MORTLAKE WIND ENERGY FACILITY
MOYNE PLANNING SCHEME

PANEL REPORT

AUGUST 2010

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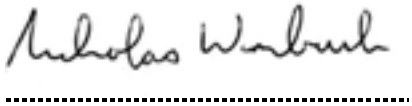

Nick Wimbush, Chair

Ian Harris, Member

Esther Kay, Member

10 AUGUST 2010

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1. Summary and overview

ITEM	COMMENT
Recommendation in chief:	That subject to the recommendations in this report and the draft permit conditions contained in Appendix C, a planning permit for Moyne Planning Scheme Planning Permit Application 2008/0538 only be issued for the Mortlake South cluster of the Mortlake Wind Energy Facility.
The Project:	The proposed wind energy facility ('the wind farm') is located in two clusters. Mortlake East contains 46 turbines running south west from Darlington for approximately 12 kilometres. Mortlake South contains 51 turbines south east of Mortlake and generally in the triangle bounded by The Sisters, Mortlake and Noorat. The proposed wind farm includes: ▪ 97 turbines; ▪ internal tracks; ▪ four electrical substations to connect to the existing grid; ▪ up to two operation and maintenance facilities; ▪ temporary construction facilities; ▪ a temporary concrete batching plant; and ▪ six permanent wind monitoring masts. Figures 1 and 2 show the extent of the wind farm. The Panel notes that no application was made for powerlines between the Mortlake South and Mortlake East clusters. Given the nature of the application for the Mortlake Wind Farm the Panel considers that this line (assuming both clusters were constructed) would be classified as part of the project rather than a connection to the grid. This would mean that it could not be classified as a 'minor utility installation' and would require a separate planning permit.
Proponent:	Acciona Energy

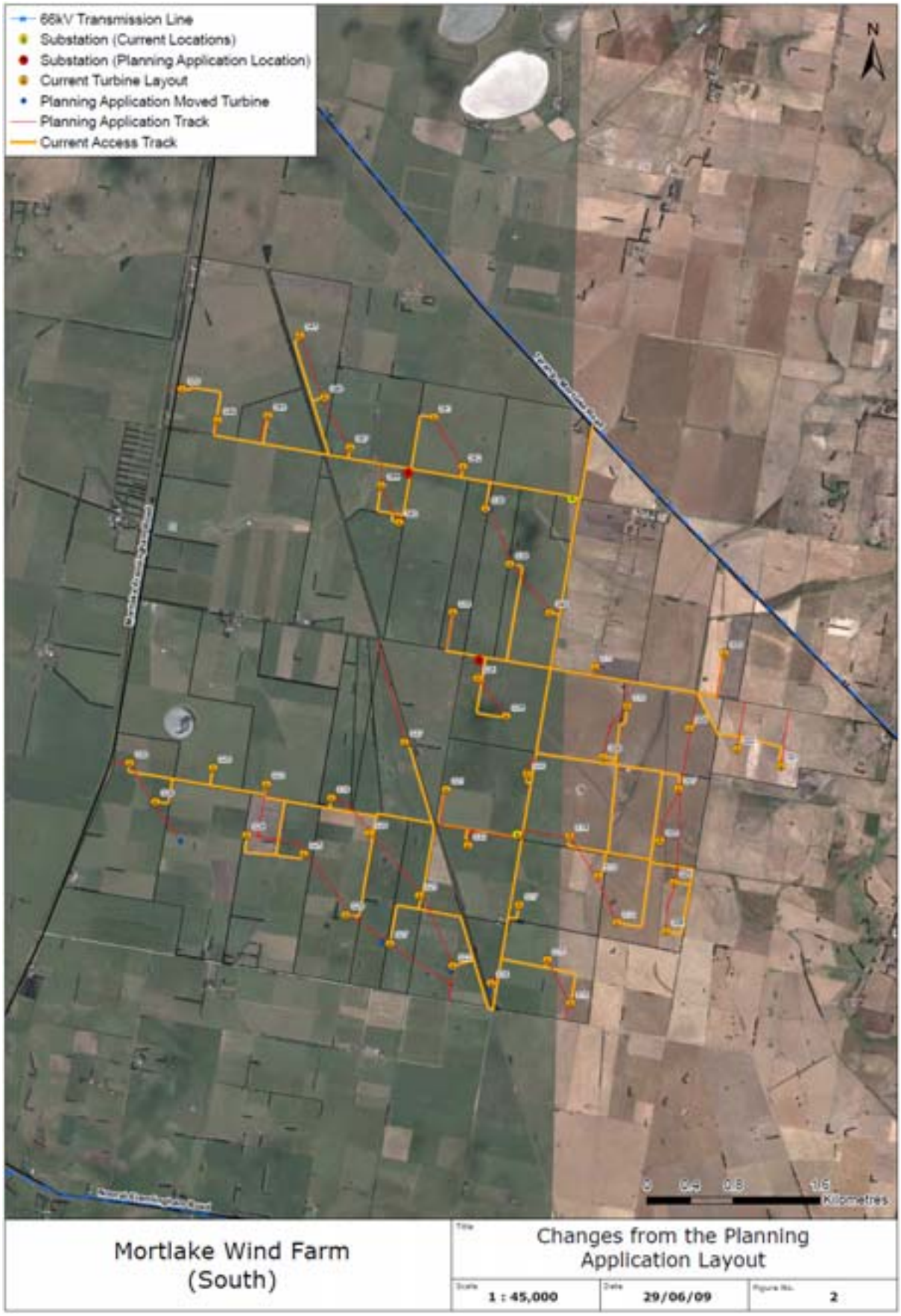
Responsible authority:	Minister for Planning
Panel members:	A Panel was appointed under Sections 97E, 153 and 155 of the *Planning and Environment Act* 1987 to consider submissions and make recommendations to the Minister for Planning. The members were: • Nick Wimbush, Chair; • Ian Harris; and • Esther Kay.
Panel Hearings:	The Direction Hearing was held in Mortlake on the 8th February 2010. The main Hearing was held in Warrnambool on 15th, 16th, 17th, 18th, 19th March and at Glenormiston College on 24th, 25th, 26th, 28th, 29th, and 30th March.
Site inspection:	An accompanied site inspection was conducted on Tuesday 23rd March 2010. The Panel also viewed the two sites from public roads on a number of occasions on an unaccompanied basis.
Appearances:	**Department of Planning and Community Development** represented by Mr Bart Gane. **Acciona Energy** represented by Ms Michelle Quigley SC instructed by Ms Sarah Dynon and Mr Chris Schultz from Allens Arthur Robinson. They called the following evidence: ▪ Noise – Mr Christophe Delaire; ▪ Aviation safety – Mr Mel Dunn; ▪ Flora and fauna – Mr Brett Lane; ▪ Avifauna – Mr Aaron Organ; ▪ Avifauna collision risk modelling – Mr Ian Smales; and ▪ Landscape and visual – Mr Allan Wyatt. **Department of Sustainability and Environment** represented by Mr Grant Hull, Ms Claire Tesselaar and Mr Andrew Pritchard who called the following evidence: ▪ Brolga – Mr Richard Hill. ▪ Brolga – Mr Matthew Herring **Moyne Shire C**ouncil represented by Mr Russell Guest. **Corangamite Shire** Council represented by Ms

	Sophie Segafredo. **Sustainability Vic**toria, represented by Mr Michael Williamson. **Tonnerre Pty Ltd** represented by Mr Andrew Cox of Pointon Partners who called the following evidence: ▪ Health – Professor David Dunt; and ▪ Noise – Dr Robert Thorne. **Individual submitters**: Ms Heather Hicks. Mr James Hicks. Ms Louise Thomas. Ms Susan Dennis. Mr John Morrison. Mr Scott Dennis. Mr Clive Jamieson. Ms Kathy Russell. Mr James Rothman. Ms Lisa Allen. Mr Peter Allen. Ms Shelley McDonald. Mr David Rentsch. Mr Hamish Cumming.
Submitters:	A list of all submissions referred to the Panel is included in Appendix A.
Key issues addressed in this report:	Landscape and visual impacts Noise impacts Flora and fauna Social and economic impacts Traffic management Cumulative impacts Aviation safety Public health

Figure 1: Mortlake East Wind Farm Layout[1]

[1] Figures 1 and 2 are taken from the Planning Application Report, Planning Addendum

Figure 2: Mortlake South Wind Farm Layout



2. The Planning framework

The Panel is required to consider policy support for the implementation of renewable energy, including wind power, as well as the broad range of other matters contained in the local planning scheme against which the application is assessed.

The Panel's overall approach is based on the State policy provision at Clause 11 of the Moyne Planning Scheme which states:

> *…planning and responsible authorities will endeavour to integrate the range of policies relevant to the issues to be determined and balance conflicting objectives in favour of net community benefit and sustainable development.*

The Mortlake site is located in the Farming Zone (Clause 35.07) where a wind farm ('Wind energy facility') is a permit required use. The Panel notes that there are no overlays applying to the land.

Following is an overview of planning provisions pertinent to the Mortlake Wind Farm proposal as set out in the Moyne Planning Scheme and by reference, the technical standards that apply.

The Panel addresses the policy and regulatory matters raised in later sections of this report.

2.1 Planning scheme provisions specific to wind farms

A wind farm, classified as a 'Wind energy facility' in the planning scheme, is defined as:

> *Land used to generate electricity by wind force. It includes any turbine, building or other structure or thing used in or in connection with the generation of electricity by wind force. It can include an anemometer.*
>
> *It does not include turbines principally used to supply electricity for domestic or rural use of the land.*

The specific planning scheme provisions that provide the strategic policy context for wind farms and govern their development include the following:

Clause 15.14 Renewable energy contains the objective:

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

The policy requires that planning facilitate renewable energy development in appropriate locations, consider the economic and environmental benefits to the broader community and the effects on the local environment, and recognise that wind energy is dependent on locations with a good wind resource. Projects must take account of the *Policy and planning guidelines for development of wind energy facilities in Victoria, 2009* (the Wind Farm Guidelines) which are an incorporated document in the planning scheme.

Clause 15.12 Energy efficiency encourages the minimisation of greenhouse gas emissions. Minimising greenhouse gases is the primary driver for low-carbon emission energy generation.

Clause 52.32 Wind energy facilities requires the following to be considered in the assessment of wind energy applications (in addition to any other requirements):

- the effect of the proposal on the surrounding area in terms of noise, blade glint, shadow flicker and electromagnetic interference;
- the impact of the development on significant views, including visual corridors and sightlines;
- the impact of the facility on the natural environment and natural systems;
- the impact of the facility on cultural heritage;
- the impact of the facility on aircraft safety; and
- the Wind Farm Guidelines.

The Wind Farm Guidelines provide a consistent framework against which wind farm applications are prepared and proposals are assessed.

The guidelines confirm the definition of a 'Wind energy facility' and note that it may include turbines to generate electricity, anemometers to measure wind speeds, electricity substations to transform voltage and internal cabling connections. Access tracks may also be constructed and there are usually facilities such as construction staging areas noted on the application plans.

The guidelines outline the Government's policy context for renewable energy as well as the key considerations regarding flora and fauna, native vegetation, significant landscapes and cultural heritage for sites where wind farms are proposed.

Assessments of wind farm applications must consider the following matters including any proposals to minimise adverse effects:

- the contribution of the proposal to meeting Victorian policy for renewable energy;
- the potential for visual impact and the magnitude of change to the landscape such as effects on significant landscapes;
- the potential noise impacts on nearby residences using New Zealand standard NZ6808:1998 *Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators*;
- the potential for blade glint;
- the potential for shadow flicker which must not exceed 30 hours per year in the area surrounding a dwelling;
- the potential for electromagnetic interference;
- aircraft safety including obstacle (night) lighting; and
- the potential adverse effects on flora and fauna including potential loss of habitat of species protected under the *Environment Protection and Biodiversity Conservation* [EPBC] *Act 1999* or the *Flora and Fauna Guarantee* [FFG] *Act 1988*, and loss of habitat under *Victoria's Native Vegetation Management – A Framework for Action*, 2002.

2.2 Other planning scheme provisions

The other planning scheme provisions most relevant to the consideration of this proposal are summarised below.

2.2.1 Landscape and visual

Clause 19.03 Design and built form requires development to have regard to its context and achieve good quality design.

The decision guidelines in the Farming Zone are more specific and require consideration of the impact of the siting, design, height, bulk, colours and materials to be used, on the natural environment, major roads, vistas and water features. Mitigation measures to be undertaken to minimise any adverse impacts are also considered.

Moyne Shire Council's Municipal Strategic Statement (MSS) acknowledges that there is no overarching landscape character study for inland areas of the Shire (compared to the work undertaken for the Great Ocean Road and Coastal Spaces projects). The MSS identifies the Shire's topography as essentially flat, broken by stony rises and hills, craters, watercourses, and some forest. Infrastructure pressures in the landscape include wind farms and natural gas pipeline and processing plants in the coastal hinterland,

telecommunication and electricity towers throughout the Shire, and inland commercial timber plantations. It is the Council's desire to protect scenic landscapes and to retain the dominance of the landscape between towns and from key viewing locations.

Clause 52.05 Advertising Signs provides the detail for assessing, for example, business identification signs. The Farming Zone is in a Category 4 Sensitive area where amenity is the primary concern. In this category there is limited discretion to allow signage. For example business identification signs require a permit and must not exceed $3m^2$ for the entire premises.

The main landscape and visual issues for the Mortlake Wind Farm proposal are the concentration of turbines in the rural landscape south and east of the Mortlake township; direct visibility from particular houses; and longer term implications for the character of south-western Victoria due to the plethora of wind farm projects in this part of the State.

2.2.2 Flora and fauna

Clause 15.09 Conservation of native flora and fauna requires protection and conservation of biodiversity, including native vegetation and habitats for native plants and animals, and suitable control of pest plants and animals. The clause also refers to loss of native vegetation.

The decision guidelines in the Farming Zone support this policy through consideration of:

- the impact of the use or development on the flora and fauna on the site and its surrounds; and
- the need to protect and enhance the biodiversity of the area, including the retention of vegetation and faunal habitat and the need to revegetate land including riparian buffers along waterways, gullies, ridgelines, property boundaries and saline discharge and recharge area.

This clause is discussed further in Chapter 5.

Clause 52.17 Native vegetation seeks to protect and conserve native vegetation to reduce the impact of land and water degradation and provide habitat for plants and animals. The provision requires avoiding the removal of native vegetation, if possible. Where this cannot be avoided, the aim is to minimise the removal of native vegetation through appropriate planning and design, and to offset any native vegetation losses.

The MSS highlights the challenges of maintaining the Shire's indigenous biodiversity and controlling pest plants and animals.

The main flora and fauna issues for the Mortlake Wind Farm proposal are impacts on Brolga and Brolga habitat and loss of native vegetation on the Darlington – Terang Road.

2.2.3 Noise

Clause 15.05 Noise abatement requires suitable project design or distance separation to protect sensitive land uses and development. The New Zealand standard for wind farm noise (NZS6808:1998), referred to in the Wind Farm Guidelines, is used to determine whether acceptable limits can be achieved at sensitive uses, particularly dwellings.

The main noise issues for the Mortlake Wind Farm proposal are which version of the New Zealand Standard to use, the cumulative impact of noise from an adjacent project and the adequacy of the assessment in for the project. These matters are addressed in detail in Chapter 4.

2.2.4 Social and economic

Clause 17.05 Agriculture supports protecting the State's agricultural base from unplanned loss and encourages sustainable agriculture.

The Farming Zone's specific objectives are:

- to provide for the use of land for agriculture;
- to encourage the retention of productive agricultural land;
- to ensure that non-agricultural uses, particularly dwellings, do not adversely affect the use of land for agriculture;
- to encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision; and
- to protect and enhance natural resources and the biodiversity of the area.

Decision guidelines require consideration of:

- whether the use or development will support and enhance agricultural production;
- whether the use or development will permanently remove land from agricultural production; and
- the potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses.

Clause 17.04 Tourism encourages tourism development to maximise the employment and long-term economic, social and cultural benefits of developing the State as a competitive domestic and international tourist destination.

The Council's MSS places emphasis on both agriculture and tourism as economic opportunities and employment drivers for the Shire. It notes that energy projects and inland timber plantations are also being developed.

The main social and economic issues for the Mortlake Wind Farm proposal relate to infrastructure and community investment, employment, tourism, and community participation and confidence in the planning system.

2.2.5 Roads

Approval to alter an access point on the Terang - Mortlake Road, a Category 1 road in the planning scheme, calls up **Clause 52.29 Land adjacent to a road zone, Category 1**. The application must be referred to VicRoads under Section 55 of the *Planning and Environment Act 1987*. The specific decision guidelines include:

- the views of the relevant road authority;
- the effect of the proposal on the operation of the road and on public safety; and
- any policy made by the relevant road authority pursuant to Schedule 2, Clause 3 of the *Road Management Act 2004* regarding access between a controlled access road and adjacent land [Panel note: no such policy has been identified].

