

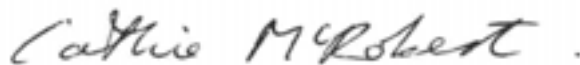
**LAL LAL WIND ENERGY FACILITY
PERMIT APPLICATION PL- SP/05/0461
AND
NATIVE VEGETATION REMOVAL
PERMIT APPLICATION PL07/067**

PANEL REPORT

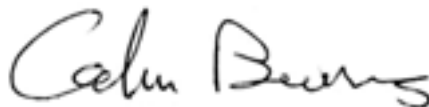
FEBRUARY 2009

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NATIVE VEGETATION REMOVAL
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PANEL REPORT



Cathie McRobert, Chair



Colin Burns, Member



David Rae, Member

FEBRUARY 2009

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List of Abbreviations Used

dB(A)	Decibels, A weighting
DPCD	Department of Planning and Community Development
DSE	Department of Sustainability and Environment
EMP	Environmental Management Plan
EMP	Environmental Management Plan
EPBC	Environment Protection and Biodiversity
EVS	Ecological Vegetation Community
FFG	Flora and Fauna Guarantee
ha	Hectare
km	Kilometre
kV	Kilovolt
LPPF	Local Planning Policy Framework
MRET	Mandatory Renewable Energy Target
MSS	Municipal Strategic Statement
NVA	The Application for Native Vegetation Removal (PL07/067)
NZ6808:1998	New Zealand Standard NZ6808:1998, <i>Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators</i> (NZ6808:1998).
PAR	The Planning Application Report in support of the WEF Application (PL- SP/05/0461)
RAP	Registered Aboriginal Party
SEAV	Sustainable Energy Authority Victoria
SHMA	Sovereign Hill Museums Association
SPPF	State Planning Policy Framework
The Planning Scheme	Moorabool Planning Scheme
vpd	vehicles per day
WEF	Wind Energy Facility
WEF Guidelines	Policy and Policy Guidelines for Development of Wind Energy Facilities in Victoria

Overall Conclusions and Consolidated Recommendations

We have concluded that a permit should be granted for the proposed Lal Lal WEF to increase Victoria's capacity to generate energy from renewable sources. There will be impacts on the locality but the recommended permit includes conditions to manage and mitigate those impacts.

We have adhered to the framework for assessment provided by the WEF Guidelines, which are incorporated in the planning scheme. This includes applying the assessment criteria and standards prescribed in the WEF Guidelines, although submissions advocated the application of alternative noise standards. We have also sought to adopt an approach to issues that is consistent with the approach adopted in the evaluation of other WEF proposals.

There has been active opposition to the proposed WEF and submitters' objections to this proposal mirror those raised in most previous WEF proposals, but with a particular focus on the site being inappropriate due the greater number of houses in the vicinity of this WEF with consequential visual and noise impacts on more people.

Before proceeding to our findings on critical issues we would like to record that our assessment has benefited from the disciplined, rigorous testing of the Proposal at the Hearing by residents and LLELAG in particular. This, together with our site inspections, provided an appropriate basis for assessment of the Proposal, despite deficiencies in the material provided in support of the application, notably in relation to visual impacts.

Abatement of Greenhouse Pollution

As required by government and planning policy, our assessment accords considerable weight to the contribution the proposed WEF would make to increasing the supply of electricity from renewable sources (equivalent to supply 75,000 households) and thereby reducing greenhouse pollution (Annual greenhouse gas emissions avoided– 534,000 tonnes).

Density

We do not support submissions that the significantly greater number of people living within 3 km of this proposal necessarily makes the site inappropriate for a WEF, nor that a standard separation distance, of say 2 km, should apply. It is the actual impacts that are important, not whether

some prescribed maximum density of houses within some nominated distance or separation distance are satisfied. In the current case impacts on properties the same distance from turbines are quite different. However, visual impact and noise evidence indicate that the current Clause 52.32 requirement to identify the location of houses within 500 metres of a turbine is clearly inadequate and the inference that this area should be the focus of assessment of adverse impacts on amenity is not supportable. We consider Clause 52.32 should be amended to require all houses within at least 3 km to be identified.

Visual Impacts

It is understandable that residents want to protect their existing landscape setting, which for many was central to their choice to live in this area. It is clear that, for many, the WEF will be an unwanted change to the landscape of this locality. However, while this landscape is highly valued by residents, it is not identified as having broader significance warranting specific protection.

We conclude 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. With the recommended offer of landscaping to mitigate visual impacts of a visible turbine within 3km of a dwelling, we consider there will be no unreasonable impacts. There are a small number of properties – Phyland's, O'Donnell's and O'Brien's - where the topography and proximity of the turbines mean that the effect of landscaping to mitigate the visual impact will be limited. However, given the policy weighting in favour of renewable energy and the broader benefits to the community, we do not consider a recommendation to reject or substantially modify the proposed WEF due to its impact on these three properties is justified. This type of dilemma is not uncommon in the assessment of major infrastructure proposals.

Noise

The PAR predicts that noise from the WEF would comply with the New Zealand standard noise limits at all non-host dwellings and we recommend that the *Interim Guidelines for Control of Noise in Country Victoria (N3/89)* apply during the construction phase. We note that the WEF operator will need to take whatever action is necessary to comply with the noise standards if, despite the expert evidence and the Proponents confidence in the modelling undertaken, predicted noise levels prove to be under estimates. Thus any risk rests with the WEF operator, not residents.

An effective regime to ensure the WEF complies with the noise standards will be vital and we have gone to some lengths to ensure the efficacy of that process for all non-host dwellings. We recognise that there are significant costs associated with the recommended compliance regime, partly due to the extent of the development in the immediate locality, but are of the firm view that residents are entitled to the assurance of compliance the process will provide.

The determination of both noise limits and compliance testing is dependant on meaningful data on background noise but in some instances the monitoring to date has not established any meaningful relationship between wind speed and background noise levels, particularly at night at critical wind speeds. We have recommended further measurement of background and operating noise levels at all non-host dwellings where the predicted WEF noise level is 35 dB(A) or greater. While the post commissioning compliance testing should ensure that any areas of non-compliance are addressed, we have also set out in some detail the approach to the management of complaints relating to noise (and other matters) to achieve a staged response to substantiate and addressed complaints.

Traffic Management

We are satisfied that the regional and local road network, with the identified intersection improvements, is capable of handling all traffic associated with the WEF. However, we have recommended that that an alternative to the use of Fords Lane for access to the Elaine Section be investigated. The Traffic Management Plan will provide an appropriate framework for the implementation and enforcement of all other traffic management issues, including the agreed approach to recovery by Council of costs of works attributed to the WEF, and safety along bus routes during school pick up and drop off times.

Flora and Fauna

We find that the critical environmental values of the proposed WEF site are limited. The Proposal avoids any loss of native vegetation on-site and the losses off-site (1,000m²) that are required to achieve access have been minimised. We have recommended that a permit issue for the removal of native vegetation with a secondary approval after consultation with DSE if targeted spring surveys identify vegetation listed under the *Flora and Fauna Guarantee Act 1988* and the *Environment Protection and Biodiversity Conservation Act 1999*. (Further permits required under the relevant legislation would also be required).

We accept the consensus expert opinion that impacts on ground fauna, birds and bats were adequately assessed, impacts are expected to be limited and the permit conditions provide a suitable framework for further monitoring and mitigation of any impacts. While we recognise that many submitters appreciate the presence of Wedge-tailed eagles in the locality, the evidence indicates that the WEF will not have a significant impact on regional populations of what is a non-threatened species.

Other Matters

We address concerns about impacts on residents' health, cultural heritage, safety, electromagnetic interference, development opportunities and property values in the body of this report but, with the framework established by Recommended Permit conditions, do not find that these impacts justify refusal of a permit or modification of the layout.

To our knowledge, this is the first WEF proposal where a nearby property (in Narmbool Road) would not include a building envelope for an aspect of right dwelling within which compliance with amenity standards could be achieved. This property was identified as part of the Elaine Section of the WEF during the pre-application consultation process and we have inferred that the owner made an informed decision not to object to the Application or seek any modification to it. We consider that, while it would be desirable to ensure that the amenity implications of the WEF on this property are highlighted to prospective purchasers, the risks to the WEF associated with a requirement for a Section 173 agreement are not justified. However, a mechanism to highlight areas subject to adverse amenity impacts, and to encourage dwellings to be located where amenity standards are satisfied would be a useful addition to the planning framework for WEFs.

Many residents resent 'bearing the pain without sharing the gains' from the WEF. It is clear that, like many infrastructure projects, there will be real impacts on people living near the WEF for the benefit of the wider community and in the case of WEFs also for the benefit of host landholders. We support the establishment of a community fund by the WEF operator but do not consider it should be included as a requirement of the permit. Like other Panels, we have recommended consideration of a system or process to share the benefits of WEF projects with nearby non-host landowners.

The value of materials recoverable during decommissioning is substantial and is likely to meet the cost of the necessary rehabilitation works. In the absence of an established administrative framework for a bond to guarantee funds for rehabilitation or to ensure that funds from recovered material continue are actually applied to works necessary to rehabilitate the site after decommissioning, we have accepted the established practice of relying on

permit conditions to ensure rehabilitation occurs. However, we believe the merits of a bond to ensure rehabilitation of WEF sites should be considered in a broader review of the planning framework for WEFs and have identified some of the associated administrative requirements that could be necessary based on the model applied in the mining and extractive industries.

Overall Finding

The ultimate test of whether a proposal should be approved is whether it achieves the overarching goal to *integrate relevant environmental, social and economic factors in the interests of net community benefit and sustainable development*¹.

The proposed WEF will have impacts on the locality, particularly visual impacts. We are conscious of the high level of impacts on several properties but effective responses would involve the removal of many turbines with a substantial loss of benefits to community that we believe cannot be justified. We note that a better outcome would be achieved if Mr O'Donnell's property, which is surrounded by the Elaine Section of the WEF and is subject to the highest level of noise, visual and traffic impact, was included in the WEF but we are not in a position to require this course of action.

Overall, we find that the substantial contribution to the abatement of greenhouse gas pollution and economic benefits from the Lal F WEF outweigh the adverse impacts on the amenity of the locality. The Proposal will result in a net community benefit that contributes to sustainable outcomes and a permit should issue subject to the recommendations set out below.

Consolidated Recommendations

After considering all of the submissions, evidence and material presented at the Panel Hearing we recommend that:

Recommendations in Chief

Wind Energy Facility Application PL-SP/05/0461

1. That subject to the recommendations in this report, a planning permit for the Lal Lal Wind Energy Facility should be issued with the conditions set out in the Recommended Permit in Appendix B.

¹ Clause 11.02

Native Vegetation Application PL07/067

2. That subject to the recommendations in this report, a planning permit for the removal of native vegetation should be issued with the conditions set out in the Recommended Permit in Appendix C.

Recommendations for DPCD Consideration in Review of the Planning Framework for Wind Energy Facilities

3. Consider the following matters in a future review of the planning framework for Wind Energy Facilities.
 - a) Amending Clause 52.32 to require all houses within (at least) 3 km to be identified;
 - b) Amending the WEF Guidelines to:
 - Require Proponents to:
 - Undertake a visual assessment of all properties within 3km of any turbine, to identify the number of turbines potentially visible from each property; and
 - Provide photomontages of views from properties or clusters of properties where the impact on visual amenity without mitigation is rated as 'high' in the initial assessment;
 - Clarify the definition of 'grid connection';
 - c) Investigate aviation obstacle lighting for WEFs in conjunction with the wind energy industry and the Civil Aviation Safety Authority with a view to establishing requirements for obstacle lighting;
 - d) Evaluate the merits of establishing a policy requiring a bond to guarantee that WEF sites are rehabilitated after decommissioning;
 - e) A system or process whereby surrounding, non-host landowners for wind energy facilities are provided with the opportunity to share in the benefits of that project; and
 - f) The merits of applying an overlay to highlight locations where it is predicted that amenity standards cannot be met and, perhaps, encourage dwellings in locations where amenity standards are satisfied.

1. Overview

The Permit Applications	Application PL-SP/05/0461 -Wind Energy Facility (WEF) Application PL07/067 - Native Vegetation Removal
The Project	The proposed WEF is in two parts that are separated by approximately 9 km and are referred to as the Yendon Section and the Elaine Section. The proposed WEF comprises 64 turbines with components including substations, permanent amenity buildings, access tracks, temporary construction yards with concrete batching plants, internal power connections and business identification signs. There is a separate application for off-site removal of native vegetation at intersections and access points to facilitate access to the WEF.
Proponent:	West Wind Energy Pty Ltd
Responsible Authority:	WEF Application: Minister for Planning Native Vegetation Application: Minister for Planning after call-in from the Shire of Moorabool on 30 October 2008. Enforcement: Shire of Moorabool
Panel Members:	A Panel with the following members was appointed under Sections 97E, 153 and 155 of the Planning and Environment Act 1987 to consider submissions and make recommendations to the Minister about the Lal Lal WEF. Cathie McRobert, Chair Colin Burns, Member David Rae, Member
Panel Hearings:	The Hearings were held at Ballarat on the following dates: Directions Hearing: 22 September 2008 Main Hearings: 6, 7, 10, 11, 12, 13, 17, 18, 19, 20, 24 November 2008, 10 December 2008
Site inspection:	Accompanied site inspection were conducted on: <ul style="list-style-type: none"> ▪ Yendon Site - 25 November 2008 ▪ Elaine Site – 10 December 2008 The Panel members also viewed the sites and surrounding areas unaccompanied on a number of occasions.

Appearances:	<p>Department of Planning & Community Development represented by Ms Cindy Bright</p> <p>West Wind Energy represented by Ms Michelle Quigley SC who called the following evidence:</p> <ul style="list-style-type: none"> ▪ Mr A Wyatt of ERM Consultants– Landscape; ▪ Mr B Lane and Mr David Copalina of Brett Lane & Associates Pty. Ltd. – Flora and Fauna; ▪ Mr C Delaire of Marshall Day Acoustics– Noise; ▪ Mr S Hunt of Cardno Grogan Richards Pty Ltd– Traffic; ▪ Mr T Offor of Offor Sharp & Associates Pty Ltd– Social Planning <p>Moorabool Shire Council represented by Mr Peter Jewel and Ms Amy Reynolds who called the following evidence:</p> <ul style="list-style-type: none"> ▪ Mark Venosta of Biosis Research Pty. Ltd. – Flora and Fauna <p>Lal Lal Elaine Landscape Action Group Inc. (LLELAG) represented by Mr David Turley, Ms Belinda Wehl, Ms Erica Nathan, Mr John Taylor, Ms Shelley O'Brien and Ms Heather Mc Mahon.</p> <p>Mr David & Ms Helen Turley.</p> <p>Mr Andrew Bradley, Industry Capability Network (Victoria) Pty Ltd.</p> <p>Mr Michael & Ms Margo Rees.</p> <p>Mr Noel & Ms Jane Robson.</p> <p>Mr Robert Grieve.</p> <p>Sustainability Victoria represented by Mr John Edgoose.</p> <p>The Sovereign Hill Museums Association represented by Mr Michael Bromby of Hunt and Hunt Solicitors.</p> <p>Mr Marcus & Ms Shelley O'Brien.</p> <p>Mr Patrick & Ms Loretta Toohey.</p> <p>Ms Kathy Russell.</p> <p>Mr Kevin Ramholdt.</p> <p>Mr Paul Preat.</p> <p>Dr David MacKay.</p> <p>Ballarat Radio Model Flying Club Inc represented by Mr Roger Carrigg and Mr Nick Katsikaros.</p> <p>Mr Craig and Ms Megan Jenkins.</p>
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Appearances (cont.)	<p>Mr Kelvin O'Donnell represented by Ms Catherine Moorhouse.</p> <p>Mr Andrew Cameron.</p> <p>Mr James O'May.</p> <p>Mr Robert & Ms Belinda Wehl.</p> <p>Mr John Taylor.</p> <p>Ms Wendy Taylor.</p> <p>Ms Heather McMahon.</p> <p>Mr John McMahon.</p> <p>Mr Alan & Ms Linda Everington.</p> <p>Mr Robert Dore.</p> <p>Mr Andrew Aitken.</p> <p>Mr J B King.</p> <p>Mr Steve & Ms Gail Nowaski.</p> <p>Mr Hector Veitch.</p> <p>Mr Paul Rodgers.</p> <p>Ms Erica Nathan.</p> <p>Mr Russell Ford.</p> <p>Michael & Robyn Phyland.</p> <p>Mr Tony Barrett.</p> <p>Mr Karl Johansson.</p> <p>Mr Mark Francis Ryan.</p> <p>Mr Stephen & Ms Brenda Rose.</p> <p>Mr John & Ms Noelene Walker.</p> <p>Mr David McCallum.</p> <p>Mr Richard F B Kelly.</p> <p>Mr Anthony G B Kelly.</p> <p>Mr Robert A B Kelly.</p> <p>Mr Gordon C B Kelly.</p> <p>Ms Rhonda Cowell.</p> <p>Mr Rex and Ms May Grills.</p> <p>Mr Doug Beaumont represented by Ms Carol Grills.</p> <p>Mr Graeme Drysdale.</p>
Submitters	A list of all submissions referred to the Panel is included in Appendix A.

1.1 The Issues

After considering the provisions of the Moorabool Planning Scheme, the Planning Application Report (PAR), the submissions, and the material provided, we identified that the key issues relate to:

- Greenhouse Pollution Abatement;
- Residential Density;
- Landscape And Visual Impacts;
- Noise Impacts;
- Shadow Flicker;
- Electromagnetic Interference;
- Traffic Management;
- Safety And Health;
- Flora And Fauna;
- Cultural Heritage; and
- Economic And Social Impact.

These issues are addressed in the subsequent chapters of this report. Our overall conclusion at the beginning of this report provides our overall assessment of whether the application would result in a net benefit to the community, after having considered the range of issues raised.

We note that, although the implications for water quality are particularly important in parts of the subject land within a Special Supply Catchment area (subject to ESO1), this issue was not contentious. It seems that stakeholders, including the relevant Catchment Management Authority and Water Authority, recognise that the proposed Environmental Management Plan (EMP) can ensure the WEF does not compromise water quality. We do not address water catchment and quality issues further.

1.2 What is proposed?

1.2.1 The WEF Application

The Subject Site and Surrounds

The Planning Application Report (PAR) describes the site, its surrounds and the proposed development. The Figure 1² below shows the locality of both sections of the proposed WEF.

² Source: PAR Volume 2 Figure 2.1 *Landscape and Visual Assessment* ERM February 2008.

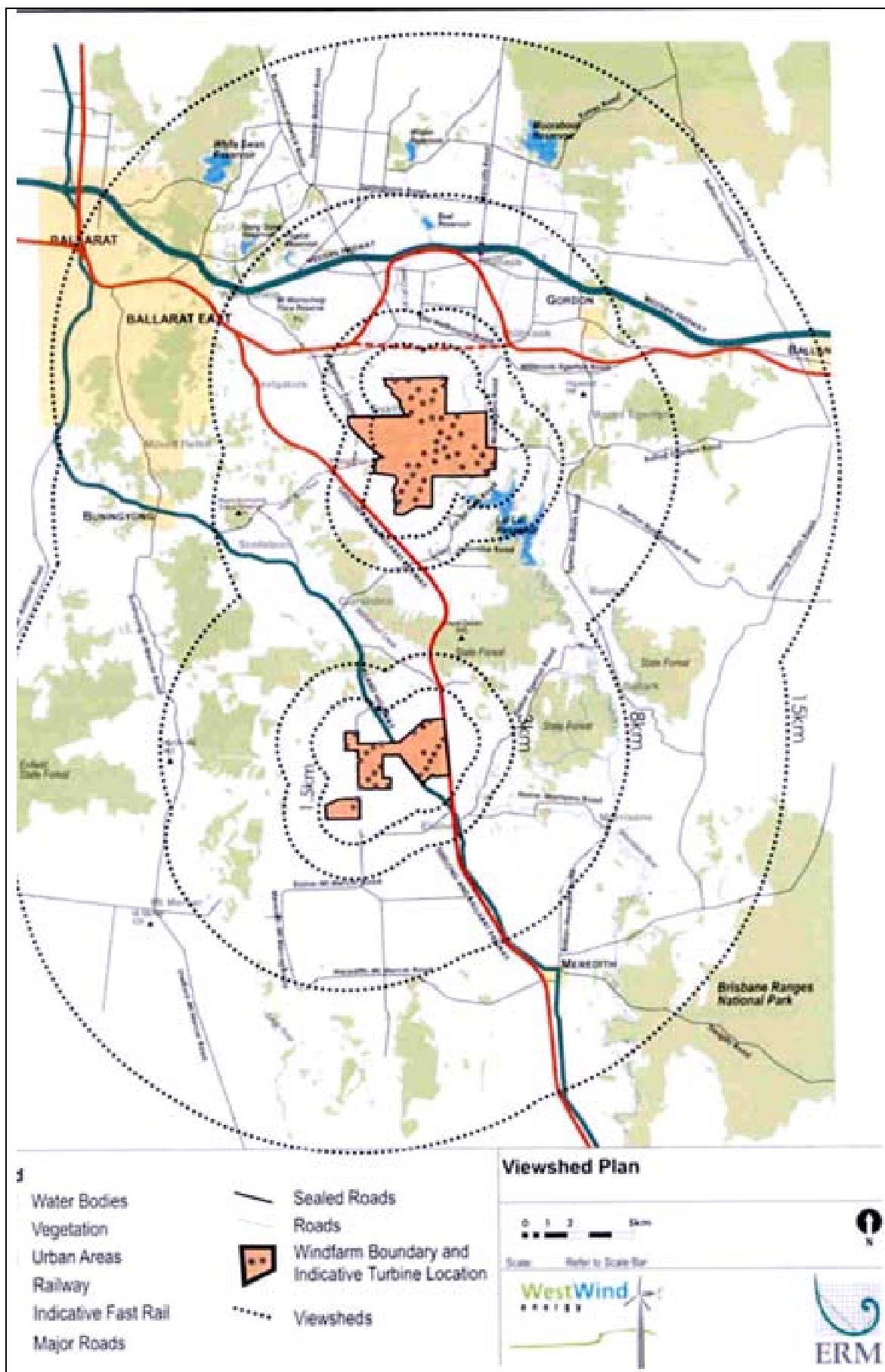


Figure 1 Lal Lal WEF in Context

The WEF site is comprised of two sections:

- The Yendon Section, approximately 17 km southeast of Ballarat, is approximately 2100Ha held by two landowners, as well as various parcels of Crown land along waterways and roads; and the
- The Elaine Section, approximately 25 km southeast of Ballarat, is approximately 720Ha held by four landowners, as well as various parcels of Crown land.

The PAR includes formal descriptions of the relevant land holdings.

Both Sections of the site and adjoining land consist mainly of agricultural land, predominantly used for sheep and cattle grazing with some cropping and recently established eucalypt plantations. The site is mostly cleared with patches of degraded forest (Grassy Forest Ecological Vegetation Class) remaining on higher granite ridges in the Yendon Section.

Several settlements including Yendon, Dunnstown, Millbrook, Lal Lal, Mount Egerton, Mt Doran, Elaine and Cargerie are located between 1.9km and 5km from the proposed WEF site.

The Yendon Section is within the Lal Lal water supply catchment managed by Central Highlands Water and a number of streams drain 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 State Wind Atlas indicates the site is in an area with wind speed of between 6.5 and 7.5 metres/sec at a height of 65m (see Figure 2.1 in Volume 1 of the PAR). The Proponent's monitoring has confirmed that the site has a good wind energy resource relative to other parts of the State and is suitable for a WEF.

The WEF Proposal

A detailed description of the Proposal is provided in the PAR. The Application is for use and development of land for a WEF comprising:

- 64 wind turbines with 40 in the Yendon Section and 24 in the Elaine Section;
- Associated infrastructure at each section including access tracks, underground 33 kV power cabling, permanent amenities buildings, electrical substations and permanent meteorological monitoring facilities;
- Temporary construction facilities at each section, including concrete batching plants, temporary storage of materials and equipment and for parking and wash-down of vehicles;
- Business signs; and

- Alterations to an access points to and works within a Road Zone.

The proposed turbine layout is shown in Figures 2 and 3 below. The turbines would be housed in nacelles atop tapered towers mounted on concrete footings. The turbines would generate 2-3 MW³ with a generation capacity from the WEF of least 131MW and up to 192 MWh/annum. The maximum height of the turbines would be 130 metres with a hub height of 85 metres and 3 blades (95m diameter).

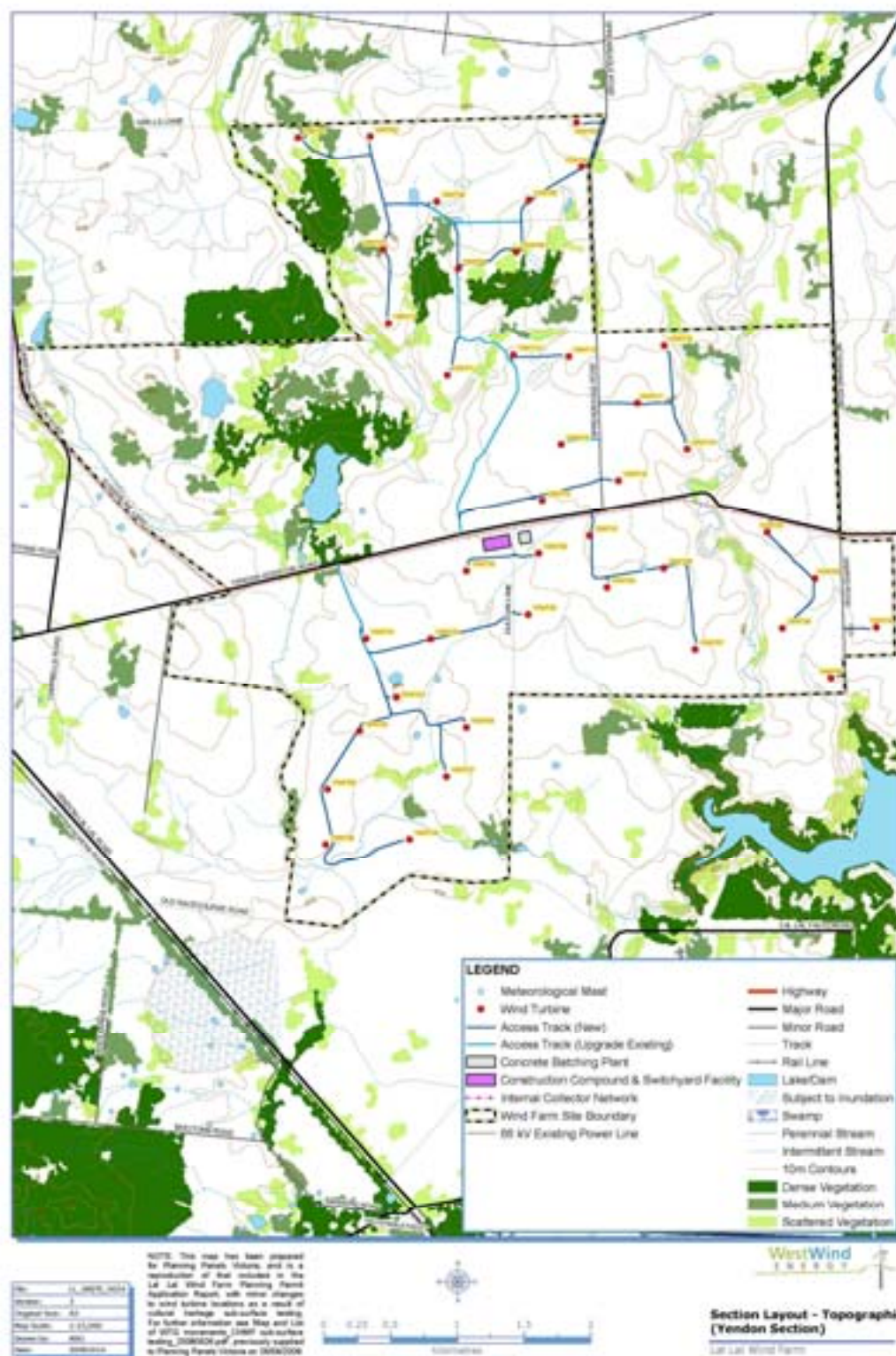
Matters requiring environmental management will be the subject of requirements specified in the Environment Management Plan (EMP), as discussed in Chapter 9 Volume 1 of the PAR.

1.2.2 The Application to Remove Native Vegetation

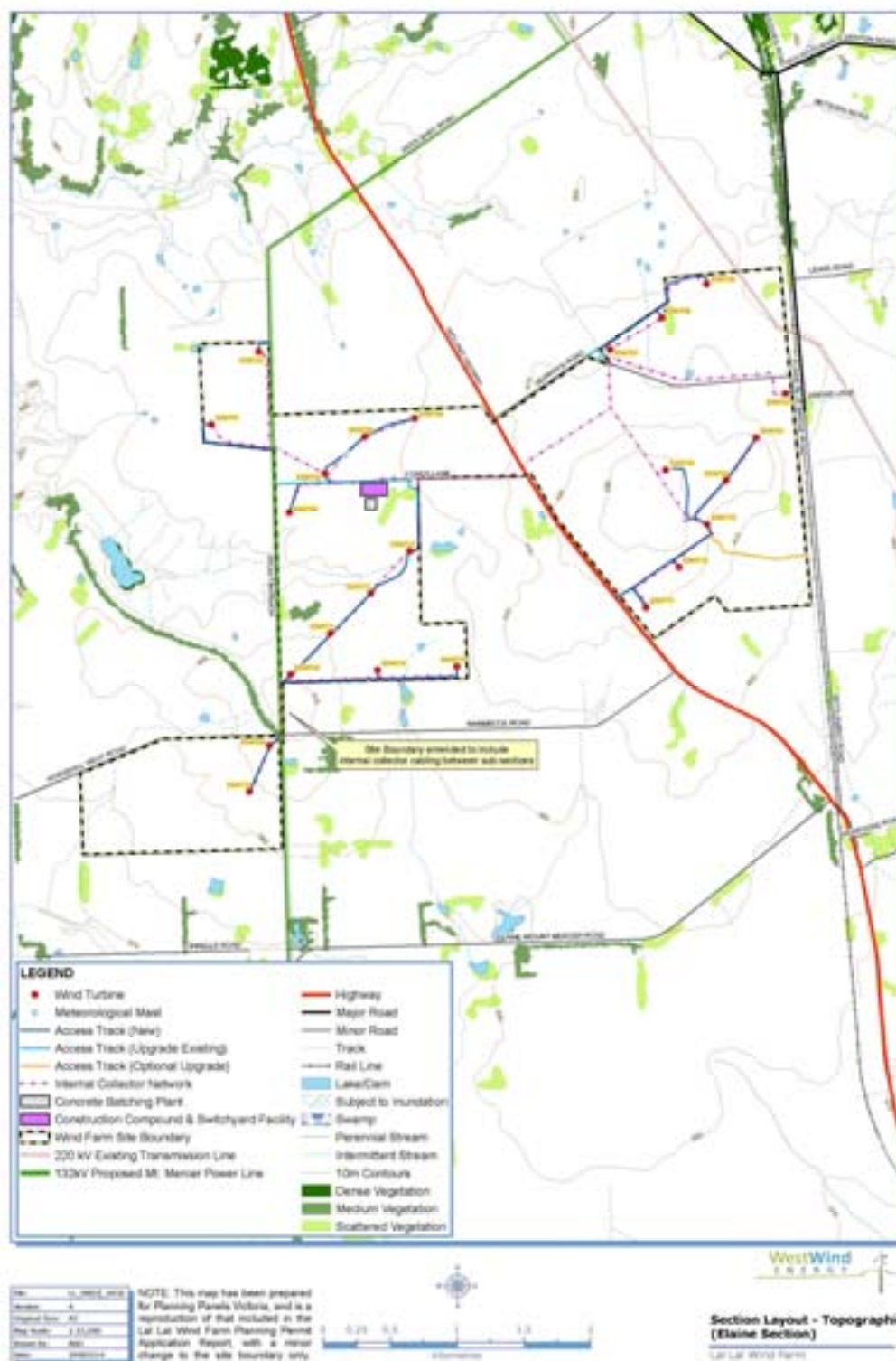
Permit Application PL07/067,(the Native Vegetation Application (NVA) seeks approval to remove less than 1,000m² of native vegetation at the following intersections and access points to facilitate access of large vehicles to the site:

- Yendon-Egerton Road / Duggan Lane, Gates Y8 and Y9;
- McGuigans Road / Gate Y7;
- Murphys Road / Gate E8;
- Elaine-Blue Bridge Road / Gate E9;
- Elaine-Blue Bridge Road / Gate E10;
- Midland Hwy / Murphys Road;
- Fords Lane / Midland Hwy; and
- Horsehill Road / Gate E3.

³ A range of generating capacity was nominated to provide some flexibility and for technological advances during the project lead-time. The Proponent is currently proposing to use the Enercon E82-2MW wind turbine with a rated power of 2.05MW.



**Figure 2 Site layout plan Yendon
(Revised Layout Circulated Before the Panel Hearing)**



**Figure 3 Site layout plan Elaine
(Revised Layout Circulated Before the Panel Hearing)**

1.3 Procedural Matters

1.3.1 Treatment of Yendon and Elaine Sites as One Application

At both the Directions Hearing and the main Hearing LLELAG argued that the Proposal is for two separate WEFs and the two sections should be treated as separate applications. They pointed out that the sites, which are approximately 9km apart: are not connected physically or by ownership; have distinctly different environmental and landscape characteristics and impact on different communities. LLELAG sought amendment of the WEF Guidelines to clarify the definition of a WEF referring to the view in an Issues Paper on WEFs and landscape values⁴ that:

“a wind farm is defined as “an array of wind turbines located in close proximity to one another using the same substation (transformer) and power line to connect to an electricity grid.”

We note that the WEF Guidelines require consideration of cumulative impacts and the approach adopted in this application facilitates evaluation of proposals that may otherwise be assessed concurrently. In addition to fragmenting assessment, separate applications could undermine the capacity to adopt an integrated approach to the drafting and implementation of permit conditions. As noted in our response to issues raised at the Directions Hearing, we are required to consider the application referred to us and the implications for specific areas forms part of our assessment.

1.3.2 The Adequacy of Documentation Provided

During the Panel process submitters raised concerns about the scope and accuracy of material presented, with the representation of visual impacts being particularly contentious. Subsequent chapters discuss the mapping of houses and submitters in the vicinity of the site (see Chapter 4), misleading information on noise in the survey underpinning the perceptions study (see Chapter 14), and photomontages (see Chapter 5).

LLELAG demonstrated that there were deficiencies in the information and we acknowledge that this may have affected consultative processes and submitters' capacity to assess impacts on them, as well as requiring these flaws to be taken into account in the evaluation process. Nevertheless, the notice and Panel processes have allowed those affected to present their views and the Proposal has been subject to detailed scrutiny, particularly as a result of LLELAG's testing of material at the Hearing. We are satisfied that the

⁴ Planisphere, Wind Farms and Landscape Values Issues Paper (May 2004) Australian Council of National Trusts (ACNT) and the Australian Wind Energy Association (AusWEA).

combination of the material provided, the Panel process and our site inspections establish an acceptable basis for our evaluation of the Application.

1.3.3 Sovereign Hill Museums Association Expert Evidence

Sovereign Hill Museums Association (SHMA) initially indicated that it would call expert evidence on visual impacts. The deadline for the submission of their expert witness report was extended until 30 October 2008 to allow that expert to take account of further photomontages, if any, from their site. Following exchanges via email where the Proponent advised that further photomontages would not be provided, parties were advised that the issue could be addressed at the beginning of the Hearing. When the expert report was not submitted Planning Panels Victoria (PPV) inquired of SHMA whether it was proposed to lodge an expert report and extended the date for the lodgement to 3 November. PPV received no further advice and it was assumed at the commencement of the Hearing that expert evidence would not be called by SHMA in relation to Narmbool. To facilitate timetabling, PPV made further inquiries and on Day 6 of the Hearing and was advised that SHMA still intended to call expert evidence. An expert report prepared by Mr Haak was lodged late on 14 November.

Subsequent submissions from the Proponent highlighted the disregard for Panel directions by SHMA and expressed strong concerns about the procedural fairness implications of accepting evidence after they had called evidence in the same field and completed primary submissions. We agreed with that view and ruled that the evidence would not be accepted, noting that this did not preclude submissions from SHMA on visual impacts. We maintained this ruling after Mr Bromby protested on the basis that the Proponent's failure to provide further photomontages had caused significant delay in the preparation of evidence, late lodgement of the expert statement had not caused prejudice to any party, and the report does not set out any issues that have not been considered or contemplated by the parties.

1.3.4 Without Prejudice Draft Permit Condition Discussion

At the direction of the Panel, DPCD circulated draft permit conditions for both Applications before the Hearing. Versions with revisions proposed by the Proponent were discussed at a 'without prejudice' discussion of potential permit conditions on the penultimate day of the Hearing. The potential conditions discussed for the WEF Permit and referred to in various parts of this report are included as Appendix D. This permit will be referred to as the "Draft Permit". The permit incorporating the conditions recommended by the Panel is included in Appendix B and is referred to in the report as the

'Recommended Permit'. We did not consider it necessary to include the draft permit for removal of native vegetation, which is on the public record, and have included the "Recommended Native Vegetation Permit in Appendix C.

2. The Planning Framework

Planning policy reinforces broader government policy to support the development of renewable energy expressed in documents such as The Victorian Greenhouse Strategy, the 2006 Environmental Sustainability Action Statement, *Our Environment, Our Future* and *Victorian Renewable Energy Act 2006* (which establishes the Victorian renewable energy target (VRET) scheme).

The Planning Assessment in Volume 3 of the PAR and the submissions of the Department of Planning and Community Development (DPCD), the Council and the Proponent all documented relevant planning policy and VPP provisions. We do not propose to recite the policy provisions that apply to all applications in the State and municipality. Rather, this chapter highlights the elements of the planning framework that relate specifically to WEFs and this land in particular. Chapters assessing particular issues also consider policy relating to the issue.

2.1 Planning Scheme Provisions

Clause 52.32 Wind Energy facilities requires the following matters to be considered in the assessment of applications for WEF permits:

- The views of the Sustainable Energy Association of Victoria (SEAV) about the contribution of the Proposal to reducing greenhouse gas emissions;
- 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 views of the Civil Aviation Safety Authority if within a 30 km radius of an airfield; and
- The Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria, 2003.

These matters are addressed in the relevant Chapters of this report.

Policy And Planning Guidelines For Development Of Wind Energy Facilities In Victoria (the WEF Guidelines) are called up in Clauses 15.14 and 52.03 and, as incorporated under Clause 81, they form part of the planning scheme.

The WEF Guidelines are a key document that reinforce government policy relating to WEFs and establish a specific decision making framework for the assessment of WEF proposals that supplements more generic planning scheme provisions. These guidelines require the assessment to consider:

- The amount of electricity to be exported from the site;
- Expected greenhouse gas savings;
- Infrastructure requirements including electricity grid connections;
- Traffic movements;
- A site analysis and design response;
- Visual impacts;
- Impact of the Proposal on critical environmental values;
- Noise impact on existing dwellings prepared in accordance with the New Zealand noise standard⁵;
- The economic and social impacts of the Proposal;
- The suitability of the site in comparison to other potential sites;
- Likely amenity effects on the surrounding area due to blade glint, shadow flicker, overshadowing and electromagnetic interference;
- Impact on aircraft;
- The cumulative effects having regard to other existing or proposed WEFs; and
- Environment Management Plans.

Clause 52.17 Native Vegetation which establishes permit requirements for the removal of native vegetation and, like Clause 15. 09, calls up the *Native Vegetation Management: A Framework for Action* as a key document in planning decisions relating to native vegetation (See Chapter 11.2).

Clause 52.05 Advertising signs prohibits signage exceeding three square metres in the Farming Zone.

Clause 52.29 establishes a permit requirement to create or alter access to the Road Zone, Category 1 (RDZ1).

2.2 Zones

The Proposal is located in the Farming Zone (FZ) which has purposes with a strong focus on the use of land for agriculture, sustainable land management and protection of natural resources and biodiversity. Use and development of WEFs requires a permit in the zone.

⁵ *New Zealand Standard NZ6808:1998, Acoustics—The Assessment and Measurement of Sound from Wind Turbine Generators*

The Elaine Section is bisected by the Midland Highway, which is a Road Zone–Category 1 (RDZ1) and the Yendon Section is transected by the Yendon-Egerton Road which is a Road Zone–Category 2 (RDZ2). A planning permit is required under zone provisions for upgrades to intersections in four locations, to create or alter access to the RDZ1 and for works associated access points to the Site from both categories of Road Zone. Permit conditions requested by VicRoads, which is a referral authority for RDZ1 applications, have been incorporated in the Recommended Permit (see Appendix B).

Other zonings in the vicinity (1-2km) of the Proposal, which have purposes to provide for residential development, include:

- land in the Township Zone in Yendon (approximately 3km west of the nearest turbine in the Yendon Section), in Elaine (approximately 2km south east of the nearest turbine in the Elaine Section) and between the two sites at Lal Lal and Clarendon (approximately 3km south west of the nearest turbine in the Yendon Section); and
- land in the Rural Living Zone abutting the Township Zones at Yendon (approximately 2km from the nearest turbine in the Yendon Section) and Lal Lal located between the two sections (2 km from Yendon Section turbines and 5km from Elaine Section turbines).

2.3 Overlays

The following overlays apply to parts of the site:

- **Environmental Significance Overlay (Schedule 1) – Proclaimed Water Supply Catchments (ESO1)** applies to the whole of the Yendon Section and to an eastern part of the Elaine Section and requires a permit for building and works. The overlay and both water authority and planning scheme policies are directed at managing development to protect the quality of the potable water supply. However, the protection of water quality, which is addressed by permit conditions, was not contentious and is not discussed further in this report;
- **Design and Development Overlay (Schedule 2) Visual amenity and building design (DDO2)** applies to the whole of subject land. However the Proposal is exempt from permit requirements under this overlay as non-reflective materials will be used;
- **Wildfire Management Overlay (Schedule 6)** applies to parts of the Yendon Section but a permit is not required under this overlay for use and development of the Proposal; and
- **Heritage Overlay (Schedule 49)** applies to the Stables at Lal Lal Homestead on Yendon-Egerton Road. A permit is not required for the

Proposal as no building or works will take place on land subject to the Heritage Overlay.

2.4 Panel Interpretation of Overall Directions in the Policy and Planning Framework

Planning policy is often criticised for failing to articulate clear policy intentions. In the case of renewable energy generally, and WEFs in particular, there is a consistent, unambiguous State government policy to promote and facilitate the establishment and expansion of WEFs to reduce greenhouse emissions, reduce the long term dependency on energy from fossil fuels and increase the security and diversity of Victoria's energy supply⁶. This overall policy direction is reinforced in the Clause 52.32 and the WEF Guidelines which are incorporated in the planning scheme.

The overarching State policy to facilitate the development of WEFs is qualified as WEFs are to be in appropriate locations with minimal impact on the amenity of the area⁷. However, the more specific WEF Guidelines provide further direction on how this purpose should be achieved by amplifying the performance expectations placed on proposals. The WEF Guidelines indicate the weight that should be accorded to various aspects of the evaluation, identify measures to mitigate impacts and establish criteria to be satisfied for matters such as noise and shadow flicker, and aircraft safety.

It is clear that the planning scheme requires our assessment to give considerable weight to the framework established by the WEF guidelines, including the evaluation criteria, the weighting of factors and the adoption of the specific standards nominated. Subsequent chapters address provisions of the WEF Guidelines that are relevant to particular issues more specifically.

We also note here that proposed changes to the Moorabool MSS which seek to limit the location of WEFs may be inconsistent with State policy or could add to policy ambiguity. We discuss this issue in Chapter 4 on residential density.

In considering impacts from the WEF on residential amenity, we are also conscious that the purposes of the Farming Zone are to provide for productive agricultural use of the land and to ensure this primary function is not adversely affected by non-agricultural uses, particularly dwellings. In this zone development for residential uses (and uses that may conflict with agriculture) is not promoted and the amenity expectations of residents must be tempered by the potential impacts from agricultural activities.

⁶ See Moorabool Planning Scheme Clauses 52.14-1 and 52.32 and the WEF Guidelines

⁷ Clause 52.32 Purpose

3. Greenhouse Pollution Abatement

Some (19) submitters questioned the effectiveness of wind energy in meeting community needs for baseload power. They highlighted the variation in the resource, the embedded energy in the development of WEFs, as well as energy losses in the distribution of the energy produced.

Sustainability Victoria (SV), which is a Referral Authority for this application and supports the Proposal, emphasised the imperative to increase capacity to generate renewable energy given policies to abate greenhouse pollution and the economic consequences under carbon trading schemes of high carbon intensive energy production.

SV emphasised that wind energy is a growth sector because is it cost effective and commercially available. SV countered the assertion that wind energy provides an erratic source of supply, advising that wind energy plant utilisation is 85% - 90% (compared to ~ 95% for coal plants) and there were only 2 hours in 2007 when there was no wind energy generation in Victoria. SV advised that *'modern wind turbines rapidly recover all the energy spent in manufacturing, installing, maintaining, and finally decommissioning them. Under normal wind conditions it takes between two and three months for a turbine to recover all of the energy involved.'*

The Panel is satisfied that the basis of the following estimates from the PAR (table 4.1)⁸ is consistent with the methodology in the WEF Guidelines:

- Annual energy output 402,000MWh (assumed capacity factor 35%)
- Annual greenhouse gas emissions avoided– 534,000 tonnes; which is equivalent to greenhouse gas generation of 75,000 households or 123,000 cars.

As required by government and planning policy, our evaluation of the proposed WEF accords considerable weight to the contribution it would make to the government policy to increase the supply of electricity from renewable sources and thereby reduce greenhouse pollution.

⁸ It is noted that SV estimates suggest energy generation and GHG emissions avoided would both be higher than presented in the Application report (436 GWh electricity generated and greenhouse gas emission reductions by up to 475,000 tonnes per annum).

4. Residential Density – A Critical Issue?

4.1 Submissions

More than half of the written submissions (163 submissions) objected to the application on the basis that the WEF site is within an area of high residential density and the loss of amenity will impact on many families.

