screen most views. Most dwellings are to the south-east within Boolarra township and its outskirts to the north-west.	#596 – **Negligible-Nil**. Nearest turbine 2.7 km. #600 – **Moderate**. Nearest turbine 1.5 km. #4064 – **Low**. Nearest turbine 2.6 km. #4585 – **Moderate**. Nearest turbine 2.1 km.
South western – characterised by vegetated hills that will filter or screen most views. Most dwellings to the south-west are within Darlimurla and Mirboo North.	No dwellings provided consent for assessment of views. SAA shows limited visibility of turbines for most dwellings, supported by local road viewpoint L14 in LVIA.
Western – characterised by rolling hills, extensive roadside vegetation and trees within the pine plantation. Most dwellings are located within Thorpdale township and scattered in Delburn.	#824 – **Moderate-High**, reduced to **Low-Moderate** with landscape mitigation. Nearest turbine 1.4 km. #832 – **Moderate**, reduced to **Low-Negligible** with landscape mitigation. Nearest turbine 1.2 km.
North western - characterised by vegetated hills. Most dwellings to the north-west are around the townships of Narracan and Coalville. Extensive vegetation within this area will filter or screen most views.	#23 – **High**, mitigation unlikely. Nearest turbine 4.4 km. #849 – **High**, mitigation unlikely. Nearest turbine 1.6 km. #857 - **Low-Moderate,** reduced to **Low-Negligible** with screening. Nearest turbine 1.9 km. #867 – **Moderate-High,** reduced to **Low-Moderate** with screening. Nearest turbine 1.5 km. #1266 – **Low-Negligible**. Nearest turbine 2.5 km.
Northern - characterised by vegetated hills that will filter or screen most views. Most dwellings to the north are within the townships of Hernes Oak and Moe south. Views include existing power and transmission infrastructure.	No residential dwellings were visited. Distance to nearest turbines and topographical variation mean a large number of dwellings would not have visibility. Demonstrated in visual assessment from publicly assessable locations at Viewpoint L22, 23 and 24 in Section 8.5 and the SAA models.

[47] Panel summary from LVIA Table 9-2.

3.1.3 Panel site visits

The Panel conducted an unaccompanied site visit to the Project site and the surrounding areas on 14 October 2021, prior to the Hearing. Its route covered sites suggested by the Applicant and SCA:

- Yinnar, Boolarra, Thorpdale, Darlimurla, Delburn, Driffield and Mirboo North
- proposed location of several turbines, the terminal station and BESS
- locations such as Ten Mile Creek Road, Delburn and Creamery Road, Yinnar.

On 24 November 2021 the Panel conducted accompanied site visits to eight properties at the invitation of the property owners and visited the Delburn Wind Farm office to experience the Virtual Reality tool and view maps and large format photos. Panel members were accompanied by representatives of the Applicant, Latrobe City Council, CFA, SCA and DELWP.

The properties the Panel visited were:

- a group of properties west of the Project, particularly along Ten Mile Creek Road
- a property near Boolarra in the south eastern residential cluster
- a property on Creamery Road east of the Project
- two properties to the east of the northern end of the Project.

Following completion of the Hearing the Panel made an unaccompanied inspection of wind farms west of Melbourne on 22 November 2021. The wind farms and the turbine characteristics are as follows:

Table 7 Wind farms viewed west of Melbourne[48]

Wind Farm name	Constructed	Turbines
Yaloak South Wind Farm	2016-2018	14 turbines, hub height 80 metres, maximum blade tip height 126.5 metres
Moorabool Wind Farm	2018-present	104 turbines, maximum blade tip height 169 metres
Lal Wind Farm	2018-2021	60 turbines, maximum blade tip height 161 metres
Mount Mercer Wind Farm	2012-2015	64 turbines, hub height up to 85 metres, blade height up to 131 metres (approximately)

[48] These specifications are taken from project websites and were not verified by the Panel.

Figure 11 Section of Moorabool Wind Farm looking north

Figure 12 Mt Mercer Wind Farm – turbines near road

3.2 Issues

The issue is whether the Project will have an unacceptable visual impact on the landscape after considering planning scheme objectives for the landscape and the following:

- the visibility of the development
- the locations and distances from which the development can be viewed
- the impact on significant views, including visual corridors and sightlines
- the significance of the landscape as described in the planning scheme
- landscape values of nearby national parks or Ramsar wetlands
- landscape values such as areas of landscape and environmental significance
- the sensitivity of the landscape features to change.

Other issues are whether the:

- visual impacts on nearby residences are acceptable
- visual impacts on the public domain are acceptable
- LVIA methodology is adequate
- landscape values and sensitivity of the area is adequately recognised and protected under the planning scheme.

3.3 Evidence and submissions

3.3.1 Introduction

Landscape and visual impacts were among the top three concerns raised by submitters, after bushfires and noise. Concerns about the visual impact of the wind farm turbines were raised by 179 submitters, or approximately 25 per cent of the total 722 submissions.

In addition, Latrobe City Council received 78 submissions in response to a meeting with residents on 3 August 2021. Of those, 67 opposed the proposal of which 37 said their opposition was because of negative impacts on visual amenity and views.[49]

The Applicant called Mr Hayden Burge to give expert evidence on landscape and visual impacts at the Hearing.[50] Mr Burge was formerly with Jacobs and oversaw the preparation of the LVIA Final 2020 and the LVIA: Terminal Station 2020. He also prepared the LVIA Addendum Report 2021 in response to a request for information from DELWP. In preparing his statement he was assisted by Alexandra Elliot who was formerly with Jacobs and prepared the LVIA.

SCA called Dr Dennis Williamson to provide an expert peer review of Mr Burge's expert witness statement and the LVIA.[51]

Mr Burge and Dr Williamson provided a report of a joint expert meeting on 12 October 2021 addressing key issues of agreement and disagreement.[52]

3.3.2 Impacts on nearby residences

Nature of the impacts

Many submitters were concerned about the visual impact of the turbines on views from their properties. Ms Anderson, the Latrobe Health Advocate, submitted one of the main issues residents raised with her was the loss of enjoyment of their homes because of turbines in their line of vision. She submitted research shows the impact of visual changes to a landscape can significantly influence attitudes to wind farms because of attachment to place.[53]

SCA submitted the location is unsuitable for a wind farm because so many dwellings will be subject to '*extremely dominant visual impacts*".[54]

For some submitters the visual impacts from their residences will be high because they will see the turbines across a wide horizontal angle, across the tops of ridges.

[49] Submission number 433.
[50] Document 28, Expert Witness Statement.
[51] Document 29, Expert Witness Statement.
[52] Document 46b, Expert meeting statement, LVIA.
[53] Document 103, submission 434. The Latrobe Health Advocate is appointed by the Minister for Health to provide independent advice on behalf of Latrobe Valley communities on system and policy issues affecting their health and wellbeing. Her focus is on strategic outcomes and systemic change underpinned by a strong collaborative approach.
[54] Document 65, SCA Part B submission, paragraph 58.

Ms Armstrong submitted she is likely to see all 33 turbines from her home. Some will be three kilometres away and in an elevated position because they will be on a ridge 70 metres above their home.[55] Mr Armstrong said they bought their home for the spectacular views of the Strzelecki Ranges and the views will be ruined.[56]

Mr Buckley told the Hearing his home is level with an adjacent ridgeline where turbines will be located, and the nearest turbine is less than one kilometre from his boundary. He said he is the fourth generation of his family to live on the property. He submitted the Project would ruin his family's plans for the future because it would mean they cannot build their dream home in the location they planned.[57]

Mrs Valerie and Mr David Taylor submitted their property has three dwellings with amazing views from the top of a ridge. They said it would be extremely distressing to see multiple turbines so close to their home.[58] Mr Taylor said his family has lived in the area for generations.

Mrs Jessica and Mr Andrew Taylor, who live in one of the dwellings on the property, submitted that the LVIA assessed their property as having a high visual impact from the Project. Mitigation is not possible because they sit on a ridgeline. They submitted they will have 11 turbines within 3 kilometres, always visually dominant and they will be surrounded by turbines on three sides within their yard. They said they will have 26-33 turbine hubs in view from their residence.[59]

Figure 13 Dwelling #608 – TrueView image looking north[60]

[55] Submission 503.
[56] Submission 437.
[57] Submission 255.
[58] Document 102, submissions 450 and 454.
[59] Document 96, submissions 34, 715, 366.
[60] LVIA, Figure 9-17.

Figure 14 Dwelling #608 – TrueView image looking south[61]

For some submitters their homes are lifestyle properties and they expect their views and sightlines to be valued and protected.

The Balleks submitted they moved to the area specifically for the views. They would have two turbines within two kilometres of their home and many more within five kilometres. They said they moved from the city to a rural lifestyle property and "*…yet we will have 33 skyscrapers built next door*".[62]

Ms Orr submitted she is extremely anguished about having 15 turbines within five kilometres of her home, two within three kilometres and one 1.5 kilometres away. She said a wind farm is not appropriate near rural lifestyle properties.[63]

Ms Cascianelli said their home in Boolarra has an outlook across the Baw Baw Plateau, a clear 180-degree view that would encompass the whole wind farm. She said the view is at the forefront of daily living and the turbines will cause mental stress.[64]

Mr and Ms Lawless submitted they have beautiful views to the Strzelecki Ranges and the turbines will be devastating and a blight on the landscape. The nearest turbine would be five kilometres away and they will see 14 turbines from their house, potentially all 33.[65]

[61] LVIA, Figure 9-20.
[62] Submitter 82.
[63] Documents 85, 85a, b, c, d; submission 312.
[64] Document 109, submission 487.
[65] Document 84 and 84a; submission 358.

Mr Fleay submitted his property has beautiful scenery that should be recognised as high amenity. He said there will be eight turbines in front of his house, with the centre of the hubs at viewing height, and four or five turbines will be visible from the back of the house.[66]

Dr Williamson assessed 14 dwellings and found they all had the potential for extremely to very high visual dominance (using the NSW government's scale of effects). Twelve were within 3 kilometres of a turbine and two within 6 kilometres.[67] Dr Williamson told the Hearing the dwellings were selected by SCA for assessment, in response to questions under cross examination.

Mr Burge said most of the impacted dwellings, 1250, are between three and six kilometres from a turbine. Many dwellings in this zone are in township areas with limited to no turbine visibility, and landscape screening will be effective at most of these dwellings.[68]
Mr Burge considered submitter comments and provided a detailed assessment of about 40 properties, generally in the high impact zone within 3 kilometres of a turbine. Some of the properties he reviewed were among the 20 assessed in the LVIA (as described in

[66] Submission 562, document 110.
[67] Document 69, slide 29.
[68] Document 58g, slide 20.

Table 6).[69]

He found six dwellings would have a high visual impact where landscape mitigation would not be effective. This included two dwellings assessed in the LVIA (dwelling ID numbers 608 and 849). He assessed a further five dwellings as high to moderate impact where mitigation may be possible. A summary of the results of Mr Burge's review is in

[69] Document 28, section 7.3.

Table 8.

In Mr Burge's opinion the desirability of turbines in a landscape is subjective. He said many people whose dwellings were assessed in the LVIA as likely to have a high level of visual impact did not object to the Project.[70] During cross examination Dr Williamson agreed with this statement.

Greater exclusion zone

A number of submitters said, given the size of the turbines, there should be a buffer between dwellings and the nearest turbine of more than one kilometre. They said the one kilometre buffer provided in the Wind Farm Guidelines was drafted with smaller turbines in mind.

Some said the buffer should be two kilometres, citing a comment in the National Wind Farm Commissioner's Annual Report 2020.[71] Others said the turbines should be five kilometres from homes, especially in the RLZ.[72]

Dr Williamson was of the opinion that for 250 metre high turbines the buffer should be five kilometres, consistent with the buffer designated in NSW planning policy for wind farms.[73]

[70] Document 28, page 28.
[71] Submission 566, 14, 34, 715, 366.
[72] Submissions 92, 372, 457 and Mr White at the Hearing.
[73] Document 29, pages 26-27.

Table 8 Mr Burge's assessment of impacts on individual residential properties[74]

Characteristics of residential cluster	Visual impact on individual properties assessed
North-eastern - cleared rolling hills within the Driffield area out to cleared flat or slightly undulating farmland around Hazelwood. Special Use Zone.	Properties of six submitters reviewed. Of those, 2 assessed as high impact with mitigation unlikely due to topography, including dwelling #608, which was assessed in the LVIA.
Eastern – cleared flat or slightly undulating farmland. Vegetation generally limited to roadsides, wind breaks and creek lines. Most dwellings within Yinnar or along Creamery Road. Mostly Farming Zone.	Three dwellings in Yinnar township where views are filtered or screened. Six dwellings beyond 3 kilometres of a turbine in areas where vegetation can screen views of turbines. Views from dwellings within 3 kilometres of a turbine assessed: - 4 nil to negligible - 2 moderate - 1 high with mitigation screening possible.
South eastern - characterised by vegetated hills that will filter or screen most views. Most dwellings are to the south-east within Boolarra township and its outskirts to the north-west. Zoned Rural Residential, Rural Living Zone.	Most dwellings raised in submissions are within Boolarra township, 4 kilometres west of nearest turbine. Vegetation can readily screen most views. Views from 12 dwellings assessed: - 3 high, landscape screening could be effective - 1 moderate, landscape screening possible - 1 moderate to high with landscape screening possible - 6 unlikely turbines visible or limited visual impact.
South western – characterised by vegetated hills that will filter or screen most views. Most dwellings to the south-west are within Darlimurla and Mirboo North.	Views from three dwellings assessed: - 1 limited to no views (facing away from the turbines) - 2 largely screened by topography (using SAA in the LVIA).
Western – characterised by rolling hills, extensive roadside vegetation and trees within the pine plantation. Most dwellings are located within Thorpdale township and scattered in Delburn.	Submissions raised concerns about impacts on 8 properties. Visual impact on views from dwellings assessed as: - 1 high but vegetation can readily screen views (#830) - 1 moderate to high with landscape screening possible (#823) - 1 high for proposed dwelling, reduced by siting and design - 1 where views to turbines screened by existing vegetation - 1 low from sensitive locations in proximity to dwelling - 1 low to moderate, landscape screening effective.
North western - characterised by vegetated hills. Most dwellings to the north-west are around the townships of Narracan and Coalville. Extensive vegetation within this area will filter or screen most views.	Submissions raised concerns about impacts on 10 properties. Visual impact on views from dwellings assessed as: - 1 topography screens turbines, vegetation screening possible - 2 topography partial screen, mitigation may not be possible - 1 all views screened by mature trees in garden - 1 low to moderate, reduced by vegetation screening - 1 high, not clear if landscape screening suitable - 1 high, mitigation unlikely to be effective.

[74] Panel summary from Document 28.

Landscape mitigation

Several submitters stated landscape mitigation would not be possible because their homes sit on ridgelines. Others submitted tree screening would not be desirable because it would block their valued landscape views.[75]

In Dr Williamson's opinion screening 250 metre high turbines will be difficult for many homes without taking away the more distant views and panoramas.[76]

Mr Burge's evidence concluded there would be a limited number of dwellings where there is potential for a high level of visual impact that cannot be mitigated.[77]

He acknowledged there are locations where the LVIA rated the impacts as high and screening is not possible. The dwellings at property #608 and #607 are examples. The LVIA said:

> Due to the elevated nature of the views from the dwelling and deck [at ID 607] and the topography which falls away from the dwelling in directions of the turbines these views would be challenging to mitigate.[78]

In his opinion submitters' concerns about vegetation not achieving the necessary heights to screen turbines are not justified in many cases. He said there are many locations where existing vegetation demonstrated screening will be effective.[79]

Figure 15 Dwelling #607 – Existing view looking west[80]

Figure 16 Dwelling #607 – TrueView image looking west[81]

75 See for example, submissions 312, 487,712 and 503.
76 Document 29, page 35.
77 Document 28, page 51.
78 LVIA Appendix F, Part 2, pdf pages 2-3.
79 Document 28, page 23.
80 LVIA, Figure 9-7.
81 LVIA, Figure 9-8.

The LVIA, for example, showed images for dwelling #824 within the Western residential cluster, where the nearest turbine is approximately 1.4 kilometres northeast (T21). Figure 17 shows the existing view looking east from the rear of the dwelling and Figure 18 shows a similar view looking east using TrueView to show the approximate scale and placement of the nearest turbines in the context of the view. It said:

> the overall visual impact would be Moderate-High without mitigation. From this location, mitigation would be possible as shown by existing vegetation within the view. The resultant visual impact would be Low-Moderate.[82]

Figure 17 Dwelling #824 – Existing view looking east[83]

Figure 18 Dwelling #824 – TrueView image looking east[84]

Some submitters were concerned that planting trees to screen views of the turbines would increase fire risk.[85] The CFA proposed new permit conditions to ensure all landscape planting for screening views does not increase bushfire risk.[86]

Mr Burge's expert witness statement said the LVIA considered the BMO and potential for increased bushfire risk for vegetation screening. It recommended landscape mitigation should consist of only single rows, avoid plantings against forested areas, and buffers of 20 metres from existing vegetation and 10 metres from residences.

Latrobe City Council sought to extend the planning permit conditions to require the Applicant to provide landscaping to create a dense screen of applicable height as indicated in the LVIA. It also

82 LVIA Appendix F, Part 2, section 9.5.1.
83 LVIA, Figure 9-75.
84 LVIA, Figure 9-76.
85 For example, submitter 441, 437 and 503.
86 CFA permit conditions submission, Document 73b.

submitted there should be an onus on the Project operator to promote awareness among landholders that offsite mitigation measures are available.[87]

The Applicant largely accepted the suggestions from the CFA and Latrobe City Council.

3.3.3 Impacts on the public domain

A number of submitters were concerned the turbines would have a detrimental visual impact on the local area and the broader region.[88]

Some submitters were specifically concerned about the size of the turbines. Examples are:

- the "*colossal size of the 33 structures…would be a monumental eyesore*"
- the 250 metre high wind turbines placed on elevated ridge lines would adversely affect the visual amenity around the township of Boolarra and the Latrobe Valley
- the turbines are some of the largest in the world and will change the visual landscape of our beautiful communities irreparably
- the turbines are too big and too close and would impact thousands of households in land zoned rural living and in surrounding townships such as Yinnar.[89]

Mr Burge's evidence was that turbine height had been a contentious issue for turbines of all sizes. In his opinion the perception of visual impact it is not necessarily based on the scale or height of the turbines. In his opinion the presence of turbines rather than the height that is visually noticeable. He demonstrated the point by comparing photomontages for wind farm applications in Victoria seeking to increase turbine heights.[90]

Mr Burge said the LVIA determined the visual impact on open space was generally nil to negligible. The areas assessed included recreation trails, parks and elevated lookouts. He said this was because views from the majority of publicly accessible areas are heavily vegetated, limiting views to the surrounding landscape.[91]

Other submitters were concerned about the impact of the turbines on the nearby townships of Yinnar and Boolarra (within two kilometres of the turbines), and Mirboo North, Thorpdale and Coalville. Some examples are:

- Latrobe City Council said many submitters to its 'listening post' meeting said the turbines would impact on the visual amenity of the landscape and be visible from parts of all major towns in Latrobe City
- The blight on the landscape is almost unthinkable. I moved to this area to enjoy the beauty of the Strzelecki Ranges, which will be forever scared…
- A wind farm should not be constructed this close to so many communities just because it is close to a power grid connection.
- The turbines will turn rural towns and communities into an industrial wasteland.[92]

Mr Burge's evidence was that the overall visual impacts on nearby towns and populated areas of Delburn and Driffield would be nil to low. Most views are screened by topography and vegetation.

[87] Document 51, Latrobe City Council Part A submission, submission 433 and document 66a.
[88] Submitters PP386, PP513, PP291, PP315, PP329, PP330, PP366, PP372, PP473, PP480, PP523, PP539, PP712.
[89] Submission 109, 315, 627 and 543.
[90] Document 28, page 55.
[91] As above.
[92] Submissions 433, 165, 639 and 503.

Views with the potential to include turbines are typically limited to the edges of township areas and locations such as sporting fields, which may allow for clear views over large open areas.[93]

Impacts on local roads and tourist routes

Some submitters were concerned about the impact of the turbines on local roads and tourist routes. Ms Rosemary Parker submitted a setback distance of two kilometres from public roads is more appropriate for 250 metre high turbines.[94]

Mr Wilson asked Mr Burge why views from the Strzelecki Highway are not rated high impact given their visibility and viewer numbers. Mr Burge replied that some locations on the highway are rated medium, but most views are screened and are transient. Just because many people drive on the highway does not make it high sensitivity.

In Dr Williamson's opinion the seven or eight proposed turbines along the Strzelecki Highway may take away from a scenic drive enjoyed by many residents and tourists.[95]

Mr Burge said the LVIA determined that the impact on freeways, tourist routes and highways, major roads and local roads ranged from nil through to moderate. The impact on major roads was assessed as overall low-moderate because of roadside vegetation, plantation areas, adjoining farming properties and surrounding topography. The impact on local roads was assessed overall as a low impact partly due to viewer numbers and because of the influence of topography, vegetation, proximity and the context of the view.[96]

3.3.4 Adequacy of LVIA methodology

Accuracy of images

Some submitters criticised the way the LVIA presented images. The criticisms included the location of a turbine on an advertised map was inaccurate, the viewpoints selected misrepresented the impact of the turbines, the photomontages and TrueView® images minimised the visual impacts.[97]

Dr Williamson's evidence was that in TrueView® distant features appear smaller or less visually apparent than when observed on site as it is equivalent to using a wide-angle lens. He said it was therefore perhaps not appropriate. He preferred more traditional photos and photomontages presented using three overlapping 50mm frames.

His expert witness statement said he did "…*not find much fault with the technical aspects of the photomontage methodology"* of the LVIA. Except he said it failed to state the exact position of photos and photomontages in the zoom enlargement images.[98]

Dr Williamson compared the viewpoints selected in the LVIA for the photomontages at dwelling #608 with viewpoints he selected on his visit. He concluded:

- The photos and photomontages in the LVIA were frequently presented on overcast days rather than in the best lighting conditions on a blue-sky day.

[93] Document 28, page 52.
[94] Submission 351, page 15.
[95] Document 29, page 37.
[96] Document 28.
[97] For example, submissions 34, 312, 358, 366, 487, 538, 562 and 715.
[98] Document 29, page 29.

- The camera positions selected were sometimes located where buildings or trees unnecessarily partially block views residents may enjoy regularly.
- The "…*TrueView® representations show turbines of lesser height in the nearer distance, not just in the longer distances as the LVIA states*".[99]

In his opinion, based on this analysis of dwelling #608, many of the photomontages or photo-simulations should be subject to further tests and improvement.[100]

Under cross examination Dr Williamson accepted that TrueView® may be useful to present panoramic views.

He also accepted up to a third of the photos in his expert witness statement were of views where turbines would not be visible. He said he chose views he thought were most likely to be affected, including expansive outlooks that will not be affected. In a follow up letter to the Panel Dr Williamson said only 11 per cent of his images were panoramic views or views where turbines would not be visible.[101]

Some submitters were concerned the visualisation tools used as part of the LVIA underestimated the true impact of the turbines. Mr Burge told the Hearing the Augmented Reality tool is superior to photomontages as it is a dynamic tool that can be used from different locations. He said it provided a better basis for landholders to understand the scale of the impact and it enhanced conversations with the community.

Scale of effects and overall visual impact

Mr Burge and Dr Williamson agreed the LVIA provides adequate descriptions of the proposed landscape alterations and the scale of effects appears to consider the effect of the nearest turbine. They supported the general process of the photomontages in the LVIA.[102]

Dr Williamson's had some criticisms of the LVIA:[103]

- The description of landscape character and landscape units lacks a description of landscape character types and visual features and how scenic qualities will change.
- It should have rated the sensitivity of different viewer groups or the different travel routes they use.
- Scenic or Visual Significance Zones were not assessed and no guidelines for applying Visual Performance Standards were suggested; applying predesignated national and state parks, other conservation reserves and SLOs, as required under planning policies, was not adequate.
- The methodology for determining Overall Visual Impact lacks explicit criteria on how rating levels are prioritised and weighted; it has little rigour and objectivity, relying on a 'black box' approach.

Mr Burge's evidence was that landscape units are based on physical characteristics, land use and planning provisions:

> Features that assist in defining the landscape units and a sensitivity rating include geology, vegetation, topography and drainage patterns, urban development and modification of the landscape. The use of land and the underlying protections of an area

[99] Document 29, pages 29-30.
[100] Document 29, page 34.
[101] Document 101.
[102] Expert meeting statement, LVIA, Document 46b.
[103] Taken from Document 29.

> … within the planning scheme assist to determine the sensitivity of that area to visual change …
> The sensitivity of a landscape unit considers the ability for a landscape to accommodate the level of change proposed by a project.[104]

Mr Burge said the planning scheme sets out objective considerations for assessing landscape and visual impacts; it is not a subjective assessment of viewer sensitivity.[105]

Under cross examination Dr Williamson agreed the methodology adopted by Mr Burge for Overall Visual Impact aligns with UK guidelines that are widely adopted in Australia. He clarified that his criticisms about the black box element applied to the methodology in the UK guidelines, not to the Delburn Wind Farm LVIA.

Dr Williamson believed the LVIA understated the order of magnitude of impacts. He agreed he ascribed a higher level of visual dominance to the turbines than the LVIA.

Number of properties assessed

Some submissions said the LVIA's assessment of 20 individual properties was inadequate. Some said at least 25 per cent of homes should have been assessed.[106]

The SCA submitted the number of properties assessed in the LVIA and by Mr Burge amounted to only 0.5 per cent of impacted dwellings, which is insufficient.[107] Dr Williamson's evidence was that a visual impact assessment should have been done for all dwellings within six kilometres of a turbine unless they expressly state they do not object to the Project.[108]

Dr Williamson told the Hearing when he does an assessment, he would start by visiting all of the objectors. For a wind farm in an open landscape, he could assess 50 per cent of dwellings and where there is more vegetation it could be 30 per cent of dwellings.

In Mr Burge's opinion the 20 residences assessed in the LVIA were a representative range of views, settings and visual impacts of the wind farm from properties surrounding it. DELWP requested that four additional dwellings be assessed, which was completed.[109]

Mr Burge, under cross examination, said Dr Williamson's assessment of 14 dwellings supported the findings of the LVIA that some areas will have high visual impacts.

Mr Burge assessed 30 to 40 additional dwellings that could not be included in the LVIA because the landowners did not consent to the use of photographs. His assessment used a mix of desktop assessment of dwellings from submissions using information from the submissions, nearby dwellings and public locations that had been assessed, topography mapping and satellite imagery. Mr Burge also assessed the dwellings Dr Williamson assessed as being expected to experience a high visual impact, in preparation for the expert conclave meeting.

Mr Burge said he identified the residences he assessed during community consultation and he only visited properties at the request of the owners. He had spent several weeks in the Project area in 2019, 2020 and 2021 attending community meetings, attending dwellings for site assessments and site visits to public locations.[110]

[104] Document 30, pages 11-12.
[105] Document 58g.
[106] For example, submission 523 and Document 113; submissions 528, 450 and 454.
[107] Document 65, paragraph 64, page 20.
[108] Document 46b, Expert meeting statement, LVIA, page 3.
[109] Document 58g, slide 20.
[110] Document 58g, slide 18 and Document 135g.

Dr Williamson's presentation at the Hearing also said the LVIA had not assessed views from dwellings in the northern and north-western clusters. He said the tops of turbines would be visible from some dwellings in those clusters.

Mr Burge replied that Dr Williamson's statement was not correct. The methodology for assessing those clusters is set out in the LVIA and in his expert witness statement. He said it included desktop analysis, ground truthing and verification through some site assessments. The matters raised by Dr Williamson do not change the conclusions in the LVIA. There are few dwellings in those clusters where turbines would be visible and landscape screening would be effective at most locations.

Focus on views from dwellings

Some submitters said the LVIA and Mr Burge had not adequately represented the visual impacts on their properties because they only assessed views from dwellings rather than outside on their properties.[111] In Dr Williamson's opinion the LVIA incorrectly represented rural people as spending all of their time inside or in the immediate yards or art studios of their house.[112]

Mr Burge's evidence was the properties were assessed from dwellings because the impact is more sensitive proximate to the dwelling, which includes patios and entrances. He told the Hearing guidance is provided in many previous planning panel decisions on the most sensitive areas of visual impact.

3.3.5 Landscape value and sensitivity

Scenic quality

Many submitters were concerned the turbines would be a dominant element in the landscape incongruous with the rural lifestyle and agricultural character of the area.

Dr Williamson found the LVIA methodology lacked an adequate description of the scenic quality of each landscape unit. He said the LVIA only used the landscape units to assign different landscape sensitivity levels.[113]

The Applicant emphasised that a commercial timber plantation is a dynamic landscape with trees being cleared as they mature, reducing its sensitivity to change. It said the plantation provides a buffer between the turbines and adjacent properties, reducing offsite amenity impacts.

Mr Burge's evidence was that the planning scheme assigns areas or uses that are recognised as having a higher degree of sensitivity:

- areas within the Township Zone (TZ)
- nearby areas within the PCRZ
- areas subject to recreational uses such as the rail trails and open space areas
- individual dwellings in all zones, including those within the Special Use Zone (SUZ), Rural Residential Zones and the FZ.

In his opinion the LVIA demonstrated "*that many views of the wind farm from these more sensitive areas would be limited*".[114]

[111] For example, submissions 535, 255, 92, 366, 715, 34.
[112] Document 29, page 35.
[113] Document 29, page 14.
[114] Document 28, page 53.

Mr Williamson acknowledged the LVIA had recognised national and state parks and reserves by assigning them to their own landscape unit and a high sensitivity level.[115]

Baw Baw SLO1

The other sensitive area is the northern foothills of the Strzelecki Ranges, which is protected under SLO1 of the Baw Baw Planning Scheme. Mr Williamson's expert witness statement said the LVIA shows the areas covered by the SLO1 have limited to no turbine visibility because 'intervening terrain and vegetation' from most vantage points to the north and north west of SLO1 will prevent views of the turbines.[116]

At the Hearing Mr Williamson said he had discovered there are views to the turbines from 'at least one dwelling' within the SLO1 and there may also be views from roads in the vicinity. He presented images showing views from dwelling #23 and said those views may not achieve the objectives of SLO1. He cited the objective: "*to protect the landscape form of the Strzelecki Range and the rural landscape from insensitively designed development and to protect them and the surrounding landscapes from visual intrusion and inappropriate development*".[117]

Mr Burge, in a supplementary statement, said Dr Williamson had omitted the key protected features and several of the objectives of SLO1. He said the LVIA reviewed the overlay in full including all the objectives and the statement of significance. Mr Burge highlighted the decision guidelines for SLO1 require the Responsible Authority to consider *"the land upon which SLO1 is applied.*[118] In his opinion it is the views from locations looking south towards the north faces and foothills of the Strzelecki Ranges that is the character protected by SLO1.

Mr Burge's opinion was the majority of the areas to the north west of the Project in SLO1 have views to the turbines prevented by topography. The LVIA demonstrated this by the SAA, which is based on topography only, without the ameliorating effect of vegetation. He concluded, the Project is not visible in key views to protected features of SLO1, the northern face and foothills of the Strzelecki Ranges.[119]

Population density

SCA submitted the location is unsuitable for a wind energy facility because it is densely populated, and it will therefore have a higher impact on visual amenity. It submitted the population density is a distinguishing feature of the Project and wind farms should be in areas where the negative impacts are much less, such as the Star of the South Wind Farm off the coast of Gippsland.[120] Dr Williamson's evidence was that the impacted area, within six to 10 kilometres of the turbines, is too densely populated compared to other wind farms in Victoria.[121]

Mr Burge told the Hearing the level of population impacted by the Project is like the Lal Lal wind farm. In his opinion 1,500 dwellings within six kilometres is not a distinguishing feature of the Project. He said the proximity of dwellings to a turbine alone is not relevant given large areas are screened.

[115] Document 29, section 3.5.
[116] Document 28, page 53.
[117] Document 69, Dr Williamson presentation, slides 23-26, at slide 23.
[118] Document 135f, Report addressing additional matters, Mr Burge, section 2.1.
[119] Document 135f, Report addressing additional matters, Mr Burge, section 2.3.
[120] Document 65, SCA Part B submission, page 7.
[121] Document 69, slide 29.

Planning policy and zoning

SCA submitted the Project is an industrial land use in an area the Latrobe Planning Scheme (municipal planning strategy) designates for a diversity of housing and attractive lifestyle.[122]

Ms Rosemary Parker described the 13 turbines she would see around her property as industrialising a farming zone. She submitted the South Gippsland Planning Scheme prevents detriment to farming zones from wind farms.[123]

Some submitters said their amenity should be protected because they are in the RLZ. Mr and Ms White, for example, submitted it is not appropriate to have an industrial facility such as a wind energy facility in RLZ. They believed the zone protects residents from incompatible land uses and the RLZ in Boolarra should be declared a high amenity zone.[124]

The Applicant submitted the relevant planning schemes and guidelines require the visual impact of a wind farm to be minimised, not eliminated. It said the proposal responds appropriately to the physical and strategic contexts of planning policies and guidelines and will deliver a marked net community benefit.[125]

It submitted the relevant planning schemes do not generally attribute importance to landscape and visual amenity. And there are no relevant strategic landscape studies or similar policies.[126]

Mr Burge's evidence was the LVIA specifically addressed the matters a Responsible Authority must consider in assessing permit applications for wind energy facilities.[127]

Mr Burge said the wind farm site and most of the surrounding area are FZ and SUZ. Neither zone is identified in the planning scheme as being sensitive. He said:

> Although there are residential dwellings in these areas, and the rural setting is appealing, these areas are highly modified landscapes that are not protected … All of this was taken into account in assessing the landscape value and sensitivity of change of areas, as documented in the LVIA.[128]

3.3.6 Terminal station

The terminal station site is located near the eastern edge of the HVP pine plantation. The LVIA for the terminal station concluded the views to the terminal station would largely be filtered or screened by topography.

Mr Burge's opinion was the overall visual impact of the terminal station on the public domain is negligible to low. He found the terminal station will not be visible from the nearby residential area and nearby dwellings with theoretical visibility to the terminal station will be 3 kilometres away. He concluded the terminal station will "*not unacceptably impact on the views, character and amenity of the area*".[129]

[122] Document 65, SCA Part B, paragraph 25.
[123] Document 81, submission 351. Ms Cascianelli also described the wind farm as industrial.
[124] Submission 372 and 457 and Document 83.
[125] DWF Part C submission, document 135a.
[126] DWF Part C submission, document 135a.
[127] Document 28, page 54.
[128] Document 28, page 53.
[129] Document 28, section 2.2.

3.3.7 Permit conditions

The DELWP Wind Farm draft permit conditions require the Applicant to provide an Off-Site Landscaping Program to the Responsible Authority before development starts. It must:

- provide for off-site landscaping or other treatments to reduce the visual impact of the turbines from any dwelling within five kilometres of a wind turbine
- include a methodology for determining the type of landscaping treatments and a timetable for establishing and maintaining it for at least two years
- include a process for making offers to affected landowners to undertake landscaping on the landowner's land
- include a process for recording offers made to landowners, whether they are accepted and when and how offers that are accepted are actioned
- include a process for providing progress reports on the endorsed Off-site Landscaping Program to the Responsible Authority annually from the date of the permit.[130]

Latrobe City Council submitted the permit conditions should require the Applicant to:

- provide landscaping to create a dense screen of applicable height as indicated in the LVIA
- provide landscaping that addresses visual impacts from dwellings and outdoor areas of private open space
- promote awareness among landholders that offsite mitigation measures are available.[131]

The Applicant proposed amendments in response to submissions as follows:

- offsite landscaping is offered to any dwelling within six, rather than five, kilometres of a turbine and "*where a wind turbine is visible from the dwelling*".
- offers can be accepted up to a year after construction to either establish and maintain the landscaping for two years or make a cash contribution in lieu.
- progress reports to be provided annually for three years post-construction.[132]

The CFA sought new permit conditions to require the landscaping treatments to have regard to *Landscaping for Bushfire, Garden and Plant Selection*, CFA, June 2021 and possibly require a suitably qualified expert be involved in implementing the condition.[133]

In response to the CFA the Applicant added a new permit condition so landscaping treatments proposed for a dwelling in a BMO must be reviewed by a suitably qualified bushfire risk consultant.[134] This condition is discussed in more detail in Chapter 7.3.6, Bushfire.

3.4 Discussion

3.4.1 The nature of the landscape

State planning policy supports wind farm developments in appropriate locations with minimal impact on the amenity of the area. The question for the Panel is whether the visual and landscape impacts of the wind farm will be acceptable.

[130] Clauses 8 and 9, Documents 62a, 62b, and 62c; DELWP draft permit conditions Wind Farm PA20001063, PA20001064 and PA20001066.
[131] Document 51, Latrobe City Council Part A submission, submission 433 and document 66a.
[132] Document 53 e) (iii) and (iv), Applicant draft preferred planning permit conditions (version 1).
[133] Document 73b.
[134] Documents 135 b and c; Applicant draft permit conditions version 2, PA20001063, PA20001064 and PA20001066.

The Project is in an area with a relatively high population density for a rural area and many rural lifestyle properties with highly valued views, albeit not recognised as sensitive in planning policy. The area includes some landscapes that are rated in landscape unit sensitivity levels as moderate to high sensitivity: townships, forested hills (natural) and rural residential. There are also landscapes rated low (cleared flat farmland) and low to moderate (forested hills and cleared hilly farmland).

The landscape is also dynamic because of the HVP plantation. It is subject to dramatic change when trees are harvested, which reduces its sensitivity to change.

Most Victorian wind farms are in areas with a relatively low population and in cleared flat landscapes, rated as low landscape sensitivity. The Golden Plains Wind Farm planned near Geelong, for example, is located on cleared flat farmland with 135 existing dwellings within 3 kilometres of a turbine. It has approval for 215 turbines of up to 230 metres high.[135]

3.4.2 LVIA methodology

Although there was some disagreement about aspects of the LVIA methodology the Panel accepts it is generally sound. The LVIA and Mr Burge's evidence provided appropriate analysis to understand the nature and scale of the visual impacts of the wind farm. It includes desktop analysis, ground truthing and some site assessments to verify the results.

The Panel was not persuaded by Dr Williamson's evidence that an LVIA in this type of landscape should include visits to at least 30 per cent of dwellings. The purpose of a LVIA is to assess the nature and extent of impacts using a mix of methods. Visits to dwellings is one of them.

The Panel has long experience with wind farm assessments and it observed the landscape and dwellings on its site visits. It believes requiring 30 per cent of dwellings to be visited would not change the conclusions of the LVIA.

The Panel recognises submitters concerns that the LVIA did not consider the impact of the turbines on their lives as they move around their property but was limited to impacts from dwellings and outdoor living areas. However, for the purpose of assessing visual impacts in planning decisions the views from dwellings are the most sensitive. It does not mean impacts on other views are ignored.

The Panel was impressed with the Virtual Reality tool and the TrueView images used by Jacobs to enhance community understanding about the visual impacts of the turbines.

3.4.3 Conclusions about impacts

The scale of the proposed turbines and the topography mean the turbines will be very dominant in some parts of the landscape. According to the LVIA there will be 1,567 dwellings within six kilometres of a proposed turbine with 317 dwellings technically in the high visual impact zone. However, many will have their views to the turbines screened by the topography and vegetation. Others will experience very high visual impacts with turbines sitting on ridge lines adjacent to their properties or above them and little can be done to mitigate the impacts.

The Panel accepts the evidence of Mr Burge that overall, the impacts of the turbines on the public domain range from nil to moderate due to screening from vegetation and topography. The visual

[135] EES Inquiry and Planning Permit Application Panel Report Golden Plains Wind Farm, 2018. In 2021 the project sought an extension of the permit to allow for 228 turbines see https://goldenplainswindfarm.com.au/

impact on roads is likely to be nil to moderate (low for local roads and moderate on the Strzelecki Highway mostly because of the number of users). The impact on public spaces is assessed as nil to negligible and on towns and populated areas nil to low.

The Panel considered Dr Williamson's claim at the Hearing that there are views of the turbines from at least one dwelling within the Baw Baw SLO1 and possibly from local roads. It is not persuaded by the evidence he provided or his analysis of SLO1.

It accepts the evidence of Mr Burge that the Project is not visible in key views to protected features of the SLO1. SLO1 protects the views from locations looking south towards the north faces and foothills of the Strzelecki Ranges. The views to the turbines for most of the areas to the north west of the Project are prohibited by topography, as was demonstrated by the SAA in the LVIA.

The Panel also accepts the evidence of Mr Burge that the visual impact of the terminal station on the public domain is negligible to low and the impact on residential views is acceptable.

The Panel agrees with the opinion of both experts that whether the turbines are a welcome addition to the landscape is very subjective.

3.4.4 Planning policy

The Wind Farm Guidelines and clause 52.32 of the planning scheme call for an objective assessment of visual impacts. The assessment must be based on whether (and how) the value of the landscape is recognised and reflected in the relevant planning schemes.

In this case the landscape is not recognised as having a particular special value in planning scheme objectives, overlays and strategic studies referenced in the planning scheme. Therefore, the Panel agrees with Mr Burge's evidence that the visual impacts of the Project are generally acceptable. They can be managed through permit conditions.

The Panel also notes that for many submitters the perceived negative visual outcomes for the community will not be balanced by the benefits of the employment and renewable energy generated from 33 turbines. Compared to other wind projects, more people are directly affected by landscape and visual impacts.

Whether this landscape should have higher significance and planning protection is a moot point. The Panel is not aware to what extent, or if, additional landscape protection has been considered for this area in the past. As it is the Panel must take the planning controls as they are.

For future projects it is likely there will be less local concern if areas are targeted with lower residential population density. This however is a matter for policy, not the Panel.

3.4.5 Permit conditions

The DELWP draft permit conditions with the amendments proposed by the Applicant (Documents 135b and c) include conditions consistent with those recommended by Mr Burge and supported by submitters.

The Panel's recommended version of the permit conditions on visual impacts is in Appendix D.

The Panel makes no formal recommendation on whether the Applicant should conduct further assessments of visual impacts as suggested by some submitters and Dr Williamson. It encourages the Applicant to undertake further visual impact assessments or photomontages where affected landowners specifically request it and to seek to address landowner concerns.

3.5 Conclusions

The Panel concludes the objective of minimising and managing potential adverse effects for the community on landscape and visual amenity can be achieved.

Nevertheless, the Project will have significant visual impacts on some properties that cannot be ameliorated.

Specifically, the Panel concludes:

- The Project will be a visually dominant element in the landscape, visible for many kilometres for residents, visitors and tourists; for some it will be a negative element.
- For most residents the views to wind turbines can be screened by vegetation but for some landowners the impact will be high and cannot be mitigated.
- The relevant planning schemes, the FZ and rural residential zones do not recognise landscape values and sensitivity to change in the areas around the Project.
- Assessed against this policy context, the landscape and visual impacts are acceptable.
- The DELWP draft permit conditions with the amendments proposed by the Applicant are generally appropriate, as set out in Appendix D.

4 Noise

There are two clear aspects to noise from wind farms; noise associated with the construction of the facility which is generally of a relatively short-term nature and the ongoing noise associated with the operation of the facility. Both aspects of noise from the facility are managed differently and are detailed in this section on turbine noise and its impacts.

The Environmental Noise Assessment included in Appendix H to the planning permit application includes policy and guidelines, assessment method, noise measurements, turbine noise assessment, related structure noise assessment, construction noise impacts, and operational noise management. Appendix H contains four sections:

- *Environmental Noise Assessment*, Marshall Day Acoustics (MDA), 26 January 2021 (the MDA Assessment Report)
- *Background Noise Monitoring*, Marshall Day Acoustics, 20 October 2020 (the MDA Monitoring Report)
- *Peer Review of Noise Assessment*, Sonus, 22 October 2020
- *Environmental Noise Assessment Audit*, Senversa, 5 May 2021.

4.1 Relevant legislation, regulations and guidelines

4.1.1 Environment Protection Act 2017

The commencement of the EP Act on 1 July 2021 introduced several changes to the way that wind farm noise is regulated. The EP Act does not have specific requirements for managing environmental impacts from wind energy facilities; however, it enables the development of specific mechanisms to manage them.

In the EP Act the relevant parts that could be used to address noise from construction or operation of a wind energy facility are:

Chapter 3 – Duties relating to environment protection:

Part 3.2 - General environmental duty
Introduces the requirement of general environmental duty, which requires all industries and individuals in Victoria who are "*engaged in an activity that may give rise to risks of harm to human health or the environment from pollution of waste must minimise those risks, so far as reasonably practicable*".

Chapter 5 – Environmental reference standards, compliance codes and position statements:

Part 5.2 – Environmental reference standards
An environment reference Standard can be made to be used to assess and report on environmental conditions in the whole or part of the state of Victoria.
An environmental reference Standard may specify indicators and objectives to be used to measure whether an environmental value specified in the reference Standard is being achieved or maintained.

Chapter 8 – Better environmental plans, environmental audits and other matters:

Part 8.3 – Environmental audit system
Division 1, details the roles and responsibilities of Environment Auditors, which are required to check the accuracy and the compliance of the turbine noise emissions compared to the permitted noise limits from the wind energy facility.

4.1.2 Environment Protection Regulations 2021

The *Environment Protection Regulations 2021* also commenced on 1 July 2021; the objectives of the regulations are to enable the management of pollution is accordance to the EP Act.

The *Environment Protection Amendment (Wind Turbine Noise) Regulations 2021* commenced on 1 August 2021 and amended the initial *Environment Protection Regulations 2021* so that wind turbine noise could be managed by the EPA. This change was due to the new requirements for all industrial environmental impacts in Victoria to be managed by the EP Act. These wind turbine noise regulations set out what wind facility operators must do to comply with the EP Act.

As a result of the new regulations, the requirement in clause 52.32 for post-construction noise in planning permit conditions for wind farms was removed through amendment VC206.

Part 5.3 of the *Environment Protection Regulations 2021* was amended to include Division 5 – Wind turbine noise, which sets out the following regulations:

- 131A - Wind turbine noise agreements between the facility owner/operator and the relevant landowner as to the noise limits that will apply to the land
- 131B - The relevant standard that will apply to the wind energy facility, in this regulation the standard is the New Zealand Standard 6808:2010
- 131C - Duties of the wind farm facility to ensure that the noise from the facility complies with the noise Standard
- 131D - Requirements for post-construction noise assessments
- 131E - Noise management plan (from 1 January 2022) to be developed by the owner/operator of the facility
- 131F - Preparation of an annual statement (from 1 July 2022)
- 131G - Wind turbine noise monitoring within 3 months of the 5th anniversary and every subsequent 5 years (from 1 January 2024)
- 131H - Definition of unreasonable noise
- 131I - Functions of environmental auditors.