2.2.6 Aviation Safety

Clause 18.04 Airfields supports restricting incompatible land use and development in the vicinity of airfields.

The main aviation safety issues for the Mortlake Wind Farm proposal relate to the need for obstacle lighting, use of private airstrips and impacts of the turbines on aerial fire fighting and aerial agriculture.

2.2.7 Cultural Heritage

Clause 15.11 Heritage requires the conservation of places that have natural, environmental, aesthetic, historic, cultural, scientific or social significance or other special value important for scientific and research purpose.

Decision guidelines in the Farming Zone also include consideration of the impact on the character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance.

Requirements for an Aboriginal Cultural Heritage Management Plan under the *Aboriginal Heritage Act 2006* have been satisfied and a plan approved. There would be no known direct impacts on post-contact heritage values.

2.2.8 Environmental Management/Operational Issues

Clause 15.01 Protection of catchments, waterways and groundwater requires care to avoid degrading catchment soils and water sources. Causes can include construction activities and polluted water runoff, and these should be well managed.

Clause 18.09 Water supply, sewerage and drainage reinforces this policy by stating that runoff from development should not contaminate water supplies.

The decision guidelines in the Farming Zone also support these policies through consideration of:

- the impact of the proposal on the natural physical features and resources of the area, in particular on soil and water quality; and
- the location of on-site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.

Clause 15.04 Air quality requires protection and improvement of air quality. Wind energy provides electricity generation free of air pollution. Dust suppression will be needed during construction and potentially ongoing for unsealed access roads.

Clause 15.05 Noise abatement is relevant to control of noise in urban and rural communities as required by EPA guidelines as well as ongoing compliance with the New Zealand noise standard.

Clause 15.07 Protection from wildfire requires avoiding conditions that promote wildfire and installing appropriate infrastructure and equipment to assist with fire fighting efforts.

Traffic management is addressed in the decision guidelines in the Farming Zone, which include consideration of whether the use and development will require traffic management measures. The MSS identifies the need to maintain and enhance the safety of the arterial roads, and to prevent any conflicts between the roads and adjoining developments.

As previously mentioned, alteration of the access from the Terang - Mortlake Road requires planning approval under Clause 52.29 and this may include specific traffic management measures.

An environmental management plan (EMP) will be prepared for the project and the Panel has included a specific condition for its preparation. The EMP will bring together a number of the issues mentioned above.

2.3 Other Approvals

2.3.1 Environment Protection and Biodiversity Conservation Act 1999

The approval from the Commonwealth Government is dated 23 December 2009. It relates to listed threatened species and communities, and listed migratory species. The approval requires certain actions on the part of the wind farm developer/operator. These include, in brief:

- development of a Habitat Enhancement Plan for the Southern Bent-wing Bat. This plan is to be approved prior to the start of construction.
- submission of an annual Environmental Performance Report to include the results of a bird and bat strike monitoring program for a period of five years, unless a shorter period is agreed once early results are known. This report is to be compiled starting when the wind farm is commissioned and must be made available to the public; and
- an independent audit of compliance with the approval conditions.

2.3.2 Victorian Aboriginal Heritage Act 2006

The Act requires preparation of a cultural heritage management plan before the Mortlake Wind Farm can proceed and before any planning permit can be issued under the *Planning and Environment Act 1987*. The Notice of Approval for the plan was issued by Aboriginal Affairs Victoria on 23rd December 2009.

The Proponent advised the Panel by way of a memo between Ms Quigley and Allens Arthur Robinson, dated 14th March 2010, that alterations to the turbine layout still sit within the original assessment's 'activity area'. A new cultural heritage management plan is not required due to the amended turbine layout and other plan changes tabled at the Panel Hearing.

2.3.3 Moyne Planning Scheme native vegetation provisions

Clause 52.17 of the planning scheme requires a planning permit for native vegetation removal associated with the wind farm development. This would include removal of vegetation outside the wind farm site, eg on roadsides, to accommodate power lines, vehicle access points and the like. A separate application would need to be lodged with the Moyne Shire.

2.3.4 Victorian Flora and Fauna Guarantee Act 1988

A permit may be required for removal of native vegetation on public land.

2.3.5 Victorian Catchment and Land Protection Act 1994

A permit from the Corangamite Catchment Management Authority will be required for waterway crossings of designated waterways (ie a Works on Waterways approval).

2.4 Conclusions and recommendations

The Panel has reviewed the planning framework for the Mortlake Wind Farm planning permit application. The Panel recognises that the planning framework is supportive of renewable energy in general and wind farm development in particular as a reflection of supportive Government policy.

On many issues the Panel considers that the project crosses the planning thresholds established in the Moyne Planning Scheme and associated documents such as the Wind Farm Guidelines.

However, whilst the planning framework is supportive, it does not automatically mean that any particular project will or should receive a planning permit. If that were to be the case then wind energy facilities would be a 'Section 1 – Permit not required' use in the Farming Zone.

In this instance the Panel has identified a number of issues with the Mortlake Wind Farm that require attention and could be addressed via planning permit conditions. However, in relation to fauna, and specifically Latham's Snipe and Brolga, the Panel has significant concerns with the Mortlake East cluster of turbines.

The Panel considers that this cluster should not proceed until such time as the potential impact of the project on the Victorian Brolga population has been further assessed. The Panel is not convinced on the evidence before it that the risk to the population has been reduced to an acceptable level or that all measures to minimise such risk have been explored.

The detailed analysis behind this conclusion and discussion of other issues are addressed in the following chapters of this report.

The Panel recommends in chief:

1. **That subject to the recommendations in this report and the draft permit conditions contained in Appendix C, a planning permit for Moyne Planning Scheme Planning Permit Application 2008/0538 only be issued for the Mortlake South cluster of the Mortlake Wind Energy Facility.**

Although this recommendation is that only the Mortlake South component be issued a permit, the Panel has commented extensively on both clusters (Mortlake South and Mortlake East) in the event that the Minister for Planning wishes to issue a permit for the whole project.

3. Landscape and visual impacts

3.1 Background

The Panel has been informed by the Planning Application Report (PAR), the Proponent's submission and submissions from local residents and businesses. The Panel particularly relied on:

- evaluation criteria in the *Policy and planning guidelines for development of wind energy facilities in Victoria* (the Wind Farm Guidelines);
- sections 7.3-7.4 (Vol 1) of the PAR, the report titled Landscape and Visual Assessment (Vol 2) and Appendix D of the Planning Addendum;
- the Proponent's submissions to the Panel Hearing;
- Mr Wyatt's expert evidence for the Proponent;
- other submissions which addressed this issue; and
- panel site inspections from public roads and the Mount Noorat lookout and through visits to individual properties.

The Panel deals first with the likely effects on the broader landscape and then with the issues raised by construction of wind turbines in proximity to dwellings.

3.2 Panel discussion

The Wind Farm Guidelines establish a broad framework for assessing wind farms within the landscape. As the land is not identified by an Environmental Significance Overlay (ESO) or Significant Landscape Overlay (SLO), or by a strategic study, the relevant considerations here include the visibility of the development, the locations and distances from which the development can be viewed, and the sensitivity of the landscape to change.

The Guidelines identify the elements of the landscape to be addressed in evaluating landscape impacts, for example, topography and vegetation, constructed objects, views against the skyline and cultural heritage.

3.2.1 Local landscape setting

The Mortlake proposal is set within relatively flat, low lying land west of Mount Emu Creek. The area is characterised by a number of drainage channels which feed into Mount Emu Creek, the Hopkins River and Yaloak Swamp, and by several low lying wetlands.

The land in the general area has been grazed or farmed since early post-contact settlement and the land cleared for this purpose. The vegetation mostly comprises pasture and crops.

The nearby hills comprise volcanic cones. These include Mount Noorat, especially prominent in views from the proposed southern cluster, Mount Shadwell north of the Mortlake township, Mount Elephant to the north east and Mount Meningorot to the east. Mount Noorat has a well established lookout from which there are expansive views in all directions; the southern cluster would be especially visible below the lookout. Public access is also available from Mount Shadwell, providing views of the land proposed for the eastern cluster.

The townships in the area include Mortlake and Darlington in the north and Noorat and Terang in the south. Kolora sits between the two proposed turbine clusters. The Panel notes that Mr Wyatt did not include Kolora in his assessment even though there are a number of rural residential style properties in this location. There are scattered dwellings through the area. Overall there are 21 non-stakeholder dwellings within 1.5km of the nearest turbine and 61 dwellings located between 1.5km and 3km of the nearest turbine. A total of 97 non-stakeholder dwellings are within a highly sensitive distance of the wind farm.

3.2.2 Landscape assessment

Mr Wyatt prepared a landscape assessment using the method which has been adopted for other wind farm projects. This method is set out in Vol. 2 of the PAR and further explained in his expert witness statement and verbal evidence. The assessment takes account of topography, landscape sensitivity, physical distance from wind turbine sites and the number of turbines that would be seen from any particular location. Mr Wyatt confirmed the assessment in the planning addendum and through the Panel Hearing.

Based on its physical/visual characteristics, Mr Wyatt assessed the landscape sensitivity as shown in Table 1.

Mr Wyatt also prepared a number of visibility diagrams. Given the flat nature of the terrain, the full array of wind turbines will generally be visible over a considerable distance except in specific locations where direct views are blocked by hills or rises, trees or other vegetation, or constructed features. Viewers situated between the two clusters would see up to 75 of the wind turbines in their entirety. Viewers in some areas to the west of Mount

Noorat would view up to 90 turbines. All turbines would be visible from the Mount Noorat lookout[2]. Depending on the viewer's location, more distant turbines would appear smaller and this would minimise the visual presence of the wind farm.

Table 1: Landscape sensitivity

Landscape unit	Sensitivity
Flat farmland	Low Highly modified, contains visible infrastructure, is not topographically dramatic and does not contain large areas of water.
Volcanic cones	Medium The volcanic cones are visually identifiable features within the surrounding flat landscape.
Rural townships	Medium The concentration of houses increase visual sensitivity.

From Table 4.2 of the Landscape and Visual Assessment

Mr Wyatt prepared ten photomontages from public locations based on the layout lodged with the planning application. These are simulated perspectives of landscape views with the turbines superimposed. The ten locations are from public roads or public locations at the towns of Mortlake, Darlington, Noorat and Terang, the Mount Noorat lookout and from highways and other well travelled locations. Photomontages for the ten locations previously assessed were prepared for the Panel Hearing, and these include the modified turbine layout and additional turbine. He also prepared an assessment of the visual impact of power transmission lines and proposed mitigation screening for these if required.

The photomontages generally accord with the Panel's inspections and confirm that the wind farm would be a highly visible and extensive visual element in this landscape. Despite this, Mr Wyatt concluded in summary, that the overall impact would be low (shown in Table 2).

[2] The Panel notes that although outside the wind farm site, Mount Noorat is covered by the Significant Landscape Overlay Schedule 1 – Volcanic Landscapes Area in the Corangamite Planning Scheme.

Table 2: Summary assessment of publicly accessible viewpoints

Location	Distance to nearest wind turbine from selected location	Overall visual impact within the landscape
Mortlake township	4.9 km	Low
Darlington township	2.2 km	Low
Noorat township	5.8 km	Low
Terang township	7.9 km	Low
Lake Bookar	11.2 km	Low
Princes Highway	13.7 km	Low
Framlington (sic) settlement	10.2 km	Low
Ellerslie settlement	10.5 km	Low
Hamilton Highway	3.5 km	Low
Mount Noorat	5.6 km	Low

From Table 6.11 of the Landscape and Visual Assessment

Mr Wyatt formed his conclusions about landscape impact on the basis that there are few natural features in the landscape and that it is highly modified with the intrusion of constructed features. In addition, vegetation and buildings screen views from some key locations. It was confirmed that turbines would sit below the horizon when viewed from the volcanic peaks.

There were no photomontages prepared to show views from local roads at locations alongside or between the Mortlake East and Mortlake South clusters (for example, the Mortlake – Terang Road and Darlington – Terang Road). Although the visibility diagrams referred to above provide an indication of landscape impacts from these locations, the Panel believes that such montages would have provided useful information to the Panel, the local community and indeed the Proponent. Mr Wyatt was asked to provide additional information and assessment at the Panel Hearing.

In his expert evidence, Mr Wyatt addressed this request by relying on photomontages from Mortlake and Noorat, and three photomontages from private properties in proximity to the Terang – Mortlake Road. He determined that the visual impact from local roads will be low because 'viewer numbers are low, but also because this rural landscape can absorb further change.'

In previous wind farm hearings, Panels have accepted Mr Wyatt's method and approach to the landscape assessment. Generally a cohesive, alternative approach has not been raised through the review process. In this Hearing, Mr Gane from the Department of Planning and Community Development (DPCD), raised some interesting possibilities for expanding how landscape

assessments might be developed. Mr Gane's approach was dismissed by Ms Quigley as untested, but the Panel can see similarities between his suggestions and the landscape features identified in the Wind Farm Guidelines (top of p29) that are to be used to inform landscape and visual assessments. Mr Gane relied on elements of the Municipal Strategic Statement (MSS) such as key characteristics of the area to round out his approach.

Mr Gane proposed that landscape assessments should take into account not just biophysical form but also historical and cultural context. He suggested the use of 'units of logical scale to articulate the layers of community, geological and cultural significance' that the landscape holds for different groups in the community. He pointed to the Burra Charter and Heritage Victoria landscape guidelines as providing some direction on how to assess landscapes and evaluate changes to them. Mr Gane also emphasised Aboriginal association with the Mortlake region and the importance of the area in terms of 19th century massacres, as well as the presence of the Kanawinka Geopark.

Mr Gane supplemented this presentation with an article prepared by Patrick Devine-Wright from the School of Geography at Exeter University. Mr Devine-Wright's proposition could be of value to project proponents. His thesis is that communities have deep attachment to place and that project evaluations should attempt to gain insight into the factors behind such attachment, else this attachment can be exploited by those opposed to a proposal to mobilise community opposition. In the context of Victoria's planning system, and particularly wind farm design, such evaluations might lead to turbine siting that can be read as an additional layer of local history if appropriately sited, rather than as an intrusion into the landscape.

The Panel believes that with the passage of time, and as the parties have gained experience with wind farm landscape assessments, it is time to explore a broader evaluation approach for wind farms as well as for other proposals in these locations. Mr Gane's submission opens the door for this discussion to occur and should encourage Proponents and consultants such as Mr Wyatt to experiment with new and expanded approaches.

The Dennis family raised related issues around landscape and visual assessment that also need to be resolved and articulated more clearly. Mr and Mrs Dennis live in a historic property, Eeyeuk, which has been in Mr Dennis' family for nearly 150 years. The property was listed on the Register of the National Estate in 1978.

There will be several turbines visible from the historic gardens at Eeyeuk. These are situated in the proposed eastern cluster. Mr Wyatt did not identify

this or other historic properties in the area which might warrant special consideration. The Panel understands that there may have been difficulties accessing the Dennis property. However, other means such as aerial photographs could have been used to provide some level of evaluation. At Waubra, at least one turbine was moved because of its proximity to a significant heritage property. The Panel is not necessarily suggesting that this occur here. However, the lack of evaluation of landscape (and visual) impacts in relation to the historic properties constructed by early settlers to the area perhaps underscores the need for broader evaluation criteria than that provided by Mr Wyatt's method.

3.2.3 Visual impacts from residences

Mr Wyatt prepared four photomontages for the planning application, to simulate views from dwellings. Assessments were only undertaken on request. Three of the residences for which photomontage assessments were prepared are located in proximity to the Terang - Mortlake Road near the proposed Mortlake South cluster. The other residence is located on the Darlington - Terang Road near the Mortlake East cluster.

Of these four residences, two dwellings were assessed as being subject to a high visual impact if the wind farm proceeds as planned. Mr Wyatt believes this could be mitigated to an acceptable level of impact with selected screen planting. The other two residences were assessed as being subject to a low impact because of existing screening.

A newly constructed dwelling was assessed more recently and a photomontage prepared. This residence is located on the north side of the Mortlake South cluster. It has been assessed as being subject to high visual impact with the potential for landscape screening.

The Panel was surprised and disappointed by the low number of dwellings assessed for potential visual impact. A total of five non-stakeholder dwellings were assessed out of a possible 96 within the 3 km range of a turbine. In some cases residents had not been provided copies of the photomontages that were prepared.

For other wind farms in Victoria, proponents have proactively sought to assess a greater distribution of dwellings and to include those dwellings that will be most affected, either because of close proximity to one or more turbines, the number of turbines that will be viewed from the dwelling and its immediate outdoor living areas, and/or the percentage of the viewshed that will contain turbines. This exercise informs the Proponent of any significant concerns and has led to modifications in turbine placement at some wind farm sites. It is also a way of engaging local residents in the

planning process and providing early reassurance of what residents can expect from the project.

