Lal Lal Wind Farm

Planning Permit Amendment

Planning Report and Consolidated Attachments

October 2015

Lal Lal Wind Farm - Planning Permit Amendment

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Contents

1. Introduction

1.1 Purpose of this report

Jacobs Group Australia (Jacobs) was requested by WestWind Energy Pty. Ltd (the proponent) to prepare this report in support of an amendment to an existing wind energy facility planning permit.

This report is in support of an application for an amendment to planning permit PL-SP/05/0461 (the permit). This permit allows for the use and development of land at Elaine and Yendon for a wind energy facility – the Lal Lal Wind Farm.

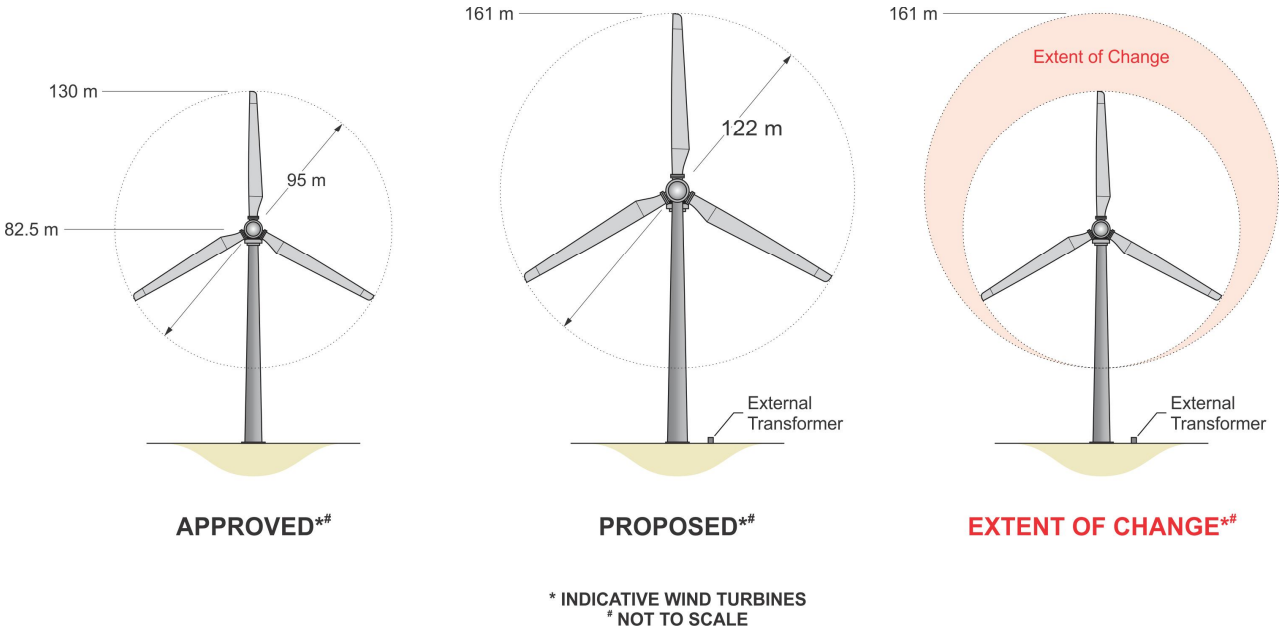
It is proposed to change the permit to:

- increase in wind turbine maximum tip-height from 130 metres to 161 metres;
- increase in maximum hub height from 85 metres to 105 metres;
- increase maximum rotor diameter from 95 metres to 122 metres;
- enable wind turbine transformers can be located next to the towers;
- apply the up-to-date 2010 noise standard;
- allow an option to relocate the substation approved for the Elaine Section; and
- reduce permitted wind turbines from 64 to 60.

This report outlines the proposed changes to the Lal Lal Wind Farm permit and consolidates relevant specialist reports which assess the impact of proposed changes.

Figure 1A below shows the nature of the proposed changes which are subject to this permit amendment request.

Figure 1A – Approved and proposed parameters and the extent of change



1.2 Project background

The Lal Lal Wind Farm (the wind farm) is located on land at Elaine and at Yendon, within Moorabool Shire. The wind farm was first mooted in 2006. The permit application was lodged in March 2008 and considered by an independent planning panel (panel) in November and December 2008. The permit was approved by the Minister for Planning (the Minister) in April 2009.

In March 2011 the Minister for Planning approved secondary consents under the permit for the Yendon Section of the wind farm. The endorsed plans comprised:

- Development Plans;
- Environmental Management Plan;
- Pest Animal and Carrion Management Plan;
- On-site Landscaping Plan;
- Traffic Management Plan;
- Emergency Response Plan;
- Radio Link Exclusions Zone Report;
- Television and Radio Reception Survey Plan; and
- Noise Compliance Testing Plan.

In April 2013 site establishment works for the facility began at Yendon with earthworks to prepare the foundations for the: substation, amenities building; main site entrance and the start of an access track. On the 30 April 2013 the then Department of Planning and Community Development (DPCD) confirmed that the development of the facility had commenced under the permit. Since the permit was issued the proponent has engaged a number of specialist consultants to carry out further detailed design. This work has included:

- additional geotechnical surveys;
- electrical substation and grid connection design;
- civil/structural design and construction documentation; and
- cultural heritage and flora and fauna assessments.

The proponent has also obtained a generation licence from the Essential Services Commission and submitted a grid connection application to Powercor. On the 9 April 2015, the Minister for Planning extended the time to complete the development out to the 30 April 2020.

Since the permit was lodged, significant advancements have occurred to wind turbine technology. To capitalise on new technology, the proponent is seeking to change the specifications contained within the permit. The proposed changes, detailed in Section 3, would enable the use of larger wind turbines on the site to capture more energy from the wind in order to produce more electricity.

The larger turbines will allow the wind farm to produce more electricity with fewer turbines. As the Moorabool Planning Scheme (planning scheme) and the guidelines have been updated, the permit amendment also seeks to apply the more recent noise standard to the project.

1.3 Application for permit amendment

This report accompanies an application that is made in accordance with Section 97I of the *Planning and Environment Act 1987* (the Act). This report provides an assessment of the amendment application against relevant provisions of the planning scheme and the *Policy and Planning Guidelines for Wind Energy Facilities – June 2015* (the guidelines).

The application to amend the permit was lodged on 13 February 2015. On 4 March 2015 the Department of Environment, Land, Water and Planning (DELWP) requested further information to enable the assessment of the permit amendment application. The proponent responded to the request, supplying further information on the 11 May 2015. On the 23 June 2015 the proponent provided further clarification as to changes requested under the amendment.

This report consolidates the earlier steps in the amendment process and the supporting documents. The report also provides an assessment against the planning scheme and the guidelines. For the avoidance of doubt, the proposed changes contained within this report supersede changes outlined in any previous correspondence between the proponent and the DELWP.

A copy of the existing permit can be found in Attachment A. Earlier permit amendment documents can be found in Attachment I.

2. Subject site and surrounds

2.1 Subject site

The wind farm will be located on land at Elaine and Yendon. The two components of the wind farm are located approximately 9 km apart and are referred to as the Elaine and Yendon Sections.

The Yendon Section is approximately 17 km southeast of Ballarat. It is approximately 2100 hectares in area. The Elaine Section is approximately 25 km southeast of Ballarat and is approximately 720 hectares in area.

Both wind farm sections and adjoining land consists of agricultural land predominantly used for sheep and cattle grazing with some cropping. Parts of the Yendon Section are used for agroforestry. The wind farm sites are highly modified and have been cleared, however some patches of degraded forest remain on higher granite ridges of the Yendon Section.

The current permit allows for the construction of 40 wind turbines within the Yendon Section and 24 wind turbines within the Elaine Section. The permit allows the wind turbines to be built to a height of 130m above ground level. The permit also allows for the construction of electrical substations at both Yendon and Elaine. Work has commenced on the Yendon Section.

The wind farm seeks to utilise the area's excellent year round wind resources by generating electricity and exporting it directly to the national electricity market through the 220kV power line adjacent to the Elaine Section and the 66kV power line which runs through the Yendon Section.

The land covered by the wind farm site and planning permit is described in Attachment B.

2.2 Surrounds

The towns of Yendon, Dunnstown, Lal Lal, Mount Egerton and Elaine, as well as the localities of Millbrook, Mt Doran and Cargerie are located within 5km of the proposed wind farm.