LLELAG argued that inaccuracies in the application documentation (and Mr Wyatt's evidence) resulted in a failure to acknowledge the number of families affected by adverse amenity impacts and this was a major shortcoming in the assessment presented by the Proponent on the suitability of the locality for a WEF. They tabled plans to illustrate that the location of dwellings on the maps provided by the Proponent understate the numbers of dwellings in the area and in particular those close to the proposed WEF. It was also demonstrated that the circle on the plans purporting to show a distance of 1.5km from the nearest turbine was in fact a distance of 1km. The Proponent acknowledged this error and substituted a corrected map. LLELAG also went to considerable effort to document the intensity of dwellings in the vicinity of this WEF proposal compared to others that have advanced to the application stage in Victoria⁹. The table below summarises their analysis of case studies¹⁰, which they submitted is an accurate (and possibly conservative) representation of settlement patterns.

WEF	Houses within 3km of WEF Boundary	Houses within 3-5km of WEF Boundary	Total
Lal Lal	411	523	934
Dollar (1)	178	499	677
Waubra (2)	156	63	219
Mt Mercer	30	46	76
Challicum Hills	37	14	51

- (1) *Dumbalk and Foster fall within the 3-5km range. Houses within these towns were estimated at 80 & 300 respectively from Google Aerials. These house numbers have been included in the figures.*
- (2) *There are 50 houses within the WEF area and 22 of these are known to be stakeholder houses. For the purpose of the study 50-22+28 homes were added to the 0-3km range.*

⁹ It was noted that Mr Wyatt's evidence had understated the number of houses within 3 km.

¹⁰ House locations in the Challicum Hills and Dollar case studies were collected from the Spatial Visions Vicmap Books South West Region (2006) & South East Region (2007). Aerial photographs were used to provide based data for Lal Lal WEF & Mt Mercer. A plan included in the Preliminary Landscape Assessment for Waubra WEF (by ERM) was used as the base for the Waubra Case Study. LLELAG considered that case studies accurately represent settlement patterns and it is likely that more detailed analysis would show more houses rather than less.

While we do not challenge the accuracy of this analysis, the identification of housing within distances from the boundary of the site, rather than the distance from turbines inflates the number of dwellings at which impacts might be felt. For example, in the case of the Yendon Section the western site boundary is approximately 1 km from the edge of the residential area whereas the nearest turbine is over 2 km from the residential area. Thus the number of dwellings within 2 km of the WEF boundary will be substantially greater than that 2 km from the nearest turbine.

The more relevant analysis of housing undertaken by LLELAG based on distances from turbines, compared the housing context for the Lal Lal proposal with the Dollar proposal, which Mr Wyatt characterised as being an area with a high density of dwellings. As illustrated in the table below, this analysis showed the comparable densities within 0 – 1.5 km from turbines but there are many more houses within 1.5 – 3km from Lal Lal turbines.

WEF	Houses within 1.5km Turbine Offset	Houses within 1.5-3km Turbine Offset	Total
Lal Lal	40	234	274
Dollar	36	78	114

Many submissions called for a 2 km minimum separation between houses and turbines to ensure adequate buffering from amenity impacts. Ms Wehl highlighted that separation distances ranging between 1.5 and 3.22 km (ie 2 miles) have been adopted or advocated¹¹ but the justification for these distances was not provided.

LLELAG was also concerned that, if approved, this WEF will establish an undesirable precedent for other areas where lifestyle living is a dominant feature of the surroundings. They challenged the Proponent's view that people living in the Farming Zone do not share the same rights as others because they should not be there and noise and other amenity impacts should be anticipated. It was argued that the planning evaluation should recognise that this area *'is so noisy that sometimes you can hear the cattle grazing!'*, that many chose to live on lifestyle properties because of the area's beauty and these residents contribute to the local economy, support the

¹¹ eg 1.5 km of any residence French National Academy of Medicine (2006)
 1 mile (1.6km) The U.K. Noise Association (July 2006)
 2 km Retexo-RISP, Germany. Glen Innes Council, NSW; Upper
 Lachlan Shire Council, NSW (or 15 times blade tip height,
 whichever is greater.), Oberon Council, NSW
 1.5 miles Nina Pierpoint, MD, PhD
 2 miles Riverside County, California

community, undertake land care projects, and adopt a form of agriculture that is viable by virtue of off farm incomes.

With regard to the LLELAG analysis of residential densities, the Proponent suggested that:

- measurements from site boundaries (rather than turbines) exaggerated the number of houses affected;
- census data demonstrates that the density of households in the area is low; and
- the material presented responded to a DPCD request to address impacts on houses within 1.5 km rather than 500m as nominated in Clause 52.32 but there is no requirement to consider houses out to 5km.

The Proponent's submission highlighted that:

- the site takes advantage of the excellent wind resource and connections to the electricity grid;
- the site and most of the land extending 3+ km from it is in an appropriate rural zone that does not have landscape values that are recognised as significant;
- residents of the Farming Zone cannot legitimately expect the same level of amenity as that offered in other zones; and
- the proposed design of the WEF ensures there are no unacceptable impacts due to noise, blade glint, shadow flicker or critical environmental values.

The Proponent also submitted that *'The density issue is a furphy'* as density is a blunt tool that is given little or no weight in planning assessments unless it is referable to real amenity impacts (or the planning scheme specifically requires density to be addressed). Further, the application of buffer distances which supplement the zoning controls to determine an appropriate location that avoids potential amenity impacts on sensitive uses is not the technique employed in the assessment of WEFs.

4.2 Panel Assessment

We are conscious of the unambiguous policy to facilitate WEFs in appropriate locations; and, unlike many possible sites, this site meets the preconditions of good wind resource and access to the grid. The site is not within a national park (where policy precludes WEFs) and, as discussed in Chapter 5, it is relevant that the locality is not recognised in the planning scheme as having landscape values of particular significance. Further, the site is in a Farming Zone where WEFs are a permissible use and we accept that amenity expectations associated with this zoning should be tempered to

recognise that, unlike residential zones, even as of right uses can have some associated offsite impacts.

LLELAG's claim that this is the most intensively settled area in which a WEF has been proposed, as acknowledged in the DPCD submission to the Panel, was not effectively challenged by the Proponent. We consider that, while it is unfortunate that documentation supporting the application contained flaws and we accept that the LLELAG analysis has clarified the location and density of houses in the locality, this is not the only, nor even the primary, factor which we must consider in assessing the application.

We agree with the Proponent that it is the actual impacts from a proposal that are important, not whether some prescribed maximum density of houses within some nominated distance is satisfied. The current application demonstrates the flaws in approaches that rely on prescriptive approaches that are not underpinned by a particular performance outcome.

It is apparent from the assessment of issues in subsequent chapters, that impacts on properties an equal distance from turbines can be quite different due to factors such as topography, bushland or garden settings, and the orientation of the dwelling. Density calculations would include all dwellings without taking these types of differences into account.

We note that Clause 52.10 of Victorian Planning Schemes specifies separation distances for a range of uses with the potential for off-site amenity impacts. The primary use of these distances is to establish a permit trigger to enable more specific consideration of the merits of the use that would otherwise be as of right in industrial zones¹², not to establish a blanket prohibition.

Panels have also often applied the principle that mandatory or prescriptive controls are appropriate in circumstances where it is established that the vast majority of proposals not in accordance with the prescribed requirements would detract from the essential planning objective(s) or would not be supportable if assessment against the relevant objectives and guidelines was undertaken.

We do not have any basis for nominating a particular density that would be unacceptable or as a trigger for an assessment process. We do not consider that a basis and justification for the prescription of residential densities and buffers has been established for WEFs. Nor should the extent of residential development in the locality automatically disqualify areas as a potential WEF sites and preclude specific assessment of impacts.

¹² Although there are examples, such as the Mixed Use Zone which is in the suite of residential zones, where the threshold is used to prohibit uses that would otherwise be discretionary.

We do note, however, that the potential for adverse impacts is greater as the separation from turbines reduces and closer scrutiny of these areas in assessments is warranted. There is an implication in the current Clause 52.32 requirement to identify the location of houses within 500 metres of a turbine that this is the extent of likely adverse impacts on amenity, and this, in our view, is clearly inadequate. We do not understand what rationale underpins the current nomination of 500 metres. We note that in this case no houses would have been identified and this would have severely compromised the assessment. In view of evidence on visual impact, we consider Clause 52.32 should be amended to require all houses within at least 3 km to be identified.

We return to the issue of whether the proposed WEF has adverse impacts on too many households in our overall conclusions, after the nature and extent of specific impacts have been considered.

4.3 Panel Recommendation

Consideration should be given to amending Clause 52.32 to require all houses within (at least) 3 km to be identified.

5. Landscape and Visual Impacts

5.1 The Issues

The largest single group of submissions (205 submissions) suggested that the construction of the WEF would have major detrimental effect on the landscape in general and on the visual amenity at many dwellings.

We believe that there are two fundamental issues to be addressed:

- Does the WEF have unreasonable impacts on the existing landscape and its features?
- Does the WEF have unreasonable impacts on visual amenity at individual dwellings?

This distinction between 'landscape effects', being those which impact on views in the public domain, and 'visual amenity' which relates to impacts on private views, has been adopted by panels since the Bald Hills WEF was evaluated.

Before tackling the assessment task we feel it necessary to address:

- What weight should be given to visual impacts in the assessment?; and
- The adequacy of the information provided.

5.2 What Weight Should Be Given To Visual Impacts?

5.2.1 Policy Framework

The following specific provisions of the planning framework focus on landscape or visual amenity issues:

- The MSS emphasises the values attached to the rural character of the Shire and the need for new development to be designed and sited in a sympathetic way. It establishes the intention to designate important landscapes for protection by an SLO, VPO or a DDO;
- The Farming Zone requires consideration to be given to the impact of the siting, design, height, bulk, colours and materials to be used;
- Clause 52.32 – Wind Energy Facility, requires the Responsible Authority to consider the impact of the development on significant views, including visual corridors and sightlines; and
- The WEF Guidelines suggest that specific attention should be given where the land is subjected to a SLO, an ESO, or a VPO, and set out matters to be considered in assessing the visual impact of a proposal.

These matters include: visibility, distance, landscape significance and landscape sensitivity to change.

While no specific test is required for individual dwellings, Clause 52.32 requires all dwellings within 500 metres to be identified and the WEF Guidelines require proponents to provide information about views to the site including views from existing dwellings, including photomontages where appropriate.

Importantly, the WEF Guidelines - Matters for Consideration require that:

Consideration of the visual impact of any proposal should be weighted having regard to the Government's policy in support of renewable energy development.

5.2.2 Submissions

Ms Quigley submitted that the Farming Zone does not include residential amenity as one of its key purposes and that the major thrust of the planning provisions is on assessment of impact on the public realm. She emphasised the issue of relative weight, contending that previous panels and VCAT have interpreted the statutory provisions to give relatively low priority to visual effects in the overall assessment.

Mr Turley, for LLELAG, submitted that, on the contrary, the planning provisions include a fundamental requirement that any development should have minimal impact on local amenity¹³. Other resident submitters highlighted their perception of the likely impact on their lives and made it clear that they see visual amenity as a highly significant issue that should be accorded high priority by the Panel.

5.2.3 Panel Assessment

The Planning Scheme and the WEF Guidelines require consideration of landscape and amenity issues and provide guidance on the criteria for landscapes assessments, although they do not provide specific tests at individual dwellings.

Clause 52.32 aims to facilitate the establishment of WEFs in appropriate locations with minimal impact on local amenity but this must be read in association with the other matters to be considered under the scheme, including the overall requirement that any assessment of visual amenity must be weighted having regard to the government's support for the

¹³ LLELAG submission p7

development of renewable energy¹⁴. We acknowledge that the views of the community are sincerely held but we are bound by planning policy and were not presented with substantive reasons to depart from previous Panel and VCAT interpretations that accord a relatively low weight to impacts on landscapes, unless they are recognised as ‘significant’ landscapes, and impacts on visual amenity at individual dwellings.

5.3 Adequacy of the Information Provided

5.3.1 Information Provided

Clause 52.32 of the planning scheme and the WEF Guidelines provide substantial guidance on the information to accompany WEF applications.

The Proponent commissioned ERM consultants to undertake the landscape and visual amenity assessment of the Proposal. The PAR provides a Landscape and Visual Assessment Section in Volume 3, with Annexes addressing Parameters of Human Vision and Viewshed Definition, Photomontage Methodology and Photomontages.

The Panel directed¹⁵ that the following additional photomontages be provided by 23 October 2008:

- *Representative photomontages (A3 size only) with visible turbines and existing/proposed transmission lines superimposed. Photomontages should be provided for all locations with clusters or individual ‘neighbour’ houses within 3 km of a turbine ie a single montage may be provided for a cluster of houses where the visual impacts are comparable.*
- *Photomontages should be prepared to illustrate the views of turbines (if any) from the Lal Lal Falls Heritage site, the Sovereign Hill Museum site and the Ballarat Radio Model Flying Club clubhouse.*

The Ballarat Radio Flying Club subsequently indicated that visual impact was not an issue for them.

In a response dated 9 October 2008, the Proponent submitted that the Photomontages provided for Lal Lal Falls Reserve and Narmbool were representative of these locations and that, in their view, no further montages were required. No other montages were provided.

¹⁴ Perry v Hepburn SC [2007] VCAT 1309 (27 July 2007)

¹⁵ Direction 6

We were informed by the expert witness report prepared by Mr Alan Wyatt of ERM and his presentation to the Panel, which supplemented the PAR assessment. Council and LLELAG provided photomontages to illustrate the potential effect of the WEF as viewed from a number of viewpoints. We were also informed by the written and verbal submissions, an informal site inspection immediately after the Directions Hearing and two days of accompanied inspections after the main Hearing when a wide range of viewpoints and individual properties were visited.

5.3.2 Submissions

The photomontages were particularly contentious during the Hearing process, with parties including SHMA and Mr Preat expressing concern that the location and number of montages provided were inadequate. Others, including the Phylands and the Jenkins, suggested that undertakings to prepare montages of views from their properties were not kept. Mr Turley emphasised the difficulties faced by individuals, such as the Phylands and Mr O'Donnell, who were clearly significantly affected by visual impacts of turbines but did not have the benefit of a photomontage to assist them in appreciating the impact and therefore in the preparation of their response.

LLELAG submitted that the photomontages provided were selective, misleading and did not accurately portray impacts. As an example, Mr Turley tabled a photomontage demonstrating inaccuracies in Mr Wyatt's montage which misrepresented the impact from a viewpoint in McGuigans Road.

In the PAR seven photomontages from public view points were provided, none were for residential clusters and of four from individual properties only one dwelling had been identified as subject to a high impact. Mr Wyatt maintained that, because the WEF Guidelines place priority on photomontages from key viewpoints and give low priority to visual amenity that he had, accordingly, selected viewpoints to illustrate 'worst cases'¹⁶.

The Council's submission provided four further montages which assisted in the appreciation of views from Mt Egerton, McGuigans Road, Dunnstown and Courts Road.

¹⁶ Wyatt expert witness statement – p6

5.3.3 Panel Assessment

We consider the issues regarding the information provided relate to:

- a) Errors resulting in difficulty in understanding impacts and preparing for the submissions;
- b) The extent of information provided; and
- c) The accuracy of photomontages as a basis for assessment.

Cross referencing and Map Errors

Errors in the mapping of the 1.5 km radius and the houses shown have already been noted. In addition, photomontages were provided in three separate formats - in Volume 3 of the PAR, in Mr Wyatt's witness statement, and in A1 drawings tabled at the Hearing – each with different descriptions of viewpoints. This led to initial confusion requiring considerable effort to provide clear cross referencing to allow easy access and comparisons to be made. In addition photographs of viewpoints at 1 Courts Road to the Elaine Section were incorrectly identified as a view towards the Yendon Section. These inconsistencies were unhelpful to both submitters and the Panel.

Extent of Visual Representations

We also consider the level of detail and accuracy of the visual material provided was inadequate to highlight dwellings potentially subject to major impacts.

There is a general consensus arising from the work of the Bald Hills Panel that it is important to identify all dwellings within 3 km of any turbine. We believe that it is also desirable that the number of turbines that from each of the identified dwellings and the approximate distances between turbines and dwellings be required to be included in the application material.

This would provide an initial indication of the potential impact of turbines to all parties and could form a basis on which decisions can be made as to the provision of further information such as photomontages.

This information is also critically important to local residents. They should be provided at the application stage with as much information as can reasonably be required to assist them in their own assessment of potential impact and the decision as to whether or not to make a submission.

Accuracy of Photomontages

The technical approach to the production of montages was set out in the PAR and Mr Wyatt used Challicum Hills WEF as an example to demonstrate that the methodology provides an accurate simulation of the likely future impact. We accept that a generally accepted method was used.

Mr Turley specifically challenged the photomontage produced by Mr Wyatt for the McGuigans Road properties and tabled one prepared for LLELAG.

He illustrated, using Plans 7A and 7B (tabled as part of his evidence) that the photomontage produced by Mr Wyatt showed only 12 turbines in the view corridor between Mt Buninyong and Mt Warrenheip when it should show 15. He further contended the photograph from which Mr Wyatt's montage was prepared was taken from the wrong angle so that two turbines, which were closer than those shown were omitted from the montage. Regrettably Mr Turley's photomontage were tabled after Mr Wyatt had left the Hearing but Mr Wyatt eventually conceded that the two photomontages had been taken from slightly different viewpoints and that his photomontage did not illustrate the 'worst case'. This, however, still fails to recognise that an individual looking towards the WEF from any one point would not limit their range of vision to one angle but would normally scan across the visible horizon.

There are a small number of properties within 1.5km of a turbine where the anticipated impact - without mitigation – was assessed as high and for which, according to Mr Wyatt's own criteria highlighted above, photomontages should have been provided. The availability of photomontages for such properties, which included the Phyland and O'Donnell properties, would have demonstrated at an early stage that these were 'worst case' situations which required particular attention and would have assisted the residents in preparing a response.

In the case of Narmbool and Larundel we accept that the montages initially provided did provide views of what could be considered the worst case at each site. In our view the chosen location at Larundel- on top of Larundel Hill – was a site which would only be visited by farm workers and could not be accorded a high sensitivity. A montage showing a view from the croquet lawn would have been more relevant but would undoubtedly have shown less impact.

In regard to Narmbool, Mr Bromby acknowledged that the main impact would be on the garden area around the gazebo and that a montage had been prepared for that area. He accepted that the principal views from the Environment Centre were to the north and east, generally away from the line

of sight to the turbines and that a further montage for that area was not necessary.

In overall terms, we find that, given the specific reference in the WEF Guidelines to the provision of photomontages, the selection of photomontages was not as comprehensive nor as representative of the “worst case” as it should have been and this was particularly relevant for individual properties likely to be subject to a high impact.

We do not believe there was a deliberate attempt to mislead – in both the O'Donnell's and Phyland's cases Mr Wyatt assigned a 'high' impact rating prior to any screening and thus our attention was drawn to those sites. However this is too late. Given the choice not to provide photomontages as directed and to rely on the limited numbers provided in the PAR, there is no doubt that the range of montages did not cover all 'worst cases'. It is not enough to expect that individuals can make a proper assessment based on a statement that the impact will be 'high'. It is essential that residents are able to get some visual image of what 'high' might mean and get that information at an early stage in the process.

As there is a general acceptance that properly prepared photomontages, give a reasonably accurate representation of the eventual result, it is all the more important that they are made available for, at least, all properties which are initially assessed as subject to high impact.

The lack of attention to a comprehensive and accurate presentation of visual material did not assist the Proponent in the presentation of its case and provided an inadequate basis for submissions.

The concerns expressed over the visual material, particularly the lack of montages, reinforced in our minds the need for an extensive series of site visits. The original plan had been for one day. In fact two full days of accompanied inspections took place together with a half-day inspection prior to the Hearing. The inspections, together with the wide range of material put before us, provided sufficient information to allow us to finalise our assessment.

We have made recommendations below to amend the WEF Guidelines to clearly specify the minimum range of material to be provided for visual assessment purposes.

5.3.4 Panel Recommendations

That the Minster considers amending the WEF Guidelines to require proponents to:

Undertake a visual assessment of all properties within 3km of any turbine, to identify the number of turbines potentially visible from each property; and

Provide photomontages of views from properties or clusters of properties where the impact on visual amenity without mitigation is rated as 'high' in the initial assessment.

5.4 Impacts on Landscape Values

5.4.1 The Planning Context

The WEF Guidelines acknowledge that WEFs will usually have some impact on the landscape. Clause 52.32 of the planning scheme and the WEF Guidelines require consideration of *'...the impact of the development on significant views, including visual corridors and sightlines'* taking into account visibility, distance from any development, the significance of the landscape and its sensitivity to change. They highlight the relevance of any ESO, VPO or SLO that apply to the land.

5.4.2 The PAR Assessment and Evidence

The PAR provided an analysis of research into people's perceptions of WEFs which drew on Australian and overseas studies to conclude that:

- Wind turbines are generally accepted by the majority of viewers in all but the most sensitive of locations; and
- The vast majority of the community supports the creation of a WEF in the Lal Lal area.

A 'seen area analysis' determined the level of visibility of the WEF within a radius of 15km and provided a basis for the selection of 10 representative public viewing points. They were Western Highway; Mount Buninyong; Yendon-Lal Lal Road; Lal Lal Falls Picnic Area and Lookout; Elaine-Mount Mercer Road; Midland Highway north of Elaine; McGuigans Road; Bungal Dam Lookout; and Dunnstown. The following additional locations were added after submissions were considered: Mount Warrenheip; Black Hill; Ballarat East; Mount Egerton; Mount Doran.

Four representative landscape units were identified. The following sensitivity to change of each unit was determined using location, rarity and scenic qualities as key criteria (Viewer sensitivity was weighted as supportive of change in the light of the social research):

- **Unit 1 - Gently undulating farmland:** Low sensitivity to change due to its heavily man-modified nature.
- **Unit 2 - Plantations and Reserves:** Low where smaller areas of remnant forest and small plantations essentially merge with elements of Unit 1. Medium where forests or major reserves such as Lal Lal State forest are a distinctly separate element.
- **Unit 3 - Volcanic cones:** Medium as they are a very distinct feature of the landscape.
- **Unit 4 - Rural Communities and Townships:** Elements of built form in the landscape reduces its sensitivity but turbines are a new and separate element resulting in a medium classification.

The assessment of overall visual impact was based on the lowest rating of three key criteria namely, distance from the turbines, the potential number of people who would see the turbines from any point, and landscape sensitivity.

Mr Wyatt adopted the following distance based zones of visual influence:

- >15 km Visually insignificant;
- 8-15 km Potentially noticeable but not dominant;
- 3-8 km Noticeable and can dominate;
- 1.5-3 km Highly visually evident and usually dominant; and
- <1.5 km Always visually dominant.

The following categories were identified using traffic data as a proxy for visitor numbers: High > 1000 AADT; Medium 300-1000 AADT; and Low <300 AADT.¹⁷ Using these criteria the summary assessment of the impact of the WEF on publicly accessible viewpoints is as follows:

Viewpoint *photomontages provided	Distance to turbine	Direction to WEF	Landscape Unit	Visitor numbers	Landscape Sensitivity	Overall impact
A West Highway	5.4 km	S	Unit 4	High	Low	Low
B* Mt Buninyong	3.5 km	E	Unit 3	Low	Moderate	Low
C Yendon-Lal Lal Road	1.9 km	E	Unit 1	Low	Moderate	Low

¹⁷ AADT = Average Annual Daily Traffic (Volume in vehicles per day)

Viewpoint *photomontages provided	Distance to turbine	Direction to WEF	Landscape Unit	Visitor numbers	Landscape Sensitivity	Overall impact
D* Lal Lal Falls Reserve	2.0 km	W	Unit 2	Low	Low-Moderate	Low
E* Lal Lal Lookout	9.0 km	SE	Unit 2	Low	Low-Moderate	Low
F Elaine - Mt Mercer Road	7.0 km	E	Unit 1	Low	Low	Low
G* Midland Highway	0.8 km	N	Unit 4	High	Low	Low
H* McGuigans Road	3.8 km	NW	Unit 2	Low	Low-Moderate	Low
I Bungal Dam Lookout	1.8 km	W	Unit 1	Low	Low	Low
J Dunnstown	3.8 km	SE	Unit 4	Moderate	Moderate	Low

Additional Viewpoint	Distance to Turbine	Direction to WEF	Overall impact	Comments
Mt Warrenheip	5.6 km	SE	Low	No lookout tower, highly vegetated
Black Hill	4.9 km	SE	Low	Not a public reserve
Mt Egerton	4.8 km	W	Low	Views highly filtered by vegetation and topography
Mt Doran	4.8 km	W	Low	Views highly filtered by vegetation and topography
Ballarat East	15km	E	Low	Distance and intervening topography

5.4.3 Submissions

LLELAG and individual submissions argued that the ‘social research’ underpinning the landscape assessment did not reflect the views of the local population. Mr Turley submitted that the views of people in other states or countries can only relate to their own individual context. He also challenged the findings of the telephone survey of local residents on the basis that it included false or misleading information and it was not accompanied with visual images.

Mr Turley submitted that an appreciation of “landscape” involved a range of cultural as well as physical and visual elements. He suggested that landscape values are determined by an individual’s perceptions of their

place and are a product of upbringing, environment, education, friends, community and work. He referred to a VCAT decision in relation to a two-turbine WEF at Leonard's Hill in the Shire of Hepburn in which the Tribunal stated:

*Mr Cleary's analysis is underlined by the premise that landscape values are a vital component of people's enjoyment of the area and are a strong influence on people's sense of well-being and quality of life. We accept that premise.*¹⁸

As already noted, it was submitted that the density of population in this area and the number of people subject to visual impacts should be a significant factor in the assessment.

Other resident submitters highlighted their perception of the likely impact on their lives. They made it clear that they place a high value on the rural landscape and consider its preservation should be accorded high priority. Key themes which were presented included:

- The turbines will be an industrial blot on the landscape – Ms Walker;
- People use their whole property as their lounge room and the turbines will be an intrusion into this space – Ms Jenkins;
- Locals drive through the rural landscape as part of their everyday journeys to work, shop, school etc and that the rural character of that experience is important to them – Ms McMahon;
- The values attached to the landscape reflect an appreciation of the historical and cultural development which has occurred – Ms Nathan; and
- Given the great height of the towers and blades, the turbines would dominate the horizon in all directions, towering over the nearby hills, and requiring some form of sacrifice by many nearby residents – Mr McMahon.

The Council submitted that this area is a dramatic local landscape with great visual interest where the volcanic cones stand out above undulating plains and dissected river valleys. The LPPF indicates the rural farming landscape is highly valued and should be protected. The following further photomontages were tabled to illustrate the Council's views:

- Lal Lal Falls Reserve looking N-NW to the Yendon Section of the WEF;
- McGuigans Road looking W to the Yendon Section;
- Courts Road looking SE to the Elaine Section of the WEF; and
- Mt Egerton looking west to the Yendon Section.

¹⁸ Perry v Hepburn SC [2007] VCAT 1309 (27 July 2007)

The first two photomontages were taken from similar viewpoints to those in the PAR and confirmed the nature of likely impacts. Those from Courts Road and Mount Egerton were of assistance by providing additional perspectives from residential clusters.

Mr Jewel contended that the absence of an overlay does not necessarily indicate no landscape significance, but rather that an area may not have been assessed for the purposes of an amendment to the planning scheme. However, he acknowledged that the proposed WEF is within a landscape that does not have any statutory protection and, while the MSS identifies strategies to apply the SLO to Scenic Hilltops and Ridgelines, there is currently no identified intention to apply an overlay to this area. Council supported submissions highlighting the importance of Lal Lal Falls Reserve and tabled a copy of the Management Plan¹⁹ to illustrate its historical qualities and future actions.

Ms Quigley acknowledged that some visual impact is inevitable but emphasised that the importance of capitalising on the wind resource (Victorian Wind Atlas) should be a very positive factor in the analysis. She reiterated her views on the weighting of landscape issues and maintained that the landscape in question has no formal recognition or protection under the planning scheme and, save for a “few phrases” in the MSS. She supported Mr Wyatt’s assessment of impacts and recommendations for action.

5.4.4 Panel Assessment

Overall Approach

The Yendon Section is a broad plain of open grazing country, rising from 450-540 m ASL with volcanic cone features essentially around the northern edge. At the Elaine Section the land is also largely cleared and, although lower than at the Yendon Section, Murphy’s Hill rises to some 450m.

In our view, these characteristics together with its location within the areas identified in the Victorian Wind Atlas as having ‘good wind’ combine to identify the area as highly suitable for a WEF. This must, however, be weighed against impacts on the landscape and visual amenity which may arise from the WEF.

We find the general approach in Mr Wyatt’s landscape assessment is satisfactory. The viewpoints identified provide a reasonable geographic spread to assess views of the WEF from different perspectives. While we

¹⁹ Lal Lal Falls Reserve – Management Plan April 2003

note that Mount Warrenheip and Black Hill were included in response to submissions, we question their status as 'publicly accessible viewpoints' as these are sites on private property without rights for public access. Conversely Narmbool, although a private property, as a result of visitor numbers and the nature of its functions, could be included in this category.

We find, from the material presented and our site inspections, that the Landscape Units identified by Mr Wyatt do fairly represent the main types of landscape in the area and we accept the characterisation of the Landscape Sensitivity of the Landscape Units. However, as discussed in Chapter 14.2, we share the submitters' view that the perceptions study should be accorded no weight in our assessment.

In relation to the Council's submission, we note the Victoria Planning Provisions provide a wide range of tools for landscape designation and protection. These range from broad statements of objectives and strategies in the LPPF to more specific protection through overlays such as the SLO and DDO. The LPPF Clause 21.08, and more particularly 22.05 – Landscape, indicates that the rural landscape of the Shire is highly valued by the residents and Council, however, the landscape does not enjoy any specific protection under overlays nor has the Council proposed to include the area in any future amendment for Landscape Protection purposes. The MSS identifies strategies to apply the SLO to Scenic Hilltops and Ridgelines but there is no identified action in that regard for this area.

Individual Viewpoints

We agree with Mr Wyatt's assessment that the impact on the following sites will be low due to a combination of distance, topography and existing vegetation.

Mount Buninyong

While Mount Buninyong has a picnic area, it is heavily enclosed in trees at the top of the mountain. A view towards the WEF can only be obtained by climbing the high lookout tower and this constrains visitor numbers. In our view, both sections of the WEF will be visible and turbines will be a significant, but not a dominant, new element in the rural landscape. We note that the Waubra WEF is already clearly visible from the tower. If the current proposal is approved, we support the view put to us that the lookout platform would be a suitable place to provide interpretation material along the lines of the display at Codrington. We suggest that the Proponent pursue this initiative in consultation with the relevant committee of management for Mount Buninyong, Sustainability Victoria and the Wind Energy Association.

Lal Lal Township, McGuigans Road and north of Elaine Township

These viewpoints are from the roads adjoining residential areas, not within the residential areas themselves. They are in very open locations where Mr Wyatt conceded that turbines will dominate the landscape but the main impact will be on drivers on the roads concerned. Lal Lal Township and McGuigans Road are lightly trafficked routes, while at Elaine, the Midland Highway is a much more heavily trafficked route, though still light – 3500vpd- by State standards. The turbines in this section will march up Murphy's Hill and will consequently be a significant feature of the landscape irrespective of any landscaping.

As far as traffic on the Highway is concerned, we accept that the landscape sensitivity is low in comparison to other major roads in the State the traffic as levels of 3500 vpd are not high and drivers will get short exposure to the turbines in a rolling landscape which generally lacks outstanding features. Mr Turley suggested that distraction of drivers along the Sunraysia Highway was a major consideration for the Waubra Panel. There is substantial discussion on pp59-60 of that report about an area where landscape values were considered to be significant and it was recommended that one turbine located 305 metres from the highway should be removed. In this case the landscape qualities are not so highly rated. We see no reason to believe that the turbines will be a distraction and see no need to require changes aimed at reducing such distraction.

We do not see any specific need for landscaping to reduce drivers' views of the WEF, as these will be few and relatively fleeting.

Lal Lal Falls Reserve

The Lal Lal Falls Reserve is in our view the most significant public viewpoint as far as potential visual impact is concerned. There are two elements to this reserve, the picnic area itself with a rotunda and the lookout to the falls.

The nearest turbine is approximately 2km from the picnic area and Mr Wyatt conceded that the picnic area has panoramic views of the Yendon Section and that a number of turbines will be highly visible and will usually dominate the landscape. This was confirmed by the montages and our site visit. However, we accept Mr Wyatt's assessment that strategic planting could mitigate impacts on views from the picnic area to the highly modified farming landscape to the north. The view from the falls lookout is more confined as it is at a lower level and focuses on the falls themselves. Nevertheless, some turbines will be visible through the trees to the north. Again we believe that this can be suitably addressed by some strategic planting.

The Management Plan currently provides only general strategies for the protection and enhancement of the historic and landscape features of the site²⁰. We understand that a review of the Management Plan is underway. This will provide an opportunity for the potential impact of the WEF to be considered and for a strategic planting plan to take the WEF into account.

We conclude that no action is necessary in relation to the public view points except for Lal Lal Falls Reserve. Provided landscaping is carried out at Lal Lal Falls Reserve, the impacts on the public landscape if the WEF was built in its current form are acceptable.

5.4.5 Panel Recommendations

The Proponent pursue the provision of interpretative material on renewable energy at the lookout tower viewing area on Mount Buninyong in consultation with the relevant committee of management for Mount Buninyong, Sustainability Victoria and the Wind Energy Association.

Require the Off-Site Landscaping Plan to provide, at the operators expense, strategic landscaping to mitigate visual impacts of the WEF at the Lal Lal Falls Reserve.

5.5 Visual Amenity

Clause 52.32 and the WEF Guidelines suggest that the site analysis for WEFs should identify all dwellings within 500 metres of a turbine and provide information about views to the site, including views from existing dwellings. No guidance is provided on the method of assessment of visual amenity in relation to individual dwellings, other than the requirement that visual amenity must be weighted in relation to the government's policy on renewable energy. However, submitters made it clear that this is an issue of major significance to them.

5.5.1 PAR Assessment and Evidence

Mr Wyatt adopted the views of the Bald Hills Panel that turbines can be a dominant element in the landscape up to 3km distance.²¹ He also rated the landscape sensitivity from dwellings as high in all cases as a reflection of the values attached to the property by the community for residential purposes.

²⁰ Lal Lal Falls Reserve – Management Plan April 2003 sections 3.4 and 4.3

²¹ Bald Hills Panel Report 2004 p 219

Mr Wyatt identified 254 residences within 3km of the turbines, of which 35 were within 1.5km.²² He identified a number of clusters of dwellings which, in his view, should be separately assessed with a location identified within each to represent the worst or most exposed location. His analysis thus comprised two components – selected residential clusters and individual properties.

Residential Clusters

The choice of clusters²³ was designed to provide a representative geographical spread around the WEF. Using three key factors- distance to the nearest turbine, landscape sensitivity and whether or not living areas faced the turbines, the impacts on clusters were rated as Low, Moderate or High. The table below summarises the impact assessment for the selected clusters.

Cluster	Distance To turbine	Living area view to turbine	Impact without screening	Impact with screening
C1 Lal Lal Falls Road	2.0	Yes	Low due to vegetation	Low
C2 Lills Lane, Yendon-Egerton Road	1.4	Yes	High	Low
C3* Mt Egerton	4.6	No	Low due to topography and vegetation	Low
C4* McGuigans Road, Millbrook	2.6	No	Low-Moderate Rail infrastructure	Low
C5 Dunnstown	2.3	No	Moderate	Low
C6 Yendon No 2 Road	3.6	Yes	Low due to distance and vegetation	Low
C7 Skeltons Road/Woodlands Road	2.7	Yes	Negligible due to vegetation	Negligible
C8 Elaine Township	2.4	Yes	Low due to distance and screening	Low
C9 Elaine-Egerton Road	2.2	Yes	Moderate due to distance and vegetation	Low
C10 Mt Doran-Egerton Road	2.4	No	Low- Negligible due to vegetation	Negligible

²² Alan Wyatt – expert witness statement p 25

²³ Shown on Figure 4.15 of his witness statement

Cluster	Distance To turbine	Living area view to turbine	Impact without screening	Impact with screening
C11 Midland Highway Elaine	2.2	No	Low- Negligible due to distance and screening	Negligible

** Photomontages available to Panel*

Individual Properties

Representative properties were selected on the basis of distance analysis and in response to views expressed through the community consultation process. Priority was given to properties nearer to the WEF. An initial group of 17 was supplemented by four properties after submissions were considered. Photographs, a location map and a summary assessment of potential impact of the WEF with and without additional screening (using the same factors as for the clusters) were provided for each of the selected properties. Photomontages were also provided in five cases.

Mr Wyatt considered that, despite the significant numbers of dwellings in the region, only a very limited number would be significantly impacted by the WEF and for those assessed in the moderate or high category, landscaping would be able to reduce the potential impacts to a low level. However, he acknowledged that landscaping would be more effective for properties which have a major aspect to the north and east of the WEF, as planting to the south and west has less impact on solar access while providing shelter from the prevailing wind.

Mr Wyatt did not consider that any turbines should be resited or removed. However, he proposed that an offer of screen landscaping be made to all dwellings within 3km of a turbine.²⁴ He considered this offer should be available for a period of up to one year after construction to allow people to decide whether or not landscape mitigation is warranted and that the cost of planting should be borne by the operator.

The following table provides a summary of his assessment of individual properties.

²⁴ A Wyatt – witness statement p 39.

Property	Distance to turbine	Characteristics	Impact without mitigation	Impact with mitigation
N31ab* McGuigans Road	800m 1.25	Some screening of 800m turbine	High	Low
* Courts Road - Representative of 5 dwellings	2.7	Generally open country with direct views of turbines	Moderate	Low
L28aa Rose Lal Lal Falls Road	1.25	Partly screened by vegetation and topography	Moderate	Low
134ab Grills, Grills Lane	1.6	Direct views	Moderate	Low
G17aa* Narmbool	1.3	Extensive vegetation in garden areas but exposed around gazebo. Education Centre views to north more limited	High around gazebo and gardens Low in vegetated areas	Low
K34aa Phyland, Peerweerrh Road	800m	Direct views through breaks in vegetation	High	Medium
J17ab O'Donnell, Midland Highway	1km	Open views to front, vegetation to rear	High	Low
M18aa O'Brien, Lewis Road	1.4	Living areas face north	Low-Moderate	Low
F30aa* McMahon - Buchanan's Lane	4.25	Elevated position	Moderate	Moderate
F12a* Larundel	3.8	Substantial vegetation including windbreaks and perimeter planting	Moderate from elevated location Low from vegetated areas	Low
F29aa Triggs Road	3.9	Substantial vegetation cover	Low	Low
D28aa Hogarth's Road	6.4 Yendon 11km Elaine	Views filtered due to distance and vegetation	Low due to distance and vegetation	Low
Britts / Howard's Road	4.0	Representative of nearby properties	Low due to vegetation	Low

Property	Distance to turbine	Characteristics	Impact without mitigation	Impact with mitigation
L18aa Settlement Road	670m	Substantial vegetation cover	Low due to infrastructure and vegetation	Low
K13aa Elaine – Mt Mercer Road	2.5	Owners have positive view of turbines	Low	Low
H29af Yendon-Lal Lal Falls Road	2.0	Substantial vegetation cover	Low	Low
H14aa Merraton Park	1.6	Formal hedges and vegetation	Low	Low
130aa Yendon-Egerton Road	1.8	Substantial vegetation cover	Low	Low
H30aa Torphy, Ryans Road	2.7	Strong vegetation cover	Low-Negligible	Negligible
P30aa Yendon-Egerton Road	1.02	No views from ground floor- possible upper floor views	Low	Low
J27aa Kelly, Rothbury	1.5	Substantial vegetation and farm sheds	Low-Negligible	Negligible
114aa St Sava Monastery	1.1	Strong formal gardens with cypress hedges	Low	Low

* *Photomontages available to Panel*

Shaded Properties Assessed by Mr Wyatt as having high or moderate impact before mitigation.

5.5.2 Submissions

The many and varied submissions received from residential objectors sincerely reflected their views on the value they attached to the immediate environs of their home. As we pointed out at the start of this section, visual amenity issues attracted the largest single number of submission and while visual impacts at every submitters' property cannot be reported, a number of common themes can be identified. These themes are reflected in individual comments made by submitters from locations that Mr Wyatt identified as likely to experience moderate or high impacts.

Mr O'Donnell (J17ab), whose residence is located on the Midland Highway north of Elaine, put it succinctly:

- *12 turbines are located within 1.5km of my home on all four sides.*
- *3 turbines are located within 1km of my home*

- *The nearest turbine is 800m from my home*
- *I am centrally located in the whole Elaine wind farm and am not happy about this.*

The O'Briens (M18aa) pointed out that:

Our home is situated within 1km of the wind site proposal and we will experience very definite visual impacts which cannot be blocked out due to existing topography elevations.

Ms McMahon (F30aa) outlined the impact on her elevated home in Buchanan's Lane, as she saw it:

I understand that if the wind farm went ahead we would overlook all of the 42 turbines at the Yendon Section. At a massive 130 metres each, the turbines would completely dominate the view – in fact they would become the view. The fact that the blades would be turning would mean that the eye would be drawn to them all the time even if the viewer was trying not to look at them. There would be no escaping the presence of the turbines as we work around our property as we would still see them from most parts of the farm.

The Dore of 108 Court's Road, Clarendon made a point common to many:

Our house is built on the high ground of our property and is orientated in a south-easterly direction and therefore has sweeping views to our southeast. The house has been built to take in these views and was one of the major influences in us purchasing the property. In fact we have recently built a deck to further enjoy this wonderful view.

The Phyland family in Peerweerh Road pointed out that there are nine proposed turbines within 1.5 km of their property, four within 1 km, and the closest is only 800m metres away. The two turbines with the most direct impact would impinge directly on their views of Mount Buninyong for which the house had been oriented. They submitted that turbines would always dominate the views from their property.

From another perspective, Mr Bromby for the SHMA outlined the importance of the visual setting for the visitor centre and function suite at their Narmbool property (G17aa). He pointed out that the garden area around the gazebo is a particular attraction for wedding photography and he was concerned that the turbines, the nearest of which is only 1.3km away, would be visually dominant in the garden and destroy the valued rural atmosphere. While he acknowledged that some turbines will be screened by existing vegetation, particularly the larger old pine trees, he stressed that these were near the end of their life and would soon need to be felled for

safety reasons. He also acknowledged that, although some turbines would be visible, the views from the Education Centre were less sensitive because the main views are to the north and east away from a direct view of the turbines.

Mr Preat, whose property Larundel (F12a) is 3.8km from the nearest turbine submitted that similar effects would be felt on the ambience of his property generally, and entertainment areas in particular.

Submissions from Dr Mackay, Mr Preat and the Robsons made submissions about the visual impact of the WEF on the future development of their properties. This is discussed in Chapter 14.1 of the report.

On a more practical theme, a number of submitters, including the O'Briens and Ms McMahon, submitted that the Proposals for screening were not feasible and that the growth rates foreshadowed would not occur. Mr Turley suggested that timeframes to achieve a reasonable screen through new planting were understated and he provided a detailed example of a planting project at Shaws Road Buninyong²⁵ where, despite careful preparation, planting and maintenance, growth rates of around 625 mm per year were achieved in contrast to the 1 metre per year forecast by Mr Wyatt. He also highlighted that residents rely on tank water with little surplus for irrigation and the subsoil is super dry due to the drought with limited potential for rewetting.

Mr Turley submitted that, rather than providing for landscaping after construction of the WEF, planting should be initiated well before construction to allow maximum possible time for plant growth. Any over planting could be thinned at the landholders' discretion. He suggested that payment should be made up front to avoid the need to 'chase up' the Proponent for refunds.

The Proponent relied on Mr Wyatt's assessment of individual properties. Ms Quigley's response to submissions referred to a number of previous Panel reports and VCAT decisions which concluded that residents in Rural or Farming Zones cannot expect the same levels of amenity as in residential or rural living zones.²⁶ She submitted that the residents' amenity expectations were unreasonable as the purpose of the zone is to accommodate a range of rural activities, including agriculture and rural industry.²⁷ In relation to the whether mitigation landscaping should be offered to properties within 2km

²⁵ LLELAG submission pp13-16

²⁶ Bald Hills Panel Report – p 217-219, Wonthaggi Panel Report p59
Perry v Hepburn SC [2007] VCAT 1309 (27 July 2007)

²⁷ Taylor v Moorabool SC [2007] VCAT 2331

or 3km, she indicated that the Proponent was happy to leave the decision to the Panel.

5.5.3 Panel Assessment

It is clear that the visual relationship between dwellings and turbines is highly variable and is not solely related to distance. We have seen no evidence that the minimisation of the visual impact of turbines can be achieved by the application of some arbitrary standard such as a 2km separation distance or the adoption of some density measure.

We have adopted the approach taken by other panels that the reasonable enjoyment of outlooks from a dwelling or its garden should be maintained. We also acknowledge the views of many rural submitters that their land is their workshop and the place they spend most of their working hours. However, we have given these views from beyond the dwelling curtilage limited weight because we believe that the rural landscape may be a changing due to the efforts of the rural population itself and the nature of activities provided for in the Farming Zone.

The Farming zone does provide for a wide range of rural activities but WEFs are relative newcomers to the scene and would have been beyond the reasonable expectation of most residents when they decided to move to this area. Their physical form is unlike any existing feature of the landscape and it is not unexpected that residents' reaction is that such a change is unacceptable.

WEFs are however, permissible and legitimate activities in the zone. Importantly, they are subject to the permit process, providing opportunities for objections to be made and considered. Where WEFs are permitted they will undoubtedly impact on the visual amenity enjoyed and this must be balanced against policies to support renewable energy.

We find that the main components of Mr Wyatt's assessment approach are appropriate, namely:

- The distinction between clusters and individual dwellings;
- The classification of landscape sensitivity in residential areas as 'high';
- The use of distance from turbines as a criterion; and
- The use of orientation of internal and external living areas as a criterion.

However, we have also been informed by the extensive submissions made by LLELAG and others and have placed considerable weight on the insights received during our site inspections.

Residential Clusters

We visited all the clusters as part of our site inspection and agree with Mr Wyatt's general classifications. However, within many clusters there are individual houses within 3km of a proposed turbine location which will still have some form of view of the WEF as proposed. This would be particularly the case in more open area such as Lills Road and the Midland Highway. It also applies to some properties in clusters with woodland settings that are sited outside the timbered area with an orientation towards the WEF such as Skeltons Road and Courts Road.

We believe that landscape mitigation should be offered to all properties within 3km of the WEF from which one or more turbines will be visible to further limit and in some cases completely block views to turbines.