Due to an omission in notification requirements under the *Subordinate Legislation Act 1994,* the *Environment Protection Amendment (Wind Turbine Noise) Regulations 2021* were revoked, and were replaced by the *Environment Protection Amendment (Interim) Regulation 2021*, to ensure continuity of requirements for wind farm operators. These interim regulations are virtually the same as the initial wind turbine noise regulations, and will have effect for 12 months, or until replaced by new regulations. The Project will be assessed against the interim regulations.

4.1.3 EPA Noise Protocol

The Noise Protocol published by EPA applies to the assessment and application of noise limits to commerce, industry and trade as well as entertainment venues (both indoors and outdoors).[136] The Noise Protocol does not apply to turbine noise from the proposed wind farm but will apply to ancillary elements such as the terminal station and BESS.

[136] *Noise limit and assessment protocol for the control of noise from commerce, industry and trade premises and entertainment venues*, Environment Protection Authority of Victoria, Publication 1826.4, May 2021.

4.1.4 Construction Noise

The EPA *Civil construction, building and demolition guide*[137] replaces EPA publications dealing with noise impacts from construction and demolition activities. The wind farm construction will need to comply with these guidelines.

4.1.5 Public Health and Well-being Act 2008

Turbine noise and other emissions from wind energy facilities have been specifically excluded from the nuisance provisions of the *Public Health and Wellbeing Act 2008* because the new EP Act is designed to adequately cover the impacts of wind farms.

4.1.6 Wind Farm Guidelines

The Wind Farm Guidelines require:

> The proponent is required to submit a pre-construction (predictive) noise assessment report demonstrating that the proposal can comply with New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise, including and assessment of whether a high amenity noise limit is applicable under Section 5.3 of the Standard.

The Wind Farm Guidelines state:

> The Standard specifies a general 40 decibel limit (40 dB $L_{A90(10min)}$) for wind energy facility sound levels outdoors at noise sensitive locations, or that the sound level should not exceed the background level by more than five decibels … whichever is the greater.
> A 45-decibel limit is recommended for stakeholder dwellings. A stakeholder dwelling is a dwelling located on the same land as the wind energy facility, or one that has an agreement with the wind energy facility to exceed the noise limit.

The pre-construction noise assessment report[138] must be accompanied by a report undertaken by a qualified environmental auditor (EPA appointed). The audit report will give an opinion of the acoustic assessment being conducted in accordance with NZS6808:2010.

4.1.7 New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise

The *New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise* (Standard) has been adopted as the noise standard for wind farm noise in Victoria for many years. The Standard provides guidance in the measurement and modelling of turbine noise as well as setting the noise limits depending upon the background noise level, planning zones and amenity. The Standard has been subject to many wind farm assessments and a challenge at VCAT.[139]

The Standard includes, in summary:

- the recommended noise limits providing a reasonable rather than an absolute level of protection of health and amenity
- limits for wind farm sound that are required to provide protection against sleep disturbance and maintain reasonable amenity at noise sensitive locations
- at any wind speed, wind farm sound levels ($L_{A90(10\,min)}$) should not exceed the background sound level by more than 5 dB, or a level of 40 dB $L_{A90(10\,min)}$, whichever is the greater

[137] *Civil construction, building and demolition guide*, Publication 1834, November 2020.

[138] The DELWP draft permit conditions included a requirement for a detailed noise assessment before development starts (pre-construction noise assessment), adopting the recommendations of the MDA report. It would specifically address the final turbine selection and layout and whether a high amenity noise limit should apply to the area to the north west of Boolarra zoned Rural Living Area.

[139] *Cherry Tree Wind Farm Pty Ltd v Mitchell SC & Ors* (includes Summary) (Red Dot) [2013] VCAT 521 (4 April 2013).

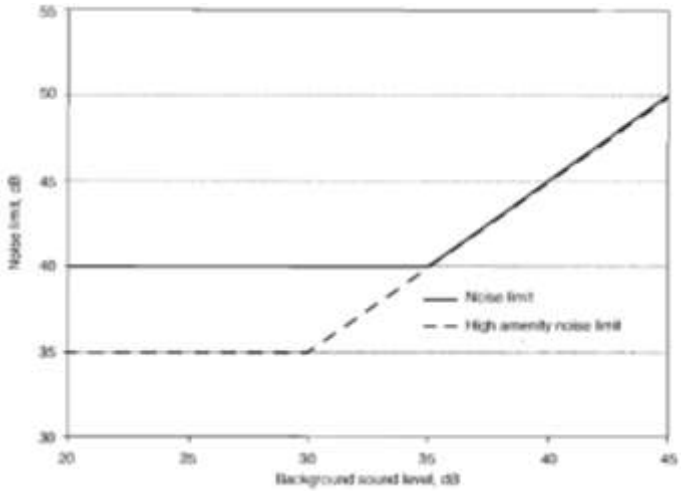
- a high amenity noise limit that should be considered where a plan promotes a high degree of protection of amenity and the average difference between background noise level and the predicted turbine noise level during the evening or night-time is greater than 8 dB [140]
- for a high amenity noise limit area, wind farm sound levels ($L_{A90(10\ min)}$) during the evening and night-time should not exceed the background sound level by more than 5 dB or a level of 35 $L_{A90(10\ min)}$, which is the greater
- consideration of special audible characteristics (such as, tonality, impulsiveness and amplitude modulation).

The noise limits in the Standard and their relationship to background sound levels are shown below:

Table 9 **Noise limits summary**[141]

Background sound level	Noise limit ($L_{A90(10\ min)}$)	High amenity noise limit ($L_{A90(10\ min)}$)
> 35 dB	background + 5 dB	background + 5 dB
30 – 35 dB	40 dB	
< 30 dB		35 dB
NOTE – Introduction of a high amenity noise limit is subject to 5.3.1 and 5.3.2.		

Figure 19 **Relationship between background sound level and noise limits**[142]



4.2 Issues

The Panel has identified the following issues:

- applicable Standards and noise limits, including high amenity areas
- adequacy existing background noise levels, wind speed measurements and applicable of the measurements
- accuracy and applicability of measured wind speed
- candidate turbines not representative of those that maybe installed

[140] A plan under the New Zealand planning system. There is no direct equivalent in the Victorian planning system but residential zones and others with a higher expectation of amenity have been considered in Panel and VCAT decision.
[141] From NZS6808:2010.
[142] From NZS6808:2010.

- candidate turbine noise performance data not available for scrutiny
- modelled future turbine noise levels and modelling inputs
- turbine wake and turbulence effects
- special audible characteristics of installed wind turbines
- compliance measurement of turbine noise at nearest residences
- construction noise.

4.3 Evidence and submissions

4.3.1 Wind farm noise limits and high amenity areas

The Applicant called expert evidence from Mr Delaire from MDA[143] who provided a Statement of Evidence and a slide presentation.[144]

In his evidence Mr Delaire noted the inclusion of wind energy facilities in the *Environment Protection Regulations 2021* and the Wind Farm Guidelines.

Mr Delaire's evidence was the noise limits that apply to the Project are:

> 8.2 In accordance with NZS6808, the operational noise from the wind farm at receivers should not exceed a base noise limit (40 dB L_{A90} or 35 dB L_{A90}, if a high amenity area noise limit is applicable) or the background noise (L_{A90}) by more than 5 dB, which is the greater.

Furthermore, Mr Delaire gave evidence:

> 8.3 As detailed in Section 7.1.1 of the MDA Report, a review of the land zoning surrounding the proposed site indicated that alternative noise limits intended for high amenity zones, detailed in Section 5.3 of NZS 6808, are not applicable.

The MDA Assessment Report identified 13 residences in the FZ, two residences in the SUZ and two residences in the RLZ Schedule 2 (RLZ2) that were in the 35 dB L_{A90} to 40 dB L_{A90} contour area.

Mr Delaire's evidence showed that at two locations (receivers #605 and #4155[145], identified in Figure 20) in the RLZ2, the difference between the existing night-time background noise levels and the predicted night-time noise levels with the wind farm operational (predicted wind farm noise plus the existing background noise level) are between 3.8 and 7.2 dB, when the existing background noise measurements were undertaken at locations #600 and #4585.

If the difference referred to is only the night-time background noise measurements undertaken at location #600, the difference is between 6.5 and 7.2 dB at locations #605 and #4155 respectively. The calculated differences are shown in Table 10 below.

[143] Much of Mr Delaire's evidence was drawn from the work done by his firm (MDA). Where necessary the Panel distinguishes between the background work and his evidence to the Panel.

[144] Document 22 and Document 56b.

[145] A receiver is generally a dwelling.

Figure 20 Residences in the RLZ2[146]

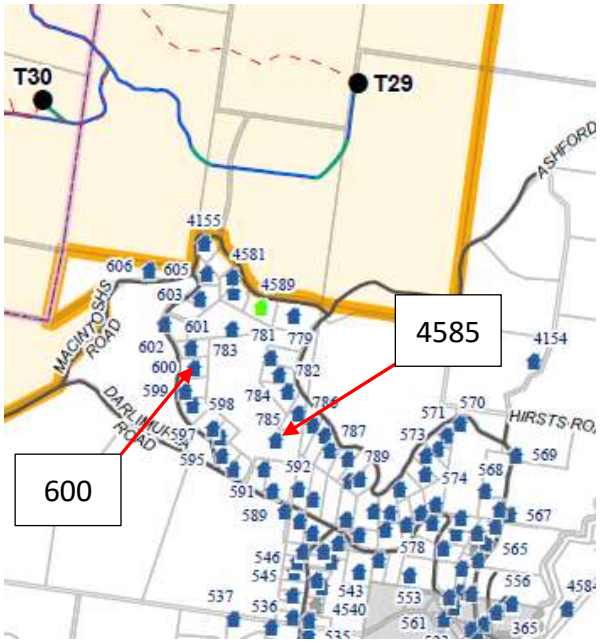


Table 10 Noise perception index (NPI) for receivers that may warrant consideration of high amenity limits, dB[147]

	Background noise monitoring location	
Receiver location	600	4585
Evening period		
605	5.8	2.3
4155	6.4	2.7
Night period		
605	6.5	3.8
4155	7.2	4.3

MDA concluded that the difference between the background noise level and the predicted turbine noise (plus the background noise) was less than 8 dB; the "*high amenity noise limit is therefore unlikely to be justified for the Delburn Wind Farm based on the current layout and the candidate turbine models*".[148]

MDA took noise measurements at properties #600 and #4585 (in the RLZ2) as shown in Figure 20. Measurements from these properties were used as analogues for dwellings #605 and #4155 (also in the RLZ2); predictions at properties #605 and #4155 were within the 35dB contour but the owners did not consent to on-site measurements being taken.

[146] Delburn Wind Farm Mapbook, Site Layout v3.5. Note the different numbering in different plans. In this case 4585 and 785 are the same.
[147] MDA Assessment Report page 20, Table 5.
[148] MDA Assessment Report, page 20.

The SCA called Mr Leslie Huson to give evidence on noise. Mr Huson prepared an expert witness statement[149] and a series of slides[150] for the Panel Hearing. Mr Huson used the Wind Farm Guidelines (2019 version) for his review of the noise assessment. Although using an earlier version of the Wind Farm Guidelines, he referred mainly to the application of the Standard in his evidence and presentation.

Mr Huson presented lengthy arguments for the adoption of a high amenity noise limit under certain conditions and in specific areas around the Project. Mr Huson referred to the VCAT Cherry Tree decision.[151] His view was the VCAT members were in a quandary trying to apply the Standard, which was developed for New Zealand, to the Victorian planning system. In Mr Huson's opinion MDA's approach to applying the high amenity criteria did not reflect the actual acoustic environment of the residential areas near the Project, specifically the residences in a rural living zone.

Mr Huson referenced the EPA Noise Protocol for guidance on noise levels in regional areas. He suggested:[152]

> a reasonable noise amenity in the Farming Zone (FZ) for general types of industrial and farming use is suggested by the EPA to be achieved is an acoustic environment of 36 dBA, Leq at Night and 41 dBA, Leq in the evening is met. These guideline acoustic amenity recommendations for dwellings in Farming Zones (FZ) in Regional Victoria can be converted to the wind farm noise metric of LA90 (LA90 ≈ LAeq – 1.8).

Mr Huson suggested the night-time noise limit in a farming zone should be 34 dB L_{A90}, (36 dBA – 1.8) which is approximately the night-time noise limit for a high amenity area.

4.3.2 Existing background noise levels, wind speed measurements

MDA presentented a discussion of the measurement of background noise levels; details of the measurements are in an attachment to the MDA Monitoring Report.[153]

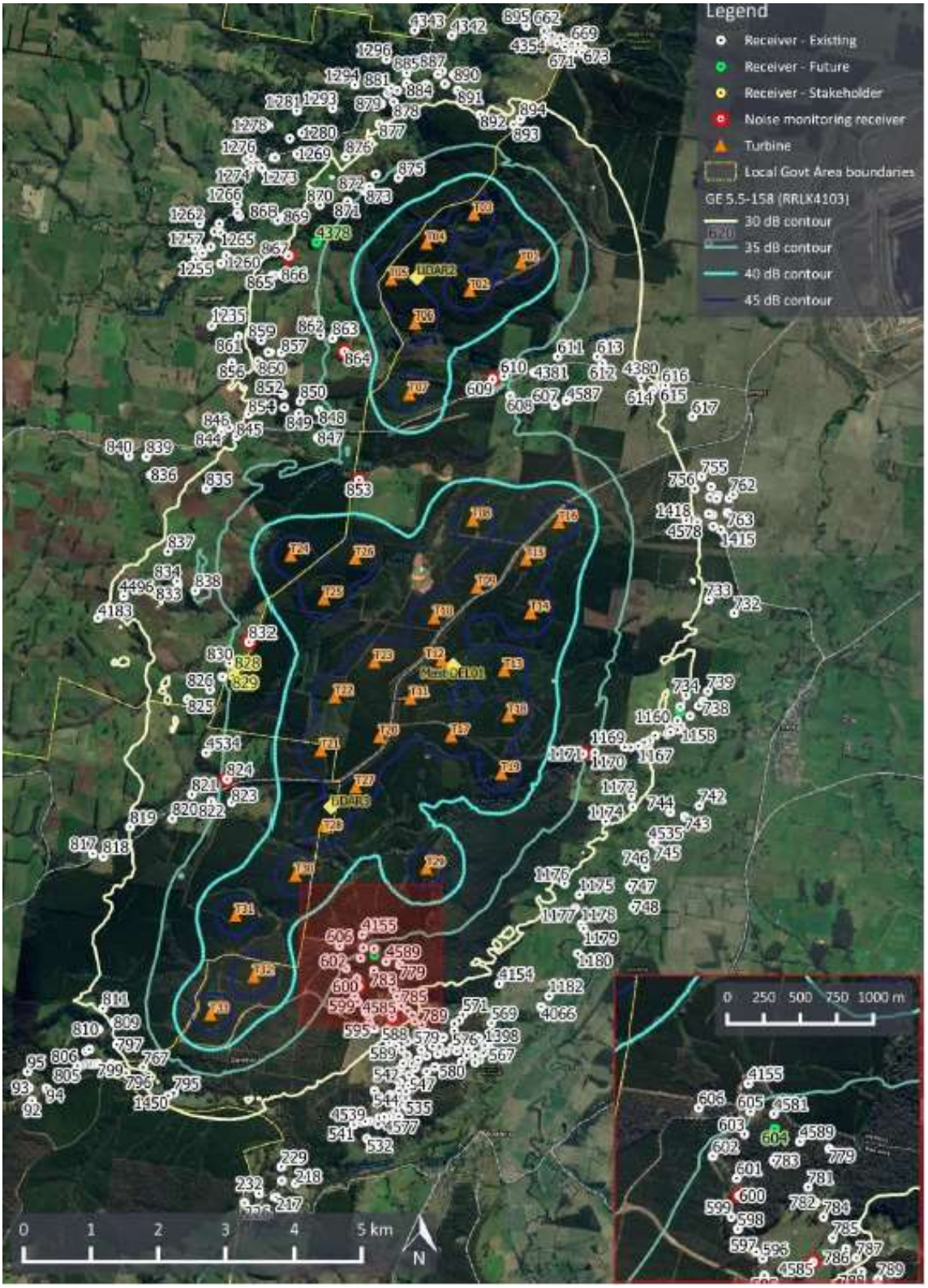
The Standard recommends initial wind farm noise level predictions be used to determine the location of sites that might be exposed to turbine noise levels greater than 35 dB $L_{A90(10\,min)}$ or higher at 95 per cent rated power. MDA's initial modelling showed there could be several locations where the predicted noise levels could equal or exceed 35 dB $L_{A90(10\,min)}$. Consent to undertake noise monitoring was granted at nine locations; however, not all of these locations were the preferred locations nominated by MDA. The preferred locations are shown in blue text in Figure 21. The actual noise measurement locations used by MDA are shown with red location pins in Figure 22.

[149] Document 30.
[150] Document 67.
[151] *Cherry Tree Wind Farm Pty Ltd v Mitchell SC & Ors* (includes Summary) (Red Dot) [2013] VCAT 521 (4 April 2013).
[152] Document 30, paragraph 113.
[153] Background Noise Monitoring report, MDA, Appendix C, 20 October 2020.

Figure 21 Preliminary 35 dB LA90(10min) noise contour and preferred noise monitoring locations[154]

[154] Background Noise Monitoring Report, Appendix C, page 19.

Figure 22 Noise contour map for the GE 5.5-158 Turbine predicted noise level - actual noise monitoring sites[155]



[155] MDA Report, page 28, Figure 2.

The derived measured background noise levels at the nine measurement locations for various wind speeds are shown in Table 11.

Table 11 All-time period – background noise levels, dB L_{A90}[156]

Receiver	Hub height wind speed (m/s)											
	4	5	6	7	8	9	10	11	12	13	14	15
600 [3]	23.5	24.0	24.8	25.8	27.2	28.8	30.7	32.8	35.1	37.5	40.1	42.9
609 [2]	31.3	32.0	32.8	33.5	34.3	35.0	35.8	36.6	37.3	38.1	38.9	39.6
824 [3]	27.6	28.5	29.6	31.0	32.4	34.0	35.7	37.5	39.3	41.2	43.0	44.8
832 [1]	27.8	28.3	29.3	30.8	32.7	34.8	37.2	39.6	42.2	44.7	47.0	49.2
853 [1]	28.7	29.0	29.6	30.4	31.5	32.9	34.4	36.1	37.9	39.8	41.8	43.8
864 [2]	25.5	25.8	26.6	27.8	29.3	31.1	33.1	35.3	37.6	39.9	42.4	44.7
867 [2]	27.0	27.5	28.3	29.6	31.1	32.9	35.0	37.2	39.6	42.1	44.6	47.2
1171 [1]	25.2	25.6	26.2	27.1	28.2	29.5	31.0	32.7	34.6	36.6	38.8	41.0
4585 [3]	30.1	30.6	31.1	31.8	32.5	33.4	34.3	35.3	36.4	37.7	39.0	40.4

Notes [1] 160 m above ground level at DEL01
[2] 160 m above ground level at LiDAR2
[3] 160 m above ground level at LiDAR3

Mr Huson queried the location of measurement equipment at two of the measurement sites. He expressed concern that measurement equipment locations were not in accordance with the requirements of the Standard. Mr Delaire in his presentation to the Panel, explained that it was not practical due to vegetation at both sites limiting access to an area within 20 metres of the residence, and the alternate location was in accordance with the Standard.

MDA reported the wind data was obtained from local measurement equipment at the noise measurement sites as well as wind data that was provided by the Applicant from the meteorological mast located in the Project area.

4.3.3 Candidate turbines

The noise assessment was based on three candidate turbines nominated by the proponent:

- Vestas V162-5.6MW
- GE Renewable Energy 5.5-158
- Siemens Gamesa SG 6.0-170.

The three turbines have a power output range between 5.5 to 6.0 megawatts. The sound power data and frequency characteristics for the three turbines was supplied to MDA by the manufacturers. During the Hearing the Applicant indicated it was unlikely to shortlist the GE turbine.

Mr Huson was concerned that he was not able to obtain the manufacturer's data used by MDA, and therefore was unable to replicate or check the model outcomes that MDA achieved in their assessment. Mr Huson had concerns about the data supplied for the modelling representing the performance characteristics of the turbine use at Delburn; whether the turbines may exhibit some

[156] MDA Report, Table 3.

special audible characteristics, guarantees of performance from the manufacturers, and other issues.

The manufacturers were reluctant to publicly release turbine performance data given the commercial in confidence nature of the material.[157]

4.3.4 Turbine noise modelling

The noise assessment by MDA provided an understanding of the various modelling inputs, model requirements, uncertainties applied to the outputs, turbine noise contour maps and turbine noise data for various locations, wind speed and turbine model.

The Panel notes there are a significant number of steps between the input data expressed as L_{Aeq} and the output noise levels expressed as L_{A90} so that comparisons can be made against the noise limits at the receivers. These steps create some level of uncertainty in the output data. In MDA's Assessment Report it was indicated that:

- 1 dB is added to the output noise levels to account for uncertainty in the turbine sound power levels
- 3 dB is added to the calculated noise levels when there is a significant topographical valley between the turbine and the receiver
- 2 dB is added if there is some terrain feature that screens the maximum tip height at the receiver
- there is approximately a 2 dB correction in converting the L_{Aeq} model output to L_{A90} noise unit.

Mr Huson expressed concern about several aspects of the turbine noise modelling:

- The layout of the proposed wind farm and the effect that wake turbulence will add to the predicted noise levels.
- The appropriateness of the ground correction factor of G=0.5 for the Victorian modelling situations is compared to the approaches of other states where some have adopted a correction of G=0, which would increase the predicted noise levels. The predicted noise levels at receivers could be 4 dB higher if a factor of G=0 instead of G=0.5 is used.
- The uncertainty in the prediction methodology, ISO9613-2, is plus or minus 3dB at distances up to one kilometre and could be greater with increasing distance from the source.

4.3.5 Special audible characteristics

Special audible characteristics relate to the tonality, amplitude modulation and impulsiveness of the selected turbines.

It was Mr Delaire's opinion that tonality, amplitude modulation and impulsiveness in the turbines used in wind farms in Australia is atypical, however, at this stage any special audible characteristics in the candidate turbines is unknown.[158]

[157] GE refused to release their data. Vestas provided a non-disclosure agreement for Mr Huson to sign but terms could not be agreed so the data was not provided. At the close of Hearing an indication of Siemens-Gamesa's position had not been received.

[158] MDA Assessment Report section 6.3.2.

In his evidence Mr Delaire noted special audible characteristics would be addressed in the design stage of the project as well as the post-construction compliance monitoring stage.[159]

4.3.6 Compliance measurements post-construction

The Environmental Auditor of the MDA Assessment Report recommended that:

> The post-construction noise level monitoring specified under the Noise Compliance Testing Plan (NCTP) should be undertaken by an independent acoustic consultant in line with recent recommendations of the Office of the National Wind Farm Commissioner.[160]

4.3.7 Related infrastructure noise levels

The Project includes a BESS with a capacity of 50 MWh to 200 MWh located at the terminal station site. MDA indicated that whilst the actual equipment to be used in the BESS facility is unknown, the noise levels at similar facilities is 95 – 100 dB. This facility will be located to the north in the proposed site.

The terminal station will contain transformers and associated cooling equipment. MDA have estimated that the noise level at this facility will be 99 dB.

MDA revised the noise limits for these two facilities in line with the EPA change to the Noise Protocol from other guidelines. MDA concluded the predicted noise level from both the facilities is at least 6 dB below the applicable noise limit and noise is unlikely to be a significant design consideration.[161]

4.3.8 Construction noise

MDA provided an assessment of the potential noise impacts of the construction activities. MDA detailed various construction activities on and off site that will have impacts and referred to EPA *Civil construction, building and demolition guide* for guidance on how to manage on-site and off-site construction noise impacts.

MDA's construction noise impacts identified the following main activities as potential noise impacts:

- Site enabling works including construction compounds and access tracks
- Cable trenching
- Turbine foundation construction
- Turbine erection and assembly
- Commissioning to configure and verify correct functioning of the turbines and the related infrastructure of the wind farm.

MDA referred to a Construction Environmental Management Plan to be developed for the construction phase of the project that will form part of the overall Environmental Management Plan. The DELWP draft permit conditions require a Construction Environmental Management Plan that must include "*procedures to manage dust and noise emissions, erosion, mud and stormwater run-off*".[162]

[159] Document 22, para 8.21.
[160] Annual Report to the Parliament of Australia, Office of the National Wind Farm Commissioner, 31 March 2017.
[161] Document 56b, slide presentation of evidence of Mr Christophe Delaire for Panel Hearing.
[162] Document 62b.

4.3.9 Other submitter concerns

Ms Rosemary Parker[163] contended there was a lack of noise measurement sites, given only nine locations were monitored. Ms Parker also contested the notion that the Project is surrounded by farmland, when there are many properties next to the proposal that are zoned rural living.

Ms Jessica Taylor and Mr Andrew Taylor[164] were significantly concerned about the possible noise impacts at their property at Morwell – Thorpdale Road, Driffield. The Taylors highlighted the noise modelling that predicts the turbine noise at their property and five of their neighbours will be in the range of 35 to 40 dB.

Ms Carolyn Ballek[165] said the noise will impact lifestyle, disturbing sleep patterns along with the associated negative health impacts due to reduced sleep resulting in changes on behaviour.

Mr Graeme Wilson[166] was concerned about the masking from turbine noise on cyclists using main roads near turbines. Mr Wilson estimated that on a road at close proximity to the turbines the noise levels could be 55-60 dB. The noise levels from the turbines could be high enough to mask the noise of approaching cars and therefore create a road hazard for the cyclists.

Mr David Taylor[167] expressed concerns with the reliability of the noise modelling, considering that at other operating wind farms there have been adverse community reactions to the turbine noise. Mr Taylor was concerned there are not at least two other completely independent acoustic assessments done for the Project proposal:

> In doing so this will either confirm, or prove incorrect, the assessment from Marshall Day Acoustics, and relieve the anxiety of over 1000 residents who may be impacted by turbine noise.

Turbines T01 to T08 are within 3 kilometres of Mr Taylor's property. Mr Taylor engaged an acoustic consultant to provide advice about the future turbine noise level. The advice was that on calm days and nights the turbine noise levels could be 35 dB and would be audible and that the actual turbine noise level could be as high as 40 dB.

Other submitters raised concerns about the compliance monitoring, infrasound, the nonstop noise from the turbine blades, the lack of measurements of the existing background noise levels, impacts of noise on wildlife, low frequency sound and vibration, and turbine noise interfering with livestock.

4.4 Discussion

4.4.1 Noise limits

The Wind Farm Guidelines require the Project to comply with the Standard.

The EPA manages the compliance of wind farms within the framework of the EP Act and regulations. Section 131D of the Regulations (Post-construction noise assessment) require that:

> (2) A post-construction noise assessment must –
>
> a) be conducted in accordance with NZS6808:2010 by a suitable qualified and experienced acoustician; and

[163] Submission 351, document 081.
[164] Submission 034.
[165] Submission 082.
[166] Submission 014.
[167] Submission 450.

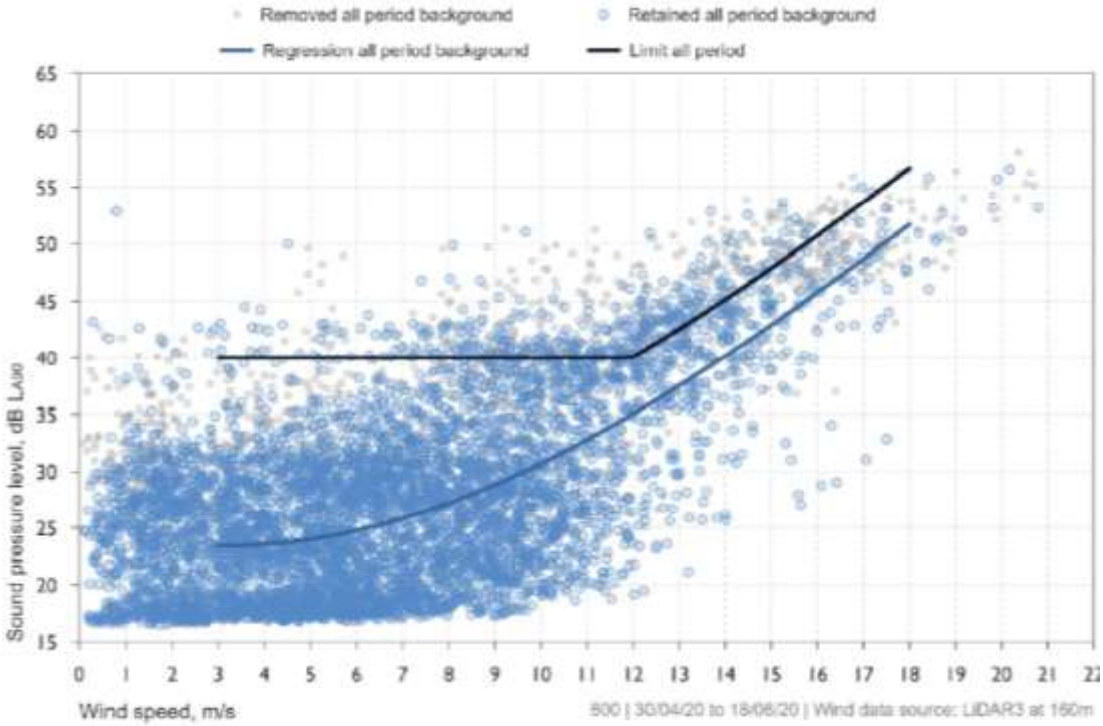
b) demonstrate whether or not the facility complies with the noise limits set out in accordance with NZS6808:2010.

The noise limits in the Standard are shown in Table 9.

Whilst not explicitly explained by MDA, it indicated that the noise limit at the sites where measurements were undertaken is determined by a mix of 40 dB and background plus 5 dB for non-high amenity areas.

Figure 23 (from the MDA report) shows the calculated relationship between measured background noise levels and measured wind speed at receiver 600 (lower line). The figure also shows the noise limit and how it will increase from the 40 dB L_{A90} noise limit when the wind speed increases (upper line).

Figure 23 Receiver 600 all-time periods – derived background noise levels and noise limits[168]



In Figure 23:

- At wind speeds less than about 12 metres per second, the existing background noise level is less than 35 dB L_{A90} and the noise limit is 40 dB L_{A90}.
- As the wind speed increases above about 12 metres per second the background noise level increases above 35 dB L_{A90} and the noise limit increases above 40 dB L_{A90} so that the noise limit will be the background noise level plus 5dB.

The Panel notes that the measured existing background noise level vary significantly from the "line of best fit" derived by MDA (see Figure 23); for example, at a low wind speed of 3 metres per second, the background noise level can vary from about 17 dB L_{A90} to about 33 dB L_{A90}. MDA have not provided any assessment of the statistical accuracy or confidence in the line of best fit.

For the several residences in the 35 dB L_{A90} contour, the future turbine noise level exposure could be dependent upon the derived "line of best fit". The measurements of the background noise

[168] Background Noise Monitoring Report, page 28, Figure 4.

levels, the calculation of the "line of best fit" and the statistical variability of the "line of best fit", may influence decisions that will be of concern to these residents.

The noise assessment by MDA includes a table (see Table 12) of the turbine noise limits for the residences where the background noise levels were undertaken. This table shows clearly how the noise limits will increase above 40 dB L_{A90} with an increase in wind speed above about 10 metres per second.

Table 12 All-time period – operational wind farm noise limits, L_{A90}[169]

Receiver	Hub height wind speed, m/s												
	3	4	5	6	7	8	9	10	11	12	13	14	15
600 [3]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.1	42.5	45.1	47.9
609 [2]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.8	41.6	42.3	43.1	43.9	44.6
824 [3]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.7	42.5	44.3	46.2	48.0	49.8
832 [1]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	42.2	44.6	47.2	49.7	52.0	54.2
853 [1]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	41.1	42.9	44.8	46.8	48.8
864 [2]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.3	42.6	44.9	47.4	49.7
867 [2]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	42.2	44.6	47.1	49.6	52.2
1171 [1]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	41.6	43.8	46.0
4585 [3]	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.3	41.4	42.7	44.0	45.4

Notes [1] 160 m above ground level at DEL01
[2] 160 m above ground level at LiDAR2
[3] 160 m above ground level at LiDAR3

Table 13 shows the predicted turbine noise for a selection of the receivers for the GE candidate turbine, which has the highest hub height noise level. The predicted turbine noise levels do not increase above a hub height wind speed of 9 metres per second, which agrees with the modelled turbine noise levels.

Table 13 Predicted turbine noise for a selection of receivers for the GE candidate turbine[170]

Receiver	Hub-height wind speed (m/s)						
	4	5	6	7	8	9	≥10
605	22.8	23.5	26.6	30.0	32.9	35.0	35.0
606	24.2	24.9	28.0	31.4	34.3	36.4	36.4
607	21.4	22.1	25.2	28.6	31.5	33.6	33.6
608	23.0	23.7	26.8	30.2	33.1	35.2	35.2
609	24.2	24.9	28.0	31.4	34.3	36.4	36.4
610	23.6	24.3	27.4	30.8	33.7	35.8	35.8

[169] Background Noise Assessment, MDA, Page 14, Table 6.
[170] Extracted from MDA Assessment Report, Table 23, page 84.

Table 14 shows the receiver locations where the predicted turbine noise levels at the receivers were 35dB or greater for the three candidate turbines. It shows the turbine noise levels will be less than the 40 dB L_{A90} noise limit at all receiver locations.

Table 14 Highest predicted noise levels at receivers for the three candidate turbines[171]

Receiver Location	V162-5.6MW	GE 5.5-158	SG 6.0-170
605*	33.8	35.0	34.4
606	35.1	36.4	35.8
608	34.1	35.2	34.6
609	35.1	36.4	35.8
610	34.6	35.8	35.2
823	34.8	36.0	35.5
824	34.3	35.5	34.9
828 (S)	34.5	35.6	35.0
829 (S)	34.4	35.5	34.9
830	33.9	35.0	34.5
832	35.3	36.5	35.9
838	34.2	35.3	34.8
853	35.3	36.6	36.0
863	34.4	35.7	35.2
864	35.7	37.1	36.5
872	33.7	35.0	34.5
873	33.8	35.1	34.5
875	34.7	36.1	35.5
1170	34.0	35.1	34.6
1171	34.4	35.7	35.1
4155*	34.9	36.1	35.6

(S) Stakeholder receiver
* Receivers located within the Rural Living Zone to the southeast of the proposed wind farm

While the turbine noise will be less than the noise limits throughout the wind speed range when the wind speed is 9 metres per second or more, the noise limits will increase from about 12 metres per second as shown in Figure 23. At lower wind speeds the turbine noise (35 dB) will be audible, however, at higher wind speeds the background noise levels will increase and become dominant and the turbine noise will be less audible.

Two stakeholder receivers (828 and 829) identified in the Project area will have the higher noise limit of 45 dB L_{A90}. The MDA modelling shows the highest predicted noise levels at these receivers will be 35.6 and 35.5 dB L_{A90} respectively.

4.4.2 High amenity

The MDA Assessment Report discusses the issue of using the high amenity criteria for the RLZ2 zone northwest of Boolarra, stating:

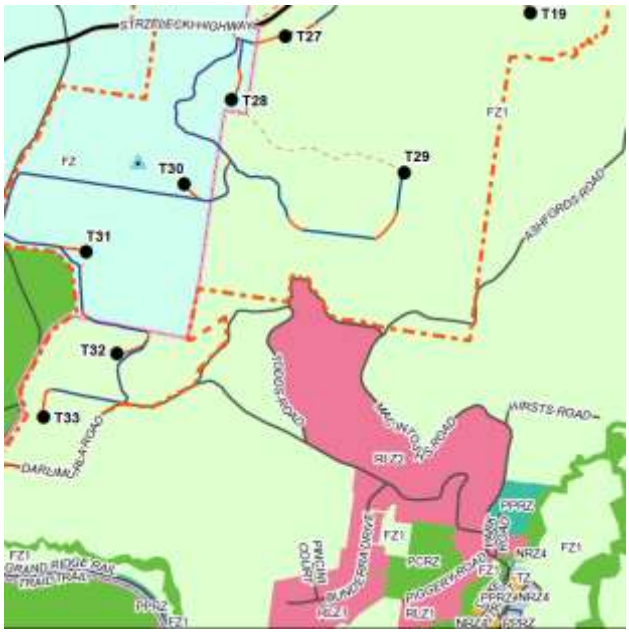
> To address the subject of high amenity, it is recommended that the pre-construction noise assessment include the following:

[171] MDA Assessment Report, Table 12, page 26.

- A specific acknowledgement that the area to the northwest of Boolarra that are zoned Rural Living Area are a high amenity area for the purposes of the Standard.
- An assessment as to whether the high amenity noise limit should apply to these areas and the appropriate threshold wind speed, based on the guidance in Clause 5.3.1 of the Standard.

The map of the planning zones in the vicinity of the receivers northwest of Boolarra is shown in Figure 24.

Figure 24 Planning zones in the vicinity of Boolarra[172]



The VCAT Cherry Tree decision[173] is referred to in the Wind Farm Guidelines and the MDA noise assessment report. VCAT in paragraph 108 stated:

> The Mitchell Planning Scheme does not anywhere expressly or by implication "promote a higher degree of protection of amenity related to the sound environment of a particular area". Approaching the matter by a process of elimination it can be seen with certainty that the controls contained within the Farming zone, which includes most of the locality, do not answer the description. The purpose of the Farming zone is to encourage agricultural use, which is not an inherently quiet land use. In fact, reference to the zone purposes confirms that agricultural use is to be preferred to residential use if there is potential conflict between the two.

The Cherry Tree project area was FZ and PCRZ, and included various overlays such as the BMO and EMO.

The purpose of the RLZ is:

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To provide for a residential use in a rural environment.
- To provide for agricultural land uses which do not adversely affect the amenity of surrounding land uses.
- To protect and enhance the natural resources, biodiversity and landscape and heritage values of the area.
- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.

[172] Delburn Wind Farm Mapbook, Site Layout v3.5.

[173] *Cherry Tree Wind Farm Pty Ltd v Mitchell SC & Ors* (Includes Summary) (Red Dot) [2013] VCAT 521(4 April 2013).

The primary purpose of the RLZ is to provide for residential use in a rural environment. Agricultural land uses are permitted if the use does not adversely affect the amenity of the surrounding land uses; the agricultural uses are clearly subservient to the primary purpose of providing residential accommodation.

The RLZ adjacent to the Project area provides a residential area that is respectful of the amenity of the area. Without explicitly stating the regard for the amenity of the RLZ zone, the ancillary purposes of the RLZ reinforce the higher regard for the amenity of the area, especially when compared to the FZ.

The Panel refers to the Golden Plains Inquiry Report.[174] In this report the application of the high amenity option in the Standard to the township of Rokewood was tested comprehensively.

In Golden Plains application of the high amenity criteria to the township of Rokewood, was based on the town being subjected to predicted turbine noise levels in the range of 35 to 40 dB and that land use zones were not FZ. According to the Golden Plains report the Rokewood township is covered by the TZ, with the surrounding area covered by the Low Density Residential Zone (LDRZ).

The Golden Plains Wind Farm Inquiry noted that Cherry Tree focused (rightly) on the FZ and commented:[175]

> … some zones, expressly or by implication, seek to provide a higher degree of amenity than others. For example, it is uncontroversial that land within the General Residential Zone can expect a higher degree of amenity than land within an Industrial zone. This is by virtue of a combination of the purposes of the zones, the types of land uses encouraged or restricted in the zones, and the various exemptions and restrictions that apply under each zone.
> The Panel considers that the Township Zone and the LDRZ seek to provide a higher degree of amenity than the Farming Zone. The purposes of the Township Zone and the LDRZ seek to encourage residential development and (in the case of the Township Zone) a range of complimentary non-residential uses in small towns, whereas the Farming Zone seeks to encourage agricultural uses. By their very nature, one would ordinarily expect a higher degree of amenity in residential areas than in farming or agricultural areas.
> This is reflected in the types of uses encouraged or prohibited in different zones. For example, the Township Zone and the LDRZ prohibit a range of high amenity impacting uses such as Industry, Stone extraction and Intensive animal husbandry. These uses are not prohibited in the Farming Zone. Rather, prohibited uses in the Farming Zone are those that could not be incompatible with agricultural uses (such as child care centres and office). None of the uses prohibited in the Farming Zone are those that are typically high amenity impacting.

The Golden Plains Wind Farm Inquiry then went on to say:

> Accordingly, the Panel does not agree with the proponent that the *Cherry Tree* reasoning can simply be extended to the Township and the LDRZ. *Cherry Tree* analysed the particular controls contained within the Farming Zone, and determined that those controls "*encourage agricultural use, which is not inherently quiet land use*". Residential uses, on the other hand, are inherently quiet – at least to a greater degree than agricultural uses (and indeed wind farms).

It is obvious to this Panel that the RLZ adjacent to the Project is similar to the situation in Rokewood and should be treated as high amenity for the purposes of the Standard.

Beyond the land zoning, the Panel is concerned that the high amenity criteria limit may not apply by not meeting the criteria of an 8 dB difference between the existing background noise level and the future predicted operating noise level.

[174] *Golden Plains Wind Farm EES Inquiry* (EES) [2018] PPV 97
[175] Golden Plains Inquiry Report, page 79.

Table 10 shows the difference is up 7.2 dB L_{A90} for receiver 4155, where the existing background noise levels were measured at receiver 600, several hundred metres away. Submitters expressed concerns as to the accuracy of the calculated difference when there are no actual background noise measurements undertaken at receiver 4155 or other residences in the RLZ.

The consequence of a difference of less than 8 dB, and it may be by only a fraction of a decibel, is that the residences in the RLZ2 area will have a noise limit of 40 dB and background noise levels plus5 dB and not a noise limit of 35 dB and background noise levels plus 5 dB, for the life of the project.

The other receivers in the RLZ2 zone closest to the Project turbines (T32, T31, T30 and T29) are receivers 598, 599, 600, 601, 603, 605, 4155, 4581, 604, 4589 (potentially) and 779. Receiver 606 has similar noise exposure to these receivers; however, it is in the FZ. A reduction in the predicted turbine noise levels for receiver 4155 because of a reduction in the noise limit, will benefit all these receivers including 606, and to a lesser extent the other receivers in the RLZ zone closer to Boolarra.

The Panel has concerns about the long-term noise limit for the residences in the RLZ2 area. The outcome is based on noise measurements that may not be representative of some of the most exposed residences in the area and predictions of future noise levels are based on a turbine model that may not be used.

An aspect of the noise measurements and predictive modelling that is not clear to the Panel is the uncertainty in the measurements and the modelling. Before making a final decision on the application of the high amenity criteria in the Standard further assessments must be done. The assessments would address the potential errors associated with the pre-construction background noise measurements and the prediction of the future turbine noise levels at all the receiver locations, especially the most noise sensitive receivers in the RLZ area. The assessment as to whether the residences in RLZ2 qualify for the high amenity noise limit must include an allowance for the uncertainties of the measurements of the background noise levels and the modelling of the chosen turbine model.

4.4.3 Wind measurements

There are some concerns about the consistent approach for the before and after wind measurement locations given that there may be some turbulence effects from turbines at the existing meteorological monitoring location. The Standard suggests that the before and after wind measurements should be undertaken at the same location, if the position is not influenced by wind turbines.

The Project proposes to locate three meteorological masts in the Project area. The Panel believes the requirements specified in the Standard regarding the consistency of meteorological measurements should be used as a guide for the future wind measurements.

The MDA Assessment Report only supplied a summary of the collection of wind speed data that was used in determining the noise limits at the receiver points that were closest to the wind turbines. The MDA Monitoring Report provided more detail on the methods and potential limits of acquiring wind speed data at hub height. Neither report detailed potential uncertainty in the wind measurements. The Peer Review and Environment Audit reports of the MDA Assessment Report gave more detail on the wind data but no indication on the uncertainty of the data.

4.4.4 Noise measurements

The before noise levels will determine the noise limit at a residence when the wind farm is operating. For all the residences adjacent to the wind farm, the noise limit is 40 dB $_{LA90}$ up to a certain wind speed after which the noise limit will increase based on the measured background noise level plus 5 dB $_{LA90}$. For example, in Figure 23 for noise measurement location 600, the noise limit of 40 dB $_{LA90}$ applies until the wind speed of 12 metres per second is reached. At higher wind speeds the noise limit increases at a rate of background noise level plus 5 dB $_{LA90}$. Noise level compliance checks will be based on comparing the measured wind farm operating noise levels against the noise limits determined from the measure background noise levels.

The Standard provides alternative compliance noise measurement methods; however, it is in the interests of the residents exposed to future turbine noise to have representative noise measurements undertaken at their properties.

In the RLZ2 area, when the pre-construction noise measurements are undertaken at receivers that will be used for post-construction turbine noise compliance checks, it would be desirable for the measurements be undertaken at the most exposed receivers (605, 4155 and 606) in this area.

It is noted by the Panel that the noise measurements are reported to one decimal place in all the MDA measurements and the predicted noise levels are also reported to one decimal place. Whilst this may be beneficial in demonstrating trends and small differences in noise levels when compared to wind speed for instance, it is generally accepted that noise levels are rounded to the nearest decibel. For future compliance noise monitoring, the measured noise levels should be rounded to the nearest decibel when comparisons are made against the noise limits.

4.4.5 The Peer Review and Environmental Audit

The noise assessment process adopted by the Applicant, where the acoustic consultancy Sonus peer reviewed the MDA Assessment Report, adds confidence to the process. Some submitters criticised the relationship between MDA and Sonus, however the Panel accepts that the peer review was thorough, professional and in accordance with industry requirements.

The audit of the MDA Assessment Report was carried out by Senversa, who are EPA accredited environmental auditors. The audit was prepared in accordance with the requirements of the relevant sections of the EP Act, with an assessment of the compliance of the predictive noise assessment showing that the Project can comply with the Standard. The audit was guided by the EPA publication 1692 - *Wind energy facility noise auditor guidelines*.

The Senversa audit did not find significant issues with the application of the Standard; most of the issues or comments raised by submitters or by the Panel were considered by Senversa.

However, Senversa suggested that further work is required with respect to the potential impacts of the tonality of the adopted turbine model with respect to undertaking on-site noise testing of the initial turbines commissioned or including the manufacturers measurements of the tonality in determining the noise limits. Also, Senversa recommended that the post-construction noise level monitoring be undertaken by an independent acoustic consultant, in line with the recommendations of the Office of the National Wind Farm Commissioner (now Australian Energy Infrastructure Commissioner).