The Proponent provided little if any information about the full extent of visual impacts from individual residences. Essentially the Panel received the five photomontages and accompanying commentary. The Guidelines require that visual impacts should be given appropriate weight given the policy imperative in favour of establishing wind farms. Ms Quigley made this point in submissions. However, in this case, the Panel simply does not have enough information to form a clear conclusion on this matter beyond the general conclusion that because of the nature of the terrain, the visual impact on all the 96 properties is likely to be high (subject to local conditions that may screen turbines).

Turning to those residences which would experience some level of impact (whether assessed or not) if the project is constructed, and where this impact is unacceptable to the owner/occupier, the only mitigation measure available would be to create new or enhanced screen planting from selected views at each residence. The Panel's view is that a mitigation program of screen planting should be required of the Proponent if a permit is issued. Based on the Panel's site visits and discussions during the Hearing, the Panel recommends that such a program should:

- be available to all non-stakeholder residences within 3 km of any turbine;
- accept requests for screen planting from the time a permit issues until 12 months after the wind farm is commissioned;
- comprise both seedlings/young plants and mature plantings. Mature plants will provide quicker, effective mitigation but seedlings or young plants are likely to establish more easily and be more successful over time;
- include succession planting where existing screen planting is likely to die out over the 25-year life of the wind farm facility;
- provide design and horticultural advice to residents to assist them in selecting appropriate plant species and planting locations;
- ensure planting is undertaken by the Proponent unless otherwise requested by the owner;
- provide a planting design (including species, etc) and clear establishment and maintenance regime for each residence, which should be negotiated with the owner before any planting begins; and
- following agreement with the owner, schedule planting during the next available season appropriate to the plant selection.

3.2.4 Community surveys/perceptions studies

In the PAR, the Proponent referred to community perception studies of wind farm acceptance. A more recent phone survey was undertaken in January 2010 by Quantum for the Proponent. The Quantum study indicated a high level of acceptance of wind farms by local residents. Of 139 people surveyed in Mortlake, and 161 in Terang, around two-thirds responded that they would support wind farms being established in the Mortlake region.

A high number of Quantum survey respondents supported the establishment of wind farms as suppliers of clean, alternative energy. However, there were also responses amongst wind farm supporters indicating that wind farms should not be located too close to towns or housing, and that there should not be too many turbines in the landscape. Of those residents that were less supportive of wind farms, most respondents cited landscape/visual issues as the reason for their view.

Objector residents who attended the Hearing queried whether the questions were designed to elicit positive responses and they commented that neither they nor their friends had been surveyed.

The Panel believes that surveys of this type are useful in a general sense but that they are not a substitute for effective community consultation and evaluation of local conditions. The Quantum survey does not confirm or support conclusions arrived at through other means, for example, the consultation program or by a more extensive assessment of landscape and visual issues. It would be a more useful tool if it did and accordingly, the Panel has given it little weight.

3.2.5 Aviation night lighting

The Landscape and Visual Assessment in the PAR provided (at Section 9) an evaluation of the general issues around obstacle lighting of wind farms and concluded that provided lighting was similar that used at Mt Millar in South Australia, it should not have a significant impact.

The Panel viewed the Waubra Wind Farm at dusk and after dark. This is the newest operating wind farm in western Victoria and features aviation obstacle lights on 48 of the 128 turbines. The Waubra lights are visible at up to 30km away (although not significant at this distance) and are obviously more intense from within the Waubra township and its surrounds.

The Panel considers that the response to such lighting is highly personal, with dislike of the turbines during the day likely to be closely tied to dislike of aviation obstacle lighting. The Panel does not share the view of Mr Wyatt

that because people are likely to be inside the visual impact is low. The dark night sky in rural Victoria is a value in itself. This was discussed extensively in the Ryan Corner Wind Farm Panel Report, although ultimately that Panel concluded that the lighting (26 lights) would be acceptable.

Standard mitigation for night lighting includes use of medium intensity LED lights, baffling the light source and synchronised flashing of lights.

The Proponent took the view in the Hearing that night lighting is not required based on its own risk assessment. The Panel discusses the need for aviation obstacle lighting extensively in Section 10.2.

3.2.6 Cumulative impact

The Proponent was requested to address more fully at the Panel Hearing the cumulative impact of this wind farm. Southwest Victoria is attracting multiple energy generation projects and this includes gas fired stations, geothermal potential and wind farms. The Sisters and Darlington wind farm proposals are located adjacent to the Mortlake proposal, and there are other proposals north of the Hamilton Highway.

In his expert evidence, Mr Wyatt re-stated his earlier view that cumulative impacts are acceptable, even taking into account new proposals tabled since the Mortlake planning application was lodged. While acknowledging that cumulative impacts could be medium to high in some locations, Mr Wyatt was unable to give the Panel clear advice about when the area might be perceived to be 'full', or how cumulative effects might alter long-standing perceptions of the region as a pastoral area as more and more land is taken up by wind energy infrastructure. Instead he pointed to perception surveys as the best indicator that the community was not saying 'enough is enough'. The Panel found Mr Wyatt's analysis and conclusions about these matters unhelpful and had hoped for more detailed discussion given his extensive experience with wind farm proposals.

Other submitters also raised concerns over cumulative impacts, particularly the Moyne and Corangamite Shires, who are managing multiple applications and constructed energy projects. Moyne Shire reminded the Panel that cumulative impacts must be assessed under the Guidelines, and its view that the Proponent's assessment is inadequate. This may be in part due to the absence of clear guidance on evaluating cumulative impacts. Corangamite Shire nominated the 'network of pipeline and cable infrastructure proliferating across the landscape' as well as the multiplicity of energy facilities that are resulting in landscape change as needing further evaluation.

It was noted during the Hearing that coastal areas have benefited from preparation of the Great Ocean Road Region Landscape Assessment Study (2004) and the Coastal Spaces Landscape Assessment Study (2006). These studies were funded and supported by DPCD (or one of its precursors).

The Panel believes that a similar type of study should be funded and undertaken by DPCD for the inland areas of south western Victoria, to provide a baseline for future landscape assessments. This and other cumulative impact issues are discussed further in Chapter 9.

3.3 Conclusion and recommendations

There is little question that this wind farm, if approved, will be highly visible from vantage points locally and further afield. The low impact rating provided by Mr Wyatt appears to be primarily due to the low landscape value assigned to the area. The Panel notes Mr Wyatt's assessment and results in relation to landscape impact and considers that it adequately assesses the impact of this proposal.

The Panel is left however with a sense that there is a significant dichotomy between the professional view of the landscape put forward, and the views of the actual people who live and work in the area. It is difficult to reconcile the 'low impact' rating applied to the landscape in this area with the obvious passion demonstrated by those who experience the 'sense of place' on a daily basis.

The Panel also notes that lack of statutory acknowledgement of landscapes in the planning system in regional areas is as much as a result of limited resources for studies as it is of lack of significant landscape values. That being said, Corangamite Shire has SLOs on its major volcanic features, and Moyne Shire has been considering wind farm applications since the late 1990s, so it can not be argued that they have had not had time to prepare strategic studies for landscape assessment.

The Panel considers many of these issues could be resolved, or at least the assessment framework improved, if the issue of cumulative impact is addressed. The Panel has considered this further and made a recommendation in Chapter 9. This goes to the need for a more strategic approach to landscape assessment

In principle, the Panel accepts that whilst this project will have significant visual impact, its impact on the regional landscape will be limited, and not of an order that suggests it should be refused a planning permit.

In relation to local visual impact the Panel recommends:

2. **That provision for voluntary offsite landscaping (i.e. with the landowner's consent) be made for non-stakeholder properties within 3km of any turbine.**

The Panel has suggested a draft condition in Appendix C that accords with the detailed items for landscaping shown in Section 3.2.3 above.

4. Noise

4.1 Background

The *Policy and planning guidelines for wind energy facilities in Victoria* (the 'Wind Farm Guidelines') require that the wind farm complies with New Zealand standard NZ6808:1998 *Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators* ('the New Zealand Standard').

The Mortlake Wind Farm assessment was carried out by Marshall Day Acoustics and Mr Christophe Delaire presented evidence to the Panel in support of the assessment.

Preliminary noise predictions were undertaken for the two clusters and these are shown in Figure 3 and 4 respectively.

The assessment was undertaken in three stages as the wind farm layout was modified and additional houses to be assessed were identified. The final predicted noise levels were presented in Mr Delaire's expert witness statement in Section 4.1 (reproduced in Table 3 below).

Particular issues for this proposal are:

- the assessment undertaken and the revised current proposal in relation to turbine height;
- the location of another wind farm proposal (The Sisters) in close proximity to the south of the Mortlake South proposal generating the potential for cumulative noise impacts from the wind farms on some houses; and
- the approach taken in the assessment of that project and in particular the Victorian Civil and Administrative Tribunal (VCAT) determination[3] in relation to applicable noise standards and 'high amenity environments'.

These issues are discussed in more detail below. This section of the report focuses primarily on assessment of the project against the relevant noise standards. Broader health concerns are discussed in Chapter 8.

[3] *The Sisters Wind Farm Pty Ltd v Moyne SC* [2010] VCAT 719

Figure 3: Initial noise predictions – Mortlake East

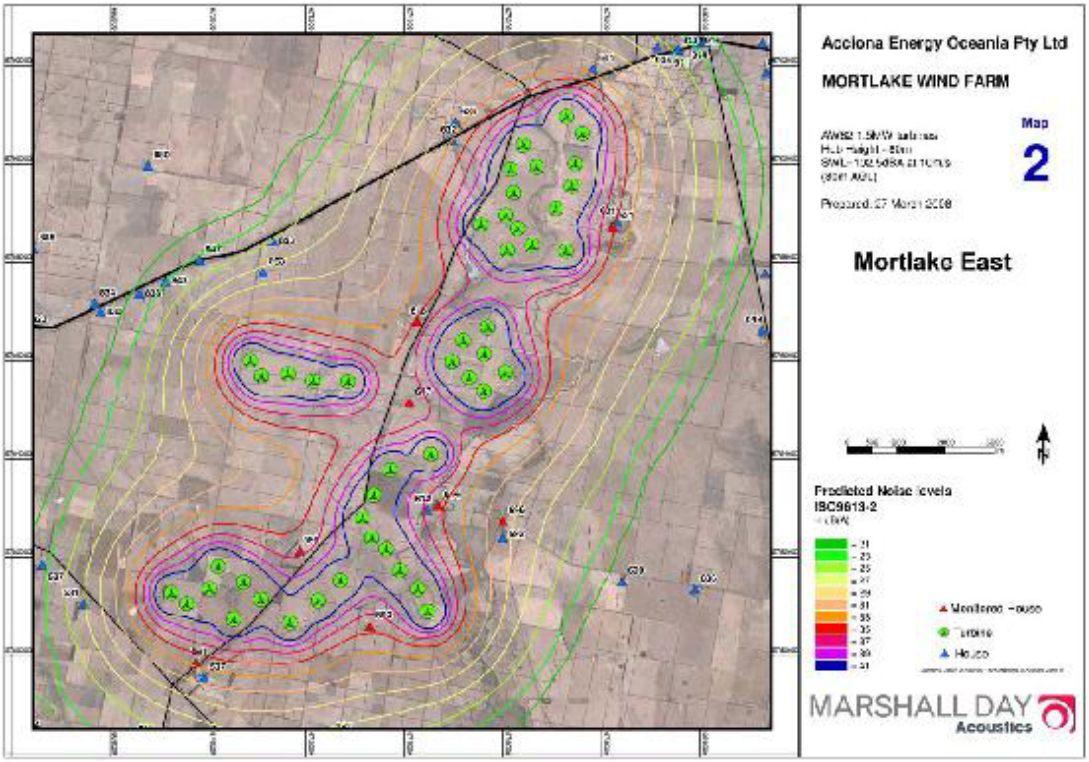


Figure 4: Initial noise predictions – Mortlake South

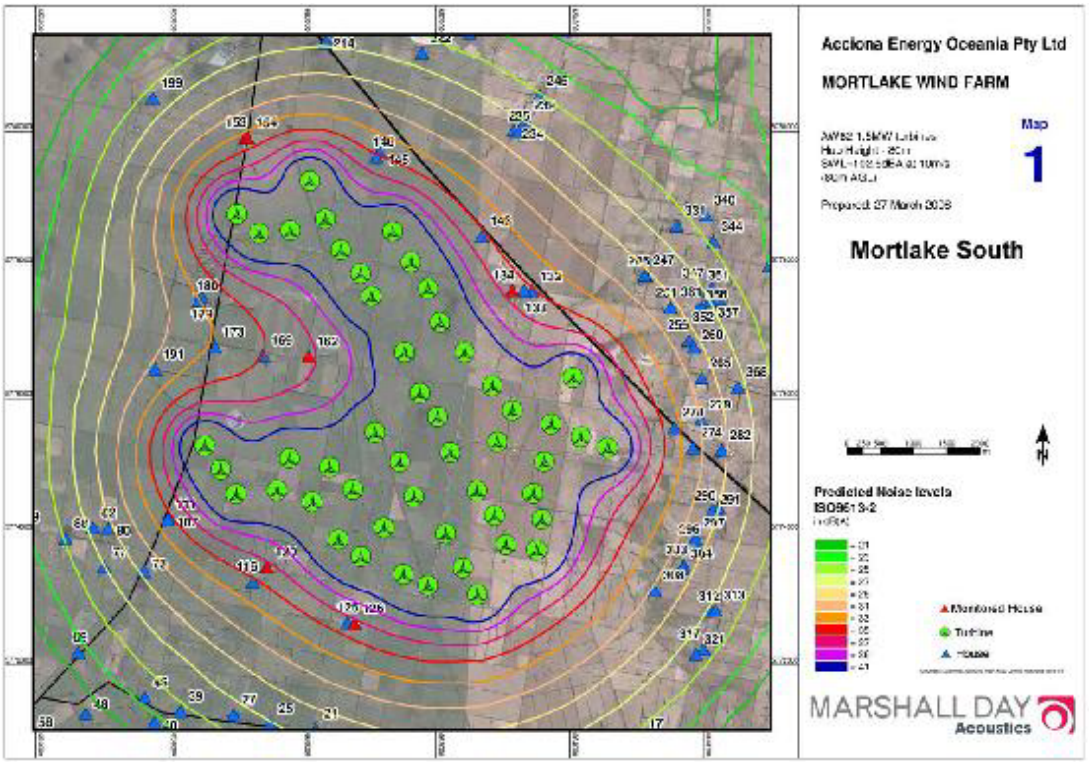


Table 3: Revised predicted noise level at reference conditions (10m/s at 80m AGL)

House reference	Maximum predicted noise levels	Compliance at all wind speeds
Mortlake South		
112	38dBA	✓
120 (H)	39dBA	✓
125 (H)	39dBA	✓
126 (H)	39dBA	✓
132	38dBA	✓
133 (H)	38dBA	✓
134 (H)	39dBA	✓
143	38dBA	✓
146	38dBA	✓
162 (H)	40dBA	✓
Mortlake East		
593	39dBA	✓
596	40dBA	✓
612 (H)	40dBA	✓
614 (H)	39dBA	✓
617	39dBA	✓
618	38dBA	✓
621 (H)	39dBA	✓
969	40dBA	✓
990	36dBA	✓

Note: ✓= compliance

× = non-compliance

(H) host landholder

4.2 The noise assessment generally

4.2.1 Evidence and submissions

A number of submissions were critical of the noise assessment undertaken by Marshall Day Acoustics. This criticism was mostly, if not entirely, founded on the New Zealand Standard itself rather than its application by Marshall Day.

Tonnerre Pty Ltd supplied an extensive submission on this issue and called evidence from Professor David Dunt on health (discussed in Chapter 8), and from Dr Robert Thorne specifically on noise.

Their submission addressed a number of major points including:

- the noise assessment does not comply with the New Zealand Standard NZS6808:1998 or if it complies it is marginal;
- noise considerations should also consider the *Interim Guidelines for Control of Noise from Industry in Country Victoria (N3/89)*; and
- the wind farm will create unacceptable noise nuisance for the community.

Tonnerre and other submitters also called for a blanket 2km setback between turbines and non-stakeholder dwellings.

There was considerable discussion in the Hearing around the confidence limits on the noise predictions. These are not required to be provided for the NZS6808:1998 assessment. Given that many of the predicted noise levels in Table 3 above are close to the 40dBA limit, uncertainty around the results suggests that some of them in reality may be non-compliant.

Dr Thorne in his evidence was critical of the use of a 'high noise floor' sound level meter rather than a 'low noise floor' meter for measuring background noise. Dr Thorne suggested that a low noise floor meter is preferred for measuring background noise levels in quiet ambient environments.