Individual properties

In terms of individual properties we were concerned to note that the O'Donnell and O'Brien properties had not been identified at the early stage as being potentially subject to high impact. We do not accept Mr Wyatt's classification of the visual impact at O'Brien's as 'Low-Moderate' after our visit to the site.

We have considered all the material put before us and visited a substantial number of properties, including all the properties shown by Mr Wyatt's analysis as being potentially subject to a 'moderate' to 'high' impact prior to screening, with the Dore property on Courts Road as representative of dwellings in that street. Our views in regard to the visual impacts at these dwellings are detailed below.

McGuigans Road

Mr Wyatt uses Dwelling N31ab to represent impacts on a number of houses along McGuigans Road. The house faces west with little vegetation in its front yard and our inspection confirmed that the landscape to the west of McGuigans Road is essentially flat to gently rolling cleared cropping land so that views of the turbines will be relatively unaffected by existing vegetation. The nearest turbine (YSWT 32) is some 800m to the southwest and there are direct views to a group of turbines (including ESWT 16, 17, 18, 19) about 1.25 - 1.5 km away to the east of Spreadeagle Road. Other components of the Yendon Section north of Yendon-Egerton Road will be visible to varying degrees due to topography.

As discussed earlier, Mr Turley challenged the photomontage for this property and a further montage was produced by Council. The montages

illustrate that a number of turbines would effectively dominate the view and we consider the rating of the impact, without mitigation, on this and other dwellings in McGuigans Road, should be high.

Mr Wyatt concluded there is considerable scope within the property fence line for landscaping and that this would reduce the impact of the turbines.

Although the nearest turbine is 800 metres to the southwest there are existing trees which will filter this view. The main view will be of the group of four turbines east of Spreadeagle Road which will be some 1.55km distant with the northern end of Yendon Section some 3km away. We agree with Mr Wyatt that there is considerable scope for landscaping in front of the property while other properties on McGuigans Road have well vegetated front gardens.

Dore Property – Court's Road

The Dore property sits in an elevated position on the south side of Courts road with views to the south which will include most of the Elaine Section of the WEF. The nearest group of turbines, ESWT 07, 08, 09 is approximately 2.7km to the south.

While the montage produced by Council for Courts Road shows a number of turbines visible, the circumstances of individual properties vary. For example, the Dore property has background vegetation south of the dwelling which will filter the views to some extent.

There are good opportunities to supplement the existing vegetation at dwellings in this area to increase the level of screening of the WEF.

Rose Property – Lal Lal Falls Road

The Rose property in Lal Lal Falls Road has views to the north which include turbines in the Yendon Section. There would be three turbines within 1.5km, with the nearest turbine YSWT 25 is 1.25km to north-west, which Mr Wyatt acknowledged would always be dominant in the landscape. Turbines 2.0km to the north (YSWT 33, 34) are directly visible, although partly hidden by topography. Views to the other components of the Yendon Section to the north-west and north-east are substantially limited by vegetation.

Opportunities exist for mitigation within the front of the property and within a very wide road reserve. This is a very lightly trafficked road where volumes are highly unlikely to need any further land. The verges are wide and could accommodate mitigation planting.

Grills – - Beaumont Property - 69 Grills Lane

The Grills-Beaumont property is immediately east of Grills Lane, with the living and courtyard areas facing southeast towards the Yendon Section. Views are fairly open although there is some vegetation on the property which limits the extent of views. The nearest turbine (YSWT 01) is approximately 1.6km to the southeast and will be clearly visible from the rear of the dwelling. There will also be filtered views of other components of the Yendon Section.

Opportunities to supplement existing vegetation to refocus or minimise views are available on the property.

Narmbool

The Narmbool property of some 2000 ha lies almost due west of the Elaine Section of the WEF with the nearest turbine some 1.3km from the garden area. The property consists of a reception centre and gardens, a manager's house and an education centre. The education centre is approximately 1km to the north of the main function centre. The function centre hosts some 50 functions and attracts some 3350 visitors per annum. An important element of their market is wedding functions which use the extensive and beautifully landscaped gardens, particularly around the gazebo, for wedding photography. The manager's house adjoining the function centre is surrounded by mature trees.

Mr Bromby submitted that turbines ESWT 01, 03, 04, 10 and 11 would dramatically change views to the detriment of the 'Narmbool Experience'.

A photomontage in the PAR and Mr Wyatt's expert report illustrates the potential impact of the turbines from the garden area in the vicinity of the gazebo. Mr Wyatt acknowledged that at 1.3km the nearest turbine would be highly visible and could dominate the landscape.

We have no doubt after our visit, that Narmbool's extensive gardens are an important asset in its attraction. The impact of the WEF will be different in each of the three components.

- The function centre itself is set well back from the garden and is well surrounded by vegetation, and accordingly we do not believe that the manager or guests using the main centre will be subject to any visual impact from the presence of the WEF.
- The nature of the gardens is such that they contain avenues, pathways, low bridges and other features, which provide an interesting and varied route for guests; as a result, views of the WEF will be filtered. The gazebo area is deliberately much more open to provide views to the countryside

that often provide a backdrop for photographs. Views to the north-east are somewhat restricted due to existing large trees and the area to the east of the gazebo has a number of large pines which also would screen some turbine views. However, we acknowledge that most of the mature pines will need to be felled in the near future, as much for safety reasons as anything else. The turbines to the east and south-east are further away and we find that views of turbines could be limited or filtered by additional landscaping.

- As conceded at the Hearing, we consider visual impacts at the ecocentre will be limited.

Phyland Property - Peerewerrh Road

The Phylands own approximately 40 Ha at the southern end of Peerewerrh Road, Bungaree and the southern boundary of their property adjoins that of the Lal Lal Estate and hence that of the WEF project boundary.

Their submission highlights that they chose the site to build their new home because of its position in a rural landscape with good views towards Mount Buninyong and the indoor and outdoor living areas at the western side have been designed to capture those views. Views to the south are heavily shielded by a dense shelter belt of cypress and indigenous trees however, limited views to the southeast are available round the end of the shelterbelt.

There are nine turbines within 1.5 km of the Phyland property and four within 1 km, of which the closest is 800 metres away. The two turbines with the most direct impact on the views of Mount Buninyong are YSWT01 and YSWT02 the southwest. These will consistently dominate the view and will be directly in line of sight to Mount Buninyong.

There will also be less direct views of turbines YSWT03 and YSWT06 to the south-east around the end of the major shelterbelt at the rear of the house. This shelterbelt effectively screens turbines directly to the south, such as YSTW04.

Mr Wyatt makes little comment on the Phylands' property and no photomontages were provided to illustrate their situation, although the Phylands maintain that they had requested that this be done and we consider that their property clearly falls into a 'worst case' category. On our inspection we obtained a very good appreciation of the potential impact of the WEF on the visual amenity currently enjoyed by the family. Because of the very effective visual shield to the west and southwest created by the existing shelterbelt the main visual impact will be felt to the southwest and to a lesser extent to the southeast. However, the view to the southwest is

effectively their only real view and the fundamental reason for designing their house as it is.

They feel that they have been attacked on all sides having recently lost land and views to the north due to the realignment of the Ballarat to Melbourne Rail line.

This is another situation where, while landscaping may assist in mitigating the visual impact of the two turbines in question, they will still form a significant element in the now limited opportunity for views from the property. Even with landscaping the views which the Phylands value highly will still be significantly interrupted by turbines.

O'Donnell Property- Midlands Highway

Mr O'Donnell's house and farm at 5449 Midlands Highway Elaine, is effectively in the centre of the Elaine Section of the WEF. The house directly faces the Midland Highway with a front garden containing a lawn, a range of generally low-level shrubs and some small trees on the southern boundary. To the rear of the property are some open paddocks which are then bounded by a shelter belt of tall trees with openings for gates. A number of mature trees are also scattered amongst outbuildings to the north of the house.

Mr O'Donnell contends that he would be the most detrimentally affected of all submitters, with the nearest turbine some 1km to the east across the Highway and 12 turbines within 1.5km of his house. He submitted that he is essentially surrounded by turbines and they will be a constant presence whether he is in the house or outside working his property. He further contends that his amenity will be further reduced by the proposal to construct the substation and construction yard approximately 1km to the west of his property.

Mr Wyatt's evidence dealt with Mr O'Donnell's residence very briefly. He acknowledged that visual impact to the east would be 'high' but suggested that this could be mitigated with landscaping. He suggested that as the turbines are set back from the Midlands Highway, views from the front of the residence along the Midland Highway corridor will contain no turbines. Mr Wyatt's evidence was that visual impact at the rear would be minimal due to the substantial belt of trees on the property boundary and that the location of the substation at over 1km from the residence, which will have screen planting, meant that it would have no impact.

While we agree with Mr Wyatt's assessment in relation to the substation, we do not accept that the overall visual impact on Mr O'Donnell after mitigation will be 'low'. As pointed out above, the low vegetation at the front of the

house means that views to the row of turbines which stride along the shoulder of Murphy's hill will be ever present. To suggest that views along the road corridor will contain no turbines is to 'split hairs'. Mr O'Donnell will be aware of turbines the minute he leaves his front door and may well have direct views from within the house. The row of 7 turbines ESWT 16 - 22 will be particularly dominant. Because the turbines will be located on land which rises away from Mr O'Donnell's house, the ability of landscaping to screen impacts will be severely limited.

We agree that there is a substantial shelter belt of trees to the rear but there will be views, albeit limited, of turbines which are within 1.5km and thus potentially dominating when seen, particularly ESWT 04, 05, 06.

We consider that visual impacts upon the property will be significant, even with the mitigation proposed. We find that, in this case effective mitigation could only occur if a considerable number of turbines were removed or significantly resited. Given the relatively low weight to be accorded to impact on visual amenity when compared to the strength of policy support for WEFs, we cannot justify a recommendation that the WEF be rejected or that a considerable number of turbines be removed.

O'Brien Property - Lewis Road

The O'Brien property has an elevated position – 400m ASL- on Lewis Road to the north east of the Elaine Section. As Mr O'Brien stressed in his submission, this puts them at the same level as Murphy's Hill approximately 2.5km to the west.

The nearest turbine will be approximately 1km to the west, with 3 turbines within 1.5km, and the line of 7 turbines across Murphy's Hill within 3km. The O'Briens will view the line of turbines also seen by Mr O'Donnell; ESWT 22 will be nearest while those from EWT 21 – ESWT 16 will be shielded to varying degrees by the hill. ESWT 07, 08, 09 will be shielded to some extent due to vegetation.

While some living areas face north away from the WEF, other living areas and the external courtyard will have views of turbines. Land to the west of the property slopes down to the railway line before rising to Murphy's Hill and this limits the effectiveness of potential landscaping to mitigate impacts. Mr O'Brien demonstrated, on our visit, the slow growth of planting on his perimeter fence. While there are opportunities for landscaping around the house, garden and sheds, the topography means it is not likely that views to turbines would be eliminated.

McMahon Property - Buchanans Road

The McMahon's property at 66 Buchanans Road Yendon is 4.5km from the nearest turbine and its elevated position provides expansive, which, if the WEF proceeds, will include the whole of the Yendon Section of the WEF. We note that the outdoor living area is in two parts, a primary open area immediately outside the kitchen/living with extensive views over the countryside and a more secluded location at the side of the house.

Their property is representative on a number of properties with long-distance elevated views of the WEF.

Photographs taken from the property together with a photomontage illustrated that at the distance involved the turbines will, on the whole, be set into the landscape and this will be a major factor in reducing their impact.

From our visit to the property it is clear that even if landscaping was available and acceptable it would have limited impact. The land drops fairly steeply from in front of the house and this would mean that any tree would have to add another five to ten metres to its height before it became effective.

This is a case where only the rejection of the WEF can resolve the McMahons' concerns and we do not believe that the impact is so great on this property, or properties with similar characteristics, as to warrant such a recommendation. The turbines would be 4.5 - 8km from their front terrace while the landscape around the Yendon Section is much more fragmented and rolling than around the Elaine Section with substantial shelterbelts and plantation all adding variety to the view. These factors would all work together to offset the direct impact of the WEF.

Larundel

The Larundel property which covers some 1000 Ha comprises three components:

- Larundel Homestead and farm;
- Pennymuir – currently tenanted; and
- Kentucky – currently unoccupied but proposed to be tenanted.

The homestead is a restored Victorian farm property with extensive formal gardens close to the main house, incorporating a croquet lawn and parterre gardens. Interestingly, it does not enjoy protection under a heritage overlay in the planning scheme. The major grassed open space adjoining the main house is the focus of open air events occasionally held at the homestead. The property also has a range of windbreaks and perimeter plantings. Behind the main house the property rises to Larundel Hill, an old volcanic cone on

which a number of water tanks and other agricultural infrastructure are located.

From the front of the house the nearest turbine ESWT 23 will be some 3.8 km to the north east.

Volume 3 of the PAR included photographs of the house and gardens and a photomontage from the volcanic cone which Mr Wyatt considered would provide the most extensive view of the WEF and in the Larundel context, the worst case scenario. Mr Wyatt formed the view that, although there were many locations with potential views of turbines, most views from the lower parts of the property would be screened by vegetation.

Mr Preat considered that Mr Wyatt's assessment had been superficial and had failed to recognise the importance of landscape to the overall 'ambience' of Larundel. He maintained that views from Larundel Hill were highly valued and that the majority of trees in the lower parts of the property around the formal gardens are deciduous affording no screening in winter. He also pointed out that the many pine trees which currently provide screening are nearing the ends of their life.

We made a short tour of the homestead area taking in the key features and walking to the top of Larundel Hill. Because of the formal gardens immediately surrounding the house and the extensive planting we agree with Mr Wyatt that there will be limited impact from the WEF on the immediate curtilage of the residence. Views to the northeast will be substantially shielded by the extensive planting which already exists in the garden and while direct views to the east will clearly include the turbines, the driveway incorporates semi-mature trees which will in time further limit views. However the croquet lawn has extensive views to the east and southeast which will provide a clear view of the turbines (see the photographs in PAR Figure 9.23). While we accept that the views of the WEF from volcanic cone will be the most extensive, the cone and its surrounds are very much a working area for the farm. Accordingly we give less weight to the impact of the WEF on that part of the property.

In summary therefore, whilst there will be views of a small number of turbines from the area adjoining the homestead these views are modified by distance and by existing vegetation.

Summary and Findings - Individual Properties

It is clear that that a number of dwellings will have views of one or more turbines, either in whole or in part, and this is particularly so where turbines

are in an elevated position (O'Donnell's and O'Brien's) or where the residence is in an elevated site with a wide view (McMahon's).

It is also very clear to us that the residents consider that the value that they attach to their visual amenity is just as important as any assessment of 'low' 'medium' or 'high' which might be given by any number of professionals and consequently they are unlikely to be persuaded that the impact on their views would be other than unacceptable.

The fundamental question is whether the anticipated visual amenity impacts at individual dwellings or other private properties such as Narmbool are sufficient to justify a recommendation that the project not proceed or at least that it should be modified.

We find that there are a small number of properties – Phyland's, O'Donnell's and O'Brien's - where the location, topography and proximity of the turbines mean mitigation of the visual impact by landscaping would have a very limited effect. However, given the policy weighting in favour of renewable energy and the broader benefits to the community, we cannot justify a recommendation that the WEF be rejected because of the impact on these properties.

We find from our assessment of the potential impact on the other selected properties within the 3km of a proposed turbine where the evidence indicates turbines will be *'Highly visually evident and usually dominant'*, that landscaping can limit or filter views to significantly mitigate visual impacts. We consider an offer should be made to all properties within 3 km where there is an identifiable visual impact as discussed below.

5.5.4 Landscaping Mitigation Plans

We acknowledge that the Proponent has accepted a responsibility to provide landscaping to mitigate the visual impacts of the WEF. We agree with Mr Wyatt that there should be no absolute requirement that landscape plans be developed prior to development of the WEF and that the opportunity for acceptance of an offer of landscaping should remain open for 12 months after commissioning of the last turbine.

While we recognise that there is no guarantee that any approved WEF proposal will proceed to construction and that a final decision in that regard will depend on many factors, including final financial feasibility, we support Mr Turley's view that the opportunity to commence design and implementation of landscaping plans must be available as soon as practicable. This would maximise the time for plant growth before the WEF

becomes operational and any subsequent thinning can be carried out by the landowner at his/her discretion.

We therefore recommend that an offer of landscaping should be made no later than 6 months after the Development Plans are endorsed. This will allow the development and costing of an appropriate plan at an early stage. Offers should remain open to residents for up to 12 months after the final turbine is commissioned.

We also accept Mr Turley's submissions about the importance of maintenance during the early period of growth to maximise success rates of seedlings. We recommend that the permit conditions incorporate a requirement that a maintenance plan for the first two years of growth be part of the works to be funded by the Proponent.

The Proponent should be responsible for the costs of the design, implementation and maintenance during the establishment phase of the landscaping plan. However, we consider it is quite reasonable for landowners to have the option of undertaking any of these tasks.

The Recommended Permit includes conditions to implement these objectives.

5.5.5 Panel Findings

We find that:

- There will be no unreasonable impacts on the public realm provided that supplementary landscaping is carried out at Lal Lal Falls Reserve in accordance with the Management Plan;
- Residential clusters in the locality are between 2km and 5km from the nearest turbine and are, in general, within vegetated settings resulting in most properties having heavily filtered views of the WEF. The offer of landscaping to all properties in clusters within 3km of a turbine will provide an opportunity to substantially limit the visual impact of any turbine;
- There are individual dwellings, such as the O'Donnell's, O'Brien's, Phyland's and McMahon's where, because of the topography, landscaping would be only partially effective in reducing impacts. However, in each case the removal of turbines or the rejection of the WEF is not justified, given policies to support the development of renewable energy and the benefit to the broader community; and
- Properties within 3 km of a turbine that is visible from a dwelling or its immediate curtilage should be offered landscaping mitigation and the

Landscaping Mitigation Plan should provide for a 2-year maintenance period to maximise opportunities for seedling success and growth.

5.5.6 Panel Recommendation

Amend the condition relating to the 'Off-site Landscaping Plan' to require:

Offers of landscaping to be made within 6 months of endorsement of the Development Plans for the WEF to owners of all dwellings within 3km of a visible turbine, the Sovereign Hill Museums Association, and the St Sava monastery;

Where an offer is accepted, a plan must be drawn up by the relevant landowner or WEF operator incorporating the species to be used, timetable, and maintenance arrangements and submitted to the Minister for Planning for endorsement;

The landscaping to be completed within 12 months of the endorsement of any landscaping plan unless otherwise agreed between the landowner and the WEF operator; and

All costs for design, implementation and maintenance to be the full responsibility of the operator of the WEF.

5.6 Cumulative Visual Impact

A number of submissions suggested that the development of the WEF at Yendon and Elaine would have cumulative impacts with other WEFs in the area which would be detrimental to the visual enjoyment of the regional landscape.

5.6.1 PAR Assessment and Evidence

Mr Wyatt provided initial comment on cumulative impact in Volume 3 of the PAR and he added to that material in his evidence. He submitted that there were potentially two types of cumulative impact arising from:

- Sequential or simultaneous views of WEFs from public or private viewpoints; and
- Changes to residents or visitors perception of the character of a region due to the presence of multiple WEFs.

Mr Wyatt used viewshed analysis to demonstrate that of 10 WEFs either existing or proposed²⁸ only two, the Mount Mercer WEF and the Waubra

²⁸ ERM expert witness statement pp42-50, Fig 4.19 and 4.20

WEF, shared a viewshed with the Lal Lal WEF. The Waubra WEF is under construction while the Mount Mercer WEF has received planning approval but no work has commenced. Fig 4.20 of the PAR indicates that there will be views of some parts of both Elaine and Yendon sections from a number of areas, while areas in the southwest and the higher land around Gordon and Millbrook will have views of both sections and the Mount Mercer WEF. However, Mr Wyatt noted that Fig 4.20 overstates the simultaneous visibility of the WEFs as it is based solely on topography and does not allow for vegetation cover.

Taking Mount Buninyong, the highest publicly accessible viewpoint in the north, he estimated the Yendon Section was 7.2km to the east, the Elaine Section 11km to the southeast and the Mount Mercer WEF 18.6km to the south. He maintained that due to the heavily vegetated hilltop and picnic areas unobstructed views can only be obtained to the Yendon Section from the lookout tower and the Mount Mercer WEF and the Elaine Section are not visible. He concluded that there is no cumulative impact from Mount Buninyong and the surrounding region.

From Cargerie, to the south west of Elaine, Mr Wyatt estimates that the Yendon Section is 17.3km to the north, the Elaine Section is 3.6km to the north and the Mount Mercer WEF is 7.8km to the west. With figs 4.27 and 4.28 of the PAR he illustrated his view that there is substantial vegetation in the roadside areas which will filter views of the Elaine Section and the Mount Mercer WEF, while he suggested that distance to the Yendon Section(17km) means it will have negligible impact.

He maintained that opportunities for drivers to view turbines will be limited and fleeting on both main and local roads and there will be negligible cumulative impact from sequential or simultaneous views of the WEF.

In terms of regional perceptions Mr Wyatt submitted that there was a very positive view about WEFs in the regional community basing his views on a perception study for Ararat carried out at about the same time as the study for Lal Lal. He submitted that the Ararat study gave substantial support for one or more WEFs in the area.

5.6.2 Submissions

Submissions about cumulative impact were of a general nature with the following common themes:

- there would be a cumulative impact on properties in the south and southwest due to the presence of the Elaine Section close to Mt Mercer WEF – *Pamela Spencer of Cargerie, Mr Cameron, Mr Preat;*

- people driving through the countryside would see wind farm after wind farm - *Maria Tustin Clarendon*;
- Ballarat is being encircled by turbines – *J McMahon*; and
- the Yendon and Elaine sections are in sight of each other. They are in the order of 9km apart arranged in a semicircular pattern radiating from Mount Buninyong. This provides a clear illustration of direct evidence of cumulative impact- - LLELAG.

Mr Turley tabled a panoramic photograph taken from Shaws Road Buninyong which suggested that both sections of the proposed Lal Lal WEF and the Mount Mercer WEF would all be visible from that site. He referred to Mr Wyatt's statement that the Challicum Hills turbines are 100m high and visible 15km away in Ararat and concluded that the Lal La WEF turbines being 130m high would be visible from 19.5km.

5.6.3 Panel Assessment

In regard to perceptions of the regional landscape resulting from the development of a number of WEFs in the region the only evidence provided was that provided by Mr Wyatt. While not relying on the results of the perception study cited by Mr Wyatt in relation to community attitudes on the Lal Lal WEF for the reasons already discussed, we consider the findings on community attitudes on WEFs in Ararat informative. We note that in the presence of an operating WEF, (Challicum Hills) there are views within the broader and the local communities which support the development of WEFs while recognising that they do have an impact.²⁹

We believe that the 'viewshed' approach adopted by Mr Wyatt provides a reasonable starting point for the assessment of cumulative impact. It is clear that the areas from which views are available of both Yendon and Elaine sections plus the Mount Mercer WEF are principally located in the south and west. These are very lightly populated areas, as is the area in the north between Mount Egerton and Millbrook. The latter is some 20km from Mount Mercer and, allowing for fact that the whole of the Lal Lal State Forest lies between Millbrook and the Mount Mercer WEF and the Elaine Section, the impact on views from Millbrook would be negligible.

Having visited the lookout tower at Mount Buninyong we support Mr Wyatt's findings in so far as they refer to the Mount Mercer WEF and the Elaine Section, and earlier we concluded that there would be no significant impact on this view due to the development of the Yendon Section. We note that Mr Wyatt did not indicate that from the other side of the tower Waubra

²⁹ Wyatt expert witness statement – p 50

turbines are visible along the skyline some 40km away, but do not have an overwhelming presence.

Mr Turley's photograph is from Shaws Road that is some 200m east of Mount Buninyong and runs between Yendon No 1 and Yendon No 2 Roads. This is a short local road with only a few houses and so the view illustrated will be available to a limited number of people. While the technical data on the photographic image were not provided, the angle of view to achieve such a siting, given the location of the Mount Mercer WEF, is likely to be much greater than the normal angle of human vision.

We accept Mr Wyatt's conclusions in relation to Cargerie, this is a lightly populated area where the views will be substantially filtered by vegetation and the impact will be low-negligible.

In relation to the submissions from Mr Cameron and Mr Preat, we recognise that views will continue to change as occurred when land was cleared for agriculture to create the landscape we have today. Mr Preat's views of Mount Mercer WEF are only visible from Larundel Hill, part of the working farm, we do not see this as a central consideration.

We also accept Mr Wyatt's conclusions in relation to views from the main highways. While residents on local roads will undoubtedly have relatively close views of components of the WEF, many of the roads are narrow and winding and require due care and attention. We see any opportunities for drivers to see multiple WEFs either simultaneously or sequentially as limited.

We find that the approach taken to produce the assessment of cumulative visual impact in the PAR has been appropriate and we agree with the conclusion that there will be negligible cumulative visual impact from the Lal Lal WEF.

We believe it to be premature to make any findings on the broader issue. However, we note that, given the wind resource in this region, further applications are likely and WEFs may well become a significant element in perceptions of the region's landscapes. This is a consequence of policy to take advantage of wind resources, and those resources being concentrated in particular regions.

5.7 Visual Impact of Aviation Lighting

Thirty-four submissions suggested that the lighting of turbines at night would be detrimental to visual amenity at residences.

5.7.1 What is Proposed

The WEF Guidelines require proponents to consult with the Civil Aviation Safety Authority (CASA) in relation to aviation safety night lighting.

Proposals for night lighting of 27 turbines in the Yendon Section and 18 in the Elaine Section in Figs 7.27 and 7.28 and in Addendum One of the PAR were prepared and updated following discussions with CASA. It is proposed to install medium intensity (~2000cd) hazard beacons in pairs on the top of nacelles approximately 88m above ground level. The beacons will be 'capped' to minimise vertical beam spread to 3 degrees and have a flash frequency of 20 flashes per minute with a "flash" sequence of 1 second followed by 2 seconds. A luminance sensor will trigger the beacons and all beacons within each section will be synchronised to flash simultaneously to minimise visual impact. The proposals are in line with CASA specifications.

In its response of 3 March 2008 CASA, in expressing general satisfaction with the plan, suggested that four turbines in the Yendon Section and one turbine in the Elaine Section need not be lit.

5.7.2 Evidence and Submissions

The Proponent relied on:

- Mr Wyatt's assessment in Volume 3 of the PAR and in Addendum One following CASA's response and in his expert witness statement; and
- a report in Volume 2 of the PAR prepared by Robert Showers and Associates for Sustainability Victoria evaluating the use of obstacle markers at Wonthaggi WEF.

Mr Wyatt considered that, while night lighting would be an addition to the night sky view, the viewshed material indicated a low density of population and a low usage of the local road network, meaning there would be relatively few night time viewers.

He indicated that trials at Challicum Hills identified unacceptable impact due to light spill along blades causing a 'strobing effect' which could be seen from some distance. He outlined the features of trials with revised lights at Wonthaggi and at Mt Millar in South Australia and presented a range of photographs taken during site visits of those facilities to illustrate that

significant improvement had been made. The beacons proposed for Lal Lal are similar to those installed at Wonthaggi.

The Showers Report ³⁰ concluded that the MB80, proposed to be used at Lal Lal, would appear as less bright than street lighting or domestic lighting at similar distances. Mr Wyatt suggested that the impact of the proposed beacons would be less than light from the planet Venus or from car lights at similar distances and, given the range of other light sources in the countryside including car lights together with lights from other properties, the proposed lights would have a low visual impact.

Submitters clearly expressed their perception of the potential impact. Common themes among the submissions from residents included:

Being 130m high displaying blinking red lights these turbines will dominate my view (Owen Reid).

We love to feel the sense of space and see the moon at night. If the Proposal went ahead we would see flashing lights as well as constantly reminding us of the presence of the turbines (Ms McMahon).

The Ellsworths submitted that no turbines should be lit and a condition (as recommended by the Waubra and Naroghid Panels) should be imposed requiring the height of turbines to be less than 110m if CASA required turbines above that height to be lit. Ms Russell supported this view, and further suggested that an adequate assessment of impact had not been presented as no guidelines exist for that purpose.

5.7.3 Panel Assessment

This is an area where, on the one hand turbines are becoming higher taking them over the 110m benchmark for lighting thus increasing the likelihood of CASA policy requiring lighting, while advances are being made in the design of the hazard beacons to reduce visual impact.

From the evidence presented, including that of recent trials and the reviews carried out by other panels, we are satisfied that, provided the lighting is installed as proposed, the visual impact will be relatively low. No evidence was put before us to challenge the technical performance of the proposed beacons.

Lights should be barely visible up to 1km from the turbine although some blade illumination may be seen; from 1-3km the lights would still be visible gradually diminish in intensity; over 3km the obstacle lights would be clearly

³⁰ Robert Showers & Assoc – Wonthaggi Wind Farm Obstacle Lighting Evaluation May 2006
PAR vol 2 pp 77 -83.

visible as an array of moderately distant flashing red points of light, but perhaps no more intrusive than other sources of light such as house lights, vehicle head lamps or street lights.

The Draft Permit conditions require the turbines to be coated in a non-reflective finish and this should assist in minimising the reflection of light from blades.

Other factors which will affect the relative visibility of the lights will include:

- proximity of dwellings to lights;
- the number of lights involved;
- other sources of lights;
- the degree of vegetation cover around dwellings;
- relative heights between dwellings and lights; and
- the internal design of dwellings and the use of window coverings.

While we accept that this area has a higher population within 3km than that at other WEFs, as we noted in our assessment of visual amenity above that the majority of dwellings within that range are within some form of vegetated setting thus limiting their outward views. The proposal for additional landscaping for dwellings within 3km of the WEF will also assist in minimising night visibility.

We do not accord much weight to the potential visual impact of obstacle lighting in relation to vehicle traffic as the level of distraction is not so great as to cause a safety hazard. The potential for driver distraction may well be reduced as more WEFs are developed in the region and the expectation of drivers will include the siting of obstacle lighting.

We find that the impact from the night lighting of turbines at the Lal Lal WEF in the form proposed can be managed so that there will be no unreasonable impacts and that the condition included in the Draft Permit is satisfactory.

We understand that the CASA circular on night lighting has been withdrawn and a review of standards is proposed. Due to the substantial number of new WEF proposal in the pipeline, we recommend that this be pursued as a matter of urgency to clarify requirements for night lighting of WEFs.

5.7.4 Panel Recommendation

The Minister for Planning investigate aviation obstacle lighting for WEFs in conjunction with the wind energy industry and the Civil Aviation Safety Authority with a view to establishing definite requirements for obstacle lighting.

6. Noise Impacts

6.1 Introduction

6.1.1 The Issues

The issues in regard to noise impacts identified by the Proponent, an expert witness, submitters and ourselves include the following:

- the adequacy of the noise assessment provided to establish:
 - appropriate limits; and
 - a reasonable expectation of compliance with prescribed limits;
- the appropriate noise limits to be applied; and
- monitoring and enforcement of compliance.

6.1.2 Policy and Regulatory Framework.

Clause 52.32 of the Planning Scheme requires Applications for WEFs to be accompanied by an assessment of the noise impact of the Proposal based on the New Zealand Standard NZ6808:1998, *Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators* (NZ6808:1998). The WEF Guidelines indicate that WEFs should comply with the noise levels recommended for dwellings in NZ6808:1998.

NZ6808:1998 describes methods for:

- the measurement of background noise levels over a range of wind speeds;
- the prediction of noise levels at sensitive receptors resulting from WEF noise emissions over a range of wind speeds;
- setting of limits, aimed at the protection of sleep disturbance, as follows:

The sound level from a WTG (or windfarm) should not exceed, at any residential site, and at any nominated wind speeds, the background sound level (L₉₅) by more than 5dBA, or a level of 40dBA L₉₅, whichever is greater; and
- post installation compliance testing.

6.2 The Adequacy of the Noise Assessment

6.2.1 The PAR Assessment and Evidence

The noise assessment by Marshall Day Acoustics in Volume 2 of the PAR was supplemented by the evidence of Mr Delaire. The assessment included the following:

- selection of 10 dwellings for each of the Elaine and Yendon Sections (20 in total) for assessment;
- background noise monitoring, utilising the procedures described in NZ6808:1988, at 12 dwellings said to represent all 20 of the dwellings selected for assessment;
- calculation of regression curves to describe the relationship between noise level and wind speed and the coefficients of determination (R^2) of those regressions. These calculations used both all data collected and the data collected between 10:00 pm and 7:00 am (night);
- determination of noise limits in accordance with NZ6808:1998 for each of the non-host dwellings where background noise levels were measured and in accordance with *European Working Group on Noise from Wind Turbines* (ETSU-R-97) for host dwellings; and
- predictions of noise levels from the operation of the proposed WEF at each of the 20 selected dwellings at various wind speeds.

The assessment predicted noise levels:

- below the NZ6808:1988 noise limits at all wind speeds at all assessed non-host dwellings;
- of 35 dB(A) or less at all non-assessed dwellings, that is, significantly below the NZ6808:1988 noise limits;
- exceeding the NZ6808:1988 noise limits at 3 of the 6 host dwellings but below ETSU-R97 noise limits at 5 of the host dwellings. The remaining host dwelling will not be used as a residence during the life of the WEF.

6.2.2 Submissions on the Noise Assessment

The noise assessment was criticised by submitters on a number of grounds. These grounds and Mr Delaire's responses are outlined below:

Indicative Turbine

The predictions have assumed the use of a 2MW turbine whereas the application is for the use of turbines of greater generating capacity. Ms Belinda Wehl on behalf of the LLELAG, stated that 3 MW turbines have sound power levels of up to 110 dB compared with that of the modelled

turbine of 104 dB and the addition of 6 dB to the predicted noise levels would result in a prediction of 27 residences being subjected to noise levels in excess of the NZ6808:1988 limits.

Mr Delaire responded that an assessment of noise from an indicative 3MW turbine was not possible as noise data for an Enercon 3MW turbine is available. If a turbine other than the Enercon E-82 2MW is used noise emissions from the WEF will still need to comply with the NZ6808:1988 limits. He supported the inclusion of *a condition requiring an assessment prior to installation of turbines of predicted noise emissions to show compliance with the NZ Standard noise limits if a 3MW turbine is used.* Ms Quigley, for the Proponent, agreed that a permit condition to that effect would be appropriate.

Modelling of Noise Propagation

LLELAG suggested that the noise propagation model provided in NZ6808:1998 was considered by some experts to under-predict noise levels at sensitive receptors.

Mr Delaire responded that he was unaware of studies showing that the NZ6808:1998 methodology resulted in under-prediction and reiterated his view that the model is generally accepted as being conservative. He provided additional information which included a comparison between predicted and measured noise levels using NZ6808:1998 at two existing WEFs. The comparison showed the predicted levels to be higher than the measured levels in the critical 4-8 m/s wind speed range.

Ms Wehl questioned the value used for the air absorption coefficient (0.004 dB(A)/m), since the draft Australian Standard DR 07153CP *Acoustics – Measurement, prediction and assessment of noise from wind turbine generators*, states that an air absorption coefficient of 0.003 dB(A)/m should be used. Mr Delaire responded that the value used was superior to any arbitrary value as it was derived from a more complex algorithm that takes account of the frequency distribution of wind turbine noise.

In the cross examination of Mr Delaire, it was established that the accuracy of noise level predictions in the assessment was +/- 4 dB(A). Ms Wehl argued that the assessment should therefore add 4 dB(A) to the predicted sound levels or include a “safety margin” between predicted noise levels and the limits. Mr Delaire disagreed with this view on the grounds that:

- other WEFs had been found to be compliant as predicted;
- the model is conservative at critical wind speeds; and
- compliance monitoring will be required, as will compliance.

Wind Speed Measurement Height

Wind speeds used for the assessment were measured at a height of 10 metres rather than at hub height (85 metres). Mr Delaire responded that:

We recommend that noise assessment of wind farms be undertaken with wind speeds referenced at hub height to eliminate the potential effect of air stability on predicted noise levels.

However, at the time of the noise monitoring wind speed was only available at 10 m.

This does not affect the assessment in accordance with the NZ Standard.

The Use of ETSU-R-97 to Determine Limits for Host Dwellings

It was noted that the use of ETSU-R-97 is a departure from NZ6808:1988.

Mr Delaire expressed the view that, for host landowners, there can be some flexibility in the application of the NZ6808:1988 limits, by agreement with the landowner and noted that:

- NZ6808:1988 was to some extent based on ETSU-R-97; and
- he considered that the ETSU-R-97 limits for host dwellings provided sensible and appropriate guidance.

Locations of Background Noise Measurements

Background noise level measurements were not made at all potentially affected residential properties. Mr Delaire responded that:

It is common practice for background noise measurements to be undertaken at a property representative of other properties with similar vegetation and noise environment.

The Effects of Stable Air, the “Van Den Berg” Effect and Amplitude Modulation

No account was made of the effects of such factors as stable air, the “Van den Berg” effect and the potential for amplitude modulation.

A number of submitters provided information on the possibility that, under certain conditions (particularly “stable air” where the wind speed varies significantly with height) noise levels resulting from emissions from WEFs can be substantially higher than those predicted using the method prescribed in NZ6808:1988 and that allowance for this phenomenon should be made by either:

- addition of the “penalty” of 5dB(A) suggested in NZ6808:1988 for the presence of known special audible characteristics to the predictions contained in the assessment; or
- a requirement for a “safety margin” of 5 dB(A) between the predicted noise levels and the limits.

Mr Delaire’s response on this matter can be summarised as follows:

- the existence of these effects under certain conditions is acknowledged;
- the magnitude and frequency of such effects are case specific, difficult to predict in any circumstance and impossible to predict in this case on the basis of currently available data; and
- NZ6808:1988 does not require consideration of these effects at the assessment stage. The 5 dB(A) penalty in the NZ6808:1988 should be applied when measuring post-construction compliance rather than to predictions.

Wind Speed/noise Level Relationships

We are also concerned that the setting of limits depends on the definition of the relationship between background noise levels and wind speed but in some cases the coefficient of determination (R^2) values indicate that the relationship has not been defined.

When asked about this at the Hearing, Mr Delaire indicated that the poor correlations were due in part to the lack of data at higher wind speeds (>8 m/s). In his more detailed response to our questions, Mr Delaire commented:

- *To my knowledge there is no policy or standard that provides a guideline to define a minimum acceptable R^2 or correlation coefficient.*
- *For post-construction noise assessment, the NZ Standard states that compliance be assessed for noise emissions from the “windfarm only”, therefore it is our understanding that background noise levels are to be subtracted from post-construction noise measurements as these are a combination of farm noise and background noise.*
- *Poorly correlated pre-construction background noise may be inappropriate to use for post-construction compliance assessment, hence additional background noise monitoring may be required. This would only need to occur if the project is approved and could form part of the planning permit conditions.*
- *We recommend that further background noise monitoring be undertaken at a time when the monitored property is located downwind from the proposed wind farm. The monitored period should also include a sufficient range of high wind speeds.*

6.2.3 Panel Assessment

We note that Clause 52.32 requires an assessment of the noise impacts based on NZ6808:1988. While the assessment provided was criticised, as described above, none of the criticism suggested that it was not completed in accordance with NZ6808:1998. We are of the view that the assessment has been completed in accordance with NZ6808:1998 and therefore satisfies the requirements of planning scheme.

We interpret the WEF Guidelines requirement for compliance with the NZ6808:1988 noise limits as creating two separate requirements:

- a pre-construction noise assessment that supports a reasonable expectation that the NZ6808:1998 limits can and will be complied with; and
- post-construction compliance with NZ6808:1998 noise limits.

At this point, the first of these requirements is under consideration while the second will be dealt within Chapter 5.4 of this report. For the purpose of the current discussion it must be assumed that an adequate compliance monitoring and enforcement regime will be established and implemented. The question at hand is whether compliance can be reasonably expected.

If the assessment clearly predicts non-compliance then the Proposal must be considered unacceptable, however if compliance is predicted and not achieved in practice then the cost of the modifications required to achieve compliance, which could be substantial, will be borne by the WEF operator.

Indicative Turbine

While the application is for turbines with a generating capacity of up to 3 MW, the prediction of noise levels was based on a turbine with a generating capacity of close to 2 MW. We do not agree with Ms Wehl that the use of 3 MW turbines would add 6 dB to the predicted levels as it is based of the false assumption that noise emissions are directly related to generating capacity. At this point in time there is no way of determining what the sound power level of the turbine ultimately selected will be.

The assessment provided supports a reasonable expectation of compliance if the indicative turbine is used. We do not agree with Mr Delaire that additional predictions should be required if the indicative turbine is not ultimately selected. The use of a different turbine, which would not be precluded, would be subject to the same performance requirement in terms of noise, and the WEF operator would be foolish to install generators that are predicted to exceed the prescribed noise limits. While we expect that such an assessment would be conducted, since it would be in the interest of the

Proponent, there is no need to make it a permit requirement - the permit will require compliance with the limits.

The Validity of Noise Level Predictions.

The Planning Scheme and WEF Guidelines prescribe the use of the noise propagation model provided in NZ6808:1998 and the question of whether it overestimates or underestimates noise levels is not relevant to the consideration of this application. Such a question may well be relevant in an evaluation of the planning scheme provision but this is not the task at hand.

We reject suggestions that 4 dB(A) should be added to predicted noise level because the accuracy of predictions is +/- 4 dB(A) or that a "safety margin" should be required. It is accepted that the accuracy of predicted noise levels is of the order of +/- 4 dB(A). The correct interpretation of this is that the predicted noise level is the best estimate and there is an equal probability of an error of - 4dB(A) as there is of an error of + 4dB(A) with no basis on which to choose one of these two values, or any other value in between.

We find that the method applied to determine the air absorption coefficient to be soundly based and therefore appropriate.

Noise Limits at Host Dwellings

We agree with the submission that NZ6808:1998 does not provide for exemption of host dwellings from the prescribed limits but we are also aware that the vast majority of permits issued for WEFs to date include such exemption. The reason for this apparent contradiction is given in the report of the Macarthur WEF panel, which states:

The PPG-WEF also states in Section 3, Amenity of the surrounding area: "A wind energy facility can affect the amenity of the surrounding area due to noise. ..." The panel interprets the provision to mean that protection does not apply within the area of the wind farm itself.

We agree with this interpretation and endorse the exemption of host dwellings from compliance with NZ6808:1998 noise limits.

Wind Speed Measurement Height

NZ6808:1998 states a preference for the measurements of wind speed to be made at hub height.

We accept that the height at which wind speed is measured may not be critical at the assessment stage but revisit the matter in regard to post construction compliance testing.

Stable Air, the “Van den Berg Effect” and Amplitude Modulation

While all concerned agreed that under certain meteorological conditions noise levels at sensitive receptors can be higher than predicted by the model specified in NZ6808:1998, there was considerable disagreement on the magnitude and frequency of these occurrences and the appropriate measures to be taken prior to and during consideration of the application.

We do not support the view that the 5 dB(A) “penalty” in NZ6808:1998 for special audible characteristics should be applied to the predicted noise levels for the following reasons:

- NZ6808:1998 specifies that this penalty should be applied when there are “*known special audible characteristics*” (i.e. this relates to the character of the noise rather than noise levels). While the possibility of such characteristics exists, they cannot be said to be known; and
- the protection provided by the penalty provision will not be lost and will be applied if noise assessed during post-construction monitoring in fact has special audible characteristics.

We are of the view that the fact that the assessment takes no account of the potential of stable air and amplitude modulation does not detract from the ability to establish a reasonable expectation of compliance. Irrespective of the magnitude and frequency of such phenomena, adequate compliance monitoring, including assessment of the presence of special audible characteristics, and enforcement can be expected to result in the maintenance of the acoustic environment to the extent required by NZ6808:1998.

Background Noise/Wind Speed Relationship

The definition of the relationship between wind speed and background noise is fundamental to the methodology of NZ6808:1988 for the setting of noise limits and the testing of compliance with those limits.

NZ6808:1998 describes the methodology to be used to collect background noise and wind speed data and requires that a regression curve be used to describe the relationship between background noise levels and wind speed and that an indication of the “goodness of fit” of the data to the regression curve be provided by the calculation of the R^2 values.

The R^2 values reported in the PAR ranged from 0.29 to 0.61 for all data and 0.00 to 0.46 for night data (A value of value of 1 indicates a perfect description of the relationship and a value of zero indicates the absence of a relationship).

Despite these low R^2 values, we find the assessment to be sufficient to support a reasonable expectation of compliance for the following reasons:

- compliance is predicted irrespective of background noise level for 10 of the 14 non host dwellings for which noise levels were predicted because the predicted noise level from the WEF is 40 dB(A) or less; and
- for the other 4 non-host dwellings the predicted noise level is only marginally (1 dB(A)) greater than 40 dB(A) and well below the NZ6808:1988 noise limits based on regression curves with R^2 values that are not in the extremely low range.

We accept that the requirement to utilise NZ6808:1988 methodology has been satisfied. While we consider the data used is acceptable for the purpose of the assessment, we have serious doubts as to the adequacy of that data for the purposes of setting of limits and compliance testing. These concerns are discussed later in this report.

Overall we believe that the noise assessment provides an adequate response to the requirements of the planning scheme and supports a reasonable expectation of compliance with the appropriate limits. We emphasise that it is the actual noise from the WEF that is the critical concern, rather than predicted noise levels, and set out a rigorous process to ensure compliance with the appropriate limits is achieved.

If, despite the expert evidence and the confidence expressed in the Proponent's submissions, the predicted noise levels presented in support of the Application prove to be under estimates, the WEF operator will need to take whatever action is necessary to comply with the standard. Thus, any risks associated with inaccurate modelling at the assessment stage rest with the WEF operator, not the residents.

6.3 Appropriate Noise Limits

6.3.1 Evidence and Submissions

The PAR assumes that the NZ6808:1998 noise limits will apply, however a number of submitters questioned whether those limits were appropriate and suggested that either alternative limits should be applied or the NZ6808:1988 limits should be modified to suit the particular circumstance. Issues raised by submitters on this matter were as follows:

- the Council and a number of other submitters suggested that the EPA *Interim Guidelines for Control of Noise in Country Victoria* (N3/89) should be applied in addition to the NZ6808:1988. Mr Delaire responded that the WEF Guidelines require noise to be assessed against the NZ Standard and:

The N3/89 Guidelines are not appropriate to assess noise emissions from wind farm as the noise assessment is to be undertaken when there is no wind. Due to the nature of wind turbines, there are no noise emissions when there is no wind as the turbines do not operate.