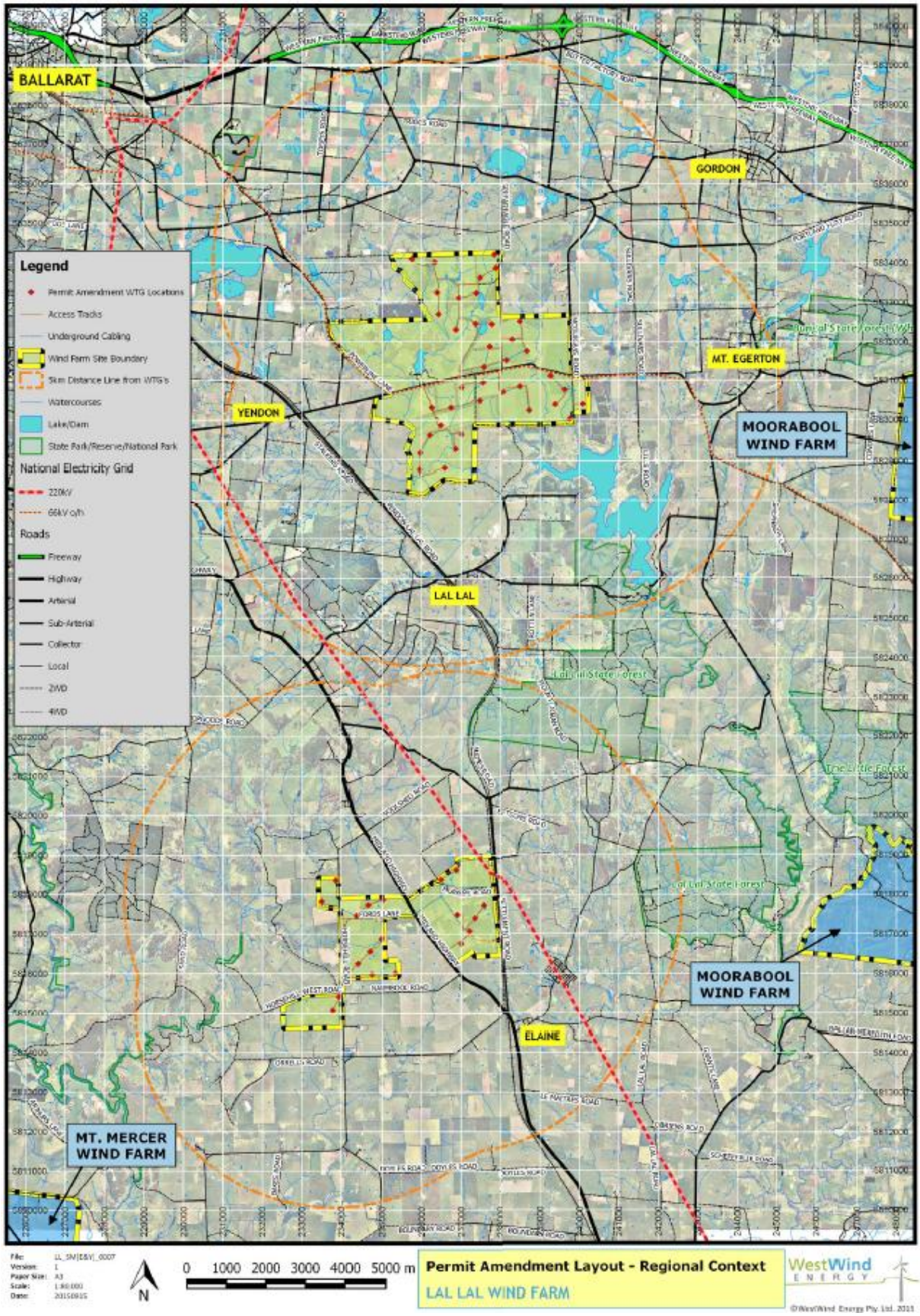
The Yendon Section of the wind farm is within the Lal Lal water supply catchment with a number of streams draining south to the Moorabool River West Branch, Ring Creek, Granite Creek and Lal Lal Creek into the Lal Lal Reservoir. There are no named waterways in the Elaine Section.

The Midland Hwy (which runs from Geelong to Ballarat) bisects the Elaine Section with the Geelong to Ballarat rail line being located on the eastern boundary of the wind farm site.

Nearby public land includes the Lal Lal Reservoir which contains the Lal Lal Falls picnic area as well as the reserves of Mt Bunninyong and Mt Warrenheip.

There are three non-participant dwellings within 1km of proposed wind turbines at the Yendon Section and one non-participant house within 1km of proposed wind turbines at the Elaine Section. A plan showing all dwellings within 1km can be found in Attachment G.

Refer to Figure 2A, Regional Context Plan, on the following page.


BALLARAT
GORDON
MT. EGERTON
YENDON
MOORABOOL WIND FARM
LAL LAL
ELAINE
MOORABOOL WIND FARM
MT. MERCER WIND FARM
Legend
Permit Amendment WTG Locations
Access Tracks
Underground Cabling
Wind Farm Site Boundary
5km Distance Line from WTG's
Watercourses
Lake/Dam
State Park/Reserve/National Park
National Electricity Grid
220kV
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0 1000 2000 3000 4000 5000 m
Permit Amendment Layout - Regional Context
LAL LAL WIND FARM
WestWind ENERGY

3. Proposed planning permit amendment

3.1 Rationale

Since lodgement of the original planning permit application in March 2008, advancements in wind turbine technology have resulted in greater generation capacity, mostly due to increases in rotor diameter. Modern wind turbines deliver a significant increase in electricity generation per unit. Therefore, when larger capacity machines are installed on a wind farm, electricity generation increases without increasing the number of wind turbines.

The change in wind turbine technology is reflected in a number of approved wind energy facilities that have sought amendments to their original permits (or changes to endorsed plans) to allow for an increase in tower height and/or rotor diameter. The application of larger capacity wind turbines allows for greater efficiency. Additionally, the cost of electricity generation is reduced as more electricity can be produced from fewer wind turbines. Some of the efficiencies gained by the height increase are illustrated in Table 3A below.

There is also a need to update the planning permit to reflect changes which have occurred to the planning scheme and the guidelines.

3.2 Changed parameters

It is proposed to change planning permit PL-SP/05/0461 to:

- increase in wind turbine maximum tip-height from 130 metres to 161 metres;
- increase in maximum hub height from 85 metres to 105 metres;
- increase maximum rotor diameter from 95 metres to 122 metres;
- enable wind turbine transformers to be located next to the towers;
- apply the up-to-date 2010 noise standard;
- allow an option to relocate the substation approved for the Elaine Section; and
- reduce permitted wind turbines from 64 to 60.

The above changes would allow wind turbines of up to approximately 3.3MW to be used, collectively generating more electricity from a smaller infrastructure footprint.

Table 3A below shows the changes in the key project parameters should the amendment be approved and 3.2MW wind turbines used for the wind farm.

Table 3A[1]

Parameter	Existing approval	Proposed approval
Proposed wind turbine numbers	64	60
Overall height	130m	161m
Generation capacity MW	128	192
Gwh per year	336	504
Payments to Moorabool Shire	$228,000	$299,200
Average Households Powered	63,111	94,666

[1] Figures supplied by WestWind Energy

3.3 Change to the wind energy facility layout

The proposed permit amendment does not:

- increase the number of wind turbines; or
- change the location of a wind turbine so that it is located closer to an existing dwelling (within one kilometre of a proposed wind turbine) than the closest permitted wind turbine to that dwelling.

Accordingly, the written consent of dwelling owners within 1km of proposed wind turbines is not required (clause 52.32-3) to support this application.

The permit amendment removes four permitted wind turbines from the layout and seeks flexibility with regard to the location of an electrical substation at Elaine.

3.3.1 Removal of proposed wind turbines and layout changes

The proposed amendment will delete four proposed wind turbines from the approved layout. The four wind turbines proposed to be removed are:

- YSWT 04 and YSWT-31 from the Yendon Section; and
- ESWT-09 and ESWT-22 from the Elaine Section.

Proposed wind turbines YSWT 04, ESWT-09 ESWT-22 were to be located close to existing non-host dwellings. The removal of these permitted wind turbines will significantly reduce impacts to these dwellings (from what is approved under the original planning permit) to the immediate north of the Yendon Section and the cluster of seven dwellings near the corner of Lewis Road and Settlement Road at the Elaine Section.

The proposed wind turbines YSWT-02, YSWT-14, YSWT-17 have been micro-sited (within 100m from approved locations) away from the nearest dwellings to increase the separation distance which will reduce the potential for amenity impacts. Additionally, the proposed wind turbines YSWT-07, YSWT-18, YSWT-24, YSWT-26, YSWT-27, YSWT-28 and YSWT-40 have been micro-sited (within 100m from approved locations) to avoid impacts to sites of Aboriginal cultural heritage. This micro-siting is approved under the existing permit.

Permitted wind turbine YSWT-31 is to be removed to create a more efficient wind farm layout.

The revised noise, shadow flicker, visual, bird and aviation assessments have all considered the adjustment to the wind farm layout in their findings. These changes are also shown in the revised visual simulations at Attachment F.

If the permit amendment application is approved, new plans will be submitted for endorsement showing the turbines removed in addition to the minor changes.

The revised layout map in Attachment C shows the proposed wind turbines to be removed.

3.3.2 Relocation of substation (Elaine Section)

Planning permit PL SP/05/0461 has approved the use and development of two electrical substations. One substation is proposed in the Yendon Section and the other at the Elaine Section.

The plans considered under the original permit application show the substation for the Elaine site centrally located within this wind farm section, approximately halfway along the southern side of Fords Road. The amendment seeks to obtain the flexibility of building the substation at this location or at the alternate site detailed below. Further electrical studies and discussions with grid operators, are required before finalising the location as part of the Development Plans. To optimise the electrical layout and to remove an overhead power line, it may be preferable to relocate the substation next to the eastern circuit of the 220kV transmission line which runs from Moorabool Terminal Station (Geelong) to the Ballarat Terminal Station (Warrenheip). The wind farm would then connect directly into this transmission line.

Condition 1 of the permit requires development plans to be prepared to the satisfaction of the Minister for Planning. These plans are required to be generally in accordance with the plans submitted and considered under the original planning permit application. It could be argued that moving the substation approximately 3km to the east within the site would not be 'generally in accordance' with the original plans.

It should be noted that this permit amendment also seeks to remove the two closest proposed wind turbines (ESWT-09 and ESWT-22) from this area, further reducing the potential landscape and visual amenity impacts in this area generally.

Condition 11 of the planning permit will require the provision of landscaping plan(s) and a maintenance program to soften views towards the substation.

The proponent seeks flexibility to construct the substation in its current location or move it adjacent to the transmission line. There will not be more than one electrical substation located on the Elaine Section. It is proposed that this change could be facilitated through amending Condition 1 of the permit.

The alternative location of the substation site can be seen on the revised layout plan Attachment G.

1.1 Changes to planning permit conditions

To facilitate the changes outlined in Section 3.2 and 3.3, Table 3B describes the existing planning permit conditions and outlines the conditions proposed by this application. If the application is approved the amended permit will contain the conditions in the right hand column.

The proposed conditions are also reflected on the 'marked up' planning permit at Attachment C. The revised conditions have been prepared following discussions with DELWP.

The proposed conditions in Table 3B and Attachment C supersede conditions in any previous correspondence with the Minister and DELWP.