4.5 Conclusions

The Panel concludes:

- The Environmental Noise Assessment showed the turbine noise from the Project will comply with the requirements of the Standard.
- The noise measurements undertaken by Marshall Day Acoustics for the Applicant provided a range of measured background noise levels at nine representative sites near the Project area. The measurement duration and presentation met the requirements of the Standard. The site selection was hampered by the Project not being able to access some of the more sensitive locations.
- The Panel finds the lack of statistical information associated with the determination of the noise limits could be a significant issue that will need to be addressed during the pre-construction background noise measurements.
- The noise impacts of the proposal were modelled in accordance with the requirements of the Standard. For the candidate turbines, the predicted noise levels at all of the residents will be less than the noise limit of 40 dB L_{A90} or the background noise level plus 5 dB L_{A90}, whichever is greater.
- Marshall Day Acoustics recommended the rural living area northwest of Boolarra be designated a high amenity area for the purposes of the Standard; the Panel accepts this recommendation.
- The difference between the measured existing background noise levels and the future combined turbine noise level and background noise level may restrict the application of high amenity criteria in planning-recognised high amenity areas.
- In these high amenity areas, where the difference is near the requirement of 8 dB in the Standard, then consideration of the size of the uncertainty in noise measurements and predicted noise levels should be applied to the difference calculation. For this calculation, the resultant difference noise level should be rounded to the nearest decibel.

The Panel has included draft planning permit conditions in Appendix D to address the:

- high amenity issue
- need for undertaking measurements at the most sensitive receivers
- need to ensure results of monitoring and modelling are statistically valid.

5 Biodiversity

5.1 Background

Based on preliminary work and targeted surveys the Project was referred to the Commonwealth Government under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) in early 2020. The Commonwealth Minister for the Environment determined the Project is not a 'controlled action' under that Act on 17 July 2020.[176]

The Project was referred to the Victorian Minister for Planning (the responsible Minister) under the *Environment Effects Act 1978* in May 2020. The Minister determined on 16 July 2020 that an EES was not required subject to conditions. The conditions included, in summary:

- preparation of an environment report to the satisfaction of the Minister
- preparation and completion of a flora and fauna management plan to the satisfaction of DELWP
- if Nursery Track upgrades are necessary, they must be undertaken in accordance with guidelines for Growling Grass Frog crossing design
- the environment report above should be prepared to inform the planning application.

On 9 May 2021, the Minister determined that the submitted environment report and flora and fauna management plan met the conditional requirements.

The relevant provisions of the planning scheme for biodiversity are outlined in Chapter 2 of this report.

The Wind Farm Guidelines[177] identify the considerations for flora and fauna in assessing applications, including, in summary:

- whether there are state or Commonwealth protected species
- the sensitivity of species to disturbance
- loss of habitat of protected species
- measures to minimise impact on native species.

The Wind Farm Guidelines provide guidance on survey effort and whether planning conditions might be required for monitoring and further work. If native vegetation is to be cleared it is to be undertaken in accordance with the Native Vegetation Guidelines.

5.2 Flora

5.2.1 Background

The study methodology for flora is explained in the biodiversity assessments attached to the planning permit applications. The flora values of the study area are summarised in the expert witness statement of Mr Organ and shown in Table 15.

Mr Organ considered there were no National or State significant ecological communities within the study area.

[176] Biodiversity Assessment, Appendix D Part 1 to the exhibited planning permit applications, page 15.
[177] At section 5.1.4.

Table 15 Ecological values - flora[178]

Remnant vegetation	A total of 241.04 hectares of mapped native vegetation (excluding scattered trees) was mapped within the study area. In addition, 46.96 hectares of modelled Current Wetlands is also within the study area. Mapped native vegetation is represented by seven EVCs of the Strzelecki Ranges bioregion: - Aquatic Herbland (EVC 653) – 0.69 hectares - Damp Forest (EVC 29) – 65.62 hectares - Herb-rich Foothill Forest (EVC 23) – 115.00 hectares - Lowland Forest (EVC 16) – 44.53 hectares - Swamp Scrub (EVC 53) – 0.11 hectares - Swampy Woodland (EVC 937) – 14.34 hectares - Tall Marsh (EVC 821) – 0.75 hectares 379 large trees in patches (excluding Strzelecki Gum) were recorded in or adjacent to the impact area. 81 large scattered trees and 41 small scattered trees (excluding Strzelecki Gums) were recorded. A total of 146 Strzelecki Gums (including 14 large scattered trees) were identified. All impacts to Strzelecki Gum have been avoided through design refinements. The area of native vegetation likely to be directly impacted by the proposed wind farm is 5.669 hectares and 20 large trees. The total impact [accounting for direct native vegetation loss and 15-metre buffer to accommodate the Tree Protection Zones (TPZs) for large trees in patches] is 12.344 hectares and 49 large trees. *(Panel emphasis)*
Significant flora species	The known occurrence of one nationally significant flora species within the study area: - Strzelecki Gum *Eucalyptus strzeleckii* - No additional state significant flora species were recorded - FFG Act Protected Flora: Acacia species, including *Acacia mearnsii* were recorded in the study area.

5.2.2 Issues

The issue for the Panel is:

- whether the removal of native vegetation proposed is acceptable and whether suitable offsets can be provided.

5.2.3 Evidence and submissions

The Applicant called Mr Aaron Organ to give evidence on biodiversity matters. He outlined in his evidence the approach to flora assessments in the study area and provided details on how the Project had been modified through design to reduce the need for the native vegetation removal.

[178] Extracted from Table 4, Document 23.

Mr Organ's evidence noted the original 53 turbine proposal would have required 64.455 hectares of native vegetation to be removed.[179]

He outlined the residual impacts of the present proposal on native vegetation as being, in summary:[180]

- 12.344 hectares of native vegetation for the wind farm (including 5.669 hectares of direct impact)
- 1.657 hectares for the terminal station
- the loss of 20 large trees (direct) and 29 large trees (indirect), including approximately 27 hollow-bearing trees for the wind farm
- four trees would be impacted by the terminal station
- temporary disturbance to habitat during construction works
- temporary increase in risk of direct mortalities due to culvert upgrade and additional vehicle and machinery traffic.

Mr Organ's evidence was that while there are Strzelecki Gum recorded in the area, the Project will have no direct or indirect significant impact on the species.

His evidence was that suitable offsets for the native vegetation removed are available in the area. These were identified in the Biodiversity Assessment as being an area owned by HVP south of Golden Gully Road. Any residual offset required is to be met through the Native Vegetation Offset Register maintained by DELWP.[181]

In its submission DELWP provided a summary of the Native Vegetation Removal Reports (NVRR) for the wind farm (see Table 16) and terminal station (see Table 17).[182]

Table 16 NVRR summary – Wind Energy Facility[183]

Element	Latrobe Planning Scheme	South Gippsland Planning Scheme	Baw Baw Planning Scheme	Cumulative total
Extent (ha)	10.592	1.669	0.083	12.344
General Offsets (habitat units)	n/a	n/a	n/a	0.375
General Offset Large trees	4	n/a	n/a	4
Species Offset (habitat units)	8.050 Strzelecki Gum species units of habitat	1.375 Strzelecki Gum species units of habitat	0.067 Strzelecki Gum species units of habitat	n/a
Species Offset Large trees	45	n/a	n/a	n/a
Location	3	3	3	3
Vicinity	WGCMA / LCC	Not stated	Not stated	WGCMA or LCC or SGSC or BBSC
Minimum Strategic Biodiversity Score	n/a	n/a	n/a	0.319

[179] Document 23, section 7.1.
[180] Document 23, Chapter 6.
[181] Biodiversity Assessment, Appendix D, Part 1, Section 5.2.1.2. HVP confirmed (Document 53a) they are willing to make this site available for vegetation offsets.
[182] Document 62. The full NVRRs are included in the exhibited biodiversity assessments.
[183] Document 62, para 5.14.

Table 17 NVRR summary – Terminal Station[184]

Element	Measure
Extent	1.657 hectares
General Offsets	0.683 General habitat Units
Large trees	4
Location	Location 1
Vicinity	WGCMA / LCC
Minimum Strategic Biodiversity Score	0.197

DELWP submitted it had reviewed the Project to ensure it has implemented the *avoid, minimise and offset* requirements of the Native Vegetation Guidelines and was satisfied that the principles have been met for both the wind farm and terminal station.[185]

DELWP was also satisfied the offset requirements set out in the Native Vegetation Guidelines had been met.

DELWP accepted there was unlikely to be significant impact on the Strzelecki Gum, and any residual adverse impacts can be managed through standard industry practices.

It provided a set of amended draft planning permit conditions with relatively minor suggestions for native vegetation protection including fencing of scattered trees and ensuring a flora and fauna management plan is also required for the terminal station. The draft planning permit conditions for the Project are included in appendices to this report.

Latrobe City Council submitted on the biodiversity values on the site and in the surrounding area. Council noted the draft planning permit conditions and requested:

> … the Panel recommend if a permit is issued the DELWP's conditions be amended so that it specifies the extent of the first party offset site that is to be established.

In this case the Panel understands the first party offset site to be a reference to the proposed HVP site south of Golden Gully Road.

Many submitters were concerned about the native vegetation loss for the Project and biodiversity more generally for a range of reasons. They included loss of native vegetation generally, wildlife corridors, impacts on the Strzelecki Gum and habitat and vegetation loss impacting other species such as the Strzelecki Koala.[186]

The SCA expressed concern about native vegetation clearing and submitted a condition should be applied so the Project is implemented in accordance with the Biodiversity Assessment, and:[187]

> If the proponent, on more detailed consideration, finds that it actually needs a bigger footprint to construct the Project, then it must apply for an amendment or walk away from the permit. Impacts from any proposed increased footprint should be treated as material.

5.2.4 Discussion

The removal of any native vegetation is significant in Victoria given the amount that has been cleared since European settlement. That being said, the Panel considers there are a range of benefits to the wind farm being located in a pine plantation. For example, the clearing of

[184] Document 62, para 5.16.
[185] Document 62, para 5.5 onwards.
[186] The Panel identified approximately 175 submissions referencing biodiversity in some way.
[187] Document 65, para 75.

vegetation around turbines for fire has largely impacted the plantation rather than the native vegetation.

The Panel also notes the work undertaken in Project redesign, which has significantly reduced the area of native vegetation directly and indirectly impacted. The remaining impact areas are mostly associated with project infrastructure where it crosses remnant vegetation (along waterways or roadsides) or where road and track widening is needed for the Project.

The Panel notes and accepts the evidence of Mr Organ and the acceptance by DELWP that the amount of native vegetation removal has been minimised in accordance with the Native Vegetation Guidelines and suitable offsets for the approximately 14 hectares of vegetation to be removed are available.

Maximising the offsets in the immediate area, through the HVP land is desirable. The Panel notes Council's request that the extent of offset to be provided by the first party (HVP) be specified but does not consider it is possible to do this until the detailed planning for removal and offsets has occurred.

The Panel notes the concerns of submitters about general loss of vegetation but more importantly the impact of the clearing on wildlife corridors and wildlife moving through the area. It is likely the vegetation removal will reduce to some extent the utility of existing remnant vegetation for localised wildlife transit (by example, for increasing the width of crossing where a track is widened across a vegetated ephemeral waterway). The Panel does not consider however, given the fragmented nature of the remnant vegetation, that this should result in an overall significant impact.

The Panel understands the vegetation to be removed is not in strategically significant remnant, but rather from existing small remnants within the plantation environment. Having said that, all efforts to further reduce native vegetation loss through Project construction should be taken.

5.2.5 Conclusion

The Panel concludes:

- The native vegetation removal proposed is consistent with the Native Vegetation Guidelines and acceptable, suitable offsets are available.

5.3 Fauna

5.3.1 Background

The study methodology for fauna is explained in the biodiversity assessments attached to the planning permit applications. The fauna values of the study area are summarised in the expert witness statement of Mr Organ and shown in Table 18.

Table 18 Ecological values - fauna[188]

Significant fauna species	The known occurrence of one nationally significant fauna species recorded within the study area: - Growling Grass Frog.

[188] Extracted from Table 4, Document 23.

	Non-threatened species of community interest within the study area include: - Koala *Phascolarctos cinereus* - Wedge-tailed Eagle *Aquila audax* - Yellow-tailed Black Cockatoo *Calyptorhynchus funereus*.

5.3.2 Issues

The issues are whether impacts on:

- the listed Growling Grass Frog have been addressed and managed to an acceptable level
- native species more broadly have been minimised.

5.3.3 Growling Grass Frog

(i) Evidence and submissions

Mr Organ's evidence included a summary of the survey effort for the listed Growling Grass Frog and results of the surveys including:[189]

- observations of two frogs in the centre of the study area along small pool/creekline
- a large chorus of frogs at Luxford Pond.

His evidence was that the Project will not impact on Growling Grass Frog habitat except for widening a creek crossing on Nursery Track south of Clarks Road.[190] Mr Organ in his evidence noted no Growling Grass Frogs were recorded in this area but they would likely use the habitat at times.

His evidence was that any impacts from the Nursery Track widening can be managed through a Construction Environmental Management Plan.

The DELWP submission noted the presence of the Growling Grass Frog and that the lower habitat value area of Nursery Track was chosen for the crossing. It submitted waterway crossing design should be to the satisfaction of DELWP and prepared in accordance with *the Growling Grass Frog Crossing Design Standards* (DELWP, 2017) and that a Construction Environmental Management Plan and Flora and Fauna Management Plan should also be prepared.[191]

Draft planning permit conditions covering the above matters were provided by DELWP with the intention they will be accepted by the Applicant.[192] These are considered further in chapter 9 and draft conditions attached in Appendix D.

Many submitters expressed concern about impacts on vegetation and wildlife generally including the Growling Grass Frog. Ms Mills submitted the impacts of noise and vibration on the frog population had not been adequately assessed.[193] She also submitted:

> Growling grass frogs need a cluster of waterbodies (within 700m) to allow them to move between sites as conditions change. With all the machinery movements and disturbances that will be widening the road at Nursery Track and future traffic, I contend that the frogs will be negatively impacted and may not be able to travel to different areas as conditions

[189] Document 23, page 13.
[190] Downstream (north) of Luxford Pond to access turbines 24-26; note the turbine numbering in the Biodiversity Assessment is different.
[191] Document 62, para 5.34.
[192] Document 62b.
[193] Submission 350.

> change. The Growling Grass Frog has been recorded 200 metres from water, so they will readily migrate from a drying site to a stable site with suitable habitat. This species inhabits a wide variety of habitats from wet to very dry and this needs to be considered. I contend that the study commissioned by OSMI is insufficient at addressing the danger to these frogs.

Other submitters were also concerned about noise and vibration. For example, submitter Ms Caroline Parker expressed concern the Project was likely to have negative impacts on the Growling Grass Frog with noise, infrasound and vibration potentially interfering with breeding.[194]

Other submitters expressed concern and scepticism at the survey effort and results. The Barkers submitted that given the listed nature of the Growling Grass Frog, there should be no impact at all rather than 'no significant impact'.[195]

Other submitters were concerned about the overall impact of development affecting habit for frogs and other species. For example, the Spehar's submitted:[196]

> We are concerned the proposed windfarm will damage the environment impacting on the native flora and fauna the plans show a large number of new tracks, and land being cleared for the turbines and we believe that this will impact on the wildlife including the Powerful Owl, Wedge tailed Eagles, and the Growling Grass Frog.

Ms Teska questioned why there were not larger buffers of 100 metres along waterways as has been suggested for the Growling Grass Frog in other areas.[197]

In its Part B submission, the Applicant reiterated:[198]

> All known and potential Growling Grass Frog habitat will be avoided, save a localised disturbance at Nursery Track which is capable of being managed without unacceptably impacting the species. A design for the waterway crossing in relation to the upgrades of Nursery Track has been prepared in line with the relevant Growling Grass Frog standards and to the satisfaction of DELWP.

(ii) Discussion

As the primary listed species likely to be impacted, consideration of the Growling Grass Frog is an important part of the Project assessment. The Panel notes the only area of direct impact on Growling Grass Frog habitat is where the existing Nursery Track is proposed to be widened as it crosses the waterway downstream (north) of Luxford Pond. The Panel considers this small area of impact, if designed and managed well is unlikely to have a detrimental impact on the Growling Grass Frog population.

The Panel notes submissions that Growling Grass Frogs may use a wider area than where they were detected under the right conditions, for example during wetter conditions. But the Panel does not consider the increase in track width and length will be a significant barrier increase to that already existing with forestry tracks.

Indirect impacts on the Growling Grass Frog were not considered in detail in the Hearing, for example increased turbidity from track and wind turbine construction. The Panel considers these should be able to be managed through standard construction techniques in the Construction Environment Management Plan.

[194] Submission 516.
[195] Submission 398.
[196] Submission 570.
[197] Document 137.
[198] Document 64a.

(iii) Conclusions

The Panel concludes:

- Impacts on the Growling Grass Frog at the Nursery Track crossing should be able to be managed to an acceptable level with careful crossing design and implementation.
- Planning permit conditions to ensure the above will be essential and are generally agreed between the Applicant and DELWP.

5.3.4 Koala

(i) Evidence and submissions

Koala are present in the area and the Biodiversity Assessment considered them:[199]

> Koala, although not a significant species (i.e. not listed as threatened under the EPBC Act, FFG Act or on DELWP's threatened fauna advisory list), was also targeted during spotlighting surveys given the importance of the population (i.e. likely to be genetically distinct from all other populations across Victoria) throughout the Strzelecki Ranges bioregion.

The Biodiversity Assessment recorded Koala in the Project area through nocturnal sightings and they were also heard. The Assessment included:[200]

> It is not expected that the proposed wind farm will have an impact on the local Koala population(s), as the area of native vegetation proposed to be removed is primarily restricted to existing tracks or cleared areas (i.e. pine plantations) and does not intersect any larger forest patches.

Many submissions noted the presence of koalas in the area, including references to koalas on particular properties, and expressed concern that the Project would impact them negatively, particularly in relation to local populations already affected by bushfire. Ms Leahy submitted:[201]

> My concerns include:
>
> loss of habitat for native animals including Koala who have been decimated locally (2009) bushfires and more recently at State and National level by fires. We need to preserve existing habitat as these beautiful animals are close to extinction.
>
> …

Mr Gray submitted on the impact of fire on Koala:[202]

> Then the 2019 Yinnar South fires have taken out another 28% of the best Koala habitat. This small area bore the brunt of the 1800ha fires. devastating bushfire season. One quarter of the most important koala survey sites in the Strzeleckis, were burnt during the March/April 2019 Budgeree/Yinnar South fires. Perhaps hundreds of koalas may have been killed in the fire.

Ms Kelly submitted on the Koala population and fire:[203]

> Koala's under the EPBC Act are classed as vulnerable and even more so since the January 2020 fires that burnt an estimated 18.6 million hectares destroying wildlife and their habitat across Eastern Victoria and NSW. It is estimated that 5,000 Koala's died in these fires and will be extinct in NSW by 2050. The Strzelecki Koala due to its genetic makeup is considered crucial to Koala survival. This Koala population is believed to be a genetically intact example of a wild population of koalas. According to the Australia Koala foundation it is the only population in Victoria that wasn't exterminated by the fur trade in the early 20th Century and there are approximately 500 left in the area. Maintaining this population is considered crucial to the future of Koala survival in Victoria and now NSW.

[199] Biodiversity Assessment, Appendix D, Part 1 page 25.
[200] Biodiversity Assessment, Appendix D, Part 1 page 43.
[201] Submission 50.
[202] Submission 623.
[203] Submission 87.

Other submissions raised the issue of the loss of vegetation impacting on vegetation corridors and biolinks, submitting that the loss of these links will be detrimental to the Koala population.

Other submitters raised the work of Dr Bronwyn Houlden in identifying the Strzelecki Koala as a distinct genetic population within the broader Koala population making the Strzelecki population even more significant.[204]

The loss of habitat was emphasised by many submitters including from the Kinghorns:[205]

> This habitat supporting the Strzelecki Koala population is their territory for its survival. If this habitat were to be reduced in any way, the potential for survival of each individual would be undesirably to an intense degree of reduced populations. They are not migratory animals, but highly territorial. In stable breeding groups, individual members of Koala society maintain their own "home range" area's. Every home range tree and food tree is important to the welfare of each individual Koala and group in which it lives. The destruction and fragmentation of habitat means koalas will spend more time on the ground moving from tree to tree. This makes them so much more vulnerable to be hit by cars, attacked by dogs, fox's and joeys being separated from their mothers …

Submitters the Cascianellis outlined their views on some of the likely impacts on Koalas:[206]

> There will be significant clearing for access and building sites, widening of tracks, a vast increase of heavy traffic on local roads posing increased threat to moving koalas. Also, the ongoing construction impacts and ongoing operational impacts on the koala both in terms of habitat and as a thoroughfare. With the potential for increase in fire risk through reduction in ability to fight from the air, this poses further issues for an already decimated Australian koala population. We must protect the Strzelecki koala. It distresses me to think how many will be hit on roads or tracks by such a huge volume of traffic should construction go ahead.

A number of submitters were also critical of HVPs role in the Project, suggesting it was inconsistent with their stated aims of Koala protection to host the wind farm which could result in significant impacts to Koala.

In the Hearing Ms Teska submitted that the fragmentation of the Strzelecki biolink is inconsistent with DELWPs Biodiversity Conservation Strategy and threatens the koala and other species.[207]

Ms Kinghorn submitted that the impacts on the koala are likely to be significant and:[208]

> Every home range tree and food tree is important to the welfare of each individual Koala. Koalas are slow with their movements and will be spending more time on the ground moving from tree to tree. This makes them so much more vulnerable to danger with elevated levels of stress makes them more prone to sickness and increased susceptibility to disease.

Other submitters such as Friends of the Earth noted that the Koala's main habitat, the Strzelecki gum is not being impacted, and while no native vegetation loss is desirable, they appreciate the Applicant's efforts to minimise vegetation removal.[209]

In his evidence, Mr Organ responded to submissions on the Koala, concluding, in summary:[210]

- impacts to Koala are not expected, as the area of native vegetation proposed to be removed is primarily restricted to the existing tracks or cleared areas and not any larger forest patches
- removal of native vegetation will be conducted using HVP's Koala Protocols

[204] For example, submission 358.
[205] Submission 391.
[206] Document 487.
[207] Document 137a.
[208] Document 095.
[209] Document 138.
[210] Document 23, page 24.

- measures will be implemented to avoid direct impacts to individual Koalas prior to vegetation removal
- construction vehicle and machinery movement across the site will be predominantly during the day when there is less Koala activity
- the Project is unlikely to impact Koala through increased road mortality, disturbances associated with noise and vibration, or impacts associated with the operation of turbines.

In its Part B submission, the Applicant reiterated it did not consider there will be any significant impact on Koala and there are no Australian guidelines for potential impact such as noise, shadow flicker or infrasound. The Applicant conceded there is some risk of increased roadkill:[211]

> There is a potential risk, albeit a low and temporary risk, of increased road mortality of native fauna during the construction phase of the Project due to increased vehicle movements. Risk will be reduced by largely limiting vehicle movements to daylight hours, reducing risk for crepuscular and nocturnal animals.

(ii) Discussion

There are clearly Koala on the Project site and in the surrounding area, and are a much loved part of the local environment. The Panel understands they are protected as native species but are not listed in Victoria as vulnerable under the EPBC Act.[212]

The Panel is acutely aware from submissions of the recent fire history in the area and more broadly in Victoria and up and down the east coast. The viability of the Koala at a population level is an issue of great concern to many people.

The Panel's focus however is on this Project and whether it poses an unacceptable risk to the local and broader Koala population. The foundation of this consideration is habitat. Native vegetation removal is considered in an earlier section of this report and the Panel has concluded on that issue.

Overall, the Panel considers the impact of habitat loss on the local Koala population from the Project is likely to be acceptable. The Panel understands the most important Koala habitat in the area is the larger contiguous areas of native vegetation to the southwest of the Project.

This is not to say there will be no impact on Koala. As the Applicant conceded there may be an increase in risk of roadkill during construction, and the loss of habitat in native vegetation removal, if a relatively small amount, may still have a small incremental negative effect on Koala.

The Panel is not concerned however that this will pose a threat at a population level. There is already a very significant impact on the Koala population in the area from relatively dense human populations and the impacts that this brings (for example traffic, dogs, cleared vegetation). The Panel does not consider the relative impact of the habitat loss from the Project is likely to be significant at a population level. The habitat to be lost is already fragmented being generally along roadsides rather than in a large contiguous block.

The reduction in habitat may in some areas reduce the wildlife corridor values of remnant vegetation. These values however are relatively small and local, there should be no significant impact on larger regional scale corridors and biolinks.

[211] Document 64a, para 13g.

[212] They are listed in Queensland, New South Wales and the Australian Capital Territory.

(iii) Conclusion

The Panel concludes:

- The impact on Koala from the Project through habitat loss and potentially minor increase in roadkill is unlikely to be significant at a population level.

5.3.5 Birds and bats

(i) Evidence and submissions

Mr Organ provided a summary of findings from the Biodiversity Assessment including:[213]

- 74 bird species were recorded from 1,947 individuals
- no national or state significant species were recorded within the study area
- only 1.1% of bird species were observed in the rotor swept area including Yellow-tailed Black Cockatoo, Australian Raven, Common Bronzewing and Pied Currawong
- all species observed within the rotor swept area were common birds and not listed as threatened on DELWP's Advisory list or listed under the EPBC Act or FFG Act
- no birds recorded during the bird utilisation surveys or recorded during the detailed field surveys are defined as 'species or interest' as outlined in Lumsden et al. (2019).[214]

Mr Organ noted in his evidence:

> While not observed at RSA height, Wedge-tailed Eagles *Aquila audax* were recorded within the study area and are likely to fly at and above RSA when foraging. Large parrots, including Gang Gang Cockatoo *Callocephalon fimbriatum* and Sulphur-crested Cockatoos *Cacatua galerita*, whilst recorded below RSA, may also fly in the RSA as they move daily between roosts and feeding areas.

He identified that bird and bat collision with wind turbines would be a direct impact causing mortality and habitat loss including loss of hollow-bearing trees would also likely be a direct impact.

In his evidence Mr Organ also summarised the findings of bat surveys on site which were undertaken with Anabat call recorders. In summary Mr Organ reported:[215]

- five native bat species including the White-striped Freetail Bat, Eastern False Pipistrelle, Gould's Wattled Bat, Chocolate Wattled Bat and Little Forest Bat were detected; all common in the area
- only the White-striped Freetail Bat is known to regularly fly within Rotor Swept Area
- no listed species (for example Grey-headed Flying-fox, Large Bent-wing Bat or Yellow-bellied Sheath-tail-Bat were detected within, or adjacent to the study area).

He identified bat collision with turbines as a direct impact of the Project but considered there will be no impact on listed threatened bat species.

DELWP submitted that, in summary, birds observed in the surveys are all common species and not 'species of interest' in terms of being threatened. They concluded that the impact on birds from the Project is low risk.[216]

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[213] Document 23, para 5.1.1.

[214] The paper by Lumsden was tabled by the Applicant as Document 64k – *Developing a science-based approach to defining key species of birds and bats of concern from wind farm development in Victoria*.

[215] Document 23, page 12.

[216] Document 62, para 5.37 onwards.

On bats DELWP submitted that while they understood why the potential impact on bats is low (height of rotor swept area and plantation location) they noted:[217]

> There is uncertainty, common with all projects around impacts to bats, given there is a paucity in the current understanding of how and why bats come into contact with turbines. This is in part due to the limited ability to observe how bats behave at night (when they are most active) around turbine structures as they move across the landscape between patches of vegetation and during foraging activities.

DELWP recommended an adaptive management approach be pursued, based on a condition requiring a Bat and Avifauna Management Plan be prepared for bats only (commonly known as a BAM Plan).[218]

The impact on avifauna (birds and bats) from the Project, and particularly mortality from rotor strike, was a significant issue raised by many submitters. Birds mentioned in submissions included Wedge -tailed Eagles, White-bellied Sea-Eagle, Powerful Owl, Yellow-bellied Black Cockatoo, microbats and migratory shorebirds.[219]

Many submissions mentioned the Wedge-tailed Eagles in particular and expressed scepticism regarding the ecological studies. Ms Bolch submitted:[220]

> … I'm quite sure that the protected wedge tailed eagles that fly across the area that will soon have 33, 800 ft high turbines in their path will appreciate the dodgy ecological studies pronouncing that they will be fine, nothing to worry about here. They soar over our property every day arriving through this minefield from their breeding area in Mirboo Nth. and someone with a Phd will no doubt assure Government they will be fine. What a load of rubbish. They won't last one day. Sea eagles fly over regularly and the area is home to endangered powerful owls as well, but the proponents of this monstrosity couldn't care less what will happen to them. Every year there are huge colonies of migratory birds flying through this area and yet we are expected to believe none will be killed.

Submitter Ms Kelly identified that the area around the Project site is rich in birdlife, much of which she suggested flies across the Project area:[221]

> The low-lying and flood affected plains attract numbers of different water birds including Darters, Pied Cormorants, Australian Wood Duck, Australian Shelduck, Straw-Necked Ibis. Also seen in this area White Bellied Sea Eagles, Pelicans, Black Swans, Sea Gulls, Egrets and Nankeen Night Heron. The Delburn Complex is around 60 kms inland from the coast, often you will see sea birds in this area or flying across.
>
> According to the article 'Forest Campaigns in the Strzelecki' Ranges by Julie Constable 2003, there are at least 80 species of birds that inhabit the forests, the most famous being the Superb Lyrebird. Threatened bird species include the Barking Owl, the Powerful owl, Sooty owl and the Grey goshawk. … The Darlimurla site contained the Lewin's Rail (endangered), and Large-billed Scrubwren. Yinnar South provided habitat for the Brown Treecreeper and Swift Parrot. I have also seen the Swift Parrot in this area which is listed as Endangered under provisions of the EPBC Act for threatened species
>
> There is one pair of Wedge Tailed Eagles that nest in the native bushland that surrounds the plantation around Boolarra, their nest is only around 2 kms from where two wind turbines are proposed to be built. …

Submitter Mr White also identified a large range of birdlife he regularly sees:

- Wedge tailed Eagles

[217] Document 62a, para 5.44.

[218] Draft standard conditions for a BAM Plan are provided by DELWP and include developing a strategy for avifauna strikes on turbine blades and mortality surveys through carcass searches.

[219] Species mentioned frequently in submissions as identified by Mr Organ in his response to submissions.

[220] Submission 348.

[221] Submission 87.

- Peregrine Falcons
- Powerful Owls
- Barn Owls
- Red and Yellow crested Black Cockatoos
- Flocks of IBIS
- Gang Gangs
- Goshawks
- Butcher Birds
- Magpies
- …..[222]

Some submitters suggested the ecological surveys were underdone and downplayed both the presence of wildlife and the impact of bird strike on bird population. Rosemary and Stephen Parker submitted the assessment of impact of turbines on birds, in summary:[223]

- downplays the blade strike threats to birds and bats as the forested areas and wetlands within the Project are critical pathways for bird movement
- does not accurately present blade strike risk in the biodiversity report
- mortalities are incorrectly stated as insignificant
- the consultants own report shows there may be 'species of interest' in the area.

Similar concerns were raised in detailed by submitter Ms Caroline Parker[224] and the SCA.[225]

In its Part B submission, the Applicant submitted that residual ecological impacts can be managed through the series of plans required for the Project including:

- Environmental Management Plan
- Construction Management Plan
- Bat and Avifauna Management Plan
- Flora and Fauna Management Plan.

It submitted that the ecological investigations, including for avifauna, were comprehensive and undertaken in some cases to the satisfaction of DELWP.

The Applicant acknowledged some avifauna will collide with turbines. It submitted:[226]

> … However, the Biodiversity Assessments and the Ecology Expert Witness Statement confirm that this will not result in a significant impact from an ecological perspective. This is primarily because common birds and bats, and no species of state or national significance, were recorded within the study area. Second, only minor changes in local distribution and abundance of species at risk of turbine collision may be expected as a consequence of ongoing operation of turbines.

(ii) Discussion

It is well known that there are bird and bat mortalities resulting from collisions with wind farms. The paper tabled by the Applicant[227] outlines the results of mortality investigations from 15

[222] Submission 509.
[223] Submission 351.
[224] Submission 516.
[225] Submitter 713.
[226] Document 64a, page 8.
[227] Document 64l, Moloney, Lumsden and Smales, *Investigation of existing post-construction mortality monitoring at Victorian wind farms to assess its utility in estimating mortality rates.*

Victorian wind farms that identified 1,101 bird and bat deaths up to February 2018.[228] According to the study the Wedge-tailed Eagle is the second most likely bird to be killed at wind farms after the Australian Magpie

Based on past experience at wind farms, the Panel considers it highly likely there will be bird and bat mortalities in the Project area and this is acknowledged by the Applicant. This may well include some of the iconic species identified by submitters such as Wedge-tailed Eagles, other raptors, different types of Cockatoos and other common local species.[229]

The Panel understands it may be difficult for submitters to understand and accept the planning framework for wind farms, which is focused primarily on the impact on rare and endangered or threatened species. In the context of the planning framework the Panel is satisfied the impact on such threatened avifauna species will not be significant.

The Panel accepts this offers little comfort to submitters who enjoy seeing and living among 'common' species that may be detrimentally affected by the wind turbines.

If the wind farm does have an unexpected significant impact on species not listed as threatened, the BAM Plan is intended to identify this and enable action to be taken as necessary.

Turning to the BAM Plan, the Panel has reviewed the Lumsden and Moloney reports. It notes with some concern the conclusions in the Moloney report on the efficacy of BAM Plans in providing data that can be used to effectively determine the mortalities from wind farms. The conclusion reads in part:[230]

> Examination and analysis of existing post-construction mortality monitoring data from Victorian wind farms found that monitoring undertaken at many wind farms was not designed or undertaken in a manner that would enable valid estimation of total mortalities.

The Panel also notes the Golden Plains Wind Farm report which noted:[231]

> The Panel notes the DELWP Environment proposal to develop recommendations for future improvements in mortality monitoring and data collection, to inform standard conditions in future BAM plans. The Panel considers that an ongoing focus on developing a better understanding of the cumulative effects on raptor populations and other vulnerable native species must continue to form part of the review by DELWP Environment. The Panel considers it would be appropriate for DELWP Environment to consider the suggestions from submitters to this Panel in finalising its recommendations.

The form and content of the BAM Plan was not discussed in any detail in this Hearing and the Panel is unaware whether the conclusions and recommendations in the Moloney report or the proposals mentioned above in the Golden Plains Wind Farm report have been taken forward.

The Panel notes that as this is first wind farm proposal in a plantation environment, this will add another layer of complexity to activities such as carcass searching. Avifauna carcasses may be held up in the pine tree canopy or be difficult to find on the plantation floor.

This will need to be carefully considered in the design of the BAM Plan.

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[228] Importantly the report notes: *These numbers represent just a subset of the birds and bats that will have been killed at wind farms, because many individuals will have been lost or scavenged in between monitoring events, not detected during monitoring, killed at turbines that are not monitored, or killed after monitoring had been completed. Accordingly further analysis is required to estimate actual annual mortality rates.*

[229] The Panel saw Wedge-tailed Eagles at a number of locations in the Project area on its various visits.

[230] Document 64l, page 3. Data from only 2 of the 15 wind farms was found to be statistically valid to the point where it could be used.

[231] *Golden Plains Wind Farm EES Inquiry (EES)* [2018] PPV 97, Page 45

Having reviewed the submissions, the Panel is not convinced that the BAM Plan should just cover bats as recommended by DELWP in permit conditions. It should also address birds as is common at other wind farms.

(iii) Conclusions

The Panel concludes:

- the impact on listed threatened avifauna should not be significant
- development and implementation of a BAM Plan should include consideration of birds as well as bats
- the BAM Plan should be developed cognisant of the findings of the Moloney report into the efficacy of wind farm avifauna mortality investigations.

6 Traffic

6.1 Background

The Project will generate significant traffic movements during construction and to a much lesser extent during operation. The traffic impacts were assessed by AECOM in Appendix K to the Project planning permit applications and Appendix F to the terminal station application.

A summary of predicted external and internal construction vehicle movements for the Project are shown in Tables 19 and 20.

Table 19 Estimate of total external traffic generation during wind farm construction[232]

Vehicle Type	One-way trips	Origin	Comments / Assumptions
OD Trailer	726	Port of Hastings	WTG parts etc.
Truck and Dog Trailer	11,782	Princes Freeway	Cement, concrete sand and cable bedding sand delivery
Rigid trucks	14,272	Princes Freeway	Water delivery for dust suppression and concrete batching
Other Heavy Vehicles	6,336	Princes Freeway	Support vehicles required for WTG erection, cable laying and parts delivery
Light vehicle	54,000	Princes Highway/ Mirboo–North Trafalgar Road	Workforce
Total OD vehicle trips	**726**		
Total heavy vehicle trips	**32,390**		
Total light vehicle trips	**54,000**		

Table 20 Estimate of total internal traffic generation[233]

Vehicle Type	One-way trips	Origin	Comments
Concrete agitator	6,480	Batch plants on site via Smiths Road	WTG foundations, power pole footings, substation foundation
Truck and Dog Trailer	19,984	Quarry on site via Smiths Road	Aggregate, gravel delivery
Total heavy vehicle trips	**26,464**		

A summary of predicted external and internal construction vehicle movements for the terminal station are shown in Tables 21 and 22.

[232] Table 6-1 in Appendix K to the wind farm planning permit applications. Note OD refers to Over-Dimensional vehicles, large vehicles for transporting components such as generators, blades and turbine towers. Note WTG means wind turbine generators.

[233] Table 6-2 in Appendix K to the wind farm planning permit applications. Note as the onsite quarry is proposed to be used this has advantages for the local and regional road network in that external trips are reduced.

Table 21 Estimate of total external traffic during terminal station construction[234]

Vehicle Type	One-way trips	Origin	Comments / Assumptions
OD Trailer	8	Ports	OD parts (Transformer etc.)
Truck and Dog Trailer	3,118	Princes Freeway	Cement, concrete sand and cable bedding sand delivery
Rigid trucks	20	Princes Freeway	Water delivery for dust suppression and concrete batching
Other Heavy Vehicles	200	Princes Freeway	Support vehicles required for cable laying and parts delivery
Light vehicle	5,940	Princes Highway/ Mirboo–North Trafalgar Road	Workforce
Total OD vehicle trips	**8**		
Total heavy vehicle trips	**3,338**		
Total light vehicle trips	**5,940**		

Table 22 Estimate of total internal traffic during terminal station construction[235]

Vehicle Type	One-way trips	Origin	Comments
Concrete agitator	115	Batch plants on site via Smiths Road	Terminal station foundation, transmission tower/pole footings
Truck and Dog Trailer	1,908	Quarry on site via Smiths Road	Aggregate, gravel delivery
Total heavy vehicle trips	**2,023**		

AECOM concluded that neither the wind farm nor the terminal station would have "*a material traffic capacity impact on the local road network*". They recommended Traffic Management Plans (TMP) be prepared to manage the detailed planning and design for traffic during construction and operation.

The exhibited draft planning permit applications contain a number of draft conditions related to traffic management and the preparation of TMPs.

6.2 Issues

There were few submissions and no evidence suggesting that the local and regional road network could not take the predicted traffic volumes in terms of numbers and types of vehicles. The Applicant submitted that the Traffic Impact Assessment (TIA) demonstrated that the project would have negligible impacts on traffic capacity in the Project Area.[236]

It submitted that a range of matters can appropriately be addressed through permit conditions for a TMP including pre-construction road surveys, any necessary upgrades and road reinstatement provisions among other things.

The DoT in their original submission[237] did not object to the applications in relation to traffic capacity but did propose changes to draft planning permit conditions.

There were a number of submissions and evidence called around other traffic related matters including safety, driver distraction and blade throw.

The issues are whether:

[234] Table 6-1 in Appendix F to the terminal station application.
[235] Table 6-2 in Appendix F to the terminal station application.
[236] Document 64a, para 87 onwards.
[237] Submission 498. The Latrobe City Council (433) similarly provided matters to be addressed during construction.

- the local and regional road network can safely accommodate the proposed traffic volumes during construction and operation of the wind farm
- driver distraction from moving turbines and blade flicker[238] poses an unacceptable risk to drivers on the Strzelecki Highway
- whether blade throw poses an unacceptable risk to traffic on the Strzelecki Highway.

6.3 Safety and crash statistics

6.3.1 Evidence and submissions

The Applicant called Ms Charmaine Dunstan who gave evidence addressing a number of traffic issues including safety driver distraction and blade throw.[239]

In her evidence Ms Dunstan provided an overview of casualty crash statistics in the vicinity of the Project area for the period 2015 to 2020. In summary this included:[240]

- 27 casualty crashes (including 8 on the Strzelecki Highway)
- 19 of the 27 were off carriageway/out of control on the carriageway crashes
- 7 of the 27 crashes involved motorcycles of which none were on the Strzelecki Highway
- there are no inherent patterns of crashes of concern for this assessment on the Strzelecki Highway
- the crashes are spread throughout the review area and there is no particular locational concern.

Following the circulation of Ms Dunstan's evidence, Ms Armstrong, Secretary of the SCA, received information on local crash statistics in the area from SCA members, many of whom are in the emergency services.[241]

Ms Armstrong submitted that the incidence of fatal and serious injury in the area is much higher than Ms Dunstan provided in her evidence and included a list of fatalities and serious injuries. She also provided information from local emergency service personnel on particular intersections, submitting that a local police officer identified the following which were highly represented in crashes:

- Yinnar-Driffield Road and Strzelecki Highway
- Creamery Road and the Strzelecki Highway
- Darlimurla Road and the Strzelecki Highway
- Ten Mile Creek Road and the Strzelecki Highway.

A number of other submitters were also concerned about the suggested underreporting of crashes in the evidence and the implications for increased traffic from the Project.

In its Part B submission DoT provided advice on why there may be differences in the crash data provided by Ms Dunstan and in the SCA submission.[242] In essence, they submitted while they had not done a detailed pairing exercise, both the timeframe (five years for Ms Dunstan, longer for the

[238] Compliance with the standard for blade flicker in the Wind Turbine Guidelines is addressed in Section **Error! Reference s ource not found.**.
[239] Document 27.
[240] Document 27, section 4.4.
[241] Document 070c, PDF page 4 onwards.
[242] Document 78, para 29 onwards.

SCA) and area of reference (within 3 kilometres of a turbine for Ms Dunstan, a broader area for SCA) were different.

DoT also noted there have been improvements along the Strzelecki Highway since 2015 including a southbound overtaking lane and a right turn lane into Smiths Road.

6.3.2 Discussion

There is no evidence before the Panel that the roads in the area (with upgrades where relevant) will be unsuitable or unsafe due to the increased traffic from the Project, particularly during construction.

The Panel is satisfied that Ms Dunstan has used the appropriate safety datasets from which to draw her conclusions.

The increase in traffic across over-dimensional routes, and where heavy vehicle and light vehicle volumes increases will be significant during the construction period, does not mean these routes will be inherently more unsafe. Traffic planning in the TMP to be prepared for the project will need to ensure that appropriate safety measures are included whether through signage, reduced speed limits at times, active traffic management and control or combinations of all of these and other measures.

6.3.3 Conclusion

The Panel concludes the safety aspects of increased traffic from Project development, and particularly construction, will require careful planning and management during Project implementation.

6.4 Driver distraction

6.4.1 Evidence and submissions

A number of submitters raised the issue of driver distraction, essentially concerned that people travelling through the Project would be distracted either by the moving blades or shadow flicker crossing the roadway resulting in a crash.

Ms Dunstan, who gave evidence regarding driving distraction:

- reviewed research into driver distraction
- looked for research into road safety and wind turbines
- reviewed other large roadside infrastructure in terms of driver distraction
- provided an opinion on whether wind turbines are distracting to drivers
- considered the driving task in the vicinity of the Project
- reviewed the potential for shadow flicker across roads in the Project area.[243]

Ms Dunstan's evidence was that the research on driver distraction concludes:[244]

- Attending to objects not related to the driving task is typical and generally safe driver behaviour.
- Attending to objects not related to the driving task only attracts a relatively small percentage of the driver's total attention.

[243] Document 27, section 5.
[244] Document 27, para 99.

- Research also indicates that as drivers become overloaded with inputs to the driving task they shed part of the input demand to focus on that which is judged to be more important (that is, drivers ignore distractions to focus attention on the driving task).
- Scanning the driving environment is an activity that enhances safety as long as it is systematic.
- Street level objects attract more attention that those raised given where drivers are required to scan for hazards.
- Not all objects will have a potential to distract drivers, as this depends on the placement of the object in the driver's cone of vision.
- The risk associated with attending to objects not related to the driving task depends on how long the driver looks at that object and whether it is conveying a message or requires particular attention.

Ms Dunstan's review of overseas work on whether wind turbines constituted a hazard concluded that "*there was no discernible impact from the wind turbines with respect to road safety*"

She further concluded:

> I am not aware of any other similar road safety assessments having been undertaken in Victoria or Australia in these respects. I am also not aware of any crash statistics that would suggest a correlation between accidents and the introduction of wind turbines.

Ms Dunstan undertook an assessment of the proposed wind turbines from a range of vantage points along the Strzelecki Highway and other roads though the Project, assisted by the augmented reality images.

Her overall assessment based on her research and assessment of roads in the area was that while turbines will be visible from many roads they will not be distracting to drivers and no further setbacks are required for turbines.

Regarding blade flicker over roads Ms Dunstan noted that the shadow flicker assessment undertaken in accordance with the Wind Farm Guidelines shows that there will be shadow flicker over roads in the Project Area at different times and in different conditions. She did not consider this gives rise to particular road safety concerns, also noting that other planning panels[245] have considered the issue and concluded it is not likely to have a significant impact on road users.

Ms Dunstan suggested the shadow flicker effect is no different to driving along a road with vegetation on the roadside and like that scenario there is no impact on driver safety.

A number of submitters expressed concern regarding driver distraction for road users. Mr Wilson[246] provided the most comprehensive views on this issue. His original submission included, in summary:

- driver distraction is a cause of road accidents
- the Strzelecki Highway is a busy and sometimes dangerous road
- driver distraction will be a risk as turbine blades will only be 10 metres from the highway, located on bends, visible through and above roadside vegetation
- overseas research is confined to straight road scenarios. The Applicant has no conclusive evidence proving their turbines will not pose a danger
- motorcyclists may be endangered by turbines drawing the rider's attention from their line of travel and causing target fixation accidents
- the wind farm may mask the sound of traffic from cyclists

[245] Berrybank Wind Farm and Stockyard Hill Wind Farm Panel Report quoted, Document 27, page 90.
[246] Submission 14.

- previous planning applications have considered smaller turbines on flat land and therefore do not set a precedent for this case
- there are no remedial measures being considered to successfully reduce the risk
- there are other risks from blade glint, shadow flicker, bird and bat carcasses, ice throw and blade failure[247]
- the permits should be refused or a re-designed layout be implemented which eliminates the five turbines proposed to be close to the Strzelecki Highway and two on Creamery Road.

After the circulation of Ms Dunstan's evidence, Mr Wilson provided a statement from a Mr Richards, a retired police officer with many years police motorcycle riding and police and private rider training experience.[248] Mr Richards supported Mr Wilson's submission and stated, in summary:

- many regional road fatalities are due to fatigue, suicide and distraction and he considers the wind turbines would be a distraction
- the Strzelecki Highway is frequented by motorcyclists who are more prone to 'target fixation' in accidents
- incidents from carcasses, ice or blade failure could lead to serious accidents, particularly for motorcyclists
- motorcyclists are already susceptible to bird strike
- the Strzelecki Highway is already a location where mobile speed cameras are used and the Highway is thus a 'black spot' which could be made worse from distraction from wind turbines.