The EPA's submission confirmed Mr Delaire's view stating that:

EPA's guidelines "Interim Guidelines for Control of Noise in Country Victoria", assume that noise transmission is a maximum under low to zero wind speeds. These are circumstances when a windfarm will not make any noise, as when there is little or wind the turbines do not generate electricity.

The EPA also suggested that 'The Minister should note that in assessing the noise impacts that other jurisdictions in Australia, such as South Australia, have used the similar methodology as NZ 6808 but with a lower minimum permissible noise envelope.' Several other submitters also referred to the South Australian EPA publication *Wind Farms – Environmental noise guidelines (interim)* and the fact that those guidelines suggest a noise limit of 35 dB(A) or the background noise level plus 5 dB(A) whichever is the greater whereas the minimum noise limit specified in NZ6808:1998 is 40 dB(A).

In response Mr Delaire stated that:

Although the South Australian EPA minimum noise limit is 35dBA, the method used to predict noise emissions, typically ISO9613-2 is considered to be less conservative than the simple prediction method required by the NZ Standard. Therefore, while the SA EPA Guidelines minimum noise limit is lower than that in the NZ Standard, it is expected that predicted noise levels would also be lower using the SA EPA Guidelines.

NZ6808:1998 was criticised on the grounds that it was developed 10 years ago and was prepared when wind turbines were smaller in size and capacity. Mr Delaire responded that a review of the standard undertaken last year found it could be improved but was still an appropriate standard to assess modern wind farms.

Ms Wehl highlighted section 4.4.4 of NZ6808:1998 which indicates that local authorities can specify an alternative compliance level (at residences and noise sensitive areas) on a site by site basis. She suggested that a limit of 35 dB(A) be set to prevent adverse impacts on the amenity at residences. Mr Delaire's response restated his view that the planning scheme through reference to the WEF Guidelines prescribes the NZ6808:1998 limits and also indicated that, as far as he was aware, no Australian WEFs operating in compliance with NZ6808:1998 limits had led to noise complaints.

Ms Quigley, for the Proponent, made the following points on these matters:

- the WEF Guidelines specify compliance with the NZ6808:1998 limits;
- the suggestion that N3/89 Guidelines should apply should be rejected, highlighting the fact that this is supported by the EPA;
- since NZ6808:1998 limits are based on noise levels necessary to avoid sleep disturbance they will provide adequate protection of acoustic amenity;
- it was determined in *Finchaven v City of South Melbourne (1987) 35 APAD 366* that:

If a [permit] applicant wishes to establish a use on land which is zoned to accommodate such use, then he should not be constrained on planning grounds by peculiar sensitivity of his neighbours providing his operations can be considered reasonable in that zone.;

- residents in a Farming Zone cannot expect the same level of acoustic amenity as that offered in other zones, citing the Bald Hills WEF panel in support of this view. The issue of acoustic amenity for residents of the Farming Zone is answered by the question: Does the Proposal comply with NZ6808:1998 or not?

A number of submitters provided information on the experiences of residents in the vicinity of the Toora WEF which are said to be quite unsatisfactory. However, no evidence or information was presented to indicate whether the Toora WEF is operating in compliance with NZ6808:1988 limits. In fact when we asked if she thought the Toora WEF was compliant, Ms Russell indicated that while compliance had not been adequately tested, she was of the view that the noise levels were exceeding the NZ6808:1988 limits.

Ms Wehl submitted that in other countries and other jurisdictions in Australia the approach adopted is to specify minimum permitted distances between turbines and residences and in many cases the distances specified are significantly greater than is proposed for the Lal Lal WEF. On this matter Ms Quigley stated that:

The New Zealand Standard imposes noise level performance standards. Achievement of the standards can depend on many factors and the New Zealand Standard does not impose minimum setbacks.

6.3.2 Panel Assessment

Irrespective of the existence of alternative noise limits elsewhere, the planning scheme establishes that WEFs in Victoria should comply with the noise limits prescribed by NZ6808:1998. While it is acknowledged that the application of NZ6808:1998 limits is not mandatory, the application of different limits or modification of the NZ6808:1998 limits on WEF operational noise is seen as something that should only be done in what are considered to be exceptional circumstances. No such exceptional circumstances can be identified in this case.

Although a significant amount of information has been provided on potential adverse impacts of noise emissions from WEFs, including examples where those impacts are indisputably real, no evidence has been provided to show that the noise emission from a WEF operating in compliance with the NZ6808:1998 has resulted in unacceptable impacts on the acoustic environment.

We note that the NZ6808:1998 limits have been applied to the operation of all WEFs approved to date and that that application has included the separate consideration of night time noise. While the separate consideration of night time noise is not strictly required by NZ6808:1998, we believe it is an appropriate means of ensuring protection from sleep disturbance which is an important objective of noise limits.

We note Mr Delaire's evidence is that he is not aware of any Australian WEF operating in compliance with NZ6808:1998 noise limits being the source of complaints in regard to noise.

It is our view that the information provided on the Toora WEF and its impact, which we accept, suggests that that WEF may not be operating in compliance with NZ6808:1998 noise limits. The information therefore serves to illustrate what can happen if the compliance monitoring and enforcement regimes are ineffective and the NZ6808:1998 noise limits are exceeded. We do not believe that the information on the Toora WEF supports the proposition that lower limits are required in this case.

The application of N3/89 to WEF noise during the operating phase is clearly inappropriate, however the guidance provided in N3/89 should be adopted and applied during construction. This view leads to a requirement for the testing of compliance with the limits suggested by N3/89. As a consequence the Recommended Permit requires those limits to be established and the inclusion of compliance testing against those limits in the Noise Compliance Testing Plan discussed later in this report.

We do not accept the suggestion that noise issues could be resolved by the imposition of a minimum distance between turbines and dwellings for the following reasons:

- it is not clear that the reasons for minimum separation distances in other jurisdictions are related purely to noise; and
- in order to protect amenity it is necessary to limit noise levels, which is not necessarily achieved by specification of separation distance.

6.4 Noise Compliance Testing

6.4.1 Evidence and Submissions

The PAR recognises the need for post construction monitoring of noise from the proposed WEF and compliance with the NZ6808:1998 limits by the inclusion of such monitoring in the proposed EMP.

The compliance testing method described in NZ6808:1998 requires both background noise levels and operating noise levels to be defined by regression curves that quantify the relationship between noise levels and wind speeds.

The Proponent addressed the issues of post-construction monitoring by including the following conditions in the Draft Permit:

- Condition 18, requiring pre-construction noise monitoring in accordance with NZ6808:1998;
- Condition 19, requiring compliance with the NZ6808:1998 limits and specifying that compliance is to be determined using NZ6808:1998 methodology separately for the night period; and
- Condition 20, requiring a NZ6808:1998 compliant post-construction noise monitoring program and specifying the timing of program and the reporting of results.

Since compliance testing requires the measurement of noise levels both pre-construction and during operations, the issues raised in submissions about the measurement of background conditions relate equally to compliance testing and include the following:

- the locations at which compliance testing should be performed;
- the conditions under which compliance testing should be performed;
- the height at which wind speed is measured; and
- the quality of the regression curves obtained.

6.4.2 Panel Assessment

We consider the establishment and implementation of an effective compliance testing and enforcement regime to be a critical aspect of the consideration of applications for WEFs. Our consideration of the adequacy of the assessment of noise issues provided in the PAR are predicated on the expectation that an effective compliance monitoring regime can and will be implemented.

In the end it is not the accuracy of predictions that will determine if amenity is protected, it will be actual noise levels. The purpose of compliance monitoring and enforcement is to control those noise levels.

Locations for Compliance Testing

NZ6808:1998 requires post-construction monitoring to be conducted at the same locations where background monitoring had been conducted and recommends that background monitoring be conducted at dwellings where the predicted noise levels from the WEF are 35dB(A) or more. We are of the view that this recommendation should be given additional weight by prescription in the permit.

Condition 18 of the Draft Permit suggests that the residences at which pre-construction monitoring, and hence compliance testing, must occur be listed in the permit or alternatively that selection of residences be made by and independent expert. We are not in favour of either of the suggested approaches.

As it is not proposed that NZ6808:1998 limits be applied at host dwellings, compliance testing (and further measurements of background noise levels) at these dwellings should not be required.

The noise predictions in the PAR indicate there would be of the order of 14 dwellings (excluding host dwellings) within the predicted 35 dB(A) contour. It is noted that, for the purposes of the assessment, background noise measurements were made at 7 of the 14 non-host dwellings with the background noise levels at the other 7 being assumed to be the same as at one of the dwellings at which measurements were made.

We do not accept the proposition that background noise levels at one dwelling can be determined from measurements at another dwelling. Background noise levels are largely a function of the interaction of wind with obstacles such as buildings and vegetation which are unique to each dwelling. Classifying dwellings as being surrounded by similar vegetation is risky, somewhat subjective and can be expected to be an on-going topic of

debate with an associated adverse impact on the perceived credibility of the compliance testing regime. It is also noted that it has been reported that one of the reasons for difficulties in compliance assessment at other WEFs has been the lack of background noise data for particular dwellings.

We are of the view that compliance testing, hence measurement of both background and operating noise levels, at all non-host dwellings within the predicted 35 dB(A) contour should be required with the 35 dB(A) contour being determined from a prediction based on data for the selected rather than an indicative turbine configuration.

We are aware that such a requirement will result in significantly more extensive compliance testing than has been required at other WEF sites, however this is largely due to the fact that this proposal is for a WEF in a more heavily populated area than is the case at other Victorian WEF sites.

The fact that compliance testing requires physical access to private property means that the requirement must be subject to the consent of the owner and/or occupier of the residence.

Conditions under which Compliance Should Be Tested

NZ6808:1998 states that:

Monitored data should cover the range of windspeeds and directions generally expected at the windfarm site.

We believe that compliance testing should be done under worst case conditions in terms of wind direction (with the wind blowing from the WEF toward the dwelling) because a positive compliance test under worst case conditions can be taken as a demonstration of compliance in other conditions. Two methods by which compliance testing under worst case conditions, with respect to wind direction, might be achieved can be identified.

The first method requires simultaneous measurements of noise, wind speed and wind direction. The calculation of the regression curve could then be made using only the data obtained when the wind direction was at or near the direction from the WEF to the dwelling. These measurements would need to be taken both pre-construction (or with the turbines turned off) and with all turbines in operation.

It is expected that this method would require the collection of data over a longer period of time to obtain the number of data pairs suggested in NZ6808:1998 but the elimination of wind direction as a variable could be

expected to reduce the scatter in the data and therefore reduce the number of data pairs required.

An alternative approach would be to conduct compliance testing when the component of the wind direction distribution that is from the WEF to the dwelling is at or near the maximum. The periods of time appropriate for monitoring at each dwelling could be determined from Bureau of Meteorology historical wind direction distribution data or data collected from the site, if such data is available. If this approach were adopted, pre-construction monitoring at each dwelling at the same time of the year as that determined as appropriate for compliance testing would be necessary.

Height of Wind Speed Measurements

NZ6808:1998 states that *'The windspeed should be monitored on the windfarm site and measured preferably at the WTG hub height* and we note that this is also the preference expressed by Mr Delaire. We are of the view that this expressed preference for measurement of wind speeds at hub height should be required for limit setting and compliance testing. This will reduce the uncertainty inherent in the NZ6808:1998 methodology.

Regression Curves

NZ6808:1998 requires production of regression curves representing the relationship between noise level and wind speed both pre-construction (background) and post construction (operating). As noted previously NZ6808:1988 does not contain any requirements of the quality of the regression curve as indicated by the R^2 value. As can be seen from that data provided in the PAR, this can lead to a situation where statistically meaningless correlations are relied upon to establish limits and test compliance. We are of the view that this is unacceptable and recommend that regressions with a R^2 value of less than 0.5 should not be used. It is also essential that the data used provides adequate coverage of the 4 to 8 m/s wind range.

We are of the view that the requirements of the regression curves representing both background and operating noise levels should:

- be derived from data sets:
 - of at least 500 noise level/wind speed data pairs;
 - including wind speed measurements made at turbine hub height;
 - including at least 10 data pairs, or 1 % of the total number data pairs whichever is the greater, at wind speeds greater than 8 m/s;
 - including at least 10 data pairs, or 1 % of the total number data pairs whichever is the greater, at wind speeds less than 4 m/s;

- with the percentage of data pairs that are the results of measurements made with the wind blowing from the WEF to the dwelling being equal to or greater than the maximum monthly proportion of the expected wind direction distribution.
- have a coefficient of determination value on 0.5 or greater.

While the imposition of these quality control measures on the regression curves is logical, sensible and required, the possibility exists that, irrespective of the quantity of data collected, a regression curve of an appropriate standard may not be obtained. This situation would arise if there is no relationship, or an extremely poor one, between wind speed at hub height on the WEF site and wind speed (hence noise level) at a particular dwelling. While the likelihood of this is debatable, it remains a possibility and would result in a situation where compliance could not be tested using NZ6808:1998 methodology. Such a situation is unacceptable and requires an alternative means of compliance testing.

We note that, in his response to submissions, Mr Delaire stated that:

In the case that complaints arise from non-assessed properties, alternative methods of assessing compliance with the NZ Standard can be used. One of these methods is a "shut-down test" where handheld noise measurements, are undertaken at the affected residential property with the wind farm operating and with the wind farm being shut down. The short term measurements, corrected for background noise, are then compared with the most appropriate noise limit.

We believe that such a method could be applied for compliance testing if a regression curve of the appropriate quality for the operating noise level is not available, providing measurements are made under worst case conditions with respect to wind direction.

If a regression curve of the appropriate quality for the background noise is not available then the determination of NZ6808:1998 noise limits is not possible. In such circumstances we see no option but to apply a limit of 40 dB(A) at all wind speeds as compliance with such a limit guarantees compliance with NZ6808:1998 noise limits.

The design of a compliance testing method involving a shut down test is beyond our expertise; however we have no doubt that an appropriate method could be designed and implemented by a suitably qualified and experienced expert.

The choice of methodology for compliance testing is therefore between:

- utilisation of the method described NZ6808:1998 while satisfying the specifications discussed previously in regard to the regression curves and the data from which they are derived; and
- a “shut down test” procedure developed and implemented by a suitably qualified expert.

We are well aware that, irrespective of the method of compliance testing used, the cost of such testing will be significant. It is however a cost that should be seen as a normal WEF operating cost. There is little point in giving permission for a WEF to operate under certain conditions unless compliance with those conditions can and is demonstrated. The permission that is sought is for the development and operation of a WEF that is compliant, not just for a WEF. Demonstrating compliance is therefore fundamental, whatever the cost.

Permit Conditions on Noise Limits and Compliance Testing

While Condition 19 of the Draft Permit specifies the NZ6808:1998 limits, we disagree with two aspects of the proposed condition:

- the limit should apply at dwellings existing on the date of issue of the permit rather than 7 March 2008; and
- any exceedance of the limit should be considered as a breach of the condition and we see no reason to allow the limit to be exceeded for 10% of the time. The limits are aimed at protection from sleep disturbance and effectively allowing sleep disturbance for 10% of the time is inappropriate.

There are a number of errors in the drafting of Condition 18 of the Draft Permit including the following:

- it is not the noise immission (sic) resulting from the operation of the WEF that needs to be limited by the condition but the noise levels at dwellings; and
- the second paragraph, or something like it, belongs elsewhere in the permit as it relates to the methodology for determining compliance rather than the noise limits.

Conditions 18 and 20 and parts of Condition 19 of the Draft Permit relate to compliance testing and should be consolidated in one condition.

The redrafted conditions relating to compliance testing in the Recommended Permit (Appendix B) adopt the following approach:

- a Compliance Testing Plan must be prepared and approved prior to construction;
- compliance Testing Plan requirements are specified; and

- a requirement to implement the Compliance Testing Plan.

We have recommended that the guidance provided by N3/89 should be applied during construction and have included a related requirement for compliance testing in the Recommended Permit.

6.5 Noise Compliance Enforcement

6.5.1 Evidence and Submissions

The Draft Permit would require the following response to the detection of non-compliance:

- within 30 days, provision of a Noise Remediation Plan including descriptions of actions to be taken;
- approval of the Noise Remediation Plan by the Responsible Authority;
- within 60 days of approval of the Noise Remediation Plan, implementation of that plan to the extent possible within the 60 days;
- within 30 days of the full implementation of the Noise Remediation Plan an assessment of compliance; and
- if the assessment of compliance fails to demonstrate compliance the noise limit will be deemed to be breached.

6.5.2 Panel Assessment

We find the following elements of the non-compliance condition in the Draft Permit to be unsatisfactory:

- the inherent definition of a breach of the noise limits being only after a second demonstration of non-compliance after the implementation of the Noise Remediation Plan;
- the extensive and, in fact, open ended timing for action to be taken; and
- the lack of incentive for the operator to address the issue in a timely manner.

Under the Draft Permit, after the detection of non-compliance, which we consider demonstrates a breach of the permit conditions, it could be 90 days or more before the matter is satisfactorily resolved and during this residents may suffer unacceptable impact while the operator suffers little or no loss.

We believe that once an exceedance of the prescribed noise limits is detected then immediate action to prevent further exceedances should be required. Information provided by the Proponent at the Hearing demonstrated that such immediate action is possible albeit at the cost of power generation.

Detection of an exceedance will quantify the magnitude of the exceedance. Since it is possible to predict the impact of particular actions on WEF noise level at a particular dwelling, the actions required to achieve a specific reduction in WEF noise level could be selected and implemented without delay.

This situation can be expected to provide appropriate relief to the residents while requiring operation of the WEF in a sub-optimal way in terms of power generation. The operator can then be provided with the opportunity to prepare and implement plans aimed at increasing the efficiency of the operation without breaching the permit conditions. In this circumstance the desired protection of residential amenity is achieved while plans for the achievement of the operator's goals are developed and implemented. We consider this approach to be fair and reasonable, unlike the proposed approach where residents suffer ongoing impacts on their amenity while remediation plans are developed, assessed and implemented.

A permit condition implementing our views in regard to noise compliance enforcement is included in the Recommended Permit.

6.6 Noise Complaint Management

6.6.1 Evidence and Submissions

The Draft Permit includes a condition relating to noise complaint management that requires:

- a) Complaints regarding wind turbine operational noise to be dealt with in accordance with the complaints management procedure in the EMP; and
- b) Complaints that are "substantive" and identify a breach of the permit conditions to be reported to the Minister for Planning and cause the enforcement procedures to be implemented.

6.6.2 Panel Assessment

A number of other Panels considering WEF applications have recommended that permits include conditions relating specifically to the management of noise complaints.

We do not see the need for such a distinction as the principles of effective complaint management should be applied to all complaints, irrespective of the reason for the complaint.

We expect that if there are complaints about the operation of the WEF, they are most likely to relate to noise, so it is essential that the complaint management procedure in the EMP is adequate for noise complaints. We are of the view that a complaint management procedure that is appropriate for dealing with noise complaints will also be adequate for dealing with other complaints.

The Draft Permit requires that the EMP include a complaints management procedure (Condition 7, item k) and Mr Offor suggested that it may be appropriate to require that procedure be in accordance with the Australian Standard *Customer satisfaction – Guidelines for complaints handling in organizations* (AS10002:2006).

Our review of AS10002:2006 and the associated handbook *The Why and how of complaints handling* HB 229-2006 found that the Standard and the handbook contain reasonable and valuable guidance on the establishment and operation of an effective complaints management regime and therefore believe the procedure required should be in accordance with this Standard.

We note that the features of a complaint management procedure in accordance with AS10002:2006 will include the following features:

- high accessibility including readily accessible information on the process, flexibility in methods of making complaints and the ability for complaints to be made free of cost to the complainant;
- immediate acknowledgement of all complaints and a system of providing on-going feedback to complainants on the development and implementation of plans to address issues raised by the complaint;
- if possible, closure of complaints by acceptance by the complainant of the actions taken or, where necessary, advice to the complainant on alternative forms of recourse available;
- clear responsibility and accountability for development and implementation of action plans and progress reporting;
- detailed recording of complaints including the tracking of complaints from initial receipt through the entire process; and
- regular auditing of the complaints handling process.

The Draft Permit specifies a number of required inclusions in the procedure for the management of complaints to be included in the EMP, however, we are of the view that a requirement that the procedure be in accordance with AS10002:2006 is sufficient and more appropriate. This somewhat less prescriptive approach provides the flexibility required to develop an effective procedure whereas the prescription of specific actions may well limit the procedure implemented.

The Draft Permit also requires the EMP to include reporting and review procedures, which include the establishment and maintenance of a complaints register that may be inspected by the relevant regulatory authorities or agencies. We are of the view that contents of the complaints register should also be available for inspection by members of the public and the contents of the register reported to the Responsible Authority as required.

The redrafted condition is included in the Recommended Permit.

AS10002:2006 states:

This International Standard is not applicable to disputes referred for resolution outside the organization....

In the language of the Standard, a dispute occurs when the process of complaints handling fails to result in closure. While a primary aim of the required complaints handling procedure is to avoid disputes through “internal” resolution of complaints, and it is expected that a complaint management procedure designed and implemented in accordance with AS10002:2006 will achieve this aim to a significant extent, the possibility of dispute cannot be ignored.

We see merit in providing for a dispute resolution procedure that involves referring the matter to the Responsible Authority (the Shire of Moorabool) for determination of whether a dispute exists and if appropriate implementation of enforcement actions.

We are conscious that Council is responsible for the enforcement of permit conditions and the determination of a breach may require expertise that the Council does not possess. In such circumstances the Council would have the option of requiring the WEF operator to provide an opinion from a suitably qualified expert. In this way the required expertise could be provided at no cost to the Council. Alternatively the Council could order that compliance testing be conducted, again at no cost to the Council.

If compliance testing shows non-compliance then the noise compliance enforcement provision of Condition 18 of the Recommended Permit will produce compliance and if those provisions are not met or if the Council determines that the WEF is in breach of the permit then the Council is required to take enforcement actions in the normal way.

We have included a condition in the Recommended Permit defining the dispute resolution procedure.

6.7 Panel Findings

We find that:

- the noise assessment provided in support of the Application provides an adequate response to the requirements of the planning scheme by:
 - establishing noise limits in accordance with the NZ6808:1998 methodology;
 - providing sufficient information to support a reasonable expectation of compliance with appropriate noise limits.

If despite the expert evidence and the confidence expressed in the Proponent's submissions, the predicted noise levels presented in support of the application prove to be under estimates, the WEF operator will need to take whatever action is necessary to comply with the standard. Thus, any risks associated with inaccurate modelling at the assessment stage rest with the WEF operator, not residents.

- noise levels at sensitive receptors during the construction of the WEF must comply with the limits suggested in *Interim Guidelines for Control of Noise in Country Victoria* (N3/89);
- during operation the WEF must comply with the noise limits suggested by NZ6808:1998, without allowances other than that prescribed in that standard;
- effective compliance testing during the operation of the WEF is essential and requires:
 - measurement of background and operating noise levels at all dwellings at which the predicted WEF noise level is 35 dB(A) or greater;
 - that the compliance testing method described in NZ6808:1988 not be applied unless regression curves relating noise levels to wind speed are derived from appropriate data and are of reasonable quality as indicated by the coefficient of determination;
 - the availability of an alternative compliance testing method when the definition of windspeed/noise level relationships of an appropriate standard is not possible.
- noise compliance enforcement should be such that detection of non-compliance should be a trigger for immediate action to be taken to return the operation to compliance;
- noise complaints should be dealt with in the same way as complaints on other issues. The complaints management procedure should be designed and implemented in accordance with AS10002:2006; and
- disputes arising from complaints, i.e. matters not resolved by the application of the complaints management procedure, should be referred

to the Responsible Authority (the Shire of Moorabool) for resolution. Normal enforcement processes under the *Planning and Environment Act 1987* would apply.

6.8 Panel Recommendations

Any permit issued should:

- **require a complaints management procedure in accordance with Australian Standard Customer satisfaction – Guidelines for complaints handling in organizations (ISO 1002:2006).**
- **include the revised conditions relating to noise in the Recommended Permit in Appendix B.**

7. Shadow Flicker and Blade Glint

7.1 Policy and Regulatory Framework

The WEF Guidelines state that:

The shadow flicker experienced at any dwelling in the surrounding area must not exceed 30 hours per year as a result of the operation of the wind energy facility.

The WEF Guidelines also identify blade glint as having the potential to result in adverse impacts on amenity and suggest that:

Blades should be finished with a surface treatment of low reflectivity to ensure that glint is minimised.

7.2 PAR Assessment

Section 7.7 of the PAR provides a description of the predicted shadow flicker impacts based on a detailed study conducted by Garrad Hassan Pacific Pty. Ltd. whose report was included in Volume 2 of the PAR.

Garrad Hassan Pacific Pty. Ltd reported that of 75 dwellings assessed the maximum predicted exposure of a non-host dwelling is 17 hours per year.

With respect to blade glint Garrad Hassan Pacific stated that:

Blade glint is not expected to be a problem with the proposed Lal Lal Wind Farm if an appropriate matt finish is specified for turbine blades,

The PAR states that a matt finish will be applied to blades.

7.3 Submissions

While no substantial submissions on these matters were made at the Hearing a significant number of written submissions expressed general concern about the possibility of shadow flicker and a small number of written submission suggested that the requirements of the WEF Guidelines were inadequate.

7.4 Draft Permit conditions

The Draft Permit conditions include:

- Condition 17 which specifies an acceptable limit on exposure of non-host dwellings to shadow flicker of 30 hours per annum; and

- In Condition 2, a requirement that:
The wind turbine towers, nacelles and rotor blades must be of a non-reflective finish and pale gray in colour (or another colour that blends with the landscape) to the satisfaction of the Minister for Planning.

7.5 Panel Assessment

We are satisfied that the predicted exposures of dwellings to shadow flicker provide significant support for the prediction that no non-host dwelling will be exposed to shadow flicker to an extent greater than that allowed by the WEF Guidelines.

It is also clear that the numerous concerns expressed in written submissions are of a general nature rather than in response to this specific proposal.

We see no valid reason to question the adequacy of the WEF Guidelines in regard to its statement of what should be considered acceptable.

We are satisfied that blade glint will not be of concern.

We are of the view that Condition 17 of the Draft Permit is appropriate except that it should apply to all dwellings in existence on the date of the permit rather than at the date of the application.

We find that the proposed WEF development will not generate unacceptable shadow flicker or blade glint effects.

7.6 Panel Recommendation

Any permit issued includes:

- **A condition specifying 30 hours per annum as the maximum allowable exposure of any non-host dwelling to shadow flicker.**
- **A requirement for non-reflective finishes for turbine blades in the “Specification” condition.**

8. Electromagnetic Interference

8.1 Policy and Regulatory Framework

The WEF Guidelines recognise electromagnetic interference (EMI) as one of the potential impacts of wind energy facilities and as consequence require applications to include consideration of the potential for such impacts. The WEF Guidelines suggest that:

The siting of wind turbines in the 'line of sight' between transmitters and receivers should be avoided.

8.2 PAR Assessment

Section 7.6 of the PAR provides a summary of the investigations conducted into the potential for EMI including references to investigations completed by Garrad Hassan and Gibson Quai-AAS. Reports on each of the investigations were included in Volume 2 of the PAR.

The PAR identifies the fact that EMI has the potential to interfere with both point to area signals such as television broadcasts and point to point signals such as microwave transmissions used for line of site connections for data, voice and video.

The investigation by Garrad Hassan showed the following:

- for broadcast signals large scale interference can generally be avoided by placing wind turbines at least one kilometre from broadcast towers;
- digital voice based technologies such as GSM and CDMA mobile phones are essentially unaffected by WEF development and the Australian Communications and Media Authority (ACMA) database shows that there are no broadcast towers within one kilometre of the proposed WEF site;
- to prevent EMI to point to point signals, turbines should not be located in the 1st Fresnel zone of such signals; and
- six links that may be subject to interference were identified and the potential for impact on several point to multipoint transmissions could not be determined.

Garrad Hassan recommended that turbines not be placed in the identified interference zones and that all identified radio communications licensees in the area be contacted.

The Garrad Hassan report also stated that the potential for interference to reception of broadcast signals at nearby residences had not been analysed and is therefore unknown.

The peer review of the Garrad Hassan investigation by Gibson Quai – AAS identified some deficiencies in the approach taken and an additional four point to point links of interest. Gibson Quai – AAS modelled the path profiles of all links of interest with the identified deficiencies accounted for and determined the exclusion zones required for each link. Exclusion zones of between 106 and 240 metres from the centrelines of the point to point links were recommended for five links and a partial exclusion zone for two other links.

As recommended by Garrad Hassan, all radio communications licensees in the area were contacted with the only significant response being that received from the Country Fire Authority of Victoria (CFA). The CFA expressed concern about interference to the CFA's fixed links and mobile radio services and requested a clearance of 250 metres between turbines and fixed link paths.

Gibson Quai – AAS completed a detailed study of CFA fixed and mobile radio services and concluded that:

- with the previously recommended exclusion zones in place, interference to CFA fixed link services would be minimal;
- there is substantial anecdotal evidence that mobile radio services and mobile phone services can operate successfully within a WEF site; and
- there are a large number of CFA mobile radio repeater sites near the proposed WEF sites, implying that the area is well covered by CFA mobile radio services.

A further impact assessment completed by Gibson Quai-AAS confirmed previous indications that the impact would be minimal but did identify one turbine location that did protrude into a recommended exclusion zone. Despite this, further analysis led to the conclusion that interference from this particular turbine would be minimal.

8.3 Submissions

A number of written submissions included comments on the potential for EMI and with the following issues being raised:

- interference with television reception;
- interference with radio controlled model aeroplanes;
- the lack of a guarantee of appropriate action if problems were found to occur in practice; and

- the Proponent's submission referred to the risk of interference to UHF television reception, indicating that locations within 3 km of a turbine and plus or minus 20 degrees of a line from the transmitter are at risk.

8.4 Draft Permit conditions

The permit condition proposed by the Proponent that relates to this matter would create requirements for:

- preparation of a Television and Radio Reception Plan to the satisfaction and approval of the Minister for Planning; and
- the Television and Radio Reception Plan to include:
 - a pre-construction survey to determine television and radio reception strength at representative locations up to 3 km from any wind turbine;
 - a procedure for a post-construction survey at any dwelling that existed at the time of the pre-construction survey and from which an allegation of interference is received; and
 - a procedure for implementation of mitigation measures to return affected reception where the dwelling existed at the time of the pre-construction survey and interference from the WEF is demonstrated.

8.5 Panel Assessment

We are pleased to note the expert views of both Garrad Hassan and Gibson-Quai – AAS that the proposed WEF would have no impact on mobile telephone services. Such services are now a basic expectation in dwellings and at work places and any interference with such services would be highly problematic. We accept the views of the experts on this matter.

In light of the details of the investigations into the potential for adverse impact on point to point communication systems, including those utilised by the CFA, the Panel is confident that any interference to such communications that could occur would be negligible, providing the exclusion zones recommended by Gibson Quai – AAS are adhered to.

While the Gibson Quai – AAS recommendation is that the whole wind turbine (tower and blades) should not be located within the first Fresnel zone of licensed point to point links, it is also noted that they consider that the critical requirement is that there is no intrusion into the inner 60% of the first Fresnel Zone. We accept this view.

While the proposed turbine layout does not show any intrusion into the inner 60% of the first Fresnel zone of any identified point to point link, we also note that the precise locations of the turbines will not be finalised until the development plan is endorsed.

We believe that protection against interference to point to point communications should be assured and that the assurance required should be by the prescription of exclusion zones.

To achieve this it is recommended that the Development Plans to be submitted to and endorsed by the Minister for Planning include "Turbine Exclusion Zones" and the specifications of the WEF include a requirement that no turbine be located within those zones.

There is little doubt that interference with the control and operation radio controlled model aircraft at the Ballarat Radio Model Flying Club's field could be expected. It is also the case that the operation of radio controlled model aircraft at this location is incompatible with the proposed WEF for other reasons and that, should the development of the WEF proceed, the operations of the model aircraft club will need to be relocated. We note that the Proponent has offered to assist club with such any such relocation.

The potential for interference to television reception in the vicinity of the proposed WEF remains unclear. It is acknowledged by Garrad Hassan that this matter has not been investigated and no reference is made to such interference in any of the other reports on EMI.

Despite this, the Proponent acknowledges the potential for such interference and proposes a condition that requires such interference to be identified and mitigated.

The Proponent suggests that dwellings within 3 km of a turbine are at risk of such interference however the basis for this assessment is unknown.

A review of previous panel reports on WEF applications shows that the area considered at risk, and therefore in need of assessment and protection, has ranged from 3 to 5 km from turbines. The International Telecommunications Union Recommendation ITU-R BT *Assessment of impairment caused to television reception by a wind turbine* (1992) states that reception impacts beyond 5 km are unlikely. This may be interpreted as indicating that television reception at locations within 5 km of a turbine is at some risk.

While we find that the recommendation of the International Telecommunications Union should be given considerable weight, we recognise that this matter was not the subject of detailed consideration at the

Hearing. As a result the Proponent has not been provided with the opportunity to provide evidence and/or submission on this matter and is entitled to do so.

We therefore recommend that the definition of the area to be subject to assessment and mitigation, if required, be a component of the Television and Radio Reception Plan required by Condition 16 of the Draft Permit. In this way a case can be put justifying a particular area and assessed by the Minister for Planning.

Condition 16 of the Draft Permit has been re-drafted to include this requirement and included in the Recommended Permit.

8.6 Panel Findings

We find that:

- the proposed WEF development is highly unlikely to result in interference to point to point telecommunications providing no part of any turbine is located in the inner 60% of the first Fresnel zone of any existing point to point communication link;
- prevention of encroachment of turbines into exclusion zones based on the inner 60% of the first Fresnel zones of any licensed point to point communication link should be a permit requirement; and
- the area of potential interference to television reception is undetermined but should be determined by a suitably qualified expert as part of the development of a Television and Radio Reception Plan.

8.7 Panel Recommendations

We recommend that:

Any permit issued includes:

Exclusion zones that will prevent interference to point to point telecommunications links in the list of inclusions in the Development Plans;

Specification that no turbines are located in the exclusion zones.

A Television and Radio Reception Plan which includes:

- **Identification of the area in which television and radio reception is at risk**
- **Pre-construction surveys of television and radio signal strengths**
- **Post-construction mitigation in response to complaints concerning television and radio reception to return affected reception quality to pre-construction standards.**

9. Traffic Management

9.1 The Issues

- Will the existing and proposed road network cope with the identified traffic loads during construction and operational modes?
- Will there be any unreasonable impacts on local amenity or safety as a result of the WEF generated traffic?
- What needs to be done to the road network to ensure its adequacy if a permit is granted for the WEF?

9.2 PAR Assessment and Evidence

The initial assessment of the traffic implications of the WEF was included in the PAR with additional material provided in Addendum One. This information was reviewed and updated by Cardno Grogan Richards and Mr Stephen Hunt included the resultant analysis in his expert witness statement.

Mr Hunt's evidence was that:

- the predominant traffic activity associated with the WEF will occur during the development phase when the turbines, nacelles, blades and other components, together with the raw materials for the production of concrete and material for internal road construction will be delivered to the site;
- forecast traffic volumes (see the table below) are well within the capacity of the existing road network, with the Midland Highway already carrying 3500 vehicles per day (vpd) and Yendon-Egerton Road approximately 720 vpd;
- over-dimensional vehicles would be used for the carriage of major components of the turbines from either Portland or Geelong;
- in the operational phase the WEF traffic will be very low, around 5 vpd, comprising mainly small commercial vehicles with an occasional truck;
- the suitability of the local roads to be used had been adequately assessed by Cardno Grogan Richards³¹. This assessment indicated that the road network would accommodate the forecast traffic, subject to upgrading of

³¹ Lal Lal WEF – Yendon Section Feasibility of Haulage Route
 Lal Lal WEF - Elaine Section Feasibility of Haulage Route
 Lal Lal WEF - Feasibility of Haulage Routes Supplementary Report
 Lal Lal WEF - Addendum One May 2008.

some intersections turning circles to accommodate over-dimensional trucks, grading of railway level crossings and further investigation of the steep approach to and narrow bridge over the Moorabool River;

- the choice of the key routes (and access points)³² is appropriate, namely:
 - the Glenelg, Henty and Midland Highways as the over-dimensional routes for the transport of turbine components from Portland or Geelong;
 - Yendon Section – from Midland Highway via Yendon No 2 Road, Yendon-Egerton Road, Duggans Lane, Spreadeagle Road and Harris Road; and
 - Elaine Section – from Midland Highway to the eastern section via Murphys, Elaine-Blue Bridge and Settlement Roads and to the western section via Fords Lane extended to Horsehill Road; and
- VicRoads had stated that the construction and operation of the WEF would not affect the safe operation of the Midland Highway, if relevant intersections on the Midland Highway are upgraded and all necessary permits for over-dimensional vehicles are obtained.

The following table is derived from Mr Hunt's evidence to illustrate forecast traffic generation for the phases of the planned construction program.

	Phase One (Construct Access+ hardstanding+ others)	Phase 2 (Turbines + others)
Yendon	32-42 return trips/day	30-50 return trips/day
Elaine	18-28 return trips/day	28-38 return trips/day

Note: This includes 20-30 Trips throughout the construction period for works -substations, construction yards, amenity buildings etc) which will be constructed as required during the project. This component of traffic generation will be at the lower end of this range with occasional peaks.

Mr Hunt maintained that Council has no serious concerns about the choice of routes subject to agreement about funding of any upgrades and maintenance arising from the WEF development.

He supported the requirement in the Draft Permit for the preparation of a Traffic Management Plan with the involvement of VicRoads and Council and was of the view that the proposed content of that plan would form a sound basis for the development, maintenance and monitoring of traffic arrangements during the various stages of the project.

³² Addendum One figs 1.6 – 1.13

9.3 Submissions

Local residents raised a range of traffic issues, including:

- the capacity of roads is inadequate to accommodate the heavy traffic generated by the Proposal given that this would be in addition to vehicles serving the quarries in Dunnstown Road;
- the swept path analysis and identification of haulage routes only considered B-double trucks rather than over-dimensional trucks;
- additional traffic would be detrimental to road safety on school bus routes during school pick-up and drop-off periods;
- additional heavy vehicle traffic would pose a hazard to stock management;
- the wind turbines could result in a road safety hazard due to light flashes or distraction; and
- Mr O'Donnell submitted that his amenity would be particularly affected by the use of Fords Lane as a primary access route from the Midland Highway.

Mr Jewell, for Council, agreed that Council had no general concern with the routes but maintained that assumptions about the capacity of various bridges and culverts must be confirmed before any construction commences. He emphasised the need for a more rigorous evaluation of current road conditions than the visual inspection proposed by the Proponent so that the funding of any necessary upgrades or ongoing maintenance can be appropriately shared between Council and the Proponent. Council also submitted that there may be further tree lopping required which would not be covered by the Native Vegetation Application and would require further permits.

Mr Hunt responded to submissions that:

- a key objective in the choice of access routes was to minimise interaction with residential areas and in his opinion Yendon No 2 Road, with only limited residential access points, is to be preferred to Yendon No 1 in that regard. The latter also includes a number of steep grades and sharp bends. Access points in Elaine were directly off the Midland Highway north of Elaine at points agreed with VicRoads;
- swept path analysis used a 42.5m long semi-trailer which is the vehicle to be used and is substantially longer than a B-double at 26m;
- based on the response by VicRoads and the research of traffic accidents round the Yambuk WEF site he was confident that there is no material evidence of driver distraction from WEF operation;

- he maintained that the volumes of traffic posed no significant threat to road safety and submitted that the needs of residents, particularly schoolchildren, and of farmers for the management of stock, will be catered for in the Traffic Management Plan. This will include conditions designating traffic routes for vehicles linked to the project and to specifying times and speed limits for trucks on routes used by school buses; and
- in response to Council's submission, Mr Hunt acknowledged that during the construction period there will be increased traffic load on the identified local roads and the Proponent has acknowledged the need to contribute to a repair and maintenance program to the extent that this can clearly be related to the traffic volumes generated by the WEF.

Mr Hunt agreed with Council that the pre-construction evaluation of the condition of sealed roads should identify the following:

- *Existing pavement condition and traffic volume and composition*
- *Design life of pavements for existing conditions*
- *Additional equivalent standard axle loads expected to be generated in the construction process*
- *Impact on pavement life of additional traffic*
- *Appropriate cost mechanism for compensation for reduced pavement life*

He suggested that the permit condition should not be inflexible in this regard but should allow for a system to be developed through consultation between Council and the Proponent. Ms Quigley said that the Proponent fully accepted responsibility for its share of any upgrades and maintenance and that this could adequately be dealt with in the Traffic Management Plan.

9.4 Panel Assessment

We accept Mr Hunt's evidence that, even if access tracks, hardstandings, turbine erection and other works were all to be taking place simultaneously, traffic volumes for the Yendon Section would represent an increase of less than 10% on the existing traffic volume of 716 vehicles per day on Yendon No 2 Road and of less than 2% for the Midland Highway at the Elaine Section.

Given the relatively central location of the construction yards within the Yendon and Elaine Sections, we would expect a substantial number of these trips to involve traffic between these facilities and individual turbine sites. These would not involve traffic movements into the wider local network.

Consequently, we are satisfied that the traffic to be generated by the WEF can, in volume terms, be comfortably accommodated within the existing network of the Midland Highway, Yendon No 2 Road and Yendon-Egerton Road.

We are also satisfied, from that evidence, that these additional levels of traffic will not cause significant reduction in safety to local residents or any significant problem for the management of stock. We note that the Draft Permit conditions make specific reference to the designation of routes and the specification of times of operation and speed limits for trucks using school bus routes.

Although we find that the proposed access arrangements are acceptable, we believe that there may be an alternative option for access to the turbines in the Elaine Section west of Midland Highway to be via Woolshed Road to Horsehill Road. This issue was not discussed at any length during the Hearing but we believe that such an arrangement would have the advantage of deleting the Fords Lane access off the Midland Highway which is close to the Murphys Lane access and focussing all access to the western section via Horsehill Road which is a lightly trafficked road with good sightlines. It would also reduce the potential traffic impacts on Mr O'Donnell's amenity.

We find that the material in the PAR, Addendum One and Mr Hunt's evidence provided a sound basis for the evaluation process of the condition of local roads. We note that the bridge over the Moorabool Creek on Yendon No 2 Road presents a steep gradient after the bridge together with a sharp bend, and requires further investigation. We agree with Council that this should be the subject of specific attention in the final appraisal of road conditions and capability. We also note that there is general agreement between Council and the Proponent on a method for the assessment of payments to be reimbursed to Council for the costs of road upgrade and maintenance which are directly attributable to the WEF. We would expect any such analysis to take into account of the existing volumes of trucks on those routes.

We find that the swept path analysis in the traffic analysis demonstrated that turning circles would be adequate for 42.5m over-dimensional vehicles throughout the network once adjustments to intersections upgrades are completed.

We agree that the preparation of a Traffic Management Plan is essential for ongoing upgrading, maintenance and monitoring of the performance of the road network during the life of the project. We expect that Council as the representative of the local community will ensure that the local residents' and businesses' concerns are fully considered in the plan. We note that the

Proponent does not object to the inclusion in the Traffic Management Plan of provisions to deal with minor pruning and we have recommended that this be done.

However we find that some minor modifications of the conditions are necessary to deal effectively with the issues raised and these include:

- ensuring that the road condition survey includes details of suitability, design, construction standards;
- incorporating key principles for the assessment of road conditions;
- the designation of routes and of operating times for all heavy vehicles;
- the inclusion of a process for the management of minor tree pruning; and
- ensuring that where payment by the Proponent for road works is required that it relates to work directly related to the WEF.

We conclude in relation to traffic matters that the regional and local road network is capable of handling all traffic associated with the WEF provided the identified intersection improvements are carried out. We are also satisfied that the Traffic Management Plan will provide an appropriate framework for the implementation and enforcement of all other traffic management issues associated with the WEF. As a result we find that, in general there will be no unreasonable impacts on road safety or amenity of the local residents. However, after further consideration we believe that use of Woolshed Road as an alternative access to the western art of the Elaine Section warrants further investigation as it may provide greater separation of access points on the Midland Highway and reduce the potential amenity impact on Mr O'Donnell.

9.5 Panel Recommendations

Amend the conditions relating to the Traffic Management Plan as set out in Chapter 9 and shown in the Recommended Permit in Appendix B.

Investigate the use of Woolshed Road rather than Fords Lane as an access to the eastern section of the Elaine Section as part of the Traffic Management Plan.

10. Safety and Health

The WEF Guidelines discuss 'safety' in several places and specify safety requirements in connection with electricity and aircraft specifically. Other aspects of safety relevant to the project are covered by the requirement in the WEF Guidelines for compliance with all applicable legislation, regulations and policies. Submitters also raised concerns about possible impacts on health for residents living near a WEF.

10.1 Fire and Lightning Strike

Some submitters expressed concern about the risk of fire from the WEF and potential interference with fire fighting activities.

The Proponent's submission on this issue noted:

- the CFA Fiskville has been consulted and it does not share these concerns;
- the CFA Emergency Management Guidelines for WEFs address risks;
- the CFA guidelines state '*the standard distance of 300 metres between wind turbines would allow aircraft to operate around a wind farm given the appropriate weather and terrain conditions*'. Wind turbines for the Proposal exceed this separation distance by a substantial margin; and
- conditions requested by the CFA are accepted by the Proponent and are included in the Draft Permit.

An Emergency Response Plan, required by the Draft Permit, is to be prepared in consultation with the Country Fire Authority (and others). It will address the provision of static water supply tanks solely for fire fighting purposes, vegetation management, fuel control, the provision of fire fighting equipment during declared fire danger periods; access for fire fighting vehicles and familiarisation of WEF staff and emergency services personnel.

We endorse the inclusion of this condition in the Draft Permit and are satisfied that it adequately addresses the risk from fire or lightning strike.

10.2 Aviation Safety

10.2.1 Policy and Regulatory Framework

The WEF Guidelines require consideration of aircraft safety, including the views of the Civil Aviation Safety Authority (CASA) where the Proposal is within 30 km of an airfield. Wind turbines should not protrude into any obstacle limitation surface for any airfield. The proposed Lal Lal WEF is not within such an area.