Table 3B Existing and proposed conditions

No.	Existing Condition	Proposed amended / new condition.
Preamble	Use and development of the land for a Wind Energy Facility comprising a maximum of 64 wind turbines and their associated infrastructure and other works including: the construction of access tracks; underground cabling; two permanent amenities buildings; two electrical substations; two permanent meteorological monitoring facilities and associated equipment; car parking and bicycle facilities, temporary construction facilities (including an ancillary concrete batching plant), business identification signs and alterations to access points to roads in a Road Zone.	Use and development of the land for a Wind Energy Facility comprising a maximum of 60 wind turbines and their associated infrastructure and other works including: the construction of access tracks; underground cabling; two permanent amenities buildings; two electrical substations; two permanent meteorological monitoring facilities and associated equipment; car parking and bicycle facilities, temporary construction facilities (including an ancillary concrete batching plant), business identification signs and alterations to access points to roads in a Road Zone.
1	New condition 1k.	The deletion of wind turbines YSWT-04 and YSWT-31 from the Yendon Section and wind turbines ESWT-09 and ESWT-22 from the Elaine section.
1	New condition 1l.	The final location of the electrical substation at the Elaine Section.
2a)	The wind energy facility must comprise no more than 64 wind turbines with no more than: i. 40 wind turbines on the land at Yendon, and ii. 24 wind turbines on the land at Elaine	The wind energy facility must comprise no more than 60 wind turbines with no more than: iii. 38 wind turbines on the land at Yendon, and iv. 22 wind turbines on the land at Elaine.

No.	Existing Condition	Proposed amended / new condition.
2b)	The overall maximum height of the wind turbines (to the zenith of the sweep of the rotor blade tip) must not exceed 130 metres above foundation level.	The overall maximum height of the wind turbines (to the zenith of the sweep of the rotor blade tip) must not exceed 161 metres above foundation level, and must not be altered or modified without the written consent of the responsible authority.
2c)	The wind turbines must be mounted on a tubular steel and/or concrete towers such that the hub of the rotors does not exceed 85 metres above foundation level	The wind turbines must be mounted on a tubular steel and/or concrete towers such that the hub of the rotors does not exceed 105 metres above the foundation, and must not be altered or modified without the written consent of the responsible authority.
2d)	The diameter of the rotor of the wind turbines must not exceed 95 metres	The diameter of the rotor of the wind turbines must not exceed 122 metres, and must not be altered or modified without the written consent of the responsible authority.
2i	The transformer associated with each wind turbine must be enclosed within the tower.	Delete from the planning permit.
21	Shadow flicker from the wind energy facility must not exceed 30 hours per annum at any dwelling existing as at the date of this permit to the satisfaction of the Minister for Planning. Any dwelling on subject land may be exempt from this condition. This exemption will be given effect through an agreement with the landowner that will apply to any occupant of the dwelling and must be registered on title.	Shadow flicker from the wind energy facility must not exceed 30 hours per annum at any dwelling existing as at the date of this permit to the satisfaction of the Minister for Planning. When the wind turbine model and rated capacity to be installed is confirmed in accordance with Condition 1c, a final shadow flicker assessment must be undertaken to the satisfaction of the Minister for Planning. If over 30 hours of shadow flicker is modelled at any dwelling, shadow detection devices must be fitted to relevant wind turbines to ensure this condition is met, unless agreed in writing with the Minister for Planning. Any dwelling may be exempt from this condition. This exemption will be given effect through a written agreement with the landowner of the dwelling and evidence of the agreement must be provided to the satisfaction of the responsible authority.
23	Except as provided below in this condition, the operation of the wind energy facility must comply with the noise criteria specified in NZS6808:1998 'Acoustics The Assessment and Measurement of Sound from Wind Turbine Generators' at any dwelling existing on land in the vicinity of the proposed wind energy facility as at the date of the issue of this permit, to the satisfaction of the Minister for Planning. In determining compliance the following requirements apply: a) The sound level from the wind energy facility within 20 metres of any dwelling must not exceed a level of 40dBA (L95) or where the relationship between background noise levels and wind speed has been determined by the method specified in Condition 24 of this permit, the background noise level by more than 5dBA, or a level of 40dBA L95, whichever is the greater b) Compliance must be assessed separately for all time and night time. For the purpose of this requirement, night time is defined as 10.00pm to 7.00am, and c) If the noise has a special audible characteristic measured sound level must have a penalty of 5dBA applied. Any dwelling on the subject land may be exempt from this condition. This exemption will be given effect through an agreement with the landowner that must apply to any occupant of the dwelling and must be registered on title. Such dwellings will be known as host dwellings.	Except as provided below in this condition, the operation of the wind energy facility must comply with New Zealand Standard 6808:2010, Acoustics – Wind Farm Noise (the Standard) as modified by this condition to the satisfaction of the responsible authority. The following requirements apply: a) The operator must ensure that at any wind speed, wind farm sound levels, determined in accordance with the Standard at noise sensitive locations (as defined in the Standard) do not exceed a noise limit of 40dB $L_{A90,10min}$ or background ($L_{A90,10min}$) plus 5dB, whichever is the greater, b) where special audible characteristics, including tonality, impulsive sound or excessive amplitude modulation occur, the measured noise level with the identified special audible characteristics will be modified by applying a penalty of up to + 6 dB L90 in accordance with section 5.4 of the Standard. Any dwelling may be exempt from this condition. This exemption will be given effect through a written agreement with the landowner of the dwelling and evidence of the

No.	Existing Condition	Proposed amended / new condition.
		agreement must be provided to the satisfaction of the responsible authority.
24	Before the development starts, a noise compliance testing plan must be prepared by a suitably qualified acoustics expert to the satisfaction of the Minister for Planning. When approved, the noise compliance testing plan will be endorsed be the Minister for Planning and will then form part of this permit. The use must be carried out in accordance with the noise compliance testing plan to the satisfaction of the Minister for Planning. The noise compliance testing plan must include: a) A determination of the noise limits to be applied during construction using the methodology prescribed in the Interim Guidelines for the Control of Noise from Industry in Country Victoria, N3/89 b) A program of compliance testing to be implemented during the construction of the wind energy facility that: i. Is designed by a suitably qualified acoustic expert, and ii. Utilises the methodology prescribed in State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N1, to demonstrate compliance with the limits determined in (a) above. c) A prediction, by a suitably qualified acoustic expert, of the area within which the noise level from the wind energy facility during full operation will be 35dB(A) or greater d) Identification of all dwellings, excluding host dwellings, within the area predicted in (c) above and a statement as to whether consent from the owner of each of the identified dwellings for compliance testing has been obtained or refused e) A method or methods of testing compliance with the noise limits prescribed in Condition 23 of this permit for each dwellings identified in (d) above for which consent for the conduct of compliance testing has been obtained. The compliance testing method must be either: i. The method described in NZS6808:1998 'Acoustics – the Assessment and Measurement of Sound from Wind Proposed wind turbine Generators' with the following criteria being met: • The regression curves required must be derived from a data set: o Of at least 500 noise level/wind speed data pairs o Including wind speed measurements made at proposed wind turbine hub height o Including at least 10 data pairs or 1% of the total number of data pairs whichever is the greater at wind speeds greater than 8m/s o Including at least 10 data pairs or 1% of the total number of data pairs whichever is the greater at wind speeds less than 4m/s,and o With the percentage of data pairs that are the results of measurements made with the wind in the direction from the wind energy facility to the dwelling being equal or greater than values determined in (f) below, and • The coefficient of determination for the regression curves will be 0.5 or greater, or	Before the development starts, a noise compliance testing plan must be prepared by a suitably qualified acoustics expert to the satisfaction of the Minister for Planning. When approved, the noise compliance testing plan will be endorsed by the Minister for Planning and will then form part of this permit. The use must be carried out in accordance with the noise compliance testing plan to the satisfaction of the Minister for Planning. For the purposes of determining compliance, the following requirements apply: a) Acoustic compliance reports shall be prepared by a suitably qualified and experienced independent acoustic engineer to demonstrate compliance with the noise limits specified in the Standard. b) Noise assessment positions must be located according to the Standard, and shown on a map. c) A final compliance report must be submitted to the responsible authority after a 12 month period following full operation of the facility. d) Compliance reports should be publicly available. e) Following facility commissioning, all complaints shall be managed following procedures set out in the noise complaints management plan.

No.	Existing Condition	Proposed amended / new condition.
	i. A method, designed by a suitably qualified acoustics expert, in which measurements of operating and background noise levels are measured with: • Background noise levels being measured with all proposed wind turbines that, when operating, influence the noise level at the dwelling, shut down, and • The wind in the direction from the wind energy facility to the dwelling for at least 50% of the measurement period. f) For each dwelling at which compliance testing is to be performed, determination of the maximum monthly proportions of the wind direction distribution that is from the wind energy facility to the dwelling, plus or minus 22.5 degrees g) A schedule for compliance testing under which compliance testing at all identified dwelling for which consent for such testing has been obtained is performed in the 14 months following the commissioning of the last proposed wind turbine in a section of the wind energy facility or a stage of the wind energy facility, if the development is in stages, and repeated between 10 and 14 months after the first compliance test h) A procedure for the assessment, by a suitably qualified acoustics expert, of the characteristics of the noise from the wind energy facility to determine if that noise has any special audible characteristics that require the addition of 5 dB(A) to the measured operating noise levels as slowed in Condition 23 of this permit i) A procedure under which all results of compliance testing conducted in any month are reported to the Minister for Planning by the 15 th day of the following month and to the owners and occupiers of particular dwellings as soon as results relating to that particular dwelling are available, and j) A procedure under which the implementation of the noise compliance testing plan is directed and supervised by a suitable qualified acoustic expert to the satisfaction of the Minister for Planning.	
25	If an exceedance of the noise limits prescribed in Condition 23 of this permit is detected the wind energy facility operator must: a) Within 5 days of the detection of the exceedance, take sufficient actions to reduce the wind energy facility noise level at the subject dwelling as predicted using the prediction methodology contained in NS6808:1998 'Acoustics – the Assessment and Measurement of Sound from Wind Proposed wind turbine Generators' by an amount equal to or greater than the amount of exceedance b) Within 7 days of the detection of the exceedance, provide the responsible authority and the owner/occupier of the dwelling with: i. The results of the compliance testing measurements including the magnitude of the detected exceedance ii. Details of the actions taken to reduce the wind energy facility noise emissions, and iii. Evidence that the actions taken will produce a decrease in the wind energy facility noise level at the dwelling by an amount equal to the magnitude of the exceedance based on a prediction using the methodology of NZS6808:1998 'Acoustics – the Assessment and Measurement of Sound from Wind Proposed wind turbine Generators'. c) Continue to operate the wind energy facility with the implemented actions until approval for a different mode of operation is given by the responsible authority under the provision of (d) below	For the purposes of complaints evaluation, the following requirements apply: a) Post installation sound levels shall, where practical, be measured at the same locations where the background sound levels were determined (GPS coordinates and a map showing these locations is to be provided). b) If a non-compliance with condition 23 is detected, or an acoustic investigation is required under the noise complaints plan endorsed under condition 26, an independent assessment report must be prepared by a suitably qualified and experienced independent acoustic engineer to: • identify the weather or operational conditions associated with the complaint / breach • analyse the uncertainty and confidence levels in the monitoring, and the steps taken to reduce uncertainty • target assessment to identify the cause and remediation actions • submit a remediation plan to the