In his submission at the Hearing, Mr Wilson reiterated his concerns that Ms Dunstan's experience in other traffic settings with driver distraction and billboards is not relevant and that she had not properly considered the risks to cyclists and motorcyclists. He submitted that some drivers will be distracted by the turbines.

Mr Wilson also reiterated his concerns regarding blade and carcass throw. He provided links to videos of his experience on a motorcycle and bicycle along the Strzelecki Highway which the Panel has viewed.[249]

The DoT did not take up the issue of driver distraction and as discussed in Section 6.5.1 did not pursue the issue of increased turbine setbacks from the Strzelecki Highway.

In their Part B submission, the Applicant submitted that there are no requirements in the Victorian planning system or in state or national guidelines for the consideration of driver distraction and that the evidence of Ms Dunstan should be accepted in that:[250]

- drivers may glance at the turbines, but they will not be distraction
- road safety policy does not require no distraction along roadsides and there are many roadside features that attract intention and increase alertness
- shadow flicker will be no different to that caused by roadside vegetation and will not give rise to driver distraction.

[247] Blade throw is discussed in the next section.
[248] Document 34a.
[249] Document 108d.
[250] Document 64a, para 75.

6.4.2 Discussion

There are number of roads that cross the Project area. Given the traffic volumes, speed limits and road hierarchy, the Panel considers potential driver distraction impact on the Strzelecki Highway is the most significant for consideration.

The Panel accepts that the turbines will be highly visible at times both close to the Strzelecki Highway within the Project and on approaches to the Project areas from all directions given the scale of the proposed turbines.

Several turbines will be very close to the Highway, such that when the blades are in the horizontal position, they will be only in the order of 10 metres from the edge of the road reserve, albeit at considerable height. In this circumstance and depending on the direction of travel the turbine blades at time will appear to ''overhang'' the Highway.

Based on the evidence before it, and the Panel's own driving experience within the vicinity of wind farms, the Panel does not accept that this visibility means the turbines will constitute a hazardous driver distraction leading to a crash.

Driving any country highway requires a degree of skill, training and experience, and even more so for vulnerable road users on motorbikes and bicycles. These riders are by their nature and given the complexity of the riding task, often at a higher state of alertness of road conditions and surrounds than other drivers.

The turbines, being so large, will not 'pop up' in a view. A driver being aware from some distance away that they are approaching large turbines, should already be aware of the upcoming likelihood of observing turbines among the many other elements that a driver must deal with in the driving task.

For people who drive the Highway regularly or several times a year, it can be expected that there will be a degree of habituation of turbine visibility. The turbines will be a normal backdrop as you transit this part of the Strzelecki Highway.

Lastly, the Panel notes no evidence was put before it of any vehicle crash anywhere in the world attributed to driver distraction from wind turbines. Large turbines have been in place near roads in Victoria and other parts of Australia and the world for many decades now. The Panel considers if there was a particular driver distraction risk from them it would likely have shown up in crash statistics.

Panel members on multiple occasions have driven through and near wind farms, including at high (legal) speed in Europe and in the case of one member on a motorcycle. The degree of distraction from wind turbines is no different to any other roadside feature and it is ultimately up to the person in control of the vehicle as to how they control the vehicle and take in the road conditions and surroundings.

The Panel notes the submissions and evidence on shadow flicker on the Highway and does not consider this should add any additional concern for drivers. Depending on the time of day the flicker associated with travelling past vegetated roadsides at highway speeds along parts of the Strzelecki Highway is orders of magnitude more significant than that likely to be generated by turbine blades. To the Panel's knowledge, and consistent with the evidence of Ms Dunstan, this existing 'flicker' does not give rise to driver distraction concerns.

6.4.3 Conclusion

The Panel concludes:

- There is no evidence before the Panel that driver distraction from wind turbines will contribute to increased crashes in the vicinity of the Project.

6.5 Blade throw[251]

6.5.1 Evidence and submissions

Several submissions raised the issue of blade throw, particularly given the proximity of the Strzelecki Highway to some of the proposed turbines.[252] DoT submitted:

> … The proposed towers have blades approximately 90m long and be positioned such that a number of towers are within 100m from the road reserve. The Head, Transport for Victoria has concerns with the potential hazard of blade throw from these towers – turbines considering that the blades will potentially be only 10m from the road reserve.[253]
> A number of reports detail that the potential for blade throw could be in the vicinity of between 100 - 500m depending on the size of the turbines. The technical reports attached to the application do not fully demonstrate what risks are associated with this matter. Further investigation is required to determine the suitability of the towers located within 100m of the Strzelecki Highway. [254]

SCA submitted that a number of turbines are too close to public roads including the Strzelecki Highway, Golden Gully Road, Creamery Road and others.[255] Their surveyors measured one turbine on Creamery Road (T17) as being only 101.3 metres from the road and many under 200 metres from public roads, a distance recommended by the Australian Energy Infrastructure Commissioner to mitigate safety risks.[256]

SCA identified a number of blade throw incidents at Victorian wind farms in recent years and provided images of an incident at Bald Hills Wind Farm.[257]

A number of individual submitters also raised the risk of blade throw affecting both traffic and nearby residents. For example, Ms Van Eede suggested blades could be thrown 2 kilometres given the tip speeds involved. Others submitted that while the risk may be relatively low, the failure of blades is not that uncommon.[258]

In response to the concerns raised by DoT and other submitters, the Applicant commissioned an expert report from Dr Naomi Brammer on the risk of blade throw from the Delburn Wind Farm.[259] Dr Brammer provided an expert witness statement and responded to the submissions raising this issue. Her conclusions were, in summary, that:[260]

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[251] Referring to the potential for a blade or part of a blade to be detached from the wind turbine when operating and thus 'thrown' potentially some distance in an uncontrolled manner.

[252] See Figure 2 for example.

[253] When for example a blade is in the horizontal position and at a right angle to the highway it may potentially only be 10m from the highway laterally, but at considerable height (ie rotor hub height).

[254] Submission 498.

[255] Submission 713, para 26.

[256] See recommendation 5.2.9.4 at https://www.aeic.gov.au/observations-and-recommendations/governance-compliance.

[257] Documents 76c and 76d.

[258] Other submitters suggested ice being thrown from the turbine blades being a traffic risk or birds or bats hit by blades being thrown on to roads might be a risk. The Panel has not addressed these specifically other than to comment that it considers the risk would be acceptably low.

[259] Document 26.

[260] Document 26, para 5.1.

- blade throw incidents are relatively rare for modern turbines
- structural blade failures do not typically result in the detachment of blades or blade fragments due to compliance with international standards, high quality maintenance and continual improvements in component design and controls systems
- her calculated risk for a person who remains at a fixed location in the vicinity of a wind turbine at a distance of half the rotor diameter for the equivalent of 8 hours per year, the risk of being hit and killed by a blade or blade fragment is in the order of 10^{-8} per year (1-in-100 million).

Dr Brammer went on to compare this risk to the annual risk of being killed by lightning in Australia of approximately 10^{-7} per year (1-in-10 million). She concluded in relation to submissions:

> All the submissions I have reviewed,…, have expressed concerns regarding the distances between the proposed turbine locations and nearby roads, and the subsequent risk of injury or death to road users caused by a blade throw incident. Many submissions have also commented on the apparent frequency of blade throw incidents and the potential distances that a blade or blade fragment may be thrown. The Blade Throw Assessment has been based on conservative assumptions regarding the likelihood of a blade throw incident occurring and the maximum potential blade throw distances, and demonstrates that, for the proposed Project turbine locations, the risk of a blade throw incident causing injury or death to people travelling on roads in the vicinity of the Project is at least 10 times less than the risks considered acceptable in other jurisdictions and considerably lower than the existing risks for road users.

Ms Dunstan in her traffic evidence also addressed blade throw and essentially adopted the work of Dr Brammer for this issue.[261]

Following consideration of Dr Brammer's evidence, DoT accepted that her assessment of risk of blade throw was conservative and that the probability of blade throw resulting in a vehicle accident on the Strzelecki Highway is very low.[262] On this basis DoT did not seek further turbine setbacks from the Highway other than those exhibited with the applications.

To further minimise risk DoT suggested that permit conditions be included to cover manufacturing and maintenance of turbine blades.[263]

In its Part B submission, the Applicant submitted that there are no requirements for turbine setbacks from roads in Victoria, which was why they commissioned the site specific risk assessment from Dr Brammer. It reiterated this shows that risk to the public from blade throw is very low.[264]

It submitted Dr Brammer's assessment is very conservative, demonstrated by the fact that while there have been blade failures in Victoria, Dr Brammer's methodology suggests there should have been more. The Applicant also noted there is no recorded incident of a blade failure leading to injury or death globally.

The Applicant submitted there is no need for further assessment on this issue through permit conditions.

[261] Document 27, Section 8.
[262] Document 78, para 14.
[263] Document 78, para 18.
[264] Document 64a, para 65 on ???.

6.5.2 Discussion

The Panel accepts there are no requirements for setbacks from public roads for wind turbines in Victoria. There are many wind farms in Victoria where turbine blades in the horizontal position at right angles to roads come within similar setback distances from road reserves as proposed for this Project.

The Australian Energy Infrastructure Commissioner (previously the Wind Farm Commissioner) recommends a 200 metre setback for turbines from public roads, however this has not been implemented into the decision making framework in Victoria.

The Applicant submitted, and the Panel accepts, that the risk assessment undertaken by Dr Brammer is the most comprehensive of its type undertaken in Victoria. The Panel considers that the findings and conclusions were not seriously challenged and notes the acceptance of DoT of the assessment.

The Panel notes the concerns of submitters. Wind turbine blades do fail, and there may be blade failures at this wind farm over its life, if constructed. However, to be a significant risk to the community the likelihood of failure must be coupled with the likelihood of its landing point and the likelihood of impact on people or infrastructure at that point.

No one can say that one of the blades on a turbine near the Strzelecki Highway will not fail, or that it will not end up on the Highway, or it will not happen at the time a vehicle goes past. But the evidence of Dr Brammer is that the probability of all three things happening individually is very low, and happening all at once extremely low, and in the Panel's view the resulting risk is minimal and acceptable.

Given the setback distances to residences, the Panel considers the potential for blade throw to affect houses is even lower and extremely unlikely.

The Panel has viewed the permit additions suggested by DoT around manufacturing standards and maintenance and considers these reasonable to apply to minimise risk even further.

6.5.3 Conclusions

The Panel concludes:

- The risk from blade throw to traffic on public roads and surrounding residents is acceptably low and further setbacks are not required.
- Permit conditions as requested by the Department of Transport for manufacturing standards and maintenance should be applied.

6.6 Turbine setbacks

As outlined in this chapter the Panel has concluded there is no statutory requirement for turbine setback from the Strzelecki Highway and no demonstrated need to increase setbacks for driver safety, particularly on the Strzelecki Highway.

The Panel notes the recommendations of the Australian Energy Infrastructure Commissioner for setback from roads and has already identified that this is not a recommendation that has been picked up by the State Government for implementation in planning schemes.

As for many wind farms, the possibility of 'micro-siting' turbines has been suggested, to allow for movement of turbine locations within a small localised distance to improve environmental

outcomes or turbine performance. This is an issue that is normally considered at the detailed design stage.

The Panel considers that at this time, the opportunity could be taken, and considering the flow on impacts to other matters associated with turbine locations, to maximise the distance the turbine base is from the Strzelecki Highway.

As the Panel has concluded, there is no specific road safety need to do this, but it may give comfort to submitters to move turbines away from the Highway where possible. The Panel has not made a specific recommendation to this effect given its findings in the preceding chapters but considers it should be pursued in detailed design. The Panel has suggested a draft planning permit condition on this basis.

7 Bushfire

7.1 Background

7.1.1 Planning policy and overlays

(i) Bushfire assessment and management

Clause 52.32-4 (Wind Energy Facility) requires an application for a wind energy facility to consider bushfire risk as part of a site context analysis.

The Project site and areas to the north and south are under the BMO.

A bushfire risk assessment is required under clause 13.02-1S (Bushfire Planning) because the wind farm is in a Bushfire Prone Area and is subject to a BMO. The objective of the bushfire planning policy is:

> To strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.

Strategies to achieve the objective include:

- Give priority to protection of human life by:
  - prioritising the protection of human life over all other policy considerations
  - reducing the vulnerability of communities to bushfire by considering bushfire risk in decision making at all stages of the planning process.
- Identify bushfire hazard and undertake appropriate risk assessment.
- Settlement planning that prioritises protection of human life by:
  - Ensuring risks to existing and future residents, property and community infrastructure will not increase as a result of future land use.
  - Achieving no net increase in risk by implementing bushfire protection measures and where possible reducing bushfire risk overall.
- Assessing and addressing the bushfire hazard posed to the settlement and the likely bushfire behaviour it will produce.
- Directing population growth and development to locations assessed as having a radiant heat flux of less than 12.5 kilowatts per square metre under *AS 3959-2009 Construction of Buildings in Bushfire-prone Areas* (Standards Australia, 2009).
- Ensuring the availability of, and safe access to, areas assessed as a BAL-LOW rating under *AS 3959-2009 Construction of Buildings in Bushfire-prone Areas* (Standards Australia, 2009) where human life can be better protected from the effects of bushfire.

The Latrobe Planning Scheme clause 13.02-1L (Planning in the BMO) applies to all land affected by the BMO. It has a strategy to:

> Set back development in the Farming Zone Schedule 2 from any bushfire hazard to achieve a BAL construction standard no higher than BAL-29, unless there are significant siting constraints.

The South Gippsland Planning Scheme recognises "*the potential risk of bushfire to population and property in certain locations*" (see, for example, clause 21.02-2). Clause 21.19, which concerns 'localities' including Darlimurla, states bushfire constitutes one of a number of development constraints for these types of settlement.

The Latrobe Planning Scheme clause 14.03-1R (Resource exploration and extraction - Gippsland Coal Resource) includes a coal resource strategy: "*Minimise fire risk to open cuts, coal related industries and storage of coal*".

(ii) Aircraft safety

Clause 52.32-6 (Wind Energy Facility) decision guidelines requires the decision maker to consider the impact of the wind farm on aircraft safety, including firefighting aircraft.

(iii) Environmental risks

The Latrobe Planning Scheme recognises the frequency and severity of days of elevated fire danger is likely to increase because of climate change (clause 21.04) and provides strategies to reduce the bushfire risk. The strategies include ensuring developments identified in clause 13.02 incorporate measures to mitigate bushfire risk: reliable water supply for firefighting and property protection, adequate access for emergency management vehicles and developing a Bushfire Emergency Management Plan that include triggers for closing or restricting operations on elevated fire danger days.

7.1.2 Municipal fire management plans

The Latrobe Municipal Fire Management Plan identifies the bushfire risk associated with the Hancock Victoria Plantations (HVP) site as Very High. It states there is a history of fires resulting from arson and other ignition sources and identifies the potential impact on adjoining land. The Victorian Fire Risk Register has assessed the risk for bushfire within the municipality along with identifying treatments and concluded the plantations have a residual risk of Very High.

The Baw Baw Municipal Fire Management Plan rates the plantations as having a residual risk of High with treatments that include water supply, fuel hazard management, ignition management and emergency management planning.

The South Gippsland Municipal Fire Management Plan identifies the raw risk rating of the plantations as extreme. It has not assessed the residual risk.

7.1.3 Guidance documents

(i) CFA Renewable Energy Guidelines 2021

The *CFA Guidelines for Renewable Energy Installations 2021* (CFA guidelines) provide standard measures and processes for fire safety, risk, and emergency management to be considered when designing, constructing and operating new renewable energy facilities. Planning permit applicants should incorporate their design and operating requirements into the permit applications.[265]

The guidelines state where wind facilities are located within a high risk zone, such as a timber plantation, nacelles must be equipped with fire detection and suppression systems. They should also be based on a comprehensive risk assessment.

The siting and design guidelines cover topics such as spacing of turbines, marking of turbines and monitoring towers, clearance of vegetation around turbines, access roads and fire breaks.

The guidelines also specify requirements for BESS.

[265] CFA Guidelines, page 4.

(ii) AFAC guidelines

The Australian Fire and Emergency Services Authorities Council (AFAC) has issued guidelines on *Wind Farms and Bushfire Operations*, 2018. The guidelines provide direction on lighting risk, aerial firefighting and protocols to manage other aspects of bushfire risk. Those treatments include ensuring meteorological towers, guy ropes and the turbine towers are clearly visible during bushfire events.

The guideline states wind turbines can attract lightning but with the built-in protection mechanisms they are unlikely to catch fire and may reduce risk.

The guidelines indicate that the use of firebombing aircraft can be safely undertaken around wind farms.

7.1.4 Fire Risk Assessment and permit conditions

Fire Risk Consultants (FRC) provided three reports as part of its bushfire assessment work for the Applicant. The first was 'Delburn Bushfire Risk Assessment and Mitigation Plan' 2020. The two other reports address the planning scheme requirements and support the planning applications for the wind farm and terminal station:

- *Wind Farm Bushfire Risk Assessment in support of the planning application 2020*[266] (Bushfire Risk Assessment) to demonstrate that clause 32.02 had been considered
- *Clause 13.02 Assessment – Proposed Terminal Station for the Delburn Wind Farm 2020*.

FRC consulted with the CFA in preparing its reports, as recommended in the CFA Guidelines. The *Bushfire Risk Assessment* in support of the planning application included an analysis of how its recommended measures comply with the CFA Guidelines.

The Bushfire Risk Assessment includes a bushfire hazard assessment, a key component of assessing risk as required by clause 13.02 of the Latrobe Planning Scheme.

The Bushfire Risk Assessment also provides an analysis of how the Project will meet the objective in clause 13.02-1S of prioritising the protection of human life. Some key measures include remote operation during fire danger periods, improved monitoring of bushfires in the area, and asset protection zones around turbines and buildings.[267]

The Bushfire Risk Assessment included bushfire management strategies to be implemented in the construction and operational stages. Some key measures are:

- powerline infrastructure is to be placed underground to reduce risk of ignitions
- measures to minimise ignition sources from turbines
- turbines to be spaced 300 metres apart to accommodate firefighting aircraft
- Bushfire Mitigation and Management Plans and Emergency Management Plans to be prepared for the construction and operational phases.[268]

It said the wind farm would have a low impact on aerial suppression activities around wind turbines and this is supported by fire service guidelines and protocols. It referenced the AFAC

[266] Delburn Wind Farm Bushfire Risk Assessment in support of wind energy facility planning application, Fire Risk Consultants, September 2020, Appendix J.

[267] Delburn Wind Farm Bushfire Risk Assessment in support of wind energy facility planning application, Fire Risk Consultants, September 2020, Appendix J. section 4.1.

[268] Delburn Wind Farm Bushfire Risk Assessment in support of wind energy facility planning application, Fire Risk Consultants, September 2020, Appendix J, section 4.6.

guideline recommendations for firebombing, which states aerial firefighting operations treat turbine towers similar to other tall obstacles and pilots and other Air Operations Managers will assess these risks as part of routine procedures.[269]

The Bushfire Risk Assessment included an analysis of how the proposed BESS will comply with the CFA Guidelines. It proposed a BESS specific bushfire risk management plan and development design plans prior to construction.[270]

Strategies recommended by FRC were incorporated into the draft planning permit conditions for the wind farm and the terminal station.[271]

7.1.5 Fire terminology

In this chapter the Panel, experts and submitters refer to Fire Danger Ratings, Forest Fire Danger Index (FFDI) and Fire Danger Index (FDI).

The FDI and FFDI show the potential fire danger on a given day and location based on factors such as temperature, humidity, wind and vegetation. If you add the daily FDI values over a year for a location you get the annual accumulated FDI. These FDI values are used to calculate Bushfire Attack Level (BAL) in the *Construction of Buildings in Bushfire-prone Areas (Standards Australia) AS 3959-2018*.[272]

Fire Danger Ratings are based on the FDI. There are six Fire Danger Rating levels in Australia ranging from Low-Moderate, through to Extreme and Code Red.

Figure 25 Fire Danger Rating from CFA

Fire and emergency services use the Fire Danger Ratings to advise the public what to do at different fire danger levels. A Severe bushfire day, for example, has a score of FDI 50-74 and the recommended action is to leave early or stay and defend only if the home is well prepared and residents can actively defend it. If a fire starts and takes hold it may be uncontrollable.[273]

[269] Appendix J, pages 13 and 24.
[270] Delburn Wind Farm Bushfire Risk Assessment in support of wind energy facility planning application, Fire Risk Consultants, September 2020, Appendix J, pages 62 and 63.
[271] Documents 36a, 36b, 36c; Draft Planning Permit Conditions Delburn Wind Farm – PA20001063 (Latrobe), PA PA20001064 (Baw Baw), PA20001066 (South Gippsland). See, for example: clause 1 (d) – underground cables; clause 2 (f), (m) and (n) – measures to minimise fire risk in turbines. Document 36d, DELWP Draft Planning Permit Conditions Terminal PA20001065 – Latrobe.
[272] https://research.csiro.au/bushfire/assessing-bushfire-hazards/hazard-identification/fire-danger-index/
[273] https://www.cfa.vic.gov.au/warnings-restrictions/total-fire-bans-and-ratings/about-fire-danger-ratings.

7.2 Issues

The key issue for the Panel is whether the Project will increase the risks of bushfire. It must assess bushfire hazard and consider whether the Project's bushfire protection measures will result in no net increase in bushfire risk.

The Panel must consider whether the objective of the bushfire planning policy have been met. It seeks to 'strengthen the resilience of settlements and communities to bushfire through risk-based planning that prioritises the protection of human life.'

In this case the Panel must consider the existing bushfire risks within the HVP plantation, and the risks posed by the Project. The area has significant recent bushfire history, including the 2009 Delburn Complex fires before Black Saturday that burnt 6,534 hectares and destroyed 44 houses primarily around Boolarra. Sixty per cent of the area burnt was commercial plantations managed by HVP.[274]

The issues are whether the:

- wind farm will increase risk of fire ignition from the turbines and other sources
- turbines will impede aerial fire firefighting
- fire mitigation measures prioritise protection of human life and will result in not net increase in bushfire risk
- the BESS poses an unacceptable fire risk.

7.3 Evidence and submissions

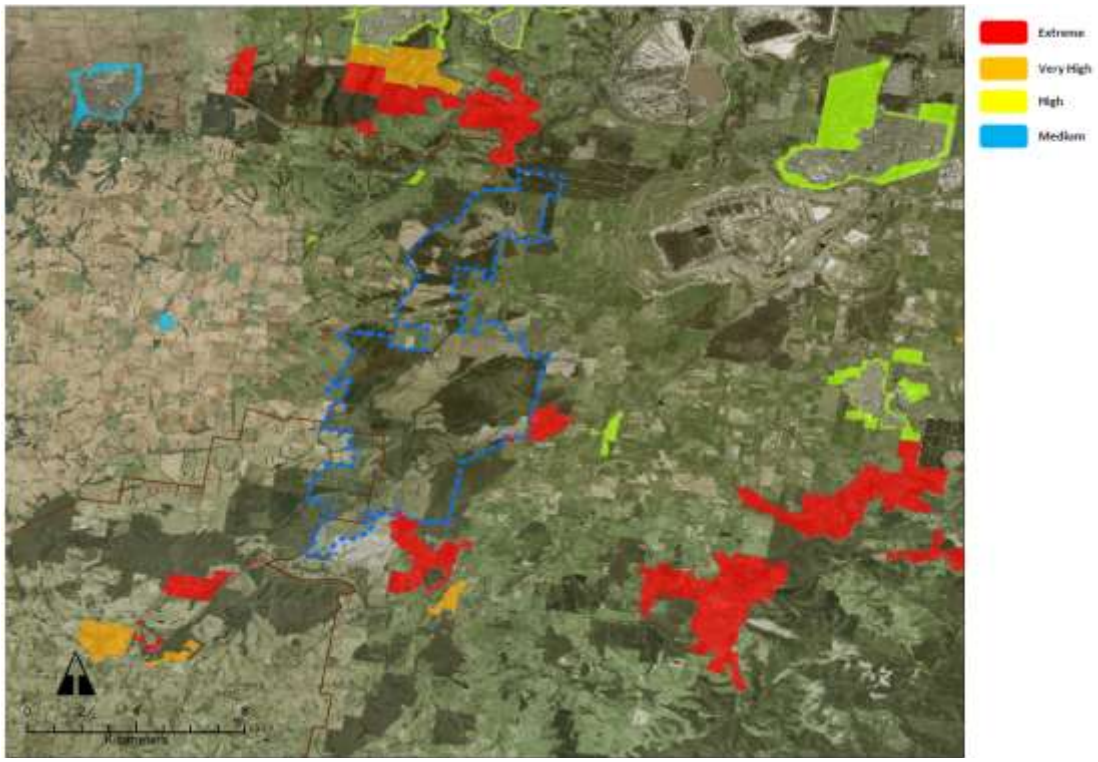
7.3.1 Introduction

Increased bushfire risk was the main concern raised by submitters. It was an issue in 232 submissions and more than 80 per cent of objectors. At the Hearing many submitters who are residents and local CFA volunteers shared their experiences of major blazes in the area, particularly the Delburn Complex fire in 2009.

The fire risk to human settlement in the area is clearly indicated in the Victorian Fire Risk Register which identifies the communities along Creamery Road west of Yinnar and around Boolarra as being at extreme risk.

[274] Delburn Wind Farm Bushfire risk assessment in support of wind energy facility planning application, Fire Risk Consultants, September 2020, Appendix J, page 16.

Figure 26 Victorian Fire Risk Register – Human Settlement[275]



Bushfire concerns in submissions raised two main issues:

- Increased risk of ignition from turbines and other infrastructure in a context of extreme fire risk and where firefighting is often not possible.
- Potential limits on aerial firefighting due to the presence of turbines.

Mr Potter and Mr Taylor of FRC gave evidence for the Applicant.

Mr David Packham provided expert evidence for SCA and reviewed the Bush Fire Risk Assessment prepared by FRC.

The bushfire experts held an expert conclave meeting on 12 October 2021 and provided an expert meeting statement. There were no issues they identified as disagreed or not assessed.[276]

The fire expert conclave report agreed:

- The landscape surrounding the wind farm is identified in bushfire management plans as a high to extreme bushfire landscape.
- Bushfire history demonstrates the ability for bushfire to travel across the landscape and impact dwellings and other infrastructure.
- Plantations are capable of extreme bushfire behaviour, and it is extremely difficult if not impossible to manage catastrophic bushfires in this type of landscape.[277]

[275] Document 134, additional material provided by CFA.
[276] Document 46a, expert witness conclave statement - bushfire.
[277] Document 46a, expert witness conclave statement - bushfire.

7.3.2 Fire ignition in turbines

(i) Submissions

Many submitters expressed a general concern that the wind turbines will increase the risk of bushfire. Mr Wallin, for example, submitted he had been informed the turbines in the plantation will "*…increase our risk of bushfire and impact on our safety each fire season*". [278] Mr and Ms Ballek submitted "*…the addition of 33 turbines will drastically increase the risk of fire from these potential ignition sources [in the forest]*".[279]

One submitter specified the risk of fire in the turbine nacelles. Ms Widdowson submitted that a 2014 research report found 10 to 30 per cent of fire related accidents in wind farms start in the wind turbines. She said fires in turbines usually arise because large amounts of highly flammable materials in the nacelle are close to potential ignition sources.[280]

Ms Thompson, on the other hand, told the Panel misleading photos of out-of-date wind turbine fires were circulated in the community.[281]

Some submitters were concerned about lightning causing turbines to ignite and start a bushfire as lightning is a common cause of bushfire in the area.[282]

(ii) Evidence

The fire expert conclave report agreed that installing a detection and suppression system in the nacelle will "*reduce the risk of fire in the nacelle to a very low risk*".[283]

The design solutions and treatments recommended in FRC's Bushfire Risk Assessment required the Project to do the following:

- The transformer for each wind generator to be located beside each tower and pad mounted, or be enclosed within the tower or nacelle structure.
- Install monitoring systems in each turbine to detect temperature increases in the turbines and shut them down when a threshold temperature is reached.
- A Construction Bushfire Mitigation and Management Plan that includes a requirement to install in the nacelles fire detection, protection and suppression systems, remote alarms and notification systems to report potential bushfire risks.
- Before development starts, plans to the satisfaction of the CFA that demonstrate all nacelles will be equipped with fire detection and suppressions systems.[284]

Mr Potter and Taylor's expert witness statement discussed the Uadiale et al research report, 'Overview of Problems and Solutions in Fire Protection Engineering of Wind Turbines' (2014).[285] It said areas of the report are still valid and it can be used to benchmark proposed design solutions.

[278] Submission number 543.
[279] Submission 82.
[280] Submission 528.
[281] Submitter 58.
[282] Submission 443 and document 132; submissions 528, 358 and 358.
[283] Document 46a, expert witness conclave statement - bushfire.
[284] Document 24, section 9.
[285] Uadiale et al (2014) Overview of Problems and Solutions in Fire protection Engineering of Wind Turbines, Fire Safety Science Proceedings of the Eleventh International symposium.

They found the main fire protection systems recommended in the Uadiale report for supressing fires in the nacelle were all achieved by the measures recommended by FRC.[286]

Mr Potter and Mr Taylor met with two wind turbine manufacturers and found that turbine technology has changed as a result of assessments of potential fire ignition. They concluded:

> The turbine manufacturers have a detailed understanding of fire ignition sources within the nacelle and have developed solutions to mitigate or eliminate these risks…
> Recent treatments developed include the installation of barriers to prevent sparks from reaching combustible areas, making enclosures around particular areas air tight and installation of flame (arc) and smoke detectors. Flame detectors are normally installed to detect any arcs that occur at the converter and transformer area. Smoke detectors are installed near all areas including within the nacelle controller and converter system cabinets.[287]

At the Hearing, under cross examination, Mr Potter said he had not asked Vestas (a wind turbine manufacturer) about the cause of a fire at Tararua Wind Farm in New Zealand in October 2021.

Mr Packham, for SCA, said the wind farm increases fire risk because it adds to existing ignition sources such as arson and vehicle accidents.[288] He discussed the risk of fire in turbine nacelles based on the Uadiale et al research report (2014).[289]

At the Hearing, under cross examination, Mr Packham said he was not aware wind turbines now have fire protection systems to detect smoke before a fire starts and shut it down. He said he would expect it to be very effective but not perfect. He also acknowledged that he had agree in the expert conclave statement that installing a detection and suppression system in the nacelle will reduce the risk of fire in the nacelle to a very low risk.

The CFA submitted the CFA Guidelines require wind facilities in high risk zones such as timber plantations to equip nacelles with fire detection and suppression systems. It also requires the developer to consult with the CFA at the development stage.[290]

The Applicant proposed an amended permit condition to remove the option of the transformer associated with each wind generator being located on a mounted pad external to the turbine tower. It must be enclosed within the tower or nacelle structure.[291]

Mr Potter and Mr Taylor recognised the risk of lightning on turbines starting a fire and recommended each turbine have a lightning protection device. They recommended the Construction Phase Bushfire Mitigation and Management Plan (Construction Phase BMMP) include a requirement to install lightning conductors to dissipate electricity to ground and reduce turbine damage and bushfire risk.[292]

The FRC expert witness statement said the lightning protection system within the nacelles accepts the direct lightning strike and then conducts it to the ground below the tower. It said these are

[286] Document 24, section 4.6.3.
[287] Document 24, pages 12-13.
[288] Document 31b, page 7.
[289] Document 31a, section 8.
[290] Document 73a, CFA Part B submission, page 4.
[291] Document 135b, Delburn Wind Farm – Applicant's proposed conditions for Wind Energy Facility – Latrobe, version 2.
[292] Document 24, paragraph 119.

standard features in wind turbines and are requirements of the various design standards.[293] The draft permit conditions include these requirements.[294]

7.3.3 Bushfire mitigation and response

(i) Construction and maintenance phases

Expert evidence

The evidence of Mr Potter and Mr Taylor was that bushfire risk associated with the wind farm can be mitigated to an acceptable level through their recommended permit conditions. They acknowledged the Project site and surrounding landscape posed an elevated risk from bushfire. Their Bushfire Risk Assessment said:

> The threat of fire is always present in the Latrobe Valley. Continued focus on fire ignition reduction strategies should continue to be supported. These strategies should be focused on human caused fires such as arson, escaped burn offs and roadside fires.[295]

Their proposed mitigation treatments focus on preventing fires from being started in the construction and operation of the wind farm and mitigating fires starting and developing in the wind turbines. [296]

Key design features and treatments that prioritise the protection of human life are:

- Technology to operate remotely, so staff are not required during fire danger periods.
- Improved monitoring of the local area for fires during elevated fire danger conditions.
- Asset protection zones and defendable space around turbines and buildings.
- Shut down or restricted operations on elevated fire danger days and additional firefighting resources during the Fire Danger Period.[297]

Mr Taylor and Mr Potter said benefits of the Project to reduce bushfire risk include:

- An increase in the amount of firefighting water currently available in the landscape, with five 100,000 litre static water supply tanks for firefighting.
- Creating an improved fire access track and fire break network allowing fast access for emergency vehicles and day to day management.
- An increased presence in the plantations of patrols and regular inspections of the wind farm infrastructure that should led to a decrease in criminal activities in the plantation.
- The Installation of remotely operated cameras on wind farm infrastructure to help early detection of fire and increased awareness for the wind farm, HVP and CFA.
- Additional firefighting resources during the Fire Danger Period, staff training and interoperability of the equipment with the local CFA and HVP.[298]

The fire expert conclave agreed "*the collaborative approach to bushfire management adopted by HVP, DWF and the CFA is appropriate and effective. Specifically:*

[293] Document 24, paragraph 102.
[294] Document 36a, b and c; DELWP draft permit conditions wind farm, clauses 2 (m) and 31, Wind turbine ad met mast specific matters (g).
[295] Document 24, Annexure E, sections 6.10.
[296] Document 24, paragraphs 138-139.
[297] Delburn Wind Farm Bushfire Risk Assessment in support of wind energy facility planning application, Fire Risk Consultants, September 2020, Appendix J. section 4.1.
[298] Document 24, paragraph 131.

- *The operational protocols between HVP and DWF are an appropriate method to ensure a collaborative approach to bushfire management within the wind farm footprint.*
- *The oversight of HVP's fire prevention and response procedures by the CFA will ensure appropriate risk reduction activities are occurring.*
- *DWF investing in firefighting capability will improve the first attack ability within the wind farm footprint*".[299]

Mr Potter and Mr Taylor's evidence was that the proposed development has many features to manage and reduce bushfire risk. In their opinions the permit conditions they have recommended are "*the most comprehensive fire risk management conditions for a wind farm development in Victoria*".[300]

Mr Packham's review of the FRC Bushfire Risk Assessment said its recommended measures provided an adequate risk response appropriate for low intensity bushfires. However, he said it did not address high to extreme fire danger days because such a threat cannot be mitigated. He concluded the measures proposed by FRC will be "*ineffective under very high or extreme fire danger conditions*".[301]

In his opinion fuel loads in the plantation are a key consideration to drive a fire, not the age of trees as stated by FRC in their Bushfire Risk Assessment.[302] He said "*the only effective response under very high to extreme FFDI is to reduce fuel over the entire site and risk area, or shut down below FFDI 10*".[303]

Mr Packham's evidence was that to reduce the risk on high fire danger days would require either:

- pine plantation fuel loads to be reduced to below three to seven tonnes per year
- turbines to be turned off at an FFDI of less than 7, for example, 20 degrees Celsius and wind less than 10 kilometres per hour.[304]

CFA submission

The CFA submitted the planning permit conditions proposed by FRC such as access tracks are only likely to be effective on Fire Danger Rating days of Low to Moderate and High. It said the Project is likely to be impacted at some stage by uncontrollable landscape bushfires; fires that cannot be managed by site-based mitigation or of broader emergency management. It said "*damage and destruction of assets by bushfire is likely if the proposal proceeds*."[305]

The CFA said the planning application should demonstrate what outcome is planned for the survivability of the development and explain how it will be met. If it appears to be premised on accepting asset loss in a reasonably anticipated bushfire it should be clearly articulated.[306]

At the Hearing the CFA described the FDR ratings of Very High and Severe as 'tier 2' fires and Extreme and Catastrophic (Code Red) as tier 3. It said for tier 2 fires there is little you can do and tier 3 fires are the most complicated fires with wind storms.

[299] Document 46a, expert witness conclave statement - bushfire.
[300] Document 24, paragraph 140.
[301] Document 31b, Review of bushfire risk assessment by FRC, 17 August 2021, Document 31b, pages 3-5.
[302] Document 31b, page 5.
[303] Document 31b, page 8.
[304] Document 31a, expert witness statement David Packham, page 7.
[305] Document 73a, CFA Part B submission, paragraph 143-144.
[306] Document 73a, CFA Part B submission, paragraphs 145-148.

The CFA submitted the information provided with the permit application should demonstrate what will be done on high fire danger days. It said three existing substantial access tracks (10 metres or more) were jumped in the Delburn Complex Fire in 2009. The planning system should contemplate the conditions on that day and for all three tiers of bushfire risk.

The CFA said the FRC expert witness statement acknowledged access tracks are not likely to be effective for tier 2 and 3 Fire Danger Rating days. The expert conclave agreed it is impossible to manage bushfire risk on very high bushfire danger days. It said the Victorian Bushfires Royal Commission said there are some places that are too dangerous to develop. It is not just a matter of relying on permit conditions.

Applicant

The Applicant said the CFA's position indicated it considered the main incremental risk associated with the Project was because of the increased number of people on the site. Mr Potter and Mr Taylor's evidence was consistent with that position. They recognised the risks to staff during construction could be appropriately mitigated through stringent work protocols and the risks during operations would be offset by the staff who will be trained fire fighters.[307]

The Applicant took issue with the CFA grouping bushfire risk into three tiers, especially the second tier. It said care should be taken in grouping the tier 2 bushfire days that range from as low as FFDI 15 to days of FFDI 75. He said the evidence does not support the claim that any fire on a tier 2 day should be taken to be as severe as the Delburn Complex Fire in 2009. It is not correct to say the Applicant has not considered the risk of fire on tier 2 and tier 3 days.

The Applicant contested the CFA claim that fire breaks would not be a benefit in firefighting on days when the FFDI exceeds 15.[308]

HVP submission

HVP submitted that having a wind farm on their plantation estate is acceptable providing it does not compromise their core business. Bushfires impact their business significantly and the vast majority of them are started outside the estate.

HVP said it is satisfied the operational protocols it has negotiated for the wind farm address their concerns about any risks the Project might pose to its core business. HVP have done their own independent assessment of the impact of the Project on the existing level of bushfire risk. They believe the chance of the turbines being an ignition source is low and it is outweighed by the benefits the Project brings to reduce other fire risks and manage them.

HVP submitted that compared to other plantations the Delburn site has a number of geographic advantages. The topography is moderately undulating with a uniform terrain, it has wetter and shorter fire seasons and lower number of high FFDI days and the fuels are constantly changing. Vehicle access is good and it is close to a firebombing base (at the airport).

HVP outlined their fuel management activities within the estate. They include fuel reduction and ecological burning, mechanical removal, silviculture treatments such as weeding and thinning and a joint fuel management outside the estate with the CFA and Forest Fire Management Victoria.

[307] Document 135a, Applicant's Part C submission (Bushfire), pages 7 and 8.
[308] Document 135a, paragraph 24 and Appendix 2 and 3.

HVP explained that interruption to tree growing because of fire is a serious impact on their business so preventing and managing fire is a priority. They are moving increasingly to pine rather than eucalypt to reduce fire risk. The final harvest for pine planation is 25-30 years.

HVP's activities to prevent fires include forest operations restrictions, fire equipment for all contractors, analysis of the causes of all fires and arson prevention programs such as surveillance, investigating fires and community education.[309] HVP explained that during summer it uses fire towers, helicopters and surveillance cameras to look for fires in the landscape and check for people entering and leaving the estate.

Also their FFDI Forest Operations Restrictions restrict activities at different fire risk levels to prevent ignition sources on high fire danger days.

HVP has a Forest Industry Brigade for Gippsland to provide fire response, under the control of the CFA which is fully integrated into the CFA response and incident management. It has 100 firefighters and is equipped with 10 tankers, 30 slip-on units, three bulldozers, two fire towers and a State Aircraft Unit helicopter. Most of the fires they fight are outside the HVP plantations.[310]

Other submissions

A number of submitters who are residents were concerned about how the Project would impact the challenges of living in an area of extreme bushfire risk.

Mr Gee said living in an extreme bushfire risk area means residents have to buy their own water tanks, maintain clear areas around their homes, remain aware of what's happening and have a fire plan. Ms Gee told the Hearing the memories of the 2009 Delburn Complex Fire are devastating and on peoples' mind all the time.[311]

A number of submitters said HVP does not have a good track record of minimising fire risk in the plantation and they doubt a wind farm operator would be any better. They said HVP do not manage fuels loads, clear windrows, keep access tracks clear or take action to prevent regular arsonists and stolen vehicles set alight.[312]

Mr Unwin, for example, told the Hearing he is not convinced by FRC's description of HVP as a responsible partner in alleviating bushfire risk. He took photos of trees over the road from the storms in June 2021 but the roadside has still not been cleared.[313] Mr Buckley said the HVP plantation is poorly maintained land. In 2009 poorly maintained tracks meant fire ground crews could not get trucks into some areas.[314]

Ms Billingsley told the Hearing she was concerned the wind farm would mean the local fire brigade's risk profile will change from rural residential to supporting critical infrastructure. It would mean they would have to prioritise the wind farm over homes of the local community. In response to a question from the Panel she said the local fire brigade makes decisions about what to prioritise; critical infrastructure is prioritised after human life.

[309] Submission 515, Document 63.
[310] Submission 515, Document 63.
[311] Submitter number 690.
[312] Submissions 14, 165, 255, 372, 441, 457, 503, 523, 535, 562.
[313] Submitter 165.
[314] Submitter 255.

Ms Thompson, on the other hand, said the project would improve fire risk management.[315] SCA submitted they "*believe fire management measures will result in better fire detection and more effective access for fire control vehicles*".[316]

Ms Thompson told the Hearing HVP put in enormous effort in fire management. She said she had done forestry coupe audits as a local government environment officer. In answer to a question from the Panel about how to address community distress about fire risk she suggested more information should be made available to the community about HVP's fire management practices.

(ii) Defendable space

The fire expert conclave report agreed an asset protection zone (APZ) that removes all vegetation around the base of the turbine towers will reduce the risk of fire from spreading so the risk of this occurring is very low.[317]

The draft permit conditions proposed a minimum APZ of 50 metres around the base of each turbine where all vegetation is removed during the fire danger period.[318]

Mr Potter and Mr Taylor's evidence analyses the defendable space requirements in clause 13.02 (Settlement Planning) in the Latrobe Planning Scheme and in the CFA Guidelines.

For the turbines the CFA Guidelines require an area of 10 metres around the base of turbines to be non-combustible.[319] The Latrobe Planning Scheme directs development to low risk locations with a radiant heat flux of less than 12.5 kilowatts / square metre (known as Bushfire Attack Level 12.5) under AS3959-2018 Construction of Buildings in Bushfire-prone Areas (Standards Australia, 2009). The standard requires a defendable space of 48 metres to achieve BAL 12.5.

Mr Taylor and Mr Potter explained their objective in setting a 50 metre APZ for the turbines was to ensure a BAL 12.5, slightly more than the standard. With the defendable space the turbines will not be exposed to more than BAL 12.5. The turbines are not required to comply with the standard due to the development type.[320]

Mr Potter and Mr Taylor recommended the visitor information area should have defendable space that ensures communal areas will not be exposed to more than 12.5 kW/m^2 at FDI50. They recommended the operations and management facility be built to a minimum of BAL 29 (radiant heat exposure 19-29 kilowatts / square metre) and defendable space of 50 metres.[321] These measures are in the draft permit conditions for the wind farm, as part of the Construction Phase BMMP.[322]

Mr Packham's evidence was the wind turbines should be required to meet a higher level than BAL 12.5; possibly BAL 40.[323]

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315 Submitter 58.
316 Submission 721.
317 Document 46a, expert witness conclave statement - bushfire.
318 Document 24, page 15, paragraph 119.
319 Document 24, Annexure D, page 3.
320 Document 24, Appendix E, Delburn Wind Farm Bushfire Risk Assessment and Mitigation Plan 2020, FRC, pages 17 and 18.
321 Document 24, expert witness statement Graeme Taylor and Mark Potter, Fire Risk Consultants at paragraphs 120 and 123; and Bushfire Risk Assessment, Appendix J, section 4.4.4.
322 Document 62b, Draft permit conditions clause 31, Wind turbine and met mast specific matters to be covered in the BMMP, clauses a and b; clause 31, Operations and Maintenance Facility and Visitor Information Area specific matters to be covered in the BMMP, clauses a and b.
323 Document 31b, Review of FRC Bushfire Risk Assessment, page 8.

Some submitters said a 50 metre APZ for the turbines may not be adequate and proposed 90 or 100 metres.[324]

CFA submitted FRC had failed to deliver effective analysis for decisions on what is acceptable defendable space against bushfire for the Project's structures.[325] CFA said the FRC analysis had not addressed how much ember attack, radiant heat and flames will enter the defendable space. It submitted ember attack will attack the turbines no matter what.

The CFA said defendable space must be calculated correctly including variations in slope. It said it is not clear from the Applicant's evidence what radiant heat the Project is designed for.

The CFA said the permit conditions for the visitor facilities should be what is ordinarily required under the BMO; an appropriate defendable space for a high life safety outcome. The CFA told the Hearing there is no evidence for the Applicant's position the visitor information area will not be exposed to more than 12.5 kilowatts / square metre at FDI50. It said it needs to provide a high level of resilience for people sheltering in place in the open air on that site.

The Applicant challenged the CFA's position that there is insufficient information on whether the level of reliance was sufficient for high level fires and there is no benchmark to assess acceptability. They said the CFA Guidelines provides a benchmark of 10 metre APZ. By providing a BAL 12.5 standard the Project structures will have a high level of protection under all conditions other than Code Red days.[326]

The Applicant disagreed with the CFA's position that defendable space be provided for the visitor information area to allow people to shelter in place. It submitted the plantation is an undesirable in the event of a largescale bushfire and the Delburn Wind Farm plans to implement protocols to discourage it. The operations centre is the preferred location if refuge is required, and appropriate defendable space is provided in the permit conditions to achieve BAL 29.