A major issue raised during the Hearing was the potential increase in height of turbines from 80m hub height to 100m hub height. Mr Delaire in his evidence advised the Hearing that he had not (and could not) at this time provide a noise assessment for the higher hub height as he did not have sound power levels for Acciona turbines at 100m.

He estimated that based on experience with other turbine manufacturers the 20m increase in hub height could result in a 0.3dBA increase in sound power levels. If this was translated into his current assessment it could result in two non-stakeholder houses (596 and 969) at Mortlake East exceeding the criteria in NZS6808:1998.

However his main evidence on this point was that the noise assessment should be redone if the higher hub height is to be used and when the sound power levels are available.

Construction noise was raised by the Selmans in their submission.

4.2.2 Discussion

The Panel notes that some submitters and indeed parts of the evidence of Dr Thorne are critical of the New Zealand Standard NZS6808:1998 itself both on technical grounds and the possible outcomes for nearby landowners. The Panel considers that the use of NZS6808:1998 is well established in Victorian planning and that any changes to its use are a matter of policy rather than decision making under a particular permit.

The Panel notes that the standard and its application through the planning system are not designed to make wind farms inaudible, but rather to ensure that they achieve noise levels that should not adversely affect neighbours either during daylight or at night. Mr Delaire in response to questioning was quite clear that compliance with NZS6808:1998 does not guarantee that noise complaints will not be made.

Submissions and evidence at the Hearing, whilst critical of NZS6808:1998 and the noise assessment, did not expose any fundamental flaws in the work of Marshall Day. The Panel's own assessment is that the Marshall Day assessment is a reasonable response to NZS6808:1998.

The Panel does note that several non-stakeholder properties (for example 596 and 969) are in marginal compliance. If the situation was to change due to uncertainty in the predictions or the increase in hub height, these dwellings could be in non-compliance.

In principle the Panel considers that compliance should be 'designed in' to the project rather than being left to noise management of particular turbines during operation and this point has been made in previous Panel reports.

The Panel also notes Mr Delaire's points in relation to a higher hub height. The Panel considers that if the higher hub height is countenanced then a reassessment of the noise predictions will need to be undertaken. This should not require a new set of background data measurements.

The Panel is confident, based on Mr Delaire's evidence, that a reassessment is unlikely to change the noise predictions by a substantial figure, and any redesign for noise compliance should be possible with turbine deletion or resiting within the project footprint.

In relation to wind turbine noise and the EPA guidelines N3/89, the Panel notes they specifically exclude wind farm noise due to its particular characteristics. It is clear to the Panel that the framework for considering wind farm noise is set by the planning scheme, Wind Farm Guidelines and NZS6808:1998.

In relation to construction noise, the Panel considers it can be managed through permit conditions with reference to the *Interim guidelines for control of noise from industry in country Victoria*, N3/89 (EPA Vic, 1989).

4.3 Cumulative impact of noise from The Sisters Wind Farm

4.3.1 Evidence and submissions

Moyne Shire Council drew the Panel's attention to The Sisters Wind Farm, a separate project in close proximity to the southern boundary of Mortlake South.

A number of dwellings south of Mortlake South may be affected by wind turbine noise from Mortlake and The Sisters. Some of these dwellings may be stakeholders for one project but not the other.[4]

Mr Delaire suggested during questioning that it would be difficult to prove which wind farm was responsible for the noise if enforcement of an alleged exceedance was required.

Ms Quigley tabled advice from Allens Arthur Robinson (Document 120) suggesting that a condition could be placed on each project if approved requiring the preparation of a joint Cumulative Noise Management Plan to be prepared by both Proponents. This would enable the establishment of procedures for monitoring and response in the event noise complaints are received from properties in between the different projects.

4.3.2 Discussion

Given that both projects are in the approvals phase[5], the approach suggested by Ms Quigley appears reasonable. However this Panel (and the Minister) has no clear pathway to ensure that a similar permit condition be applied to The Sisters.

[4] If the proposed Darlington Wind Farm application is submitted the same issue may arise.

[5] At the time of writing the Panel understands that The Sisters Wind Farm has been refused by VCAT but that an appeal to the Supreme Court against the refusal is being considered.

The Panel has recommended that such a condition be applied to this project if approved and options for The Sisters also be explored.

4.4 The applicable noise standard

4.4.1 Evidence and submissions

Early in 2010 a new New Zealand noise standard, NZS 6808:2010 *Acoustics – Wind Farm Noise*, was approved in New Zealand ('the 2010 Standard'). The 2010 Standard is a replacement for NZ6808:1998 *Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators* ('the 1998 Standard').

The 2010 Standard is generally similar to the 1998 Standard in methodology and allowable sound levels. There are however some changes including, for example:

- using the L_{90} percentile[6] for background noise assessment, post construction noise and wind farm noise in the new 2010 Standard rather than L_{95} in the 1998 Standard; and
- the introduction of the concept of a 'High Amenity Area' (at Section 5.3 of the 2010 Standard) where a particular location defined under a 'Plan'[7] might be considered for a lower allowable noise limit.

The Wind Farm Guidelines and Clause 52.32 of the Moyne Planning Scheme reference the 1998 Standard specifically. In the Hearing some submitters, and perhaps most notably Mr Cox representing Tonnerre Pty Ltd, argued that it is appropriate to use the 2010 Standard as the most up to date available; and that there is nothing in law that suggests the 1998 Standard should or must be used in the presence of a later Standard covering the same issue.

Mr Cox also argued that the Panel is not legally bound to follow the 1998 Standard and could if it wishes apply the 2010 Standard, or perhaps even some other assessment path for wind turbine noise.

Ms Quigley for the Proponent submitted during the Hearing and in closing submissions that there is no basis in law and no practical reason for the Panel to depart from the existing 1998 Standard.

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[6] This is the sound level equalled or exceeded for 90% of the time at the place of measurement. It is described in the standard as 'It approximates the mean minimum sound level and is unaffected by higher sound levels of short term influence…..' In effect it removes 'spikes' in sound caused, for example, by wind gusts etc… from the background noise measurement. Using L90 rather than L95 makes the measurement slightly more conservative in that it can result in a lower recorded background noise, but the Standard suggests the difference in reality is not significant.

[7] A 'plan' as defined in the New Zealand *Resource Management Act* 1991

Following the close of Hearings, a decision of VCAT refusing a permit for The Sisters Wind Farm was bought to the Panel's attention. Two elements of the decision were particularly of interest to the Panel. Firstly VCAT found that the 2010 Standard for noise is the applicable standard; and secondly they determined the area of The Sisters was a 'high amenity area' in relation to the 2010 Standard.

The Panel asked for further written submissions on these issues from parties to the Hearing and a number of additional submissions were received (see Appendix B for list of submitters). These submissions, apart from that of the Proponent, generally supported the use of the 2010 Standard, or at least its consideration.

Submissions in support of using the new Standard included the following points:

- it makes sense to use the new and latest standard;
- it will produce better outcomes for protecting residents from wind farm noise;
- legal arguments around supporting the use of the new Standard based on the *Interpretation of Legislation Act* 1984; and
- using the 2010 Standard at The Sisters and the 1998 Standard at Mortlake is an arbitrary approach to planning that could result in different standards of noise protection and amenity being applied adjacent to each other.

The Proponent in response provided extensive legal reasoning as to why it considered that the 1998 Standard is the applicable standard to use. The specific arguments included:

- the matter is a question of law but VCAT did not appear to follow the requirements of Section 66 of the *Victorian Civil and Administrative Tribunal Act* 1998 for such a matter;
- by the Proponent's reasoning the Standard (1998 or 2010) is not a 'subordinate instrument' and therefore the *Interpretation of Legislation Act* 1984 does not apply to it; only to the planning scheme;
- incorporated documents (of which the Wind Farm Guidelines are one and they refer to the NZ Standard) can only be amended via a planning scheme amendment;
- the Panel should not even have regard to the 2010 Standard as it does not accord with the requirements of 60(1A)(g) of the *Planning and Environment Act* 1987; or at best give it little weight under 60(1A)(j) which relates to the responsibility having regard to 'any other relevant matter'; and

- The Sisters should not be declared a 'high amenity area' for amongst other reasons that there is no such reference in the Moyne Planning Scheme (assuming the approach in the 2010 Standard was accepted) to the area being one requiring any particular protection from noise.

4.4.2 Discussion

The Proponent's assessment for the project has been undertaken in accordance with the 1998 Standard. This is understandable given that the noise assessment commenced in 2008 and the 2010 Standard only came into effect in New Zealand in March this year.

In relation to the Standard that should be applied now, the Proponent in submissions has rightly pointed out that it is a question of law. This Panel does not include a legal member and the Minister for Planning in considering these recommendations may wish to seek further legal advice on this matter.

In principle the Panel does however prefer the position of the Proponent. The central argument that a positive action on the part of Government is required to introduce the 2010 Standard rather than it coming in to place 'automatically' carries weight with the Panel when considering the particular arguments made for this position that are summarised above.

The Panel considers there *are* good arguments for introducing the 2010 Standard for wind farm noise assessment (with some reservations in relation to high amenity environments discussed below). However, it considers this should be done as a conscious policy decision of Government, not on a case by case basis by Panels. The Panel has recommended that the 2010 Standard be introduced into the Wind Farm Guidelines and planning schemes as a matter of urgency.

The Panel notes the concept of a 'high amenity environment' introduced in the 2010 Standard. This principle may have merit but would need to be introduced through a body of strategic planning rather than applied arbitrarily based on a limited series of background noise measurements. The risk in declaring such areas is that legitimate use and development (wind farms are one example but restriction of 'noisy' rural uses may be of concern to farming and agricultural communities) may be prevented or curtailed.

4.5 Conclusion and recommendations

In relation to the applicable noise standard, the Panel considers that the use of the 2010 Standard should be pursued but that for this permit application, the 1998 Standard is the applicable one for assessing noise.

If the 2010 Standard is to be introduced then the Panel believes it needs careful consideration in relation to the concept of a 'High Amenity Area' and how this might be interpreted in Victoria.

The Panel recommends:

3. **The Minister for Planning consider replacing the New Zealand Standard NZS6808:1998 *Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators* in the Wind Farm Guidelines and planning schemes with NZS 6808:2010 *Acoustics – Wind Farm Noise* subject to review of the new and revised elements in the Standard.**

In relation to the noise assessment, the Panel considers that subject to any reassessment for an increased turbine height, the standard NZS6808:1998 should be able to be met.

The model permit conditions for noise from wind farms were discussed in the Hearing. In general the more recent permit conditions prepared for the Lal Lal Wind Farm are considered superior in their drafting. The Panel has recommended that they be used as the basis for Mortlake.

The Panel recommends:

4. **If the turbine hub height is to be increased to 100m, new noise predictions for Mortlake South and East must be undertaken in accordance with the New Zealand Standard NZS1998:6808 based on the type and hub height of turbines to be used. The results of such assessment should be submitted, with an independent peer review as to its adequacy and conclusions, to the Minister for Planning for consideration.**

5. **If a permit is to be issued for the wind farm, then conditions generally in accordance with those applied to the recent Lal Lal Wind Farm should be applied with modifications to take into account the specific circumstances at Mortlake.**

The Panel has drafted such conditions in Appendix C. In relation to cumulative noise impacts, the Panel recommends:

6. **A condition should be applied to the project in relation to potential adjoining wind farms to ensure effective treatment of the cumulative impact of noise.**

The Panel has drafted such a condition in Appendix C.

5. Flora and fauna

5.1 Background

The *Policy and planning guidelines for the development of wind energy facilities in Victoria* (the Wind Farm Guidelines) require that assessment of wind farms consider their benefits while protecting critical environmental values. These values are those protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the State *Flora and Fauna Guarantee Act 1988* (FFG Act). The State *Wildlife Act 1975* (which gives protection to all native species of wildlife) may also be relevant. The Wind Farm Guidelines (at Section 3.2.4) also indicate that the sensitivity of any protected species to disturbance should be considered.

The State Planning Policy Framework (SPPF) (Clause 15.09 – Conservation of native flora and fauna) requires planning authorities to utilise mapped information available from the Department of Sustainability and Environment (DSE) to identify areas of significant native vegetation and biodiversity. It also requires that planning authorities when making decisions should, inter alia:

- assist the conservation of the habitats of threatened and endangered species and communities as identified under the FFG Act;
- have regard to Victoria's *Native Vegetation Management: A Framework for Action*, DSE 2002 (i.e. apply the three step process of avoid removal, or if not possible minimise the removal and identify appropriate offset actions); and
- ensure that any changes in land use or development would not adversely affect the habitat values of wetlands and wetland wildlife habitats utilised by species designated under the Japan-Australia Migratory Bird Agreement (JAMBA) or the China-Australia Migratory Bird agreement (CAMBA).

The potential impacts on native flora and fauna of this proposal could arise from:

- the disturbance of native vegetation and/or fauna species and their habitat from construction activities; and
- the potential for bird and/or bat collisions with the wind turbines or other structures arising from the operation of the wind farm.

5.2 Evidence and submissions

A range of species of native flora and fauna were observed on the proposed wind farm site during the various surveys. However the potential impact on avifauna, and in particular Brolga, was recognised by the Proponent and public authorities as an issue of particular significance. This issue was also raised in 102 of the 140 pre-Hearing submissions and by many of the submitters who appeared before the Panel.

5.2.1 EPBC Act approval

As the project has the potential to affect species listed under the EPBC Act, the Proponent referred it to the Commonwealth Department of the Environment, Water, Heritage and the Arts (DEWHA) for consideration.

DEWHA in June 2008 determined that the proposed Mortlake Wind Farm did not constitute a 'controlled action' under the EPBC Act. However apparently based on the provision of further information, in March 2009 this decision was reversed. The project was considered to be a 'controlled action' due to the potential impacts on listed migratory species and listed threatened species and ecological communities.

In December 2009, DEWHA issued an approval for the construction and operation of the proposed wind farm under the EPBC Act. The approval was subject to the Proponent undertaking measures to enhance the habitat for the Southern Bent-wing Bat; measures to rehabilitate suitable wetland habitat for listed migratory species; and undertaking a five year monitoring program of bat and bird strikes.

The Commonwealth assessment was undertaken separately from the Moyne Planning Scheme planning permit application, not as a joint assessment as often occurs. The Proponent advised via a memo from Allens Arthur Robinson (Document 23) that there were no particular implications for the planning permit application from the Commonwealth approval and the Panel accepts this advice.

5.2.2 Flora

Brett Lane and Associates (BLA) on behalf of the Proponent undertook a desk top study and mapped the nature and extent of native vegetation on the site of the proposed wind farm in July 2007 and undertook a targeted study for threatened flora species in September (early spring) 2007. A further survey was undertaken in April 2009. Based on these studies, Mr Lane considered that it would be unlikely that any flora species listed as rare or

threatened under the EPBC Act or FFG Act would be present on the site of the proposed wind farm.[8]

In relation to native vegetation, Mr Lane indicated that the turbine and access track layout had been modified so that all identified areas of native vegetation present on the site would be avoided.[9]

The main area of concern related to the possible impact on the roadside native vegetation along the Darlington – Terang Road associated with the construction or upgrading of eight access tracks to the Mortlake East site. BLA surveyed the roadside vegetation at these locations in February 2010. However as the roadside had recently been burnt, this survey provided only limited information.

Based on the available information, Mr Lane estimated that native vegetation losses from the construction of these access tracks could be as high as 1.152 hectares.[10]. Other ancillary road upgrades and the installation or upgrade of powerlines might also impact on roadside vegetation.

Mr Hull from DSE indicated that they had yet to be provided with a full assessment of the possible losses of native vegetation from roadsides and the Proponent would be expected to demonstrate how it would address the three step approach of 'avoid, minimise and offset' required under the native vegetation management framework.

It is understood that any removal of native vegetation will be the subject of a separate planning approval process (including requiring the approval of the Minister for Environment for removal of areas of Very High Conservation Significance vegetation) and most likely involve the development and approval of a native vegetation offset plan.

Mr Hull indicated that DSE would have preferred that all the potential impacts of development including the impacts on native vegetation be addressed through a single planning and approval process.

Several of the submissions from local landholders also raised concern with the potential impact of the proposed wind farm on the native vegetation along the Darlington - Terang Road.

[8] B Lane EWS, February 2010, p7
[9] B Lane EWS, February 2010, p10
[10] Ibid.

5.2.3 Fauna

BLA undertook an initial fauna survey in July 2007, with additional surveying being undertaken in 2009.

They identified that although the proposed wind farm site had potentially suitable habitat for a number of threatened species of non-bird fauna (Growling Grass Frog, Fat-tailed Dunnart and Southern Bent-wing Bat), the only species that might be significantly impacted was the Southern Bent-wing Bat.