No.	Existing Condition	Proposed amended / new condition.
	d) Within 60 days of the detection of an exceedance provide the responsible authority and owner/occupier of the dwelling with either: i. The result of compliance testing using the procedures prescribed in Condition 24 of this permit that demonstrate compliance, or ii. A program for the development and evaluation of an alternative mode of wind energy facility operation that can be reasonably be expected to result in continuing compliance with noise levels as allowed in Condition 23 of this permit. The program will: • Be developed and implemented under the supervision of a suitably qualified acoustics expert • Include detailed descriptions of proposed actions • Include predictions of wind energy facility noise levels at the dwelling at each stage of the program • Not include any actions or combination of actions that are predicted to result in non-compliance • Include compliance testing using the procedures prescribed in Condition 24 of this permit both as the final step in the program and with that compliance testing being repeated after between 10 and 14 months, and • Include a program schedule that specifies the timing of each stage of the program to the satisfaction of the responsible authority. Within 10 days of receipt of the program the responsible authority will either: a) Approve the implementation of the program, or b) Advise the wind energy facility operator of modifications to the program that are required before approval will be granted. If the responsible authority requires the program to be modified, the wind energy facility operator may either submit a modified program or immediately withdraw the program and conduct compliance testing using the procedures prescribed in Condition 24 of this permit. Following implementation of the program, the wind energy facility operator may provide the responsible authority and the owner/occupier with a detailed description of an alternative mode of operation of the wind energy facility together with evidence that under that mode of operation compliance can be expected, to the satisfaction of the responsible authority. Given such information and evidence the responsible authority may approve the operation of the wind energy facility in the alternative mode and such approval will not be unreasonably withheld.	satisfaction of the responsible authority outlining, the investigation process, complainant communications, actions and timelines to resolve the complaint/breach • If the complaint is not resolved through the processes outlined above, the responsible authority may request an independent peer review at the cost of the permit holder and on/off shut down testing to resolve uncertainty. c) Following the initial post-construction reporting process, additional independent assessment may be requested by the responsible authority at any time, where complaints are received and are considered to reasonably warrant investigation. d) If investigations indicate special audible characteristics are potentially occurring, procedures outlined in Attachment B of the Standard should be applied.
New	New condition 26.	Before the first wind turbine is commissioned, the permit holder must prepare a noise complaint investigation and response plan to the satisfaction of the responsible authority. The plan shall include: • a process of investigation to resolve a complaint • a requirement that all complaints will be recorded in an incidents register • how contact details will be communicated to the public • telephone number and email contact for complaints and queries • details of the appropriate council contact telephone number and

No.	Existing Condition	Proposed amended / new condition.
		email address (where available) • a table outlining complaint information for each complaint received, including: o the complainant's name o any applicable property reference number if connected to a background testing location o the complainant's address o a receipt number for each complaint which is to be communicated to the complainant o the time, prevailing conditions and description of the complainant's concerns including the potential incidence of special audible characteristics o the processes of investigation to resolve the complaint. A report including a reference map of complaint locations, and outlining complaints, investigation and remediation actions is to be provided on an annual basis to the satisfaction of the responsible authority. The register and complaints response process shall continue for the duration of the operation of the wind energy facility and must be made available to the responsible authority on request. The owner of the wind energy facility must implement and comply with the Approved Noise Complaint, Investigation and Response Plan for the duration of the operation of the wind energy facility.

4. Planning assessment

4.1 Planning and Environment Act 1987

4.1.1 Introduction

The Act governs the use and development of land in Victoria and provides the statutory framework to ensure planning decisions are fair, orderly, economic and sustainable. The Act requires that every municipal council has a planning scheme to implement the objectives of planning in Victoria and provide sound, strategic and coordinated planning decisions.

Planning schemes in Victoria must seek to achieve the objectives of planning in Victoria as set out in Section 4(1) of the Act. These objectives are:

- *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 protect public utilities and other assets and enable the orderly provision and coordination of public utilities and other facilities for the benefit of the community.*
- *To facilitate development in accordance with the objectives set out in the points above.*
- *To balance the present and future interests of all Victorians.*

Section 60 of the Act also sets out matters which the responsible authority must consider when deciding on an application. These matters include:

- *the relevant planning scheme*
- *the objectives of planning in Victoria*
- *all objections and other submissions which it has received and which have not been withdrawn*
- *any decision and comments of a referral authority which it has received*
- *any significant effects which the responsible authority considers the use or development may have on the environment or which the responsible authority considers the environment may have on the use or development*
- *any significant effects which the responsible authority considers the use or development may have on the environment or which the responsible authority considers the environment may have on the use or development*

4.1.2 Minister as the responsible authority

Planning Permit PL-SP/05/0461 was issued on 30 April 2009 by the Minister as responsible authority. At the time the permit was issued, it was standard practice for permit applications for wind energy facilities greater than 30MW in capacity, to be called in for consideration by the Minister in accordance with Section 97 of the Act. At the time, projects under 30MW were considered by local government.

On the 15 March 2011, Amendment VC78 to the Victoria Planning Provision (VPPs) was gazetted. This amendment made local government the responsible authority for all planning permit applications for wind energy facilities.

As the wind farm permit was issued by the Minister, any amendments to the permit must also be considered by the Minister.

4.1.3 Amending a planning permit issued by the Minister for Planning

Permit-holders who are permitted to use or develop land in accordance with a planning permit issued by the Minister may apply to the Minister, for an amendment to the permit in accordance with Section 97I of the Act.

The permit amendment application is generally considered in the same way as an application for a new permit, and the same statutory timeframes apply. With a permit amendment application, the Minister's consideration of the application should be based only on the changes proposed by the applicant and not reopen all the issues associated with the approved use or development.

It is likely that the Minister will require notice to be given in accordance with Section 52 of the Act.

4.1.4 Planning panel

Section 97E of the Act requires the Minister to appoint a panel to hear objections or submissions. The panel must consider the objections and submissions referred to it and give any person who made an objection or submission referred to it and the applicant a reasonable opportunity to be heard.

The panel will provide recommendations regarding the amendment to inform the Minister's decision on whether to:

- amend the permit as requested;
- amend the permit subject to conditions; or
- refuse the application to amend the permit.

The Minister's decision on the application to amend the permit is final.

4.2 Moorabool Planning Scheme

4.2.1 State Planning Policy Framework

The State Planning Policy Framework (SPPF) comprises general principles for land use and development of land and outlines specific policies dealing with settlement, environment, housing, economic development, infrastructure, and particular uses. The policies outlined in the SPPF must be taken into account when responsible authorities are assessing planning permit applications.

Specific clauses of the SPPF which are relevant to the amendment application are outlined briefly below. A full assessment of the proposed amendment against relevant clauses of SPPF is included in the discussion at Section 5.2 of this report.

<u>12.01-1 Protection of biodiversity</u>

Objective

- *To assist the protection and conservation of Victoria's biodiversity, including important habitat for Victoria's flora and fauna and other strategically valuable biodiversity sites.*

Strategies

- *Use statewide biodiversity information to identify high value biodiversity and consider the impact of land use and development on these values.*
- *Ensure strategic planning:*
    - *Avoids and minimises significant impacts, including cumulative impacts, of land use and development on Victoria's biodiversity.*
    - *Considers impacts of any change in land-use or development that may affect the biodiversity value of adjoining national parks and conservation reserves or nationally and internationally significant sites including wetlands and wetland wildlife habitat designated under the Convention on Wetlands of International Importance (the Ramsar Convention), and sites*

utilised by species designated under the Japan-Australia Migratory Birds Agreement (JAMBA) or the China-Australia Migratory Birds Agreement (CAMBA).
- o *Assists in the protection and management of sites containing high value biodiversity.*
- o *Assists in the re-establishment of links between isolated habitat remnants that contain high value biodiversity. Ensure that decision making takes into account the impacts of land use and development on Victoria's high value biodiversity.*

13.04-1 Noise abatement

Objective

- *To assist the control of noise effects on sensitive land uses.*

Strategy

- *Ensure that development is not prejudiced and community amenity is not reduced by noise emissions, using a range of building design, urban design and land use separation techniques as appropriate to the land use functions and character of the area.*

19.01-1 Provision of renewable energy

Objective

- *To promote the provision of renewable energy in a manner that ensures appropriate siting and design considerations are met.*

Strategies

- *Facilitate renewable energy development in appropriate locations.*
- *Protect energy infrastructure against competing and incompatible uses.*
- *Develop appropriate infrastructure to meet community demand for energy services and setting aside suitable land for future energy infrastructure.*
- *In considering proposals for renewable energy, consideration should be given to 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.*
- *In planning for wind energy facilities, recognise that economically viable wind energy facilities are dependent on locations with consistently strong winds over the year.*

4.2.2 Local Planning Policy Framework

The Local Planning Policy Framework (LPPF) consists of the Municipal Strategic Statement (MSS) and Local Planning Policies (LPP). The MSS is a statement of the key strategic planning, land use and development objectives for the municipality and the strategies and actions for achieving those objectives. LPPs are policy statements of intent explaining the expectations of what the responsible authority will do in specified circumstances.