The Applicant proposed the following amendments to the permit conditions in response to the CFA's submission:

- The Construction Phase BMMP will set out the asset protection zone or defendable space for all infrastructure and the maintenance requirements for those areas.
- The bushfire design requirements will require the operations and maintenance building to be provided with defendable space that ensures the building will not be exposed to more than 29 kilowatts / square metre (or BAL 29).[327]

(iii) Terminal station

Mr Potter and Mr Taylor recommended a detailed analysis of the design for the terminal station before development starts to eliminate or protect areas where embers can land on or against combustible materials.[328]

They recommended an Emergency Management Plan (EMP) be developed for the terminal that includes bushfire response procedures that comply with the CFA Guidelines. The EMP will provide:

[324] Documents 125 and 128.
[325] Document 73a, CFA Part B submission, paragraph 170.
[326] Document 135a, paragraphs 40-44.
[327] Document 135b, Applicant proposed conditions on wind energy facility, new clauses 40c and 40i.
[328] Document 24, expert witness statement, sections 5.1.2.

- an APZ that ensures infrastructure is not exposed to radiant heat more than 12.5 kilowatts / square metre
- an appropriate quantity of static water based on consultation with the CFA
- no staff or contractors permitted on site on Code Red days
- install security fencing around the terminal station.[329]

These requirements are part of the draft permit conditions for the terminal station.[330]

The CFA submitted the location of the terminal station should be further assessed after a comprehensive assessment of alternative locations, including locations away from forested bushfire hazards.[331]

(iv) BESS

Some local residents were concerned about the risks posed by the BESS. Some examples are:

- Mr and Ms Hyett were concerned because of the recent fire at the battery energy storage facility in Moorabool. They said the Applicant's Bushfire Risk Assessment did not address the BESS other than requirements of Dangerous Goods Storage Regulations.[332]
- Ms Taylor said to propose a BESS in an extreme bushfire risk area within a plantation is inappropriate and irresponsible because of the risk of ignition from the facility. She said the Applicant's Bushfire Risk Assessment simply said the BESS will need to adhere to the CFA Guidelines. She asked will there be specific measures to reduce risk in an extreme fire risk area in a plantation?[333]

The CFA objected to the BESS because it said the permit application did not demonstrate acceptable risk outcomes. It said exposing a BESS to landscape scale bushfires is not acceptable.[334]

At the Hearing the CFA submitted they were concerned about battery facilities well before the recent fire in the Victorian Big Battery on 21 September 2021. It said unlike turbines they are a known risk as a source for bushfire. CFA said there are multiple facets to the fire risks posed by batteries and there is a high level of uncertainty about all of them.

The CFA submitted the Panel does not have enough information about the battery to make a decision. It said the Applicant seeks to rely on permit conditions for defendable space rather than locating the BESS in a location that avoids exposure to landscape scale bushfires; even moving it 100 metres could be advantageous.

Mr Potter and Mr Taylor recommended that prior to construction development design plans be developed in consultation with the CFA that includes fire mitigation and suppression strategies. They also recommended a BESS specific bushfire risk management plan be prepared prior to development, as part of the Wind Energy Facility Construction BMMP.[335]

[329] Document 24, expert witness statement Graeme Taylor and Mark Potter, Fire Risk Consultants at paragraph 123; and Bushfire Risk Assessment, Appendix J, section 4.4.4.
[330] Document 62d, Draft permit conditions terminal station Latrobe, clause 20.
[331] Document 73a, Country Fire Authority Part B submission, paragraphs 179-181.
[332] Submission 531.
[333] Submission 698.
[334] Document 73a, CFA submission Part B, paragraph 182.
[335] Document 24, paragraphs 117 and 119.

They said the BESS site conforms with the CFA Guidelines, which require it to be on a public road and accessible to firefighters and comply with.[336]

Mr Potter and Mr Taylor said they had refined their recommendations following conversations with the CFA following the Victorian Big Battery fire. They had incorporated initial requirements provided by the CFA into their management recommendations. The CFA is to provide further detailed analysis as part of post fire analysis.[337]

Their evidence cited a statement by Energy Safe Victoria on the root cause of the fire and outlining lessons learned. It stated the two Megapacks affected by the fire failed safely despite total loss and the battery company is investigating what they will do to prevent it from occurring again.

The Applicant submitted the BESS element of its permit application was formulated to conform with the relevant CFA Guidelines. It acknowledged the investigations into the Victorian Big Battery may result in new requirements and proposed that they be implemented in a planning permit condition. If the Panel is not satisfied with this approach, it said the Panel should recommend the BESS component of the Project not be approved. It could be the subject of a separate permit application once the uncertainties have been resolved.[338]

7.3.4 Impact on aerial firefighting

(i) Submissions

Many submitters were concerned the turbines would reduce aerial firefighting capability and their homes would not be protected from a bushfire in future. They told the Hearing about their experience of the Delburn Complex fires in 2009 and the crucial role of aerial firefighting to suppress the fire, targeting homes and saving lives. Some shared images of aircraft dumping fire retardant on their homes, which successfully protected them.[339]

Mr Brownscombe, a resident and local CFA volunteer fire fighter, said in 2009 aerial firefighting was a key feature of the attack especially around the HVP plantation. It helped keep safe residents who were trapped. He said because access roads are limited in some areas aerial firefighting is crucial. He told the Hearing helicopters will not be able to access the area if there are turbines; only small aircraft.[340]

Ms Billingsley, a volunteer firefighter with the Boolarra brigade for 20 years, submitted the 2009 Delburn fires inflicted significant physical damage to infrastructure. But she said more important is the damage to the psychological wellbeing of many community members. She said the wind farm proposal has been very divisive and impacted on people who are still living with the consequences of the fires.[341] She told the Panel she is concerned about the emotional distress people are experiencing about their safety, lifestyle and powerlessness.

[336] Document 24, Annexure D.
[337] Document 24, Expert Witness Statement Graeme Taylor and Mark Potter, FRC, section 4.6.5.
[338] Document 135a, Delburn Wind Farm Part C submission, paragraph 24 (d).
[339] Submission numbers 21, 34, 82, 165, 309, 310, 348, 366, 367, 388, 426, 437, 441, 450, 454, 487, 503, 516, 543, 690, 698, 712, 715 and 718.
[340] Submissions 384.
[341] Submission 382.

Ms Brown told the Panel she does not believe any water bombers will be able to operate around the turbines.[342] Mr Bradbury said the turbines would mean helicopters will not be able to water bomb Yinnar and other nearby townships.[343]

Ms Gee, a resident of Yinnar said she and her husband defended their home and neighbours' homes during the 2009 Delburn Complex Fire only because of water bomber aircraft. She said they could see them at tree top height across the plantation, towards Boolarra and to protect the powerlines to Melbourne.[344]

Mr Gee, a volunteer ground crew fire fighter for 38 years, told the Hearing aerial firefighting will not be possible if the turbines are built. He said the CFA Guidelines recommend against it.

Some submitters referenced the account of the Delburn Complex Fires in the report of the 2009 Victorian Bushfires Royal Commission, which recognised the role of aerial firefighting.[345] Other submitters referred to the Inquiry into the 2019-20 Victorian Fire Season. It described aerial firefighting as a key capability in fire suppression and response activities. It is more effective when combined with ground-based crews and less effective during extreme conditions when aircraft can become grounded by severe weather conditions, smoke or low cloud.[346]

Mr Steley presented a different perspective, as a former Royal Australian Air Force aerial photographer and an experienced volunteer ground crew firefighter.[347] He told the Hearing he was previously employed to take aerial photos of power stations and wind farms around the country. He said skilled pilots can cope with turbines; they plan their routes and check what is ahead visually.

(ii) CFA

The CFA submitted it did not object to the permit application on basis of impacts on aerial firefighting.[348] It said the CFA Guidelines require the turbines to be located at least 300 metres apart to support aerial firefighting. It emphasised aerial firefighting is influenced by weather and terrain, factors that also drive fires. Pilots operate under Visual Flight Rules and where there is no smoke.[349]

The CFA proposed a new permit condition to require monitoring towers higher than 100 feet to be clearly marked and guy wires fitted with markers and to notify the CFA and Geoscience Australia (for inclusion in the Vertical Obstruction Database).[350] The Applicant accepted the proposed amendment.[351]

[342] Submission 712.
[343] Submission 309.
[344] Submission 690.
[345] Report of the Victorian Bushfires Royal Commission, Volume 1: The Fires and Fire-Related Deaths, Chapter 3.
[346] Inquiry into the 2019-20 Victorian Fire Season, Phase 1 Community and sector preparedness for response to the 2019-20 fire season, page 109.
[347] Submission 497.
[348] Document 73a, paragraphs 177 and 178.
[349] Document 73b, paragraph 219.
[350] Document 73b, paragraph 204.
[351] Document 135b, Applicant's Proposed Conditions for Wind Energy Facility Latrobe version 2.

(iii) Expert evidence

Mr Taylor and Mr Potter said there is no evidence to support the claim the wind farm will result in a loss of aerial firefighting ability.[352] They recommended permit conditions to address the impact of the turbines on aerial firefighting.[353]

- turbines are located no less than 300 metres apart
- a Construction Phase BMMP must ensure all turbine towers and weather masts are marked
- an Operational Phase EMP must include remote shut down procedures for turbine operations during bushfires or reported faults or at the request of emergency services.

In their opinions aerial reconnaissance and firebombing fixed wing (planes) and rotary aircraft (helicopters) operating across Gippsland in a normal bushfire season regularly navigate in a complex environment. They said:

> The final decision-making around all aerial firefighting safety and whether it is safe to drop retardant, water, or foam on a particular fire, rests with the pilot of the aircraft.[354]

Mr Taylor, relying on 25 years of experience tasking and supervising firebombing aircraft, emphasised firebombing aircraft are effective "*when supported by experienced and well led ground crews*".[355] And they will only slow a fire's spread under ideal conditions:

> Under elevated fire conditions, firebombing aircraft may not be able to undertake direct attack of the bushfire front and will focus their attention to the protection of properties near the fire front.[356]

Mr Taylor said the ability to "*yaw the turbines in a single direction and to lock the blades in the Y formation will considerably assist firebombing within the confines of the wind farm*".[357] It said the Australasian Fire and Emergency Services Authorities Council position paper *Wind Farms and Bushfire Operations* (2014) supports the successful operations of firebombing aircraft in a windfarm environment. The height, location and bearing of the turbines will assist pilots with their identification, "*allowing the turbine location to be factored into the dynamic risk assessment*".[358]

[352] Document 24, page 23.
[353] Document 24, section 5, paragraphs 119(f) and 129.
[354] Document 24, paragraph 82.
[355] Document 24, paragraph 83.
[356] Document 24, paragraph 83.
[357] Document 24, paragraph 86.
[358] Document 24, paragraph 87.

Figure 27 **Air Tractor firebombing around turbines, Waterloo South Australia[359]**

Figure 28 **Air Tanker firebombing around wind turbines, Waubra Wind Farm, Victoria[360]**

The CFA asked Mr Taylor and Mr Potter if wind turbines introduce a hazard for pilots fighting fires. Mr Taylor said wind turbines are additional obstacles pilots have to factor into flight settings. He said pilots conduct dynamic risk assessment every time they take a load and they spend a lot of time getting to know the risks in the area they are flying in.

Ms Caroline Parker asked Mr Taylor about the potential for turbines to worsen existing communications black spots in the area. Mr Taylor responded that their reports discussed the scenarios and acknowledged these factors. He said there are a series of default systems to ensure

[359] Document 24, Figure 24.
[360] Document 24, Figure 25.

effective communications connectivity and the state has invested in more mobile communications capability (since 2009).

Ms Parker also asked if aircraft would have to operate at a higher altitude because of the turbines and what impact that would have on the effectiveness of fire suppression. Mr Taylor said the CFA Guidelines allow for aircraft to operate between the turbines (because of the spacing).

Mr Jennings of Chiron Aviation Consultants gave evidence for the Applicant, and provided opinion on firefighting aircraft in response to questions from the SCA and the CFA. Mr Jennings said the Project would not impose limits on aerial firefighting that will put houses at risk.

In response to questions from Mr Hazell about the turbines making the task for pilots more complicated, Mr Jennings said aerial firefighting pilots are familiar with wind farms. Pilots know more about them now and can fly closer to them.

Mr Jennings explained parking the turbine blades is the most advantageous position. He said having the blades 40 metres above ground level leaves room to fly underneath, but most pilots would be loath to go in if the blades are still rotating. When asked by Mr Hazell if it would assist to recommend parking the blades as a permit condition Mr Jennings said no; it is covered in emergency protocol.

Mr Packham was of the opinion the turbines will be an aviation obstruction that will have a considerable impact on all aircraft operations. He said "…*flying at retardant dropping level (about 200 feet above tree top height) in high wind conditions below turbine height appears to me to be a very hazardous operation*".[361]

7.3.5 Conclusions on fire risk

Mr Taylor and Mr Potter's evidence was the Project would not increase bushfire risk in the landscape if the measures they recommended are adopted. In their opinions, the bushfire risk associated with the wind farm can be mitigated to an acceptable level if their recommended strategies and bushfire mitigation and management plans are implemented. They said those measures prioritise the protection of human life and are consistent with the CFA Guidelines.[362]

Their expert witness statement included a review of existing conditions and post development of the wind farm using the computer modelling fire prediction tool Phoenix Rapid-Fire. It acknowledged the modelling has limitations but said it "*remains the most accurate bushfire risk assessment tool available for use in the Victorian environment*".[363]

The Phoenix modelling is detailed in the Bushfire Risk Assessment. Two days of simulations were conducted on days with Severe tending to Extreme Fire Danger Rating days. Three fires were ignited for analysis at different locations around the plantation and each was assigned a ground crew and a helicopter. Changes to data made for post wind farm modelling reflected the wider roads, fire breaks and clearings and changes to the fuel load to show the footprint of the turbines and cleared areas at their bases.

[361] Document 31b, Expert Witness Statement, David Packham, Fire Risk, Part 11A, page 6.
[362] Document 24, paragraph 138.
[363] Document 24, paragraph 74.

Figure 29 Example of computer modelled fire run, 29 January 2009 (pre development)[364]

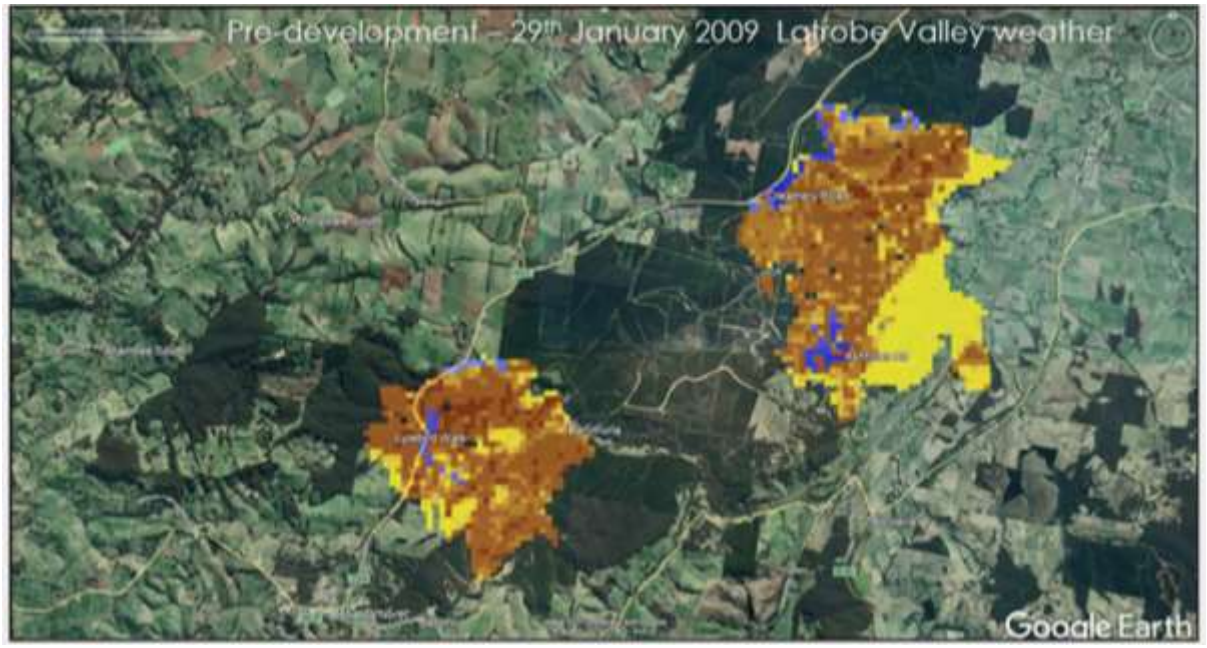
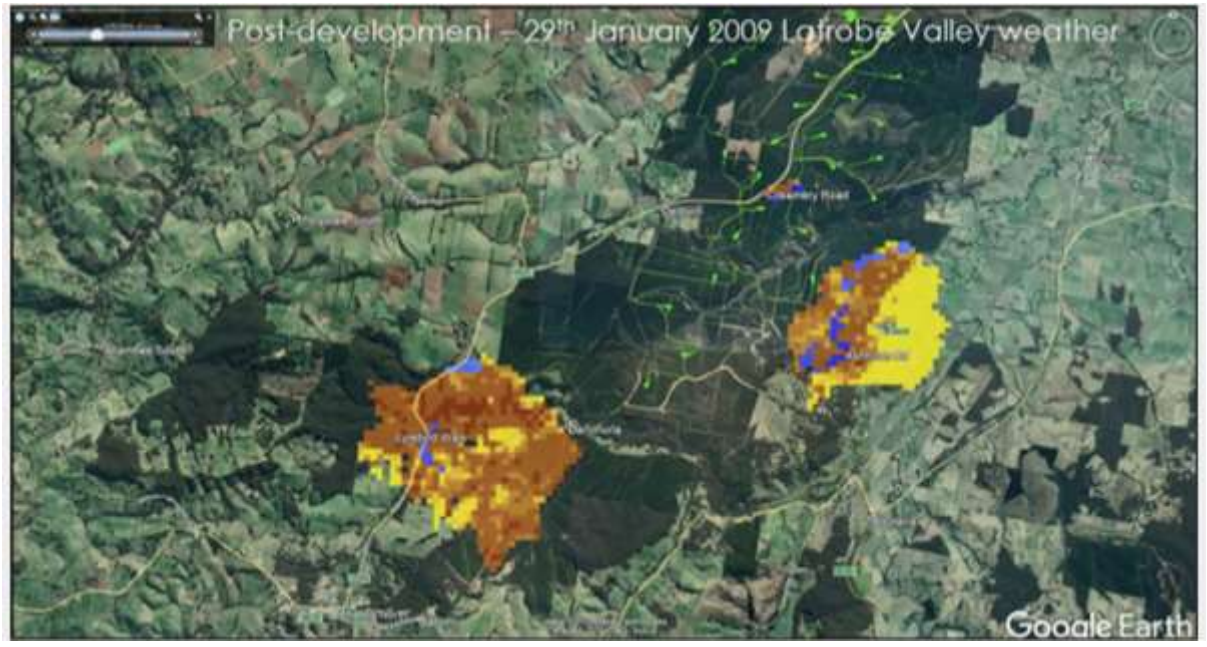


Figure 30 Example of computer modelled fire run, 29 January 2009 (post development)[365]



Mr Potter and Mr Taylor said the Phoenix model "… *demonstrated the effectiveness of the improved fire access tracks and fuel breaks post development, somewhat limiting bushfire spread development*". They said under elevated fire danger indices those measures will be less effective due to the potential for spot fires developing ahead of the main fire front.[366]

Mr Packham compared the fire risk on a total fire ban day if there are turbines and if there are no turbines using mathematical calculations. He concluded the increased risk is 52 per cent.

[364] Document 24, Figure 20. The date of the Delburn fires prior to Black Saturday.
[365] Document 24, Figure 21.
[366] Document 24, section 4.2, paragraphs 74-76.

He based his calculations on the Uadiale research report on the frequency of fire in wind turbines globally.[367] The study found wind turbines had an annual failure rate due to fire of 11.7 per cent, and due to underreporting the real failure rate was closer to 117 per cent. Mr Packham then factored in the risk of a disaster fire on a day with FFDI greater than 50 and the risk of an individual fatality in those conditions in the Latrobe municipality.[368]

Under cross examination Mr Packham was asked about some of his assumptions and calculations, including the area at risk and the predicted death rate. During questioning the Panel requested Mr Packham to provide a more accurate source for his assessment of existing risk of disaster fires for the HVP plantation.

Following the Hearing Mr Packham provided an explanation of the weather conditions and fire behaviour figures he used for his worst-case scenario. He also provided a response to a question from the Panel about the basis for his calculation of estimated death rates from bushfire in the Latrobe municipality.[369] He emphasised the difficulties of estimating the consequences of rare events with very large consequences.

The CFA said the Project will introduce an increased risk into a bushfire prone area and it can be assumed it will be affected at some stage by a severe bushfire that cannot be mitigated. The decision maker should therefore consider the difference between managing existing risks and contemplating entirely avoidable risks.[370]

In its conclusions the CFA said the permit applications had some key weaknesses that included:

- lack of analysis of alternative locations for higher risk elements of the Project
- a failure to deliver adequate defendable space to Project structures
- an 'often tick a box approach' to demonstrating acceptable outcomes
- deferring key risk assessment and mitigation decisions under the permit conditions.

CFA said the decision on the permit applications should be based on whether the risk increase is acceptable under bushfire planning policies that prioritise protection of human life.[371]

SCA said the Project will increase bushfire risk for the community because it will introduce potential ignition sources from the turbines, BESS and other infrastructure.[372] It submitted the Applicant's claim that the wind farm will not increase fire risk is contingent on the permit conditions being 'accurately and effectively' implemented. This cannot be relied on because there will be different entities responsible for the development, construction and operational stages of the wind farm.[373]

SCA submitted the community benefit of the wind farm should be weighed against an increased risk to human life. It said there is a strong probability of a major bushfire occurring on the site in the next 20-30 years. It cited the decision in Land Management Surveys v Strathbogie SC [2012] VCAT 77, which found since the 2009 Black Saturday fires planning decision makers need to place greater emphasis on the protection of human life.[374]

[367] Uadiale et al (2014) Overview of Problems and Solutions in Fire protection Engineering of Wind Turbines Fire Safety Science Proceedings of the Eleventh International symposium.
[368] Document 31a, Expert Witness Statement, David Packham, Fire Risk, Part 11B, page 5.
[369] Documents 115 and 139.
[370] Document 73a, CFA Part B submission, paragraphs 143-149.
[371] Document 73a, CFA Part B submission paragraphs 170-176.
[372] Document 65, SCA Part B submission, paragraph 29.
[373] Document 65, SCA Part B submission, paragraph 32.
[374] Document 65 SCA Part B submission, page 10.

The Applicant submitted the best evidence before the Panel shows the Project would reduce existing levels of bushfire risk. The Panel should at least be satisfied the Project will not increase the level of risk and the proposed mitigation measures would prioritise the protection of human life, as required by the VPPs.

The Applicant said the applicable planning schemes require a proposal to not materially alter the existing level of risk; they do not require a proposal to reduce risk. The requirement in clause 71.02-3 for decision makers to prioritise protection of human life above all other policy considerations in bushfire affected areas does not require all risks to be eliminated. It is a clear direction that unacceptable risk to human life cannot be justified by reference to other policy considerations.[375]

The Applicant said while the CFA did not express a view on the appropriateness of the Project, other than the BESS, its position is entirely consistent with granting planning permission. It submitted the CFA's position demonstrates "*… the capacity for the risk associated with key components of the Project to be mitigated and managed, so as to prioritise the protection of human life within the meaning of the VPPs*".[376]

The Applicant submitted it has consistently recognised the clear potential for a major bushfire to occur in the plantation during the life of the Project. The only public consequence of this event would be temporary disruption to the electricity generating capacity of the wind farm.

It said the Project has adopted defendable space standards that provide a high level of protection for Project structures even under very severe bushfire conditions. Contrary to the CFA's submission, the Project has adopted a design standard that is conservative and appropriate.

The Applicant said the submissions that claimed the facility will be lost in the event of a large scale bushfire are not correct. Mr Potter and Mr Taylor recognised the potential for large scale bushfire to impact the Project but they did not express the view that the facility is likely to be lost.[377]

7.3.6 Other permit conditions

(i) Vegetation screening

The draft permit conditions provided for the Applicant to provide an off-site landscaping program for dwellings within 5 kilometres of a turbine to screen views.[378]

A number of submitters were concerned about vegetation screening on their properties increasing bushfire risk. The CFA submitted the permit condition be amended so that any planting does not increase bushfire risk. They suggested the landscaping have regard to *Landscaping for Bushfire, Garden and Plant Selection*, CFA, June 2021 and possibly require a suitably qualified expert be involved in implementing the condition. CFA also highlighted that any new vegetation must not compromise areas of defendable space included in planning permits on nearby land.[379]

The Applicant proposed a new condition to require landscaping treatments dwellings in a BMO to be reviewed by a suitably qualified bushfire risk consultant.[380]

[375] Document 135a, Applicant's Part C submission (Bushfire), pages 15 and 17.
[376] Document 135a, page 8.
[377] Document 135a, Applicant's Part C submission (Bushfire), pages 15 and 17.
[378] Documents 62a, 62b and 62c, clause 8.
[379] Document 73b, paragraphs 196-199.
[380] Document 135b, Applicant's Proposed Conditions for Wind Energy Facility, Latrobe version 2.

(ii) Native vegetation

The CFA submitted draft condition 71, which limits native vegetation to be removed, destroyed or lopped, does not fully incorporate the extent of defendable space required. It said CFA does not support any permit condition that would limit or reduce the amount of defendable space or vegetation management necessary to achieve bushfire outcomes.[381]

7.4 Discussion

7.4.1 Assessing bushfire risk

The Panel is very conscious of its responsibilities in deciding on a proposed wind farm in a landscape with high to extreme bushfire risk. Planning schemes and municipal fire management plans recognise those risks. They require the Panel to carefully understand bushfire risk and how it will be managed and controlled.

The many submissions from residents who experienced the 2009 Delburn Complex Fire and the 2014 Hazelwood mine fire attested to the devastating impact they had on local communities. The community remains traumatised and highly sensitive to any proposed land use change with the slightest chance of increasing bushfire risk or diminishing their capacity to fight them.

Bushfire planning policy prioritises the protection of human life over other policy considerations. The Panel therefore needs to make a rigorous assessment of the bushfire risk issues and consider if the wind farm will result in a net increase in bushfire risk.

7.4.2 Ignition in the turbines

One of the biggest issues for submitters was the risk of ignition from the turbine nacelles. There is a history of fires in nacelles and the manufacturers have been aware it's a problem they need to fix.

The best evidence available to the Panel and CFA's submission made it clear the risk of ignition in the turbine nacelles is very low. Turbine manufacturers have designed fire detection, protection and suppression systems, remote alarms and notification systems to report potential bushfire risk. There are also systems to automatically shut down if there are multiple warnings.

All of this is part of the Project's permit conditions and will be incorporated into a BMMP to be developed to the satisfaction of the CFA. The permit conditions also require an area of 50 metres around each turbine to be clear of vegetation during the fire season. So a turbine should not start a fire in the surrounding landscape.

The Panel accepts the evidence of Mr Taylor and Mr Potter that installing a detection and suppression system in the nacelles will reduce the risk of fire in the nacelles to very low. It accepts that the measures proposed in the permit conditions are "*the most comprehensive fire risk management conditions for a wind farm development in Victoria*".

The Panel considered Mr Packham's evidence on this weak because he relied on a study from nearly 10 years ago. He was not aware of innovations in nacelle design since then. When asked if he thought the fire suppression mechanisms now adopted by manufacturers would be effective, he said they would.

[381] Document 73b, paragraph 202.

7.4.3 Aerial firefighting

The other main issue raised in submissions was the distressing possibility of the turbines diminishing aerial firefighting capability to protect their homes and keep them safe. The Panel was impressed with submitters' images of how close the aircraft carrying fire retardant came to their homes in 2009.

The CFA was very clear. It does not object to the permit application on basis of impacts on aerial firefighting. The CFA Guidelines require turbines to be located at least 300 metres apart to support aerial firefighting. They recognise the main limitations on aerial firefighting in the area are those that exist already; weather, terrain and the presence of smoke which reduces visibility.

The Panel accepts the evidence of Mr Taylor, with 25 years of experience tasking and supervising firebombing aircraft, that the wind farm will not result in a loss of aerial firefighting ability.

Mr Taylor was very clear that wind turbines are additional obstacles pilots must factor into flight settings as part of dynamic risk assessment. They spend a lot of time getting to know the risks in the area they are flying in. The Panel is also persuaded by the evidence of Mr Jennings, the Applicant's aviation expert, that aerial firefighting pilots are familiar with wind farms. It accepts his evidence that it is not necessary to include a permit condition requiring the blades to be parked in the Y position during bushfires because it is covered in emergency protocol.

The Panel also accepts Mr Taylor's evidence that firebombing aircraft are effective when supported by ground crew and will only slow a fire's spread under ideal conditions. Under elevated fire conditions they will focus their attention on protecting properties near the fire front.

The Panel agrees with the Applicant's recommended permit conditions to address the impact of the turbines on aerial firefighting including: locating the turbines no less than 300 metres apart, ensuring all turbine towers and weather masts are appropriately marked and remote shut down procedures for turbine operations during bushfires, reported faults or at the request of emergency services.

The Panel agrees with the CFA's permit condition to require the turbines and weather monitoring stations above 100 feet to be marked, consistent with the CFA Guidelines.

The Panel found Mr Packham's opinion that "*the turbines have a considerable impact on all aircraft*", less persuasive given his lack of aerial firefighting experience.

7.4.4 Measures to reduce bushfire risk

The Panel accepts the evidence of Mr Potter and Mr Taylor that the Project would not increase bushfire risk in the landscape if the measures proposed in the permit conditions are adopted. The Panel accepts their evidence that the bushfire risk associated with the wind farm can be mitigated to an acceptable level if their recommended strategies and bushfire mitigation and management plans are implemented. Those measures prioritise the protection of human life and will implement the CFA Guidelines.

In forming its view, the Panel relies on FRC's Phoenix modelling that compares current bushfire conditions and those after development of the wind farm. It demonstrates the improved fire management measures, particularly improved access tracks and fuel breaks, should be effective to limit bushfires developing and spreading.

The Panel accepts the evidence of Mr Taylor and Mr Potter that under elevated fire danger indices those measures will be less effective due to the potential for spot fires developing ahead of the

main fire front. It accepts the potential for a major bushfire to occur in the plantation during the life of the Project and that it would impact the Project infrastructure.

The Panel found weaknesses in Mr Packham's opinion that the wind farm would increase the risk of a bushfire on a total fire ban day by 52 per cent. His calculations were based on out of date information about the rate of ignitions from turbine nacelles, problems addressed in current manufacturing practices. His data and assumptions about the area at risk and the predicted death rate also appear flawed.

The Panel carefully considered the CFA's claim the wind farm will introduce an increased risk into a high risk bushfire landscape; a risk it said should be avoided rather than managed.

The CFA accepted the risk of ignition from the turbines is very low and it did not specify other major risks from the construction and ongoing operation of the wind farm. It was clear the Project will not impede aerial firefighting. And the CFA said the extra fire mitigation measures such as widened access road networks and firefighting resources will be effective on low to medium bushfire days when action to suppress a fire is possible.

The CFA submitted the existing likelihood of a severe to extreme bushfire in the plantation in the next 20 to 30 years renders the Project unacceptable. It said the risk to the life of staff on site and in the surrounding community is too great. But the risk of severe bushfire they are talking about is one that exists already. The Panel does not consider it is produced by the wind farm.

The permit conditions address protection of human life with requirements to shut down or restrict operations on elevated fire danger days and increased bushfire surveillance. The risk to human life is addressed comprehensively.

The CFA's claim the permit conditions fail to deliver adequate defendable space to protect Project structures contradicts the requirements of the planning scheme and construction standards. The Latrobe Planning Scheme clause 13.02 requires buildings to achieve a BAL 12.5. The Construction Standard for Bushfire-prone Areas requires a defendable space of 48 metres to achieve BAL 12.5.

The Panel accepts the evidence of Mr Potter and Mr Taylor that an area of 50 metres defendable space for the turbines, terminal station and visitor information area is appropriate. It is slightly more than what is required by the planning scheme.

The Panel is not persuaded by the CFA's claim the permit conditions rely on decisions about key risks being made at a later stage. The proposal has been the subject of three fire risk reports and the expert witness statement over two years. Major project approvals are usually completed in a staged process. Details in documents such the development plan, bushfire mitigation and management plans and emergency management plans are decided after the initial planning permit conditions.

The Panel disagrees with the SCA's claim the permit conditions cannot be relied on because there will be different entities for the development, construction and operational stages of the wind farm. It is common for different entities to deliver different stages of a project because they require different skills, resources and experience compliance with permit conditions is the responsibility of each entity and enforcing them is the role of the Responsible Authority.

7.4.5 BESS

The Panel considered the objections to the BESS carefully, particularly the CFA's. The Panel needs to be confident the permit application for the BESS demonstrates acceptable bushfire risk outcomes.

The Panel agrees with the CFA that the first consideration is whether it is acceptable to put a BESS in a bushfire prone landscape.

The permit application and the Bushfire Risk Assessment rely on basic compliance with the CFA Guidelines to demonstrate the BESS is appropriate in the proposed location. But the CFA Guidelines only require that the location provide access for fire and emergency vehicles.

The detailed BESS design plans and BESS specific bushfire risk management plan will come later as part of the permit conditions. The Panel has little information to demonstrate that the bushfire risks of the BESS are acceptable.

The Panel acknowledges the CFA's concerns about battery facilities in general and the added uncertainty from the recent fire in the Victorian Big Battery in 2021. The Applicant anticipates the investigations into the Victorian Big Battery fire may result in new permit requirements.

The Panel has some difficulty with supporting a planning permit that may need to be changed considering current inquiries and when it has been submitted the BESS is not critical to the Project.

The Panel therefore does not support the BESS component of the permit application. It could have a separate permit application once the current inquiries have been completed.

7.5 Conclusions

The Panel concludes:

- The draft planning permit applications be approved, with the amendments set out in Chapter 9 and Appendix D, except for the BESS component of the Project. Approval for a BESS could be sought in future based on a detailed design utilising findings from the investigations into the Victorian Big Battery fire.
- The Project will achieve no net increase in bushfire risk by implementing the bushfire mitigation and management measures required in the permit conditions.
- The permit conditions that require a detection and suppression system to be installed in turbine nacelles will reduce the risk of fire in the turbines to a very low risk.
- The permit conditions on aerial firefighting will ensure the wind farm will not result in a loss of aerial firefighting ability.
- The permit conditions adopting defendable space requirements for the Project's infrastructure and buildings are appropriate to prioritise the protection of human life.

The Panel recommends that the battery energy storage system is not approved at this time.

8 Other issues

8.1 Electromagnetic interference

(i) Background

The Wind Farm Guidelines require consideration of the impacts of EMI from wind turbines, stating:

> The effects of wind turbines on electromagnetic waves will usually be relatively limited. Potential electromagnetic interference effects can be calculated from information about affected telecommunications transmitting or receiving stations, local conditions, turbine design and location.
> The potential for electromagnetic interference from the generation of electricity from a wind energy facility should be minimised, if not eliminated, through appropriate turbine design and siting.
> The siting of wind turbines in the 'line of site' between transmitters and receivers should be avoided.

The Applicant commissioned an investigation into the impacts of EMI from the Project by DNV-GL as part of the planning permit application.[382]. DNV-GL's assessment criteria included:

- locating all of the communication towers within approximately 75 kilometres of the Project site
- assessing the communication licenses attached to the towers
- consulting with the license holders about their activities if they are within range of potential interference from the turbines
- determining the extent of potential interference from the turbines
- detailing modifications to the proposed wind farm or communication equipment that will ameliorate the impacts of the EMI.

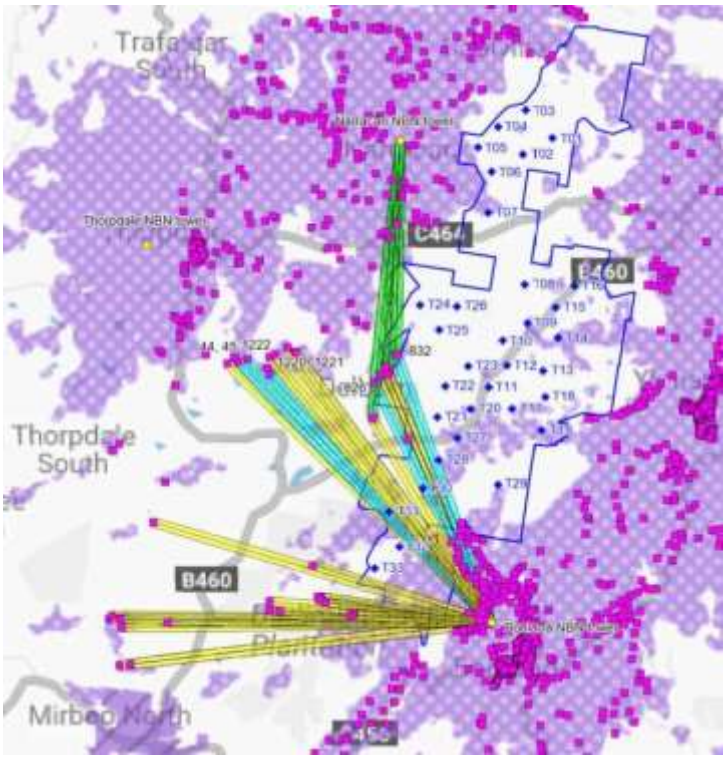
The EMI assessment found in summary:

- Mobile phone and wireless internet
  - Network operators do not expect the Project to interfere with their network services.
  - interference could be rectified by supplying the user with an external antenna; the network provider could increase the signal strength; or additional towers could be installed.
- Point to point and multipoint microwave communications
  - six point to point links cross the Project boundaries
  - turbines are far enough away that there should be no interference from reflection, scattering and near-field effects on the microwave signals from the turbines
  - mitigation includes moving turbines and/or moving the microwave transmitters/receivers
  - no emergency services operate point to point microwave links in this area.
- Satellite internet
  - services for Australian users are unlikely to be affected, however, services from international networks may be affected
  - mitigation includes alternate sources (cable services or alternate satellites), upgraded satellite dishes or changing the location of the satellite dish.
- UHF radio

[382] Appendix I to the planning application, EMI Assessment.

  - because of the nature of the signal the Project would have minimal interference to local UHF radio users.
- NBN wireless internet
  - the National Broadband Network (NBN) may be affected by the turbines as well as terrain and vegetation
  - three turbines (T28, T30, T31) are in the potential interference zones for the NBN fixed wireless signal paths from the Boolarra NBN tower to seven residences (see Figure 31). The potentially affected dwellings include (residence ID), 44, 45, 826, 832, 1220, 1221, 1222
  - mitigation could include aligning the resident's antenna with an alternate tower, relocating the antenna on the property or the interfering turbine could be micro-sited.

Figure 31 **Boolarra NBN tower potential interference**[383]

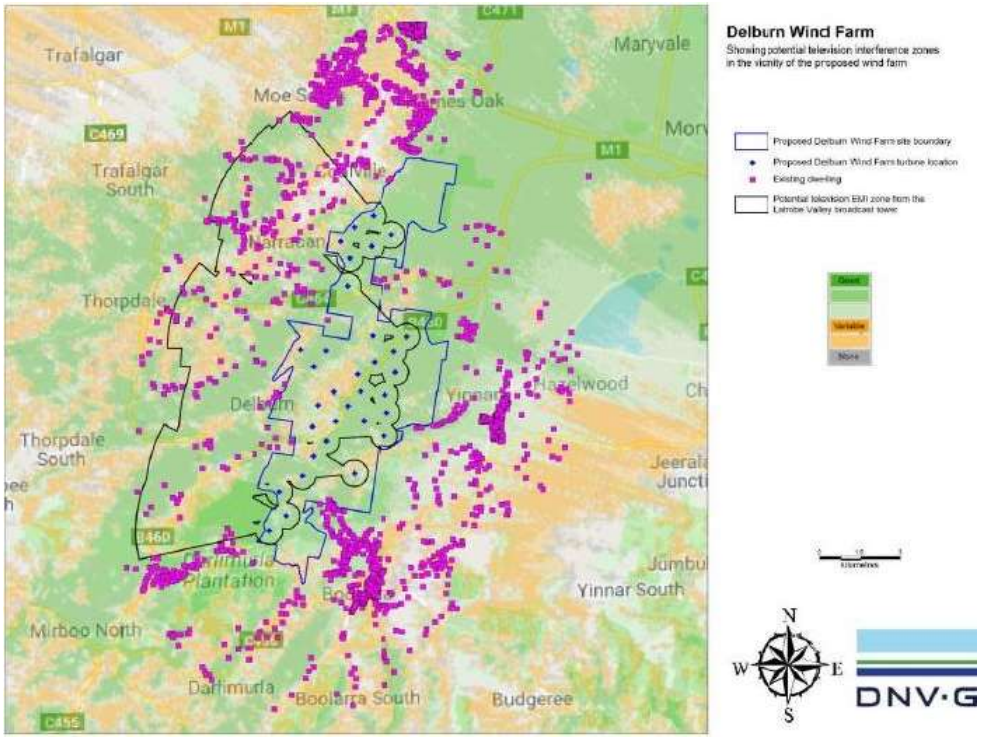


- Emergency services
  - services such as Ambulance Victoria, CFA, Victoria State Emergency Services and Department of Justice (Victoria Police)were contacted
  - all of the services contacted were not concerned with the potential EMI effects of the Project.
- Meteorological radar
  - the Project is not expected to cause interference with Bureau of Meteorology radar installations.
- Television broadcasting
  - signals should not be susceptible to interference from wind turbines in areas of adequate coverage
  - interference is possible in marginal coverage areas; some areas could be deemed to have marginal reception, and interference could be encountered (see Figure 32)

[383] Delburn Wind Farm EMI Assessment, DNV GL Report PP227556-AEME-R-03, Rev. A, 6 January 2020, Page 90.

- if necessary, mitigation could include:
  - realigning residences antenna
  - tuning the residences antenna into alternative sources of the same television signal
  - installing a more directional or higher gain antenna
  - relocating the antenna to a less affected position
  - installing cable or satellite television at the affected residence
  - installing a television relaying station.

Figure 32 Potential interference zones as a result of the Project turbines for the Latrobe Valley DTV tower[384]



- Radiobroadcasting
  - the Project is not expected to cause any noticeable interference to the FM radio broadcasts and AM radio is unlikely to be affected by turbine EMI.

The Applicant proposed amendments to the draft permit conditions so the pre-construction survey and rectification requirements cover NBN and mobile services, not just television and radio. It adds a qualification that the pre-construction reception survey is based on where impacts may be expected, as identified in the EMI Assessment.[385]

The DELWP draft planning permit provided conditions in relation to EMI.[386]

(ii) Issues

EMI has been considered at proposed wind farms previously in Victoria and the techniques used to minimise the impacts of EMI are well-established. EMI can potentially interfere with mobile phone networks, telecommunication towers, fixed point-to-point microwave links as well as fixed point to multi point communications, television and radio broadcasting, satellite, and other telecommunication services.

[384] Delburn Wind Farm EMI Assessment, DNV GL Report PP227556-AEME-R-03, Rev. A, 6 January 2020, Page 96.
[385] Document 135b, Applicant Part C submission.
[386] Document 62b, DELWP draft permit conditions Wind Farm.

The main issues are the potential impacts of the turbines on emergency services, radio broadcasting, mobile phone reception and other communication types associated with the functioning of emergency services. The functioning of the emergency services was a major concern for a significant number of submitters.

(iii) Submissions

Individual submitters

Ms Annette Thompson[387] identified EMI as a significant issue for key services such as Latrobe Valley Airport where the Medical Air Services and DELWP aerial firefighting are based. Ms Thompson submitted that key organisations such as Telstra, emergency services, Bureau of Meteorology and GeoScience Australia had not been consulted. Therefore, the impacts on critical communication systems and services had not been thoroughly investigated.

Ms Caroline Parker[388] asked questions about the Applicant guaranteeing that during fire operations, fire suppression activities are not impaired by EMI. Ms Parker asked:

> Can OSMI and DWF Pty guarantee that any electromagnetic interference introduced by the 33 turbines and 3 Met towers will not compromise the efforts of Emergency Management Victoria to communicate to the community in an effort to protect life?

Ms Jacinta Van Eede[389] also raised concerns about EMI and emergency services communications during a bushfire situation. Ms Van Eede questioned why the Project should be permitted when emergency service delays may be the difference between life or death. Ms Van Eede questioned how detrimental changes in communications before and after turbine construction could be demonstrated and raised with the wind farm operator.

Ms Kerry Buckley[390] was concerned about EMI for telephone and internet services, which she submitted are already sub-standard. Ms Buckley was concerned that future poor telephone and internet services will impact business, lifestyle and potential emergency calls on the farm. Also, who would fix these services when issues arise.

Mr Ron Armstrong[391] was concerned the proposal will have a detrimental impact on all forms of communication, including television, internet and mobile services, emergency services communication, in particular the CFA radio and UHF communications. Mr Armstrong highlighted the lack of pre-project testing and the lack of indication by the Applicant as to what mitigation will be undertaken to restore the communications to pre-project conditions.

Ms Rosemary Parker's[392] presentation to the Panel included concerns about the potential for interference with navigation, radar services, radio, TV, mobile phones, UHF communications and the internet. Also, Ms Parker was concerned with the potential interference with computerised tractor controls and interference with medical support equipment for people at home. Ms Parker submitted the existing mobile phone network is so unreliable that residents have maintained telephone landlines for communication.

[387] Submission 001, document 082.
[388] Submission 516.
[389] Submission 523.
[390] Submission 255.
[391] Submission 437.
[392] Submission 351, document 081.

Other submitters had similar concerns about the potential interference with mobile phone services which are apparently already not ideal, television reception, emergency services, the internet and other forms of communications. There were also concerns about the restoration of the various services to pre-project quality, who is responsible for this work and who was to pay for the work.

(iv) Discussion

The Panel generally accepts the EMI assessment as summarised in 8.1(i) above.

The Panel recognises the identified potential for the turbines to impact seven dwellings currently receiving NBN fixed wireless internet signals. It acknowledges DNV-GL's proposed solutions: align the resident's antenna with an alternate tower, relocate the antenna to elsewhere on the property and connect by cable or move the interfering turbine as part of the micro-siting process. The Panel encourages the Applicant to engage with the potentially affected residents to identify if there will be a problem and agree to solutions.

The Panel also recognises there is a high risk of interference with television broadcasting for 20 residents with reception from the Latrobe Valley tower. It is reassured by DNV-GL's assessment that there is a range of actions that can be undertaken to ensure reception is no worse than the pre-project condition.

The Panel believes the amendments to the permit conditions proposed by the Applicant are appropriate. They will ensure the wind farm operator assesses reception for relevant communications services prior to development and delivers its commitment to restore any affected services to pre-development quality.