The CASA Manual of Standards (CASA MOS) addresses the operation of aerodromes. However, the Proponent advised that CASA withdrew its Advisory Circular AC139-18(0) entitled '*Obstacle Marking and Lighting of Wind Farms*' (AC139-18(0)) in September 2008 and they understood that a new set of guidelines will be prepared after a safety study and consultation with stakeholders. There is no legal requirement to comply with a CASA determination that aviation lighting be included on a WEF outside the defined limits or obstacle limitation surfaces of any aerodrome. However, planning permits for WEFs in Victoria have generally included a condition requiring night lighting of turbines greater than 110m in height in accordance with CASA recommendations.

10.2.2 The Proposal and PAR Assessment

Aircraft safety issues are addressed in Volume 1 Chapter 7.9 and Volume 2 of the PAR. The aeronautical assessment³³ considered the potential impact of the Proposal on civil and military aircraft, airport operators, ground based navigation aids and radar facilities, and recreational aviation. The report concluded that the Proposal will not impact on aircraft operations to or from Ballarat, Avalon or Melbourne, nor will it interfere with radio or navigation aid performance. Aerodrome operators and users in the region who were consulted (including the operators of agricultural aviation and the CFA) did not consider the safe operation of aircraft at the facilities or their aviation operations would be affected.

CASA was consulted about night-lighting options necessary for safety outcomes while minimising the visual impact³⁴. CASA considered night

³³ Carried out by Rehbein AOS was included in Volume 2 of the Application Report.

³⁴ Previous Panels have commented that CASA cannot require lighting if the project is outside an aerodrome Obstacle Limitation Surface. However, if a WEF is declared a hazard to aviation, then Clause 5.6 Circular AC139-18(0) suggests the Proponent and decision making body may be liable in the event of a collision.

lighting of 18 wind turbines in the Elaine Section and 27 wind turbines in the Yendon Section would be sufficient³⁵. The lighting would:

- be activated and de-activated by a luminance sensor;
- comprise two red Medium Intensity LED obstacle lights in accordance with AC 139-18(0);
- comply with the MOS minimum vertical beam spread of 3° for hazard beacons with a very low vertical beam spread to minimise visual impact; and
- flash simultaneously at each section of the WEF.

Draft Permit conditions satisfy notification requirements so that a Notice to Airmen can be issued and aircraft operators are aware of each new structure.

10.2.3 Submissions

The Commonwealth Department of Defence submission indicated that the safety of military flying operations or Defence communications and radars would not be affected. The Proponent will comply with the Department's request that final design and 'as constructed' plans be provided to RAAF Aeronautical Information Service.

Dr McKay and Mr Preat submitted that the proposed WEF would compromise safe access to their properties by air and would therefore undermine their business plans. Dr MacKay argued that the assessment was deficient because it had not addressed the implications for existing private airstrips and two of the proposed turbines (ESWT24 and ESWT23) would interfere with the aircraft approach to his aircraft landing area. Dr MacKay's responses to questions acknowledged that his landing area was reinstated and upgraded to incorporate a sign, a wind sock and markers after being cropped for several years. While he does not own a plane and the airstrip has only been used by one plane, he has recently advertised the possibility of fly-ins to his B&B and sees this option as an important part of his business plan. Mr Preat's responses to questions confirmed that it is the circuit rather than the landing approach that could be affected. He also argued that air access is important as his property would serve 'high net worth' guests visiting accommodation proposed for future development in his business plan and air access is a significant factor in the value of his property (which is currently for sale).

³⁵ See Figures 7.27 and 7.28 of the PAR.

10.2.4 Panel Assessment

The material presented indicates that the Proposal would satisfy CASA, Department of Defence, and CFA aviation safety requirements. The PAR also indicates that Air Services Australia confirmed that the Proposal would not interfere with radio, radar or navigational installations. We are satisfied that Draft Planning permit conditions address these matters.

The aircraft landing areas on the McKay and Preat properties do not require CASA sanction as the pilot is responsible to ensure that the place is suitable for use as an aerodrome, having regard to all the circumstances of the proposed landing or take-off.³⁶ However, CASA recommends minimum physical characteristics for landing areas³⁷.

The planning permit requirements for air strips were discussed at the Hearing. VCAT³⁸ considered this issue in relation to the WEF proposal at Naroghid and ruled that the use of rural land for an airstrip for private or recreational use or in conjunction with the use of the property in ordinary circumstances would be ancillary to the primary use of the land. The weight that should be accorded to these private landing areas in planning decisions was also addressed in that decision as follows:

- 14 *However, just because no permit is required and the airstrip has been constructed and is in use, does not guarantee that it will always remain suitable for use as an aeroplane landing area. The CAPP 92-1(1) Guidelines for Aeroplane Landing Areas are advisory guidelines to be used by pilots in command of aircraft to determine the suitability of a place for the landing and taking off of aeroplanes. They have no regulatory status and offer no ongoing protection in a planning sense for an airstrip. The onus rests on a land owner to construct an airstrip in a location that can retain its suitability for use as a place for the landing and taking off of aeroplanes irrespective of what may occur on adjoining land. A landowner who constructs an airstrip close to adjoining land cannot necessarily expect to constrain the future use of that land in order to protect the useability of the airstrip. The situation is different with respect to public facilities, where protection of their useability is justified in the community interest and which is one reason for the Airport Environs Overlay. But a private airstrip is no different to any other private use of land. The effects on its use by a competing use or development must be weighed up in the same way as in any other planning permit assessment. There will be situations however, where an*

³⁶ CAR 92(1)

³⁷ Civil Aviation Advisory Publication No: 92-1(1) Guidelines For Aeroplane Landing July 1992.

³⁸ Upson v Corangamite SC (Red Dot) [2005] VCAT 2267 (3 November 2005)

airstrip may be affected by an as-of-right use or development on adjoining land. Thus the landowner to the south of the subject land could construct a large shed close to his boundary in line with the end of the runway which, provided the shed complied with the planning scheme, would not need a permit irrespective of whether it intruded into air space that should be clear of objects as recommended under CAPP 92-1(1).

- 15 *The point is that it has been Mr Mulholland's choice to locate the airstrip where he has, but there is no guarantee about its continued compliance with the CAPP 92-1(1) guidelines and suitability for the landing and taking off of aeroplanes any more than the applicant had a guarantee that land would not be used in a manner adverse to its proposal for a wind farm.*
- 16 *So far as the planning panel is concerned which considered the permit application for the wind farm by Naroghid Wind Farm Pty Ltd, it is entirely a matter within its discretion as to the relative weight it places on the benefit of a wind turbine versus the benefit of not interfering with the use of a private airstrip...*

We recognise that aircraft access is an asset to a rural property but agree with the view in *Upson v Corangamite SC* that a property owner may choose to establish a landing area but requirements must be satisfied within that property to guarantee its ongoing suitability for the purpose. We are also conscious that the broader implications of private landing areas are not subject to evaluation through the planning permit process. We are of the firm view that the benefit to the community from the WEF (and specifically turbines ESWT24 and ESWT23) outweighs impacts on plans to use the landing areas in association with accommodation and, perhaps, agriculture.

We make no specific recommendation on Aviation Safety.

10.3 Blade Failure and Ice Throw

10.3.1 Evidence and Submissions

A written submission by Allan and Kristina Kitchingman expressed a concern in regard to the potential for adverse impact on the safety of the area in the vicinity of the proposed WEF due to the possibility of ice throw from the blades.

Further safety concerns were raised at the Hearing by Ms Judith Grieve when she stated that it had been reported that, in Europe, turbine blades had sheared off and had be thrown a distance of 400 metres.

In response, Ms Quigley stated that:

Submitters have also argued that the Proposal gives rise to safety risks in respect of blade malfunction and ice throw from blades. No evidence of such occurrences in the Australian engineering and regulatory system and the Australian climate has been provided in support of these submissions. The Proponent is not aware of any incident of blade malfunction or ice throw from blades at any Australian wind farm.

10.3.2 Panel Assessment

The possibility of a turbine blade becoming detached and being thrown away from the turbine must be acknowledged, however, for modern turbines such as those proposed in this case the probability of such an occurrence is extremely low. When this low probability is combined with the probabilities of a blade failure occurring when the blade is at a position and orientation such that the blade will be thrown directly at a dwelling, the likelihood of a blade hitting the area of a dwelling is negligible.

We have also used a simple ballistics model that does not account for air resistance or blade planning, to calculate the maximum distance a blade could be thrown from a turbine of the proposed configuration. We calculate the maximum throw to be of the order of 225 metres whereas the PAR states that the minimum distance from a turbine to a dwelling is 476 metres.

While the possibility of ice throw is also acknowledged and the simple ballistic model predicts that an ice particle could be thrown up to 960 metres, we consider the risk of such an event to be minimal. This view is based on the following:

- the history of Australian WEF operation, which includes operations in areas subject to sub-zero temperatures and occasional snow, but does not include any such events;
- the most likely form of ice build up on blades would be frost like and therefore not produce large ice particles that could potentially cause damage; and
- if a build up of snow did occur and a large ice particle was thrown the likelihood of it causing any damage is negligible due to the low probability of hitting a sensitive target.

We find that the risk associated with blade failure and ice throw to be negligible and make no recommendations in regard to this matter.

10.4 Low Frequency Vibrations

10.4.1 Evidence and Submissions

Numerous written submissions (19) referred to the potential for adverse impacts of vibrations emanating from operating wind turbines. Of these submissions, 14 made a general reference to vibrations without any indication of what the adverse impact may be however other submissions raised the following specific matters.

Vibrations can result in:

- Headaches;
- Tinnitus;
- General health effects;
- Loss of soil invertebrates resulting in deterioration in soil structure.

The written submission provided by Ms Samantha Gerada included a publication of the Acoustic Ecology Institute, Special Report: *Wind Energy Noise Impacts* that referred to “low-frequency noise” that may be transmitted through the ground. Ms Gerada’s submission also included an article authored by Ms Dixie Dean and published by National Wind Watch Inc., This article states, in reference to non-acoustical vibrations produced by wind turbines:

We know these vibrations exist. The M.O.D. was so concerned about the Eskdalemuir wind farm interfering with equipment monitoring Comprehensive (nuclear) Test Ban Treaty compliance an 80 km exclusion zone was declared round their underground monitoring facility until the Applied Geophysics Research Group measured and found them unlikely to interfere with that work

Mr Delaire addressed these submissions in his expert evidence stating that:

The Eskdalemuir study (Styles et al, 2005) provided evidence that wind turbines generate measurable vibrations in the ground at predictable frequencies. However, this study was designed to measure the effects of extremely low levels of vibration at a very quiet site, using some of the most sensitive equipment available.

This study showed that very low levels of vibration are emitted from operational wind turbines, but these are below the thresholds of perception for humans and animals.

10.4.2 Panel's assessment

We note that there is general agreement that operational wind turbines do produce low frequency vibrations that are transmitted through the ground; however, it is also evident that such vibrations are of extremely low levels, below perception threshold for humans and animals. No credible evidence has been presented to support the assertion that such vibrations are the cause of adverse impacts on humans and fauna. As a result we consider that any expectation of the low frequency vibrations from operating wind turbines causing adverse impact to be unjustified.

10.4.3 Panel Finding

We find that while low frequency vibrations would be emitted from operating wind turbines such vibration are not expected to result in an adverse impact and make no recommendations in regard to this matter.

10.5 Health Impacts

Many (65) submissions expressed concern about health impacts, often referring to 'Wind Turbine Syndrome' and the particular vulnerability of children and others with already compromised health. Mr O'Brien was particularly concerned about the implications for his health as he has an existing ear complaint and predicted noise level at his property is 38 dB(A).

A copy of a brief article by Dr Nina Pierpoint³⁹ cited by a number of submitters and a link to her web site were provided. That website indicates:

Wind Turbine Syndrome is the clinical name I (Dr Pierpoint) have given to the constellation of symptoms experienced by many (though not all) people who find themselves living near industrial wind turbines: sleep problems (insomnia), headaches, dizziness, unsteadiness, nausea, exhaustion, anxiety, anger, irritability, depression, memory loss, eye problems, problems with concentration and learning, tinnitus (ringing in the ears).

Dr Pierpoint, who advocates a separation of 1.5 miles (2.41 km) between homes and turbines, suggests that low frequency noise can cause nausea although it is mostly out of the normal audible range for people. The website refers to visual disturbances from wind turbines causing unsteadiness and nausea for people susceptible to vertigo, unsteadiness, or motion sickness (including many children and a large proportion of the elderly); and the strobe effect from moving blades can trigger seizures amongst people with

³⁹ Dr Nina Pierpoint MD, PhD "Health Effects of Wind Turbines" March 2006

seizure disorders. Health impacts from loss of sleep due to noise are canvassed on the website, with a particular focus on the implications for the health and development of children.

Ms Wehl's presentation for LLELAG argued that testing of the affects of noise on the listener has focused only on healthy adults but planning should be concerned with protecting vulnerable people. She submitted that the World Health Organisation indicates noise levels less than 30 dB(A) at night are required to protect children's health and that *'noise levels of 46dBA, 5dBA over night time limits, will result in sleep disturbance, when, according to the World Health Organisation measurable effects on sleep start at background noise levels of about 30dB inside a house. This equates to 40dB outside a house, with a 10dB reduction in sound levels through an open window.'*

The Proponent relied on the evidence of Mr Delaire who considered compliance with the NZ 6808:1998 will mean the WEF is not likely to cause sleep disturbance for most people. He advised that it is internationally accepted that indoor continuous noise levels of 30dBA (outdoor 40dBA) should not be exceeded if negative effects on sleep are to be minimised; WEF noise levels when wind speed is low will be below 40dBA outdoors at non-host residences; and the higher WEF noise when wind speed is high will be masked by the consequently higher background noise level.

10.5.1 Panel Assessment

The material presented to us on health implications has been very general and there has been no expert evidence presented to us on the issue.

The internet has provided global access to Dr Pierpoint's brief article and generated real concerns about health impacts amongst those living near proposed WEFs. During the Hearing Dr Pierpoint's website foreshadowed the publication of a book and since the Hearing extracts from the book and peer reviews have been placed on the website. However, it is not possible from this material to establish the nature of impacts in cases cited, nor the important information on the conditions under which reported impacts occurred. In an instance where the acoustic environment is noted, the noise levels were identified as being 50-60 dB(A) (ie well above the standard applied in Victoria). We also note from that website that Dr Pierpoint has presented on health impacts from WEFs to a number of inquiries⁴⁰ in the USA where her concerns could be tested but appear to have been given little weight. We are not in a position to evaluate whether assertions about 'Wind

⁴⁰ For example the New York State Legislature Energy Committee (3-7-06), Rebuttal Draft Environmental Impact Statement prepared by Noble Environmental, LLC, for the towns of Altona, Clinton, and Ellenburg, NY (spring of 2006).

Farm Syndrome' have any basis either generally or, more importantly, where there is compliance with the standards applicable to WEFs in Victoria.

Submitters also referred to records of health impacts from the Toora WEF. However, we note that it has been acknowledged that there have been significant issues relating to compliance with noise standards at that WEF.

It appears that potential health impacts relate largely to noise and visual disturbance, and to a lesser extent vibration. We have already commented that the WEF Guidelines establish performance standards for noise and shadow flicker and that the planning scheme directs us to adopt them as the basis for our assessment. While we do not deny that the planning process can be very stressful and that not everyone will achieve the outcome they sought, this is an unavoidable outcome of the competing interests that must be balanced in planning processes and decisions.

From the material presented we are not convinced that a departure from the established standards due to health impacts is justified. We are satisfied that the established standards can be met and permit conditions will require the operating WEF to comply with those standards.

If adverse health impacts from WEFs that comply with the current standards were to be substantiated, revision of the established standards to protect from health impacts would require a change in State policy.

We make no specific recommendations relating to this issue.

11. Flora and Fauna

11.1 Policy and Regulatory Framework

The WEF guidelines state that WEFs should not lead to any unacceptable impacts on critical environmental values which are those protected under Commonwealth or Victorian legislation⁴¹. Although international experience shows that bird mortality associated with modern WEFs is not significant, the WEF Guidelines indicate that the risk to protected bird species needs to be carefully assessed and adaptive management applied. After consulting DSE, surveys of protected birds are to be carried out at appropriate times of the year before the application is lodged but surveying is not required for other species unless listed species are being surveyed.

The planning framework⁴² aims to protect and conserve native vegetation in accordance with the *Native Vegetation Management: A Framework for Action* (the Framework). The Framework adopts the principles of firstly avoiding the removal of native vegetation, if removal cannot be avoided then planning and design should minimise the loss of native vegetation and, where native vegetation must be removed, offsets should be provided to ensure a Net Gain outcome (as defined in the Framework).

A permit is required under Clause 52.17 and ESO1 to remove, destroy or lop native vegetation, unless specified exemptions apply.

11.2 On-site Flora

11.2.1 PAR Assessment, Evidence and Submissions

The PAR addresses on-site flora issues in Chapter 7.2 Volume 1 and a report by Brett Lane and Associates (BLA) in Volume 2. An initial background assessment in October 2006 was followed by native vegetation mapping of the site in November 2006 and April 2007 which found:

- there is no native vegetation on the Elaine Section; and
- the Yendon Section is mostly cleared with patches of degraded Grassy Forest EVC on higher granite ridges. Redesign can avoid one site (Site 4

⁴¹ Clause 52.03 and the WEF Guidelines require assessment of impacts on species listed under the *Flora and Fauna Guarantee Act 1988* and the *Environment Protection and Biodiversity Conservation Act 1999*.

⁴² Clauses 15.09 and 52.17

Figure 1) of moderate quality that may support the EPBC Act listed Slender Tick Trefoil.

At the Panel's direction, Mr Lane and Mr Venosta, who both presented expert evidence, made a joint statement of matters on which they agree and disagree. In that statement, they agreed that the approach of avoiding areas of native vegetation and vegetation mapping methodology were appropriate and a further survey of the site is not required. Mr Venosta's reservations about the survey can be addressed by permit conditions that require:

- clearing of native vegetation due to changes to the layout to be avoided or minimised. Such a condition is proposed; and
- a detailed inspection of the construction footprint at an appropriate time of the year to determine the presence of native vegetation/ significant flora, and that is proposed in the EMP.

Mr Lane responded to a query from LLELAG that access track upgrading in the vicinity of site 6 can occur without the loss of native vegetation.

11.2.2 Panel Assessment

We are satisfied that the Proposal would not adversely impact native vegetation and proposed permit conditions adequately address potential unanticipated impacts, including implications for native vegetation as a result of turbine micro-siting. We note that a further permit is likely to be required if inspection of construction footprints (at an appropriate time of the year) indicate that clearing of native vegetation cannot be avoided.

11.2.3 Panel Recommendation

Amend Draft Permit conditions to require a detailed inspection of the construction footprint at an appropriate time of the year to determine the presence of native vegetation/significant flora.

11.3 Off-site Removal of Native Vegetation – The Native Vegetation Application

11.3.1 The Issues

- Is the Native Vegetation Application premature?
- Are the ecological impacts acceptable?
- Have the principles of the Framework been implemented?

11.3.2 The Assessment and Evidence

The Native Vegetation Application (NVA) proposes to remove native vegetation at eight intersections and access points⁴³ to facilitate access of large vehicles to the Sites. There was some correspondence before the application was called-in regarding possible exemptions from permit requirements for removal of some vegetation but the Proponent advised that it did not intend to rely on the possible exemptions. A Licence⁴⁴ under the *Flora and Fauna Guarantee Act 1988* has been granted to 'take' Cotton Fireweed, Milky Beauty-heads and Black Wattle from road reserves in six locations (sites 3 – 8).

If Habitat Zone (Yendon) D is avoided, the assessment supporting the application estimated that less than 1000m² and up to 33 Blackwood and Black Wattle trees would be removed. The vegetation clearing for which a permit is sought is set out in chapters 5.5 and 5.7 of the NVA Report. All scattered trees were small and therefore considered to be of low conservation significance.

The Matted Flax-lily, which is listed as endangered under the EPBC Act, was recorded within 20 metres of the study area. The NVA Report noted that the flora surveying was carried out in early autumn, when many annual and spring-emergent plant species may have been undetectable⁴⁵. Targeted spring surveys were recommended at gates Y10, Y11, Y12 (abandoned), E1, E8, and E3 where environmental conditions could support the Spiny Rice Flower, Matted Flax Lily, Clover Glycine and Button Wrinklewort.

The Proponent's submissions and evidence from Mr Lane and Mr Copalina (both of BLA) and Mr Hunt indicated that truck routes, turns at intersections and access points were selected to avoid or minimise the removal of native vegetation generally, and larger trees and quality vegetation in particular. Existing roads and gates were used where possible and an access point at Yendon (Duggan Lane, Gate Y12) was abandoned due to the significance of the vegetation and habitat zones (two large trees and FFG Act protected orchid and daisy species). The Annex to the NVA Report recommended discussions with DSE about whether Habitat zone (Y)A can be regarded

⁴³ (1)Yendon-Egerton Road / Duggan Lane, Gates Y8 and Y9; (2) McGuigans Road / Gate Y7; (3) Murphys Road / Gate E8; (4), Elaine-Blue Bridge Road / Gate E9; (5) Elaine-Blue Bridge Road / Gate E10; (6) Midland Highway / Murphys Road; (7) Fords Lane / Midland Highway; and (8)Horsehill Road / Gate E3.

⁴⁴ Permit No: 05/03/13/08/08 granted on 13 August 2008.

⁴⁵ Native vegetation affected by off-site roadworks is provided in page 5 '*Proposed Lal Lal wind farm intersection upgrades - botanical investigation*' Report No. 6150 (4.1), BL&A 2008 annexed to the planning permit application PL07/067

treeless vegetation but we assume from the subsequent Application and DSE submission that the status as a habitat zone was maintained.

The Proponent noted that, although the DSE Planning Practice Note indicates an area-for-area re-vegetation offset is acceptable, a revegetation offset of 1500 m² is proposed. The Annex to the NVA Report notes that opportunities are available for offsets in the form of 'like for like' protection/enhancement of existing vegetation for the EVCs affected and there are ample replanting opportunities to offset the loss of scattered trees.

11.3.3 Submissions

The Council did not support the calling-in of the NVA and did not present a view on it. However, at the Hearing Council highlighted that the application and the supporting report had focussed on impacts on grassland vegetation and there is insufficient information on the species, age and condition of trees to be removed. It was also noted there have been references during the Hearing to the need to lop vegetation, which is not addressed in the NVA. Council acknowledged that a condition limiting the extent of lopping allowed may reduce potential impacts but considered it was not in a position to comment given the limited information provided on this issue.

DSE's submission endorsed the avoidance of an area of Grassy Woodland (EVC 175) with very high conservation value. It did not object to the issue of a permit provided specified conditions were included. These conditions included the approval of an offset plan, to the satisfaction of DSE, which must equate to at least:

- 0.03 habitat Ha of Grassy Woodland (EVC175);
- plus 0.02 habitat Ha of Plains Grassy Woodland (EVC55_61); and
- plus the planting or regeneration of at least 386 locally indigenous trees and understorey plants.

Submissions from LLELAG and nine other submitters, who were all objectors to the WEF Application, raised the following concerns:

- the NVA is premature as the loss of vegetation may be unnecessary if the WEF does not proceed. If it does proceed, the vegetation losses are to facilitate movement of large vehicles in the relatively short construction phase;
- the locality has limited native vegetation and the proposed removal of vegetation will reduce the already limited habitat for wildlife. This would compound losses of vegetation and habitat due to the construction of powerlines to serve the Lal Lal and Mt Mercer WEFs and harvesting of plantations;

- the NVA adopts default offsets and there has been insufficient effort to avoid removal. One submission expressed particular concern about the loss of Spiny Rice Flower, Matted Flax Lily, African Box Thorns, Chilean Needle Grass, Blackwood trees and Black Wattle trees;
- planted offsets are rarely a true replacement for natural assets, even in the long term, and there is insufficient detail about the proposed offsets. Protection and improvement of existing native vegetation, secured by binding agreements, should be preferred to offsets involving replanting. LLELAG suggested offsets should be on the host properties and riparian environments of the Moorabool River and Lal Lal Creek;
- one access point to each site should be adequate and for the Yendon Section it should be from Yendon-Edgerton Road;
- the NVA focuses on vegetation at intersections and access points based on turning movements of B-doubles but does not address impacts on vegetation from over-sized vehicles on major roads or large vehicles along narrow rural roads. LLELAG also expressed concern about impacts from OD vehicles using Yendon No 2 Road from Mount Buninyong;
- during consultation with residents the Proponents advised there would be no damage to or loss of native vegetation. Further, this application refers to Settlement Road, which is to the east of the railway line and has not been referred to elsewhere in the WEF Application; and
- the removal of native roadside vegetation will have an adverse impact on the character of the locality and the scenic drive along Duggans Lane to Lal Lal Falls should not be degraded by the loss of vegetation.

11.3.4 Panel Assessment

We do not agree with submissions that the NVA is premature or the inference in submissions that it should have been made after the WEF permit is granted or, perhaps, when construction of the WEF is assured. Concurrent submission and consideration of both applications allows an iterative process to modify the WEF design to avoid and minimise the loss of native vegetation in a way that would be much more difficult if the NVA was lodged later. In any event, the application has been lodged and we are required to evaluate it.

The permit is required under Clause 52.17 which has purposes and decision guidelines that emphasise the protection of habitat values, reducing land and water degradation, and implementing the Framework by avoiding, minimising and, if necessary, offsetting losses. Our assessment of this application focuses on these matters rather than implications for landscape values or the character of an area. Nevertheless, we do not consider that

extent of losses proposed (with appropriate offsets) would have a significant impact on landscape values or the character of the locality.

We also note that ESO1 has a very specific focus on the protection of water quality. Given the extent of vegetation removal proposed and the provisions of the EMP to be developed for the WEF, potential impacts on water quality were not contentious and we do not address them further.

We are satisfied by the documentation supporting the applications, submissions from the Proponent and evidence presented that, as required by the Framework, the design of WEF and access to it has avoided and minimised impacts on native vegetation. Examples included:

- one of the reasons for selecting the Yendon No 2 OD route from Scotsburn in preference to the route from Mt Buninyong was because it would not require the removal of any native vegetation; and
- the Proposal was modified to delete an access point Gate G on Duggans Lane to avoid the very high conservation value Habitat Zone (Yendon) D.

We are also satisfied from the information in Addendum One that the swept path analysis used the turning circles required by 42.5m and not B-doubles which are 26m long. We are also satisfied that offsets could mitigate habitat losses as the extent of vegetation to be cleared and its associated habitat value are limited. The expert evidence confirmed our understanding that, while plantations provide habitat for some woodland birds, they are monocultures that do not provide significant habitat for other fauna. We find that there is a limited basis to submissions that impacts on fauna habitat due to the proposed removal of native vegetation would compound losses from harvesting of plantations. With regard to removal of native vegetation associated with the construction of powerlines, as noted in Chapter 13.1, the powerlines are beyond the scope of this process, and we are not in a position to comment on any implications.

In the absence of a spring survey we are not in a position to make a finding on whether vegetation listed under the FFG Act has been avoided. We agree with the BLA recommendation that approval of the access points at gates Y10, Y11, E1, E8, and E3, which were identified as locations at which listed species may occur, should be conditional on the completion of a targeted spring survey and a report by a suitably qualified person. We note if listed vegetation is found, it may be possible to adopt a design and construction management to ensure the plants are not adversely affected.

DSE has granted a permit under the FFG Act to take Cotton Fireweed, Milky Beauty-heads and Black Wattle from six locations but that consent does not extend to the EPBC listed Matted Flax Lily or the FFG Act listed Spiny Rice

Flower, Clover Glycine and Button Wrinklewort. We are not in a position to evaluate any potential losses of these listed plants. However, we consider a requirement for a secondary consent from DSE, which is the agency with the necessary expertise, would ensure evaluation and responses occur if listed species are in fact identified. If these plants are identified in spring surveys, further approvals will be required under the relevant State and Commonwealth legislation.

In the context of a proposal of the scale of the WEF, we are satisfied that the extent of native vegetation impacted is limited and the consequential impacts on habitat values are also limited. While it is unfortunate that the Council chose not to present a view on the application, we are reassured by the evidence presented and the absence of objection from DSE.

During the Hearing the nature of offsets and specification of the form of offsets in the potential permit condition were discussed. As already noted, DSE's written submission proposed a condition nominating minimum offsets for specific EVC and scattered trees, whereas the Proponent advocated a revised condition requiring the offset plan to achieve revegetation or protection of existing vegetation equivalent in area to the area removed and a net gain analysis would only be required if the area of vegetation clearing exceeds 1000m².

The condition put forward by the Proponent is consistent with the VPP Practice Note *Assessing Applications Involving Native Vegetation Removal*, which sets the following default offset of 'An equivalent area of indigenous revegetation' where the area is less than 1000m², no large trees are to be removed and no native vegetation has been removed in the previous two years (except exempt vegetation).

However, we understand that DSE is a referral authority and therefore this default offset does not apply. DSE advised in an email on 21 November 2008 that it did not support the alternative condition relating to offsets put forward by the Proponent. We also note that expert evidence conceded that revegetation would require considerable effort to achieve acceptable outcomes, there is a significant risk that good outcomes may not be achieved and the protection/enhancement of existing vegetation in the same EVC is likely to achieve a superior result.

We are reluctant to nominate the specific offsets to be provided in the permit conditions. For example, the basis for the number of plants specified in the DSE condition is not clear to the Panel and, while the maximum number of scattered trees to be removed is identified in the annex to the NAV Report, it may be possible to avoid clearing some trees. There may also be merit in submissions from LLELAG that enhancement of riparian vegetation could

achieve greater conservation benefits, although it would not satisfy the 'like for like' criteria, but we are not in a position to form a view on whether that is the case. We prefer an approach where DSE approves specific offsets, which would be generally in line with the condition they put forward, via the secondary approval process. This is reflected in the Recommended Permit in Appendix C.

Otherwise, we are satisfied that a permit should be granted and the Draft Permit, with some redrafting suggested during the without prejudice discussion of the Draft Permit, provides appropriate conditions.

11.3.5 Panel Recommendations

Include a condition in the Native Vegetation Permit requiring a report by a suitably qualified person after the completion of a targeted spring survey of vegetation in the vicinity of access points gates Y10, Y11, E1, E8, and E3. The report should set out the findings of the targeted spring survey and, if vegetation listed under the *Flora and Fauna Guarantee Act 1988* or the *Environment Protection and Biodiversity Conservation Act 1999* is identified, set out how impacts on that vegetation is to be avoided or minimised.

Revise the Draft Permit as set out in the Recommended Permit (Appendix C) to provide for secondary approvals from DSE and the Minister:

For specific offsets via a secondary approval from DSE and the Minister.

If the targeted spring surveys identify vegetation listed under the *Flora and Fauna Guarantee Act 1988* or *Environment Protection and Biodiversity Conservation Act 1999* and it is proposed to remove that listed vegetation.

Include a note on the Native Vegetation Permit that further permits may be required pursuant to the *Flora and Fauna Guarantee Act 1988* and *Environment Protection and Biodiversity Conservation Act 1999* to remove vegetation listed under those Acts.

11.4 Fauna

11.4.1 PAR Assessment, Evidence and Submissions

A background assessment in October 2006⁴⁶ to determine the actual and likely presence of species (particularly species listed under the EPBC Act and the FFG Act), recommended a Level One bird risk assessment, and a Level Two risk assessment for two threatened species of owls.

The Bird utilisation surveys in November 2006 and March 2007 found:

- The number and species of birds using the area was similar to WEF sites surveyed elsewhere in Victoria. The most abundant species at potential impact points were the Australian Magpie, Raven spp., Common Starling, Skylark⁴⁷; and Australian Shelduck;
- Small numbers of birds of prey and waterbirds were observed on the site. The Yendon Section is within the usual home range of a pair of Wedge-tailed Eagles and a pair, probably a separate pair, includes the Elaine Section in its territory but eagles pass over at comparatively low rates compared with many WEF sites elsewhere in southern Australia; and
- Small numbers of threatened duck species occur on the larger dams in the Yendon Section but none were seen flying over proposed turbine locations. A pair of Brolgas was seen in October 2006 but was not seen in subsequent, more intensive site observations. The following threatened species were seen on the WEF site during field work:
 *Australasian Shoveler (Vulnerable), *Blue-billed Duck (Endangered), Freckled Duck (Endangered), Hardhead (Vulnerable), *Brolga (Vulnerable), Spotted Harrier (*Circus assimilis*).

* Indicates FFG Act listed species

Mr Lane concluded that impacts are not expected to be of conservation significance as no bird species listed on the EPBC Act or the FFG Act will be affected significantly and the birds most likely to be affected regularly are the most abundant, such as the common farmland birds.

The targeted **survey of Powerful and Barking Owls** in November 2006 found no owls, few tree-dwelling mammals (and no Common Ringtail Possums favoured by the Powerful Owl), and few large old trees with suitable hollows. The probability that these owl species occur on the site was considered to be low.

⁴⁶ Methodologies are set out in BL&A 2007, 'Proposed Lal Lal Wind Farm – Flora and Fauna investigations.' Report No. 6150 (3.5), in Volume 2 PAR

⁴⁷ The first 4 species in the list accounted for over 75 % of the birds counted at the impact points.

The **bat utilization survey** between December 2007 and January 2008 recorded bat calls at four locations among the proposed wind turbine locations and one outside the site. The Eastern Broad-nosed Bat was the only uncommon species of the nine species of bats recorded. Mr Lane did not expect impacts to be of conservation significance as the bats most likely to be affected are the most abundant species in the area and no bat species listed on the EPBC Act or FFG Act will be impacted.

Mr Lane was of the view that the nature of impacts on birds from this project does not warrant a cumulative impact assessment. While a pair of brolgas was sighted, their limited use of this WEF site did not warrant further investigation. However, he noted that monitoring data would contribute to DSE work on the cumulative impacts of WEFs on Brolgas. Mr Lane noted in a response to a question that birds are at risk from a range of factors, with foxes posing a greater risk to brolgas than WEFs (and the order of overall comparative risk to birds of one turbine is equivalent to one car).

At the Panel's direction, Mr Lane and Mr Venosta, who both presented expert evidence, made a joint statement of matters on which they agree and disagree. There was agreement on the findings and implications of the assessment. Other areas of agreement (and disagreement) in that statement are summarised as follows:

- after clarification of matters not documented in the PAR, the fauna assessment did not raise any significant matters relating to the methodologies adopted. However:
 - there were technical ambiguities in the identification of 'migratory birds' but this was not a substantive issue;
 - it was difficult for Mr Venosta to comment on collision rate data without access to the data treated as 'commercial in confidence'. For example, comment on the distance that waterbird utilisation rates drop to background levels is difficult without access to the data.
- the WEF is unlikely to impact the Brush-tailed phascogale;
- the conditions proposed by DSE are appropriate for fauna with the following changes:
 - the proposed WEF does not raise issues of concern relating to the brown falcon and swamp harrier species and reference to them should be deleted from the condition proposed by DSE. DSE advised in an email on 21 November 2008 that it supports the change;
 - the Growling Grass Frog could exist on the site and permit conditions should require the EMP to include matters to protect the species;

- to ensure fauna habitat is considered if WEF infrastructure changes;
- threatened waterbirds were observed and it was agreed there is unlikely to be a large impact on them. Mr Venosta considered there should be further pre-construction monitoring of State significant waterbirds to assess any risk associated with their movement and ensure potential movement corridors are avoided. On the other hand, Mr Lane considered post construction monitoring to be acceptable as surveys have indicated these birds are unlikely to use the site regularly, and confidential data from BLA studies elsewhere indicate that beyond 400 metres from a wetland bird usage is at background levels; and
- it was agreed that State significant waterbird species (Hard Head Duck, Blue-billed Duck, Australian Shoveller, Freckled Duck) should be added to Draft conditions 19 and 21 relating to monitoring and mitigation if impacts are detected. DSE endorsed this change in an email dated 21 November 2008.

DSE's submission indicated the BLA flora and fauna investigations were adequate. However, the department had some concerns about potential for impacts on birds of prey, including Wedge-tailed Eagles, Brown Falcons and Swamp Harriers, and sought permit conditions requiring a bat and avifauna management plan (BAMP) which includes a monitoring program for at least two years, an ongoing animal and carrion management program to lessen the availability of potential prey within the site, reporting requirements and mitigation measures if impacts are detected⁴⁸. DSE recommended that this plan, which would define the monitoring program, should be to the satisfaction of the Minister for Planning after consultation with DSE.

Many (205) submissions expressed concern about the impacts of the Proposal on birds, and Wedge-tailed Eagles in particular. Known Wedge-tailed Eagle nests in the vicinity of the site were nominated. It was also highlighted that the Panel considering the Naroghid WEF proposal had placed substantial weight on the impacts on the Wedge-tailed Eagle population in its recommendation that a permit be refused.

Council's original written submission did not consider the assessment adequately addressed impacts on endangered species. It noted that Council's recent biodiversity mapping, which is not yet publicly available, identifies potential habitat for the Powerful Owl and Barking Owl on the WEF site and there are endangered waterfowl on the Lal Lal Reserve which could be expected to visit wetlands on the WEF site.

⁴⁸ For example mitigation could take the form of deterring birds from using the WEF site and enhancing habitat elsewhere for the species of concern.

LLELAG submitted that the fauna assessment was inadequate as:

- it did not take into account flight patterns across the sites between off-site habitat and changes in the dynamics of the local habitat due to the WEF; and
- the location and scope of bird observations was too restricted and the limited timeframes did not have due regard for seasonal changes in bird activity or particular weather conditions (such as a dust storm that severely compromised visibility).

LLELAG sought enhancement of habitat areas on the site along the local waterways to offset any losses and provide a net gain in ecological values.

11.4.2 Panel Assessment

While we agree with the need for a BAMP as suggested by DSE and agreed to by both experts and the Proponent, we prefer the term Bat and Bird management plan (BBMP) as, in this context avifauna means birds and bats.

We found the consultation between Mr Lane and Mr Venosta and their concurrent cross examination at the Hearing extremely helpful. They provided credible responses to questions and we place considerable weight on the highly consistent views they expressed. A consensus expert view was established that:

- the methodology adopted in the assessment was sound, except for concerns about the adequacy of data on flight paths for waterbirds of State significance;
- the proposed WEF would be unlikely to have unacceptable impacts on ground fauna, bats, or birds; and
- permit conditions have been identified, which focus on species of concern, to ensure impacts are identified and mitigated if necessary.

As impacts on bats and ground fauna were not contentious, our discussion focuses on the following birds that were of greatest concern in the evidence and/or submissions – Wedge-tailed Eagles; Barking and Powerful Owls; and threatened waterbirds - before considering cumulative impacts.

Wedge-tailed Eagles

Raptors comprised 0.48% of all birds recorded on the site and 5.4% of birds seen in the Rotor Swept Area (RSA).

We recognise that the WEF sections are within the home range of at least two pairs of Wedge-tailed Eagles, we observed nests and eagles flying in the locality during inspections and we certainly understand that their presence

in the area is highly valued by residents. While we accept the evidence that raptors fly in the RSA and that Wedge-tailed Eagles are at risk of turbine collision (and with other obstacles) when they lock in on prey, we also accept the evidence that the level of use of the area by eagles means that, unlike the WEF proposed at Naroghid, this proposal is unlikely to have an unacceptable impact on regional populations of the eagle. Further, the proposed BBMP will include measures such as carrion management and triggers for responsive mitigation measures.

Barking and Powerful Owls

Barking and Powerful Owls were not seen or heard during surveys and targeted searches indicated that both potential nest sites and prey species were limited. Expert evidence acknowledged that forested areas in the locality, including the Lal Lal State Forest, provide habitat for the Barking Owl. It was Mr Lane's evidence that, although the movement of birds between forests in the region has not been studied through direct observation, the bird utilisation surveys provide a picture of the use of the WEF site itself by all birds, including any moving between forested habitats. He considered there was a negligible collision risk as no mass movements were observed over the WEF site, general utilisation rates of the site by forest species were comparatively low and none of the species flying at RSA were species that utilise forest habitats.

We accept the evidence that owls, particularly dispersing juvenile owls, may occasionally fly over the WEF site but this represents a very low risk of collision.

Threatened Waterbirds

Surveys at the 3 largest dams on the Yendon Section recorded 1160 water birds. Of these, the following threatened waterbird species were recorded: 20 Hard Head Duck, 10 Blue-billed Duck, 5 Australian Shoveller, 5 Freckled Duck.

Mr Lane referred to confidential studies by BLA which indicate waterbirds disperse quite quickly when they leave a water body, with utilisation at distances beyond 400 metres being the same as for areas not influenced by the presence of water bodies, i.e. background utilisation levels. He expected very little impact on threatened waterbirds as the bird utilization survey showed that usage of the site by these birds away from the large dam on the Yendon Section is low and turbines are well separated from wetlands.

We note that no threatened water bird species were recorded at RSA and accept the consensus expert view that threatened waterbirds are unlikely to

suffer significant impacts from the WEF. Further, utilisation rates in the WEF activity area tend to support Mr Lane's advice about the dispersion of waterbirds and that the threatened birds of concern are unlikely to move in defined corridors that would enable risks to be mitigated through the relocation of turbines. On balance, we accept that it is reasonable to rely on the monitoring and mitigation measures proposed and do not recommend further pre-construction monitoring directed at enhancing the understanding of water bird movement corridors.

11.4.3 Panel Recommendations

Require fauna habitat to be considered if there are any changes to the location of WEF infrastructure.

Adopt the permit condition proposed by DSE (with some editing) to:

Delete reference to the brown falcon and swamp harrier species.

Add the Hard Head Duck, Blue-billed Duck, Australian Shoveller, Freckled Duck to species to be subject to further monitoring (which would require mitigation if impacts for these species are detected).

Require the EMP to include specified matters to protect the Growling Grass Frog species.

11.5 Cumulative Impact

The PAR considered cumulative visual and traffic impacts but did not address cumulative ecological impacts. In his evidence statement Mr Lane commented:

The bird utilisation surveys and bat activity study showed that common farmland birds and common, widespread bat species were most abundant on the wind farm site where turbines are proposed to be located. It will be these common species that are affected most by the proposed wind farm. Given the widespread occurrence and abundance of these species in the landscape, and the limited number of wind farms approved in the region (one other, at Mount Mercer), the individual and incremental impacts of the Lal Lal Wind Farm are not considered to be significant at a regional population scale.

Mr Lane responded to questions that the impacts on species of concern do not warrant a cumulative impact assessment. Given the material presented to us and the nature of expected impacts from this proposal, we accept this view regarding cumulative impacts. However, we note that further WEF

proposals to capitalise on the wind resource in this region are anticipated, which mean the issue of cumulative impacts will be of increasing concern.

We note that assessments of WEF proposals are building a substantial body of work on bird and bat populations and, perhaps more importantly, as more WEFs are commissioned post construction monitoring requirements will establish the actual impacts of WEFs on birds and bats. The Federal government and DSE have an important role in promoting the adoption of a consistent framework for assessments and monitoring and establishing data bases for the ecological assessments and monitoring undertaken. We understand that this type of work has commenced for broilgas. It may be worth investing some resources in establishing protocols that maximise the utility of the data generated. For example, to ensure routine updating of native vegetation and biodiversity databases.

As demonstrated in this proposal, proponents are protective of data from studies they commission. When projects proceed to an application, assessment findings enter the public domain but this is not the case for other assessments. The submission of findings to DSE from all assessments would be in the public interest and should be encouraged, even if it cannot be required. The Wind Energy Association may have a role in promoting this.

12. Cultural heritage

12.1 The Issues

- Was the Cultural Heritage assessment adequate?
- Would impacts on Aboriginal cultural heritage landscapes or archaeological sites be unacceptable?
- Should a decision be deferred pending completion of the proposed Heritage Study for the western part of the Shire?
- Would impacts on non-Aboriginal heritage places and cultural landscapes be unacceptable?

12.2 Policy and Regulatory Framework

The SPPF (Clause 15.11) requires places of natural or cultural value to be protected from inappropriate development. These heritage places include, amongst others, places of Aboriginal cultural heritage significance, sites associated with the European settlement and important buildings, structures, parks, gardens, sites and landscapes associated with pastoral expansion and gold mining. Similarly, the Moorabool MSS (Clause 21.10) includes broad objectives to protect Aboriginal sites, places and objects, important landscape features, views and built heritage, as they are identified as fundamental to the sense of identity of the Shire and community. The WEF Guidelines require the views of relevant Aboriginal groups, and any impacts on heritage places and landscapes with cultural significance and to be considered in the early planning stages of any project.

The planning scheme (Clause 15.11) also requires responsible authorities to take account of the requirements of the *Victorian Aboriginal Heritage Act 2006*. That Act imposes regulatory requirements in addition to those in the planning scheme and in this case requires a complex Cultural Heritage Management Plan (CHMP). The CHMP has been approved.

12.3 Aboriginal Heritage

12.3.1 The Proposal, PAR Assessment and Evidence

Aboriginal and non-Aboriginal cultural heritage is considered in Volume 1 Chapter 7.3 and Volume 3 of the PAR. Ms Oona Nicolson, who oversaw the cultural heritage assessment components of the PAR, prepared an expert witness report but did not appear at the Hearing. The assessment of impacts on Aboriginal cultural heritage comprised: desk research to predict the

sensitivity of areas and likelihood of finding archaeological sites; followed by targeted archaeological surveys focussing on the area within 50 metre of proposed turbines and a subsurface testing program for areas identified as archeologically sensitive.

Stone artefact scatters were found at 15 Aboriginal archaeological sites in the WEF activity area but redesign avoided any harm to 11 of the 15 sites. Ms Nicholson's evidence indicated harm to the following sites cannot be completely avoided but is relatively small:

- **Fisken Artefact Scatter 1** (high significance) - Relocation of YSWT04 to an area with fewer artefacts limits impacts to approximately 1.1% of this site;
- **Georges Hill Artefact Scatter** - This is in a highly disturbed area and only approximately 0.6% of the entire site would be impacted;
- **Lal Lal Creek Artefact Scatter 3** (high significance) - Relocation of YSWT28 110 metres to the northeast where far fewer artefacts were observed limits impacts to approximately 0.3% of the site;
- **Lal Lal Creek Artefact Scatter 4** – most of the site has been highly disturbed by agricultural activities, the vast majority of artefacts were located on the ground surface and it is highly unlikely that any stratified deposit remains. It is the artefacts that are of the highest significance and archaeological salvage excavation of all parts of archaeological sites impacted would be undertaken in accordance with the CHMP.

12.3.2 Submissions

Submitters, including the Buninyong and District Historical Society and LLELAG, argued that *“cultural heritage’ cannot be reduced to those few sites which have been processed and appear on an existing heritage register”* and the visual impact of the WEF would significantly change the landscape and detract from its cultural heritage value. It was submitted that a decision on the WEF should not be made until more serious archaeological and ethno-historical investigation are undertaken that take account of the high sensitivity of the Aboriginal landscape beyond the immediate turbine sites.