The LPPF must be consistent with the SPPF and should demonstrate how state polices are being addressed locally. The policies outlined in the LPPF must be taken into account when the responsible authority is assessing planning permit applications.

LPPF policies which are relevant to the permit amendment application are outlined below. A full assessment of the proposed amendment against relevant sections of the LPPF is included in the discussion at Section 5.2 of this report.

21.02-2 Objective—Non Urban Landscapes

- *To maintain and enhance the natural environment and the Shire's rural identity and character.*

Strategies

- *Maintain the open rural landscape between the Shire's eastern boundary and Bacchus Marsh as a visual buffer. Recognise and protect the national, state and regional values of Werribee Gorge State Park, Bungal State Forest, Long Forest Nature Reserve, Lal Lal State Forest, Lal Lal Falls, Brisbane Ranges, Lerderderg State Park, and Wombat State Forest.*
- *Protect the landscape and scenic qualities of forested hill slopes, rural landscapes, and bushland setting of the Shire's rural and urban areas.*
- *Preserve high quality landscapes by not supporting development on hilltops and ridgelines.*

21.02-4 Objective—Biodiversity

- *To positively enhance biodiversity in the Moorabool Shire.*

Strategies

- *Support the implementation of the appropriate Regional Catchment Management Strategy*
- *Require land use change and development to retain native vegetation and to minimise topsoil disturbance. Require an increase in sustainable rural land management practices (in particular weed and pest management) when supporting land use change or development within rural areas.*
- *Maintain protect, and enhance the biodiversity values of important roadsides, particularly those within the surrounds of the state and national parks or forests.*

4.2.3 Zones and overlays

The planning scheme uses zones and overlays to implement the SPPF and the LPPF.

Attachment B contains a zoning map for the wind farm and surrounds and an overlay map for each wind farm section. The planning scheme mapping layer is current as of 8 October 2015.

Table 4A below outlines the zones and overlays which apply to the subject land.

Table 4A

Zone / Overlay	Response
Farming Zone (FZ) – Clause 35.07	The purpose of this zone is: • *To provide for the use of land for agriculture.* • *To encourage the retention of productive agricultural land.* • *To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.* • *To encourage the retention of employment and population to support rural communities.* • *To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.* Wind Energy Facilities are a permit required use under the Farming Zone. The FZ requires wind energy facilities to meet the requirements of clause 52.32. In deciding on applications with this zone, the responsible authority must consider, as appropriate: • *Any Regional Catchment Strategy and associated plan applying to the land.* • *The capability of the land to accommodate the proposed use or development, including the disposal of effluent.* • *How the use or development relates to sustainable land management.* • *Whether the site is suitable for the use or development and whether the proposal is compatible with adjoining and nearby land uses.* • *How the use and development makes use of existing infrastructure and*

Zone / Overlay	Response
	services. • *Whether the use or development will support and enhance agricultural production.* • *Whether the use or development will adversely affect soil quality or permanently remove land from agricultural production.* • *The potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses.* • *The capacity of the site to sustain the agricultural use.* • *The agricultural qualities of the land, such as soil quality, access to water and access to rural infrastructure.* • *Any integrated land management plan prepared for the site.* • *The impact of the proposal on the natural physical features and resources of the area, in particular on soil and water quality.* • *The impact of the use or development on the flora and fauna on the site and its surrounds.* • *The need to protect and enhance the biodiversity of the area, including the retention of vegetation and faunal habitat and the need to revegetate land including riparian buffers along waterways, gullies, ridgelines, property boundaries and saline discharge and recharge area.* • *The location of on-site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.* • *The need to locate buildings in one area to avoid any adverse impacts on surrounding agricultural uses and to minimise the loss of productive agricultural land.* • *The impact of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads, vistas and water features and the measures to be undertaken to minimise any adverse impacts.* • *The impact on the character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance.* • *The location and design of existing and proposed infrastructure including roads, gas, water, drainage, telecommunications and sewerage facilities.* • *Whether the use and development will require traffic management measures.*
Road Zone 1 (RDZ1) - Clause 36.04	The purpose of this zone is: • *To identify significant existing roads.* • *To identify land which has been acquired for a significant proposed road* The proposed permit amendment does not seek changes that would trigger additional requirements under this zone. There are no additional or changes to access points from RDZ1.
Road Zone 2 (RDZ2) – Clause 36.04	The purpose of this zone is: • *To identify significant existing roads.* • *To identify land which has been acquired for a significant proposed road* The proposed permit amendment does not seek changes that would trigger additional requirements under this zone. There are no additional or changes to access points from RDZ2.
Environmental Significance Overlay 2 (ESO1) – Clause 42.01	The ESO1 seeks: • To protect the quality and quantity of water produced within proclaimed water catchments.

Zone / Overlay	Response
	• To provide for appropriate development of land within proclaimed water catchments Other than the relocated substation, there is no change to the development footprint of the wind farm. Permitted turbines are being removed from areas covered by the ESO1. Remaining conditions on the permit can address the environmental objectives of this overlay.
Design and Development Overlay 2 (DDO2) – Clause 43.02	The DD02 seeks: • *To enhance visual amenity in rural, township and vegetated areas of the Moorabool Shire* • *To encourage the use of external cladding, such as non-reflective materials for building construction.* • *To discourage the use of materials, such as reflective cladding for building construction, which could have a detrimental effect on amenity* The permit amendment does not propose changes to the condition requiring the use of non-reflective materials on the wind farm.
Heritage Overlay (HO49) – Clause 43.01	The HO seeks: • *To conserve and enhance heritage places of natural or cultural significance. To conserve and enhance those elements which contribute to the significance of heritage places.* • *To ensure that development does not adversely affect the significance of heritage places.* • *To conserve specifically identified heritage places by allowing a use that would otherwise be prohibited if this will demonstrably assist with the conservation of the significance of the heritage place.* The proposed permit amendment does not seek changes that would impact on the stables at Lal Lal Homestead on Yendon-Egerton Road.
Wildfire Management Overlay (WMO) – Clause	The WMO seeks to: • *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 wind energy facility is not one of the permit required uses in the WMO. The WMO had been removed from the Yendon Section since the original permit was issued. The WMO has been added to part of the Elaine Section.

4.2.4 Relevant particular - Clause 52.32 – Wind Energy Facility

Clause 52.32 of the planning scheme provides specific prerequisites and planning provisions for wind energy provisions. This clause sets out:

- areas where wind farms can be permitted and under what circumstances;
- information which is required to be summited to responsible authorities to accompany wind farm planning permit applications; and
- matters that the responsible authorities must consider when deciding on wind farm planning permit applications.

The purpose of clause 52.32 is:

- *To facilitate the establishment and expansion of wind energy facilities, in appropriate locations, with minimal impact on the amenity of the area.*

Clause 52.32-2 requires a permit to use and develop land for a wind energy facility and sets out areas where the wind energy facilities are prohibited.

Clause 52.32-3 requires a plan to be submitted showing all dwellings within one kilometre of a proposed wind turbine. A plan showing all dwellings within one kilometre of the proposed wind farm is submitted with the application and is located in Attachment G.

Clause 52.32-3 also requires evidence of consent of landowners within one kilometre of proposed wind turbines. This is not required as the proposed amendment does not:

- increase the number of wind turbines; or
- change the location of a wind turbine so that it is located closer to an existing dwelling (within one kilometre of a wind turbine) than the closest permitted wind turbine to that dwelling.

Clause 52.32-4 outlines a number of information requirements which should accompany applications. The responsible authority can vary or waive these requirements if it believes the requirements are not relevant to the evaluation of an application. As this application is for an amendment to an existing permit not all of these requirements are applicable. However, the following information accompanies this application:

- information on the site and surrounds. Refer to Section 2 of this report;
- layout plans in Section 2 and at Attachment C;
- revised visual simulations at Attachment F;
- revised bird and bat assessment at Attachment D;
- revised noise assessment, prepared in accordance with the New Zealand Standard NZS6808:2010, Acoustics - Wind Farm Noise, at Attachment E;
- revised shadow flicker assessment at Attachment J, and
- revised aviation safety assessment at Attachment K.

As a state-wide provision, Clause 52.32 has been subject to a number of changes since the wind farm permit was approved. The table in Attachment H outlines relevant amendments which have occurred to clause 52.32 and other relevant State-wide provisions over the past few years.

Before deciding applications, the responsible authority must consider, as appropriate:

- *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 (insert month/year).*
- *The New Zealand Standard NZS6808:2010, Acoustics - Wind Farm Noise*

4.2.5 Clause 66 - Referrals

Clause 66 of the planning scheme identifies the following referral authorities that are relevant to this application:

66.02-5 Special water supply catchment

Referred to:

- The relevant water board or water supply authority (Western Water) as a determining authority

- To use, subdivide or consolidate land, to construct a building or construct or carry out works, or to demolish a building or works that are within a Special Water Supply Catchment Area listed in Schedule 5 of the *Catchment and Land Protection Act 1994* and which provides water to a domestic supply. This does not apply to an application for a sign, fence, roadworks or unenclosed building or works ancillary to a dwelling.

66.04 Clause 4.0 of Schedule 1 to Clause 42.01 (ESO)

Referred to:

- Relevant water authority (Western Water) as a determining authority
- All applications.

In addition to the planning scheme, the guidelines suggest that proponents contact:

- DELWP regarding flora and fauna impacts (Section 4.3.4 of the guidelines); and
- Civil Aviation Safety Authority for structures over 110m (4.3.6, 5.1.5 of the guidelines).

4.3 Policy and planning guidelines for development of wind energy facilities in Victoria.

The guidelines provide advice and guidance to responsible authorities, wind energy proponents and the community about the siting and development of wind energy facilities in Victoria.

The purpose of the guidelines is to provide:

- a framework to provide a consistent and balanced approach to the assessment of wind energy projects across the state;
- consistent operational performance standards to inform the assessment and operation of a wind energy facility project; and
- guidance as to how planning permit application requirements might be met.

The guidelines do not form part of the planning scheme, having had their status altered to a reference document rather than an Incorporated Document (in Planning Scheme Amendment VC82). However, clauses 19.01-1 and 53.32-5 of the planning scheme require the guidelines to be considered, as appropriate, when the responsible authority is considering planning permit applications.