(v) Conclusions

The Panel concludes:

- The Project is unlikely to cause interference to mobile radio systems, emergency services and meteorological radars.
- There is a low risk of interference of mobile phones, wireless internet, satellite television and radio broadcasting.
- There is a high risk of interference with television broadcasting for 20 residents from the Latrobe Valley tower that can be mitigated by re-aligning, redirecting or otherwise changing the location of the antenna.
- The Applicant should restore communication media to pre-construction conditions at the residences impacted by EMI.
- The DELWP draft permit conditions with the amendments proposed by the Applicant are generally acceptable.

The Panel has included, in Appendix D, recommended permit conditions to extend EMI consideration to satellite, NBN and mobile services to ensure the full range of electromagnetic communications are addressed.

8.2 Blade flicker

(i) Background

There can be short term and regular shadows over the ground and even over residences caused by the movement of the blades between the sun and the ground or residences. The Wind Farm Guidelines state:

> …
> The shadow flicker experienced immediately surrounding the area of a dwelling (garden fenced area) must not exceed 30 hours per year as a result of the operation of the wind energy facility.

The Wind Farm Guidelines also reference blade glint:

> Blades should be finished with a surface treatment of low reflectivity to ensure that glint is minimised.

The Applicant engaged K2 Management Australia[393] (K2M) to assess the shadow flicker and blade glint impacts of the Project on nearby residences as part of the planning permit application. K2M based their assessment on turbines with a hub height of 160 metres, a rotor diameter of 180 metres and a blade chord of 4.5 metres. The investigation distance of 1,192.5 metres from the turbine was calculated and included the garden area around a residence out to 50 metres from the building. Six residences were within 1,192.5 metres from a turbine and therefore considered potentially impacted by shadow flicker.

K2M assumed the worst-case scenario when modelling the shadow length and duration from the turbine including:

- minimum sun height of 3 degrees above the horizon
- the sun is assumed to be shining all day with no cloud cover
- the wind turbine is operating continuously during daylight
- blade flicker is calculated when more than 20 per cent of the sun is covered by a blade
- the wind turbine rotor is modelled as a disc and assumed to be in the worst-case orientation at all times.

The modelling showed the extent of the shadow flicker in the Project area. K2M presented the following diagram of the potential shadow flicker (see Figure 33).

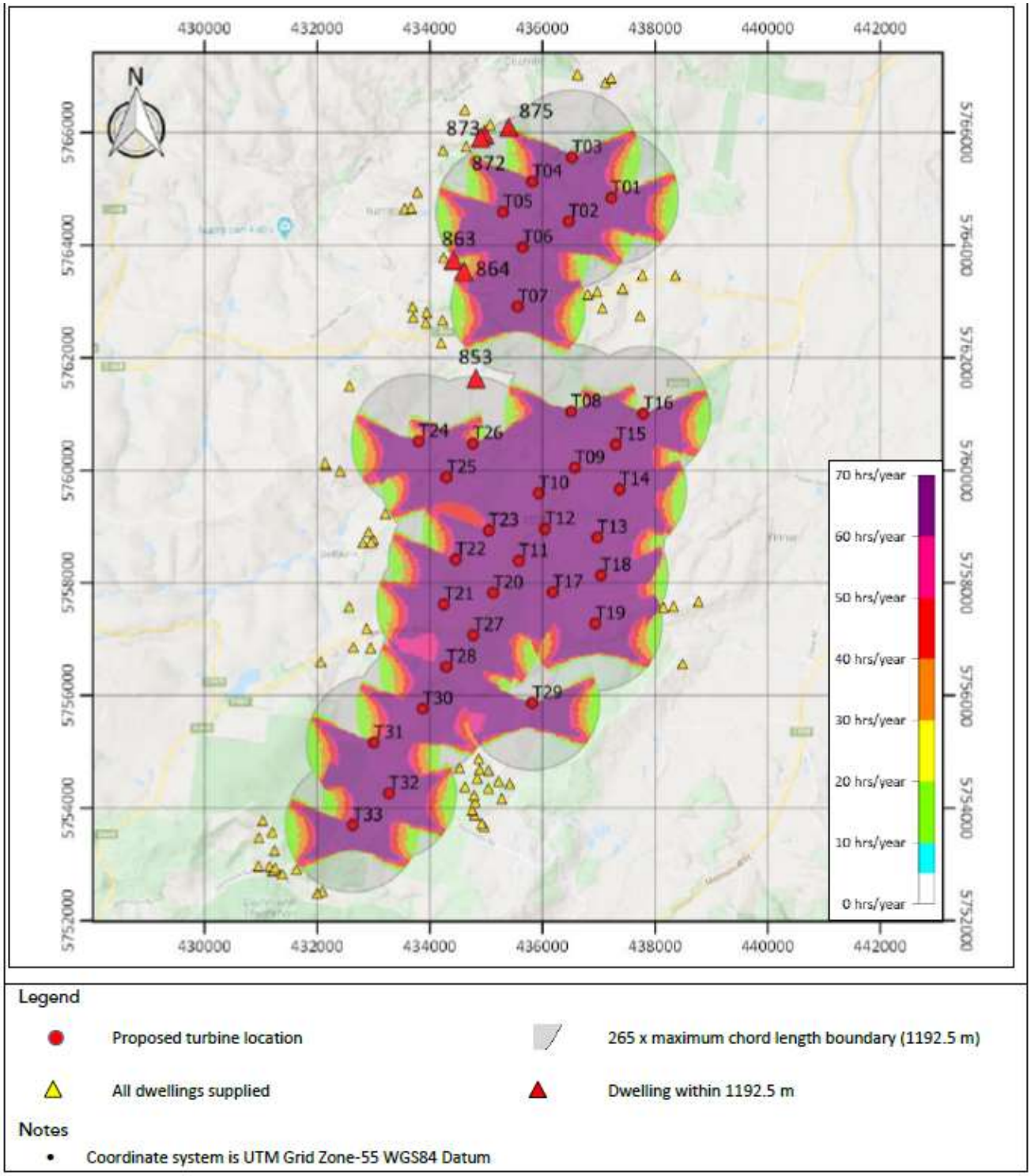
The modelling results identify potentially two residences where flicker may be experienced in the garden around the dwelling. These were residence 863 (24 hours: 52 minutes) and residence 864 (25 hours: 42 minutes). These are within the exposure limit of 30 hours per year.

The K2M investigations also considered blade glint. K2M investigations found:

> …Blade glint can be mitigated by coating the surface of the wind turbine blades with a non-reflective paint as noted in Development of Wind Energy Facilities is Victoria Policy and Planning.

[393] Appendix L to application, *Delburn Wind Farm Shadow Flicker and Blade Glint*, 22 January 2021, K2 Management Australia, Doc #31529-ASE-RE-1553.

Figure 33 Shadow flicker modelling results for the Project area[394]



[394] Appendix L to application, *Delburn Wind Farm Shadow Flicker and Blade Glint*, 22 January 2021, K2 Management Australia, Doc #31529-ASE-RE-1553, Figure 2.2, Page 12.

(ii) Issues

The issues are whether:

- shadow flicker and blade glint meet the requirements of the standard
- shadow flicker impacts on fauna
- driver distraction caused by shadow flicker will be significant
- shadow flicker impacts on horses.

(iii) Evidence and submissions

Mr and Mrs Buckley were concerned that shadow flicker will impact properties not just in an area near the residence.[395] They contended that as farms are working properties, people will be subjected to flicker while working on their properties and not just at their residences.

Ms Amanda White was concerned about the health effects of shadow flicker.[396] She submitted that residents who are affected by the flicker effect entering their residences by windows, will need to keep their blinds closed so that flicker can't intrude into their residences. Other residents also were concerned about the direct health and well-being impacts of flicker on the more susceptible members of the local community, both young and not so young.

Some residents asked if there will be compensation for the impact of shadow flicker in addition to the proximity payments proposed by the Applicant.

Ms Sharon Taylor was concerned about the afternoon shadow flicker.[397] Ms Taylor was also concerned that the modelling undertaken by K2M may not have been representative of the turbines that may eventually be installed, and that this may result in modelling inaccuracies.

Ms Rosemary Parker, referred the recommendation of the British Horse Society for a set back of 200 metres or 3 times the blade tip height (750 metres) for horse trails.[398] Horses use tracks and roads in the HVP property, and Ms Parker was concerned that horses will react to turbine noise and shadow flicker.

Other submitters were concerned with the effects of shadow flicker on native animals.

The Applicant directed their relevant expert witnesses to consider the effects of shadow flicker.

Ms Charmaine Dunstan assessed the potential driver distraction from shadow flicker effects and this is addressed in Chapter 6.4 Driver distraction, of this report.[399]

Mr Organ responded to the concern that shadow flicker will impact fauna in the Project area that:

> Empirical studies have not demonstrated adverse effects of flicker on diurnal animals. The study area does not provide important or limiting habitat for any fauna species of conservation significance, and the proposed development is not expected to significantly impact any fauna species.[400]

[395] Submission PP092.
[396] Submission PP367.
[397] Submission PP698.
[398] Submission PP351.
[399] Document 027 Delburn Wind Farm, Expert Evidence, Ms Charmaine Dunstan, 4 October 2021, Document 060c Delburn Wind Farm: Driver Distraction & Safety, Presentation to Planning Panel, 21 October 2021, Ms Charmaine Dunstan, Traffix Group.
[400] Document 023 Expert Witness Statement for Delburn Wind Farm, Strzelecki Ranges, Victoria, Biodiversity, Aaron Organ, Ecology & Heritage Partners, October 2021.

(iv) Discussion

Shadow flicker was a concern for many submitters and presented a range of issues from reaction of wildlife, driver distraction and residential health impacts.

The Panel notes the findings in the K2M assessment that two residences may experience flicker in the garden around the dwelling, and they are within the exposure limit of 30 hours per year in the Wind Farm Guidelines.

The Panel also notes the reports finding that blade glint can be mitigated by coating the surface of the wind turbine blades with a non-reflective paint, which it recommends as a permit condition.

The Panel accepts the expert evidence of Ms Charmain Dunstan that shadow flicker is not a problem for driver distraction, as discussed in chapter 6. It also accepts the evidence of Mr Aaron Organ that shadow flicker does not have significant adverse effects on diurnal animals.

(v) Conclusions

The Panel concludes:

- the impacts of shadow flicker and blade glint have been adequately assessed
- the current Project configuration will achieve the shadow flicker requirements of the Wind Farm Guidelines
- the Project will require the turbine blades to be coated with low reflection (low glint) surfacing.

Draft permit conditions to address the issues are included in Appendix D.

8.3 Aviation impacts

(i) Background

This section includes impacts on civil and defence aviation. It does not address aviation issues around aerial firefighting which are addressed in Chapter 7.

The impact of the Project on aircraft safety is a decision guideline in clause 52.32 of the planning scheme.

The turbines are very large and potentially up to 250 metres above ground level to the blade tip. This will create new and significant obstacles to aviation which will need to be included in appropriate guidance to aviators. This may result in the need for modified flight paths for aircraft traversing the Project area depending on their height and route.

A number of airports and airfields are in Gippsland, and these were listed in Section 1.2. From submissions and evidence, it became clear the airport of most concern is the Latrobe Regional Airport (LRA) on Airfield Road in Morwell, approximately 16 kilometres east of the Project.

(ii) Issue

The key issue is whether:

- the Project will result in unacceptable safety risks to flight operations from the LRA.

(iii) Evidence and submissions

Mr Jenning's evidence for the Applicant included that:[401]

> The Delburn Wind Farm:
>
> - Is beyond any Obstacle Limitation Surfaces
> - Does not infringe any Lowest Safe Altitudes
> - Does not impact any published flying training areas
> - Does not affect Communication, Navigation and Surveillance systems Both Civil and Military
> - Does not impact Published Instrument Approach procedures and associated PANS-OPS prescribed airspace at Yarram, West Sale and East Sale aerodromes[402]
> - Impacts PANS-OPS airspace at LaTrobe Valley aerodrome.

Drawing from the Aviation Impact Assessment,[403] Mr Jennings identified the Project will impact on Instrument Approach Procedures at the LRA as follows:[404]

> - The Runway 03 Segment Minimum Sector Altitude between 10.3nm and 8.3nm from the end of the runway. (Landing to the northeast)
> - The Runway 21 Missed Approach path. (Departing to the southwest after failing to land from the instrument approach)

Submitters raised a number of issues about aviation safety. For example, Ms Widdowson[405] raised the issue of increased emergency response times for emergency services due to difficulties in Air Ambulances being able to land in or near the Project.

Submitter Ms Carolyn Parker provided a significant submission on aviation safety including reporting a complaint made to the CASA regarding the existing meteorological mast and a Helicopter Emergency Medical Services (HEMS) pilot.[406]

Others such as Ms Sharon Taylor[407] said wake turbulence and moving blades can be a risk to emergency operations as stated in the *Wind Farm and Bushfire Operations Guidelines* published by the Australasian Fire and Emergency Service Authorities Council.

In his evidence Mr Jennings responded to submissions on aviation safety issues relating to:

- aviation obstacle lighting
- existing meteorological mast and its visibility
- wind turbine turbulence
- restrictions on HEMS aircraft access due to the turbines
- aerial firefighting (addressed in Chapter 7).

His evidence was that these are generally matters where pilots of rotary and fixed wing aircraft will need to manage their operations to take account of the new obstacles (turbines and meteorological masts) and any new obstacles will need to be marked via NOTAM[408], as occurred for the existing meteorological mast. His evidence was that there is no requirement for night lighting of turbines.

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401 Document 56d.
402 PANS-OPS = Procedures for Air Navigation Services – Aircraft Operations.
403 Appendix G to the Planning Applications.
404 Document 25, PDF page 4/26.
405 Submission 528.
406 Submission 516.
407 Submission 698.
408 Notice to Airmen – the procedure for notifying of new hazards to flying.

Mr Jennings drew on research from overseas that wake turbulence from wind turbines was not a significant aviation safety factor.

There was some confusion around the changes that might be required for the LRA.

A chain of emails from Airservices Australia was provided to the Panel. Airservices Australia were concerned about flight paths around the LRA. The summary of their position in July 2020 was:[409]

> Airservices view is that the wind farm would have an impact to the safety, efficiency or regularity of existing or future air transport operations into or out of Latrobe Valley Airport. As mention in the previous assessment, Airservices requires that the operator of Latrobe Valley Airport (included in this email response) to be consulted and confirm that the proposed permanent change to RNAV GNSS RWY 03 and the RNAV GNSS RWY 21 instrument procedures at Latrobe Valley will not adversely impact on their operations before any change (temporary or permanent) can implemented by Airservices.

In a series of emails in August 2021, the Manager, Commercial and Operations at LRA advised the Applicant:[410]

> Our position remains unchanged. We do not object to the proposed development.
> Any changes to Operational conditions as a result of the proposed development will be undertaken by LRA in consultation with operators and regulators.

In the Hearing Council advised[411] that it owns the LRA and it is managed by a committee appointed under the *Local Government Act 2020* (Airport Board). It submitted that despite the comments above from the Manager, the Airport Board had not decided whether it supported the Project and had not consented to any required changes to airspace.

Council submitted that if a permit were to be issued it should require the wind farm operator to seek confirmation from the Airport Board that revised aircraft procedures are acceptable before some turbines[412], or turbines and masts generally, are erected.

The Airport Board met on 8 November 2021 in the week prior to the Hearing closing and resolved it:[413]

> 1. Does not support the requested change to raise the Runway 21 LNAV/VNAV Decision Altitude from 550 ft to 600 ft for future commercial operations.
> 2. Does not object to the raise the RWY 03 Segment Minimum Safe Altitude between LTVWI and 2nm after LTVWI from 1700ft to 2000ft, thence the minimum altitude will be 1700ft to LTVWF as long as the minima and profile of the approach remain the same.
> 3. At a point in the future when the wind farm is committed to proceeding (likely to be in the coming 12 months) and upon such written confirmation from Delburn Wind Farm Pty Ltd, the Latrobe Regional Airport will work with Airservices to implement the changes in advance of any impacted wind turbine being erected

In its closing submission, the Applicant identified that it understood the Airport Board's remaining concern (in Point 1 above) relates to potential impacts on future commercial development of the LRA.[414]

[409] Submission 2. The Civil Aviation Safety Authority (CASA) shares this view, their submission (722) stating ''*Until such time that the impacts at Latrobe Valley Airport are resolved, CASA would consider this wind farm to be an unacceptable risk to aviation safety, after which a further assessment would still be required*.''

[410] Document 53d.

[411] Document 66.

[412] T03, T04, T09-T20, T23.

[413] Document 133.

[414] Document 135h, para 98 onwards.

It expressed the preference that the Runway 21 LNAV/VNAV Decision Altitude be raised, but if it is not, they sought advice from Mr Jennings. His advice was, in summary:

- only turbines T03 and T04 penetrate the PANS-OPS airspace and would require modification
- reducing turbine tip height to 507 metres AHD for T03 and 535 metres AHD for T04 means the PANS-OPS airspace would not be penetrated
- reducing height could be achieved by using shorter turbines for those two turbines, or micro-siting the turbines to lower elevation to ensure they do not penetrate the PANS-OPS.

It submitted these could be addressed via permit conditions. At the Applicant's request Mr Jennings provided suggested planning permit conditions.[415]

(iv) Discussion

There is no doubt the 250 metre tall turbines and existing and new meteorological masts will be a new hazard to aviation in this area. The Panel notes there are well developed processed and procedures to both notify pilots of the new obstacles and for pilots in control of flights to modify routes and flight heights to adapt to the obstacles.

Whether for normal transits across the Strzelecki Ranges, HEMS or other emergency service flights or firefighting, the Project will become an added complexity in how flight planning and execution needs to be undertaken. The evidence before the Panel is that this is what pilots do every day and on every flight; plan for the conditions they will be flying in, including obstacle planning and its effect on routes, flight times and flight heights.

Whether the presence of the wind turbines and the flight planning needed will result in significant increased emergency response times or the inability of HEMS to access the Project area is not clear to the Panel. There was no evidence to this effect and no submissions from emergency services expressing such concern. Mr Jennings evidence was that pilots of such services will need to fly according to the flight rule in place at the time. The Panel understands the turbines can be shut down rapidly in an emergency but will still be a physical obstacle to be considered among other flight limiting factors such as terrain, wind or smoke.

The LRA matter is clearly one that needs to be resolved. The Airport Board have expressed the view that the Project would put additional unreasonable constraints on flights utilising Runway 21. The Panel considers it reasonable that permit conditions seek to address this issue and recommends permit conditions as suggested by Mr Jennings.

(v) Conclusions

The Panel concludes:

- The Project should not pose an unacceptable risk to aircraft safety in the area.
- Proposed turbines T03 and T04 should be limited in height via permit condition to ensure they do not penetrate the PAN-OPS airspace for LRA.

Suggested permit conditions to address the LRA issues are included in Appendix D.

[415] Document 135g, page 2.

8.4 Economic impacts and property values

(i) Background

The Applicant provided an economic assessment prepared by Jacobs (Economic Assessment) in Appendix M of the Planning Report as part of the planning permit application. It discussed the economic impact of the Project on the state, regional and local level.

(ii) Issues

The issue is whether private financial impacts on property owners are a relevant consideration for the decision maker when assessing the planning permit applications.

Submitters defined the issue in the following ways:

- The value of their property will be diminished.
- Current and planned earning activities that rely on landscape views and serenity will be adversely affected.
- Plans for income generating developments will be curtailed because of zoning implications.

(iii) Evidence and submissions

Ms Zipkas and Mr Norman submitted the wind farm would 'severely curtail' their plans for a Bed and Breakfast business, organic garlic and flower sales, equine therapy experiences and riding lessons and potential future sales from a proposed art gallery.[416] Ms Zipkas told the Hearing potential guests have told them they would not stay anywhere near a wind farm. That business is now on hold and the loss of income will cause them financial loss.

Mr and Ms White submitted the Project will have a negative impact on Victoria mostly because of the devaluation of property. They said a 2016 Urbis study provided by the Applicant that found there will be no devaluation of property did not comment on lifestyle properties. They told the Hearing the Wind Farm Commissioner was so concerned about the issue he recommended it should be mandatory for all property vendors to disclose a pending wind farm.[417]

Ms Thompson submitted she and her husband sold their house in Darlimurla in 2019 in response to the wind farm proposal. They did so with full disclosure about the wind farm she said it "… *has caused us significant financial loss and emotional suffering*".[418] She told the Hearing they had lost $500,000 when they sold their house. She stated one of her motivations for objecting is to have "*her loss and suffering documented*".

Mr Hanley submitted he was renovating the barn on his lifestyle property as a Bed and Breakfast. He and his partner, Ms Benson, said their property will be devalued if the wind farm proceeds. A developer has deemed their property "*unsaleable for further development*". They said development on their property will not be permitted if the wind farm is approved.[419]

Ms Van Eede submitted one of her key reasons for objecting was the devaluation of their property. She told the Hearing she and her partner planned a multistorey art studio with panoramic views,

[416] Submission 535.
[417] Submissions 372 and 457 and document 83.
[418] Submission 1, document 82.
[419] Submission 566.

but it is on hold because of the wind farm proposal. They submitted they had planned to build an art studio, invest in an off-grid solar system or any other capital improvement. But they do not want to "*overcapitalise in a home we will not be able to live in or sell if the wind facility is approved*".[420]

Mr Huxley submitted the turbines will result in devaluation of his property, an investment he and his wife are relying on to support them in aged care.[421]

The Applicant acknowledged many submitters expressed concern about the economic impact of the Project, mostly about the impact on individuals' property values.

The Applicant submitted the Economic Assessment concluded the Project is unlikely to have any adverse impact on property prices. It said as a matter of law, the potential diminution in property values is irrelevant to assessing the merits of planning permits.

The Applicant cited[422] the Panel recommendation for the Lal Lal Wind Farm, which quoted the views expressed by the Bald Hills Wind Farm Panel:

> … [T]he Panel makes clear that the inconclusive nature of evidence and submissions is not a concern, as valuation considerations would not have been relevant to a permit decision, as a matter of law. Further, it is concluded law that the only basis for the provision of compensation in the Victorian planning system is where land is reserved for a public use. Even if losses were demonstrated, the Panel would have no basis for recommendations that specific compensatory measures should be provided to individual property owners.

The Applicant said the Economic Assessment concluded the Project will deliver significant economic benefits particularly through employment opportunities and increased demand for local goods and services.[423]

(iv) Discussion

The Panel acknowledges submitters' concerns about private financial impacts of the wind farm and that it has caused them distress. The key issue for the Panel is whether the Project is appropriate within the scope of the applicable planning policy.

The Panel recognises the wind farm may curtail development on some properties due to changes in zoning or overlay provisions.[424] As these possible changes do not form part of these planning permit applications, the Panel has no scope to include this as part of its assessment and consideration.

The requirement under the PE Act for Responsible Authorities to consider social and economic impacts of planning permit applications is limited to community wide impacts. No submitter provided information about wider social or economic impacts of the planning permit applications even though it applies to a wide area. The Panel therefore has no basis to assess those impacts.

Although not discussed in the Hearing, the Supreme Court decision in *Dustday*, confirmed the principle that when private social and economic effects are raised as consideration in a planning scheme amendment, they have to be translated into a community-wide benefit or disadvantage.[425]

[420] Submission 523 and document 113.
[421] Submission 504.
[422] Document 64a, Applicant Part B Submission, paragraph 96.
[423] Document 64a, Applicant Part B Submission paragraphs 93-97.
[424] For example the changes to permit requirements near wind farm applications in VC212.
[425] *Dustday Investments Pty Ltd v Minister for Planning* [2015] VSC 101, paragraph 45.

While the Panel appreciates the wind farm will alter the existing landscape, private economic impacts alone do not warrant recommending refusal of the permits.

Claims about property values are inherently difficult. Decisions of the Supreme Court of Victoria and VCAT have consistently found that property values are speculative and not a planning matter. The Applicant referenced several decisions in its Part B submission that discuss the difficulties for decision makers when asked to consider potential diminution in property values when assessing planning permit applications.[426]

(v) Conclusions

The Panel concludes that property value and private financial implications cannot be considered and are not relevant when assessing the merits of the Project and whether the planning permit applications warrant support.

8.5 Decommissioning

(i) Background

The wind turbines are expected to have a design life of 25-30 years after which the options will include:[427]

- Repair or replace any required main components and continue to use the existing wind turbines;
- Replace the wind turbines with new technology at that time and continue the wind farm use (which would be subject to new planning permit applications); or
- Decommission the Project and remove the wind turbines and infrastructure in accordance with the provisions of the landowner agreement.

The draft planning permits include conditions relating to decommissioning including in:[428]

- the Environmental Management Plan
- traffic conditions
- specific decommissioning conditions including preparation of a Decommissioning Traffic Management Plan, amongst other things.

(ii) Issue

The issue is whether decommissioning of the facility is adequately covered in the planning permit conditions.

(iii) Submissions

Several submitters were concerned about what would happen to the Project area at end of its life. Latrobe City Council submitted the conditions should include elements including, in summary:[429]

- a resource recovery plan
- a decommissioning traffic management plan

[426] *Ross v Shire of Rutherglen* (1981) APA 101; *Ralphsmith v City of Nunwading* (1983) 11 APA 40; *Briant v City of Knox* (1985) 15 APA 443; *Micalef v City of Keilor* (1993) 11 AATR 139; *Director of Housing v Swan Hill Rural CC* [2006] VCAT 887; see also *Lal Lal Windfarm* (PCI) [2009] PPV 14.

[427] Delburn Wind Farm Planning Application Report, page 40.

[428] Document 62b draft DELWP conditions.

[429] Document 51.

- an assessment of the existing condition of roads to be used during decommissioning
- reinstatement of roads to the condition they were in prior to the commencement of decommissioning works
- rehabilitation of the development area.

Following review of the circulated draft permit conditions, Council submitted their concerns had generally been addressed except in the area of resource recovery, where they requested the following be added in as a permit condition:[430]

> A resource recovery plan, which includes details of materials that can be recovered, for re-use and recycling, from all infrastructure associated with the facility.

Some submitters were sceptical about whether the bond arrangement between the landowner and the Applicant would actually occur, and that the wind farm company may not exist at the time.[431]

SCA were similarly sceptical and submitted:[432]

> There is no evidence in support of the application that the landowner companies, APM Forests and Grand Ridge Plantations, will guarantee the project owner's restoration of the project site and/or will provide security of funding to enable decommissioning of the turbines and removal of the BESS.

It submitted that a trust fund should be established to guarantee decommissioning and rehabilitation.

The Victorian Farmers Federation submitted the developer, not landowner, should be responsible for decommissioning costs and in the event of default the State should fund decommissioning and rehabilitation.[433]

Ms Moore was critical that a decommissioning plan has not already been provided, submitting that the:[434]

> Decommissioning phase is costly and need to be factored into the overall project viability. The community and/or landowners need to be assured funds are available to service this requirement. The developers will not be involved with the ongoing operation and final decommissioning phases of the project and therefore have no ownership of long- term outcomes. OSMI have not provided a decommissioning plan with this planning application, only referred to the process.

(iv) Discussion

It is difficult to conceptualise the eventual decommissioning of the Project given the timeframe involved and the different options that may be considered in 25-30 years, including re-powering. The Panel thus does not consider it would be a useful exercise to require a decommissioning plan at this time, as it would inevitably be superseded, perhaps many times, across the life of the Project.

The approach then, is to ensure that decommissioning, when it is approaching, is effectively managed through the planning permit conditions. The Panel is satisfied that for the public realm (mostly public roads), the planning permit conditions for decommissioning are acceptable. The

[430] Document 66.
[431] See for example submission 1, Ms Annette Thompson.
[432] Submission 713, para 88.
[433] Submission 718.
[434] Submission 175.

road authorities will have a role in ensuring that public roads and tracks are rehabilitated to an appropriate standard.

For the private domain, the Panel notes there will be agreements between the landowner and Applicant about how decommissioning will occur and a bond is proposed in that arrangement. The Panel considers such a bond or trust fund could not be legally imposed via a permit condition without specific legislative power.[435]

Ultimately the Project owner will be responsible for decommissioning. If they are in financial difficulty or 'walk away' then the responsibility will likely rest with the landowner. If there is some public interest or public risk then the State may become involved but that is speculation.

The Panel considers that the resource recovery plan suggested by Council is a useful addition. It may be that residual values of materials will have value and be recovered anyway, but specific consideration of the issue via permit condition is appropriate given the current societal shift to materials recovery, reuse and recycling.

(v) Conclusion

The Panel concludes:

- Decommissioning of the Project can be adequately covered via permit conditions as proposed in Appendix D.

[435] Contrast for example with the bond powers under the *Mineral Resources (Sustainable Development) Act 1990*.

9 The planning permits

9.1 Permit triggers

There are numerous planning permit triggers for the wind energy facility and the terminal station. These were outlined in some detail by DELWP.[436] Some of the main triggers are outlined in the following tables extracted from the DELWP Part A submission.

(i) Wind farm

Table 23 Zone permit triggers

Zone	Permit/Application Requirement(s)
Clause 35.07 Farming Zone (all three Planning Schemes)	A permit is required to use the land for a wind energy facility pursuant to clause 35.07-1 and must meet the requirements of clause 52.32. A permit is required to construct a building or carry out works associated with a wind energy facility (Section 2 use under clause 35.07-4).

Table 24 Overlay permit triggers

Overlay	Permit/Application Requirement(s)
Clause 42.01 Environmental Significance Overlay, Schedule 5 (South Gippsland Planning Scheme)	A permit is required to construct or carry out works, including vegetation removal.
Clause 44.01 Erosion Management Overlay Schedule 1 (Baw Baw Planning Scheme)	A permit is required to remove, destroy or lop vegetation pursuant to clause 44.01-3.

Table 25 Particular provision permit triggers[437]

Particular provision	Permit/Application Requirement(s)
Clause 52.17 Native vegetation	A permit is required to remove, destroy or lop native vegetation, including dead native vegetation pursuant to clause 52.17-1. DELWP Environment Portfolio is a recommending referral authority for applications under the detailed assessment pathway or for removal greater than 0.5 hectares.
Clause 52.32 Wind energy facility	A permit is required to use and develop land for a wind energy facility pursuant to clause 52.32-2. An application must be accompanied by evidence of the written consent of dwelling owners within one kilometre of a turbine.[438] The application requirements and guidelines of reference document *Policy and planning guidelines for development of wind energy facilities in Victoria* (July 2021) applies.

[436] Table 2, Document 50.
[437] Apply to all planning schemes.
[438] Consent has been provided from the 31 dwellings located within one kilometre of a turbine.

Table 26 General provision permit triggers[439]

General provisions	Permit/Application Requirement(s)
Clause 61 Administration and enforcement of the Planning Scheme	The Minister for Planning is the Responsible Authority for applications for wind energy facilities.
Clause 65 Decision Guidelines	Clause 65 specifies matters to be considered in deciding an application.
Clause 66 Referral and notice provisions	Statutory referral authorities are AusNet Services, VicRoads, DELWP Environment Portfolio and the Catchment Management Authority.

(ii) Terminal station

The following permit triggers are all in the Latrobe Planning Scheme. The general provisions as shown in Table 26 apply to the terminal station as well.

Table 27 Zone permit trigger

Zone	Permit/Application Requirement(s)
Clause 37.01 Special Use Zone Schedule 1	A permit is required to construct a building or carry out works

Table 28 Particular provision permit triggers

Particular provision	Permit/Application Requirement(s)
Clause 52.17 Native vegetation	A permit is required to remove, destroy or lop native vegetation, including dead native vegetation pursuant to clause 52.17-1. DELWP Environment Portfolio is a recommending referral authority for applications under the detailed assessment pathway or for removal greater than 0.5 hectares.

9.2 Relevant considerations

Section 60 of the PE Act requires the responsible authority to consider a range of matters including, in summary:

- the relevant planning scheme
- the objectives of planning in Section 4 of the PE Act
- objections and submissions which have not been withdrawn
- decisions and comments of referral authorities
- significant effects of the development on the environment or the environment on the development
- significant social and economic effects the development may have.

Clause 65 of the Planning Scheme states:

> Because a permit can be granted does not imply that a permit should or will be granted. The Responsible Authority must decide whether the proposal will produce acceptable outcomes in terms of the decision guidelines of this clause.

Clause 65.01 requires the Responsible Authority to consider, as appropriate:

> Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate:
>
> - The matters set out in section 60 of the Act.

[439] Apply to all planning schemes.

- Any significant effects the environment, including the contamination of land, may have on the use or development.
- The Municipal Planning Strategy and the Planning Policy Framework.
- The purpose of the zone, overlay or other provision.
- Any matter required to be considered in the zone, overlay or other provision.
- The orderly planning of the area. The effect on the environment, human health and amenity of the area.
- The proximity of the land to any public land.
- Factors likely to cause or contribute to land degradation, salinity or reduce water quality.
- Whether the proposed development is designed to maintain or improve the quality of stormwater within and exiting the site.
- The extent and character of native vegetation and the likelihood of its destruction.
- Whether native vegetation is to be or can be protected, planted or allowed to regenerate.
- The degree of flood, erosion or fire hazard associated with the location of the land and the use, development or management of the land so as to minimise any such hazard.
- The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.
- The impact the use or development will have on the current and future development and operation of the transport system.

As discussed in Chapter 2, clause 71.02-3 of the Planning Scheme requires a Responsible Authority considering a permit application to take an integrated approach, and to balance competing objectives in favour of net community benefit and sustainable development. It also requires the consideration of bushfire risk to human life.

The various clauses in the planning scheme where a permit is triggered also include decision guidelines for the Responsible Authority. Relevantly clause 53.32-5 includes:

> Before deciding on an application, in addition to the decision guidelines of Clause 65, the responsible authority must consider, as appropriate:
>
> - The Municipal Planning Strategy and the Planning Policy Framework.
> - The effect of the proposal on the surrounding area in terms of noise, blade glint, shadow flicker and electromagnetic interference.
> - The impact of the development on significant views, including visual corridors and sightlines.
> - The impact of the facility on the natural environment and natural systems.
> - The impact of the facility on cultural heritage.
> - The impact of the facility on aircraft safety.
> - *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria* (Department of Environment, Land, Water and Planning, July 2021).
> - The New Zealand Standard NZS6808:2010, Acoustics - Wind Farm Noise.

9.3 Draft planning permits

Appendix B of the Wind Farm Guidelines provides a model set of planning permit conditions for a wind energy facility.[440] Through the Hearing draft planning permits conditions were tabled on a ''without prejudice''[441] basis by different parties at different times including many submitters.

[440] https://www.planning.vic.gov.au/permits-and-applications/specific-permit-topics/wind-energy-facilities

[441] Meaning commentary on draft conditions could be provided without resiling from a primary position of objection.

All the inputs to the draft permit conditions have been considered by the Panel and its preferred conditions are attached in Appendix D. Given the nature and extent of the changes the Panel has not provided the changes in ''track changes''.

In Chapter 2 the Panel provided some overall commentary on the Project and how it considers that the net community benefit balance falls in favour of the Project subject to the removal of the BESS. The next section provides commentary on major issues addressed in the draft planning permit conditions.

9.4 Panel preferred version

The following sections do not mention every suggested Panel change to the draft planning permit conditions but focus on the major issues and the Panel's approach. The rationale for changes, where not administrative, is included in the particular issue chapters in this report.

Appendix D only includes a draft planning permit condition for Latrobe. The planning permits for Baw Baw and South Gippsland should be issued consistent with the Latrobe permit.

9.4.1 Wind energy facility

(i) Development plans

The major changes include:

- Removal of the reference to plans for the BESS as they Panel considers approval should not be granted.
- Inclusion of a micro-siting plan in this section and removal of same as a standalone section in the planning permit.

(ii) Specifications

Numerous changes are proposed primarily related to fire issues. Notable items include:

- Specification of fire suppression and detection systems in turbine nacelles.
- Specification that turbines be internationally certified in terms of design and manufacture; relevant to blade throw, noise and other issues.

(iii) Aviation

The recommendations from the expert Mr Jennings in relation to LRA and turbines 03 and 04 are included.

(iv) Landscaping

Landscaping conditions have been modified to:

- Clarify when screening landscaping will be offered and the availability of cash in lieu of landscaping.
- Ensure that screening landscaping at dwellings does not increase bushfire risk.

These changes were proposed by the Applicant in response to submissions, particularly from the SCA. Seven individual submitters and SCA sought permit conditions to prohibit turbines within a specified distance of neighbouring property boundaries; the distances varied from 1.5 kilometres to 5 kilometres. The Panel could not adopt these proposals because they are contrary to the planning scheme and the Wind Farm Guidelines provisions on buffer zones.

(v) Noise

Noise conditions have been modified to identify the Boolarra RLZ2 as a high amenity for the purposes of the Standard. Other changes have been made in relation to what should be covered in the pre-construction noise assessment.

There are no conditions proposed for post-construction noise (operational noise) as this is now covered by the *Environment Protection Amendment (Interim) Regulation 2021*.

(vi) Television and Radio Reception and Interference

The condition has been modified to:

- Include reference to mobile phone signals and NBN
- Benchmark the pre-construction signal testing to the DNV-GL report prepared for the application.

(vii) Traffic management

A number of changes have been made which are consistent with requests from DoT.

(viii) Environmental Management Plans

Changes to EMP conditions include:

- New conditions related to sedimentation and erosion.
- Inclusion of birds in the BAM Plan.
- Inclusion of a flora and fauna management plan to the satisfaction of DELWP which includes the Growling Grass Frog requirements.
- Articulation of native vegetation offsets, tree protection and tree retention in accordance with DELWP submissions.

(ix) Bushfire Risk and Mitigation

The approach to bushfire risk and mitigation is one of the most complex areas of the draft permit conditions with many views expressed and the CFA in particular providing extensive commentary and suggestions for permit inclusions.

The Applicant sought many amendments that were useful to simplify and streamline the permit conditions. They also sought to replace many detailed conditions with a reference to the recommendations in the expert witness statement of Mr Taylor and Mr Potter.

Five individual submitters made submissions on the permit conditions. They generally supported the CFA's submission and sought tougher fire restrictions. Some sought to impose conditions on HVP on its fuel management practices, which is outside the scope of the permits.

The Panel considered how much detail from guidelines and expert reports should be included in the permit, as opposed to referencing external reports and materials. Although the result is somewhat lengthy permit conditions, the Panel considers it is appropriate to include the major points in the conditions, so it is self-contained.

A comprehensive suite of bushfire planning (construction and operational) permit conditions is proposed including emergency response, fire prevention through design, firefighting asset provision and consideration of familiarisation and interoperability with local brigades and other emergency services.

(x) Decommissioning

A suggested condition relating to a resource and recovery plan has been included at the request of the Latrobe City Council.

9.4.2 Terminal station

Changes to the recommended terminal station planning permit conditions are included in Appendix D2. Any changes are generally consistent with the approach to the wind energy facility permit conditions in Appendix D1.

9.5 Conclusions and recommendation

The Panel concludes:

- The permits for the wind energy facility and the terminal station should be issued.
- Planning approval for the battery energy storage facility should not be granted at this time.

The Panel recommends:

1. **The Minister for Planning issue the following planning permits for the Delburn Wind Farm with conditions consistent with those attached in Appendix D to this report:**
   - **a) Wind Energy Facility**
     - **Permit Application PA2001063: Latrobe Planning Scheme, without the battery energy storge system**
     - **Permit Application PA2001064: Baw Baw Planning Scheme**
     - **Permit Application PA2001066: South Gippsland Planning Scheme**
   - **b) Terminal Station**
     - **Permit Application PA2001065: Latrobe Planning Scheme**

Appendix A Submitters to the applications

No.	Submitter
1	Annette Thompson
2	Airservices
3	Will Bakker
4	Airtrea Cupples
5	Drew and Jane Brown
6	Douglas and Julie Sansom
7	Daniel Broadbent
8	Latrobe Valley Sustainability Group
9	David Campbell
10	Danielle Gray
11	G Morris
12	Garryelle Rose
13	Gordon Rouse
14	Graeme Wilson
15	Gerhard Giedrojc
16	Tracey Hodge
17	Ian Anderson
18	Johanna Newton
19	Jane and Denis Sultana
20	Robert Maddern
21	Natasha and Christopher Blake
22	Paul Jesse
23	Peter Richardson
24	Chelsea Pronk
25	Richard Vesty
26	Shane and Megan Nelson
27	Skye Dehommel
28	Sean Hornsby
29	Sally Paterson
30	Helen Sinnema

No.	Submitter
31	South Gippsland Shire Council
32	Tony and Linda Minter
33	Travis Mahoney
34	Andrew and Jessica Taylor
35	Veronica Devonshire
36	Will Brownlee
37	Henry O'Clery
38	Paul Bickerstaff
39	Michael Oxer
40	David Gamble
41	Kay Schieren
42	Margie Mackay
43	Helen Searle
44	Sharon Fisher
45	Alan Hall
46	Denise Schiller
47	Lisa Eakins
48	Teresa Cascianelli
49	Tracey Millet
50	Liz Leahy
51	Ian Only
52	Mary McNamara
53	Rachelle McNamara
54	Gary Mills
55	Sandra Mills
56	Bruce King
57	Grahame and Lynda Code
58	Catheryn Thompson
59	Holger and Andrea Gunia
60	Denis Sultana
61	Noel Coxall

No.	Submitter
62	Christine and Paul Cording
63	Lucia Rolls
64	Shaun McNamara
65	Michael Haynes
66	Veronica Halliday
67	Paul and Carley McGrath
68	Anton Hocking
69	Paul Nardone
70	Simon Zenkai
71	Tania Seccombe
72	Sabina McGrath
73	Melanie Cardillo
74	Geraldine McClure
75	Anny
76	Isabella Papa
77	Ken Murphy
78	Debbie Mehran
79	Deborah Scholtes
80	Jenny Price
81	Narracan Primary School
82	Carolyn Unsworth
83	Shaun Dietrich
84	Danny Gleeson
85	David and Caroline Jeffrey
86	Laura Curnow
87	Janine Kelly
88	Leanne Potter
89	Luke Potter
90	Klaas Kootstra
91	Matt Hall
92	Tim Buckley
93	Stephanie Gibson
94	Anthony Parkin

No.	Submitter
95	Jessica Garratt
96	Geoffrey Frith
97	Steven Van Oirschot
98	Peter Gardiner
99	Trevor Hanley
100	Paula Sherry
101	Julia Peterson
102	Vicky Karitinos
103	Karin Johnstone
104	Wendy Miller
105	Teagan Uttridge
106	Ann Hibbert
107	Alan Tyrer
108	Kristine Philipp
109	Phil Kelly
110	Jane Caffrey
111	Kaye Cook
112	Jan Mitchell
113	Ben and Jan Smith
114	Maria Jawor
115	Verity Guiton
116	Rebecca Thompson
117	Kaleb Slade
118	Shane Elmore
119	Harley Broadbent
120	Helen Morrison
121	Cody Johnston
122	Sarah Vesty
123	Ray Moretti
124	Heather Butler
125	Helen Kennedy
126	Alex Delaney
127	Colin Brokenshire

No.	Submitter
128	Liisa Tusk
129	Sue Seegers
130	Arabella Daniel
131	Edwin Dawson
132	Voices of the Valley
133	Karin Wylie
134	Bhavna Chandra
135	Helene Warner
136	Melinda Olver
137	Neil Griffin
138	James Rasmussen
139	Chris Mount
140	Sharon Ray
141	Natasha Wenban
142	Cassandra Hue
143	Ben Bowman
144	Angie Pearson
145	Amy Tobin
146	Emma Fenty
147	Alice Anderson
148	Peter Lawrence
149	Emily Williams
150	Lauren Salathiel
151	Penelope Swales
152	Flora Carbo
153	Nathan Schram
154	Nikkola Mikocki-Bleeker
155	Linda Bester
156	Vicki Duffus
157	Stu Shaw
158	Elizabeth Proctor
159	Jessica Taylor
160	Jane Brownrigg

No.	Submitter
161	Marie Womersley
162	Amanda Rhodes-Andrew
163	Celeste Earle
164	Elizabeth Pearce
165	Mark Unwin
166	Scott Turner
167	Michelle Hassett
168	Bradley Spencer
169	Stephen Yates
170	Ken Whittaker
171	Kaylie Earle
172	Lois Smith
173	Driffield Energy Pty Ltd
174	Elsie Bath
175	Jeanette Moore
176	Rosemarie Santamaria
177	Erica Meall
178	Shelley Beer
179	Barbara Trauer
180	Glenda McIntyre
181	Jo Livermore
182	Carol Skinner
183	Mia Trujillo
184	John Connan
185	Richard Smart
186	Susan Allen
187	Tania Parker
188	Anders Ross
189	Noel Will
190	David Williams
191	Merrill Jusuf
192	Michael O'Connell
193	David Meitzenthen

No.	Submitter
194	Thomas Timpe
195	Des Bryant
196	Lawrie Carroll
197	Anthony Lunken
198	Kerrie Scull
199	Mandy Coats
200	Paul Ruff
201	Sanja Van Huet
202	Heidi Fog
203	Gaille Abud
204	Frances Winfield
205	Guy Abrahams
206	Ros Chandler
207	Erica Corr
208	David Feith
209	Ro Swan
210	Linda McNamara
211	Margaret Hartley
212	Felicity Crombach
213	Rex Niven
214	Clare Baldwin
215	Carolyn Crossley
216	Jean Christie
217	Venetia Roberts
218	Julia Dinkle
219	Mark Waller
220	Anthony Holden
221	Anthony Beutelschiess
222	Bruce Cutts
223	Ben Wright
224	David Capon
225	Emma Boland
226	Hannah Farthing

No.	Submitter
227	Heinz Dahl
228	John Knox
229	Jonathan Gibb
230	Tresca Cullen
231	Gaynor Perry
232	Mikaela Misso
233	Meredith Kefford
234	Maria Sola
235	Joylien Barnes
236	Julie Sullivan
237	Robert Hind
238	Rob Crawford
239	Sarah Biggs
240	Scott Robinson
241	Stan Roberts
242	Stephen Luntz
243	Peter Monie
244	Sarah Brennan
245	Arthur Cantrill AM
246	Alex Beltrame
247	Colin Smith
248	Paul Cardona
249	Andrea Read
250	Dana Sang
251	Lucy Simnett
252	Robin Gardner
253	Prue Licht
254	Barbara Tinney
255	Kerry Buckley
256	Anne Jaques
257	Andrew McArthur
258	Angela McFeeters
259	Pamela Austin

No.	Submitter
260	Becky Banks
261	Bronwen Nicholls
262	Bruce Whimpey
263	Campbell Gome
264	Colleen McGrath
265	Evelyn P
266	Greg Dixon
267	Judith Guantai
268	Ryan Hauville
269	Matthew Hayes
270	Jillian Carroll
271	Ian Jemmeson
272	Judy Gunson
273	Katherine Gribben
274	Lynette Hovey
275	Suzanne Learmonth
276	Mick Fischer-Brunkow
277	Michael Hii
278	Marion Oke
279	Marcus Percy
280	Nicklaus Mahony
281	Peter Stafford
282	Robin Baillie
283	Glen Hillbrick
284	Don Serle
285	Samantha Szczepaniak
286	Robert Bath
287	Robert Marston
288	Suzanne Dance
289	Bess Wattchow
290	Michelle Grubnic
291	Petronella Lawrence
292	Andrew Dunn