Mr Hull indicated that DSE was satisfied that the proposed wind farm would not have a long term impact on any threatened non-bat species provided that the appropriate mitigation measures were undertaken.[11]

Bats

DSE indicated that the Southern Bent-wing Bat was a small species that was known to fly at rotor swept area (RSA) height, and was listed as critically endangered under the EPBC Act and threatened under the FFG Act.[12]

BLA undertook an analysis of the use of the proposed wind farm site by bats, using Anabat(R) ultrasonic detection equipment in November – December 2007. Low levels of Southern Bent-wing Bat activity were recorded.

DSE considered that the proposed wind farm was unlikely to have a significant adverse impact on the Southern Bent-wing Bat as the site did not lie on any known migratory route and was on the outer limit of the foraging area for the population which roosts at Panmure 20km to the south. However it considered that it would be important to undertake post construction monitoring and ensure that mitigation measures were in place to manage any impacts on this species should they occur.[13]

DSE also indicated that based on recent mortalities at other wind farms, mortality monitoring and analysis should be also considered for more common species of bats.[14]

[11] G Hull, DSE Submission, p 8
[12] G Hull, DSE Submission, p 7
[13] G Hull, DSE Submission, p 8
[14] G Hull, DSE Submission, p8

Birds (other than Brolga)

The assessment of bird utilisation was undertaken by the Proponent in a number of stages at increasing level of detail in line with the *AusWEA Interim Standards for Risk Assessment for Birds from Windfarm Developments (2005)*. The Level 1 investigation undertaken in August and September 2007 indicated that further detailed assessment was required for Brolga.

The surveys indicated that the most abundant native species observed at RSA heights were the Raven, Australian Magpie, Straw-necked Ibis and Long-billed Corella, all of which were common farmland birds. The Brown Falcon was the most abundant species of raptor observed while four Wedge-tailed Eagles were observed in flight and four feeding on the ground outside the Mortlake East site. The Mortlake East site was believed to be within the foraging territory of at least one pair of Wedge-tailed Eagles.

The BLA 2009 report[15] indicated that only two listed migratory species had the potential to occur on the proposed wind farm site. These were Cattle Egret and Great Egret; neither considered to be of conservation significance. However it should be noted that the 2007 BLA survey was undertaken in spring when most migratory bird species would have been absent. As the site lacked woodland or ephemeral wetland habitats, BLA considered that these species would not regularly move across the site.[16]

The waterbird surveys at the three wetland identified by BLA on the Mortlake East site were observed to support five species listed under the EPBC Act or FFG Act (including Brolga). Additional observations in 2009 identified six species of migratory species (including Latham's Snipe) listed under the EPBC Act in and around the Mortlake East site.[17]

In addition to the wetlands identified as breeding habitat for Brolgas (for which there was a proposed 800m buffer – see below), a 450m turbine free buffer was proposed around other wetlands at the Mortlake East site to minimise impacts on other water birds.[18]

Although DSE did not raise any concerns with the impact of the proposed wind farm on any bird species other than Latham's Snipe and Brolga, such concerns were raised in many other submissions including those from the Trust for Nature and Bird Observation & Conservation Australia.

[15] BLA, Flora & Fauna Assessment, May 2009, p1,2
[16] BLA, Flora & Fauna Assessment, May 2009, p22,56
[17] B Lane EWS, Feb 2010, p3
[18] Ibid.

Latham's Snipe

Latham's Snipe is a medium sized international migratory wading species listed under JAMBA and CAMBA and the EPBC Act.

Although not observed in the 2007 survey, Mr Lane indicated that Latham's Snipe were present in 2009 at wetlands in and around the Mortlake East site. However he indicated that significant impact on this species was unlikely because of the low level of migratory bird activity recorded at the site, the low numbers of historical records and the generally low number of suitable wetlands within the proposed wind farm site.[19] The Proponent also submitted that as Latham's Snipe was not identified as being of concern in the EPBC Act approval, then the Panel should be satisfied it was not threatened by the project.[20]

DSE indicated that suitable Latham's Snipe habitat appeared to be widespread within the proposed Mortlake East site such as along the main drainage line.[21] DSE's view was that Latham's Snipe required targeted surveys that did not appear to have been undertaken by BLA.[22]

DSE's position was that the lack of information relating to Latham's Snipe prevented proper assessment of the impact of the proposed wind farm on this species.[23]

Brolga

The Victorian Brolga population (listed under the FFG Act) is estimated to be between 600 and 650 with a large proportion of the population occurring in western Victoria within the area experiencing significant wind farm development.[24] The habitat of Brolga has two distinct components. In winter-spring pairs of Brolga are widely dispersed across western Victoria attempting to nest in shallow, ephemeral wetlands. In summer-autumn as these ephemeral wetlands dry out, Brolga progressively gather at the few remaining permanent wetlands known as flocking sites.[25] Breeding and fledging success appears to be very low largely due to fox predation although other factors also could be important.[26]

[19] B Lane EWS, Feb 2010, p3
[20] Acciona Submission in Reply, March 2010, p7
[21] G Hull, DSE Submission, p12
[22] DSE Submission, December 2009, p1
[23] G Hull, DSE Submission, p12
[24] G Hull, DSE Submission, p3
[25] R Hill, EWS, March 2010, p2
[26] Brolga Action Statement No 119, DSE 2003

Brolga data at the proposed Mortlake Wind Farm site

Brolga are relatively scarce and widely dispersed even in suitable areas of their range for much of the year and it is therefore difficult to obtain large amounts of utilisation data from field observations. Thus even long periods of field observation generally document few flights.[27]

BLA undertook background research and targeted surveys of Brolga breeding sites over two periods of time, first between August and November 2007 (four days covering an area within 20km of the proposed wind farm as well as observing seven nests for a total of 148 hours); and again in October 2009 (five days covering an area within five kilometres of the proposed wind farm). The 2009 survey also involved reviewing updated records from the Atlas of Victorian Wildlife (AVW) and information gained from a local landowner, Mr Hamish Cumming. In addition Ecology Partners undertook migration season surveys in December 2007 and flocking season surveys in March – April 2008.

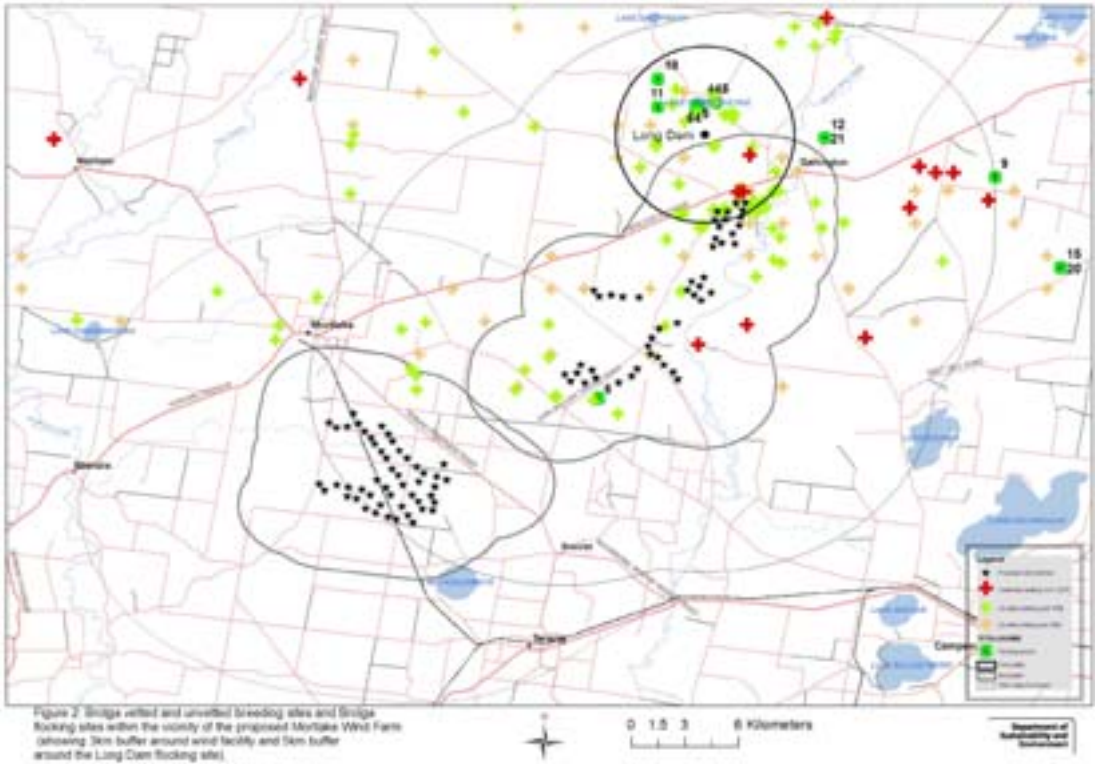
The perceived limited nature of these surveys and the limited effort in sourcing locally available information regarding wetlands on private land was criticised in many submissions including those from Bird Observation & Conservation Australia, the Trust for Nature and local land holders. Mr Cumming who owns a large property just north of the Mortlake East Wind Farm site submitted that he was not adequately consulted and that the information he provided to BLA was not reflected in the BLA reports. This was despite the fact that that his property included 500 hectares managed for the conservation of wildlife; the Long Dam wetland; and adjoined the Lake Barnie Bolac Brolga flocking site.

DSE submitted that the data collected and used by BLA to assess the impact on Brolga was inadequate, the surveys were not comprehensive and that BLA did not make a reasonable attempt to document local knowledge and expertise.[28] Mr Hill for DSE in his expert witness statement provided a Figure (Figure 5 below) that he suggested provided a more realistic picture of Brolga in the area.

[27] Stockyard Hill Wind Farm Planning Application, 2010, p118

[28] G Hull, DSE Submission, p5

Figure 5: Map of Brolga breeding and flocking sites provided by DSE



Impact of the proposal on brolga

Both the Proponent and DSE submitted that Mortlake South was unlikely to present a significant threat to the Brolga population.

In relation to the proposed Mortlake East component of the wind farm, the Proponent, DSE and many other submitters indicated that the proposal had the potential to have an impact on the Victorian Brolga population.

In order to assess the impact of the proposed wind farm on the Brolga population and develop strategies to minimise any adverse impacts, the Proponent submitted that it undertook the following actions:

- initiated the establishment of a policy basis for assessing the impact of proposed wind farms on Brolga. The Proponent's view was that in 2006 during the early planning stage of this project, there was no relevant policy in relation to wind farms and Brolga. Therefore Mr Lane on behalf of the Proponent initiated discussions with DSE to achieve the development of appropriate policy; and
- undertook investigations in increasing detail (Level 1, Level 2 and Level 3 studies) to assess the impact on the Brolga population and to provide the basis for developing mitigation measures.

As a result of these assessments, the following measures were developed by the Proponent with the objective of minimising the impact of the proposed wind farm on the Brolga population.

Flocking site buffer distances

The turbines were located so that all were at least five kilometres from the nearest flocking site identified by the Proponent; Lake Barnie Bolac.

Breeding site buffer distances

The Level 2 study[29] provided information on flight distances that was used as a basis to determine breeding site buffer distances. The relevant observed flight distances from breeding sites that were indicated in this study are set out in the following table.

Table 4: Breeding site flight distances

Flight distance from breeding site (metres)	Cumulative % of Brolga flights
400 to 799	72.55
800 to 1599	92.16
1600 to 3200	100.00

Based on the observation that over 70% of all movements of breeding pairs were within 800m of their breeding sites, 800m was adopted as an appropriate buffer distance for breeding sites. However it should be noted that the above figures were based on the observation of a limited number of flights; 6 flights of 400 - 799m and 10 flights of 800 - 1599m observed during one breeding season.[30]

Following the adoption of this buffer, the turbine layout was adjusted so that no proposed turbines were located within 800m from the edge of confirmed Brolga breeding wetlands and wetlands categorised as having high quality breeding habitat with a high likelihood of continued Brolga breeding.[31] Collision risk modelling was undertaken (as outlined below) and confirmed that this buffer distance would result in a level of collisions that was considered to be below the level of concern.

[29] BLA, Brolga Breeding Season Study, May 2009, p9

[30] BLA, Brolga Breeding Season Study, May 2009, p9

[31] BLA, Updated Brolga Breeding Habitat Assessment, January 2010, p2

Ecology Partners also recommended that the buffer zone should be at least 800m in relation to the two known breeding sites in the northern part of the Mortlake East site. In addition they recommended that the potential to reduce the density of turbines in the northern part of the Mortlake East site with close proximity to two known breeding sites should be considered.[32] Ecology Partners also noted that Brolgas may not reach flying height above RSA for at least 1-2km after take-off and Brolgas fly at RSA height during breeding and flocking seasons.

The Proponent indicated that the approach taken for establishing buffers around breeding sites at the proposed Stockyard Hill Wind Farm project (involving techniques such as home range mapping) was also applied to this wind farm proposal. However it was found not to be workable because there was not the same level of flexibility with the turbine layout at the Mortlake East site and its application would have resulted in a significant reduction of turbine numbers.[33]

Collision risk modelling

Collision risk modelling was undertaken by Biosis Research (November 2008 report) based on the estimated number of Brolga movements that could interact with turbines supplied by BLA and Ecology Partners. The initial modelling assumed seven breeding pairs are located in the area and flight heights based on the BLA survey (5% of flights estimated to be 40m or higher above the ground at RSA height).

The modelling excluded any flights movements from the Lake Barnie Bolac flocking site (and also Long Dam – a possible flocking site) as it was considered that five kilometre was greater than the maximum distance that flocking birds might fly to forage.[34] (Note - this should be compared with the findings in the Ecology Partners' flocking season assessment impact report that 29% of birds were observed over five kilometre from flocking sites[35]).

It should be noted there is no information available on Brolga collision avoidance rates so the model assumed that the avoidance rate would be 95% or higher (turbine collision rates for a wide variety of bird taxa are virtually all above 90% with many being above 98%[36]). The modelling was based on turbines with a span approximately 33 – 110m above ground. The current

[32] Ecology Partners, Brolga Migration Season Impact Assessment, March 2008, p9
[33] B Lane EWS, February 2010, p15
[34] Biosis, Brolga Collision Risk Modelling Report, November 2008, p10
[35] Ecological Partners, Brolga Flocking Season Impact Assessment Report, October 2008, p7
[36] Biosis, Brolga Collision Risk Modelling Report, November 2008, p14

proposal for turbines with a RSA of approximately 59 - 140m above ground was not modelled.

The modelling indicated that the wind farm layout with 800m turbine exclusion zones may result in 0.108 birds per year or fewer colliding with turbines (equivalent to a long term average of about one bird in ten years).

Additional modelling was undertaken assuming 15 breeding pairs in the area which resulted in a level of collision risk deemed to be acceptable and less than the level of risk understood to be acceptable to DSE in relation to the proposed Stockyard Hill Wind Farm.[37]

Population viability analysis (PVA)

PVA based on the collision risk modelling results (above) was undertaken by Dr Mick McCarthy (School of Botany, University of Melbourne, December 2008) which indicated that there would be a comparatively low of risk of the wind farm proposal on the Victorian Brolga population. This conclusion flows from the earlier data supplied by the Proponent.

Other proposed mitigation measures

The Proponent indicated that it would be prepared to commit to other mitigating measures such as powerline marking and participating in initiatives such as fox control and wetland restoration programs.

DSE position on the mitigating measures proposed

DSE had significant concerns with several aspects of the Proponent's proposals outlined above.

DSE supported the establishment of five kilometre buffers around flocking sites (as outlined in the *Draft Guidelines for the Assessment of Potential Wind Farm Impacts on the Brolga* (DSE 2009)). However it considered the Proponent had not demonstrated that the 800m buffer would achieve the objective of removing all significant impacts from breeding wetlands. (This is despite the apparent acceptance by DSE of a buffer distance around each nest site of a minimum of 750m at a meeting in February 2008 [38]).

Mr Hill in his expert witness statement (EWS) on behalf of DSE submitted that the approach used by BLA was insufficient to demonstrate that the 800m buffer would result in 'no significant impact on Brolga breeding success'.

[37] Acciona Response in Reply, March 2010, p8.
[38] Hearings Document 37, Minutes of a meeting at Melbourne University – Brolgas & Wind farms, February 2008.

His reasons included; that it would only remove turbines from 73% of flight movements observed by BLA and that all the nests observed during the BLA study failed before fledging chicks (at which time movement by breeding Brolgas would have greatly increased).

In addition, DSE submitted even if the 800m buffer was adopted there was a risk that not all potential nesting sites would have the buffer as the data presented did not represent a comprehensive assessment of all potential nesting habitat in the area. DSE did not agree with the approach outlined in the BLA report *Updated Brolga Breeding Habitat Assessment 2010* that buffers only be created around wetlands assessed as high quality breeding habitat and having a high likelihood of continued Brolga breeding. DSE also did not agree that data on Brolga breeding gained from observations prior to 1988 should have been discounted.