5. Key issues

5.1 Existing approval

In 2009 the planning panel considering the planning permit application concluded that a "permit should be granted" for the wind farm "to increase Victoria's capacity to generate energy from renewable sources." The panel noted that "there will be impacts on the locality but the recommended permit includes conditions to manage and mitigate those impacts."

On 30 April 2009 the Minister for Planning issued the permit in accordance with the recommendations of the panel. The permit is current and the wind farm can be constructed and operated in accordance with this permit and the existing endorsed plans.

An opportunity now presents itself to utilise advances in technology and amend the original approval to generate more electricity by increasing the proposed wind turbine height and rotor diameters. As a result of these changes, the opportunity also exists to reduce amenity and visual impacts through the removal of four wind turbines and by applying the updated noise standard.

The key consideration with the permit amendment application is the extent to which the impacts on the locality are likely to change when compared to the existing permit. Specifically, assessment should be limited to determining whether the changes meet the current requirements of the planning scheme and the guidelines.

5.2 Facilitation of renewable energy

The planning scheme requires the facilitation and promotion of renewables.

Clause 19.01-1 of the planning scheme requires planning to promote renewable energy, "in a manner that ensures appropriate siting and design considerations" and to "facilitate renewable energy development in appropriate locations." This clause also requires responsible authorities to consider the "economic and environmental benefits to the broader community of renewable energy generation" as well as the need to "minimise the effects of a proposal on the local community and environment."

Clause 52.32 of the planning scheme aims to facilitate the development and expansion of wind energy.

The planning scheme requires responsible authorities, when considering wind farm applications, to recognise that economically viable wind energy facilities are dependent on locations with consistently strong winds over the year.

The fundamentals of the subject sites remain the same, that is the:

- wind resources are excellent;
- land is in immediate proximity to the national electricity network;
- land sits on farmland that has been significantly altered from its natural state; and
- land is not of any particular landscape value that is recognised in the planning scheme.

This permit amendment facilitates the development of renewable energy in an area of excellent wind resources and adjacent to the electricity network. Additionally, the proposed permit amendment seeks to minimise the impact on the local community through the application of up-to-date noise standards and the removal of four wind turbines.

The balance of conditions on the permit will maintain adequate protection for local amenity and the environment.

Section 73 of the Act ensures that focus is kept on the extent of the changes proposed by the permit amendment application and that all matters are not open for consideration.

5.3 Environmental and amenity impacts

When planning for and assessing wind energy facilities, proponents and responsible authorities are required to consider relevant environmental and amenity values as well as potential risks. Many of the key elements were considered in 2008 and do not need to be reconsidered as part of this permit amendment application. However, some of the parameters of the existing permit are proposed to be changed and the planning scheme and guidelines have been amended since the original approval. Accordingly, the impacts of the extent of changes proposed are discussed in this section.

Provisions of the planning scheme, sections of the guidelines and conditions of the permit which are not related to the permit amendment application have not been discussed.

5.3.1 Acoustics

Current permit

Wind turbines produce sound, primarily from the movement of blades through the air and from mechanisms (such as gears, brakes and yaw motors) within the nacelle. At the hub of a wind turbine, sound power levels could be expected to be around 104.5dBA once wind speeds reach approximately 8m/s at hub height and sound power levels do not materially increase further with wind speed. On the ground, at the base of a wind turbine sound power levels could be expected to be approximately 60dBA. At nearby dwellings sound power is not permitted to exceed 40dBA or 5dBA above the background sound level, whichever is greater. Background sound level is a key consideration as wind turbine sound cannot be measured during calm periods when wind turbines don't operate.

The current permit requires the wind farm to comply with the New *Zealand Standard 6808:1998, Acoustics – Wind Farm Noise.* When assessing the original planning permit application the panel concluded that the original assessment has been completed in accordance with NZ6808:1998 and that it satisfied the requirements of the planning scheme as they were at the time.

In March 2011 the Minister endorsed the noise compliance testing plan for the Yendon Section which addressed the requirements of Condition 24 of the permit. The proponent has fully met their requirements for wind farm noise under the permit. Accordingly, construction of the wind farm could be completed and all 64 wind turbines could operate in accordance with *New Zealand Standard 6808:1998, Acoustics – Wind Farm Noise.*

Revised assessment and the new standard

A revised acoustic assessment forms part of this permit amendment application. The revised assessment is required as the requirements of the planning scheme have changed.

Clause 52.32-4 of the planning scheme and Section 5.1.2 (a) of the guidelines require applications for wind energy facilities to be accompanied by an assessment against the New *Zealand Standard 6808:2010, Acoustics – Wind Farm Noise* (NZS6808:2010).

The new standard differs from the earlier standard and key differences include:

- the introduction of a reduced base noise limit for high amenity areas – determination whether a dwelling is located in a high amenity area is mainly based on planning merits (discussed in this section);
- a change in recommended noise prediction method – the simple method provided in the 1998 version was more conservative (provided higher predicted noise levels) than the more sophisticated and widely used ISO9613-2 method proposed for the 2010 version;
- a change in acoustic parameter from LA95 to LA90; and
- a need to reference wind speeds to hub height.

Collectively these changes make the new standard a more accurate reflection of likely wind farm noise.

The changes proposed in this permit amendment have been assessed against this standard by Marshall Day Acoustics Pty Ltd (Marshall Day). Marshall Day found that the proposed changes to the wind farm that are

being considered under this amendment request is predicted to comply with NZS6808:2010. Marshall Day found compliance with the:

- lowest possible NZS 6808:2010 noise limit that is achieved at all wind speeds at all identified noise sensitive locations;
- raised ETSU-R-97 noise limit that is achieved at all wind speeds at all host landowner properties; and
- lowest possible NZS 6808:2010 noise limit that is achieved at all wind speeds at all remaining properties in the vicinity of the wind farm.

Marshall Day's revised noise assessment can be viewed in Attachment E.

Reduced noise impacts

The permit amendment application proposes the removal of two permitted wind turbines form the Yendon Section and two permitted wind turbines from the Elaine Section. The removal of these wind turbines will reduce sound power levels at adjoining dwellings.

Figures 5A and 5B below illustrate the benefits that the removal of the proposed wind turbines has had on predicted sound power.

For the Yendon Section (Figure 5A), the removal of approved wind turbine YSWT-04 (circled below) drags the predicted noise contour back toward the wind farm and increases the separation distance between dwelling K34aa and the predicted 40 decibel contour. The 40 decibel contour is shaded in red for an approved wind turbine under the current permit and as a green line on the proposed amended permit.

Figure 5B illustrates that for the Elaine Section the removal of approved wind turbines ESWT-09 and ESWT-22 drags the 35dBA predicted noise contour back toward the wind farm and increases the separation distance to the cluster of dwellings near Mt Doran.

The amended layout being considered under this amendment request will improve the amenity experienced at nearby dwellings when compared to the original permit.

Figure 5A - Yendon Section – predicted sound power contours

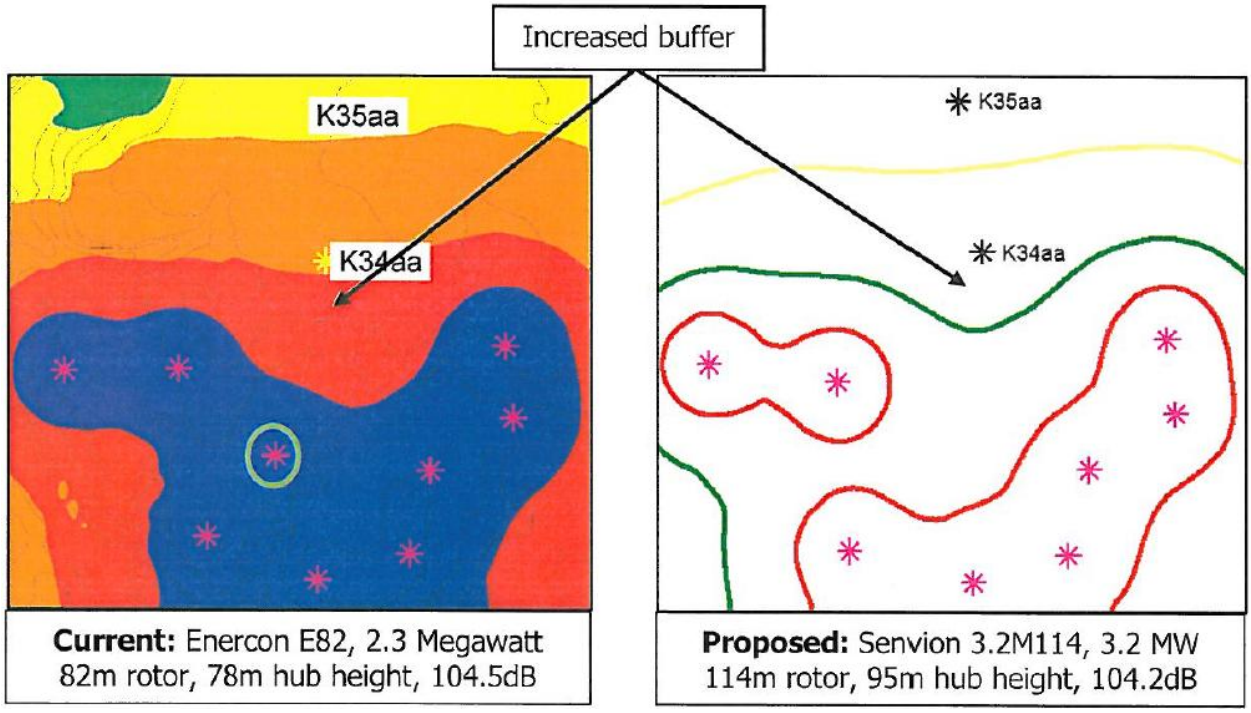
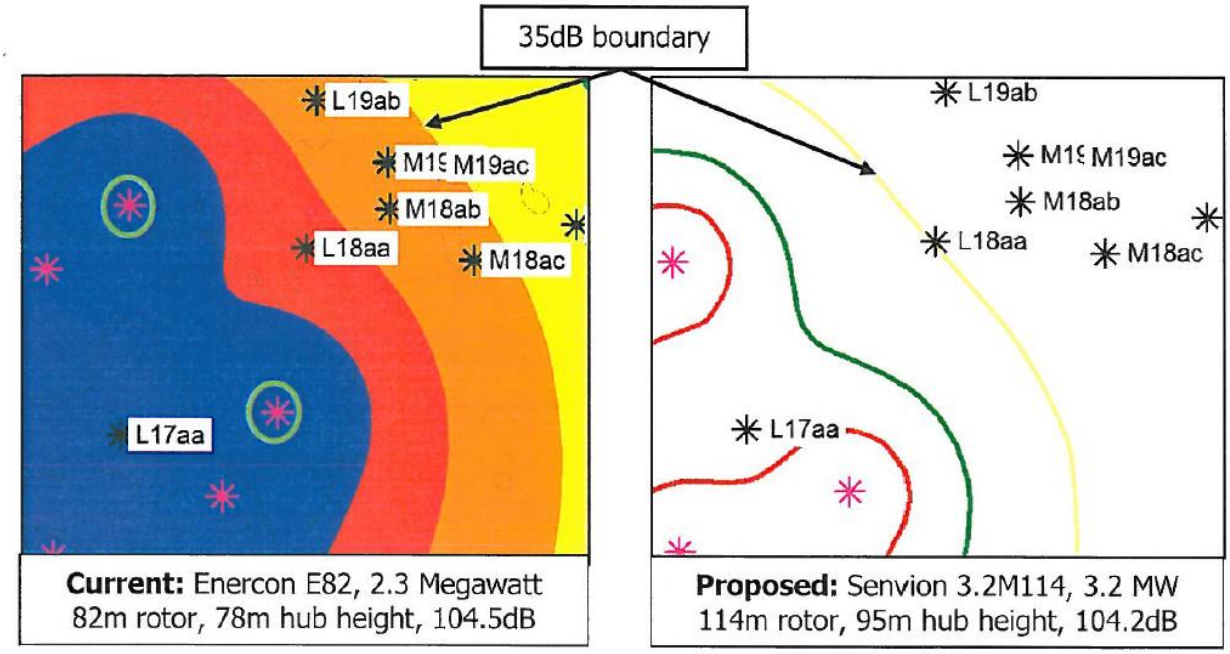