No.	Submitter
293	Kate Wattchow
294	Ally Timms
295	Wendy Cox
296	Jo Whitehead
297	Wendy Kurka
298	Leticia Worley
299	Rob Young
300	Susan Morton
301	Jen Askham
302	Alan Hayward
303	Annabelle Warren
304	Andrea Notting
305	Chris Robinson
306	Erin Meadows
307	Mel Darer
308	Monica Bramley
309	Max Bradbury
310	Luigi and Rose De Fanti
311	Leanne Ormrod
312	Stuart and Mary Orr
313	Rosie Ganino
314	Sarah Powers
315	Michael Cleaver and Casey Child
316	Rosalind Hustler
317	Tim Anderson
318	Rhydian Cowley
319	Vicky Ellmore
320	Iain Bruce
321	Narelle Dean
322	Pam T
323	Will Hargeaves
324	Estelle Landy
325	Cam Walker

No.	Submitter
326	James Brown
327	Richard and Mary Teece
328	Jill Barrett
329	Jack Cleaver
330	Kerri Cleaver
331	Lisa Papa
332	Steven Perry
333	Sanne de Swart
334	Elizabeth Buckingham
335	Rob Dimsey
336	Lorraine Bull
337	Kate Meadows
338	Nicholas Volachec
339	Rosemary Dunworth
340	Susan Rushworth
341	Glenda Holmes
342	John Neve
343	Eliza Tree
344	Maurice Papa
345	Rose Edwards
346	Deborah Stennings
347	Pam Atkins
348	Johanna Bolch
349	Jeannie Kilpin
350	Kirsty Mills
351	Stephen Parker
352	Michael Mielczarek
353	Karen Furniss
354	Liz Wilson
355	Graham Thomson
356	Tristan Stewart
357	Warwick and Mary Blines
358	Anthony and Donna Lawless

No.	Submitter
359	Wayne Vincent
360	Anthony Amis
361	Wendy Farmer
362	Alan Bolch
363	Ann Morgan
364	Annette Twite
365	Wendy Magee
366	Andrew Taylor
367	Amanda White
368	Baw Baw Shire Council
369	Will Bakker
370	Brendan Tompsett
371	Craig and Heather Barker
372	Lynette and David White
373	Chris Barfoot
374	Chris Barrett
375	Chris Twite
376	Heidi Garner
377	C Wilson
378	Douglas and Elizabeth Black
379	Jay Duncan
380	David and Marina Piedrafita
381	Jenny and Steve Blake
382	Diana Billingsley
383	Matthew Ryan
384	Debra Brownscombe
385	Travis Mahoney
386	Deanne Godfrey
387	Dallas Murphy
388	David Somerville
389	Elizabeth and John Jeffrey
390	Stephanie Lavis
391	Emily and Rex Kinghorn

No.	Submitter
392	Adam Parrott
393	Faye and Colin Mitchell
394	Barbara Wilson
395	Gail Hillbrick
396	Brian Miller
397	Geoffrey Somerville
398	Craig and Heather Barker
399	Dean Wheeler
400	Helen Spicer
401	Bryan Kemsley
402	Harrison Tompsett
403	Buzz Rainbow
404	James and Anna Fehey
405	Caitlin Tompsett
406	John and Jillian Simmonds
407	Carly Pearson
408	Jennifer Coombes
409	Jennifer Girke
410	Chris Milne
411	Judith Jolly
412	Chris Parker
413	Federation University
414	Christine Morris
415	Jane Webster
416	Christopher Turner
417	Debbie and Kenneth Brownscombe
418	Colin Hutton
419	Kylena Clark
420	Kimberly Roberts
421	Lincoln Crabtree
422	Colin Smith
423	Laura Curnow
424	Concerned Neighbour

No.	Submitter
425	Linda Ellin
426	Laura Gee
427	Crina Virgona
428	Environment Victoria
429	Crystal Libreri
430	Kristie and Luke Myrteza
431	Latrobe Valley Sustainability Group
432	Lachlan Tompsett
433	Karen Egan
434	Jane Anderson - Latrobe Health Advocate
435	Maree and Lee Davey
436	Nina Burke
437	Ron and Gabrielle Armstrong
438	Bob Temple
439	Ronnie Douch
440	Samantha Cascianelli
441	Sylvia Kurhn-Sauppe
442	Susan Somerville
443	Simon Pickett
444	Thomas Colley
445	Daniel Crute
446	Danielle Couling
447	Darcy Coombes
448	Daryl Nelson
449	David Smithwick
450	David Taylor
451	Tamara Berquez
452	Trevor Hoare
453	Veronique Murch
454	Val Taylor
455	Lindsay Marriott
456	Sue Axelsson

No.	Submitter
457	David White
458	Andrew and Daly Renate
459	Angela Bruce
460	Erin Garth
461	Adam Francis
462	Eileen Whitehead
463	Elizabeth Mitchell
464	Esther Lloyd
465	Fernando Longo
466	Morgan Briscoe
467	Angela Noone
468	Frank Pigott
469	Andrew Parker
470	Fraser Gibson
471	Angus Sauppe
472	Andrew Taylor
473	Annabel Thomas
474	Garbrielle Pennay
475	Bronwyn Webster
476	Generation Films
477	Caroline and David Jeffrey
478	Brian and Nina Earl
479	Chris Chiotelis
480	Clayton Cupples
481	Frank Hytten
482	Ceinwen Morgan
483	Glenda McIntyre
484	Chelsea Stewart
485	Jill Thio
486	Christine Walters
487	Dianne and Angelo Cascianelli
488	Kathryn Kelly
489	Deborah Dobson

No.	Submitter
490	David Francis-Foreman
491	Kathryn Lai
492	Donna Lawless
493	Maria McConkey
494	Marion Shepherd
495	Dallas Murphy
496	Maya Ward
497	Doug Steley
498	Department of Transport
499	Nicole Krause
500	Patricia Long
501	Tony Goodfellow
502	Tim Isaacson
503	Gabrielle Armstrong
504	Geoff Huxley
505	Gary Sauppe
506	Tim Brown
507	Gavin Van Eede
508	Thomas and Tessa Libreri
509	Gary White and Deanne Seath
510	Tilak De-Silva
511	Heather and Peter Brimblecombe
512	Theresa Warren
513	Henk Harberts and Sue Kemsley
514	Tessa Rainbird
515	Hancock Victorian Plantations Pty Ltd
516	Caroline Parker
517	Terry Spackman
518	Ian Spark
519	Anne Palmer
520	David Tomkins
521	Jason Pickett
522	Debbie Regester

No.	Submitter
523	Jacinta Van Eede
524	Caroline Pile
525	Lucy Allen
526	Leatha Peters
527	Cat McLeod
528	Louise Widdowson
529	Chloe Libreri
530	Merv and Helen Gore
531	Mark and Jacqueline Hyett
532	Erin Anfried
533	Don Stokes
534	Sheree Dubois
535	Mark Norman and Karen Zipkas
536	Gail Bateman
537	Mirboo North Community Energy Hub
538	Gajan Punnia-Moorthy
539	Paul and Kellie McLure
540	Garry Healey
541	Peter Collins
542	Gavin Gray
543	Paul Wallin
544	Geoff Block
545	Rasa Bennett
546	Rita and Maurice Sharrock
547	Geoff Simpson
548	Richard and Sonia Bennett
549	George Mercier
550	Ronnie Douch
551	Gillian Blair
552	Shane and Nicole Molloy
553	Harry Wood
554	Sarah Bridges
555	Heather Murray

No.	Submitter
556	Simone Kistler
557	Heidi Garner
558	Tanya and Owen Budge
559	Helen Redmond
560	Hugh Venables
561	Ian Bird
562	Tim Fleay
563	Ingrid Schraner
564	J Pollard
565	Jack Anderson
566	Trevor Hanley and Michele Benson
567	Jan Fahie
568	Jane Caffrey
569	Jennifer Meyer-Smith
570	Zako and Maria Spehar
571	Alison Leahy
572	Alison O'Connell
573	Alivia Mantel
574	Amanda King
575	Amber Bawden
576	Amber Stubbings
577	Amy Van Rooye
578	Ande Bunbury
579	Andrea White
580	Andrew Lucas
581	Anna Hall
582	Anna Langford
583	Anna Young
584	Anny Shaw
585	Anthony Barnes
586	Any Maintenance Group
587	Arie Hendrikse
588	Ashley Kemsley

No.	Submitter
589	Barrie May
590	Barry Hillbrick
591	Beau Sinclair
592	Belinda Clarke
593	Belinda Griffiths
594	Belinda Haydon
595	Ben Gleeson
596	Bernadette Evans
597	Bernie McComb
598	Bert Devries
599	Branko Tumbri
600	Jennifer Manison
601	Brett Farmer
602	Jess Smith
603	Jessica Martin
604	JL Angell
605	Joanne Parr
606	Jo Saleeba
607	Jo W
608	Joan Spittle
609	Jodie Vassallo
610	John Hughes
611	John Stevens
612	Jude Kennedy
613	Julia Burns
614	Julie Maree Sullivan
615	Karen Alexander
616	Kate Hook
617	Kathleen Gray
618	Kathy MacKendrick
619	Katie Wearne
620	Keelah Lam
621	Kellie Grattidge

No.	Submitter
622	Kelly Bevan
623	Ken Gray
624	Kerry Dawborn
625	Kimberley Croxford
626	Kinsley Slipper
627	Kirrilee Enders
628	Kristy Walters
629	Kylie Mantel
630	Lalitha Chelliah
631	Lanika Dyer
632	Lesley Walker
633	Linda Snell
634	Liz Reen
635	Liz Thornton
636	Lois O'Connor
637	Louise Gilmore
638	Lucinda Bechor
639	Tania Brown
640	Lucy Shepherd
641	Therese Virtue
642	Madeline Papa
643	Malcolm McKelvie
644	Marcia Lewis
645	Maria Ford
646	Maria-Ann Phillips
647	Marie-Louise Drew
648	Marita Carter
649	Mark Crammond
650	Martin Oliver
651	Mary Forbes
652	Mary Maslen
653	Maureen Schmitt
654	Michael Nolan

No.	Submitter
655	Michele Belford
656	Millicent Negro
657	Mira Oh
658	Monique Decortis
659	Ken Gray
660	Naomi Kelsey
661	Narelle Bailey
662	Neil Andrews
663	Pat O'Brien
664	Patricia Wilkins
665	Friends of the Earth Melbourne
666	Patrick Sloan
667	Paul McLure
668	Paul Payten
669	Peta Newbound
670	Peter Burke
671	Peter Collins
672	Phil Day
673	Rachael Maxwell
674	Ralf Thesing
675	Rebecca Parker
676	Reiner Schimminger
677	Rita Camilleri
678	Robert Eakins
679	Rob Williams
680	Robbie Aitken
681	Robert Glasson
682	Robert Skappel
683	Robolge Lenora
684	Ron Williams
685	Rose Nechwatal
686	Rose Ovenden
687	Rosie Baker

No.	Submitter
688	Edinburgh Electric Driving School
689	Rupert Veitch
690	Sally Gee
691	Sally Kardash
692	Sally Newell
693	Sally Brenan
694	Seamus McCaffrey
695	Sean Burke
696	Shannon McAllister
697	Shannyn Sherlock
698	Sharon Taylor
699	Sheryn Linton
700	Simon Heislers
701	Sing Wong
702	Sri Kirti Sarawati
703	Stephanie Duke
704	Stephen Miller
705	Stephen Whatley
706	Stig Jensen
707	Sue and David Axelsson
708	Eric and Sue Seegers
709	Sue Head
710	Susan McKay
711	EPA Victoria
712	Alicia Teska
713	Strzelecki Community Alliance Inc
714	I Love Farms Pty Ltd ATF
715	Jessica Taylor
716	Lydia Cameron
717	Terry Bevan
718	Lisa Gervasoni
719	Melanie Wiltshire
720	Richard and Maria Hopkins

No.	Submitter
721	Strzelecki Sustainable Futures
722	Civil Aviation Safety Authority

Appendix B Parties to the Panel Hearing

Submitter	Represented by
Department of Environment, Land, Water and Planning	Nathan Aikman and Elaine Wood
Delburn Wind Farm Pty Ltd	Barnaby Chessell of Counsel, instructed by Michelle Keen, Irene Argeres and Courtney White of White & Case and calling expert evidence on: - flora and fauna from Aaron Organ of Ecology & Heritage Partners - noise from Christophe Delaire of Marshall Day - aviation from Ian Jennings of Chiron Aviation Consultants - fire from Graeme Taylor and Mark Potter of Fire Risk Consultants - landscape and visual from Hayden Burge of Landform architects - blade throw from Dr Naomi Brammer of DNV-GL Australia Pty Ltd - driver distraction / road safety from Charmaine Dunstan of Traffix Group
HVP Pty Ltd	Tony O'Hara and Ruth Ryan
Latrobe City Council	Karen Egan
Country Fire Authority	Kevin Hazel instructed by Jude Kennedy
Department of Transport	Glenn Skoien
Friends of the Earth	Patrick Simons and Wendy Farmer
Latrobe Valley Sustainability Group	Jane and Danny Caffrey
Strzelecki Community Alliance Inc	Dominica Tannock of DST Legal supported by Darryle Gee (Chair), Gabrielle Clifford (Secretary) and Jacinta Van Eede of Strzelecki Community Alliance Inc, and calling expert evidence on: - acoustics from Les Huson of Les Huson & Associates - visual and landscape from Dr Dennis Williamson of Geoscene International - fire risk from David Packham of Packham Holley & Associates Inc
Strzelecki Sustainable Futures	Catheryn Thompson
Victorian Farmers Federation	Emma Germano
Voices of the Valley	Wendy Farmer and Marianne Robinson
Alicia Teska	
Amanda White	

Submitter	Represented by
Annette Thompson	
Caitlin Tompsett	
Caroline Parker	
Carolyn Ballek	
Catheryn Thompson	
Debra and Kenneth Brownscombe	
Diana Billingsley	
Dianne Cascianelli	
Donna and Anthony Lawless	
Doug Steley	
Emily Kinghorn	
Gabrielle Armstrong	
Graeme Robert Wilson	
Jacinta Van Eede	
Jacqueline and Mark Hyett	
Jane Anderson	
Jessica and Andrew Taylor	
Rasa and John Bennett	
Karen Zipkas	
Kerry Buckley	
Laura Gee	
Louise Widdowson	
Luigi De Fanti	
Lynette and David White	
Mark Unwin	
Mary and Stuart Orr	
Max Bradbury	
Michele Benson and Trevor Hanley	
Natasha Blake	
Paul Wallin	
Ron Armstrong	
Rosemary Parker	
Sally Gee	

Submitter	Represented by
Sharon Taylor	
Shirley and Tim Buckley	
Simon Pickett	
Sylvia Kuehn-Sauppe	
Tania Brown	
Terry Bevan	
Tessa and Thomas Libreri	
Tim Fleay	
Valerie and David Taylor	

Appendix C Document list

No.	Date	Description	Presented by
1	20 Aug 21	Letter – Department of Environment, Land, Water and Planning (DELWP) to Panel referring Submissions 1 – 717	Mr Sam Mason, Development Approvals and Design, Renewables (DELWP)
2	27 Aug 21	Directions Hearing Notification Letter	Mr Nick Wimbush, Panel Chair, Planning Panels Victoria (PPV)
3	30 Aug 21 & 6 Sept 21	Correspondence – Ms Annette Thompson to Panel regarding publication of personal information and referral of submissions	Ms Annette Thompson
4	31 Aug 21	Letter – Department of Environment, Land, Water and Planning (DELWP) to Panel referring Submissions 718 – 720	DELWP
5	2 Sept 21 & 6 Sept 21	Correspondence – Planning Panels Victoria (PPV) response to Ms Thompson regarding publication of personal information and referral of submissions	PPV
6	7 Sept 21	Correspondence – Strzelecki Community Alliance Inc (SCA) to Panel regarding request for transcript recording of Hearing to be raised at Directions Hearing	Ms Dominica Tannock, D S T Legal for SCA
7	8 Sept 21	Correspondence – SCA to Panel regarding additional directions relating to payments and donations and identical submissions	"
8	9 Sep 21	Letter – Department of Environment, Land, Water and Planning (DELWP) to Panel referring Submission 721	DELWP
9	"	Correspondence – Mr David White to Panel including: a. Written submission for Directions Hearing	Mr David White
10	10 Sept 21	Correspondence – White & Case for the Permit Applicant regarding two matters to be raised at the Directions Hearing including terminal station application and request for information	Ms Courtney White, White & Case for the Permit Applicant
11	13 Sept 21	Correspondence – SCA advising of Directions Hearing availability and further clarification regarding transcript, disclosure of payments and donations and request for sound contours	SCA
12	"	Correspondence – Ms A Thompson to PPV regarding hosting of the Hearing	Ms Annette Thompson
13	14 Sept 21	Correspondence – SCA to Panel clarifying matters raised in Directions Hearing	SCA
14	16 Sept 21	Correspondence – Mr Stephen Parker request for Cultural Heritage report	Mr Stephen Parker

No.	Date	Description	Presented by
15	"	Panel Directions, Distribution List and Timetable (version 1)	PPV
16	17 Sept 21	Correspondence – SCA to Panel advising that they will be calling landscape evidence from Dr Dennis Williamson	SCA
17	21 Sept 21	Correspondence – PPV to all parties advising of Panel's position on request for Cultural Heritage Management Plan	PPV
18	"	Correspondence – Permit Applicant to Panel advising that the Applicant does not wish for Mr Cummins to attending Hearing to be questioned (Direction 14)	Ms Irene Argeres, White & Case for the Permit Applicant
19	22 Sept 21	Correspondence – PPV to all parties advising of Test Zoom session to be held on Tuesday 12 October 2021 by East Gippsland Design	PPV
20	23 Sept 21	Letter – DELWP to all parties responding to Panel Directions	DELWP
21	1 Oct 21	Letter – PPV response to Ms A Thompson regarding hosting of hearing	PPV
22	4 Oct 21	Expert Witness Statement – Christophe Delaire – Noise	Permit Applicant
23	"	Expert Witness Statement – Aaron Organ – Ecology	"
24	"	Expert Witness Statement – Graeme Taylor and Mark Potter – Bushfire Risk and Management	"
25	"	Expert Witness Statement – Ian Jennings – Aviation	"
26	"	Expert Witness Statement – Naomi Brammer – Blade Throw	"
27	"	Expert Witness Statement –Charmaine Dunstan – Road Safety / Driver Distraction	"
28	"	Expert Witness Statement – Hayden Burge – Landscape and Visual	"
29	"	Expert Witness Statement – Dennis Williamson – Visual and Landscape a) Expert Witness Statement – Dennis Williamson – Visual and Landscape – Photographs b) Expert Witness Statement – Dennis Williamson – Visual and Landscape - CV	SCA
30	"	Expert Witness Statement – Les Huson – Noise	"
31	"	a. Expert Witness Statement – David Packham – Fire Risk – Part 11A b. Expert Witness Statement – David Packham – Fire Risk – Part 11B	"
32	6 Oct 21	Letter – Department of Environment, Land, Water and Planning (DELWP) to Panel referring Submission 722	DELWP
33	8 Oct 21	Correspondence – from DELWP providing a list of Section 52 and Section 55 referral responses	"

No.	Date	Description	Presented by
34	11 Oct 21	Correspondence from Mr Graeme Wilson regarding evidence of Ms Charmaine Dunstan of Traffix Group and additional written document including attachment: a. Written statement of Mr Allan Richards	Mr Graeme Wilson
35	"	Permit Applicant - Part A Submission	Permit Applicant
36	"	Draft Planning Permit Conditions a. PA20001063- Latrobe b. PA20001064- Baw Baw c. PA20001066- South Gippsland d. PA20001065- Terminal Latrobe	DELWP
37	"	Correspondence response to Mr Graeme Wilson regarding evidence and additional written document	PPV
38	13 Sept 21	CASA FOI email provided by Ms Caroline Parker	Ms Caroline Parker
39	12 Oct 21	Errata to Expert Witness Statement of Dennis Williamson	SCA
40	"	Correspondence response to matters raised by Ms Dominica Tannock, D S T Legal for SCA including attachment a. Memo Delburn Wind Farm - W&C advice on clause 52.32 Prohibition Zone (2 August 2021)	Permit Applicant
41	14 Oct 21	Distribution List and Timetable (Version 2)	PPV
42	"	Correspondence from Ms A Thompson expressing concerns regarding video conferencing hosting and provision of unredacted submissions to Permit Applicant	Ms Annette Thompson
43	"	Correspondence between SCA and Permit Applicant regarding landscape and visual impact and possible site inspection of Permit Applicant expert, Mr Hayden Burge	SCA
44	14 and 15 Oct 21	Correspondence between SCA and Permit Applicant regarding survey report and measurements including attachments: a. W&C advice on clause 52.32 Prohibition Zone (2 August 2021) b. Survey point coordinates	Permit Applicant
45	15 Oct 21	Submission analysis prepared by Mr David White	Mr David White
46	"	Expert witness conclave statements a. Conclave Statement - Bushfire b. Conclave Statement - Landscape and visual c. Conclave Statement - Noise	Permit Applicant
47	"	Correspondence between SCA and Permit Applicant regarding manufacturer specification data	"

No.	Date	Description	Presented by
48	"	Country Fire Authority (CFA) Part A Submission	Mr Kevin Hazell, Bushfire Planning for CFA
49	"	SCA Part A Submission	SCA
50	"	DELWP Part A Submission	DELWP
51	"	Latrobe City Council Part A Submission	Ms Karen Egan, Latrobe City Council
52	"	Department of Transport (DoT) Part A Submission	Mr Glenn Skoien, DoT
Hearing Week 1			
53	18 Oct 21	Permit Applicant Day 1 Documents a. Correspondence from HVP plantations dated 12 October 2020 regarding native vegetation offset b. Correspondence from Latrobe CC dated 12 October 2021 regarding changes to instrument approach procedures c. Correspondence from Golder dated 28 September 2021 regarding EPA submission d. Correspondence between OSMI, Latrobe CC and Airservices regarding Project (as requested by C Parker) e. Permit Applicant draft preferred planning permit conditions: i. Applicant's Working Draft Conditions for Terminal Station - Latrobe (clean) V1. 18.10.21 ii. Applicant's Working Draft Conditions for Terminal Station - Latrobe (mark-up) V1. 18.10.21 iii. Applicant's Working Draft Conditions for Wind Energy Facility - Latrobe (clean) V1 18.10.21 iv. Applicant's Working Draft Conditions for Wind Energy Facility - Latrobe (mark-up) V1 18.10.21 f. Applicant's Opening Remarks g. Applicant's Opening Remarks (Attachments) h. Applicant's Opening Remarks (Ecology) i. Evidence in chief presentation – Ecology (A Organ)	Permit Applicant
54	"	Project Distances - Moe	SCA
55	19 Oct 21	Correspondence – Threshold Issue a. Latrobe Structure Plan – Background Report August 2007	"

No.	Date	Description	Presented by
		b. Amendment VC82 Explanatory Report c. Growth Areas Authority Strategic Outlook for Moe-Newborough & Lake Narracan August 2013 d. *Hopkins v Minister for Planning* [2020] VCAT 1124	
56	"	Permit Applicant Day 2 Documents a. Applicant's Opening Remarks (Noise) b. Evidence in chief presentation – Noise (C Delaire) c. Applicant's Opening Remarks (Aviation) d. Evidence in chief presentation – Aviation (I Jennings)	Permit Applicant
57	20 Oct 21	Ruling on Request to Vacate Hearing to Consider Threshold Issue	PPV
58	"	Permit Applicant Day 3 Documents a. Applicant's Opening Remarks (Bushfire Risk) b. Evidence in chief presentation – Bushfire Risk (G Taylor and M Potter) c. Bushfire Risk Experts – Topic Allocation d. CFA Guidelines for Renewable Energy (March 2021) e. AFAC Wind Farms and Bush Fire Operations Guideline (25 October 2018) f. Applicant's Opening Remarks (Visual Impacts) g. Evidence in chief presentation – Landscape Visual (H Burge)	Permit Applicant
59	"	Impact of wind farms on local temperatures a. Wind farms cause more environmental impact than previously thought - Leah Burrows, October 17, 2018 b. Satellite Observations of Wind Farm Impacts on Nocturnal Land Surface Temperature in Iowa – Ronald Harris, Geng Xia and Liming Zhou, December 2014 c. Observed Thermal Impacts of Wind Farms Over Northern Illinois, Lauren M. Slawsky, Liming Zhou, Somnath Baidya Roy, Geng Xia, Mathias Vuille and Ronald A. Harris, 2015	Ms Annette Thompson
60	21 Oct 21	Permit Applicant Day 4 Documents a. Applicant's Opening Remarks (Blade Throw and Driver Distraction) b. Evidence in chief presentation – Blade Throw (N Brammer) c. Evidence in chief presentation – Driver Distraction (C Dunstan)	Permit Applicant

No.	Date	Description	Presented by
61	"	Permit Applicant draft preferred planning permit conditions (Word versions): a. Applicant's Working Draft Conditions for Terminal Station - Latrobe (clean) V1. 18.10.21 b. Applicant's Working Draft Conditions for Terminal Station - Latrobe (mark-up) V1. 18.10.21 c. Applicant's Working Draft Conditions for Wind Energy Facility - Latrobe (clean) V1 18.10.21 d. Applicant's Working Draft Conditions for Wind Energy Facility - Latrobe (mark-up) V1 18.10.21	"
Hearing Week 2			
62	22 Oct 21	DELWP Part B Submission including draft planning permit conditions a. PA20001066-DELWP Draft Conditions South Gippsland b. PA20001063 DELWP Draft Conditions Latrobe c. PA20001064 DELWP Draft Conditions Baw Baw d. PA20001065 DELWP Draft Conditions Terminal Latrobe	DELWP
63	"	HVP Plantations - Submission	Mr Tony O'Hara, HVP Plantations
64	25 Oct 21	Permit Applicant Day 5 Documents a. Permit Applicant – Part B Submission b. Permit Applicant – Submissions regarding Prohibition Zone c. Permit Applicant – Turbine dimensions used in assessment d. Permit Applicant – Plan of wind turbine spacing e. Correspondence from Siemens Gamesa regarding sound power level data dated 18 October 2021 f. Correspondence from EPA regarding response to Project dated 21 October 2021 g. McLachlan & Ors v Mid Murray Council & Tilt Renewables Australia Pty Ltd [2018] SAERDC 15 h. Fact sheet regarding species at potential risk to wind turbine collisions at the Victorian population (undated) i. Fact sheet regarding bird and bat mortality data collected by Victorian Wind Farms (undated) j. Farfan et al, 'What is the impact of wind farms on birds – A case study in southern Spain' (2009) k. Lumsden et al, 'Developing a science-based approach to defining key species of bird and bats of	Permit Applicant

No.	Date	Description	Presented by
		concern from wind farm developments in Victoria' (September 2019) l. Moloney et al, 'Investigation of existing post-construction mortality monitoring at Victorian wind farms to assess its utility in estimating mortality rates' (September 2019)	
65	"	SCA – Part B Submission including attachments a. Project Distances Moe v2 b. Urban Area Report c. Instrument CP102664 d. ABS Maps _ Australian Bureau of Statistics - Moe-Morwell-Traralgon e. ABS Maps _ Australian Bureau of Statistics – Moe f. ABS Maps _ Australian Bureau of Statistics - Urban Centre map g. Latrobe34zn h. Latrobe Planning Scheme relevant clauses i. Dwellings Layout Nearmap j. NZS 6808-2010 Acoustics - Wind farm noise_1 k. EPA SA Guidelines l. SCA Objection - Proposed Delburn Wind Farm	SCA
66	26 Oct 21	Latrobe City Council – Part B Submission a. Submission Presentation – Latrobe City Council	Ms Karen Egan
67	"	Expert Witness Presentation – Les Huson – Noise	SCA
68	"	Winkelman, J.E, 'Bird-wind turbine investigations in Europe. National Avian-Wind Power Planning Meeting' (July 1994)	Permit Applicant
69	"	Expert Witness Presentation – Dennis Williamson – Visual and Landscape	SCA
70	"	SCA Leadership Submissions a. Darryle Gee - Chairman b. Jacinta Van Eede – Vice Chair c. Gabrielle Armstrong – Secretary	"
71	"	SCA Submission Presentation documents a. Victoria Settlement Framework - VPP current, page 8 b. Map Regional Victoria Settlement Framework specified in VPP 2011-page 16 c. Gippsland Regional Growth Plan specified in current VPP page 17 d. VC82 Reasons for Intervention Approval Gazettal e. VC82 Explanatory Report	"

No.	Date	Description	Presented by
72	27 Oct 21	Response to questions raised in Hearing – HVP Plantations	Ms Ruth Ryan, HVP Plantations
73	"	a. Country Fire Authority Part B Submission 27 Oct 2021 b. Country Fire Authority Conditions Submission 27 Oct 2021 c. Country Fire Authority Part B Submission Visual aids 27 Oct 2021	CFA
74	"	Response to request for pre-and post- construction of the Delburn Fires as generated by the Phoenix RapidFire tool for 30th of January including attachments a. Phoenix Modelling - DWF inputs b. Pre Dev 30th Jan-Weather Flame Suppression c. Post Dev 30th Jan - Weather Flame Suppression	Ms Caroline Parker and PPV
75	"	Statewide Fires Overview	PPV
76	"	SCA Submission Presentation Notes including: a. Statutory Auditor Correspondence b. Proxy Locations c. Blade Throw Incident – Image 1 d. Blade Throw Incident – Image 2	SCA
77	"	Distribution List and Timetable (Version 3)	PPV
78	28 Oct 21	Department of Transport Part B Submission a. Strzelecki Highway Overtaking Lane (south of Driffield) b. PA20001063-Draft Conditions-Latrobe WEF - DoT w-p conditions - 28 October 2021 c. PA20001065-Draft Conditions-Terminal Latrobe – DoT w-p comments - 28 October 2021 d. Planning Panels Victoria (2008) Woolsthorpe Wind Farm Panel Report, February 2008	Mr Glenn Skoien
79	"	Images used in Expert Witness – David Packham – Fire Risk presentation	SCA
Hearing Week 3			
80	"	Submission – Natasha Blake a. Video - 165 Macintoshs Road, Boolarra	Ms Natasha Blake
81	"	Submission – Rosemary Parker	Ms Rosemary Parker
82	"	Submission – Annette Thompson a. Senate Select Committee on Wind Turbines - Final Report - page 96 b. Waubra Wind Farm	Ms Annette Thompson

No.	Date	Description	Presented by
83	"	Submission – Lynette & David White a. Written submission	Mrs and Mr White
84	"	Submission –Donna & Anthony Lawless a. Driffield Fire Brigade Assignment Area 2021	Mrs and Mr Lawless
85	"	a. Submission - Mary Orr b. Submission - Stuart Orr c. The Gippsland Farmer d. Koala Surveys e. Sleep Disturbances f. BDCG Community Poll - a g. BCDG Community Poll - b	Mrs and Mr Orr
86	"	Submission – Caroline Parker a. Link to video	Ms Caroline Parker
87	3 Nov 21	Submission – Luigi De Fanti	Mr Luigi De Fanti
88	"	Submission – Sylvia Kuehn-Sauppe a. VC212 35_07 trac b. VC212 Reasons for intervention Approval Gazetted c. Addendum to submission	Ms Sylvia Kuehn-Sauppe
89	"	Submission – Gabrielle Armstrong a. Written submission	Ms Gabrielle Armstrong
90	"	Submission – Ron Armstrong	"
91	"	Submission – Kerry Buckley	Mr Kerry Buckley
92	"	Submission – Shirley & Tim Buckley	Ms Shirley Buckley
93	"	Submission – Carolyn & David Ballek a. Hansen et al., 2019 b. Micic et al., 2018 c. Shepherd et al 2011	Dr Carolyn Ballek
94	"	Submission – Amanda White	Ms Amanda White
95	"	Submission – Emily Kinghorn	Ms Emily Kinghorn
96	"	Submission – Jessica & Andrew Taylor a. Written submission	Ms Jessica Taylor
97	"	Submission – Sharon Taylor a. Written submission	Ms Sharon Taylor
98	"	Submission – Terry Bevan a. Biosis Report b. Blade Area c. Images 1	Mr Terry Bevan

No.	Date	Description	Presented by
		d. Images 2	
99	"	Submission – Caitlin Tompsett a. Written submission b. Animated PowerPoint Presentation	Ms Caitlin Tompsett
100	3 Nov 21	Panel Timetable (Version 4)	PPV
101	28 Oct 21	Letter from Dr Dennis Williamson	SCA
102	3 Nov 21	Submission – Valerie & David Taylor	Mrs and Mr Taylor
103	"	Submission – Jane Anderson	Mr Alistair Edgar on behalf of Ms Jane Anderson
104	"	Submission – Jacqueline & Mark Hyett a. Written submission	Mrs and Mr Hyett
105	"	Submission – Louise Widdowson	Ms Louise Widdowson
106	"	Submission – Victorian Farmers Federation a. Right to Farm b. Managing Entry to Farms c. Renewable Energy and Energy Efficiency Policy Statement Meeting June 2021 d. Climate Change Policy	Ms Georgia Tsebelis on behalf of the Victorian Farmers Federation
107	"	Submission – Catheryn Thompson	Ms Catheryn Thompson
108	"	Submission – Graeme Robert Wilson a. Submission to Minister Wynne b. Letter from Mr Stephen Duncan regarding "Non-Flammable Oils" c. Letter from Mr Alan Richards d. Links to YouTube videos	Mr Graeme Wilson
109	"	Submission – Dianne Cascianelli a. Photo 1 b. Photo 2	Ms Dianne Cascianelli
110	4 Nov 21	Submission – Tim Fleay	Mr Tim Fleay
111	"	Submission – Latrobe Valley Sustainability Group	Mr Danny Caffrey
112	"	a. Submission – Sally Gee b. Submission – Darryle Gee c. Video - Creamery Road Fire 2009	Mr Darryle Gee
113	"	Submission – Jacinta Van Eede a. Written submission	Ms Jacinta Van Eede

No.	Date	Description	Presented by
114	"	Submission – Debra & Kenneth Brownscombe	Mr Kenneth Brownscombe
115	"	Letter from David Packham – Fire Risk	SCA
116	5 Nov 21	Submission – Karen Zipkas	Ms Karen Zipkas
117	"	Submission – Strzelecki Sustainable Futures a. FBCDG Community Poll	Ms Catheryn Thompson
118	"	Submission – Doug Steley	Mr Doug Steley
119	7 Nov 21	Draft Conditions – Rosemary Parker	Ms Rosemary Parker
120	"	Draft Conditions – Lynette & David White	Mr David White
121	"	Draft Conditions – Jacqueline & Mark Hyett	Mr Mark Hyett
122	"	Draft Conditions – Jessica & Andrew Taylor	Ms Jessica Taylor
123	"	Draft Conditions – Emily Kinghorn	Ms Emily Kinghorn
124	"	Draft Conditions – Sharon Taylor	Ms Sharon Taylor
125	"	Draft Conditions – Graeme Wilson	Mr Graeme Wilson
126	"	Draft Conditions – Kerry Buckley	Mr Kerry Buckley
127	"	Draft Conditions – Department of Transport	Mr Glenn Skoien
128	"	Draft Conditions – Alicia Teska	Dr Alicia Teska
129	"	Draft Conditions – SCA	SCA
130	"	Copy of statement provided to Minister Richard Wynne	Mr Robert Kiddell, Delburn Consultants
131	"	Draft Conditions – Valerie & David Taylor	Mrs and Mr Taylor
132	"	Written submission – Simon Pickett	Mr Simon Pickett
133	9 Nov 21	Comments in relation to Latrobe Regional Airport Board Community Asset Committee a. Latrobe Regional Airport Board Community Asset Committee Minutes 8 November 2021	Latrobe City Council
134	10 Nov 21	Correspondence from CFA in response to Panel questions	CFA
135	11 Nov 21	Permit Applicant Closing Documents a. Applicant's Part C Submissions (Bushfire Risk) b. Applicant's Proposed Conditions for Wind Energy Facility - Latrobe V2 (11 November 2021) c. Applicant's Proposed Conditions for Terminal Station - Latrobe - V2 (11 November 2021) d. Applicant's response to CFA's Recommended Conditions (11 November 2021) e. Charmaine Dunstan Memorandum on Crash Review	Permit Applicant

No.	Date	Description	Presented by
		f. Hayden Burge LVIA Supplementary Report (11 November 2021) g. Letter from Ian Jennings on Aviation Permit Conditions (10 November 2021) h. Applicant's Part C Submissions	
136	"	Submission – Voices of the Valley	Ms Wendy Farmer
137	"	Submission – Alicia Teska a. Written submission	Dr Alicia Teska
138	"	Submission – Friends of the Earth	Mr Pat Simons
139	"	Response to questions – David Packham	SCA

Appendix D Panel preferred version of the planning permits

D1 PA2001063 Latrobe Planning Scheme (Latrobe Wind Energy Facility)

What the permit would allow:

The use and development of land for a wind energy facility and anemometer; including the construction of buildings and the carrying out of works; buildings and works associated with the removal, destruction or lopping of native vegetation; the alteration of access to a road in a Road Zone, Category 1; and the construction or putting up for display of business identification signs.

DEVELOPMENT PLANS

1) Before development starts, amended development plans must be submitted to, approved and endorsed by the responsible authority. When endorsed the plans will form part of this permit.

   The plans must be fully dimensioned, drawn to a scale. They must be generally in accordance with the application plans (Dwf_Ovr_042-01a-V3-5 Planning Zone Rdz1 (Rev 01a), Dwf_Ovr_36-04a-V3-5 Site Plan (Rev 3.5), Dwf_Ovr-38-02a-V3-5 - Native Veg Impact Map (Rev 02a), Figure 2 Overview 2, 2a, 2b, 2c, 2d, 2e, 2f, 2g Ecological Features – Latrobe City (Ecology And Heritage Partners, 30 June 2021), Wind Turbine Generator Typical Elevation (Delburn Wind Farm Rev F (23/04/2021), Vestas Hardstand Type A - Boom Crane – Pages 1, 2 And 3 Of 3 *Drawing No. 5.1 (13/11/2019), Vestas Hardstand Type B - Boom Crane – Pages 1, 2 And 3 Of 3 *Drawing No. 5.1 (13/11/2019), Vestas Corridor Scenarios Drawing No 3.2 (Rev 1 (14/02/2020), Vestas Corridor Scenarios Drawing No 1.1 (Rev 1 (30/06/2020), Operations & Maintenance Facility – Site Plan (Rev D (23/04/2021), Guyed Lattice Mast Typical Elevation (Rev A, 27/04/2021), Visitor Centre Site Plan (Rev D, 26.04/2021), Indicative Business Identification Sign (16/10/2020)) but modified to show:

   a) the materials and finishes of the wind energy facility;
   b) elevations to all buildings proposed within the Operations and Maintenance Facility;
   c) Native Vegetation Removal Plans must be drawn to scale with a key, north point, dimensions and geo-references (such as VicGrid94 co-ordinates) and be modified to clearly show:
      i) the location and identification of the land affected by this permit, including standard parcel identifiers for the affected and adjacent land and road names;
      ii) the location and area of all native vegetation present, including large trees within patches and scattered trees, that are permitted to be removed under this permit
      iii) all areas of native vegetation to be retained;
      iv) native tree protection zones of trees to be retained next to construction impact zones (unless included in a 15 metre buffer zone);
      v) native vegetation protection zones (no-go zones) for native vegetation to be retained next to construction impact zones.
   d) apart from the connection between the Terminal Station and the existing 220kV transmission line and the cable connection points within junction boxes, all power lines are to be underground;
   e) details of aviation safety lighting if required; and
   f) a Micro-Siting Plan identifying a footprint at ground level within which each turbine may be located.

SPECIFICATIONS

Panel note: the specification will need to be tailored for the Baw Baw and South Gippsland permits.

2) The wind energy facility must meet the following requirements:
   a) subject to condition 5, the wind energy facility as that part of the Delburn Wind Farm within the Latrobe City Council Municipality must comprise no more than 28 wind turbines with the following specifications:
      i) the overall maximum height of the wind turbines (to the tip of the rotor blade when vertical) must not exceed 250 metres above foundation level;
      ii) wind turbines must be mounted on a tubular tower with a hub-height of no greater than 168 metres above foundation level;
      iii) each wind turbine is to have not more than three rotor blades, with a rotor diameter of no greater than 180 metres;
      iv) the ground clearance from the bottom of the blades to the ground level is not less than 40.5 metres.
   b) the transformer associated with each wind generator must be enclosed within the tower or nacelle structure;
   c) the wind turbine towers, nacelles and rotor blades must be of non-reflective finish and colour that blends within the landscape to the satisfaction of the Minister for Planning;
   d) the colours and finishes of all other buildings and ancillary equipment must be such as to minimise the impact of the development on landscape to the satisfaction of the Minister for Planning;
   e) access tracks within the site are to be sited and designed to minimise impacts on overland flows, soil erosion, the landscape value of the site, environmentally sensitive areas and, where appropriate, the land use activities on the land to the satisfaction of the Minister for Planning;
   f) all wind turbines must be set back at least 100 metres from boundaries to non-participating neighbouring properties and roads which are formed roads at the date of this permit;
   g) within the micro-siting footprint, wind turbines should be set back from the Strzelecki Highway to the maximum extent possible;
   h) Wind turbines must be located no less than 300 metres apart.
   i) lightning protection devices must be installed on each wind turbine;
   j) monitoring towers greater than 30 metres must be clearly marked and guy wires fitted with markers;
   k) fire detection and suppression systems must be installed in each wind turbine nacelle;
   l) monitoring systems must be installed in each wind turbine tower, to detect temperature increases in the turbines and shut them down when a threshold temperature is reached; and
   m) each wind turbine generator must be certified to be in accordance with the International Electrotechnical Commission (IEC) standard 61400 Part 1 (Design Requirements), Part 23 (Full-scale structural testing of rotor blades) and Part 24 (Lighting Protection).

DEVELOPMENT IN ACCORDANCE WITH ENDORSED PLANS

3) The use and development as shown on the endorsed plans must not be altered or modified without the written consent of the Minister for Planning, except that:
   a) the micro-siting of wind turbines, access tracks, underground cabling or buildings as defined below, does not require consent, and will be viewed as generally in accordance with the endorsed plans provided that:
      i) the developer of the wind energy facility has written advice from appropriately qualified experts as relevant to the infrastructure being micro-sited that the alteration or modification will not result in material adverse change in landscape, vegetation, cultural heritage, visual, shadow flicker, noise, fire risk or aviation impacts compared to the endorsed plans;

ii) no turbine located more than a kilometre from a dwelling is moved to within 1km of a dwelling that existed on 23 December 2020 which was not the subject of written consent of the owner as at that date, unless evidence has been provided to the satisfaction of the Minister for Planning that the owner of the dwelling has consented in writing to the location of the turbine; and

iii) the micro-siting does not result in the removal of any additional native vegetation unless that removal has already been authorised by a planning permit.

For the purposes of this condition:

- The measurement of any distance between a dwelling and a turbine must be from the centre of the tower at ground level to the closest point of the dwelling.
- 'Micro-siting of turbines' means:
  - an alteration to the siting of a turbine by not more than 100 metres; and
  - any consequential changes to access tracks, overhead powerlines, and underground cabling.
- Plans and global positioning system coordinates of the relocated turbines and copies of the advice referred to in condition 3(a)(i) must be provided to the Minister for Planning.
- Micro-siting changes do not require any amendments to the development plans endorsed under condition 1.

STAGING

4) The use and development may be completed in stages in accordance with the endorsed Development Plans. The corresponding obligations arising under this permit may be completed in stages.

AVIATION

5) Development must not commence until:
   a) Airservices Australia confirm that the changes to the Latrobe Valley Airport Runway 03 RNAV (GNSS) Approach [YLTV RNAV (GNSS) RWY 03 LTVGN01] as recommended in the report of Ian Jennings from Chiron Aviation Consultants will be implemented; and
   b) Either:
      i) Airservices Australia confirm that changes to the Runway 21 Instrument Approach Procedures which result in PANS-OPS airspace no longer being penetrated by the wind turbines will be implemented as approved by the Latrobe Regional Airport Board; or
      ii) turbine T03 is capped at a tip height of 507m AHD and turbine T04 is capped at a tip height of 535m AHD and supporting evidence of a suitably qualified aviation consultant demonstrates that no changes are required to the Runway 21 Instrument Approach Procedures.

LANDSCAPING

6) Before development starts, an Off-Site Landscaping Program must be submitted to, approved and endorsed by the responsible authority. When endorsed the Off-Site Landscaping Program will form part of this permit.

   The Off-site Landscaping Program must:
   a) provide for off-site landscaping or other treatments to reduce the visual impact of the turbines from any dwelling within 6 kilometres of a wind turbine(s) where a turbine is visible from the dwelling, to the satisfaction of the responsible authority;
   b) include a methodology for determining:
      i) the type of landscaping treatments to be proposed; and

ii) a timetable for establishing and maintaining the landscaping for at least two years

c) include a process for making offers to be available for acceptance 1 year post completion of construction to either:
   i) establish and maintain the landscaping on the landowner's land, for a period of at least two years; or
   ii) make a cash contribution in lieu (which must be sufficient to cover the cost of the landowner establishing and maintaining the landscaping, for a period of at least two years).

d) include a process for recording:
   i) offers that have been made to landowners;
   ii) whether or not the offers are accepted; and
   iii) when and how offers are actioned following acceptance.

e) include a process for the preparation and provision of progress reports regarding the implementation of the endorsed Off-site Landscaping Program to be provided to the responsible authority annually from the date the Off-Site Landscaping Program is endorsed until 3 years post construction and at other times on request; and

f) include a requirement that landscaping treatments proposed for a dwelling in a Bushfire Management Overlay are reviewed by a suitably qualified bushfire risk consultant to ensure the bushfire risk from landscaping is acceptable.

7) The endorsed Off-site Landscaping Program:
   a) must be implemented to the satisfaction of the responsible authority; and
   b) must not be altered or modified without the written consent of the responsible authority.

NOISE

High Amenity Noise Environment

8) For the purposes of the development enabled by this planning permit, the Rural Living Zone Schedule 2 area northwest of Boolarra is designated ''high amenity'' and should be treated as such when considering wind farm noise under the *New Zealand Standard 6808:2010 Acoustics – Wind Farm Noise*.