Mr Herring in his expert witness statement on behalf of DSE indicated that areas that appeared unsuitable and low quality habitat at one point in time (such as at the time of the BLA studies) could become high quality breeding habitat the following month or year. He also indicated that from his experience not using all the local sources of information for Brolga records would have underestimated both the number of breeding wetlands and the local Brolga population.

DSE submitted that all potential Brolga breeding habitat areas (rather than currently observed sites) should be protected with adequate buffers to provide not only for current needs but also for possible future expanded population needs, which it maintained was the ultimate aim of all threatened species management programs.

DSE's alternative approach (as outlined in the *Draft Guidelines for the Assessment of Potential Wind Farm Impacts on the Brolga* (DSE 2009)) would be to establish a default three kilometre turbine free buffer distance around potential breeding sites. Lesser buffers may then be acceptable if appropriate justification can be provided; i.e. where local patterns of habitat use justify lesser buffers. It should be noted that this methodology has been used in the Stockyard Hill Wind Farm planning application where it is understood to have been accepted by DSE.

DSE supported in principle the use of collision risk modelling and PVA to estimate the residual risk to the Brolga population and to guide further mitigation and offset measures. However they submitted that in this case the collision risk modelling was inappropriately used as the number of flights on which the modelling was based was underestimated. DSE also considered that the risk to Brolga population indicated by the PVA modelling was also underestimated for the same reason.

Mr Hill in his EWS on behalf of DSE indicated that in his opinion the number of birds observations used by the Proponent in the collision risk model was significantly underestimated as he believed that there could have been in the order of 30 breeding adults in the area as well as birds originating from the Long Dam flocking site which were not considered.

Flocking sites - Lake Barnie Bolac and the Long Dam wetland

The Proponent submitted that while Lake Barnie Bolac which lies five kilometres (the agreed buffer distance) from the nearest turbine was a Brolga flocking site, there was no evidence that Long Dam which lies 3.5km from the nearest turbine was also a flocking site.[39] Mr Organ on behalf of the Proponent in his EWS indicated that Long Dam did not satisfy the criteria of a flocking site. However DSE and Mr Cumming, who owns the site, submitted that Long Dam, a fresh water spring fed wetland was also a flocking site (or part of a flocking site complex).

5.2.4 Environmental Management Plan & Bat and Avifauna Management Plan

The Department of Planning and Community Development (DPCD) indicated that prior to development commencing, an Environmental Management Plan (EMP) would be required to be prepared in conjunction with the relevant agencies and to the satisfaction of the Minister for Planning. This Plan would include details of how the vegetation management framework would be applied and it would outline procedures to be followed to minimise flora and fauna impact during the construction and operation of the wind farm.

DPCD also indicate that a Bat and Avifauna Management Plan (BAM Plan) would be required to be developed in consultation with DSE and to the satisfaction of the Minister for Planning. The plan will establish the framework for monitoring for at least five years and establish measures to be taken in the event of bat or bird mortalities as a result of the operation of the wind farm.

[39] Ecology Partners, Brolga Flocking Season Impact Assessment, March 2008, p26

5.3 Panel discussion

5.3.1 Introduction

The Panel considers that given the importance of avifauna and especially Brolga in relation to this project, it was unfortunate that there was such a high level of disagreement between the Proponent and DSE on this issue. It appears DSE was unable to provide early, clear and consistent policy advice in relation to Brolga and wind farm developments and this is unfortunate. For example it appeared that DSE's early position in relation to buffer distances from breeding sites, which was critical to the layout of turbines, appeared to have been that 750m was the minimum requirement. This was later significantly increased to three kilometres which understandably caused some difficultly for the Proponent.

The Panel considers that the aspects of *AusWEA wind Farms and Birds: Interim Standards for Risk Assessment (2005)* relating to consultation and agreement between the Proponent and representatives of agencies that assess and approve wind farm proposals in relation to key issues were not applied as rigorously as they could have been. In particular, agreement was not reached on matters such as bird impact risk assessments studies, the consequences that applied to the results of these studies and the nature and effectiveness of mitigation measures.

The Panel considers that some aspects of the timing and extent of the flora and fauna surveys undertaken by the Proponent and the way the information was presented in the various reports could have been improved. The flora and fauna information was not in all cases presented clearly and concisely and there was overlap and duplication of the information provided in the various reports.

Given the importance of considering Brolga in the planning of the layout of the turbines, the Panel considers that it was unhelpful that the most complete map of wetlands in the area of concern was only made available by the Proponent in January 2010, just before the Panel Hearing. A single consistent numbering system for the wetlands in the area was not used in the various reports and a new system of numbering was introduced in the 2010 report, making comparisons between the various reports difficult. It would have been useful if more comprehensive surveying and mapping of all wetlands had been undertaken much earlier in the planning of this project.

The Panel considers that the Proponent could have made more effort to seek information from local landholders on potential bird habitat, and in

particularity Brolga (given the extent of the Brolga habitat in the area which lies on private land). It would have been helpful if local landholders had been approached earlier than in late 2009 when information was sought from Mr Cumming.

The Panel notes that concern with the process and lack of satisfactory contact with local landholders lead to considerable comment in many of the submissions including those from local landholders.

5.3.2 Flora

The Panel is satisfied that the action taken by the Proponent in selecting final locations for proposed turbines and other facilities should result in native vegetation on the proposed wind farm site being avoided by the development.

It accepts that the construction or upgrading of the eight access tracks to the Mortlake East site is likely to impact on the roadside native vegetation along the Darlington – Terang Road. It accepts the BLA estimate that the loss of native vegetation from the Darlington - Terang Road may be as high as 1.152 hectares.

The Panel considers that it would have been helpful if the detailed roadside vegetation survey had been undertaken earlier than February 2010 (when this roadside had been recently burnt and the study was only able to provide limited information). It is important that further surveying be undertaken at a more suitable time to accurately assess the impact of the development of the proposed access tracks on the roadside vegetation.

The Panel also notes that other possibly ancillary road upgrades and the installation or upgrades of powerlines might impact on other roadside vegetation. It notes DSE's advice that any removal of native vegetation associated with ancillary works would be the subject of a separate planning permit process and most likely involve the development and approval of a native vegetation offset plan.

The Panel considers that it may have been more efficient if any proposal for the removal of native vegetation could have been considered through this Panel assessment process rather than be the subject of another separate planning approval process.

5.3.3 Fauna

The Panel is satisfied that the proposed wind farm would be unlikely to have a long term impact on any of the threatened species of non-bird fauna that may have suitable habitat on the proposed wind farm site, i.e. Growling Grass Frog, Striped Legless Lizard, Golden Sun Moth, Fat-tailed Dunnart or Southern Bent-wing Bat.

However in relation to the Southern Bent-wing Bat, the Panel considers that it is important to undertake post construction monitoring and ensure that mitigation measures are in place to manage any impacts on this species should they occur. It also considers that mortality monitoring and analysis should be also considered for more common species of bats.

Although a number of birds including migratory and raptor species have been observed on the proposed wind farm site, the Panel notes that other than for Latham's Snipe and Brolga, DSE did not raise any concerns regarding the impact of the proposed wind farm.

After considering the information presented in considerable detail, the Panel considers that two species could potentially be significantly impacted by this wind farm proposal, i.e. Latham's Snipe and Brolga.

Latham's Snipe

As habitat suitable for Latham's Snipe appears to be present within the proposed Mortlake East wind farm site, the Panel considers that more thorough investigations should have been undertaken in relation to this species. It notes DSE's advice that targeted surveys are required to locate this species and that BLA did not detect this species until 2009 (although the extent of the 2009 survey is not clear).

The Panel does not accept the Proponent's position that because this species was not addressed in the EPBC Act approval, then it should not be considered to be an issue. It should be noted that in addition to the EPBC approval process, Clause 15.09 of the Moyne Planning Scheme requires that the responsible authority must ensure that any development would not adversely affect the habitat values of wetlands utilised by species designated under JAMBA or CAMBA.

The Panel considers that the lack of information provided in relation to Latham's Snipe prevented satisfactory assessment of the impact of the proposed wind farm on this species.

Brolga

The Panel considers that it is important not only to consider the potential impact of this wind farm proposal on the local population of Brolga, but also this proposal's contribution as part of the cumulative impact on the overall Victorian Brolga population, considering other wind farm developments already approved or planned.

The Panel considers that it is important to apply the precautionary principle to the conservation of Brolga. Therefore approval of the Mortlake East component of the wind farm proposal should be subject to establishing beyond reasonable doubt that its construction and operation could be undertaken in such a way that it would have a minimal impact on the overall Victorian Brolga population.

The Panel considers that the most effective method of mitigating any potential impacts on the Brolga population would be by ensuring appropriate separation distances between the turbines and the areas currently being used or likely to be used in the future for Brolga breeding or flocking.

Breeding sites

The Panel accepts in principle DSE's position that if possible, all potential Brolga breeding habitat areas (ie currently being used, suitable for use or able to be restored for use) should be protected to provide for the current needs and possible future needs of an expanded population of Brolgas - which is the ultimate aim of all threatened species management programs.

The Panel considers that the mapping undertaken during two field surveys in 2007 and 2009 may not have given a complete picture of all the potential wetlands in the area that have the potential to be used by Brolgas for breeding. It also considers that the 'on ground assessment' may have been limited as much of the surveying was undertaken from roadsides some distance away from possible wetlands located on private property. The Panel is not satisfied that the most complete map of wetlands available for the area (*Updated Brolga Breeding Habitat Assessment BLA 2010 – Figure 2*) adequately addresses all the potential Brolga breeding sites in the area over the long term and under a range of climatic conditions.

The Panel notes that if many or all of the reported observed breeding sites marked on the DSE map (Figure 2 attached to Mr Hill's EWS) were confirmed as such, it would indicate a large concentration of potential breeding sites in the vicinity of the northern end of the proposed Mortlake East wind farm site which are not reflected on the BLA 2010 map.

The Panel also considers that protecting a wide range of potential breeding sites including sites that could be restored, is especially important in view of the uncertain effects that future climate change may have on some existing wetland areas.

The Panel considers that applying a buffer only to 'wetlands assessed as confirmed as Brolga breeding wetlands and those categorised as having high quality breeding habitat and a high likelihood of continued Brolga breeding' as proposed by the Proponent[40], could be too limiting in providing for breeding habitat requirements of Brolga now and in the future.

Breeding site buffers

The Panel is not satisfied that the proposed 800m buffer would be adequate to meet the requirements of the precautionary principle in relation to the protection of Brolga breeding areas. The reasons include that:

- the flight information on which it is based was gained from a limited BLA study (two person days covering seven nest during one breeding season) and involving a very low number of flights (six flights of length estimated to be 400 - 799m). The study also does not appear to address different weather conditions, e.g. wind speed, that might affect flight characteristics;
- based on BLA's information, the 800m buffer gives protection to only 73% of the observed flights whereas a more conservative buffer such as 1600m based on the observed flight movements would protect 92% of the flights;
- Ecology Partners recommended that the buffer zone should be at least 800m in relation to the two known breeding sites in the northern part of the Mortlake East site; and
- the approach taken for establishing buffers around breeding sites at the proposed Stockyard Hill Wind Farm project was applied to this proposal, but was rejected as it was found not to be workable because there was not the same level of flexibility with the turbine layout at the Mortlake East site and its application would have resulted in significant reduction of turbine numbers. It appears that the methodology for developing the 800m buffer distance was driven by wind farm viability considerations rather than Brolga protection requirements (even though from the Proponent's perspective, the 800m buffer distance lead to collision risk modelling outcomes that were considered acceptable).

The Panel considers that an alternative approach such as that proposed by DSE (as outlined in the *Draft Guidelines for the Assessment of Potential Wind*

[40] BLA, Updated Brolga Breeding Habitat Assessment, January 2010, p24

Farm Impacts on the Brolga (DSE 2009)) and understood to have been used for the proposed Stockyard Hill Wind Farm project would be more satisfactory for ensuring the protection of the Brolga breeding population.

This approach would be to establish a default three kilometre turbine free buffer distance around potential breeding sites and consider lesser buffers if appropriate justification can be provided, i.e. where local patterns of habitat use (such as home range mapping) can justify lesser buffers. The Panel understands that this approach was acceptable to DSE in relation to the Stockyard Hill proposal.

Flocking sites and flocking site buffers

As both the Proponent and DSE agreed that no turbines should be located within five kilometres of flocking sites, the identification of potential flocking sites near the proposed wind farm site was an important issue. The two most important sites that appeared to have the potential for Brolga flocking were Lake Barnie Bolac and Long Dam.

The Panel visited both Lake Barnie Bolac and Long Dam on 23rd March 2010 and observed that Lake Barnie Bolac was dry whereas Long Dam which was fed by a permanent spring, was filled with water. As flocking sites are reported to be deep water marshes or permanent open water[41], the Panel agrees with DSE and Mr Cumming that Long Dam could be a potential flocking site or is part of a complex of wetland flocking sites.

Therefore the Panel considers that the turbines which are proposed to be located between 3.5km and 5km from Long Dam could present an unacceptable risk to Brolga when flocking at this site and should not be permitted.

Collision risk modelling

The Panel accepts that the Biosis collision risk modelling is a valid tool for assessing the potential risk to Brolga of collision with wind turbines. However as the outputs of the model depend on the reliability of the input data, the Panel considers that there are some difficulties at this stage in relying on the model's outputs as an accurate representation of the number of impacts that could arise from the proposed Mortlake Wind Farm.

The Panel notes that there are uncertainties in relation to the input data including that:

[41] Brolga Action Statement No. 119, DSE 2003, p2

- there is no data on the avoidance rates of turbines by Brolga, even though the 95% avoidance rate used could well prove to be conservative;
- the assumption regarding bird avoidance rates can prove to be significantly wrong as has occurred in relation to Wedge-tailed Eagles at the Woolnorth Wind Farm in Tasmania;
- relatively small changes in the collision avoidance rate can affect resulting predicted mortality very significantly (as stated in Mr Hill's EWS); and
- the modelling was based on turbines with a span approximately 33 – 110m above ground level, whereas the currently proposed turbines have a span of approximately 59 to 140m above ground which was not modelled.

However the Panel's major concerns are that the modelling may have significantly underestimated the number of collisions for the following reasons:

- the modelling was based on flights observed to be beyond 800m from breeding sites as identified by BLA. As indicated above the Panel are not satisfied that these assessed breeding sites accurately represent the complete picture of Brolga breeding in the area; and
- the modelling appears not to have taken into account the birds that might fly over the site from the Lake Barnie Bolac and Long Dam flocking sites. The Ecology Partners study found that 22-29% of Brolgas were observed or recorded more than five kilometres from roosting sites in the flocking season (ie the distance from Lake Barnie Bolac) and 38% were recorded between three and five kilometres distant (i.e. the distance from Long Dam).[42]

Population viability assessment

The Panel accepts that the PVA undertaken by Dr McCarthy is in principle a valid tool for assessing the potential impact of the proposed wind farm on the population of the Victorian Brolga, and could be a useful tool in assessing the cumulative impact of multiple wind farms. However as results of the assessment depend on the reliability of the input data, and the Panel considers that there are some difficulties in relying at this stage on the outcomes of the collision modelling as an input, then it is difficult to rely on the PVA's outcomes as an accurate assessment of this proposed wind farm's impact on the population of the Victorian Brolga

[42] Ecology Partners, Brolga Flocking Season Impact Assessment Report, October 2008, p7

Other mitigation measures

As Brolga are known to fly into powerlines, the Panel considers that powerlines associated with this proposal should be placed underground wherever possible.

The Panel noted the apparent limited extent of mitigation programs that have been undertaken in western Victoria to assist the conservation of the Brolga population. It considers that DSE could give higher priority to encouraging initiatives such as habitat and wetland enhancement, powerline marking and predator control especially targeting foxes (which are known to be a major cause of Brolga mortality). The Panel also notes that key wetlands could be considered for permanent protection such as under Trust for Nature covenants or by purchase and appropriate reservation.

Cumulative impact in relation to other wind farms

The Panel is concerned that even though the impact of individual wind farms on the Brolga population may be limited, the cumulative impact of all approved and proposed wind farms may be significant. The Panel supports the process of collision risk modelling followed by PVA to assess cumulative impacts of approved and planned wind farms. However this process will only achieve successful outcomes if the data inputs are adequate. The Panel therefore considers that this need reinforces its view that the identification of all potential breeding and flocking sites across the whole region is essential, as is the accurate estimation of all possible flights through approved and proposed wind farm sites.

Further research

The Panel considers that a key challenge in assessing wind farms proposals in areas of potential Brolga habitat is being able to access sufficient information to make informed decisions in relation to the threats to the survival of the Brolga population. Many aspects of Brolga needs and behaviours and in particular the reasons for their very low rate of reproduction, appears to need further research. The Panel also considers that effective mitigation strategies should be developed and implemented as a matter of urgency.