Figure 5B - Elaine Section – predicted sound power contours



High amenity

Section 5.3 of NZS 6808:2010 refers to applying a stricter standard where a 'plan' exists over a particular area to promote a higher level of protection from noise. The New Zealand planning system defines such a 'plan' as being a 'regional plan or a district plan.' [2] When translating this requirement into Victoria's planning system the 'plan' referred to in Section 5.3 of NZS 6808:2010 is treated as a planning scheme approved under the Act[3].

The planning scheme identifies the wind farm and its immediate surrounds as being located within the Farming Zone and covered by Environmental Significance Overlay (water supply catchment), Design and Development Overlay (reflective materials), Heritage Overlay and Wildfire Management Overlay. There are no specific planning controls by way of zone, overlay, municipal strategic statement section or local planning policy within the planning scheme that expressly provide for or imply the need for additional protection from noise at or near the proposed Lal Lal Wind Farm.

When considering the requirements of Section 5.3 of NZS 6808:2010 it is not possible for the 'high amenity' noise limit to be considered for the Lal Lal Wind Farm. There is no plan, policy, assessment or otherwise within the planning scheme to suggest that the proposed Lal Lal Wind Farm area and surrounding environs warrant consideration of a high amenity noise level as described in NZS 6808:2010.

5.3.2 Landscape and visual amenity

Clause 52.32-4 of the planning scheme requires applications for wind energy facilities to include an assessment of the impact of the proposal on the landscape of the area and views to and from the site and to assess the visual impact of the surrounding landscape. The clause requires the provision of accurate visual simulations from the surrounding area. Clause 52.32-5 requires the responsible authority to consider the impact of the proposal on significant views, visual corridors and sightlines.

The wind farm site is not identified in the planning scheme as being of particular landscape significance. The wind farm site is not covered by the Significant Landscape Overlay.

[2] Cherry Tree Wind Farm Pty Ltd Vs Mitchell Shire Council VCAT No. P2910/2012 <https://www.vcat.vic.gov.au/system/files/cherry_tree_wind_farm_pty_ltd_v_mitchell_shire_council_decision.pdf viewed 5 October 2015>
[3] Ibid

Wind turbines

In 2008, to support the original planning permit application, Environmental Resources Management Australia Pty Ltd (ERM) carried out a landscape and visual impact assessment of the proposed wind farm with its then proposed height and rotor diameter. The ERM assessment concluded that the subject site and surrounds had "low visual sensitivity to a wind farm development and is a suitable location for the construction of a wind farm." The assessment noted that the landscape is "highly modified" with agricultural activities and associated structures and other signs of human intervention have created a landscape that can absorb other changes."

In assessing the original planning permit application, the planning panel concluded that:

- "*there will be no unreasonable impacts on views from the public realm provided that supplementary landscaping is carried out at Lal Lal Falls Reserve. Factors such as topography, bushland or garden settings, and the orientation of dwellings protect many houses in the vicinity of the Proposal from adverse visual impacts."*

If approved, the proposed amendment will allow for the construction of larger wind turbines. To assess the impact of this change the advice of ERM was sought. To demonstrate the extent of change, DELWP required photomontages from the 10 viewpoint locations discussed within the Landscape and Visual Impact Assessment (LVIA) accompanying the original permit application.

ERM have found that, when compared to the existing permit, the proposed change in the wind turbine parameters will have a negligible change on the landscape and visual amenity considering the scale of the approved turbines within the landscape.

Figure 5C – ERM Visual simulation- existing permit – 130m

Photomontage of 130m high wind turbines (Approved Layout - 2008)

Figure 5D – ERM Visual simulation - proposed amended permit -161m

Photomontage of 161m high wind turbines (Amended Layout - 2015)

Figures 5C and 5D, show the extent of change between the existing permit and the proposed height increase. The visual simulations illustrate that the extent of change proposed is negligible.

The original ERM assessment, updated advice and additional visual simulations, showing the height increase are located at Attachment F.

External transformers

Locating wind turbine transformers externally will have no impact on the significance of the landscape or on visual amenity. Condition 2g of the permit requires the colours and finishes of all other buildings and ancillary equipment to be non-reflective to minimise the impact of the development on the landscape. To illustrate the nature of this proposed change, Figure 5E shows the external transformers at the Mt Mercer Wind Farm (pale green box at the bottom left of the wind turbine in the foreground).

Figure 5E – External transformers Mt Mercer Wind Farm, Mt Mercer.

Electrical substation at Elaine

This permit amendment application seeks the flexibility to locate the electrical substation at the Elaine Section further to the east. This proposed optional location is immediately adjacent to the 220 kV transmission line. The two proposed turbines to be removed from the Elaine Section are also located in this area. Condition 11 requires an onsite landscape plan to be prepared to visually screen and beautify all onsite buildings and works in addition wind turbines. The will ensure that the substation is appropriately landscaped.

The revise layout plan at Attachment G identifies the alternate location of the substation.

With regard to landscape and visual amenity generally, it should be noted that the amendment:

- reduces proposed wind turbine numbers thereby reducing visual impact from the nearby dwellings when compared to the original approval - particularly dwellings north of the Yendon Section around Mt Doran, near the Elaine Section; and
- moves some proposed wind turbines further away from dwellings compared to the existing approved layout; and
- does not remove the requirement for dwellings within three kilometres of any proposed wind turbine to be able to accept the proponent's offer to provide landscaping to mitigate views from dwellings.

The changes proposed by the permit amendment will not have an impact on the Shire's natural environment and rural character.

5.3.3 Flora and fauna

Clause 52.32-4 of the planning scheme requires applications for wind energy facilities to include an assessment of the impact of the proposal on any species listed under the *Flora and Fauna Guarantee Act 1998* (FFG Act) and the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) (EPBC Act). Additionally, Clause 52.32-5 requires the responsible authority to consider the impact of the proposal on the natural environment.

Section 5.1.4 of the guidelines states that responsible authorities should consider:

- *whether the species and communities are protected under the EPBC Act or the FFG Act*
- *the sensitivity of any protected species to disturbance*
- *the potential loss of habitat of species protected under the EPBC Act or the FFG Act; and*
- *measures to minimise the impacts on any native species.*

The flora and fauna assessment, by Brett Lane and Associates (BLA), carried out at the time of the original planning permit application, found that no EPBC Act listed bird and bat species were likely to be affected by the proposed wind farm. The assessment also found that proposed wind turbines and associated infrastructure such as access tracks were not impacting on existing native vegetation[4]. The changes proposed in this permit amendment application will not have any additional impact on native vegetation which was considered under the original planning application.

The changes proposed in this amendment application involve the increase in approved wind turbine height from 130m to 161m and increasing rotor diameter from 95m to 122m. As the rotor swept areas of the proposed wind turbines are proposed to change, specialist advice was sought as to the potential impact on birds.

BLA have reconsidered the change in proposed wind turbine height and rotor swept area and found that none of the bird or bat species on the wind farm site are listed as rare or threatened species under the EPBC or the FFG Acts and that during bird utilisation surveys, no birds were seen flying over 120m high (although raptors are likely to fly at such heights) and the change in height to 161m has no noticeable change in collision risk.

Additionally, Conditions 17 and 19 of the permit require:

- a bird monitoring program of at least two years duration from the commissioning of the last turbine to ascertain impact from the wind farm;
- procedures for the regular removal of carrion so as to not attract raptors; and
- periodic reporting to DELWP.

The earlier flora and fauna report submitted with the original permit application and the updated advice from BLA can be found in Attachment D.

5.3.4 Shadow flicker

Shadow flicker refers to the effect of wind turbine blades passing between the sun and an observer.

Clause 52.32-5 of the planning scheme requires the responsible authority to consider the impact of shadow flicker when considering applications. Section 5.1.2b of the guidelines states that shadow flicker at the area immediately surrounding dwellings “must not exceed 30 hours per year”.