The LLELAG submission amplified the more general concerns in other submissions. They highlighted that:

- the predictive model suggests many more significant sites are likely to be located;
- contrary to Ms Nicholson's view that *“No oral histories were known for the area”*, an oral record⁴⁹ supports the archaeological evidence that this area was used intensely by the Tooloora clan. Reference was made to a

⁴⁹ Ray Wallis, Buninyong Historical Notes

documented work site/mound on a Yendon lunette(destroyed by roadworks in the 1960s), a large camping ground near Lillis Road (largely mined for sand), two ceremonial grounds and a birth tree;

- there is no evidence that the consultants discussed the Proposal with the Kirrit Barreet Art and Cultural Centre;
- the Yendon Section lies at the centre of the contemporary songline of Bunjil's creation story which takes in Lal Lal Falls and Kirrit Barreet (Black Hill). Lal Lal Falls was acknowledged as a significant spiritual place but the equally significant Kirrit Barreet was not; and
- the extent of Lal Lal Estate has allowed the Aboriginal landscape to have a contemporary presence in terms of ambience as well as actual sites.

Some submitters emphasised the spiritual significance of the Wedge-tailed Eagles to the Aboriginal people of this area and its vulnerability to turbines.

12.3.3 Panel Assessment

The *Aboriginal Heritage Act 2008* provides a specific regulatory framework and mechanisms to protect Aboriginal cultural heritage. There is currently no Registered Aboriginal Party (RAP) for the activity area but the Ballarat and District Aboriginal Co-operative⁵⁰ and the Wathaurung Aboriginal Corporation have applied to become RAPs. These were the groups Aboriginal Affairs Victoria indicated should be consulted during heritage assessments and it is understood that representatives of the groups were present during surveys. We are satisfied that the appropriate Aboriginal groups were consulted.

We accept that the material presented in the PAR identified potential direct impacts on Aboriginal archaeological sites from the WEF and the Proposal was modified to avoid and minimise adverse impacts. This process has resulted in impacts being limited to small areas with lower densities of artefacts on four archaeological sites. Further, we are reassured by the approval of the CHMP that impacts have been minimised and appropriate protocols are in place to protect Aboriginal cultural heritage, including responses if new archaeological sites are discovered.

We recognise that broader landscapes can have cultural and spiritual meaning for Aboriginal people. In this case the importance of open landscapes, Lal Lal Falls and Kirrit Barreet have been highlighted. In chapter 5 we discussed the need to mitigate visual impacts from the Lal Lal Falls Reserve. While the proposed wind turbines would be large elements that

⁵⁰ BADAC was the only Aboriginal group who had submitted an application to become a RAP with the Aboriginal Heritage Council at the time of the initial survey.

affect the openness of the landscape, Kirrit Barreet is 4-5 kilometres from the nearest turbine and would remain a key landmark. We accept Ms Nicholson's evidence that *'The consultation with the Aboriginal communities indicated no concerns about the impact of the windfarm on Bundjil and the landscape in relation to this "Dreaming" story.'* We find that, while the WEF would be obvious in the landscape it has not been established that the significance of the landscape to Aboriginal cultural heritage would be significantly compromised.

The Wedge-tailed Eagle is important to the Aboriginal people of this area. In Chapter 11.3 we discuss the eagle's vulnerability to turbines and accepted evidence that impacts will be limited.

12.4 Non-Aboriginal heritage

12.4.1 The Proposal, PAR Assessment and Evidence

The assessment of non-Aboriginal cultural heritage comprised:

- a desk top review of existing research to provide an historical context which briefly noted the pastoral, settlement and mining history of the locality since the 1830s;
- a search of databases which indicated that the only listed heritage place within the WEF sites is the stables at Lal Lal Homestead⁵¹; and
- a field survey identified two dry stone walls⁵², a stone well and a disused quarry. Portions of the quarry and one of the dry stone walls will be impacted by the Proposal. These places were assessed as low significance and have been D-listed on the Heritage Inventory, which allows Heritage Victoria to record the existence of the sites without requiring consents for disturbance or destruction.

Ms Nicholson's response to issues raised by submitters is addressed in the Panel Assessment.

12.4.2 Submissions

Council and LLELAG challenged the adequacy the desktop assessments undertaken and noted that \$40,000 has been allocated for a heritage study for the western part of the Shire (including the subject land). LLELAG

⁵¹ Register of National Estate Place ID 3949 and Heritage Overlay ref HO34

⁵² After the Hearing Amendment VC introduced a new provision in Clause 52.37 requiring a planning permit to demolish or alter a dry stone wall constructed before 1940 in locations specified in the schedule to the Clause. There are no such areas specified in the Moorabool Planning Scheme.

submitted that any decision on this major application be delayed until the Council has completed its heritage assessment, and further, a new study be commissioned which incorporates the notion of cultural heritage as layered created landscapes which hold significance well beyond sparse entries on existing historical registers. They highlighted that:

- the Lal Lal Run (later known as the Lal Lal Estate) was settled during the late 1830s. The property's intactness makes it an important representation of the early pastoral era that is not found elsewhere near Ballarat and is rare in western Victoria;
- after a public campaign land around Lal Lal Falls was withdrawn from the original sale of the Lal Lal Run and became a 200 acre scenic reserve in the 1980s. Lal Lal Falls is on the Geological Excursion Guide, has a long tradition of picnicking and has been the subject for many artists and photographers -from von Guerard to Fred Williams – and a walking track linking the Lal Lal and Moorabool falls has been reinstated recently. The dominance of wind turbines in the view immediately beyond the waterfalls and along the new walking track would intrude on long established cultural values;
- there is a history of lookout towers from Mt. Buninyong to take in views of the volcanic landscape encircling the lower Lal Lal landscape of ancient lake beds and still discernible lunettes. This lookout is on the National Estates register, Geological Excursion Guide and tourist brochures; and
- there should be a specific assessment of the remaining water races from the network built in the 1860s by the private Lal Lal Waterworks Association on the Yendon Section. This infrastructure is listed by Heritage Victoria and forms part of that town's water supply history.

The Buninyong and District Historical Society expressed specific concern about impacts on views from Mounts Buninyong and Warrenheip, the Lal Lal Falls Reserve, and 'Narmbool' (also raised by the Sovereign Hill Museums Association which owns the property). Mr R Kelly also highlighted the recognised heritage values of 'Rothbury' which is a homestead to the south of the Yendon Section that is on the Heritage Register (VHR No H1697, HO 51) but was not identified in the cultural heritage assessment.

12.4.3 Panel Assessment

The Broad Cultural Landscape

We agree with Ms Nicholson's that *'the issue of cultural heritage as created landscapes must take into account that all cultural landscapes are constantly evolving and are never static... landscapes have evolved with the addition of new*

farm houses, new sheds, paved roads, new fencing and revegetation of previously cleared areas. However, the recognition that landscapes change does not give carte blanche for large scale change of any magnitude on landscapes with a high level of cultural significance, as distinct from those with more general aesthetic values⁵³. The cultural heritage significance of the landscapes in this area does not have statutory recognition and the material presented has not indicated that further assessment is likely to find that the area reaches a threshold of cultural significance that warrants protection. As noted below, the landscape context for Lal Lal Homestead requires consideration but the need to protect the sense of the original 'run' and other large holdings for heritage reasons has not been established. We do not consider the Proposal should be delayed pending further assessment of cultural heritage values of the landscape.

Impacts on Specific Heritage Places on the WEF Site

Our response regarding the specific heritage places identified is provided below:

- the significance of the **stables at Lal Lal Homestead** will not be undermined by the Proposal. The 300 metre separation of the stables (and homestead) from turbines maintains an acceptable context;
- the low significance of the **quarry and dry stone wall** impacted by the proposal does not warrant modification of the Proposal; and
- from the maps provided, it appears that the 1860's water race network is to the east of the Yendon Section and would not be affected by the WEF.

Impacts on Nearby Heritage Places

We note Ms Nicholson's view that while the **Lal Lal Falls Reserve** is significant mainly for its natural values and from a cultural heritage perspective, the impact is not significant. However, we are satisfied by submissions that the cultural heritage values of this place, which may well be accorded protection under the planning scheme once the proposed heritage study is completed, add to the justification for mitigation of visual impacts from this site.

Narmbool is a nineteenth century property which is not on any heritage lists. SHMA emphasised that the property is promoted as an '*1830s rural setting*' that has not changed since gold rush days. We note that the WEF will not impact on the heritage values of the homestead or its garden and we have discussed the cultural heritage significance of the landscape above. We agree

⁵³ Visual impacts, as distinct from cultural heritage impacts are discussed in Chapter 5.

with Ms Nicholson that there are no significant impacts on the cultural heritage values of the property (also see chapter 5.4.2).

The **Rothbury Estate** statement of significance makes it clear that it is the rarity, quality and relative intactness of its interior that are of significance at a State level. We agree with Ms Nicholson that these heritage values will not be adversely affected by the proposed WEF.

We also note with some surprise that **Larundel**, a most impressive homestead south west of the Elaine Section, is not subject to any statutory heritage recognition. However, even if the proposed heritage study does recommend protection of the property's heritage values, it is likely the homestead and surrounds would be of particular interest and, as discussed in Chapter 5.4.2, impacts from the WEF on this area would be limited.

We make no specific recommendation on cultural heritage issues.

13. Other Matters

13.1 Grid Connection and Substation

A number of submitters raised concerns about the impact of the powerlines required to connect the Yendon and Elaine Sections of the WEF to the existing power grid⁵⁴ and that the substations had been inadequately documented, were poorly sited and require substantial screening.

13.1.1 Evidence and submissions

Mr Wyatt provided evidence on this matter for the Proponent assisted by Mr Grant Flynn. Mr Wyatt's expert witness statement illustrates the current electricity network in the region.

The existing major lines consist of:

- a 220KV line – the Terang Line - which runs SW-NE skirting north-west of Buninyong and Mount Helen to Warrenheip;
- a 132KV line – the Moorabool line - which passes through the eastern fringe of the Elaine Section and meets the Terang Line at Warrenheip; and
- a 66KV line running from the Moorabool line along Yendon No 2 Road and Yendon-Egerton Road to Mount Egerton.

It is proposed to supplement this 66KV line and use it as the connection from the substation for the Yendon Section at Duggan's Lane to the Moorabool line.

The Elaine Section is proposed to be linked to the existing a 132KV line Moorabool Line north of Elaine- which runs SE-NW from Geelong to Warrenheip which is about 1-2km to the east of the Midland Highway - by means of a 132KV line which connects from the substation westwards along Fords Lane to Horsehill Road, where it would connect with a similar line to come from the Mount Mercer WEF. It would then proceed northwards along Horsehill Road and thence via Woolshed Road to the Moorabool line.

Because this line is also designed to serve the Mount Mercer WEF the arrangement may be subject to change if the Mount Mercer WEF does not proceed.

⁵⁴ Submissions 27, 29, 30, 32, 38, 48, 77, 96, 153, 154, 163, 165, 168, 201, 216, 230, 231, 233, 248, 267, 271, 274, 316, 319

There were a number of general submissions to the effect that the connections from the WEF to the grid should have been a part of the Application as the two elements were fundamentally interconnected. They suggested that powerlines in general were a blot on the landscape and that the proliferation of lines should be avoided.

Mr Turley for LLELAG reinforced the views of submitters that all related infrastructure components including powerlines should be fully defined so that the full impact of the WEF could be assessed. He contended that photomontages should have been provided of critical sections to assist the Panel. He submitted photographic examples of a 132KV power line constructed to a new switching station near Maryborough as an illustration of what he considered to be unreasonable impacts.

Mr Cameron reiterated the submissions he had made to the Mount Mercer Panel that the proposed route of the powerlines across his land would be extremely detrimental to his visual amenity. He said that at the Mount Mercer Panel the grid connection to the 132KV line was proposed to be a 66KV line following the same route as that shown in Mr Wyatt's expert witness statement to this panel. Following the development of the Yendon/Elaine proposal he was told the powerline will now be upgraded to a 132KV line following the same route, with in his view, even greater impacts.

He requested the Panel to recommend to the Minister that the WEF Guidelines be amended to require details of grid connections.

13.1.2 Panel Assessment

The statutory controls in relation to powerlines and WEFs have been discussed at considerable length in a number of Panel reports. We do not intend to cover the same ground.

We accept that:

- the 'grid connection' is the point at the site at which the electricity generated by the WEF is transferred to the distribution network; and
- the powerlines involved at 66KV and 132KV are not part of the WEF, are minor utility installations as defined in the planning scheme and as such do not require planning permission.

Moreover the powerlines will be designed and constructed by the relevant power authority, not the WEF proponent. In the Table to Clause 52.17 no permit is required to remove native vegetation for the construction of a

minor utility installation provided the removal is the minimum required to allow the development to proceed.

We note the views expressed by other Panels that there is still an ongoing uncertainty about what does constitute the 'grid connection', with some opinions expressed that it includes all powerlines required to connect the WEF to the major State (220KV – 500KV) network.

We support the view of the Mount Mercer Panel that the definition of the 'grid connection' should be clarified.

The Bald Hills Panel made the very sensible point:

One of the virtues of wind farms in electricity system terms is that they can often be located within and feed into the local distribution system. With output at typically no more than 66kV, most wind farm grid connection needs can be accommodated on normal roadside power poles. In short, there would be no pylons.

It is a textbook example(objections about pylons) of a major public issue that became so, not because of any substantive concern, but simply due to the failure of the Proponent to effectively communicate the real (and modest) requirements of the project.

The WEF Guidelines do require, as part of the material to be submitted with the application, a written report that is to include a description of the Proposal, including infrastructure requirements such as electricity grid connections.

This has been provided by the Proponents together with illustrations of the type of pole to be used and the relative spacing with the proviso that the routes are indicative and subject to changes as a result of negotiations with the power company and in particular the final decision as to the development – or not- of the Mount Mercer WEF.

While submissions raised concerns about the proposed routes for powerlines, that is a matter that is beyond the scope of this Panel. However, we note from the material provided that it is likely that adverse impacts from the Lal Lal WEF will be minimised by taking advantage of the powerline to be installed to serve the Mount Mercer WEF.

13.1.3 Panel Recommendation

That the Minister amend the WEF Guidelines to clarify the definition of 'grid connection'.

13.2 Substations

13.2.1 Evidence and Submissions

Indicative proposals for substations are illustrated in the PAR which show examples of the facilities provided at the Waubra WEF and we were informed that the Proponent expects the facilities to be provided at Lal Lal to be similar in scale if not the same. Further examples of the buildings to be used were outlined in Mr Wyatt's expert witness statement.

Substations are proposed at each of the Yendon and Elaine sections. At the Yendon Section the substation will be on the west side of Duggan's Lane at its intersection with the Yendon – Egerton Road. At the Elaine Section the substation will be erected off Ford's Lane immediately adjacent to an existing dwelling which is to be taken over by the Proponent for the life of the project.

Facilities at each substation site will consist of an operations and maintenance building, a transformer and a gantry facility which will provide connection to the grid and, according to Mr Wyatt's evidence, will occupy a site approximately 53m X 71m. During the construction period the temporary construction compounds will be located adjacent to the substation sites.

Mr Turley submitted that the substation sites were in prominent locations and that the existing plantation on the Yendon Section should be discounted because it is likely to be felled in the near future and that there is no screening on Duggan's Lane. He contended that the plans submitted provide an inadequate basis for assessment and that there was no reason for not providing a fully developed set of drawings to show the facilities in detail, a typical cross section to demonstrate a profile and a landscape design that responds to a site analysis together with a species list.

Council also supported landscaping of the substations but accepted that the Draft Permit conditions were appropriate.

Ms Quigley submitted that the provision of indicative designs is normal practice in projects of this type with a long term planning time frame in which detail may change and it is inappropriate to fund such detailed design prior to an overall approval. She emphasised that a permit condition which required the detail outlined by Mr Turley to be prepared at a later date for approval by the Minister would be expected and supported.

13.2.2 Panel Assessment

While we appreciate that the final design of the facilities at the substation sites may be some time off we believe that the major deficiencies in the material provided were:

- the lack of a site analysis for each of the sites; and
- the lack of an indicative layout which illustrated the relationship of the proposed buildings and machinery to the surrounding area, road network and proposed landscaping.

This would have provided a much clearer picture of what is proposed to allow submissions to be made and assessments facilitated.

Our findings are based on the material provided in the knowledge that the conditions to be attached to the permit will require full design and layout drawings for the final product.

Elaine Section

The site for the Elaine substation is, in terms of its visual impact, well chosen. It is located in Ford's Lane to the west of an existing house to be used by the Proponent and is further shielded from views from the east by a substantial group of trees around that house. The only residential property in the vicinity is Mr O'Donnell whose house is approximately 1km from the site. Views are possible from Horsehill Road and Woolshed Road but these are also 1km away and are very lightly trafficked.

Extension of the existing group of trees with additional well chosen local species will effectively screen the lower elements of the site from view.

We find that the erection of the proposed facilities on this site with suitable landscaping will have negligible visual impact on the surrounding landscape or individual views.

We have commented on the traffic implications of this site in Chapter 9.

Yendon Section

At present, the proposed site for the Yendon substation is effectively screened from view from all traffic travelling east by a substantial commercial plantation which runs along the Yendon-Egerton Road up to the junction with Duggan's Lane. However, we understand that the plantation may be felled in the near future. Limited screening for westbound traffic exists in the form of vegetation on the eastern side of the intersection.

Although Yendon-Egerton Road is lightly trafficked, it is an important local connection between Mount Egerton and the south-east of Ballarat, including Buninyong and without screening the substation would be a significant structure in the landscape. We note that Duggan's Lane is designated as a tourist route as it connects to Lal Lal Falls Road and Reserve.

Mr Wyatt suggested a 10-15m wide landscaped strip around the substation as adequate. While we accept the general scale of that proposal, we believe that the landscaping should attempt to take advantage of the corner setting to create a more natural final visual impact. Once the temporary construction compound is removed that area should also be used to complete the screening of the substation.

Because this is a prominent site, landscaping should be initiated as soon as possible after a decision to commence construction of the WEF. Protection should be provided to protect any plants from damage during the construction period.

13.2.3 Panel Finding

We find that:

The locations of the two substations sites are appropriate and that with appropriate landscaping will have no unreasonable impact on the landscape and visual amenity of the area.

This matter can be dealt with adequately by the condition to be included in the permit which requires full details of the Proposal to be submitted for approval.

13.3 Decommissioning

The PAR and a condition in the Draft Permit provide for the removal all above ground non-operational equipment, the clean-up and restoration of other WEF infrastructure not otherwise useful to the on-going management of the land, and the submission of a Decommissioning Traffic Management Plan.

13.3.1 The Issues

Neither the scope of rehabilitation proposed, nor the need to remove the visual impacts of wind turbines when they no longer generate electricity were contentious. We see the key issues as:

- the timeframes for decommissioning and the preparation of a decommissioning plan; and

- whether a bond should be required to guarantee removal of above ground infrastructure and acceptable rehabilitation?

13.3.2 Submissions

Some submitters were concerned that redundant infrastructure may not be removed, particularly if the WEF operator was insolvent, and, like examples internationally, they would be left with an eyesore. They also suggested that decommissioning should be required if a turbine does not operate for a specified time (for example 6 months) and the rehabilitation of the site should be expedited by a requirement to submit the decommissioning plan before the use ceases, rather than within 12 months.

The Proponent submitted that they accepted the 'standard' process and timeframes for decommissioning plans applied in other WEF permits. They argued that a bond is not warranted as:

- in practical terms, the scrap value of the material in the wind turbines and towers would lead to decommissioning and removal even in the absence of a permit condition to that effect. The Proponent responded to questions by tabling a document setting out the following values for recoverable materials from the turbine proposed from the turbine proposed to be used (Enceron E-82). It was suggested that for the 24 turbines proposed in the Elaine Section, the value of the metal, at November 2008 prices, would be as a minimum \$7.2M and may be as much as \$17.5M.

Material	Quantity	Unit Value (\$A@27/11/08)	Total Value (\$A)
Concrete	523m ³	10/ m ³	5,230
Steel	175.5 tonnes	442.5/tonne	77,660
Copper	42 tonnes	5,497.5/ tonne	230,895
Aluminium	4 tonnes	2580/tonne	10,320
Glass Reinforced Plastic	24 tonnes	900/tonne	21,600
TOTAL			345,705

- unlike uses such as mining, there is no significant environmental legacy or modification of landform;
- conditions, which run with land, are enforceable;
- agreements with host landowners establish obligations on the WEF operator to rehabilitate the land and indemnify the landowners from associated liabilities; and
- no other WEF permits to date have required a bond.

13.3.3 Panel Assessment

Previous Panels have not recommended that a bond be required to ensure decommissioning occurs for the basic reasons put forward by the Proponent. Like the Bald Hills Panel, we are conscious that other WEFs have not been required to establish rehabilitation bonds, and are reluctant to single out one proposal for an additional requirement. On the other hand, we are also conscious that there has been no review of a bond regime for the industry as recommended by the Bald Hills Panel in 2004 and there have been multiple proposals since 2004 relying only on permit conditions to guarantee appropriate rehabilitation.

We agree with the principle expressed by the Bald Hills Panel and adopted by other Panels that:

....the only justification for considerable visual amenity and landscape effects of wind turbines is that they are productive – making electricity. If this should cease then the Panel considers that the turbines should be removed. Further, there appears no reason why the wind farm operator should not be charged with the obligation of removal and making good in an environmentally responsible manner.

We recognise that there is a narrower range of post-closure impacts from WEFs compared to mining and extractive industry for example, which are also resource dependant activities with a finite operational life. However, post closure impacts of un-rehabilitated WEFs are significant, as are the costs, the technical capacity requirements and logistical demands of decommissioning. We think that the local community is entitled to an assurance that they will not have to suffer visual impacts from the WEF when it no longer creates a benefit to the community. This establishes the same rationale as applies to mining and extractive industry requirements to provide an additional assurance, over and above that associated with a permit condition that appropriate rehabilitation will occur.

At the Hearing we queried whether assumptions about the value of the scrap materials still hold with modern turbine towers that make greater use of concrete, which incurs disposal costs in the decommissioning processes. We were reassured by the material tabled by the Proponent on the current value of materials that could be recovered and we accept that there is a substantial incentive to sell scrap material from turbines, particularly the copper and steel components. While we were not provided with estimates of rehabilitation costs the very substantial value of scrap materials also provide some comfort that those costs are likely to be met.

However, we maintain concerns relating to:

- the volatility in the value of scrap materials, as demonstrated in the last year; and
- the permit condition not requiring that funds from the sale of scrap material be made available for rehabilitation purposes, particularly if the operator becomes un-financial or has no ongoing interest in the WEF site.

13.3.4 Panel Findings

While in principle we consider that a bond should be required to assure the community that rehabilitation of the site will occur, we are conscious that the necessary administrative framework is not in place and the development of such a framework would require detailed consideration. Therefore we have not recommended that a bond be required for this proposal but do consider that the issue of decommissioning bonds on WEFs warrants further consideration.

We consider that, within one month of the turbines ceasing to produce electricity, the operator should inform the Minister of the cessation of the use. Within the following 6 months the operator should prepare a Decommissioning Plan to the satisfaction of the Minister for Planning.

The Plan should include measures for the rehabilitation of the land and include a Decommissioning Traffic Plan. We have included conditions in the Recommended Permit to that effect.

13.3.5 Decommissioning Bond Framework

Before coming to our view that a decommissioning bond should not be required for the Lal Lal WEF we considered elements of a system to guarantee rehabilitation of WEF sites after decommissioning. We set out our views as follows for consideration in any future review, bearing in mind that the purpose is to provide a guarantee that the decommissioning and rehabilitation works required will be completed.

It would be entirely appropriate for an assessment of the amount of a financial guarantee to take account of the value of recovered materials. This could mean that there would be no monetary bond required if a proper assessment demonstrated that the value of the recovered material equalled or exceeded the expected decommissioning and rehabilitation costs. Thus, the only financial burden associated with a requirement for a bond may be those incurred in the process establishing the net costs of decommissioning the WEF and rehabilitating the site.

The legislative and policy framework in place under the *Mineral Resources (Sustainable Development) Act 1990* (MRSDA) provides a model for an effective and proven regime for the rehabilitation bonds. The essential features of that framework include the following:

- a legal requirement for the preparation of a rehabilitation plan, prior to construction, by the licensee and approval of that plan by the regulatory authority;
- a legal requirement that the work described in the rehabilitation plan to be done;
- a mechanism for the net cost of the work described in the rehabilitation plan to be estimated;
- a requirement that a bond be lodged to the value of the estimated net cost of the work described in the rehabilitation plan;
- the ability to review and modify the amount of the required bond at the instigation of either the regulatory authority or the licensee if it is believed the estimated net cost of the work described in the rehabilitation plan changes;
- a provision under which ownership of the plant and equipment remaining on the site if the work described in the rehabilitation plan is not completed satisfactorily reverts to the Crown; and
- the power and responsibility to undertake the work described in the rehabilitation plan utilising the bond and any funds that can be obtained by the sale of plant and equipment, passes to the government of the bond condition is breached.

While in this case the Draft Permit includes a requirement for a Decommissioning Plan to be submitted at or near the end of the life of the project and for that plan to be implemented, in order to apply the MRSDA model such a decommissioning plan would be required prior to commencement. This would enable the plan to be used as the basis for the estimation of net cost of decommissioning and would provide a more than adequate response to submitters concerns in regard to the timing of the development of the decommissioning plan.

Under the MRSDA the Minister may require the licensee to undertake an assessment of the rehabilitation liability for the purpose of determining the amount of the rehabilitation bond and to have that assessment audited. The requirement for an assessment of the net cost associated with the Decommissioning Plan and verification of the estimate could be established by permit condition.

The calculation of rehabilitation liability under the MRSDA is enabled by the publication of guidelines by the Department of Primary Industry for self

assessment using estimation tools provided by the department. While these guidelines and estimation tools are not directly applicable to decommissioning of WEFs, some of the principals are relevant, including:

- estimates must be based on “third party costing”, that is, on the assumption that the works will need to be completed by a third party contracted to supply all required personnel and equipment and the cost of the works must include the cost of supervision and administration of such a contract; and
- recognition that some items of plant and infrastructure will have a resale value which can offset the cost of its demolition and removal.

In the case of rehabilitation bonds under the MRSDA the department possesses some expertise in the estimation of costs so it is left to the departmental officers to evaluate the estimates provided by the licensee. Since the Responsible Authority may not have such expertise appropriate cost estimates would need to be provided by a “suitably qualified expert”. The use of such an expert could be obtained by requiring certification of cost estimates by a member of an appropriate professional body such as the Australian Cost Engineering Society.

The provisions under the MRSDA for review of bond amounts are of particular importance in mining because the amount of disturbance and hence cost of rehabilitation can vary significantly as the mining develops. This is not the case with WEF decommissioning; however, since the amount of the bond will be dependent on the estimate of the resale value of the plant and infrastructure and that value can be expected to change with time, it would be appropriate that the bond calculation be revisited at regular intervals. Furthermore, the WEF operator should have the option to modify the planned decommissioning technique, without changing the end result, to utilise lower cost techniques that may be developed during the life of the WEF. The bond amount should reflect the most up to date estimate of the net cost of decommissioning as is practical and, as result it would also be appropriate to provide for review of the bond amount at regular intervals (say every three years), or at the behest of either the Minister for Planning or the WEF operator.

It is fundamental to the approach applied under the MRSDA that in the event that the licensee does not complete the rehabilitation works ownership of the plant and infrastructure on the site reverts to the Crown. This enables the value of those assets to be realised by the Crown and applied to the rehabilitation works. In the case of a WEF it would be necessary for any assets, the value of which are used to offset estimated removal costs, remain available if the WEF is not decommissioned as planned. Consequently it

would be necessary to prohibit the sale or removal of such assets from the site prior to completion of the decommissioning.

Since the purpose of a decommissioning bond is to provide a guarantee that the decommissioning will actually be carried out it would be necessary that triggers be established that signal that the WEF operator has breached the bond condition (which would be the implementation of the decommissioning plan) and that, in such circumstance, the resources and responsibility for completing the work passes to another party. These triggers could include:

- failure of the WEF operator to complete the works in the time required;
- the WEF operator becoming un-financial; or
- the WEF operator selling or removing any item which has been valued for offsetting the cost of decommissioning.

Once the bond condition is breached responsibility for the completion of the decommissioning could fall to the Minister for Planning. The Minister could be provided with the bond money and the effective ownership of the assets, the value of which has been used in establishing the amount of the bond. The Minister would have the power to initiate any appropriate action to organise and coordinate the completion of the work.

The bond and the sale of assets should be sufficient to complete the required work, however, if this proved not to be the case then the shortfall may be recovered from the WEF operator as a debt due to the Crown. In the unlikely event that sufficient money could not be obtained in this way the government may be required to supplement the funds available.

13.3.6 Panel Recommendation

Amend the Draft Permit condition relating to decommissioning to require the submission of the decommissioning plan no later than 6 months after notice of the cessation of generation has been lodged or, except with the written consent of the Responsible Authority, when turbines have not operated for a continuous period of 12 months.

Evaluate the merits of establishing a policy requiring a bond to guarantee that WEF sites are rehabilitated after decommissioning.

13.4 The Ballarat Radio Model Flying Club

The Ballarat Radio Model Flying Club has developed a club house and runway on 3 - 4 acres of land it leases within the Yendon Section. It was submitted that the proposed WEF, and Turbines YSWT 13 and 14 in

particular, would require the club to relocate due to impacts such as unpredictable turbulence, increased risk of collision, distraction from blade flicker and radio interference.

It is noted that the club does not enjoy security of tenure as its lease from a host land owner is renewed annually. Nevertheless, a letter was tabled at the Hearing confirming that the Proponent has offered to assist with relocation costs if the club is still at the site when works commence. The club sought a recommendation from the Panel requiring assistance in meeting relocation costs (expected to be in the order of \$20,000). We see these financial arrangements as a matter for negotiation between the landowner, the club and the Proponent.

We make no specific recommendation on this issue.

14. Economic Impacts

14.1 PAR Assessment and Submissions

The PAR indicates that the construction cost of the Proposal is expected to be \$350m, with \$180-200m Australian content. Approximately 80% of the Australian content of the project would flow to the Victorian economy more than 50% flowing to the local region. During the construction phase employment of approximately 120 people is expected, plus indirect employment (eg transport operators) and local expenditure relating to workforce services (such as catering, accommodation and recreation). In the operational phase 12-15 skilled employees plus contracted labour as required would operate and maintain the WEF. The local economy would also benefit from indirect expenditure by ongoing employees, lease payments to landholders and rates paid to Moorabool Shire (in the order of \$200,000 per annum).

The Industry Capability Network (Victoria) explained that a process has been established to maximise the benefits to the local economy. Opportunities for local businesses have already been promoted locally and to date there have been 52 expressions of interest.

Council highlighted that, as a generator under the *Electricity Industry Act*, the WEF would enjoy rate concessions relative to other commercial and industrial enterprises. The Council sought an indexed payment of \$2,250/megawatt in lieu of rates, approximately 4% of annual WEF costs, to ensure costs are not shifted to local government. The Council, and some other submitters, also noted that tourism is important to the Council's economic development strategies but did not identify specific concerns or impacts.

The economic benefits of the Proposal were not actively challenged. However, some submitters did note that the benefits are concentrated in the construction phase, expected economic benefits from WEF developments may not eventuate, and there could be adverse impacts on local tourism. The foreign ownership of the company proposing the WEF was raised, as was the possibility of this proposal being speculative with the likelihood of the sale of WEF development rights once a permit is granted.

14.2 Panel Assessment

We accept that there would be significant economic benefits for Victoria and the local economy from the project. The Proposal would contribute to the Council's rate base but changes to policies relating to municipal rates are beyond the scope of matters we can consider. This locality is not a prominent tourism destination, which was confirmed by the absence of references to it in economic development and tourism strategies for the region. Foreign ownership and the nationality of the owners of the company proposing the WEF are not relevant to our assessment of the application.

Planning permits are invariably associated with financial gains and, as they are tied to the land rather than a particular person or company, and benefits can be transferred without recourse to the planning system. The exception is where a permit is tied to a specific operator but this condition is only applied in rare circumstances where acceptable operations are dependant on the particular expertise of the specified operator. This is not the case here and any subsequent operator would be required to satisfy permit conditions.

15. Financial Impacts on Individuals

15.1 'Sharing Gains'

15.1.1 Evidence and Submissions

Many submissions expressed concern about the inequitable distribution of benefits from the proposed WEF, adverse impacts on the value of their property and reduced development potential. An enforceable commitment to ensure the offer to fund community projects is honoured was also sought.

Six landholders will receive significant financial benefits from the Proposal (totalling \$480,000 per year) which provides a revenue stream with limited impact on agricultural activities.

Some submissions resented the absence of equity in the Proposal's financial arrangements which provide no compensation to non-host landholders although they will suffer impacts if the WEF proceeds - as Mr McMahon put it, the residents are expected to suffer the pain but, unlike a few host landholders, will not enjoy any gain.

Mr Offor saw some merit in sharing benefits more widely in the local community, noting that many countries adopt an approach where a '*social license to operate*' ensures local communities share the benefits from development project. However, he recognised that the Victorian planning system does not provide for this type of compensation and implications for other projects make payments to adjacent landowners inappropriate.

The PAR and the Proponent's submissions confirmed that it proposes to establish a community fund, with annual contributions in the order of \$50,000. It would be managed on the basis of guidelines by a 'grants committee' with local representation. Mr Offor strongly supported such a fund if transparent guidelines ensure its operation is seen to be fair.

15.1.2 Panel Assessment

We endorse the initiative to establish a community fund, over and above any costs associated with obligations to mitigate the impacts of the Proposal (eg visual impacts at dwellings). We also note that the independence and transparency of the operation of such a fund is important and may be enhanced if it is administered at arms length, perhaps by the Shire. However, the necessary nexus to include such a requirement in permit

conditions has not been established. Nevertheless, we anticipate that the Proponent will honour its commitments to the community.

We are conscious that, like most public infrastructure projects, this proposal would involve impacts on individuals in order to achieve substantial benefits for the wider community. However, unlike many public infrastructure projects, some individuals enjoy financial gains and have greater influence over the form of proposals. Many submitters resented bearing a disproportionate share of impacts while host landholders had secured their own amenity while enjoying substantial financial gains from turbine income.

Other Panels have grappled with the issue of sharing of the gains as well as the 'pain' of WEF proposals, while recognising that 'compensation' is not generally payable elsewhere in the planning system. It has been noted that a more equitable distribution of the benefits from WEFs may reduce community opposition and objections. Various possibilities to distribute benefits more widely have been canvassed, such as establishing a 'compensation footprint' or leasing buffers in addition to the WEF site(s).

We note that mechanisms are in place for some compensation of nearby landowners for losses suffered as a result of mining industry activity and at least one thermal energy trial project provides free energy to the local community. Like other Panels, we consider that the government should explore mechanisms to share benefits with landowners in the immediate locality of WEF proposals who are subject to adverse impacts from the facility.

15.1.3 Panel Recommendation

The Minister for Planning, in conjunction relevant agencies give consideration to a system or process whereby surrounding, non-host landowners for wind energy facilities are provided with the opportunity to share in the benefits of that project.

15.2 Impacts on Property Values

15.2.1 Submissions

Many (121) submissions, including submissions from Messrs Kelly and Mr Everington who are real estate agents, expressed concern about devaluation of their properties due to degraded landscape values, noise impacts, and narrowing of the market due to real or perceived impacts.

The Proponent submitted that, although raised in relation to most WEF proposals, the potential diminution in property values is irrelevant to

assessing the planning merits of the Proposal. It was noted that previous Panels have commented on the difficulty in determining the level of impact as information on valuations is inconclusive. Further, as confirmed by other Panels, property valuations alone are not a relevant planning consideration⁵⁵ and as a matter of law cannot be considered.

15.2.2 Panel Assessment

We agree with the argument put by the Proponent that land values cannot be considered as a relevant matter in deciding an application for permit. Like other Panels, we adopt the views of the Bald Hills Panel which commented:

... the 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.

15.3 Future Development Opportunities

15.3.1 Submissions

The Proponent's submission drew the following distinctions between development potential of the basis of whether it requires a permit or not:

1. Proposals that either have permits or are as of right prior to the Proposal.
In the Farming Zone, this includes single dwellings on lots greater than 40ha which are an as of right use in the zone⁵⁶. The Proponent's survey of non-host properties lots within a 1km indicated:
 - there is only one title (east of Horsehill Road and north of Narmbool Road, Elaine) where a dwelling could be constructed as of right but there is nowhere on the property where noise and the shadow flicker standards would be satisfied. The landowner has not objected to the WEF application. The Proponent advised that its discussions with the owner did not indicate that a dwelling is planned on this site, this land was originally proposed to be part of the Elaine Section and they

⁵⁵ The Proponent cited the following cases where it has been held that depreciation of land values in the locality as a result of a proposed development is not a planning ground: *Ross v Shire of Rutherglen* (1981) APA 101; *Ralphsmith v City of Nunawading* (1983) 11 APA 40; *Briant v City of Knox* (1985) 15 APA 443; *Micaleff v City of Keilor* (1993) 11 AATR 139.

⁵⁶ Provided that the criteria set out in Clause 35.07-2 of the Planning Scheme are satisfied.

understand the landowner now proposes to develop a plantation on the property. It was submitted that *“Any ‘as of right’ or permissible dwellings proposed in the future would be ‘coming to the nuisance’, and would not be entitled to the amenity protections afforded to existing as-of-right or permitted land uses.”; and*

- there is a permit to develop a house in the vicinity of Grills Lane and it is understood the owners intend to operate a Bed and Breakfast business at the property. The noise and the shadow flicker standards are met at this location.
2. Uses and development that require a permit, including dwellings on lots less than 40 ha. The Proponent advised:
- all surrounding landowners were consulted and there are no properties where dwellings could not be located to satisfy the noise or the shadow flicker standards;
 - a number of submitters have sought revisions to the layout of wind turbines to allow for potential development of new residences, particularly along Racecourse Road (Yendon Section). Proposals appear to be conceptual or considered desirable by the owners but the Proponent is not aware of any substantive proposal; and
 - the Proponent will assist neighbours to select appropriate dwelling sites to avoid adverse amenity impacts but argued it is not required to ‘protect’ a neighbour’s preferred dwelling location.

The Proponent also submitted that once a proposal reaches the Panel Hearing stage it should be treated as a ‘seriously entertained planning proposal’ when later permit applications are considered. Further, the ‘agent of change’ principle applies to later, potentially conflicting, uses, and a WEF operator is entitled to object.

Our response to the issue of protection of development raised by several submitters who presented at the Hearing is provided below.

15.3.2 Panel Assessment

We are conscious that:

- the WEF Guidelines address potential impacts on existing dwellings near WEFs but do not refer to future dwellings;
- other Panels⁵⁷ have adopted the following principles in relation to as of right development of dwellings:
 - in the vicinity of a WEF, locations should be identified on properties where as of right dwellings can be sited to achieve amenity standards equivalent to those of existing dwellings; and
 - landowners who reject locations on their land where amenity is protected and choose to build where amenity standards will not be achieved must either live with the reduced amenity or adapt the dwelling to reduce the amenity impacts; and
- the Proponent's written submission stated in relation to future dwellings *'The Proponent is only required to identify where a dwelling can be located without adverse amenity impacts.'*

The development of a house (and possibly an as of right Bed and Breakfast) could be accommodated on the Grill/Beaumont property in a location that satisfies amenity standards although turbines would be visible to the east/southeast (see discussion in Chapter 5.4).

To our knowledge this is the only WEF application to date where a building envelope in which compliance with noise and shadow flicker standards is expected cannot be identified on a property where the development of a dwelling would not require a planning permit.

We have not had the benefit of a written submission or presentation at the Panel Hearing from the owner of the property east of Horsehill Road and north of Narmbool Road, Elaine to confirm the information provided by the Proponent about the owner's views or intentions.

The absence of a submission does not necessarily indicate support for a proposal and we recognise that people who may be affected by proposals have differing capacities to appreciate the consequences for their property. However, in this case, the land concerned was identified as part of the Elaine Section of the WEF during the pre-application consultation process⁵⁸. We

⁵⁷ For example Bald Hills, Waubra, Mt Mercer

⁵⁸ The Proponent's submission that this property was originally to be part of the Elaine WEF site was confirmed in pre-application documentation consultative documents provided in Volume 3 of the

have inferred, from that involvement, that it is highly likely that the owner of this property was well aware of the project, more likely to appreciate the implications of the WEF for this property than may ordinarily be the case and decided not to lodge an objecting submission to the Application seeking either rejection of the proposed WEF or any modification to it.

This Narmbool Road property can continue to be used and further developed for agriculture or other uses such as timber production and we are not aware of any proposal to develop a house on the property.

We do not believe that the WEF should be modified to accommodate a possible future dwelling.

However, we looked at options to highlight amenity implications for residents at a possible future dwelling at the Narmbool Road property. These included requiring a Section 173 Agreement under the *Planning and Environment Act 1987*, or imposing a restriction on the title under Section 23 of the *Subdivision Act* or relying on an administrative process to include a note on any planning certificate for the property. The inclusion of a section 173 Agreement as a permit condition could put the substantial benefits to the community from the WEF at risk if an agreement on reasonable terms proved difficult to negotiate, and this is not justified in the current circumstances. It is arguable whether the *Subdivision Act* provisions can reasonably be applied in this circumstance and there is uncertainty associated with reliance on an informal administrative practice to supplement the information that is required to be included in a planning certificate.

In the end, we rejected all of these options. We consider that, while it would be desirable to ensure that the amenity implications of the WEF on this property are highlighted to prospective purchasers, the risks to the WEF associated with a requirement for a Section 173 agreement are too great. After the WEF is constructed, the presence of the turbines means that any future purchaser would be very aware of their presence and, adopting the 'buyer beware' principle it is reasonable to expect them to make enquiries about potential impacts.

We are of the view however, that it a mechanism to highlight areas subject to adverse amenity impacts, and encourage dwellings to be located where amenity standards are satisfied would be a useful addition to the planning framework for WEFs. Overlays are sometimes applied in the vicinity of other infrastructure with significant offsite impacts, such as airports and

PAR – See Elaine Project Plan in 'Initial Door Knock Documents, Project Update 1', April 2007, 'Facts in Brief- Revised Layout' October 2007,, Project Update 4 November 2007'.

waste treatment facilities, and, while clearly beyond our scope, are worth considering in a broader review of the planning framework for WEFs. An overlay over areas subject to adverse amenity impacts would be identified on planning certificates and would therefore eliminate the need for agreements to make impacts explicit to prospective buyers. They would also provide a means of encouraging the location of dwellings in areas where amenity standards are satisfied. Another alternative would be to provide for advice on planning certificates that highlights properties/areas where WEF amenity standards are not satisfied. We are aware that the scope of information provided on planning certificates has been raised more generally, and suggest the issue be considered as part of the current review of the *Planning and Environment Act*.

With regard to future proposals that require a planning permit, the planning scheme makes it clear that the opportunity to apply for a permit '*does not imply that a permit should or will be granted*' (Clause 31.02) As already noted, the purposes of the Farming Zone focus on protecting productive agricultural uses and residential or other non-agricultural uses are not promoted. We give much less weight to implications of the WEF proposal on residential development potential in the Farming zone than implications for agricultural production or environmental services.

Our consideration of submissions about the impact on the development potential of particular properties follows:

- **Mr & Mrs Noel & Jane Robson**, who own approximately 125 ha in Harris Road, advised that Council and Western Water informally endorsed a 3 lot subdivision with 3 building envelopes prior to their purchase of the property 15 years ago. They sought deletion of turbines YSWT 25 and 27 to preserve that subdivision opportunity and their preferred building envelopes.

Panel Response: A considerable time has elapsed since the Robsons received the informal advice referred to above and they have not pursued those proposals. The subdivision of this land and development of housing on the new lots would require consideration via the planning permit process. It cannot be assumed a permit would be granted as planning policy discourages the fragmentation of land in the Farming Zone and directs residential development to land zoned for the purpose. Noise and shadow flicker standards are not predicted to be met at significant parts of this property (including land on which the Robsons have indicated they might wish to develop for houses). However, there would still be the opportunity to develop a house on the property, which would be as of right, in a location where the relevant amenity standards

will be met. We do not consider the relocation of turbines to accommodate possible development in the future has been justified.

- **The Kelly family** owns an 850 acre property, known as Rothbury, on the corner of Lal Lal and Racecourse Roads, which has two existing houses. The Kellys have indicated that, if the WEF proceeds as currently proposed, they will not pursue plans to build another house on the original homestead site. The proposed house site, which is one of the few well drained locations on the property, is immediately to the south of the Yendon Section. The Kellys sought relocation of turbines YSW 21-29 (ie all the turbines south of Yendon Egerton Road to the east of Duggans Lane).

Panel Response: Noise modelling indicates that noise standards would not be satisfied at the old homestead site. Although this is a large holding, there are existing houses to support its agricultural use and further subdivision or development of houses may well require consideration via the planning permit process. We do not consider that the preservation of a preferred possible future development opportunity is sufficient to require the relocation of turbines.

- **St Sava Monastery** is located to the north east of the intersection of Horsehill North Road and Elaine-Mt Mercer Road. There are nine permanent residents, 25-30 people may stay at the monastery over weekends, and attendances vary (up to a couple of thousand) during celebrations. The cemetery, which is immediately to the south of the proposed WEF site, is particularly important to the church community. Bishop Nikolai advised that, in his view, noise from the proposed WEF would compromise existing activities and plans for further development of the monastery and services to support the community (such as accommodation for the aged).

Panel Response: We recognised that this use is particularly sensitive, however it is predicted that impacts of noise and shadow flicker at this property would be well below the prescribed limits and the visual impact at the property would be minimal. The merits of the currently conceptual development proposals would require evaluation through the planning permit process. We note that the Farming Zone imposes significant restrictions on uses that can be considered which would limit the scope of any further development. For example, a Place of Assembly must not be used for more than 10 days in a calendar year and the permitted forms of accommodation must be used in conjunction with agriculture, an outdoor recreation facility, rural industry, or a winery. These development concepts are not at a stage where they should dictate the form of the WEF.