The Panel considers that every effort should be made to support the work of the *South West Victorian Brolga Research Project* (the Brolga Project) in developing a standard approach to assessing and mitigating the impacts of wind farm projects on Brolgas and to further develop knowledge of these impacts and how to mitigate them.

5.4 Conclusion and Recommendations

From a flora and fauna perspective the Panel concludes:

- that the development of the Mortlake South wind farm should not have a significant impact on native vegetation, nor flora and fauna listed under the EPBC Act and/or FFG Act;
- that the development of the Mortlake East wind farm site should not have a significant impact on native vegetation, nor flora and fauna listed under the EPBC Act and/or FFG Act (with the exception of Latham's Snipe and Brolga), or the impact could be managed in such a way that is should be able to be reduced to a level that would not be of concern;
- that based on the information available, the Panel is unable to assess the potential impact of the development of the Mortlake East wind farm site on Latham's Snipe and further survey and assessment is required before such an assessment can be made;
- that based on the information available, the Panel considers that the development of the Mortlake East wind farm in its current form could result in an unacceptable impact on the Victorian Brolga population. In order to ensure such impact does not occur, further survey, assessment and analysis is required.

The Panel recommends:

7. **That prior to development commencing, an Environmental Management Plan (EMP) be prepared in conjunction with the relevant agencies and to the satisfaction of the Minister for Planning. The EMP should include details of how the vegetation management framework would be applied and should outline procedures to be followed to minimise flora and fauna impact during the construction and operation of the wind farm.**

The Panel has included a draft condition in Appendix C accordingly. In relation to birds and bats the Panel recommends:

8. **That a Bat and Avifauna Management Plan be developed in consultation with DSE and to the satisfaction of the Minister for Planning, to monitor bat and/or bird mortalities for at least five years and establish measures to be taken in the event of bat and/or bird mortalities as a result of the operation of the wind farm.**

The Panel has included a draft condition in Appendix C accordingly. In relation to flora on the Mortlake South site the Panel recommends:

> **9. That any remnant areas of native vegetation on the Mortlake South site, including on the former Mortlake rail reserve, should be avoided during construction and operation of the wind farm.**

In relation to Mortlake East the Panel recommends:

> **10. That due to the possible impact on Latham's Snipe and Brolga, a planning permit not be issued for the Mortlake East component of Mortlake Wind Farm in its current form. Issue of such a planning permit should only be considered following:**
>
> **a) The provision of further information indicating there will be no significant impact on the Latham's Snipe population. This will require further targeted survey, assessment and analysis of the results of the assessment in conjunction with DSE;**
>
> **b) The revision of the turbine layout to ensure enhanced protection of Brolga flocking and potential breeding sites, and the provision of further information indicating there would not be a significant impact on the Victorian Brolga population from this development. The requirements would include:**
>
> - **Establishing a five kilometre turbine free buffer around the Long Dam flocking site;**
> - **Undertaking a comprehensive assessment of current and potential future Brolga breeding habitat based on assessment criteria developed in agreement with DSE;**
> - **Undertake additional Brolga surveys over a number of years to increase the observation data set of Brolga movements in the Mortlake East area. The additional survey methodology, timing and frequency should be developed with DSE;**
> - **Use the existing data and additional data to generate appropriate breeding site buffers. This process should be undertaken in consultation with DSE and could include techniques such as home range mapping;**

- **Undertaking additional collision risk modelling using the revised observation data set;**
- **Undertaking revised population viability assessment based on the outcomes of the updated collision risk modelling; and**
- **Ensuring that the results of the revised population viability assessment indicate that the impact of this wind farm project would not have a significant impact on the Victorian Brolga population.**

6. Social and economic impacts

6.1 Background

The Panel has been informed by the Planning Application Report (PAR), the Proponent's submission and submissions from others. The Panel particularly relied on:

- sections 9.13 (Vol 1) of the PAR, the report titled Socio Economic and Tourism Effect Assessment (Vol 3) and Appendix F of the Planning Addendum;
- the Applicant's, Moyne Shire and Department of Planning and Community Development's (DPCD) submissions to the Panel Hearing; and
- stakeholder, land owner and other submissions which addressed this issue.

6.2 Panel Discussion

6.2.1 Overview

Moyne Shire's Municipal Strategic Statement (MSS) states that agriculture is the most important sector of the local and regional economy, through its contribution to gross product, value-adding, employment and trade. Its fortunes affect the economic wellbeing of the towns, as well as the Shire generally. Mortlake, the nearest town to the proposed wind farm, is a principal retail (weekly and convenience shopping) and service centre in the Shire.

The Shire would like to further develop its tourism economy and recognises that its heritage and landscapes contribute to the visitor experience. The Shire's historic character and beautiful landscapes are key attractions for tourists, who typically enjoy informal, independent travel around the various points of interest. There are local features that draw visitors to Mortlake and its environs.

The Proponent highlighted the following positive economic and social attributes of the wind farm proposal:

- this proposal represents a significant financial and infrastructure investment in south-western Victoria;

- the proposal will deliver employment opportunities with consequent economic flow on effects;
- based on community surveys there is a high level of public support for the proposal and for this type of energy project in general (these are discussed further in Chapter 3);
- the proposal has willing landowners; and
- the site is in an area which is predominantly cleared farmland with low density housing and little pressure for increased dwelling density.

Local residents provided their perspectives on potential socio-economic benefits and disbenefits. Mr Morrison and Mr Jamieson, both stakeholder residents, pointed to stimulation of the local economy and schools due to the high quality employment that would be on offer and identified the benefits in gaining local employment that is not affected by agricultural downturns.

On the other hand, numerous residents raised concerns such as lowering of property values in proximity to wind farms (which the Panel acknowledges is not proven nor a relevant planning consideration), quarantining of land for future residences due to the need to maintain noise buffers from turbines, general safety fears, potential negative effects for dairy farms, cynicism about the community fund and lessening of community cohesion as a result of the pre-application consultation processes adopted by the Proponent.

6.2.2 Economic activity/employment

The Proponent's socio-economic assessment suggests that that the wind farm would provide some local employment diversification. The direct investment for wind farm construction is estimated at $350 million, with $126 million of this in Australia including a local spend of $95 million. During construction, 272 total, direct full time equivalent (FTE) jobs would be created in manufacturing and installation, with up to 204 of these jobs created in the region. Ongoing operations and maintenance would employ 9 direct positions.

However, there is a low unemployment rate in the Shire coupled with a skills shortage, so the wind farm contractor/s may need to resort to hiring outside employees. Those coming from outside the area would need accommodation, which did not appear to the Panel to be in great supply, especially for long term stays.

The Proponent has initiated a strategy to maximise regional employment and skills capacity benefits, including by providing for registrations of interest, providing information about contracts/services supply that will be needed,

liaising with key suppliers, and supporting training programs for suppliers and collaboration with sub-contractors.

6.2.3 Agriculture

The Panel accepts that there would be a minor loss of productive agricultural land through turbine placement and associated infrastructure (2% of the total wind farm site area). But economic benefit would flow to those land holders who accommodate turbines on their land, through improved access tracks and long-term leasing agreements with the wind farm owner. The lease income is always welcomed by farmers, who generally indicate a desire to undertake farm and property improvements that could otherwise not be paid for by farm income alone.

6.2.4 Shire rates

The wind farm would pay rates to Moyne Shire or make a payment in lieu under the mechanisms set down in Section 5 of the *Electricity Industry Act 2000*. According to the Proponent, this would be in the order of $170,000 per year. Mr Guest confirmed that the annual figure would be more than $100,000.

Moyne Shire, however, is concerned that while the additional rates appear to be a substantial increase in the Shire's rate base, due to the technical nature of wind farm operations, any complaints and potential enforcement action (for example relating to noise) will require significant Council resources. This could include Council staff time to manage the issue day-to-day and contracting the necessary expertise including technical and legal advice to investigate and resolve the problem, whether this leads to legal action or not.

6.2.5 Tourism and lifestyle

The Shire's primary socio-economic concern is whether the cumulative number of turbines constructed, approved, proposed and mooted in the south-west of Victoria will ultimately be detrimental to the tourism and lifestyle attractions of the area. This concern is based on the changing nature of the pastoral ambience of the Shire as more energy projects are constructed. The pastoral ambience has a long association with the history and physical features of the Western District of Victoria and is deemed to be a strong drawcard for those coming to the area. Moyne Shire identified clusters of wind turbines that would extend over 40km in length if all of these were approved and constructed.

The Proponent noted in its tourism assessment that wind farms at Codrington, Challicum Hills and Toora (Victoria), and at Albany and Esperance (Western Australia) have become additional tourist attractions within their regions. It also suggests possibly establishing an interpretive display about the Mortlake Wind Farm if it proceeds. This location could also promote the Volcanic Discovery Trail and other local attractions. This response is aimed at a single wind farm and, while potentially useful, it does not address the Council's concerns.

The Panel suggests that adoption of a number of wind energy projects in the Shire could have the benefit of introducing new people to the region through work-related visits, who may later come for a recreational visit if the Shire's strengths are well promoted. However, it is not clear how the Shire and wider region would accommodate large numbers of outside construction workers for concurrent or even sequential, multiple infrastructure projects. For example, is there excess accommodation capacity in the region? Would these workers compete with the recreational visitors for commercial accommodation, and could this undermine tourism in the longer term if people are turned away? The Panel was not provided with this analysis, but these questions do raise potentially relevant matters when considering future proposals in rural locations.

6.2.6 Community fund

Local community funds have been established by many wind farm operators as a means of providing financial benefits to residents who do not receive lease payments for turbines. The funds typically assist small communities by investing in local groups or projects. For example, the Waubra Community Benefit Fund, also administered by Acciona Energy, provides $64,000 per year, indexed to CPI. The fund has been used to purchase equipment and materials for community groups based in Waubra. The Proponent proposes establishing a community fund associated with the Mortlake Wind Farm.

The fund at Waubra equates to a contribution of $500 per turbine per year. A specific figure was not provided for Mortlake but if a similar amount was provided for at Mortlake the fund could be in the order of $50,000 per year. The Proponent provided (Document 119) a detailed explanation of how the Waubra fund operates.

The funds are a voluntary arrangement between the wind farm operator and the local community and they cannot be required or regulated through a planning permit.

6.2.7 Community participation

The Panel acknowledges the substantial community investment of its time and resources to participate in the planning application process, including the Panel Hearings and site visit. There were some 132 non-Government submissions to the application (both opposing and supporting the project) during the public notice period and 14 resident presentations to the Panel. Mr Gane on behalf of DPCD noted that the number of public submissions, while not high compared to other projects in Victoria, were significant in terms of recent infrastructure projects approved in the region.

The Panel heard community concerns about the operation of the planning system, particularly in terms of the rigour required of the Proponent in meeting the requirements of the *Policy and planning guidelines for development of wind energy facilities in Victoria, 2009* (the Wind Farm Guidelines). The two areas that created the most disquiet were the Brolga impact assessment and the landscape and visual characterisations and assessments. These concerns mobilised community participation and provided the Panel with very helpful and much appreciated local knowledge.

6.2.8 Community division

One of the issues apparent to the Panel is that of community division. This has been raised in numerous previous Panel reports and results from the differences between supporters of particular wind farm projects (usually but not always project stakeholders) and objectors (usually but not always local land holders not a stakeholder in the project).

Ms Quigley for the Proponent outlined in submissions (Document 17) the legal planning framework for this issue and makes note of Acciona's strong commitment to stay in, and work with, the local community during wind farm construction and operation.

In essence, the Panel notes and agrees in principle with her submission that the issue is not one in itself which should cause the application to fail.[43] However the Panel, with respect, does not agree with Ms Quigley when she states:

> *It is submitted that the 'social effects' and 'community division' complained of are simply disagreements of the kind which could be expected to arise in any community confronted by a proposal for significant development of any kind.*

[43] See comments in *Perry v Hepburn SC* [2007] VCAT 1309 at 134

Wind farm by their very nature have specific characteristics that make them different to other projects. These include:

- their extensive spatial nature and thus their potential to effect many adjacent landowners;
- their high visibility for tens of kilometres; and
- the particular characteristics of their noise generation.

The high visibility, scale and spatial extent of large modern wind farm mean that they may result in a 'paradigm shift' in the perception of local landscapes by residents. It would not be overstating the case to suggest that these projects are the single biggest landscape change in Western Victoria since European settlement, perhaps excepting the 500kV Moorabool to Heywood power line, which at approximately 60m high is about 40% of the height to blade tip of a modern turbine.

In addition there are numerous developments being considered at once in some areas. For example for the Mortlake project some submitters also have to deal with the planning process for The Sisters Wind Farm at the same time.

Rural communities share many similarities with urban communities. The Panel understands and accepts that they are not naturally idyllic, joyous and harmonious and share many of the same strengths and weaknesses as urban communities.

However they are defined by a higher degree of interdependence than urban communities. This is required to keep local institutions such as the CFA, sports clubs, schools and service organisations running as well as basic human relationships such as social contact or pulling together to (for example) help out a neighbour who is injured to get their the crops in at the right time.

The Panel considers the impact of community division is felt more keenly in such development projects as it has the opportunity to influence almost every aspect of rural life. This is not the same as conflict over planning applications in urban areas.

6.3 Conclusion and recommendations

On balance the Panel considers the net economic benefits of the project to the local and regional community are likely to be substantial over the life of the project although there are some areas (such as tourism) where the net effect is hard to determine.

In relation to social impact, the Panel is concerned (and observed) that community division for the project is deeply entrenched and regardless of whether the project proceeds or not, this division is likely to be an ongoing issue for the community in the project area.

The Panel accepts that in planning terms this division does not of itself cause such concern that the application should be refused (and indeed a refusal of the project would likely not reduce the community division, but merely shift its focus). However the division still remains.

If the project does proceed the Proponent will need to ensure it has comprehensive programs in place to re-engage with those members of the community who are in opposition.

The Panel considers that the State, in supplying the framework for wind farm development, needs to provide clearer parameters for how rural communities are engaged and supported through the pre-application and application process for wind farms. The risk if this is not done is that the wind energy industry will find it is faced by increasingly resistant communities in regional areas. The Panel recommends:

11. The Minister for Planning in conjunction with relevant agencies investigate the issue of community division with the aim of developing protocols for engaging and supporting communities affected by large wind farm developments.

7. Traffic management

7.1 Background

The traffic and transport assessment was undertaken by SKM and their report included in Volume 3 of the Planning Application Report (PAR). Following revisions to the project additional comments were provided in Appendix F to the PAR Addendum. A further written statement (Document 19) was provided at the Hearing in response to submissions.

Traffic is generated by the project during construction and operation. The traffic generated during wind farm operation is not likely to be significant and predominantly based on the movement of light vehicles for servicing and maintenance.

The biggest traffic impact is during construction. Table 2 in the original SKM technical report provides estimates of vehicle movements during construction for one wind farm (ie one of the Mortlake clusters). These figures did not change in the later work by SKM and are summarised in Table 5 below.

Table 5: Summary of Vehicle Movements from SKM

Item	Vehicle Type	Vehicles Per Turbine	Arriving Movements
Turbine foundation materials	Heavy vehicle	152	7,600
Turbine components	Over dimensional vehicles	7	350
	Heavy vehicles	3	150
Other	Cranes	4	4
	Cars for personnel	600	30,000
Totals		764[44]	38,104

[44] Sum of the above figures equals 766 – this appears to be an adding error.

This table suggests arriving movements for one 50 turbine cluster are 38,104 vehicles. Total vehicle movements per cluster are estimated at 76,208 and thus 152,416 for the entire project.

An analysis of construction heavy vehicle (HV) and over dimensional vehicle (ODV) traffic and likely routes was provided in the Appendices to the technical report. The actual routes and traffic counts will be expected to vary based on whether on-site concrete batching is used and the location of raw materials. These details may not be finalised until construction contracts are let. Major roads to be used are likely to include:

- Hamilton Highway on to the Darlington – Terang Road;
- Hamilton Highway on to the Terang – Mortlake Road; and
- Princes Highway on to the Terang – Mortlake Road.

7.2 Evidence and submissions

No evidence was called in relation to traffic management. A number of submissions referred directly or indirectly to traffic including those of the Moyne Shire Council and Corangamite Shire Council. VicRoads did not put in a submission to the planning permit application.

Some submissions referred to the impacts of crossovers on flora (particularly along the Darlington – Terang Road) and this issue is discussed in Chapter 5.

In their submission at the Hearing (Document 49), Moyne Shire were critical of the traffic study, suggesting that it had failed to provide accurate figures and routes for the haulage of bulk materials for track construction; missing information on school bus routes and intersection analysis; and traffic speed and associated dust concerns.