As the amendment proposes higher towers and larger rotors the effect of shadow flicker on nearby dwellings has been re-assessed. The assessment was carried out by GHD in April 2015 and found that two dwelling locations, H18aa and J17ab may experience 44.1 hours and 32.7 hours of shadow flicker per year respectively.

If meteorological conditions are suitable for shadow flicker to occur at these dwellings, then:

[4] Some native vegetation removal will be required as a result of the widening of some existing farm access points. The removal of this vegetation has been assessed and approved under planning permit 2008/208.

- H18aa may experience shadow flicker in January and February between 7am and 8am; and in October, November and early December between 6.30am and 7.30am; and

- J17ab may experience shadow flicker between 7.30pm and 8.30pm from November to February and from March to April and 6.45am to 7.30am in September.

It should be noted that the predicted shadow flicker hours are extremely conservative. Actual shadow flicker experienced at these locations will be influenced by:

- cloud cover and wind speeds (no wind = no shadow flicker, cloud cover = no shadow flicker);
- wind direction (blades may not be positioned as to be between the observer and the sun);
- vegetation screening around the dwellings, including screening which may be required to satisfy condition 12 of the original permit; and
- the final parameters of the relevant wind turbines.

In any event, the onus is on the wind farm operator to meet the planning permit condition and keep shadow flicker to under 30 hours. It is proposed to amend Condition 21 of the permit to enable wind turbines to have shadow detection devices fitted, if needed. Shadow detection devices would ensure the relevant wind turbines are shut down at times and in meteorological conditions where shadow flicker is likely to occur. To provide another option to meet this requirement, Condition 21 is also being amended to enable agreements to be entered into with landholders outside of the subject site.

A shadow flicker assessment will be provided with the development plans showing the final turbine size to be installed. If the rotor diameter, or hub-height is less than the maximum size modelled, the hours will be reduced. This may mean that one, or both, locations may meet the requirement without further mitigation.

The revised shadow flicker assessment, modelling the worst case example, and an example of the detection device are located at Attachment J.

5.3.5 Aircraft safety

Wind turbine height can be substantial and can impact on nearby airfields and air safety navigation.

Clause 52.32-5 of the planning scheme and Section 5.1.5 of the guidelines require the responsible authority to consider impacts of the wind energy facility on aircraft safety.

In 2009 the panel found that the wind farm would satisfy the requirements of CASA, the Department of Defence, and Country Fire Authority. The panel noted that Air Services Australia had confirmed that the proposal would not interfere with radio, radar or navigational installations.

As the proposed amendment seeks an increase in proposed wind turbine height, aircraft safety has been reassessed. In March 2015 Rehbein Aircraft Consulting (Rehbein) reviewed the proposal, focussing on the wind farm's likely impact on:

- nearby aerodromes;
- air navigation and air traffic management services;
- transiting air routes;
- designated airspace such as danger, restricted or prohibited areas;
- any other aviation activity; and
- electromagnetic interference with airborne radio.

Rehbein's report found that the changes proposed for the wind farm:

- will not impact upon aircraft operations to registered or certified aerodromes such as Ballarat, Avalon or Melbourne Airport or nearby uncertified aerodromes used for recreational aviation activities;
- is not likely to interfere with radio or navigation aid performance;
- should not affect flights operating under the Visual Flight Rules (VFR);

- will be sufficiently conspicuous by day, and at night local enroute lowest safe altitudes will provide clearance required for flights under the Instrument Flight Rules (IFR) and night operations under the Night VFR; and
- may affect agricultural aerial spreading and spraying operations or power transmission line inspections on the downwind side of the proposed wind turbines. However, Rehbein noted that agricultural operations are normally conducted at very low levels and often require calm or very light wind conditions of less than 15km/h.

Rehbein concluded that the risk to civil aviation activities, if any, is negligible.

Rehbein recommended that, as a tall structure that may pose a risk, the position of the proposed wind farm should be shown on appropriate air navigation charts to assist pilots operating in the region and that the CASA may direct, or the proponent may identify, a need to illuminate the proposed structures in order to highlight wind farm to the flying community. This recommendation is fully addressed by conditions 2(o) and 6 of the permit which provide for the updating of aeronautical charts and the installation of aviation safety lighting. The proposed amendment does not seek to change planning permit conditions relating to aviation safety.

In April 2015 Rehbein prepared a memo to the proponent commenting on the extent to which the specific change from a proposed height increase of 130m to 161m may affect aircraft safety. Rehbein states that the impact of the height increase "would be insignificant" with regard to aircraft safety.

The revised aircraft safety assessment and the supplementary memo from Rehbein is at Attachment K.

5.3.6 Blade glint

'Blade glint' can result from the sun's rays reflecting off the surface of a wind turbine blade.

Clause 52.32-5 of the planning scheme requires the responsible authority to consider the effect of 'blade glint' from the proposal on the surrounding areas. The guidelines (5.1.2 (b)) also require finishing blades with materials of low reflectivity.

Condition 2f requires wind turbines to be of a non-reflective finish. This condition is not affected by this permit amendment application.

5.3.7 Electromagnetic interference

There is a slight chance that large structures in the landscape may result in electromagnetic interference on radio transmissions and reception.

Clause 52.32-5 of the planning scheme requires the responsible authority to consider the effect of electromagnetic interference from the proposal on the surrounding areas. The guidelines also require the potential for interference to be minimised or eliminated and that the siting of proposed wind turbines between 'line of sight' transmission and reception should be avoided.

An EMI assessment was carried out in 2010 and identified communication links crossing the site. The location of proposed wind turbines avoids identified communications links.

A copy of the EMI assessment can be found in Attachment L.

5.4 Other consents and approvals

5.4.1 Environmental Effects Act 1978 (EA Act)

On the 1 June 2007 the Minister for Planning determined that an Environment Effects Statement was not required for the wind farm. At the time, a total of 70 wind turbines were proposed. In the decision, the Minister noted that:

- *The project sites mostly consist of cleared agricultural land, with considerable scope to adjust the siting of proposed wind turbines and associated infrastructure to avoid adverse effects on indigenous flora*

and Aboriginal cultural heritage, if either listed species or significant cultural heritage places are found in detailed site investigations.

- *Potential effects on avifauna, landscape values and residential amenity are likely to be of local significance only, with some potential for mitigation.*
- *The potential environmental effects of the project can be adequately assessed through the planning permit process under the Planning and Environment Act 1987.*

The planning permit amendment does not propose changes which cannot be adequately assessed through the planning permit amendment process under the *Planning and Environment Act 1987.* Accordingly, re-referral under the EA Act is not warranted.

5.4.2 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) (EPBC Act)

In September 2007 the proposed wind farm was referred to the then Commonwealth Department of Environment and Water Resources to determine whether the project would be a 'controlled action' which would require further approval from the Commonwealth. At the time a total of 70 wind turbines were proposed.

On the 19 October 2007 the Commonwealth Department of Environment and Water Resources advised the proponent that the proposal was not a controlled action. Accordingly, no further approvals are required by the Commonwealth.

The flora and fauna assessment carried out at the time of the original planning permit application found that EPBC Act listed bird and bat species where unlikely to be affected by the proposed wind farm. As discussed in Section 5.2.3, the impact of the proposed height increase to 161m and rotor increase has been assessed. BLA have concluded that the changes "will not lead to a significant additional risk to birds at the wind farm site." BLA notes that the majority of species encountered are common farmland species and the proposal will "not lead to the change in risk for rare or threatened bird species which is considered negligible at this site." Accordingly, the risk to EPBC Act listed or migratory species is negligible and does not warrant re-referral of the proposal to the Commonwealth.

5.4.3 Aboriginal Heritage Act 2006

A Cultural Heritage Management Plan (CHMP) is required if a high impact activity is occurring to land which has been identified as being of cultural heritage sensitivity. Wind energy facilities are automatically classified as high impact activities.

In December 2008 a CHMP was approved for the wind farm.

Planning permits cannot be issued if they are inconsistent with the approved CHMP. The proposed changes to the wind farm permit are not inconsistent with the CHMP and proposed wind turbines have been carefully located to avoid impacting on areas of cultural heritage sensitivity.

The proposed amendment will not result in any additional impacts on Aboriginal heritage.

6. Conclusion

Since the original application for a planning permit was lodged in March 2008 advances in wind energy technology have occurred. These advances allow for wind turbines of a greater generation capacity to be installed on a wind farm site, significantly increasing the electrical output without adding wind turbines and at a lower overall cost.

As a result of these advancements in technology, the proponent is aiming to increase the efficiency of the Lal Lal wind farm. To achieve this, the proponent is seeking to amend the permit in accordance with Section 97I of the Act to allow for the installation of larger capacity turbines. Additionally, the proponent is also requesting an amendment to the planning permit to apply the updated noise standards (NZS 6808:2010), now required by the planning scheme. The project has been assessed against this standard and complies. Shadow flicker has been modelled and the wind farm layout can comply with the requirements of the proposed planning permit.

The removal of proposed wind turbine YSWT-04 will reduce impacts (particularly noise and visual amenity) to dwellings to the immediate north of the Yendon Section. The removal of proposed wind turbines ESWT-09 and ESWT-22 at Elaine increases the distances from the cluster of dwellings on the corner of Lewis Road and Settlement Road and will reduce the impact on these dwellings when compared to the original planning permit.

The landscape and visual amenity assessment found that the increased wind turbine parameters result in a negligible change in the visual impact of the wind turbines and that given the scale of the approved wind turbines within this landscape, the additional height makes an insignificant difference to the visual impact.

The revised bird and bat assessment notes that the impact of the proposed wind turbine height increase will be negligible and no additional impacts on flora and fauna values are expected.

The revised aviation assessment has found that any impacts on aviation safety are negligible.

The changes proposed under this permit amendment are reasonable. The relevant assessments have found that the impact of the changes on the local area will be negligible. The net community benefits from an amended project will be significant.

The permit amendment gives effect to the objectives of planning in Victoria and complies with and gives effect to the provisions of the Moorabool Planning Scheme in particular Clauses 19.01 and 52.32.