- **Proposals for the development of tourist accommodation** were highlighted at Larundel/Merraton Park⁵⁹. In addition to impacts on the existing Bed and Breakfast at Merraton Park, Dr Mackay provided conceptual plans for the development of 6 units for retired people, (possibly expanding to 12 units), a vineyard, restaurant/ conference centre and a five hole golf course in the paddock closest to the proposed WEF site. Mr Preat's presentation at the Hearing (and the Larundel website) referred to plans to develop six eco cabins in bush settings, occasional open days and polo matches on his 2,500 acre property known as Larundel. Mr Preat acknowledged that the potential site for cabins is less exposed to the proposed WEF than other parts of the property.

Panel response: There is a range of options on these large holding(s) that could be pursued if the owner wishes to proceed to seek approval for conceptual plans for development of farm related tourism and accommodation (within the limitations of the zoning). However, the material presented does not justify redesign or rejection of the proposed WEF to preserve the option of advancing possible tourism related development concepts.

15.3.3 Panel Recommendation

DPCD consider in a broader review of the planning framework for WEF the merits of applying an overlay to highlight locations where it is predicted that amenity standards cannot be met and discourage dwellings in locations where amenity standards are unlikely to be satisfied.

⁵⁹ Although not apparent during presentations to the Panel, the Merraton Park web site indicates that *'Merraton Park is part of Larundel Pastoral Co, a significant pastoral property of approximately 3,000 acres'*. The Larundel web site indicates that Dr. David Mackay, who presented submissions relating to Merraton Park, heads the Larundel Pastoral Company research and trials program. This information has not affected our assessment or findings on submissions relating to these properties.

16. Social Impact

16.1 The Issues

- Were consultative processes adequate?
- Did the perceptions study provide a sound basis for conclusions about community acceptance of the proposed WEF?
- Are potential social impacts acceptable?

16.2 Policy Framework

The WEF Guidelines require assessment of proposals to facilitate wind energy development *in appropriate locations in a manner that appropriately balances their environmental, social and economic benefits with any demonstrated visual, environmental and amenity impacts.*

16.3 The Assessment and Evidence

The PAR (Chapter 2.2.4) documented the consultative process which involved:

- a study of community perceptions to WEFs undertaken by Reark/ERM in 2006 by telephone survey. The study area encompassed the locality surrounding the proposed WEF and provided a statistically significant sample. It had the objective to “...*determine if the local community would generally be receptive to a wind farm proposal in the area, and more importantly in close proximity to their homes*”. The survey indicated that more than 80% of respondents supported a WEF in the area and 68% favoured WEFs within 1 km of their residence;
- three project updates, including indicative turbine layouts, to residents within approximately 3 km of the WEF and others who had registered interest on the Proponent’s database ,(April - September 2007);
- community information days (April 2007 and October 2007) prior to the submission of the Application in March 2008; and
- the Proponent’s offices are located in the region.

Mr Offor noted that, while the consultative process did not involve ‘*forensic community involvement*’, he was comfortable with the engagement process and considered it was as good as he had seen for a WEF proposal.

The PAR and evidence from both Mr Offor and Mr Wyatt suggested that the results of the community perception study demonstrated a high level of

acceptance of a WEF in the area. However, Mr Offor's statement noted that the telephone survey methodology precluded the use of visual imagery and this weakness reduced the usefulness of the results to establish the likely acceptability of the proposal. He suggested that caution should be exercised when extending these results to the specific Lal Lal proposal.

During cross examination Mr Offor conceded that little weight should be accorded to the results of the community perception survey, beyond an indication of broadly based community support for renewable energy and WEFs. He accepted that the questionnaire structure was 'sub-optimal' and the prefacing of question 18⁶⁰ with the following factually wrong statement undermined the credibility of the survey and could have affected subsequent consultation processes:

"Scientific tests conducted at wind farms have shown that people need to be less than approximately 400-600 m from the wind turbines for them to hear any audible noise, even in extreme wind conditions."

Mr Offor acknowledged that opposition to the WEF can contribute to significant community divisions but the community action can also build local connections and social capital. He noted that submissions expressed a high level of uncertainty about how the WEF will affect residents and for some people this uncertainty will have a negative impact. Mr Offor indicated that individuals' temperaments and expectations would affect how they deal with change associated with a WEF and whether it has long-term social impacts. There could be a high and negative social impact on people living within close proximity (1.5 km and possibly out to 3 km) of the WEF, particularly those who are sensitive to noise or oppose the WEF. The consequences may include a reduction in their sense of happiness and wellbeing, an impact on their day-to-day activities, annoyance, anxiety, sleep disturbance and stress. Mr Offor noted that social support services (eg Relationships Australia and Ballarat Community Health Centre) are readily available if significant personal or community level upset or divisions occur.

Mr Offor advocated the adoption of an effective complaints lodgement/ resolution system in accord with Australian Standard in permit conditions.

⁶⁰ Reark/ERM Perception Study p.42 Vol 3 Lal Lal WEF Application

16.4 Submissions

In addition to issues address in other chapters (such as noise, landscape and health impacts) that contribute to people's responses and social impacts many submissions:

- took issue with the consultative process adopted. It was argued that information, which was both inadequate and inaccurate, was insufficient to enable people who may be affected to make an informed view (see discussion on photomontages in Chapter 5). Further, LLELAG's offer(s) to call a public meeting(s) were rejected;
- challenged assertions on the level of community support derived from the community perceptions study and the level of objection to the Application. LLELAG recommended that all reference to the perception study should be deleted and independent verification of a baseline for community acceptance of the WEF proposal be obtained;
- were concerned about divisions in the community created by the Proposal; and
- were offended by the Mr Offor's suggestion that counselling and access to health services were reasonable responses to the Proposal's impacts.

16.5 Panel Assessment

16.5.1 Consultative Processes and the Perceptions Study

We recognise is not easy for community members to digest the extensive technical analysis presented or to interpret the nature of change residents will live with if the Proposal proceeds. The consultative process leading up to and during the evaluation of proposals is an important means of establishing and clarifying impacts for both the community and decision makers.

There is an onus on proponents to present an accurate basis for assessment and for major proposals such as WEFs this invariably involves the investment of substantial resources. We accept that the Proponent has gone to considerable lengths and invested substantial resources to consult the local community from the early stages of the formulation of the Proposal. This has involved individual contact with nearby property owners, information days and the provision of information at their local office and on the internet.

We accept that there is broad support in the wider community for the development of renewable energy but do not agree with the Proponent's submissions or Mr Wyatt's evidence that the perception study illustrates a

high level of support in the local community for this proposal. We agree with Mr Ofor that no weight should be placed on the findings of that perceptions study regarding local acceptance of a WEF in this particular area.

It is most unfortunate that the consultative process commenced with information about noise - a key concern to residents - that was wrong, followed by the Proponent's refusal to provide further representation of visual impacts (even during the Panel process). LLELAG demonstrated that at least one of the visual representations that was provided as a representation of 'worst case' visual impact was inaccurate and understated the impacts.

Nevertheless, as Council emphasised, the assessment of planning proposals is not a popularity contest. The formal exhibition and assessment processes have allowed those who may be affected to present their views and many residents have taken the opportunity to make submissions and present at the Panel Hearing.

Finally, the suggestion in the Proponent's closing submissions that a campaign by a minority of vocal residents had exaggerated impacts and promoted opposition to the Proposal warrants comment. Cynicism about the analysis presented by proponents on the impacts of proposals is understandable even when reliable information is presented and resident cynicism has been exacerbated in this case by the provision of inaccurate and limited information. We found that, while it was clear that residents objecting to the Proposal have strong concerns, they adopted a disciplined approach and we compliment LLELAG in particular on the quality of the interrogation of the complex PAR and evidence.

16.5.2 Potential Social Impacts

We note that the WEF Guidelines only refer to social benefits and do not acknowledge that there may be adverse social impacts. As Mr Ofor's evidence recognised, proposals can divide communities but can also build new linkages. Further, as the Mt Mercer Panel also observed, while it is apparent that the Proposal has caused community divisions, it is not possible to judge the consequences of these social rifts and even if a permit was refused the social division might remain.

Social impacts are often the result of more specific direct impacts on amenity (such as noise and visual impacts) which are addressed elsewhere in this report. Concerns about financial losses, discussed in Chapter 14.1, also contribute to social impacts. The evidence and submissions highlighted that some social impacts result from uncertainty, some from an individual's particular sensitivity or circumstances and a lack of influence over unwanted

change and antagonism towards the Proposal can lead to ongoing heightened sensitivity to impacts.

It is difficult to determine the likely extent and duration of social impacts. Some longitudinal research in Australia into short and longer term social impacts of WEFs would inform assessment processes and the formulation of appropriate responses.

Many planning projects, and infrastructure projects in particular, impact on a local community and/or individuals. While these impacts are not dismissed, few infrastructure projects would proceed if a test of complete absence of opposition to projects applied. We have the task of balancing these impacts with broader benefits. This balancing process is addressed in our Overall Conclusions.

17. Recommended Permit Conditions

At the Hearing there was a 'without prejudice' discussion of Draft conditions (see Appendix D) for the WEF Permit. Recommendations relating to permit conditions in preceding chapters on specific issues are incorporated in the Recommended Permit in Appendix B and are not repeated here. However, issues regarding permit conditions and some recommended revisions that not addressed elsewhere in this report are set out below.

17.1 Secondary Consents and Responsibility for Enforcement

Council expressed concern about the potential resource implications if Council were to be identified as the authority responsible for the enforcement of compliance with permit conditions, particularly on technical matters and during construction, operation and decommissioning of the WEF.

We have maintained the approach adopted in other permits for WEFs with a capacity greater than 30 megawatts that, consistent with Clause 61.01 of the Moorabool Planning Scheme, the Minister is responsible for approving matters required to be done to the satisfaction of the Responsible Authority and the Council is responsible for enforcement. The secondary consents have been drafted to ensure input from other agencies with a particular responsibility and/or expertise in a particular field.

While we recognise the enforcement of conditions relating to matters such as noise can be technically demanding and require appropriate resourcing, in such areas we have gone to some lengths to ensure the efficacy of compliance testing when the WEF is commissioned, which is to the satisfaction of the Minister, and we expect this to substantially reduce the need for later enforcement. We have also provided for the required expertise to be provided at the cost of the WEF operator. We also note that, like other forms of use or development, Councils are often required to draw on the expertise within State government (and sometimes consultants) to fulfil their responsibilities in administering planning schemes.

17.2 Other

The following matters were also raised in relation to permit conditions:

- the Proponent questioned the need for a section 173 Agreement in relation to road works and the reimbursement of costs. Council accepted that, as the Minister is involved, the matter could be dealt with via a permit condition without a supporting agreement;
- plans are to be generally in accordance with the plans circulated before the Hearing rather than plans in the PAR;
- as we do not think the grant of a permit for the WEF could be assumed, we consider that conditions relating to off-site landscaping and noise should refer to dwellings existing at the date of the permit, not when the application was lodged;
- we agree with the Proponent that there should be no upper limit on the generating capacity of turbines or the WEF as a whole. It would be a good outcome if the generating capacity is increase without adverse impacts. Permit conditions address to physical dimensions of turbines, and the associated visual impact, and noise conditions require noise limits to be satisfied irrespective of the turbine used;
- the 'micro-siting' condition in the Draft Permit appears to incorporate a 'Catch -22" situation. It purports to allow turbines to be moved but almost in the same sentence provides that no turbine can be moved any nearer to a dwelling. This is clearly an impossibility.

As micro-siting is essentially a component of 'Alteration of Plans' we have incorporated the concept within the 'Layout not altered' condition whilst not departing from the principle that minor movements of turbines should be considered as 'generally in accordance with' the overall layout providing no adverse impacts ensue.

We have simplified the condition and made provision for micro-siting while being quite specific as to the fundamental constraints which should apply namely:

- no turbine may be moved more than 100m in any direction;
- no turbine may be brought closer to a road or the site boundary than 50m; and
- no turbine already within 1km of a non-stakeholder dwelling may be moved closer to that dwelling.

We assume that the Minister and DPCD will put in place procedures to facilitate efficient decision-making where micro-siting is proposed;

- the reference to treatment fields in the circulated permit is not relevant and should be deleted;
- in the Farming Zone the planning scheme imposes a mandatory maximum sign area of 3m² for the proposed Business identification signs and a condition has been included establishing that limit;
- blasting conditions were deleted as the Proponent advised that blasting is not required or proposed. Therefore we have explicitly excluded blasting from the matters allowed by the permit; and
- the extension of the default time limits for commencement and completion of the development was questioned. We accept that the timeframes nominated are reasonable given the scale of the project and the further work necessary before the development starts.

Appendix A: List of Written Submissions

Submitters to Permit Application PL- SP/05/0461 (Wind Energy Facility Application)

Richard Crogoon	Raymond Harris	Matt Charleson	Anthony Kelly
Ted Medovarski	Elaine Motors	Kerry Jan	Liz Diamond
Dianne Lotherington	Doug Brown	Jim & Aiken McKee	Diane Cook
Michael Clark	Sonia Cincotta	Chris Prunty	Buninyong & District Historical
Barry Monument	Keith Parry	Mark Cassano	Robert Reid
Kaye Hennessy	Graham Edwards	Kerryn Lindsay	Karl & Carol Johansson
Gavin Gedye	Yvette Johnston	Amanda Jase	Lisa Ramsay
Emma Sbardella	Kate McKenzie	Michelle Grech	Tracy Benda
Charmaine Redford	Tim Wells	Kelvin O'Donnell	Leesa Inglis
Maree Trigg	Martin Barr	Anne & John Parkinson	Janette Colla
R & M Ford	Wesley Smyth	Marcus & Shelley O'Brian	Pam Munn
R Trigg	Lee Squire	Ken Areinbaln	Craig & Meegan Jenkins
Heather Donaldson	J B King	Janice Donghi	Robert & Belinda Kelly
C Maguire	Serbian Orthodox Monastery St Sava	Melinda Moran	Nick Munn
Carmen Duxson	Marie & Fred Salmon	Marian Aryes	Colin Jose
Daniel Slater	The Ellis Family	Victor Grech	Andrew Bradley
Fiona Smith	Heather Stokes	Kenneth Reeves	Central Highlands Region Water Corporation
Beth Chester	Angela Parkin	Daniel & Dian Leonard	George Bales
Erica Nathan	Matalie Umyth	Ron & Shirley Fleming	Richard Kelly
Howard Weedon	Steven Ryan	Lorraine Bull	John & Helen Hellyer
John Taylor	David & Irene Willison	Nairene Clerks	Sandra Vincent
Wendy Taylor	Paul Degenhardt	Patricia Watson	Peter & Maree Clark
Gary Sarah	Lorna Clerks	Jane & Noel Robson	B Johnston
Yuuleng Eskoto	Nick Clerks	Mark Prunty	Stuart & Heather Bowers
Josie Weedon	Joanne Clerks	Janet Prunty	Mal Alexander
Sandy Cowley	Jason Chivers	Pat Davies	Vicki Baum
Trevor Harbour	J C & A M Smith	Samantha Grerada	Murray McLeod
The Hodge Family	Mrs M Pepper	Jonathan Inglis	Corangamite CMA
Ricki Harbour	Gwenda Oakley	Linda Stock	VicRoads
Jo-ann Pearce	Jayne Solly	Stephen Murphy	Anna & Mark Yates
Maxwell Harris	Jenny & Craig Perrett	Ian Venables	
Peter Dean	Allan & Kristina Kitchingman	Paul Rodgers	
Graeme & Lyn Charleson			

Bill Durraht	Heather Cannan	Michael & Robyn Phyland	Jenice Middlemiss
Bishop R J Gon	Andrew & Jennifer Cameron	Heather McMahon	Vic Bunting
Mayosie Harris	Eldon Smith	Jeff Holland	Deanna Rizzo
Cheryl Harford	Joanne & Peter Pollard	Tania Holland	Kirk Wakem
Tracy Munday	Kathy Ludbrook	Lorraine Green	Peter & Kerry Shavin
Patricia Henory	Lorraine Sewell	Tiffany Holland	Sue Baum
Paul Harford	Linda & Alan Everington	Robert Walker	David McCallum
Kelvin Lewis	Matthew Tong	Pat Hems	Geoff Hewitt
Pauline Lemprire	Dr Karen Hapgood	Michele Reid	Darcy Rose
Jacqueline McGarry	Jim O'May	Rebecca Reid	Stephen Rose
Julie Gallo	Adam Ludbrook	Daniel Galea	Brenda Rose
Pamela Spencer	Doug Beaumont	Nicole Reid	Robert Grieve
James Watsons	Reginald & May Grills	Owen Reid	Fiona & Mark Jenkins
Stephen & Shanelle Winter	Wendy Arid Andrew Scott	Carol Bowers	R McRae
Jamie Edward	David Jones	Will Davidson	S McRae
Peter & Margaret Tudbull	Trevor Smith	Anna Galea	Deb & Graeme Doidge
Anne & John Beggs Sunter	David Gratlon	John Galea	Ohad Orr & Jacinta Ashby
Mr & Mrs Mifsud	Peter & Fiona Cameron	Nicole McPhee	Kathy Russell
Maria Tustin	Craig & Colleen Henriksen	F Limpashi	Kim & David Weedon
Graeme Diamond	Bill Stevens	Josephine Galea	Neville Seaborn
Erik Mifsud	Damien Torpy	Victor Galea	Georgina Reynolds
Lindsay Grey	CFA	Peter Walker	Maree Prehn
Rosie Grey	EPA Victoria	Matthew Birkett	Mr & Mrs Milesevic
Robert & Hayley Dore	Gordon Kelly	Andrew Quarrell	David Seweth
Robert & Belinda Wehl	Jean & Greg Tingate	Chris McGannon	Karen MacAdie
The Rees Family	Bernice & David Kelly	Terrsa Jones	Herbet Platt
Kevin Mifsud	Cherryl Alexander	Leo White	Pam Grace
Hayden Hill	Eddie Austin	Mark Galea	M & s Moyle
Robert & Rhonda Cowell	Bryan Wright	Bruce Marsh	Josephine Curmy
DSE	N Wright	Domenica Mupela	Linda Philpott
Tony Barrett	Scott Alexander	Ballarat Radio Model Flying Club Inc	Sarah Peckham
John McMahon	Allen Harvie	Paul Hansen	Yovanka & Thomas Reynolds
Lal Lal and Elaine Landscape Action Group		Nicole Grant	Dorothy & Barry Sheehan
		F Donovan	Janine Toohey
		Tess Maguire	Mark Francis Ryan

Glynis Leahy	Ron Wauchope
Brent Robson	Renny Ellis
Gail & Steve Nowaski	Peter & Cas McAllister
Helen & David Turley	W G & L N Battley
Mr & Mrs Compton	Carol Donald
The Murphy Family	Alan Rogers
Christian Wild	Michael McCarthy
Andrew Thomas Carling	John Kerwan
Damian Ryan	Mick Fennessy
Dexter & Norma Boyd	Michael Bromby
Lynette Platt	Michael Mruscheti
Damien Platt	Patrick & Loretta Toohey
Christine Platt	Micheal Bromby
Tracy Landt	Stefan Mirer
Noelene Walker	Leonard Casey
Deidre Tebb	Karin Murer
Will Elsworth	Cioranni Mutet
Emma Elsworth	Sharon McAlister
Anne Willis	Tina & Colin Govan
David Mackay	Richard Dudley
Andrew Aitken	Trevor Little
Robert & Dawn McMahon	P Gahir
Dylan Holland	John Peter Wollang
Paul Preat	Sustainability Victoria
Adrienne Schreuder	
Joe Patton	
Kevin Ramholdt	
Laurence O'Brien	
F & E Northey	
Philip O'Brien	
Joe Curni	
Graeme Drysdale	
Avigale Bischard	
Scott Robson	
Hector Veitch	

Submitters to Permit Application PL- SP/05/0461 (Native Vegetation Application)

Lal Lal and Elaine Landscape Action Group

Robert & Belinda Kelly

Robert & Belinda Wehl

Jane & Noel Robson

John& Heather McMahon

Linda & Alan Everington

Marcus & Shelley O'Brian

Erica Nathan

Paul Rogers

Paul Preat

Appendix B: Recommended WEF Permit

LAL LAL WIND ENERGY FACILITY

PLANNING PERMIT & CONDITIONS RECOMMENDED BY PANEL

Planning and Environment Regulations 2005, Section 97F, FORM 11

PLANNING PERMIT GRANTED BY THE MINISTER UNDER DIVISION 6 OF PART 4 OF THE PLANNING AND ENVIRONMENT ACT 1987

Permit Number:	PL-SP/05/0461
Planning Scheme:	Moorabool Planning Scheme
Responsible Authority for Administration and Enforcement of this Permit:	Minister for Planning Moorabool Shire (Administration and Enforcement of this Permit)
Address of the Land:	Land in the Yendon area, described as: Volume 3393 Folio 558 - Lots 1,2,3,4,5 and 6 on title plan 899344L (formerly known as part of Crown Allotment 15, part of Crown Allotment 16, part of Crown Allotment 17, part of Crown Allotment 43, Crown Allotments 44 and 47, Parish of Buninyong); Volume 4801 Folio 184 – Crown Allotment 16A Parish of Buninyong; Volume 10242/ Folio 563 Crown Allotment 1 Section 9 Parish of Lal Lal; Volume 10242 Folio 564 Crown Allotment 2 Section 9 Parish of Lal Lal; Volume 10242 Folio 565 Crown Allotment 3 Section 9 Parish of Lal Lal; Volume 10242 Folio 566 Crown Allotment 1 Section 6 Parish of Lal Lal; Volume 10242 Folio 567 Crown Allotment 2 Section 6 Parish of Lal Lal; Volume 10242 Folio 568 Section 3 Parish of Lal Lal; Volume 10242 Folio 569 Portion 7 Parish of Lal Lal; Volume 10514 Folio 926 Lot 1 on title plan 017451J (formerly known as Section 5 Parish of Kerrit Bareet); Volume 10514 Folio 927 Section 6 Parish of Kerrit Bareet; Volume 10514 Folio 928 Section 41 Parish of Kerrit Bareet; Volume 10514 Folio 929 Section 42 Parish of Kerrit Bareet; Volume 10514 Folio 930 Section 43 Parish of Kerrit Bareet; Volume 10514 Folio 931 Crown Allotment 1 Section 2 Parish of Lal Lal; Volume 10514 Folio 932 Crown Allotment 2 Section 2 Parish of Lal Lal; Volume 10514 Folio 933 Crown Allotment 3 Section 2 Parish of Lal Lal; Volume 10514 Folio 934 Crown Allotment 4 Section 2 Parish of Lal Lal; Volume 10514 Folio 935 Crown Allotment 1 Section 4 Parish of Lal Lal; Volume 10514 Folio 936 Crown Allotment 2 Section 4 Parish of Lal Lal; Volume 10514 Folio 937 Crown Allotment 3 Section 4 Parish of Lal Lal; Volume 10514 Folio 938 Crown Allotment 1 Section 5 Parish of Lal Lal; Volume 10514 Folio 939 Crown Allotment 2 Section 5 Parish of Lal Lal; Volume 10537 Folio 552 Crown Allotment 8 Parish of Kerrit Bareet; Volume 10537 Folio 553 Crown Allotment 7 Parish of Kerrit Bareet; Volume 10537 Folio 554 Crown Allotment 8A Parish of Kerrit Bareet; Volume 06772 Folio 368 Crown Allotments 48A, 48B, 49A, and 49B Parish of Kerrit Bareet;

(Continued Overleaf)

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Address of the Land:

(Continued)

Volume 09739 Folio 012 Crown Allotments 48A, 48B, 49A, and 49B Parish of Kerit Bareet;
Crown Allotment 24B Section 6A Parish of Buninyong;
Crown Allotment 43A Section 6A Parish of Buninyong
Closed road between Powerline Lane and Yendon-Egerton Road (granted in lieu of land acquired from Mr Archibold Fiken for new road);
Crown land vested in Council for Harris Road, Spreadeagle Road, Duggans Lane, McIntoshs Road and Portland Flat Road.

Land in Elaine area, described as:

Volume 01705 Folio 980 Crown Allotments 45 and 45A Parish of Narmbool;
Volume 07646 Folio 037 Crown Allotments 46 and 48 Parish of Narmbool;
Volume 01030 Folio 934 Crown Allotment 47 Parish of Narmbool;
Volume 05217 Folio 381 Crown Allotments 15A and 16A Parish of Narmbool;
Volume 00998 Folio 594 Crown Allotment 1A Parish of Narmbool;
Volume 01342 Folio 274 Crown Allotment 1B Parish of Narmbool;
Volume 00424 Folio 612 Crown Allotment 41A Parish of Narmbool;
Volume 01522 Folio 355 Crown Allotment 41H Parish of Narmbool;
Volume 08530 Folio 949 Crown Allotment 11B Parish of Narmbool;
Volume 08955 Folio 515 Lot 1 Title Plan TP439919D;
Volume 08774 Folio 991 Crown Allotments 2A, 2B, 3A and 3B Parish of Narmbool;
Volume 04214 Folio 731 Crown Allotments 41, 42, 42A, 53, 41A1, and 41A2 Parish of Narmbool;
Volume 00191 Folio 169 Lot 1 on Title Plan 669519L (formerly known as part of Crown Allotment 4A Parish of Narmbool);
Volume 00191 Folio 168 Lot 1 on Title Plan 631629R (formerly known as part Crown Allotment 4A Parish of Narmbool);
Volume 01710 Folio 926 Crown Allotment 4B Parish of Narmbool);
Volume 01710 Folio 877 Crown Allotment 4C Parish of Narmbool);
Volume 10905 Folio 576 Land in Plan of Consolidation 368001J;
Volume 09389 Folio 491 Crown Allotments 16 and 19 Parish of Narmbool;
Volume 06636 Folio 129 Crown Allotment 78 and 19 Parish of Cargerie;
Volume 06001 Folio 029 Crown Allotments 13A, 14A and 14B Parish of Narmbool;
Volume 07443 Folio 503 Crown Allotment 15 Parish of Narmbool;
Crown Allotment 14C Parish of Narmbool;
Crown Allotment 14D Parish of Narmbool;
Crown Land vested in Council for Fords Lane, Murphys Road, Horsehill Road and Elaine-Blue Bridge Road

The Permit Allows:

Use and development of 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.

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THE FOLLOWING CONDITIONS APPLY TO THIS PERMIT:

DEVELOPMENT PLANS TO BE ENDORSED

1. Before the development starts, development plans must be prepared to the satisfaction of the Minister for Planning. The plans must be drawn to scale with dimensions and three copies must be provided.

The plans may be submitted for approval in stages or for a particular grouping of wind turbines within the subject land.

When approved, the plans will be endorsed by the Minister for Planning and will then form part of this permit.

The plans must show the location and layout of the wind turbines and all on-site buildings and works generally in accordance with the application plans *Section Layout – Topographic (Yendon Section) LL SM[Y] 03 Version 3 dated 20081014* and

Section Layout – Topographic (Elaine Section) LL SM[R] 0032 Version 4 dated 20081014.

The plans must also include:

- a) A list of map coordinates for each wind turbine;
- b) The distance of each wind turbine from the nearest point on the boundary of the subject land;
- c) Details of the model and rated capacity of the wind turbines to be installed;
- d) Elevation drawings, showing the dimensions, of the wind turbines and other permanent on-site buildings (e.g. substation facilities);
- e) Drawings, showing the key physical dimensions, of all on-site buildings and works including:
 - i. wind turbines;
 - ii. access tracks;
 - iii. internal collector network trenches;
 - iv. any temporary concrete batching plant(s);
 - v. the Substation (including any designated car parking areas, signage and landscaping); and
 - vi. any ancillary works (e.g. construction compounds and water tanks);
- f) A description of the materials and finishes of the wind turbines and other permanent on-site buildings;
- g) A description of the location, type and intensity of any aviation obstacle lighting to be installed;
- h) The locations of scattered native trees and the boundaries of any patches of native vegetation, in relation to all buildings and works, in all cases where such trees and patches are within 25 metres of the buildings or works;
- i) A report by a suitably qualified ecological specialist after the completion of a targeted spring survey of vegetation in the vicinity of access gates Y10, Y11, E1, E8, and E3 to demonstrate that adverse impacts on vegetation listed under the Flora and Fauna

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Guarantee Act 1988 and the Environment Protection and Biodiversity Conservation Act 1999 are avoided; and

- j) Turbine Exclusion Zones centred on the transmission vectors for fixed licences of point to point transmissions to which there is a possibility of electromagnetic interference with a width equal or greater than twice the sum of the blade length and 60% of the radius of the first Fresnel zone of any the licensed link. The transmission vectors and the widths of the first Fresnel zones will be determined by a suitably qualified telecommunications expert.

SPECIFICATIONS

2. The Wind Energy Facility must meet the following requirements:

- a) The Wind Energy Facility must comprise no more than 64 wind turbines with no more than:
 - i. 40 wind turbines at the subject land at Yendon; and
 - ii. 24 wind turbines at the subject land at Elaine;
- b) 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;
- c) The wind turbines must be mounted on tubular, steel and/or concrete towers such that the hub of the rotors does not exceed 85 metres above foundation level;
- d) The diameter of the rotor of the wind turbines must not exceed 95 metres;
- e) The rotor of the wind turbines must have only three rotor blades;
- f) The wind turbine towers, nacelles and rotor blades must be of a non-reflective finish and colour that blends with the landscape to the satisfaction of the Minister for Planning;
- g) The colours and finishes of all other buildings and ancillary equipment on-site must be non reflective to minimise the impact of the development on the landscape to the satisfaction of the Minister for Planning;
- h) Access tracks within the subject land must, to the satisfaction of the Minister for Planning:
 - i. have a surface material that will not unduly contrast with the landscape, and
 - ii. be designed to minimise impact on the farming activities on the land, and
 - iii. have an effective trafficable width of not less than 4 metres;
- i) The transformer associated with each wind turbine must be enclosed within the tower;
- j) All new electricity cabling associated with the internal collector network within the Wind Energy Facility must be placed under the ground except with the further written consent of the Minister for Planning;
- k) All wind turbines must be set back at least 50 metres from the boundary of the subject land and public roads;
- l) All wind turbines must be located such that the distance between turbines and transmission vectors for fixed licences of point to point transmissions is equal to or greater than the sum of the blade length and 60% of the radius of the first Fresnel zone of any licensed link. Except in the case of an emergency, no external lighting of infrastructure associated with the Wind Energy Facility, other than low level security lighting and/or aviation obstacle lighting (as required by condition 2(o)) may be installed or operated without the further written consent of the Minister for Planning;
- m) All spare parts and other equipment and materials associated with the use of the Wind Energy Facility must be located in screened, locked storage areas that are inaccessible to the public to the satisfaction of the Minister for Planning;

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- n) All turbines must be located outside the Turbine Exclusion Zones shown on the endorsed development plan(s);
- o) Aviation obstacle lights may be installed but only if they meets the following requirements, except with the further written consent of the Minister for Planning:
 - i. They are restricted to a pair of red medium intensity, intermittent obstacle lights on any wind turbine;
 - ii. The lights are to be baffled so as to restrict the vertical spread of light to not more than three degrees (approximately) with not more than one degree (approximately) below the horizontal;
 - iii. All lights within each section or stage of the Wind Energy Facility must illuminate in unison; and
 - iv. The activation and de-activation of the lights is to be triggered by a luminance sensor with a trigger luminance of 50 candela per square metre (or as otherwise required by the Civil Aviation Safety Authority or law).

STAGING

- 3. The use and development authorised by this permit may be completed in stages as shown on the endorsed development plan(s) to the satisfaction of the Minister for Planning. Any corresponding obligation arising under this permit (including the preparation and approval of plans) may be similarly completed in stages or parts.

LAYOUT NOT ALTERED

- 4. The use and development as shown on the endorsed development plan(s) or other plans to the satisfaction of the Responsible Authority must not be altered or modified without the written consent of the Responsible Authority save that the micro-siting of turbines and the related tracks and reticulation lines will be regarded as generally in accordance with the endorsed development plan(s) if the Responsible Authority is satisfied that it will not give rise to any material adverse change in landscape, vegetation, cultural, visual, shadow or noise impacts compared to the endorsed development plan(s) and:
 - a) A turbine within 1 kilometre of any non-host dwelling is not moved closer to that dwelling; and
 - b) The turbine location is altered by no more than 100 metres and;
 - c) No turbine is located within 50 metres of a title boundary or a road or within a Turbine Exclusion Zone.

PRELIMINARY INVESTIGATIVE WORKS

- 5. For the purposes of this permit, the carrying out of preliminary investigative works, including geotechnical investigations, for the purposes of gathering data or making other assessments necessary or desirable in order to prepare the development plan or other plans specified in this permit, is not considered to be the commencement of the development.

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UPDATE OF AERONAUTICAL CHARTS

6. Not less than thirty days before the construction of any of the wind turbines starts, copies of the endorsed development plan(s) must be provided to the Royal Australian Air Force's Aeronautical Information Service to enable details of the Wind Energy Facility to be shown on aeronautical charts of the area.

ENVIRONMENTAL MANAGEMENT PLAN

7. Before the development starts, an *Environmental Management Plan* must be prepared to the satisfaction of the Minister for Planning by the Wind Energy Facility Operator in consultation with the relevant authorities including at least EPA, DSE, DPI, Corangamite CMA, Central Highlands Water, Barwon Water, Moorabool SC, the relevant waste management authority.

The *Environmental Management Plan* should be based on the approach outlined in Chapter Nine of the exhibited planning application report dated March 2008.

The *Environmental Management Plan* may be prepared in sections or stages.

The *Environmental Management Plan* must include a copy of the development layout plans as endorsed by the Minister for Planning.

When approved, the *Environmental Management Plan* will be endorsed by the Minister for Planning and will then form part of this permit.

- The *Environmental Management Plan* must consider and generally be in accordance with;
- EPA Publication 480: *Environmental Guidelines for Major Construction Sites*;
- EPA Publication 275: *Construction Techniques for Sediment Pollution Control*;
- EPA Publication 891.1: *Code of Practice, Onsite Wastewater Management*;
- EPA Publication 628: *Environmental Guidelines for the Concrete Batching Industry*;
- EPA Publication 347: *Bunding Guidelines*;
- Australian Standard *Customer satisfaction – Guidelines for complaints handling in organizations* (ISO 1002:2006); and
- Australian Standards handbook HB 229 2006 *The Why and How of Complaints Handling*

The *Environmental Management Plan* should, where appropriate, address and include:

- a) Hazardous Materials
 - i. the identification of all hazardous materials used and or stored on-site in connection with the development and use;
 - ii. procedures for the proper handling and storage of hazardous materials on-site;
 - iii. design criteria for any hazardous materials storage facilities on-site; and
 - iv. contingency measures to ensure that any spills or leaks of hazardous materials are contained on-site and cleaned up in accordance with Environment Protection Authority requirements.
- b) Water Contamination, Sediment and Erosion Control
 - i. the identification of all construction and operational processes that could potentially lead to water contamination;
 - ii. the identification of appropriate storage, construction and operational methods to control any identified contamination risks;
 - iii. procedures for the management of contaminated waste water;

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- iv. procedures for the discharge of collected runoff;
 - v. procedures to ensure that silt from batters, cut-off drains, table drains and road works is retained on the site during and after the construction stage of the project. To this end:
 - all land disturbances must be confined to a minimum practical working area and to the vicinity of the identified works areas;
 - soil to be removed must be stockpiled and separate soil horizons must be retained in separate stockpiles and not mixed; and
 - stockpiles must be located away from drainage lines;
 - vi. the installation of geotextile silt fences (with sedimentation basins where appropriate) on all drainage lines from the site which are likely to receive runoff from disturbed areas;
 - vii. procedures to ensure that steep batters are treated appropriately for sediment pollution control;
 - viii. a process for overland flow management to prevent the concentration and diversion of waters onto steep or erosion prone slopes; and
 - ix. a requirement for immediate remediation of localised erosion (specifying a response time).
- c) Waste Control
- i. the identification of waste reuse, recycling and disposal procedures; and
 - ii. pollution management measures for stored and stockpiled materials including waste materials, litter and any other potential source of water pollution.
- d) Sanitation and Wastewater
- Appropriate sanitary facilities and management of the wastewater at the temporary Construction Compound and permanent facilities for construction workers, maintenance staff, operations personnel and visitors.
- e) Construction Practices
- i. procedures, where practical, to construct wind turbine bases, access tracks and power cabling during warmer months to minimise impacts on ephemeral wetlands, local fauna and sediment mobilisation;
 - ii. procedures to protect, as far as practicable, native fauna and domestic stock from being injured by or entrapped in excavations or trenches and to fill trenches as soon as practical after excavation; and
 - iii. procedures for the removal of works, buildings and staging areas on completion of construction of the development.
- f) Concrete Batching Plants
- i. criteria for the design of the temporary concrete batching plants;
 - ii. management procedures to prevent pollution of the local waterways, particularly from wash water and waste concrete materials; and
 - iii. procedures for the operation and removal of any temporary concrete batching plants and for the reinstatement of the site once its use finishes.
- g) Dust
- Procedures to suppress dust from construction related activities.

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h) Native Flora and Fauna Protection

- i. Surveys by an appropriately qualified ecological specialist at an appropriate time of the year before development starts to confirm that construction footprint does not have an adverse impact on native vegetation;
- ii. Before any works start in the vicinity of access points gates Y10, Y11, E1, E8, and E3:
 - A survey, conducted in the Spring, of vegetation in those locations must be undertaken by a suitably qualified ecological specialist;
 - A report by a suitably qualified ecological specialist must be submitted to the Minister and the Department of Sustainability and Environment that sets out the findings of the spring survey and, if vegetation listed under the Flora and Fauna Guarantee Act 1988 or the Environment Protection and Biodiversity Conservation Act 1999 is identified, measures to avoid or minimise adverse impacts on that vegetation must set out;
- iii. Require fauna habitat to be considered if there are any changes to the location of Wind Energy Facility infrastructure;
- iv. Measures to ensure the Wind Energy Facility infrastructure does not have an adverse impact on potential habitat for the Growling Grass Frog;
- v. A pest animal and carrion management plan to be prepared in consultation with the Department of Sustainability and Environment and the Department of Primary Industries.

This plan must include:

- procedures for the ongoing management of pest animal populations (e.g. rabbits) and carrion (including livestock, native animals and pest animals), to lessen the availability of potential prey for raptors within the Wind Energy Facility site; and
- a program of early identification and eradication of pest animal populations and carrion.

i) Pest Management

A Pest Management Plan developed in consultation with the owners of the relevant land that includes:

- i. procedures to prevent the spread of weeds and pathogens from earth moving equipment and associated machinery including the cleaning of all plant and equipment before transport to the site and the use of road making material comprising clean fill that is free of weeds;
- ii. sowing of disturbed areas with perennial grasses or returned to cropping;
- iii. a protocol to ensure follow up weed control is undertaken on all areas disturbed through construction of the Wind Energy Facility for a minimum period of 2 years following completion of the works; and
- iv. procedures for the ongoing management of pest animal populations including a programme of early identification and eradication.

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j) Training

A training program for construction workers, permanent employees and contractors at the Wind Energy Facility site including a site induction program relating to the range of issues addressed by the Environmental Management Plan.

k) Complaints Management

A Complaints Management Plan designed in accordance with *Australian Standard Customer satisfaction – Guidelines for complaints handling in organizations* (ISO 1002:2006) having regard to the guidance provided in *The Why and how of complaints handling* HB 229-2006.

The Complaints Management Plan will include procedures for:

- i. Readily accessible information on how complaints can be made free of cost to complainants;
- ii. Immediate acknowledgement of complaints and regular and comprehensive feedback to complainants on actions proposed, their implementation and success or otherwise;
- iii. Closure of complaints by agreement with complainants;
- iv. Establishment and maintenance of a complaint register for the recording of receipt and acknowledgement of complaints, actions taken, success or otherwise of actions and complaint closure and for the register to be available to the public during normal working hours;
- v. Reporting of the contents of the complaint register to the Responsible Authority as required; and
- vi. Regular, at least annual, auditing of the implementation of the Complaints Management Plan with audit results being reported to the Responsible Authority.

l) Incident Management

- i. A procedure for the establishment and maintenance of an incident register for the recording of:
 - Environmental incidents;
 - Non-conformances; and
 - Corrective actions;
- ii. The register must be available for inspection by the public during normal working hours and its contents should be reported to the Responsible Authority as required.

REVIEW OF THE ENVIRONMENTAL MANAGEMENT PLAN

8. The Environment Management Plan must be reviewed at least once every 5 years, and if necessary amended, in consultation with the Minister for Planning, to reflect operational experience and changes in environmental management standards and techniques. Any amendment of the Environmental Management Plan must be submitted to the Minister for Planning for re-endorsement

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COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLAN

9. The use and development must be carried out in accordance with the endorsed Environmental Management Plan described in condition 7 above to the satisfaction of the Minister for Planning.

COMPLAINTS MADE TO THE RESPONSIBLE AUTHORITY

10. If a complaint is received by the Responsible Authority in regard to the Wind Energy Facility the Responsible Authority will:
 - a) After consideration of the views of the complainant and the Wind Energy Facility Operator, determine if a dispute exists with a dispute being defined as a matter remaining unresolved after application of the Complaints Management Plan;
 - b) If a dispute is not identified, advise the complainant and the Wind Energy Facility Operator that the provisions of the Complaint Management Plan should be utilised; and
 - c) If it is determined that a dispute exists, determine if there is a breach of the permit and if such a breach exists take action to enforce compliance with the permit. In determining whether a breach exists the Responsible Authority may require the Wind Energy Facility Operator to:
 - i. Commission a suitably qualified expert to provide an opinion as to whether a breach exists; and/or
 - ii. Conduct compliance testing.

ON-SITE LANDSCAPING PLAN

11. Within six months of the endorsement of the Development Plan referred to in Condition 1 and before the development starts an On-Site Landscaping Plan must be prepared and approved by the Minister for Planning. When approved the On-Site Landscaping Plan will be endorsed and will then form part of this permit.

The On-Site Landscaping Plan must:

- a) Include plans drawn to scale showing the extent and layout of any landscape plantings to be used to visually screen or otherwise beautify any on-site buildings or works, other than the wind turbines;
- b) Provide details of plant species proposed to be used in the landscape plantings, including height and spread at maturity;
- c) Provide a timetable for the implementation of all landscape plantings; and
- d) Provide for maintenance and monitoring program.

OFF-SITE LANDSCAPING PLAN

12. Within six months of the endorsement of Development Plans under Condition 1 of this permit offers to carry out landscape works to mitigate the visual impact of turbines must be made available to the following parties:
 - a) the owners of all dwellings within 3km kilometres of a turbine where a turbine is visible;
 - b) the Shire of Moorabool as Committee of Management for Lal Lal Reserve;

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- c) the Sovereign Hill Museums Association in relation to the property known as Narmbool; and
- d) St Sava Orthodox Monastery.

The offers must be available up until 12 months after the commissioning of the last wind turbine of the development or relevant stage.

13. If an offer of landscape mitigation works is accepted, an off-site landscaping plan must be prepared for the particular dwelling, by a suitably qualified person, in consultation with the owner of the property to the satisfaction of the Minister for Planning. When approved the plan will be endorsed and will then form part of this permit.

The plan must provide details of planting or other treatments that will be used including:

- a) details of the landscaping necessary to mitigate visual impacts of the Wind Energy Facility, including plant species to be used and the expected height and spread of plants at maturity;
- b) the maintenance of landscaping for a period of two years; and
- c) a timetable for implementation of the landscaping works.

The landscaping as shown on the endorsed off-site landscape plans must be completed within 12 months of the endorsement of the particular plan unless otherwise agreed by the landowner.

The Wind Energy Facility Operator or developer must pay the full cost for design, implementation and maintenance of the Off-Site Landscaping Plans but any of these tasks may be undertaken or arranged by the landowner. The cost must first be agreed between the Wind Energy Facility Operator and the relevant landowner.

TRAFFIC MANAGEMENT PLAN

14. Before the development starts a Traffic Management Plan must be prepared, in consultation with Moorabool Shire Council and VicRoads, to the satisfaction of the Minister for Planning. When approved, the Plan will form part of this permit.

The Traffic Management Plan must:

- a) Consider the use of Woolshed Road rather than Fords Lane as an access to the eastern part of the Elaine site;
- b) Identify all public roads and access points that will be used in the construction and operation of the Wind Energy Facility;
- c) Provide for an existing conditions survey of public roads that will be used in the construction and operation of the Wind Energy Facility including details of the suitability, design, construction standards and condition of the roads to enable, for sealed roads, the calculation of Total ESA (Equivalent Standard Axles) loading for comparison with the appropriate Austroads pavement design guide);
- d) Establish the appropriate existing equivalent renewal pavement design and associated costs in conjunction with Moorabool Shire Council and VicRoads and establish the calculated damage (if any) directly attributable to the Wind Energy Facility and the amount (if any) to be reimbursed to Moorabool Shire Council;

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- e) Include the designation of routes, operating hours and speed limits for oversize vehicles and other heavy vehicles on routes accessing the site so as to avoid interference with the passage of school buses, and to provide for resident safety and the safe management of stock;
- f) Provide details of any large over dimensional vehicles to be used (such as those used for the transport of the nacelles, blades and tower sections) and details of the routes to be taken, the proposed escort arrangements and requirements for over dimensional permits from VicRoads;
- g) Specify the need for road and intersection upgrades to accommodate any additional traffic or site access requirements, whether temporary or ongoing, and the timing of when these upgrades are to be undertaken;
- h) Include measures to be used to manage traffic impacts associated with the ongoing operation of the Wind Energy Facility on the traffic volumes and flows on surrounding roads;
- i) Identify any areas of roadside native vegetation which need removal or pruning and the pruning practices to be followed;
- j) Include the identification and timing of any pre-construction works;
- k) Include a program of regular inspections, to be carried out during the construction period, to identify the need for maintenance works necessary as a result of construction traffic; and
- l) Include agreed criteria that will trigger repair and maintenance works;
- m) Include a program to rehabilitate roads to the pre-existing condition identified by the above surveys;

COMPLIANCE WITH TRAFFIC MANAGEMENT PLAN

15. The traffic management and road upgrade and maintenance works associated with the Wind Energy Facility must be carried out in accordance with the traffic management plan to the satisfaction of the Minister for Planning and the cost of any works including maintenance are to be at the expense of the Wind Energy Facility Operator.

EMERGENCY RESPONSE PLAN

16. Before the development starts an Emergency Response Plan must be prepared and approved by the Minister for Planning. When approved the Emergency Response Plan will be endorsed and will then form part of this permit.

The Emergency Response Plan must be generally be in accordance with "*Emergency Management Guidelines for Wind Farms*" (Country Fire Authority April 2007).