Pre-Construction Noise Assessment

9) Before development starts, a pre-construction (predictive) noise assessment report demonstrating that the proposal can comply with the *New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise*, including an assessment of whether a high amenity noise limit is applicable under Section 5.3 of the *New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise* for any area in addition to that defined in Condition 8 must be submitted to the satisfaction of the responsible authority. The pre-construction noise assessment is to be prepared in accordance with the *New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise* by a qualified acoustic consultant and specifically address:
   a) the final turbine selection and layout;
   b) measurements at the most sensitive receivers or at representative receivers close by;
   c) measurement and modelling uncertainty and statistical variation in noise measurements, wind speed and noise modelling be specifically identified and considered in determining the Project turbine location and application of the Standard criteria;
   d) rounding of measured and calculated noise levels to the nearest decibel; and
   e) compliance with the applicable noise limits at surrounding receivers, including those in high amenity areas.

10) The pre-construction noise assessment report must be accompanied by an environmental audit report prepared under Part 8.3, Division 3 of the Environment Protection Act 2017 by an environmental auditor appointed under Part 8.3, Division 1 of the Environment Protection Act 2017. The environmental audit report must verify that the acoustic assessment undertaken for the purpose of the pre-construction (predictive) noise assessment report has been conducted in accordance with the New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise.

SHADOW FLICKER

11) Shadow flicker from the wind energy facility must not exceed 30 hours per annum at any dwelling that existed at 23 December 2020, unless an agreement has been entered into with the relevant landowner waiving this requirement. The agreement must be in a form that applies to the land comprising a pre-existing dwelling for the life of the wind energy facility, to the satisfaction of the responsible authority, and must be provided to the responsible authority upon request.

TELEVISION AND RADIO RECEPTION AND INTERFERENCE

12) Before development starts, a Satellite Communications, Television, Mobile Phone, NBN and Radio Reception Strength Survey must be submitted to, approved and endorsed by the responsible authority. Once endorsed, the survey will form part of the permit.

13) The Satellite Communications, Television, Mobile Phone, NBN and Radio Reception Survey must be to the satisfaction of the responsible authority, and must:
    a) be carried out by a suitably qualified and experienced independent television, mobile phone. NBN and/or radio monitoring specialist or specialists; and
    b) include testing at selected locations within 5 kilometres of the facility (based on where impacts may be expected, as identified in the DNV GL 'Delburn Wind Farm EMI Assessment' PP227556-AUME-R-03, Rev. A dated 6 November 2020) to enable the average television, mobile phone, NBN and radio reception strength to be determined.

14) If a complaint is received after the installation of the wind turbine facility on Satellite Communications, Television, Mobile Phone, NBN and Radio Reception Survey at a dwelling that existed at 23 December 2020 within 5 kilometres of the site, the operator must:
    a) investigate the complaint in accordance with the Complaint Investigation and Response Plan required by this permit; and
    b) if the investigation indicates that the facility has had a detrimental impact on the quality of reception, restore reception at the pre-existing dwelling to at least the quality determined in the Satellite Communications, Television, Mobile Phone, NBN and Radio Reception Strength Survey required by this permit, to the satisfaction of the responsible authority.

TRAFFIC MANAGEMENT

Pre-construction public road survey

15) Before development starts, a Pre-Construction Public Road Survey must be submitted to and endorsed by the responsible authority. Once endorsed the survey will form part of the permit.

    The Pre-Construction Public Road Survey must assess the suitability, design, condition and construction standard of the relevant public roads and access points, and must:
    a) be prepared by a suitably qualified and experienced independent civil or traffic engineer

b) include recommendations, if any, regarding upgrades required to accommodate construction traffic, and to meet the requirements of condition 22; and
c) be approved by the relevant road management authority prior to submission to the responsible authority for endorsement.

Traffic Management Plan

16) Before development starts, a Traffic Management Plan must be submitted to and endorsed by the responsible authority. When endorsed the Traffic Management Plan will form part of this permit.

The Traffic Management Plan must:
a) be prepared by a suitably qualified and experienced independent civil or traffic engineer;
b) identify appropriate traffic routes to be used by construction traffic;
c) identify appropriate over dimensioned routes to be used for over dimensioned trips;
a) specify measures to be taken to manage traffic impacts associated with the construction of the wind energy facility including specific locations where truck wheel wash stations will be located;
d) include a program to inspect, maintain and (where required) repair public roads used by construction traffic;
e) state that all public roads will be reinstated to the condition they were in prior to the commencement of construction works at the cost of the permit holder;
f) agreed processes and practices for the protection and maintenance of the existing road surface along all public roads proposed to be used during the works for works related activities;
g) details including road safety audits and plans of any works required to upgrade public roads; and
h) be approved by the Head of Transport for Victoria in consultation with Latrobe City Council prior to submission to the responsible authority.

17) The endorsed Traffic Management Plan must be implemented to the satisfaction of the Head, Transport for Victoria and the responsible authority. The endorsed Traffic Management Plan must not be altered or modified without the written consent of the Head, Transport for Victoria and the responsible authority. Any proposed alteration or modification to the endorsed Traffic Management Plan must be prepared in consultation with the relevant road management authority prior to submission to the responsible authority for endorsement.

Traffic upgrade works

18) Where traffic upgrade works are recommended or required under the Pre-construction Public Roads Survey, endorsed Traffic Management Plan, or any other plan report required by any condition of this permit, the following documents must be submitted to, approved and endorsed by the responsible authority prior to commencement of the traffic upgrade works:
a) detailed plans for the required works; and
b) a program indicating when the works will be undertaken.

The plans / program required under this condition must be approved by the relevant road management authority. Traffic upgrade works must be completed to the satisfaction of the relevant road management authority.

Department of Transport (Determining)

19) Before development starts, a pre-design and construction meeting must be had with the Department of Transport (Gippsland Region) to ensure compliance with access and maintenance requirements including design and plan submissions.

20) Before any works commence within a declared arterial road reserve:
    a) Functional layout plans must be submitted to and approved by the Head, Transport for Victoria; and
    b) a working within the road reserve consent must be obtained from the Head, Transport for Victoria.

21) Before development starts, the permit holder must provide a security fee to the Head, Transport for Victoria for the duration of the defects liability period for works within the road reserve.

22) Unless with the agreement of the relevant road authority, all temporary access and roadworks must be returned to an acceptable standard to the satisfaction of the relevant road management authority

23) Any required signage located within the road reserve of the Strzelecki Highway must be approved by the Head Transport for Victoria.

24) The operator of the wind energy facility must inspect each wind turbine generator at least annually for signs of blade degradation and maintain the wind turbine blades to the satisfaction of the responsible authority

ENVIRONMENTAL MANAGEMENT PLANS

Environmental Management Plan

25) Before development starts, an Environmental Management Plan must be submitted to, approved and endorsed by the responsible authority. When endorsed the Environmental Management Plan will form part of this permit.

    The Environmental Management Plan must:
    a) describe measures to minimise any amenity and environmental impacts of the construction and decommissioning of the facility;
    b) be generally in accordance with the Delburn Wind Farm Environmental Management Plan Framework (v2.0 dated 11 December 2020); and
    c) include organisational responsibilities, and procedures for staff training and communication.

26) The endorsed Environmental Management Plan:
    a) must be implemented to the satisfaction of the responsible authority; and
    b) must not be altered or modified without the written consent of the responsible authority.

Construction Environmental Management Plan

27) The Environmental Management Plan must include a Construction Environment Management Plan (CEMP), which must include:
    a) procedures to manage dust and noise emissions, erosion, mud and stormwater run-off;
    b) procedures to remove temporary works, plant, equipment, buildings and staging areas, and reinstate the affected parts of the land, when construction is complete;
    c) details of sediment and erosion control measures to be implemented;
    d) details of the sediment control measures to treat and manage runoff;

e) a monitoring program (including, as a minimum, visual monitoring during construction activities) and an investigation and response plan; and
f) a condition that no stockpiles or storage of material is to be stored on the gas pipeline easement at any time.

Bats and Avifauna Management Plan

28) The Environmental Management Plan must include a Bat and Avifauna Management Plan (BAM Plan), which must focus on managing and mitigating any bird and bat strike events arising from operation of the wind farm. The plan must:
   a) include a statement of the objectives and overall strategy for minimising bird and bat strike arising from the operation of the facility
   b) include a mortality monitoring program of at least two years duration that commences when the first turbine is commissioned or such other time approved by DELWP (Environment Portfolio). The monitoring program must include:
      i) procedures for reporting any bat strikes to DELWP (Environment Portfolio) monthly
      ii) information on the efficacy of searches for carcasses of birds and bats, and, where practicable, information on the rate of removal of carcasses by scavengers, so that correction factors can be determined to enable calculations of the likely total number of mortalities; and
      iii) procedures for the regular removal of carcasses likely to attract raptors to areas near turbines
   c) be approved by DELWP (Environment Portfolio) prior to submission to the responsible authority.

29) When the monitoring program required under the BAM Plan is complete, the operator must submit a report to the responsible authority and DELWP (Environment Portfolio), setting out the findings of the program. The report must be:
   a) to the satisfaction of the responsible authority and DELWP (Environment Portfolio); and
   b) made publicly available on the operator's website.

30) After considering the findings of the monitoring program and consulting with DELWP (Environment Portfolio), the responsible authority may direct further investigation of impacts on birds and bats. The further investigation must be undertaken to the satisfaction of the responsible authority and DELWP (Environment Portfolio).

Flora and Fauna Management Plan

31) Before works start, a Flora and Fauna Management Plan must be prepared in consultation with DELWP and completed to the satisfaction of the Secretary of DELWP. The Flora and Fauna Management Plan must include specific measures to avoid, minimise and mitigate potential impacts on flora and fauna within the project site during construction and operation of the project, including but not limited to:
   a) measures to further minimise and mitigate impacts to retained vegetation, in particular endangered Ecological Vegetation Classes;
   b) measures to further minimise and mitigate the removal of large trees and large hollow-bearing trees;
   c) measures to further minimise and mitigate impacts on native fauna during construction and habitat clearance;
   d) measures to prevent and control pathogens, weeds (non-native species) and pest (non-native) animals;
   e) a program for on-going monitoring and adaptive management of listed communities and listed species of flora and fauna within the project site; and
   f) measures to avoid pollutants, contaminated run-off and sediment from entering waterways and waterbodies.

32) Before upgrades (if required) to Nursery Track, the design of the waterway crossing must be submitted to and approved to the satisfaction of the Secretary of DELWP. The waterway crossing must be designed in accordance with the design guidelines specified within the Melbourne Strategic Assessment Publication Growling Grass Frog Crossing Design Standards (DELWP, 2017).

Native Vegetation Management and Offsets

33) Before works start, the permit holder must advise all persons undertaking the vegetation removal or works on site of all relevant permit conditions and associated statutory requirements or approvals.

Tree Protection Fencing

34) Before works start, a native vegetation protection fence must be erected around all scattered trees to be retained within close proximity to the works. This fence will protect the tree by demarcating the tree protection zone and must be erected at a radius of 12 × the diameter at a height of 1.3 metres to a maximum of 15 metres but no less than 2 metres from the base of the trunk of the tree. The fence must be constructed of star pickets/ chain mesh/ or similar to the satisfaction of the responsible authority. The fence must remain in place until all works are completed to the satisfaction of the responsible authority.

Protection of native vegetation and/or trees to be retained

35) Except with the written consent of the responsible authority and the DELWP, within the area of native vegetation to be retained and any tree or vegetation protection zone associated with the permitted use and/or development, the following is prohibited:
    a) vehicular or pedestrian access;
    b) trenching or soil excavation;
    c) storage or dumping of any soils, materials, equipment, vehicles, machinery or waste products;
    d) entry and exit pits for the provision of underground services; and
    e) any other actions or activities that may result in adverse impacts to retained native vegetation.

Native vegetation permitted to be removed, destroyed or lopped

36) The native vegetation permitted to be removed, destroyed or lopped under this permit is 10.592 hectares of native vegetation. The reconciliation of removal and offsets can be undertaken without the need to amend existing permits within 12 months of project completion.

Native vegetation offsets

37) To offset the removal of native vegetation for the Project, the permit holder must secure the following native vegetation offsets in accordance with *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017), before any native vegetation removal can begin:
    a) a species offset of 0.375 general habitat units with a minimum strategic biodiversity score of 0.319 and 8.05 species units of habitat for Strzelecki Gum (*Eucalyptus strzeleckii*) units. The offset must protect 49 large trees in either the general, species or combination across all habitat units protected. The offsets to be located within the West Gippsland Catchment Management Authority boundary or Latrobe City municipal area.

38) Before any native vegetation is removed, evidence the required offset for that section of the project has been secured must be provided to the satisfaction of the responsible authority. This evidence must be either:
    a) an established first party offset site including a security agreement signed by both parties, and a management plan detailing the 10-year management actions and ongoing management of the site; and/or
    b) credit extract(s) allocated to the permit from the Native Vegetation Credit Register that identifies the relevant section of the project.

Offset evidence

39) A copy of the offset evidence will be endorsed by the responsible authority and form part of this permit. Within 30 days of endorsement of the offset evidence, a copy of the endorsed offset evidence must be provided to Planning & Approvals at the Department of Environment, Land, Water and Planning Gippsland regional office via Gippsland.planning@delwp.vic.gov.au.

BUSHFIRE RISK AND MITIGATION

Wind Farm Construction Phase Bushfire Mitigation and Management Plan

40) Before development starts, a Construction Phase 'Bushfire Mitigation and Management Plan' (CBMMP) must be prepared in consultation with the CFA submitted to and approved to the satisfaction of the responsible authority. The CBMMP must:
    a) outline the requirements for working on the site during the fire danger period;
    b) outline the prevention, preparedness, response and recovery arrangements;
    c) set out asset protection zone or defendable space for all infrastructure as appropriate and the maintenance requirements for those areas;
    d) address the CFA Guideline for Renewable Energy Installations (2021);
    e) establish a primary contact person for the community to contact with bushfire related concerns, questions or issues;
    f) outline all permitted activities and the procedures for undertaking these activities during the Fire Danger Period are appropriate under the Country Fire Authority Act 1958, including:
        i) compliance with Total Fire Ban Day restrictions; and
        ii) obtaining permits for any "hot work" activities.
    g) ensuring all Staff, Contractors and site visitors are informed of fire response procedures that follow identified legislative requirements, policies and procedures;
    h) ensuring that all works during the declared Fire Danger Period have appropriate permits from Local Government and CFA;
    i) ensuring that all construction and operational works follow appropriate Work Health and Safety requirements;
    j) ensure all contractors:
        i) are appropriately briefed and understand their legal and policy obligations in relation to managing bushfire risks;
        ii) have appropriate procedures, safe work practices, contingency plans, MSDSs for operation of all equipment, chemicals, flammable materials that may contribute to bushfire risk; and
        iii) have appropriate 'initial' suppression equipment available on site.
    k) implement a policy of 'no work' on declared Code Red Fire danger days;
    l) provide appropriate bushfire training for contractors and staff;
    m) establish emergency assembly areas;
    n) provide fire suppression capability including 'slip-ons', in addition to HVP resources, to enhance response in the development area;
    o) install appropriate signs to assist emergency response crews determine track names, locations and turbines and other infrastructure; and

p) develop policies and procedures that require the following:
   i) vehicles are not to drive off the road surface during the fire danger period;
   ii) upon declaration of a Code Red day, ensure the site is made safe; and
   iii) at each construction site, provide an Emergency Information Container that contains copies of emergency procedures and site maps.

Fire Protection Design

41) The wind energy facility must include the following bush fire design requirements:
   a) an Asset Protection Zone around each turbine of a minimum of 50 metres where all vegetation is removed during the fire danger period;
   b) security fencing around turbines to prevent public access;
   c) fire detection systems, in built fire protection and suppression systems, remote alarming and notification systems in turbines to report potential bushfire risks.
      i) ensure the detection system include arc and smoke detection devices installed as per the manufacturer's specifications;
      ii) install gas suppression system into the electrical cabinets within the nacelle;
      iii) connect the system to the sites SCADA system and ensure that upon activation an alert is received at the control room.;
      iv) implement systems that when multiple alarms are activated, the turbine commences an automatic shutdown procedure; and,
      v) ensure other sensors and indicators are understood to assist with the determination of current fire risk.
   d) cameras on a selection of wind turbines and/or met masts to support early detection of bushfires across the landscape;
      i) the number and locations of cameras will be determined in accordance with the manufacturer's specifications for camera capability and bushfire landscape assessment to ensure adequate coverage over the project site and immediate surrounds;
      ii) ensure the firefighting agencies have ongoing access to the cameras; and
      iii) develop procedures that ensure early notification to fire agencies occurs when smoke or flames are detected.
   e) lightning conductors to dissipate electricity to ground and reduce turbine damage and bushfire risk;
   f) prior to the commencement of construction, install the 5 x 100,000 litre static water supply tanks and ensure they are filled;
   g) access roads and fire protection systems including Water Supply must be constructed in accordance with the CFA Guidelines for Renewable Energy Installations and maintained throughout the operational life of the project;
   h) the visitor information area will be provided with defendable space that ensures that the communal areas will not be exposed to more than 12.5 kW/m² at FDI50; and
   i) the operations and maintenance building will be provided with defendable space that ensures that the building will not be exposed to more than 29kW/m^2.

Wind Farm Operational Phase Bushfire Mitigation and Management Plan

42) Before the wind farm commences operation, an Operational Bushfire Mitigation and Management Plan (OBMMP) must be prepared in consultation with the CFA and submitted to and approved by the responsible authority. The OBMMP must be generally in accordance with the CBMMP but modified to outline requirements for safe operation of the wind energy facility and associated facilities such as the visitor area including specifically addressing the fire danger period. The plan must address the CFA Guidelines on Renewable Energy Installations and include:
   a) prevention, preparedness, response and recovery arrangements;
   b) vegetation management requirements;

c) develop a maintenance regime and undertake regular inspections of all infrastructure in accordance with the manufacturer's specifications;
d) develop bushfire preparedness audits to record all "annual" fire danger season preparedness activities and prevention works;
e) prepare and maintain a communications plan for internal and external stakeholders;
f) outline the minimum firefighting equipment that is to be provided onsite or readily accessible (as per response plan);
g) specify staff and contractor bushfire prevention and suppression training requirements that includes the use of firefighting equipment and appropriate personal protective clothing;
h) specify the minimum maintenance requirement for the APZs around turbines and other buildings/structures;
i) specify maintenance requirements for access roads and tracks to meet industry standards for emergency vehicle access;
j) specify minimum requirements for DWF management and contractor vehicles for firefighting water and basic fire suppression equipment during the declared Fire Danger Period;
k) prepare and maintain induction package for CFA & HVP containing all relevant information on the Wind Farm operations, including specific bushfire response information;
l) prepare and maintain a maintenance program for the 5 x 100,000 litre static water supplies the includes water level and the outlet is in working order;
m) install Emergency Information Containers at locations determined in conjunction with CFA that includes information relating to the wind turbines and the emergency procedures;
n) undertake pre fire danger period checks to ensure firefighting equipment is maintained and the water tanks are full;
o) undertake pre fire danger period checks to ensure the static water supplies are full and maintained;
p) ensure the maintenance of the safety systems imposed by AS3959 is included within the annual checks and maintenance regime;
q) in conjunction with HVP, regularly review the 'operational protocols' to ensure they are current and reflect the various stages of the project and the changing bushfire risk as the project progresses;

<u>Wind turbine specific operational matters to be added in the OBMMP:</u>
r) operating parameters that must be adhered to including maximum operating temperature and wind speed;

<u>Visitor information area specific operational matters to be added in the OBMMP:</u>
s) maintain the surrounding defendable space during the fire danger period;
t) ensure the emergency information signage at the visitor centre is maintained and legible;
u) develop an emergency management plan that outlines the closure of the visitor area on days declared a Total Fire Ban Day and outlines the prevention, preparedness and response arrangements for emergencies at the visitor centre;
v) at the visitor information area, provide emergency contact information for people to contact the operations centre; and
w) ensure the visitors information area car parks can be locked and public access prevented as required.

Panel note: the Applicant preferred an approach to reference the above matters to the report of the Bushfire experts but the Panel considers these need to be included within the permit.

Emergency Planning and Management

Construction Phase Emergency Management Plans

43) Before development starts, a Construction Phase 'Emergency Management Plan' (CPEMP) that outlines the requirements for working with emergency services and responding to bushfires or other emergencies occurring on the wind farm site must be prepared in consultation with the CFA and submitted to and approved by the responsible authority. The plan must outline the engagement and response with emergency services.

Operational Phase Emergency Management Plan

44) Before the wind farm commences operation, an Operational Phase Emergency Management Plan (OPEMP) must be submitted to and approved by the responsible authority. The OPEMP must be generally in accordance with the CPEMP but modified to outline requirements for safe operation of the site during the fire danger period. The plan must outline the additional requirements for operating on the site that addresses the CFA's *Guideline for Renewable Energy Installation (2021)* and AS3745. The plan must include:
    a) incorporate emergency procedures based on identified risks and hazards at the facility, including but not limited to:
        i) bushfire/grassfire; and
        ii) electrical infrastructure faults and fire.
    b) the shutdown procedures in the event of a bushfire in the landscape;
    c) remote shut down procedures for turbine operations during bushfires or reported faults, or at the request of the emergency services;
    d) processes to engage with the fire agencies during bushfires to ensure their directions are being complied with;
    e) emergency prevention, preparedness and mitigation activities;
    f) activities for preparing for, and prevention of emergencies (eg. training and maintenance);
    g) control and coordination arrangements for emergency response (eg. evacuation procedures, emergency assembly areas and procedures for response to emergencies);
    h) the agreed roles and responsibilities of on-site personnel (eg. equipment isolation, fire brigade liaison, evacuation management);
    i) facility description, including infrastructure details, activities and operating hours;
    j) a site plan depicting infrastructure (solar panels, wind turbines, inverters, battery energy storage systems, generators, diesel storage, buildings), site entrances, exits and internal roads; fire services (water tanks, fire hydrants, fire hose reels); and neighbouring properties;
    k) up-to-date contact details of facility personnel, and any relevant off-site personnel that could provide technical support during an emergency;
    l) a manifest of dangerous goods (if required under the Dangerous Goods (Storage and Handling) Regulations 2012);
    m) emergency procedures for credible hazards and risks, including grassfire and bushfire;
    n) procedures for notifying the emergency services;
    o) procedures for evacuating personnel;
    p) a fire management plan must be incorporated into the emergency management plan, that includes all of the fire mitigation measures that will be implemented to reduce the risk of fire so far as is reasonably practicable, established through a risk management process. the fire management plan must specifically address:
        i) risk management measures specific to fire (as above); and
        ii) a fuel (vegetation) reduction and maintenance plan/procedure.
    q) procedures to follow when the fire protection systems are activated; and
    r) detail the requirements for an Emergency Information Container to be installed at each road entry to the site and detail the information the container must contain.

    Panel note: the Applicant preferred an approach to reference the above matters to the report of the Bushfire experts but the Panel considers these need to be included within the permit.

45) Fire water access points must be clearly identifiable and unobstructed to ensure efficient access.

46) Any static fire water storage tank(s) must be:
   a) above ground water tank(s) constructed of concrete or steel;
   b) capable of being completely refilled automatically or manually within 24 hours;
   c) located at vehicle entrances to the facility and must be positioned at least 10m from any infrastructure (electrical substations, inverters etc.);
   d) provided with a hard-suction point, with a 150mm full bore isolation valve, equipped with a Storz connection, sized to comply with the required suction hydraulic performance. (Adapters that may be required to match the connection are 125mm, 100mm, 90mm, 75mm, 65mm Storz tree adapters with a matching blank end cap provided.) The hard-suction point must be:
      i) positioned within four (4) metres to a hardstand area and provide a clear access for emergency services personnel; and
      ii) protected from mechanical damage (i.e. bollards) where necessary.
   e) an all-weather road access and hardstand must be provided to the hard-suction point. The hardstand must be maintained to a minimum of 15 tonne GVM, eight (8) metres long and six metres wide or to the satisfaction of the CFA;
   f) the road access and hardstand must be kept clear at all times;
   g) where the access road has one entrance, a ten (10) metre radius turning circle must be provided at the tank. ;
   h) an external water level indicator must be provided to the tank and be visible from the hardstand area;
   i) signage indicating 'FIRE WATER' and the tank capacity must be fixed to each tank; and
   j) signage must be provided at the front entrance to the facility, indicating the direction to static water tank(s). Signage must be to the satisfaction of CFA.

Fuel/Vegetation Management

47) Fire break(s) must:

   a) At the perimeter, commence from the boundary of the facility or from the vegetation screening (landscape buffer) inside the property boundary.
   b) Be constructed using either mineral earth or non-combustible mulch such as crushed rock.
   c) Be free of vegetation, including grass, at all times.
   d) Be free of all combustible and extraneous materials at all times (e.g., this area must not be used for the storage of materials or the placement of infrastructure of any kind).

48) Surrounding each turbine, the wind farm operator must undertake the following fuel management measures during the Fire Danger Period:

   a) Grass within the facility must be maintained at below 100mm in height during the declared Fire Danger Period.
   b) All leaves and vegetation debris must be removed at regular intervals during the declared fire danger period.
   c) Long grass and/or deep leaf litter must not be present in areas where plant and heavy equipment will be working.
   d) There must be a clearance of at least two (2) metres between the lowest branches and ground level where trees are located within an area of defendable space/APZ
   e) The canopy of any trees must be separated by at least 5 metres

49) All plant and heavy equipment must carry at least a 9-litre water stored-pressure fire extinguisher with a minimum rating of 3A, or firefighting equipment as a minimum when on-site during the Fire Danger Period.

50) Maintenance and repair activities that involve flame cutting, grinding, welding or soldering (hot works) must be performed under a ‘hot work permit’ system or equivalent hazard or risk management process.

Bushfire Risk Familiarisation

51) Prior to commissioning the facility, operators are to offer a familiarisation visit and explanation of emergency procedures to CFA (including local brigades), HVP, FRV and other emergency services. Information on the specific hazards and fire suppression requirements of the facility should be provided during this visit. Arrangements must be made for site familiarisation with the local brigade prior to commissioning of facilities to confirm access arrangements, fire suppression and detection systems, and contact information for at least two persons who may be able to provide information or support during emergencies (24 hours a day).

52) A schedule for ongoing site familiarisation to account for changing personnel, facility infrastructure and hazards should be developed in conjunction with the local CFA brigade.

53) An annual emergency exercise should be conducted at the facility, with an invitation extended to the local CFA brigade to participate.

54) Staff operating and/or working within this facility are required to be trained in:
    a) facility and operational risks and hazards;
    b) facility emergency management roles, responsibilities and arrangements;
    c) the use of any fire-fighting equipment where there is an expectation for staff to undertake first aid firefighting;
    d) the storage, handling and emergency procedures for dangerous goods at the facility; and
    e) the location of first aid facilities and application of first aid equipment.

55) Appropriate monitoring for facility infrastructure must be provided, to ensure that any shorts, faults or equipment failures with the potential to ignite or propagate fire are rapidly identified and controlled, and any fire is notified to 000 immediately.

AUTHORITY CONDITIONS

Ausnet Services (Determining)

56) No wind turbine shall be constructed within 630 metres of AusNet Transmission Group's easement, and no guyed lattice masts shall be constructed within 176 metres of the easement.

57) No buildings or structures are permitted on AusNet Transmission Group's easement other than interface works required for connection of the wind farm electrical system to the transmission line. Design plans for such work must be submitted to and approved in writing by AusNet Transmission Group prior to the commencement of construction.

58) Details of any road or track construction and the installation of services within the easement must be submitted to AusNet Transmission Group and approved in writing prior to the commencement of work on site.

59) Gates must be installed in any new boundary fences that cross the easement to enable access by AusNet Transmission Group vehicles.

60) Natural ground surface levels on the easement must not be altered by the stockpiling of excavated material or by landscaping without prior written approval from AusNet Transmission Group.

61) A Permit to Work Adjacent to Exposed High Voltage Electrical Apparatus' must be obtained prior to the commencement of any works on the easement that involves the use of any plant or equipment exceeding 3 metres operating height.

62) Parking, loading, unloading and load adjustment of large commercial vehicles is not permitted on the easement.

63) All future works in the easement must be submitted to AusNet Transmission Group and approved in writing prior to the commencement of work on site.

APA Group (Determining)

64) Prior to the endorsement of plans in accordance with Condition 1, an electrical hazard study must be prepared in accordance with the requirements of Australian Standard 4853-2012 (for Low Frequency Induction and Earth Potential Rise), in consultation with the APA, and approved and endorsed by the Responsible Authority.

65) The current ground level over the existing high pressure gas pipeline easement is not to be reduced and must be maintained, unless agreed in writing with the pipeline licensee/operator (APA VTS Australia (Operations) Pty Ltd), to the satisfaction of the Responsible Authority.

COMPLAINTS

Complaint Investigation and Response Plan

66) Before development starts a Complaint Investigation and Response Plan must be submitted to, approved and endorsed by the responsible authority. When endorsed the plan will form part of this permit.

The Complaint Investigation and Response Plan must:
a) respond to all aspects of the construction and operation of the wind farm;
b) be prepared in accordance with *Australian/New Zealand Standard AS/NZS 10002:2014 – Guidelines for complaint management in organisations*; and
c) include a process to investigate and resolve complaints (different processes may be required for different types of complaints).

67) The endorsed Complaint Investigation and Response Plan must:
a) be implemented to the satisfaction of the responsible authority; and
b) not be altered or modified without the written consent of the responsible authority.

Publishing information about complaints handling

68) Before the development starts, the following information must be made publicly available and readily accessible from the wind farm project website, or another publicly available resource to the satisfaction of the responsible authority:
a) a copy of the endorsed Complaints Investigation and Response Plan; and
b) a toll-free telephone number and email contact for complaints and queries to the wind energy facility operator.

Complaints Register

69) Before development starts, a Complaints Register must be established which records:
a) the complainant's name and address (if provided), including (for noise complaints) any applicable property reference number;
b) a receipt number for each complaint, which must be communicated to the complainant

c) the time and date of the incident, and the prevailing weather and operational conditions at the time of the incident;
d) a description of the complainant's concerns;
e) the process for investigating the complaint, and the outcome of the investigation, including:
    i) the actions taken to resolve the complaint; and
    ii) for noise complaints, the findings and recommendations of an investigation report undertaken in accordance with the endorsed Noise Management Plan.

70) All complaints received must be recorded in the Complaints Register.

71) A complete copy of the Complaints Register along with a reference map of complaint locations must be provided to the responsible authority on each anniversary of the date of this permit, and at other times on request.

DECOMMISSIONING

72) The following requirements must be met when a turbine(s) permanently ceases operation:
a) the responsible authority must be notified within two (2) months after the turbine(s) permanently ceases operation;
b) prior to commencing decommissioning works, a Decommissioning Traffic Management Plan must be submitted to, approved and endorsed by the responsible authority. The plan must specify measures to manage traffic impacts associated with removing the turbine(s) and associated infrastructure from the site, to the satisfaction of the responsible authority;
c) all infrastructure, plant, equipment and access tracks that are no longer required for the ongoing use or decommissioning of the facility must be removed;
d) reinstatement of the site, or the relevant part of the site, to the condition it was in prior to the commencement of development must occur to the satisfaction of the responsible authority; and
e) a resource recovery plan must be prepared, submitted and approved by the responsible authority, which includes details of materials that can be recovered, for re-use and recycling, from all infrastructure associated with the facility.

EXPIRY

73) This permit will expire if one of the following applies:
a) the development is not started within five (5) years of the date of this permit;
b) the development is not completed within ten (10) years of the date of this permit; or
c) the use is not commenced within ten (10) years of the date of this permit.

Notes:

1. For conditions referring to the distance between a turbine and any other feature (eg a dwelling), the distance is to be measured from the centre of the turbine at ground level to the closest point on the other feature.
2. Preliminary investigative works for the purposes of gathering data or making assessments necessary or desirable to prepare the development plans or other plans specified in this permit is not considered to be commencement of the development.
3. Regulation and enforcement of operational wind turbine noise is undertaken by the Environment Protection Authority pursuant to the *Environment Protection Act 2017.*
4. Any off-site works required under this permit may require separate planning permission.
5. References to DELWP are references to the Department of Environment, Land, Water and Planning.

APA Group Notes

6. Prior to the commencement of any works (including the planting of vegetation) within the gas transmission pipeline easement, the proponent must enter a Third Party Works Authorisation agreement with the pipeline licensee/operator (APA VTS Australia (Operations) Pty Ltd). Works within the easement must comply with any conditions attached to a third party works approval.
7. No buildings, structures, roadway, pavement, pipeline, cable, fence, stockpile, materials or any other improvement may be constructed or placed on or under the land within the gas transmission pipeline easement without prior consent in writing from the pipeline licensee/operator (APA VTS Australia (Operations) Pty Ltd). No structure or vegetation will be permitted on the easement that prohibits maintenance of line of sight along the pipeline easement.

D2 PA2001065 Latrobe Planning Scheme (Terminal Station)

DEVELOPMENT PLANS

1) Before development starts, development plans must be submitted to and endorsed by the responsible authority. When endorsed the plans will form part of this permit. The plans must be fully dimensioned and drawn to scale and be generally in accordance with plans advertised as part of the planning permit application (Skt-Delburn-Sec-Op2, Rev 1 (30/06/20), Dwf_Ovr_027a_04b Tsb2 Rev 04b (28/06/2021), Deans Road & Varys Track Upgrade Scenarios, Rev A (30/02/2021), Typical Business Identification Sign, Rev B (28/06/2021), but modified to show:

   a) the final location of the proposed substation; and
   b) the final layout and dimensions of all transmission poles and the 220kV transmission tower.

2) The use and development must be generally in accordance with the endorsed plans. The endorsed plans must not be altered or modified without the written consent of the responsible authority.

STAGING

3) The use and development may be completed in stages in accordance with the endorsed Development Plans. The corresponding obligations arising under this permit may be completed in stages.

MATERIALS

4) All external finishes of buildings and works must be coloured in muted shades of a non-reflective nature to the satisfaction of the responsible authority.

TRAFFIC MANAGEMENT

Traffic Management Plan

5) Before the development starts a traffic management plan must be prepared to the satisfaction of and endorsed by the Head, Transport for Victoria and Latrobe City Council. The traffic management plan must be complied with, unless varied by the written consent of the Head, Transport for Victoria and Latrobe Council.

   The traffic management plan must:

   a) identify pre-construction, construction and transport vehicle routes to and from the substation site;
   b) nominate the expected average daily vehicle movements on identified access routes to and from the substation site; and
   c) identify construction traffic management measures to be implemented on public roads during the construction of the substation.

6) The endorsed Traffic Management Plan must be implemented to the satisfaction of the Head, Transport for Victoria and Latrobe City Council. The endorsed Traffic Management Plan must not be altered or modified without the written consent of the Department of Transport, Latrobe City Council and the responsible authority. Any proposed alteration or modification to the

endorsed Traffic Management Plan must be prepared in consultation with the relevant road management authority prior to submission to the responsible authority for endorsement.

Traffic Upgrade Works

7) Where traffic upgrade works are recommended or required under the endorsed Traffic Management Plan, or any other plan report required by any condition of this permit, the following documents must be submitted to, approved and endorsed by responsible authority prior to commencement of the traffic upgrade works:

   a) detailed plans for the required works; and
   b) a program indicating when the works will be undertaken including the timing or trigger for the removal of temporary access or roadworks.

   The plans / program required under this condition must be approved by the relevant road management authority. Traffic upgrade works must be completed to the satisfaction of the relevant road management authority.

8) Before any works commence within a declared arterial road reserve:

   a) functional layout plans must be submitted to and approved by the Head, Transport for Victoria;
   b) a working within the road reserve consent must be obtained from the Head, Transport for Victoria; and
   c) the permit holder must provide a security fee to the Head, Transport for Victoria for the duration of the defects liability period for works within the road reserve.

9) Unless with the agreement of the relevant road authority, all temporary access and roadworks must be returned to an acceptable standard to the satisfaction of the relevant road management authority.

ENVIRONMENTAL MANAGEMENT

Environmental Management Plan

10) Before development starts, an Environmental Management Plan must be submitted to, approved and endorsed by the responsible authority. When endorsed the Environmental Management Plan will form part of this permit.

    The Environmental Management Plan must:

    a) describe measures to minimise any amenity and environmental impacts of the construction and decommissioning of the facility;
    b) be generally in accordance with the Delburn Wind Farm Environmental Management Plan Framework (v2.0 11 December 2020); and
    c) include organisational responsibilities, and procedures for staff training and communication.

11) The endorsed Environmental Management Plan:

    a) must be implemented to the satisfaction of the responsible authority; and
    b) must not be altered or modified without the written consent of the responsible authority.

Construction Environmental Management Plan

12) The Environmental Management Plan must include a Construction Environment Management Plan, which must include:

a) procedures to manage dust and noise emissions, erosion, mud and stormwater run-off; and
b) procedures to remove temporary works, plant, equipment, buildings and staging areas, and reinstate the affected parts of the land, when construction is complete.

Sediment, Erosion and Water Quality Management Plan

13) Before the development starts, a sediment, erosion and water quality management plan must be prepared in consultation with the West Gippsland Catchment Management Authority to the satisfaction of and to be endorsed by the responsible authority. When endorsed the plan will form part of this permit. The plan must include:

a) procedures to manage overland flows during construction activities; and
b) procedures to ensure stormwater drainage from the proposed buildings and impervious surfaces are retained and disposed of within the boundaries of the subject land to the satisfaction of the responsible authority.

14) The use and development must be carried out in accordance with the endorsed sediment, erosion and water quality management plan, to the satisfaction of the responsible authority.

Native Vegetation Management and Offsets

15) Before works start, the permit holder must advise all persons undertaking the vegetation removal or works on site of all relevant permit conditions and associated statutory requirements or approvals.

Protection of native vegetation and/or trees to be retained

16) Before works start, a native vegetation protection fence must be erected around all scattered trees to be retained within proximity of the works. This fence will protect the tree by demarcating the tree protection zone and must be erected at a radius of 12 × the diameter at a height of 1.3 metres to a maximum of 15 metres but no less than 2 metres from the base of the trunk of the tree. The fence must be constructed of [star pickets/ chain mesh/ or similar] to the satisfaction of the responsible authority. The fence must remain in place until all works are completed to the satisfaction of the responsible authority.

17) Except with the written consent of the responsible authority and the DELWP, within the area of native vegetation to be retained and any tree or vegetation protection zone associated with the permitted use and/or development, the following is prohibited:

a) vehicular or pedestrian access;
b) trenching or soil excavation;
c) storage or dumping of any soils, materials, equipment, vehicles, machinery or waste products;
d) entry and exit pits for the provision of underground services; and
e) any other actions or activities that may result in adverse impacts to retained native vegetation.

Native vegetation permitted to be removed, destroyed or lopped

18) The native vegetation permitted to be removed, destroyed or lopped under this permit is 1.657 hectares of native vegetation. The reconciliation of removal and offsets can be undertaken without the need to amend existing permits within 12 months of project completion.

Native vegetation offsets

19) To offset the removal of native vegetation for the utility installation, the permit holder must secure the following native vegetation offsets in accordance with Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017), before any native vegetation removal can begin:

    a) a species offset of 0.683 general habitat units with a minimum strategic biodiversity score of 0.197. The offset must protect 4 large trees in general habitat units protected. The offsets to be located within the West Gippsland Catchment Management Authority boundary or Latrobe City municipal area.

20) Before any native vegetation is removed, evidence that the required offset for that section of the project has been secured must be provided to the satisfaction of the responsible authority. This evidence must be either:

    a) an established first party offset site including a security agreement signed by both parties, and a management plan detailing the 10-year management actions and ongoing management of the site, and/or
    b) credit extract(s) allocated to the permit from the Native Vegetation Credit Register that identifies the relevant section of the project.

Offset evidence

21) A copy of the offset evidence will be endorsed by the responsible authority and form part of this permit. Within 30 days of endorsement of the offset evidence, a copy of the endorsed offset evidence must be provided to Planning & Approvals at the Department of Environment, Land, Water and Planning Gippsland regional office by email to Gippsland.planning@delwp.vic.gov.au.

Flora and Fauna Management Plan

22) Prior to the commencement of any works, a flora and fauna management plan must be prepared in consultation with DELWP and completed to the satisfaction of the Secretary of DELWP. The flora and fauna management plan needs to be informed by the assessments included within the final environment report (under condition (a)) and must include specific measures to avoid, minimise and mitigate potential impacts on flora and fauna within the project site during construction and operation of the project, including but not limited to:

    a) measures to further minimise and mitigate impacts to retained vegetation, in particular endangered ecological vegetation classes;
    b) measures to further minimise and mitigate the removal of large trees and large hollow-bearing trees;
    c) measures to further minimise and mitigate impacts on native fauna during construction and habitat clearance;
    d) measures to prevent and control pathogens, weeds (non-native species) and pest (non-native) animals;
    e) a program for on-going monitoring and adaptive management of listed communities and listed species of flora and fauna within the project site; and
    f) measures to avoid pollutants, contaminated run-off and sediment from entering waterways and waterbodies.

BUSHFIRE RISK EMERGENCY AND MANAGEMENT

23) Before development starts, a detailed analysis should be completed of the terminal station design to eliminate or protect areas where embers can land on or against combustible materials. Any recommendations arising from the completion of this analysis must be undertaken prior to commencement of the operation of the terminal station.

Construction Phase Bushfire and Emergency Management Plan

24) Before development starts, a Construction Phase Bushfire and Emergency Management Plan (CBEMP) that addresses the CFA's Guidelines on Renewable Energy Installations and AS3745 – Planning for Emergencies in facilities must be submitted to and approved by the responsible authority. The CBEMP must outline the requirements for working on the site including addressing the fire danger period. The plan must outline the prevention, preparedness, response and recovery arrangements and as a minimum include:

a) detail the requirements for an Emergency Information Container to be installed and detail the information that the container must contain;
b) ensure all access roads and tracks are identified and meet CFA Guidelines for emergency vehicle access;
c) establish a primary contact person for the community to contact with bushfire related concerns, questions or issues;
d) outlining all permitted activities and the procedures for undertaking these activities during the Fire Danger Period and are appropriate under the Country Fire Authority Act 1958, including:
    i) compliance with Total Fire Ban Day restrictions; and
    ii) obtaining permits for any "hot work" activities.
e) ensuring all Staff, Contractors and site visitors are informed of fire response procedures that follow identified legislative requirements, policies and procedures;
f) ensuring that all works during the declared Fire Danger Period have appropriate permits from Local Government and CFA;
g) ensuring that all construction and operational works follow appropriate Work Health and Safety requirements;
h) ensure all contractors:
    i) are appropriately briefed and understand their legal and policy obligations in relation to managing bushfire risks;
    ii) have appropriate procedures, safe work practices, contingency plans, MSDSs for operation of all equipment, chemicals, flammable materials that may contribute to bushfire risk; and
    iii) have appropriate 'initial' suppression equipment available on site.
i) implement a policy of 'no work' on declared Code Red Fire danger days;
j) sets out that staff or contractors will be permitted at the site on a Total Fire Ban day unless for critical works and no staff or contractors are permitted at the site on Code Red days;
k) provide appropriate bushfire training for contractors and staff;
l) establish emergency assembly areas;
m) install appropriate signs to assist emergency response crews determine track names, locations and turbines and other infrastructure;
n) develop policies and procedures that require the following:
    i) vehicles are not to drive off the road surface during the fire danger period;
    ii) upon declaration of a Code Red day, ensure the site is made safe;
    iii) at each construction site, provide an Emergency Information Container that contains copies of emergency procedures and site maps;
o) processes to engage with the fire agencies during bushfires to ensure their directions are being complied with;
p) procedures to follow when the fire protection systems are activated.

Terminal Station Design

25) The terminal station design must include the following bush fire requirements:

a) an Asset Protection Zone that ensures all areas of the infrastructure will not be exposed to radiant heat in excess of 12.5 kW/m²;
b) the Asset Protection Zone, must be non vegetated and covered with a non combustible surface such as mineral earth or crushed rock;
c) a 100,000 litre firefighting water supply to be provided in the Varys Track area; and
d) security fencing around terminal station to prevent public access.

Operational Phase Bushfire and Emergency Management Plan

26) Before the terminal station commences operation, an Operational Bushfire and Emergency Management Plan (OBEMP) must be submitted to and approved by the responsible authority. The OBEMP must be generally in accordance with the CBEPM but modified to outline the additional requirements for operating on the site that addresses the CFA's Guidelines for Renewable Energy Installations and AS3745. The plan must outline the prevention, preparedness, response and recovery arrangements and must include:

a) detail the requirements for familiarisation visit and explanation of emergency procedures to CFA and other emergency services;
b) a requirement to develop relationships with HVP, CFA and FRV to encourage them to undertake familiarisation visits;
c) develop bushfire preparedness audits to record all "annual" fire danger season preparedness activities and prevention works;
d) prepare and maintain a communications plan for internal and external stakeholders;
e) outline the minimum firefighting equipment that is to be provided onsite or readily accessible (as per response plan);
f) specify staff and contractor bushfire prevention and suppression training requirements that includes the use of firefighting equipment and appropriate personal protective clothing;
g) requirements to maintain all Asset Protection Zones during the fire danger period to ensure they are non vegetated;
h) install Emergency Information Containers at locations determined in conjunction with CFA that includes information relating to the wind turbines and the emergency procedures;
i) procedures to undertake pre fire danger period checks to ensure firefighting equipment is maintained and the water tanks are full;
j) undertake pre fire danger period checks to ensure the static water supplies are full and maintained; and
k) ensure the maintenance of the safety systems imposed by AS3959 is included within the annual checks and maintenance regime.

REFERRAL AUTHORITY CONDITIONS

Ausnet Services (Determining)

27) No part of the proposed development is permitted on AusNet Transmission Group's easement unless otherwise agreed to in writing by AusNet Transmission Group.

28) Access to and along the easement must be maintained at all times for AusNet Transmission Group's vehicles, staff and contractors.

29) Parking, loading, unloading and load adjustment of large commercial vehicles is not permitted on the easement.

30) Fuelling of any vehicles, equipment or plant is not permitted on the easement

31) The use of vehicles and equipment exceeding 3 metres in height are not permitted to operate on the easement without prior written approval from AusNet Transmission Group.

32) Details of proposed road construction and the installation of services within the easement must be submitted to AusNet Transmission Group and approved in writing prior to the commencement of work on site.

33) All trees and shrubs planted on the easement must not exceed 3 metres maximum mature growth height.

34) Natural ground surface levels on the easement must not be altered by the stockpiling of excavated material or by landscaping without prior written approval from AusNet Transmission Group.

35) All services traversing the easement must be installed underground.

36) All future works within the easement must be submitted to AusNet Transmission Group and approved in writing prior to the commencement of work on site.

EXPIRY

37) This permit will expire if one of the following applies:

a) the development is not started within five (5) years of the date of this permit; or
b) the development is not completed within ten (10) years of the date of this permit.

Notes:

1. Preliminary investigative works for the purposes of gathering data or making assessments necessary or desirable to prepare the development plans or other plans specified in this permit is not considered to be commencement of the development.
2. Any off-site works required under this permit may require separate planning permission.
3. References to DELWP are references to the Department of Environment, Land, Water and Planning.