The Emergency Response Plan must be prepared in consultation with:

- Country Fire Authority;
- Victoria Police;
- Rural Ambulance Victoria;
- State Emergency Service; and
- Any other relevant members of the Moorabool Shire's Municipal Emergency Response Management Committee.

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The Emergency Response plan should generally confirm to "*AS 3745-2002 Emergency control organization and procedures for buildings, structures and workplaces*", or any subsequent replacement or amendment.

The Emergency Response plan must include:

- a) criteria for the provision of static water supply tanks, solely for fire fighting purposes, including minimum capacities, appropriate connections and signage;
- b) procedures for vegetation management, fuel control and the provision of fire fighting equipment during declared fire danger periods;
- c) minimum standards for access roads and tracks, to allow access for fire fighting vehicles, including access to static water supply tanks;
- d) the facilitation by the Wind Energy Facility Operator, before or within 3 months after the commencement of operation, of a familiarisation visit to the site and explanation of emergency services procedures for the relevant members of the Country Fire Authority, Rural Ambulance Victoria, Victoria Police, State Emergency Service and Moorabool Shire's Municipal Emergency Response Management Committee;
- e) subsequent familiarisation sessions for new personnel of those organisations as required; and
- f) if requested, training of Country Fire Authority personnel in relation to suppression of Wind Energy Facility fires.

BAT AND BIRD MANAGEMENT PLAN

17. Before the development starts a Bat and Bird Management Plan (BBM Plan) to the satisfaction of the Minister for Planning must be prepared in consultation with the Department of Sustainability and Environment. When approved, the plan will be endorsed and form part of the permit.

The BBM plan must include:

- a) A statement of the objectives and overall strategy for managing and mitigating any significant bird and bat strike arising from the Wind Energy Facility operations;
- b) A monitoring program of at least two years duration from the commissioning of the last turbine including surveys during the breeding and migratory seasons to ascertain:
 - i. The presence, behaviour and movements of any Wedge-tailed Eagles, Hard Head Duck, Blue-billed Duck, Australian Shoveller and Freckled Duck especially breeding pairs in the vicinity of the Wind Energy Facility;
 - ii. The species, number, age, sex (if possible) and date of bird and bat strikes;
 - iii. Procedures for the reporting of any bird or bat strikes to the Department of Sustainability and Environment. Any bird strikes affecting the priority species named in condition 19(b)(i) must be reported to the DSE within 7 days of becoming aware of any strike;
 - iv. Seasonal and yearly variation in the number of bird and bat strikes; and
 - v. The efficacy of searches for carcasses of birds and bats, and where practical, information on the rate of removal of carcasses by scavengers, so that correction factors can be determined to enable calculations of the total number of mortalities;

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- c) Procedures for the regular removal of carrion (including livestock, native animals and pest animals) likely to attract raptors to areas near wind turbines;
 - d) Requirements for periodic reporting, within agreed timeframes of the findings of the monitoring to the Department of Sustainability and Environment;
 - e) Recommendations in relation to a mortality rate for specified species which would trigger the requirement for responsive mitigation measures to be undertaken by the proponent to the satisfaction of the Minister for Planning; and
 - f) Details of any responsive mitigation measures which may be implemented if the trigger mortality rate for a specified species is exceeded.
18. Following the completion of the monitoring program in accordance with the Bat and Bird Management Plan, a Bat and Bird Monitoring Report must be prepared by the Wind Energy Facility Operator setting out the findings of the monitoring program to the satisfaction of the Minister for Planning.

STRATEGY FOR MONITORING AND MITIGATION MEASURES FOR IMPACTS ON ECOLOGICALLY SIGNIFICANT BATS AND BIRDS

19. In the event that impacts detected during the Bat and Bird Management Plan's monitoring programme are considered by the Minister for Planning to be ecologically significant, a Monitoring and Mitigation Measures Strategy must be prepared in consultation with the Department of Sustainability and Environment to the satisfaction of the Minister for Planning. When approved the Monitoring and Mitigation Measures Strategy will be endorsed and will then form part of this permit.

The Monitoring and Mitigation Measures Strategy must include, for each species for which ecologically significant impacts have been detected:

- a) Further monitoring of the 'targeted' species; and
- b) Mitigation measures for 'targeted' species;

all to be implemented to the satisfaction of the Minister for Planning.

TELEVISION AND RADIO RECEPTION AND INTERFERENCE

20. Before the development starts a Television and Radio Reception Plan must be prepared to the satisfaction of the Minister for Planning. When approved the Television and Radio Reception Plan will be endorsed and will then form part of this permit.

The Television and Radio Reception Plan must include:

- a) Definition of the area to be covered by the Television and Radio Reception Plan (the Defined Area) based on the recommendations of a suitably qualified expert;
- b) A pre-construction survey to determine television and radio reception strength at representative locations within the Defined Area, completed prior to the commissioning of any turbine. The location of such monitoring is to be determined by an independent television and radio monitoring specialist appointed by the Wind Energy Facility Operator;
- c) A procedure for post-construction survey at any dwelling in the Defined Area that existed at the date of the pre-construction survey in response to any complaint received regarding the Wind Energy Facility having an adverse effect on television or radio reception; and

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- d) A procedure for the implementation of mitigation measures at any dwelling in the Defined Area that existed at the date of the pre-construction survey if the post-construction survey establishes any increase in interference to reception as a result of the Wind Energy Facility operations. The mitigation measures must return the affected reception to pre-construction quality and be undertaken at the cost of the Wind Energy Facility Operator, all to the satisfaction of the Minister for Planning.

SHADOW FLICKER COMPLIANCE LIMIT

- 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 of Planning.

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.

NOISE LIMITS

- 22. Construction of the Wind Energy Facility must comply with noise criteria specified in the *Interim Guidelines for Control of Noise from Industry in Country Victoria*, N3/89 at any dwelling existing on land in the vicinity of the proposed Wind Energy Facility as at the date of the issue of this permit to the satisfaction of the Minister for Planning.
- 23. Except as provided below in this condition, the operation of the Wind Energy Facility must comply with 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 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 5 dBA, or a level of 40 dBA 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 the measured sound level must have a penalty of 5 dBA 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.

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NOISE COMPLIANCE TESTING

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 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.

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 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 N-1*, 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 Turbine Generators'* with the following criteria being met:
 - The regression curves required must be derived from a data sets:
 - Of at least 500 noise level/wind speed data pairs;
 - Including wind speed measurements made at turbine hub height;
 - Including at least 10 data pairs or 1 % of the total number data pairs whichever is the greater at wind speeds greater than 8 m/s;
 - Including at least 10 data pairs or 1 % of the total number data pairs whichever is the greater at wind speeds less than 4 m/s; and
 - 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

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- ii. 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 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 dwellings for which consent for such testing has been obtained is performed in the 14 months following the commissioning of the last 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 allowed 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 15th 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 suitably qualified acoustic expert to the satisfaction of the Minister for Planning.

NOISE COMPLIANCE ENFORCEMENT

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 *NZS6808:1998 'Acoustics - the Assessment and Measurement of Sound from Wind Turbine Generators* by an amount equal to or greater than the amount the 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 Turbine Generators*;

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- 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;
 - d) Within 60 days of the detection of an exceedance provide the Responsible Authority and the owner/occupier of the dwelling with either:
 - i. The results 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.

DECOMMISSIONING

- 26. The Wind Energy Facility Operator must, no later than one month after all wind turbines have permanently ceased to generate electricity, notify the Minister for Planning in writing of the cessation of the use. Within a further 6 months of this date, the Wind Energy Facility Operator, or in the absence of the operator, the owner of the land on which the relevant turbine(s) is/are located, must prepare a Decommissioning Plan to the satisfaction of the

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Minister for Planning. When approved the Decommissioning Plan will become part of this permit.

27. The Decommissioning Plan must provide for the following:
- a) The removal of all above ground operational equipment;
 - b) The removal and clean up any residual spills or contamination;
 - c) The rehabilitation of all storage, construction, access tracks and other areas affected by the project closure or decommissioning, if not otherwise useful to the on-going management of the subject land.;
 - d) A decommissioning traffic management plan
 - e) A post-decommissioning revegetation management plan.

The Decommissioning Plan must be implemented to the satisfaction of the Minister for Planning within 24 months of approval of the Plan or within such other timeframe as may be specified by the Minister.

BUSINESS IDENTIFICATION SIGNS

28. The total advertisement area to each Business Identification Sign must not exceed 3 square metres.

EXPIRY

29. This permit will expire if one of the following circumstances applies:
- a) the development is not started within 4 years of the date of this permit;
 - b) the development is not completed within 8 years of the date of this permit.

The Minister for Planning, as Responsible Authority, may extend the periods referred to if a request is made in writing before the permit expires, or within three months afterwards.

NOTES

For the purpose of this permit, a host means the land holder of a property with a contract in respect of the installation of associated wind turbines on that person's property.

This permit does not obviate the need for a permit for native vegetation removal where required.

DPCD

Date Issued: _____

Signature for the Minister:

Appendix C: Recommended Native Vegetation Permit

Planning and Environment Regulations 2005 Form 11
Section 97F
PLANNING PERMIT GRANTED BY THE MINISTER UNDER
DIVISION 6 OF PART 4 OF THE PLANNING AND ENVIRONMENT ACT 1987

PLANNING PERMIT **Permit No:**2008/208

Planning Scheme: Moorabool Planning Scheme

Responsible Authority: Minister for Planning

Responsible Authority for Moorabool Shire Council
Administration and
Enforcement of this
Permit:

ADDRESS OF THE LAND: Generally described as

Land in Yendon:

- Crown Land vested in council for Yendon-Egerton Road and Crown Land vested in council for Duggans Lane, specifically that part of the road reserve on the southwest and southeast corners of the intersection of these two roads as well as the western and eastern side of Duggans Lane to a distance some 250 metres south of the intersection; generally adjacent to Crown Allotment 2, Section 5 in the Parish of Lal Lal and
- Crown Allotment 2, Section 6 in the Parish of Lal Lal; and
- Crown Land vested in council for Harris Road, specifically that part of the road reserve on the western and eastern side of Harris Road between a distance of approximately 1030 metres and 1080 metres south of the intersection with Yendon-Egerton Road that is adjacent to Crown Allotment 43 in the Parish of Kerit Bareet and Lot 1 Title Plan 162602.

Land in Elaine:

- Crown Land for the Midland Highway and Crown Land vested in council for Murphys Road, specifically that part of the road reserves on the northeast and southeast corners of the intersection of these two roads that is adjacent to Crown Allotments 16A and 17B in the Parish of Narmbool; and
- Crown Land for the Midland Highway and Crown Land vested in council for Fords Lane, specifically that part of the road reserves on the northwest and southwest corners of the intersection of these two roads that is adjacent to Crown Allotments 16 and 14 in the Parish of Narmbool; and
- Crown Land vested in council for Murphys Road, specifically that part of the road reserve on the northern and southern side of Murphys Road between a distance of approximately 800 metres and 1,000 metres east of the intersection with Midland Highway that is adjacent to Crown Allotments 48, 52, 17A, 16A and 47 in the Parish of Narmbool; and

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- Crown Land vested in council for Elaine-Blue Bridge Road, specifically that part of the road reserve on the western and eastern side of Elaine-Blue Bridge Road between a distance of approximately 1,320 metres and 1,370 metres south of the intersection with Murphys Road that is adjacent to Crown Allotments 53 and 55A in the Parish of Narmbool; and
- Crown Land vested in council for Elaine-Blue Bridge Road, specifically that part of the road reserve on the western and eastern side of Elaine-Blue Bridge Road between a distance of approximately 70 metres and 120 metres south of the intersection with Murphys Road that is adjacent to Plan of Consolidation 368001 and Crown Allotment 55A in the Parish of Narmbool; and
- Crown Land vested in council for Horsehill Road, specifically that part of the road reserve on the western and eastern side of Horsehill Road between a distance of approximately 350 metres and 400 metres north of the intersection with Narmbool Road that is adjacent to Crown Allotments 15, 11B and 22A in the Parish of Narmbool.
- Crown Land vested in council for Horsehill Road, specifically that part of the road reserve on the western and eastern side of Horsehill Road between a distance of approximately 350 metres and 400 metres north of the intersection with Narmbool Road that is adjacent to Crown Allotments 15, 11B and 22A in the Parish of Narmbool.

Generally described as

Land in Yendon:

Duggan Lane; and
McGuigans Road

Land in Elaine:

Corner of Murphy's Road and Fords Lane;
Settlement Road
Murphy's Road
Elaine – Blue Bridge Road; and
Horsehill Road.

THE PERMIT ALLOWS: **Native vegetation to be removed, lopped or destroyed**

THE FOLLOWING CONDITIONS APPLY TO THIS PERMIT:

SPRING SURVEY

PLANS TO BE ENDORSED

1. Before the works start, plans must be prepared to the satisfaction of the Minister for Planning. The plans must be drawn to scale with dimensions and three copies must be provided. When approved, the plans will be endorsed by the Minister for Planning and will then form part of this permit.
2. Before any works start in the vicinity of access points gates Y10, Y11, E1, E8, and E3:
 - a) A survey of vegetation in those locations must be undertaken in spring by a suitably qualified ecological specialist; and
 - b) A report by a suitably qualified ecological specialist must be submitted to the Minister and the Department of Sustainability and Environment that sets out the findings of the spring survey and, if vegetation listed under the *Flora and Fauna Guarantee Act 1988* or the *Environment Protection and Biodiversity Conservation Act 1999* is identified, measures to avoid or minimise adverse impacts on that vegetation must set out.

FURTHER CONSENT

3. If it is proposed to remove or destroy vegetation identified in the surveys required by condition 2(a) of this permit that is listed under the *Flora and Fauna Guarantee Act 1988* or the *Environment Protection and Biodiversity Conservation Act 1999*, further consent in writing must be obtained from the Department of Sustainability and Environment.

DEVELOPMENT PLANS

4. All works must be in accordance with the endorsed plan, unless otherwise approved in writing by the responsible authority.
5. Before works start, temporary fencing or tape must be installed around areas of native vegetation to be retained, to the satisfaction of the responsible authority.
6. Works must not cause damage to native vegetation stands to be retained. Vehicular access beneath large trees and habitat trees must be prevented.
7. Tree trimming operations must be undertaken using the natural target pruning 'three cut method' as described in the 'Roadside Handbook: An Environmental Guide for Road Construction and Maintenance' (VicRoads 2006)'.

NET GAIN OFFSET PLAN

8. Before removal of native vegetation starts, a net gain offset plan must be prepared by a suitably qualified ecological specialist and submitted to and approved by the Department of Sustainability and Environment. Once approved, the plan will be endorsed and will then form part of the permit. The offset plan must include the following:
 - a) Details of the proposed offsets which will achieve a net gain in quality and quantity of native vegetation in accordance with the principles and guidelines associated with the *Native Vegetation Management: A Framework for Action (DSE 2002)*;
 - b) Fully dimensioned plans (drawn to an appropriate scale), which clearly show the locations, boundaries and title details of all offset sites. The plans must also clearly show the boundaries of any different management zones and the location of any proposed fencing;
 - c) Type of offsets to be provided for each location;
 - d) Details of revegetation including number of trees, shrubs and other plants, species mix and density (consistent with the characteristics of the relevant Ecological Vegetation Class);
 - e) Methods of managing and restoring the vegetation, including revegetation, such as fencing, weed control, enhancement planting and other habitat management actions;
 - f) Pest plan and animal control methods.
 - g) A statement of the need to source local seed stock and options available for sourcing of local seed;
 - h) A statement of the need for revegetation works to be carried out by a suitably qualified ecological specialist;
 - i) Methods of permanent protection for the offsets, such as the registration on title of an agreement under Section 173 of the *Planning and Environment Act 1987*, an agreement under Section 69 of the *Conservation Forests and Lands Act 1987*, or a covenant under section 3A of the *Victorian Conservation Trust Act 1972*;
 - j) Persons responsible for implementing and monitoring the offset plan; and
 - k) A schedule of management actions, which documents how the net gain outcomes will be achieved within a 10 year timeframe.
9. Prior to the commencement of native vegetation removal, all offset sites must be legally secured by means of the registration of an on-title agreement or covenant to the satisfaction of the Department of Sustainability and Environment and the responsible authority.
10. All actions specified in the endorsed offset plan must be completed within the specified timeframes, to the satisfaction of the Department of Sustainability and Environment and the responsible authority.

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11. The disturbed roadside areas shall be revegetated as soon as practicable to minimise soil erosion.

EXPIRY

12. This permit will expire if one of the following circumstances applies:

- a) the development is not started within 4 years of the date of this permit;
or
- b) the development is not completed within 8 years of the date of this permit.

The Minister for Planning as Responsible Authority may extend the periods referred to if a request is made in writing before the permit expires, or within three months afterwards.

Date Issued:

NOTE:

Further permits may be required pursuant to the *Flora and Fauna Guarantee Act 1988* and *Environment Protection and Biodiversity Conservation Act 1999* to remove vegetation listed under those Acts.

Signature for the Minister

Appendix D: Draft Permit Conditions

~~WESTWIND ENERGY PROPOSED~~ DRAFT PLANNING PERMIT & CONDITIONS
~~FOR LAL LAL WIND FARM~~ WEF (DISCUSSED AT HEARING)

THE FOLLOWING CONDITIONS APPLY TO THIS PERMIT:

DEVELOPMENT PLANS TO BE ENDORSED

1. Before the development starts, plans must be prepared to the satisfaction of the Minister for Planning. The plans must be drawn to scale with dimensions and three copies must be provided.

The plans may be submitted for approval in stages or for a particular grouping of wind turbines within the subject land.

When approved, the plans will be endorsed by the Minister for Planning and will then form part of this permit.

The plans must be generally in accordance with the application plans as identified in Figure 5.1 and Figure 5.6 of the exhibited planning permit application report dated March 2008.

The plans must show the location and layout of the wind turbines and all on-site buildings and works.

The plans must also include:

- a) A list of map coordinates for each wind turbine.
- b) The distance of each wind turbine from the nearest point on the boundary of the subject land.
- c) Details of the model and rated capacity of the wind turbines to be installed.
- d) Elevation drawings, showing the dimensions, of the wind turbines and other permanent on-site buildings (e.g. switchyard facilities).
- e) Drawings, showing the key physical dimensions, of the on-site buildings and works including;
 - i. wind turbines;
 - ii. access tracks;
 - iii. internal collector network trenches;
 - iv. any temporary concrete batching plant(s);
 - v. the switchyard facilities (including any designated car parking areas, signage and landscaping); and
 - vi. any ancillary works (e.g. construction compounds and water tanks).
- f) A description of the materials and finishes of the wind turbines and other permanent on-site buildings.
- g) A description of the location, type and intensity of any aviation obstacle lighting to be installed.
- h) The locations of scattered native trees and the boundaries of any patches of native vegetation, in relation to all buildings and works, in all cases where such trees and patches are within 25 metres of the buildings or works.

~~WESTWIND ENERGY PROPOSED~~ DRAFT PLANNING PERMIT & CONDITIONS
~~FOR LAL LAL WIND FARM~~ WEF (DISCUSSED AT HEARING)

SPECIFICATIONS

2. The wind energy facility must meet the following requirements:
- a. The wind energy facility must comprise no more than 64 wind turbines with no more than;
 - i. 40 wind turbines at the subject land at Yendon and
 - ii. 24 wind turbines at the subject land at Elaine.
 - b. 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.
 - c. The wind turbines must be mounted on tubular, steel and/or concrete towers such that the hub of the rotors does not exceed 85 metres above foundation level.
 - d. The diameter of the rotor of the wind turbines must not exceed 95 metres.
 - e. The rotor of the wind turbines must have only three rotor blades.
 - f. The wind turbine towers, nacelles and rotor blades must be of a non-reflective finish and pale gray in colour (or another colour that blends with the landscape) to the satisfaction of the Minister for Planning.
 - g. The colours and finishes of all other permanent buildings and ancillary equipment on-site must be such as to minimise the impact of the development on the landscape to the satisfaction of the Minister for Planning.
 - h. Access tracks within the subject land must have a surface material that will not unduly contrast with the landscape to the satisfaction of the Minister for Planning.
 - i. The transformer associated with each wind turbine must be enclosed within the tower.
 - j. Access tracks within the subject land are to be designed to minimise impact on the farming activities on the land, to the satisfaction of the Minister for Planning.
 - k. Access tracks within the subject land must have an effective width of not less than 4 metres.
 - l. All new electricity cabling associated with the internal collector network within the wind energy facility must be placed under the ground except with the further written consent of the Minister for Planning.
 - m. All wind turbines must be set back at least 50 metres from the boundary of the subject land and public roads.
 - n. Except in the case of an emergency, no external lighting of infrastructure associated with the wind energy facility, other than low level security lighting and/or aviation obstacle lighting (set out in subsection o) above) may be installed or operated without the further written consent of the Minister for Planning.
 - o. All spare parts and other equipment and materials associated with the use of the wind energy facility must be located in screened, locked storage areas that are inaccessible to the public to the satisfaction of the Minister for Planning.

~~WESTWIND ENERGY PROPOSED~~ DRAFT PLANNING PERMIT & CONDITIONS
~~FOR LAL LAL WIND FARM~~ WEF (DISCUSSED AT HEARING)

- p. Aviation obstacle lights may be installed provided it meets the following requirements, except with the further written consent of the Minister for Planning:
- i. They are restricted to a pair of red medium intensity, intermittent obstacle lights on any wind turbine;
 - ii. The lights are to be baffled so as to restrict the vertical spread of light to not more than three degrees (approximately) with not more than one degree (approximately) below the horizontal;
 - iii. All lights within each section or stage of the Wind Energy Facility must illuminate in unison;
 - iv. The activation and de-activation of the lights is to be triggered by a luminescence sensor with a trigger luminance of 50 candela per square metre (or as otherwise required by law).

STAGING

3. The use and development authorised by this permit may be completed in stages as shown on the endorsed development plan(s) to the satisfaction of the Minister for Planning, and any corresponding obligation arising under this permit (including the preparation and approval of plans) may be similarly completed in stages or parts.

MICRO-SITING

4. Alteration to the location of any wind turbine by no more than 100 metres, including any consequential changes to access tracks and electricity cabling associated with the internal collector network, will be regarded as being generally in accordance with the endorsed plans provided that this micro siting will not result in any material detriment when compared to those of the endorsed plans. Otherwise the development as shown on the endorsed plans must not be altered or modified without the written consent of the Minister for Planning.

PRELIMINARY INVESTIGATIVE WORKS

5. For the purposes of this permit, the carrying out of preliminary investigative works, including geotechnical investigations, for the purposes of gathering data or making other assessments necessary or desirable in order to prepare the development plan or other plans specified in this permit, is not considered to be the commencement of the development.

UPDATE OF AERONAUTICAL CHARTS

6. Not less than thirty days prior to the commencement of construction of any of the wind turbines, copies of the endorsed plans must be provided to the Royal Australian Air Force's Aeronautical Information Service to enable details of the wind energy facility to be shown on aeronautical charts of the area.

ENVIRONMENTAL MANAGEMENT PLAN

7. Before the development commences, an *Environmental Management Plan* must be prepared to the satisfaction of the Minister for Planning by the Wind Energy Facility Operator.

~~WESTWIND ENERGY PROPOSED~~ DRAFT PLANNING PERMIT & CONDITIONS
~~FOR LAL LAL WIND FARM~~ WEF (DISCUSSED AT HEARING)

The *Environmental Management Plan* should be based on the approach outlined in Chapter Nine of the exhibited planning application report dated March 2008.

The *Environmental Management Plan* may be prepared in sections or stages.

The *Environmental Management Plan* shall include a copy of the development layout plans as endorsed by the Minister for Planning.

When approved, the *Environmental Management Plan* will be endorsed by the Minister for Planning and will then form part of this permit.

The *Environmental Management Plan* must consider and generally be in accordance with;

- EPA Publication 480: Environmental Guidelines for Major Construction Sites,
- EPA Publication 275: Construction Techniques for Sediment Pollution Control,
- EPA Publication 891.1: Code of Practice, Onsite Wastewater Management,
- EPA Publication 628: Environmental Guidelines for the Concrete Batching Industry, and
- EPA Publication 347: Bunding Guidelines

The *Environmental Management Plan* should, where appropriate, address and include:

- a. Hazardous Materials
 - i. the identification of all hazardous materials used and or stored on-site in connection with the development and use;
 - ii. procedures for the proper handling and storage of hazardous materials on-site;
 - iii. design criteria for any hazardous materials storage facilities on-site; and
 - iv. contingency measures to ensure that any spills or leaks of hazardous materials are contained on-site and cleaned up in accordance with
 - v. Environment Protection Authority requirements.
- b. Water Contamination, Sediment and Erosion Control
in consultation with Corangamite Catchment Management Authority, Central Highlands Water and Barwon Water
 - i. the identification of all construction and operational processes that could potentially lead to water contamination;
 - ii. the identification of appropriate storage, construction and operational methods to control any identified contamination risks;
 - iii. procedures for the management of contaminated waste water;
 - iv. procedures for the discharge of collected runoff;
 - v. procedures to ensure that silt from batters, cut-off drains, table drains and road works is retained on the site during and after the construction stage of the project. To this end:
 - all land disturbances must be confined to a minimum practical working area and to the vicinity of the identified works areas;
 - soil to be removed must be stockpiled and separate soil horizons must be retained in separate stockpiles and not mixed; and

~~WESTWIND ENERGY PROPOSED~~ DRAFT PLANNING PERMIT & CONDITIONS
~~FOR LAL LAL WIND FARM~~ WEF (DISCUSSED AT HEARING)

- stockpiles must be located away from drainage lines;
- vi. the installation of geotextile silt fences (with sedimentation basins where appropriate) on all drainage lines from the site which are likely to receive runoff from disturbed areas;
- vii. procedures to ensure that steep batters are treated appropriately for sediment pollution control;
- viii. a process for overland flow management to prevent the concentration and diversion of waters onto steep or erosion prone slopes; and
- ix. a requirement for immediate remediation of localised erosion (specifying a response time).
- c. Waste Control
 - i. the identification of waste reuse, recycling and disposal procedures; and
 - ii. pollution management measures for stored and stockpiled materials including waste materials, litter and any other potential source of water pollution.
- d. Sanitation and Wastewater
in consultation with Central Highlands Water and Barwon Water
 - i. appropriate sanitary facilities at the temporary Construction Compound and permanent switchyard facilities for construction workers, maintenance staff and visitors; and
 - ii. a Land Capability Assessment to determine the suitable siting and management requirements for the management of the wastewater resulting from the sanitary facilities at the temporary Construction Compound and permanent Switchyard Facilities including a program for annual inspection and regular maintenance.
- e. Construction Practices
 - i. procedures, where practical, to construct wind turbine bases, access tracks and power cabling during warmer months to minimise impacts on ephemeral wetlands, local fauna and sediment mobilisation;
 - ii. procedures to protect, as far as practicable, native fauna and domestic stock from being injured by or entrapped in excavations or trenches and to fill trenches as soon as practical after excavation; and
 - iii. procedures for the removal of works, buildings and staging areas on completion of construction of the development.
- f. Concrete Batching Plants
 - i. criteria for the siting and design of any temporary concrete batching plants including a requirement that any on-site wastewater disposal treatment fields are at least 100 metres from any natural watercourse;
 - ii. management procedures to prevent pollution of the local waterways, particularly from wash water and waste concrete materials; and
 - iii. procedures for the operation and removal of any temporary concrete batching plants and for the reinstatement of the site once its use finishes.

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- g. Dust
 - i. procedures to suppress dust from construction-related activities;
- h. Native Flora and Fauna Protection
 - i. {to be updated to reflect comments from joint statement of Lane and Venosta}.
- i. Pest Management
 - in consultation with the owners of the relevant subject land, Department of Primary Industries and Department of Sustainability and Environment
 - i. procedures to prevent the spread of weeds and pathogens from earth moving equipment and associated machinery including the cleaning of all plant and equipment before transport to the site and the use of road making material comprising clean fill that is free of weeds;
 - ii. sowing of disturbed areas with perennial grasses or returned to cropping;
 - iii. a protocol to ensure follow up weed control is undertaken on all areas disturbed through construction of the wind energy facility for a minimum period of 2 years following completion of the works; and
 - iv. procedures for the ongoing management of pest animal populations including a programme of early identification and eradication.
- j. Training
 - v. A training program for construction workers and permanent employees or contractors at the wind energy facility site including a site induction program relating to the range of issues addressed by the Environmental Management Plan.
- k. Complaints Management.
 - i. A procedure for the management of complaints by the Wind energy facility Operator. The procedure must include:
 - a telephone service (at local call cost) for the lodgement of complaints;
 - erection of a sign at the switchyard facilities advising of the complaints telephone number;
 - minimum recording requirements for complaints (that is: date, time, complaint description and, if appropriate, the weather conditions and operational status of wind turbines); and
 - a response protocol for substantive complaints including, but not limited to, reporting to relevant regulatory authorities or agencies, determination and implementation of correction actions and preventative measures to be adopted in response to the substantive complaints and timely advise to complainants of any action taken.
- l. Reporting and Review Procedures
 - i. A procedure for reporting must be established including establishment and maintenance of registers for the recording of

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- environmental incidents,
 - non-conformances,
 - complaints, and
 - corrective actions.
- ii. The registers may be inspected by the relevant regulatory authorities or agencies;
- iii. The complaints evaluation and response protocol should include an annual review; and
- iv. The *Environment Management Plan* must be reviewed at least once every 5 years, and if necessary amended, in consultation with the Minister for Planning, to reflect operational experience and changes in environmental management standards and techniques. Any amendment of the *Environmental Management Plan* must be submitted to the Minister for Planning for re-endorsement.

COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLAN

8. The use and development must be carried out in accordance with the endorsed *Environmental Management Plan* described in condition 7 above to the satisfaction of the Minister for Planning.

ON-SITE LANDSCAPING PLAN

9. Before the development commences an On-Site Landscaping Plan must be prepared and approved by the Minister for Planning. When approved the On-Site Landscaping Plan will be endorsed and will then form part of this permit.

The On-Site Landscaping Plan must:

- a) Include plan drawings showing the landscape plantings to be used to visually screen or otherwise beautify any on-site buildings, other than the wind turbines
- b) Provide details of plant species proposed to be used in the landscape plantings, including height and spread at maturity;
- c) Provide a timetable for the implementation of all landscape plantings; and
- d) Provide for a maintenance and monitoring program.

OFF-SITE LANDSCAPING PLAN

10. Before the development commences an Off-Site Landscaping Plan must be prepared and approved by the Minister for Planning. When approved the Off-Site Landscaping Plan will be endorsed and will then form part of this permit.

The Off-Site Landscaping Programme must:

- a) Be made available (up until 12 months after the commissioning of the last wind turbine of the development or relevant stage) to the owners of dwellings existing as at 7 March 2008, that are within 2 km of any wind turbine;
- b) Provide for a programme of voluntary landscape planting that mitigates the visual impact of the wind turbines at the dwelling;

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- c) Be undertaken by the dwelling owner but at the cost of the operator of the Wind Energy Facility, the cost to first be agreed between the operator of the Wind Energy Facility and the relevant dwelling owner;
- d) Provide details of the plant species to be used, including the height and spread of plants at maturity; and
- e) Provide a timetable as agreed with relevant dwelling owners for the implementation of plantings and associated works.

TRAFFIC MANAGEMENT PLAN

11. Before the development commences a Traffic Management Plan must be prepared and approved by the Minister for Planning. When approved the Traffic Management Plan will be endorsed and will then form part of this permit.

The Traffic Management Plan must be prepared in consultation with the relevant officers of Moorabool Shire Council and VicRoads to the satisfaction of the Minister for Planning.

The Traffic Management Plan must:

- a) Identify public roads and access points that will be used in the construction and maintenance of the wind energy facility.
- b) Provide for an existing conditions survey of public roads that will be used in the construction and maintenance of the wind energy facility;
- c) Include the designation of operating hours for oversize vehicles on routes accessing the site so as to avoid interference with the passage of school buses;
- d) Include the designation of speed limits for trucks accessing the site;
- e) Provide details of any large over dimensional vehicles to be used (such as those used for the transport of the nacelles, blades and tower sections) and details of the transport route to be taken, the proposed escort arrangements and requirements for over dimensional permits from VicRoads;
- f) Provide recommendations on the need for road and intersection upgrades to accommodate any additional traffic or site access requirements, whether temporary or on-going, and the timing of when these upgrades are to be undertaken;
- g) Include measures to be used to manage traffic impacts associated with the ongoing operation of the wind energy facility on the traffic volumes and flows on surrounding roads;
- h) Include a program of regular inspections, to be carried out during the construction period, to identify the need for maintenance works necessary as a result of construction traffic;
- i) Include agreed criteria that will trigger repair and maintenance works; and
- j) Include a program to rehabilitate roads to the pre-existing condition identified by the above surveys.

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COMPLIANCE WITH TRAFFIC MANAGEMENT PLAN

12. The traffic management and road upgrade and maintenance works associated with the wind energy facility must be carried out in accordance with the Traffic Management Plan described in condition 11 above to the satisfaction of the Minister for Planning. The cost of any works, including maintenance, are to be at the reasonable expense of the permit holder to the satisfaction of the Minister for Planning.

EMERGENCY RESPONSE PLAN

13. Before the development commences an Emergency Response Plan must be prepared and approved by the Minister for Planning. When approved the Emergency Response Plan will be endorsed and will then form part of this permit.

The Emergency Response Plan shall generally be in accordance with "*Emergency Management Guidelines for Wind Farms*" (Country Fire Authority April 2007).

The Emergency Response Plan shall be prepared in consultation with:

- Country Fire Authority,
- Victoria Police,
- Rural Ambulance Victoria,
- State Emergency Service, and
- Any other relevant members of the Moorabool Shire's Municipal Emergency Response Management Committee.

The Emergency Response plan should generally confirm to "*AS 3745-2002 Emergency control organization and procedures for buildings, structures and workplaces*", or any subsequent replacement or amendment.

The Emergency Response plan must include:

- a) criteria for the provision of static water supply tanks, solely for fire fighting purposes, including minimum capacities, appropriate connections and signage;
- b) procedures for vegetation management, fuel control and the provision of fire fighting equipment during declared fire danger periods;
- c) minimum standards for access roads and tracks, to allow access for fire fighting vehicles, including access to static water supply tanks;
- d) the facilitation by the operator of the Wind Energy Facility, before or within 3 months after the commencement of operation, of a familiarisation visit to the site and explanation of emergency services procedures for the relevant members of the Country Fire Authority, Rural Ambulance Victoria, Victoria Police, State Emergency Service and Moorabool Shire's Municipal Emergency Response Management Committee;
- e) subsequent familiarisation sessions for new personnel of those organisations as required; and
- f) if requested, training of Country Fire Authority personnel in relation to suppression of Wind Energy Facility fires.

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BAT AND AVIFAUNA MANAGEMENT PLAN

14. Before the development commences Bat and Avifauna Management Plan must be prepared in consultation with the Department of Sustainability and Environment, biodiversity section to the satisfaction of the Minister for Planning. The Bat and Avifauna Management Plan must be approved by the Minister for Planning. When approved the Bat and Avifauna Management Plan will be endorsed and will then form part of this permit.

The Bat and Avifauna Management Plan must include:

- a) A statement of the objectives and overall strategy for managing and mitigating any significant bird and bat strike arising from the operation of the Wind Energy Facility;
- b) A monitoring program of at least two years duration from the commissioning of the last wind turbine of development or relevant stage, including surveys during the breeding and migratory seasons to ascertain:
 - the presence and relevant behaviour of any Wedge-tailed Eagles especially breeding pairs within the Wind Energy Facility;
 - procedures for the reporting of any bird and bat strikes to the Department of Sustainability and Environment within 7 days of becoming aware of any strike (where practicable such procedures must document species, number, age and sex);
 - seasonal and yearly variation in the number of bird and bat strikes;
 - 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 total number of strikes;
 - procedures for the regular removal of carrion (including livestock, native animals and pest animals) likely to attract raptors to areas near wind turbines;
 - requirements for periodic reporting, within agreed timeframes, of the findings of the monitoring to Department of Sustainability and Environment;
 - a requirement for the preparation of a *Bat and Avifauna Monitoring Report*, following completion of the monitoring programme, setting out the findings of the monitoring programme to be submitted to the Minister for Planning and the Department of Sustainability and Environment; and
 - recommendations in relation to a mortality rate for specified species which would trigger the requirement for responsive mitigation measures to be undertaken by the operator of the Wind Energy Facility, including details of those mitigation measures, to the satisfaction of the Minister for Planning.

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STRATEGY FOR MONITORING AND MITIGATION MEASURES FOR ECOLOGICALLY SIGNIFICANT BAT AND AVIFAUNA IMPACTS

15. In the event that impacts detected during the Bat and Avifauna Management Plan's monitoring programme are considered by the Minister for Planning to be ecologically significant, a Monitoring and Mitigation Measures Strategy must be prepared in consultation with the Department of Sustainability and Environment (biodiversity section) to the satisfaction of the Minister for Planning. The Monitoring and Mitigation Measures Strategy must be approved by the Minister for Planning. When approved the Monitoring and Mitigation Measures Strategy will be endorsed and will then form part of this permit.

The Monitoring and Mitigation Measures Strategy must include, for each species for which ecologically significant impacts have been detected:

- a. The development of further 'targeted' (species specific) monitoring;
- b. The development of 'targeted' (species specific) mitigation measures;

all to be implemented to the satisfaction of the Minister for Planning.

TELEVISION AND RADIO RECEPTION AND INTERFERENCE

16. Before the development commences Television and Radio Reception Plan must be prepared to the satisfaction of the Minister for Planning. The Television and Radio Reception Plan must be approved by the Minister for Planning. When approved the Television and Radio Reception Plan will be endorsed and will then form part of this permit.

The Television and Radio Reception Plan should include:

- a) A pre-construction survey to determine television and radio reception strength at representative locations up to 3 km from any wind turbine. The location of such monitoring is to be determined by an independent television and radio monitoring specialist appointed by the operator of the Wind Energy Facility.
- b) A procedure for post-construction survey at any dwelling in the area extant at the date of the pre-construction survey in response to any complaint received regarding the wind energy facility having an adverse effect on television or radio reception.
- c) A procedure for the implementation of mitigation measures at any dwelling in the area which existed at the date of the pre-construction survey if the post-construction survey establishes any increase in interference to reception as a result of the wind energy facility operations. The mitigation measures shall return the affected reception to pre-construction quality and be undertaken at the cost of the wind energy facility operator, all to the satisfaction of the Minister for Planning.

SHADOW FLICKER COMPLIANCE LIMIT

17. Shadow flicker from the wind energy facility must not exceed 30 hours per annum at any dwelling existing as at 7 March 2008 to the satisfaction of the Minister of Planning.

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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 shall apply to any occupant of the dwelling and must be registered on title.

PRE-CONSTRUCTION NOISE MONITORING

18. A pre-construction background noise monitoring programme must be commissioned by the proponent and undertaken by an independent expert experienced in acoustic measurement and analysis of wind turbine noise all to the satisfaction of the Minister for Planning.

The program must be carried out in accordance with *New Zealand Standard 6808:1998 The Assessment and Measurement of Sound from Wind Turbine Generators*.

For the protection of residential amenity, the pre-construction background noise monitoring programme shall be offered to [insert list of houses] and have specific regard to night time background noise levels.

NOISE COMPLIANCE LIMIT

19. Noise immission resulting from the operation of the wind energy facility at any dwelling existing on 7 March 2008, when measured outdoors, within 20 metres of the dwelling, at any relevant nominated wind speed, must not exceed the greater of:
- i. the background level by more than 5 dBA L₉₅; and
 - ii. a level of 40 dBA L₉₅,

The methodology to be used for determining compliance with this condition shall be, where appropriate and unless otherwise specified, that set out in the *New Zealand Standard 6808:1998 The Assessment and Measurement of Sound from Wind Turbine Generators*.

Compliance with this noise immission limit must be separately assessed with regard to night times (night time is defined as 10 pm to 7 am). For sleep protection purposes, a breach of this standard for 10% of the night amounts to a breach of this condition.

Compliance with this condition must be demonstrated to the satisfaction of the Minister of Planning as per the requirements of condition 20 below.

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 shall apply to any occupant of the dwelling and must be registered on title.

POST-CONSTRUCTION NOISE MONITORING

20. A post-construction noise monitoring programme must be commissioned by the operator of the Wind Energy Facility and undertaken by an independent expert experienced in acoustic measurement and analysis of wind turbine noise all to the satisfaction of the Minister for Planning. The program must be carried out in accordance with *New Zealand Standard 6808:1998 The Assessment and Measurement of Sound from Wind Turbine Generators*.

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The post-construction noise monitoring programme must commence within two months of the commissioning of the last wind turbine of the relevant section or stage of the Wind Energy Facility. The date at which 'commissioning' has deemed to have occurred and the extent of the post-construction noise monitoring programme (with regard to timing, programme design, determination of compliance, any remedial action and information dissemination) shall be agreed between the Minister for Planning and the operator of the Wind Energy Facility.

The results of the post-construction noise monitoring program, data and details of compliance and/or non-compliance must be forwarded to the Minister for Planning within 45 days of the end of the monitoring period. The results must be written in plain English.

NOISE COMPLAINTS MANAGEMENT

21. Complaints regarding wind turbine operational noise must be dealt with in accordance with the Environmental Management Plan described in condition 7 above.

Where a substantive complaint identifies a breach of this permit relating to wind turbine operational noise, the complaint shall be reported to the Minister for Planning and the procedures for Noise Compliance Enforcement described in condition 22 below shall be implemented.

NOISE COMPLIANCE ENFORCEMENT

22. If the post-construction noise monitoring programme or investigation of a complaint shows non-compliance with the noise immission limit set in condition 19 above the operator of the Wind Energy Facility shall, within 30 days, provide the Responsible Authority and make publicly available a detailed Noise Remediation Plan that includes a description of actions proposed to be taken to secure compliance including time lines for implementation.

Preventative measures to be considered for the Noise Remediation Plan shall include;

- a) noise optimisation of the relevant wind turbine(s) under the same meteorological circumstances as occurred at the time of the complaint, and
- b) selective shut down of the relevant wind turbine(s) in the same meteorological circumstances, and
- c) the decommissioning of the relevant wind turbine(s).

Within 60 days of approval of the Noise Remediation Plan by the Responsible Authority, the operator of the Wind Energy Facility shall implement those actions that are possible within the time period, and any additional interim actions, pending longer term modifications, to bring the Wind Energy Facility into compliance with the Noise Limit.

Within 30 days of implementation of all the actions of the Noise Remediation Plan the operator of the Wind Energy Facility shall repeat the post construction noise monitoring programme described in condition 20 above.

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Should subsequent noise monitoring programme demonstrate a continuing non-compliance with the Noise Limit that will be deemed to be a breach of this permit.

DECOMMISSIONING

23. The Wind energy facility Operator must, without delay, notify the Minister for Planning in writing as soon as all of the wind turbines have permanently ceased to generate electricity. Within 12 months of this date, the operator of the Wind Energy Facility, or in the absence of the operator the owner of the land of which the relevant wind turbines are located, must undertake the following to the satisfaction of the Minister for Planning and within such timeframe as may be specified by the Minister for Planning:

- a) remove all above ground non-operational equipment;
- b) clean up and restore all storage, construction and other areas associated with the use, development and decommissioning of the wind energy facility, if not otherwise useful to the on-going management of the subject land;
- c) restore all access tracks and other areas affected by the project closure or decommissioning, if not otherwise useful to the on-going management of the subject land; and
- d) submit a decommissioning Traffic Management Plan to the Minister for Planning and, when approved by the Minister for Planning, implement that Traffic Management Plan.

EXPIRY

24. This permit will expire if one of the following circumstances applies:

- the development is not started within 4 years of the date of this permit;
- the development is not completed within 8 years of the date of this permit.

The Minister for Planning, as responsible authority, may extend the periods referred to if a request is made in writing before the permit expires, or within three months afterwards.

Date Issued: _____

Signature for the Minister: _____

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IMPORTANT INFORMATION ABOUT THIS PERMIT

WHAT HAS BEEN DECIDED?

The Minister has granted and issued a permit under Division 6 of Part 4 of the **Planning and Environment Act 1987**.

WHEN DOES A PERMIT BEGIN?

A permit operates -

- * from the date specified in the permit; or
- * if no date is specified, from the date on which it was issued.

WHEN DOES A PERMIT EXPIRE?

1. A permit for the development of land expires if -
 - * the development or any stage of it does not start within the time specified in the permit; or
 - * the development requires the certification of a plan of subdivision or consolidation under the **Subdivision Act 1988** and the plan is not certified within two years of the issue of the permit, unless the permit contains a different provision; or
 - * the development or any stage is not completed within the time specified in the permit, or, if no time is specified, within two years after the issue of the permit or in the case of a subdivision or consolidation within 5 years of the certification of the plan of subdivision or consolidation under the **Subdivision Act 1988**.
2. A permit for the use of land expires if—
 - * the use does not start within the time specified in the permit, or if no time is specified, within two years after the issue of the permit; or
 - * the use is discontinued for a period of two years.
3. A permit for the development and use of land expires if—
 - * the development or any stage of it does not start within the time specified in the permit; or
 - * the development or any stage of it is not completed within the time specified in the permit, or, if no time is specified, within two years after the issue of the permit; or
 - * the use does not start within the time specified in the permit, or, if no time is specified, within two years after the completion of the development; or
 - * the use is discontinued for a period of two years.
4. If a permit for the use of land or the development and use of land or relating to any of the circumstances mentioned in section 6A(2) of the **Planning and Environment Act 1987**, or to any combination of use, development or any of those circumstances requires the certification of a plan under the **Subdivision Act 1988**, unless the permit contains a different provision—
 - * the use or development of any stage is to be taken to have started when the plan is certified; and
 - * the permit expires if the plan is not certified within two years of the issue of the permit.
5. The expiry of a permit does not affect the validity of anything done under that permit before the expiry.
6. In accordance with section 97H of the **Planning and Environment Act 1987**, the Minister is the responsible authority in respect to any extension of time under section 69 in relation to this permit.

WHAT ABOUT APPEALS?

The permit has been granted and issued by the Minister under Division 6 of Part 4 of the **Planning and Environment Act 1987**. Section 97M provides that Divisions 2 and 3 of that Part and section 149A do not apply in relation to an application referred to the Minister under this Division, a permit issued under this Division or an amendment of a permit issued under this Division. The effect of this is that the Minister's decision is final.