Corangamite Shire Council shared their concerns, particularly damage to infrastructure from heavy vehicles related to bulk materials haulage. They submitted:

> *It is critical that the likely sources of that material are identified early to provide for 'before & after' assessments and a procedure be agreed to attribute the damage and carry out the repair work in a timely fashion. This may involve remedial work during the construction period if any road becomes unsafe.*

Individual submitters raised issues such as the impact of traffic on farming activities (Susan and Alexander Dennis), quiet enjoyment and the damage to roads from construction vehicles (Scott and Jodie Dennis). Mr James Hicks raised concern about the cost of road upgrades and maintenance in relation to the rates paid by the wind farm operator to the local Council.

7.3 Panel discussion

The Panel notes the transport and traffic figures provided by SKM contain a considerable degree of uncertainty related to the final design of the project, the source of construction materials, the source of wind farm components and even the accommodation of the construction workforce.

The project on very approximate Panel calculations appears to contain in the order of 60km of internal tracks and the source of materials for these is unknown and could have a significant impact on local and regional traffic.

Given this uncertainty, the Panel believes that prior to the submission of the draft Traffic Management Plan suggested in the application, accurate vehicle numbers and travel routes must be recalculated and reviewed by VicRoads and the relevant Local Government(s) as appropriate.

That being said the Panel does not believe that the increased traffic from the project is in itself a reason to refuse to grant a planning permit. Rather the traffic must be managed to ensure:

- appropriate levels of road safety are maintained;
- traffic routes and intersection treatments are appropriate for the traffic generated by the project;
- roads are appropriately constructed and maintained to ensure the traffic quantities and type are accommodated;
- roads are reinstated and preferably improved relative to the pre-construction condition; and
- normal traffic in the area is not unduly impacted by the construction process.

There is no doubt that the construction period (suggested to be 18 months by SKM) will result in significant inconvenience to local residents at different times and on different routes. However, this will be temporary and is not unusual for large construction projects.

Dust control on internal access tracks will need to be managed to prevent adverse impacts on neighbouring landowners. This should be able to be achieved via normal construction management techniques such as watering trucks. The details of such arrangements should be considered in the Environmental Management Plan for the project.

7.4 Conclusion and recommendations

The traffic generated from the project, and particularly heavy vehicles, will be significant. The Panel considers this will require close cooperation between the Proponent, VicRoads, Moyne Shire, Corangamite Shire and the various contractors building the facility.

The Panel recommends:

12. Prior to the development of the Traffic Management Plan the Proponent prepare updated figures for traffic volumes, types and travel routes. These should be submitted for review to VicRoads, Moyne Shire and where relevant Corangamite Shire.

The Panel has recommended a draft permit condition accordingly. Subject to the recommendation above, the Panel recommends:

13. A Traffic Management Plan must be prepared for the project to provide the detailed management framework for traffic. The Traffic Management Plan must include, among other things:

- **The identification of ODV routes;**
- **The identification of HV routes and sources of all bulk materials;**
- **The identification of light vehicle routes and proposals to use mass transport for workers where possible;**
- **Management of project traffic in relation to local traffic and school bus routes;**
- **Details of any road, intersection or related infrastructure upgrades required and post construction restitution standards;**
- **Mechanism for input and approval by VicRoads and relevant local councils; and**
- **Details and timing of pre-construction condition surveys and timetables for maintenance and post-construction restitution works.**

Draft permit conditions are included in Appendix C. The Panel also recommends:

14. Traffic impacts related to dust be managed in accordance with the Environmental Management Plan proposed in the draft permit conditions in this report.

8. Health effects

8.1 Background

Potential health effects from wind farms have become controversial in Victoria, primarily raised in the context of the Waubra Wind Farm, a large operating wind farm north west of Ballarat. Waubra Wind Farm was constructed and is operated by Acciona.

8.2 Evidence and submissions

The potential health effects of the Mortlake Wind Farm were raised by a number of submitters, often with reference to the experience of Waubra non stakeholder residents.

The concerns related to noise effects from both audible and low frequency inaudible noise claimed to be causing symptoms such as headaches, nausea, dizziness, sleep deprivation and others.

Many submitters requested increased setbacks or a 2km 'buffer zone' between dwellings and the nearest turbine to minimise or prevent the claimed health impacts.

Tonnerre Pty Ltd as part of their submissions asked Mr Thomas, a resident from Waubra whose house is 3km from the wind farm to speak at Mortlake. Tonnerre Pty Ltd also provided a written statement from Mr Dean at Mortlake. Both expressed their concern and distress at their experience at Waubra and outlined a range of health issues they claimed to have occurred as a result of the wind farm.

Tonnerre Pty Ltd called evidence from Professor David Dunt in relation to health impacts. Professor Dunt undertook a literature review in relation to wind farm noise as well as viewing material provided by residents in the vicinity of the Waubra Wind Farm.

Professor Dunt addressed one of the major issues raised in submissions; that of possible health effects of low frequency sound and infrasound (inaudible low frequency sound). In general Professor Dunt concluded that:

> *While low frequency noise from wind farms has the potential to cause noise and have health related effects, there is very limited evidence that infrasound has such potential. Infrasound is inaudible at levels*

> *generated by wind farms. Any associated vibration is unlikely to cause significant effects on health based on both epidemiological and more general grounds.*

Professor Dunt reviewed a paper by Pedersen et al[45] from which he highlighted a number of conclusions including:

- high visibility of turbines increases the negative response to noise;
- there is a high correlation between negative response to visual appearance and annoyance at noise;
- people who benefit economically show significantly decreased levels of annoyance with noise at similar sound levels; and
- annoyance at wind farm noise is high compared to other noise sources.

Professor Dunt drew on a number of other papers including one by the Minnesota Department of Health[46]. One of its conclusions is that:

> *Sleeplessness and headache are the most common health complaints and are highly correlated (but not perfectly correlated) with annoyance complaints.*

A number of 'case series' studies were also discussed, focusing on communities that have already reported health impacts from wind farms. Professor Dunt suggested that these studies are of limited use within themselves but point to an area where further research may be required.

That is, whilst there are some studies on noise effects on health derived from annoyance, there are few peer reviewed studies that investigate the fundamental relationships between wind farms and health. He suggested:

> *…that studies with robust epidemiological designs be conducted to provide evidence for the existence or otherwise of these health outcomes.*

Professor Dunt noted the comments in relation to the 'nocebo' affect in the paper commissioned by the American and Canadian Wind Energy Associations[47] suggesting that the complainants against wind farms by their very actions are creating the stresses leading to adverse health outcomes. Professor Dunt was critical of this postulation, suggesting that while it is interesting it was not supported by any evidence.

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[45] Pedersen E, van den Berg F, Bakker R et al, Response to noise from modern wind farms in the Netherlands, J. Acoust. Soc. Am 2009, 126:634-643

[46] Minnesota Department of Health, Environmental Health Division, Public health impacts of wind turbines, 2009

[47] Expert Panel, Wind Turbine Sound and Health Effects, An Expert Panel Review, 2009

Dr Thorne in his evidence for Tonnerre concluded in relation to health that:

> *I am of the opinion, based on my own research, that wind farm noise can and does create reasonable noise within residences and consequential adverse effects in the sense of sleep disturbance, annoyance and potential adverse health effects to residents living within 2000 metres of large wind turbines set in a wind farm.*

Ms Quigley for the Proponent referenced a number of papers and VCAT cases in arguing that there is no medical evidence of health effects from wind farms. She submitted that the noise requirements in the Wind Energy Guidelines are the only determinant that the Panel should consider and that to do otherwise would be for the Panel to waste its time pursuing 'red herrings' (a reference to one of the VCAT cases).

8.3 Panel discussion

The Panel is clear that noise from wind farms (or any source for that matter) can be annoying and by extension potentially give rise to medical concerns related to sleep disturbance, stress and so on. That is why there are noise limits and criteria established for wind farm developments through the NZS6808:1998 and applied through the Wind Energy Guidelines and the planning scheme.

The Panel is also acutely aware that even when the noise criteria are complied with, this will not necessarily result in the noise being kept to a level that is satisfactory for all nearby residents. Mr Delaire in his evidence told us that this had in fact been his experience at Waubra where he was involved in post construction monitoring.

The noise criteria are not designed to remove all audible noise but to ensure it is kept to a level that is considered appropriate by regulatory authorities. The Panel's assessment of the noise according to the criteria is contained in Chapter 4.

In relation to other claimed health effects from low frequency noise, the Panel does not have any clear evidence before it suggesting that there may be effects other than the direct experience communicated by Waubra residents. The Panel has no reason to doubt the genuine concern that submitters to this project expressed through submissions and the Hearing.

However, this is not 'evidence' as such and particularly when viewed in the light of studies reviewed by Professor Dunt that those opposed to wind farms appear to suffer more adverse health effects than those who are not.

Professor Dunt in his evidence on the effects of wind farm noise could only suggest that there is no significant evidence suggesting that there is not a problem, rather than any particular peer reviewed evidence suggesting that there is a problem.

This may simply be a function of the operation of the research community and the funding available for such research. It may be prudent for an independent (from industry and objectors) peer reviewed study to be commissioned to try and resolve this issue once and for all.[48]

8.4 Conclusions and recommendations

In relation to the noise performance of the Mortlake Wind Farm the Panel has discussed this issue in Chapter 4. In relation to broader health effects, the Panel is not convinced on the evidence that there is a causal relationship between wind farms and the general health effects put to the Panel as being experienced at Waubra.

The Panel does not consider it has heard evidence that would prevent the issuing of a permit for the Mortlake Wind Farm on this issue.

However, in the interests of allaying the obvious community concern that was expressed to the Panel, it may be worth Government commissioning independent epidemiological research to address the issue.

[48] Just prior to the submission of this report the National Health and Medical Research Council position paper on these issues was released. Given that parties did not have the opportunity to make submissions on the report the Panel has not relied on its findings in concluding on this issue.

9. Cumulative impacts

9.1 Background

Large scale wind energy development applications have been received in increasing numbers in Victoria, particularly western Victoria, since the first major projects in the late 1990s. Planning Panels Victoria has assessed or is assessing 22 projects in excess of 30MW totalling over 2000 turbines if they were all to be constructed.

The Wind Farm Guidelines requires Proponents to submit a written report which includes:

> *An explanation of why the site is suitable for the wind energy facility having regard to:*
>
> - *….*
> - *The cumulative effects of the proposal having regard to other existing or proposed wind energy facilities in the area.*

Proponents address this issue to a greater or lesser extent. Panels over the years have provided extensive commentary on the issue. In the Mortlake Hearing Mr Guest from Moyne Shire drew the Panel's attention to extracts from the Ryan Corner Wind Farm Panel Report (an EES Inquiry and Planning Permit Application). An extract from the report is produced below:

> *However, the Inquiry is generally concerned that there is not an adequate cumulative impact assessment framework to consider these and other cumulative impacts from wind farms. There are an increasing number of large wind farm projects in western Victoria, many of which will be very close together if developed.*
>
> *The cumulative impact issues above, and others, could be considerable and the Inquiry is concerned that an adequate framework to consider such impacts does not exist.*
>
> *Such a framework can not, and perhaps should not, be developed by the wind energy industry given their focus on individual projects. Information they gain through their project research should however be fed in for use in assessing regional or sub-regional cumulative impact.*

At Mortlake, the Panel has had to consider a range of issues with cumulative impact elements. These include:

- landscape and visual impacts (turbines during the day and aviation lights at night);
- impacts on fauna (particularly Brolga);
- noise (the cumulative effect of two potential wind farms);
- grid servicing and infrastructure;
- possibly transport if a number of projects are constructed at the same time; and
- social and economic impacts.

It should be remembered that cumulative impacts are not all negative. For example the cumulative economic impact of wind farms will be a substantial positive impact for western Victoria.

9.2 Panel discussion

The Panel considers that the issues identified by the Ryan Corner Panel in early 2008 are essentially unchanged. There have been improvements in some areas. For example the South West Brolga Study should provide a region wide approach to assessing impacts on Brolga.

Of the other issues, the Panel considers that the issue of strategic landscape assessment is probably the most lacking. Projects are assessed against statutory tools such as the Significant Landscape Overlay, but the broader context is severely lacking. It is often left to landscape experts in the Hearing to give their opinion based on 'what they think' rather than any proper strategic assessment of the values, potential impacts and broad landscape protection considerations that the Panel feels is required.

The Coastal Spaces Landscape Assessment has been suggested as a model and the Panel considers that such a study for the western Victorian landscapes is essential.

This would be beneficial for all types of projects, not just wind farms. This is a matter of some urgency as a number of large energy proposals are at a point where proponents are no doubt undertaking landscape assessments in anticipation of lodging planning applications. The study would need to include a number of local government areas and probably DPCD would be in the best position to coordinate the project. The study should take into account a range of matters, such as those raised by Mr Gane in relation to the broad range of values in a landscape, with a view to prioritising landscapes that are more able to absorb change. Minimising visual impacts of any development out of keeping with the preferred character of an area should also be a goal of the study.

Guidance on other issues such as noise is also needed when two projects occur in close proximity to each other.

Powerline access is another issue that deserves strategic assessment. Whether Panels look at the 'connection to the grid' or not, and the Wind Farm Guidelines suggest they should not, the potential rapid proliferation of lines servicing a large number of wind farms is something that should be planned strategically to advance the causes of sound land use planning and net community benefit.

9.3 Conclusion and recommendations

The Panel is not suggesting that purely on cumulative impact grounds that the permit should not be issued for this wind farm. However the Panel does consider there is an urgent need for a cumulative assessment strategic framework to be developed to address some of the major cumulative impact issues that continue to arise for wind farms.

The Panel recommends:

15. The Minister for Planning urgently consider developing a framework for assessing cumulative impacts of wind farms in areas undergoing the most development activity. This should include region wide strategic assessment(s) of landscape values and identification of areas for protection (if any) for inclusion in planning schemes.

10. Other matters

10.1 Greenhouse gas abatement

The Planning Application Report (PAR) contained an analysis of greenhouse gas abatement prepared by SKM. This was further updated by SKM in the PAR addendum report and then a further written submission provided at the Hearing (Document 18).

The analysis by SKM in Document 18, based on the latest project design for a wind farm of 145.5MW wind farm of capacity factor 35% - 33% resulted in CO_2 displacement (compared to fossil fuel generation) of 0.39 to 0.45 million tonnes per annum.

The submission from Sustainability Victoria supported the project and outlined Government policy and the treatment of wind farms within the Victorian and eastern seaboard energy market.

A number of submissions (notably from Mr Cumming, Tonnerre Pty Ltd and Mr Walters) went to considerable lengths to discredit the assumptions and policy behind the figures of green house gas abatement.

The *Policy and planning guidelines for development of wind energy guidelines in Victoria* (the Wind Farm Guidelines) require[49] a written report with the application that includes amongst other things:

- the amount of electricity to be exported; and
- the expected greenhouse gas savings.

In the Panel's mind nothing in the Wind Farm Guidelines or planning scheme require the Proponent to prove that the commissioning of the project will result in an immediate decommissioning of an equivalent amount of fossil fuel generated power.

Mr Pickett from SKM put it thus:

> *SKM (2008) does not attempt to show that wind generation will solve Victoria's reliance on brown coal generation. It is understood that wind power alone cannot provide continuous base load power. However, …….. the key to reducing GHG emissions is improving the renewable energy / fossil-fuelled energy mix for a region. Without doubt,*

[49] p25

increasing Victoria's renewable energy portion of the mix will have the effect of a reduction in GG emissions, in the long term (assuming that fossil-fuel power generation would be used in its place otherwise).

The Panel considers the calculations and assumptions used in support of the permit application for electricity production and greenhouse gas abatement are reasonable within the context of the Wind Farm Guidelines and this planning permit assessment.

10.2 Aviation safety

10.2.1 Background

Because of their height above ground, wind farms can be considered a hazard to aviation depending on the terrain and aviation activity in the project area.

Whilst the Civil Aviation Safety Authority (CASA) requires obstacle marking within 30km of airports, it often provides recommendations on obstacle identification outside this distance. This usually includes obstacle lighting of some of the turbines at night.

In the ERM Landscape and Visual Assessment (in Volume 2 of technical reports to the PAR), Figures 9.1 and Figures 9.2 show possible lighting plans for Mortlake South (37 turbines lit) and Mortlake East (46 turbines lit).

The characteristics of such lights are discussed in the ERM report being:

…two red LED medium intensity lights approximately two metres apart, mounted on the back of the wind turbine nacelle. These lights act as a beacon during the night only, blinking on for 0.8 seconds and off for 2.2 seconds. All these lights will be synchronised to pulse on and off at the same time. These lights have a narrow beam of approximately 3 degrees, which allows a reduced downward spread, but are clearly visible to aircraft above.

In addition to obstacle marking for night flying, there are a number of aspects of aviation safety around the turbines that are relevant in the area including the use of light aircraft for transport, aerial fire fighting, aerial spraying and aerial fertiliser spreading.

10.2.2 Evidence and submissions

Turbine obstacle marking

It was clear in the Hearing that in relation to turbine obstacle lighting that the Proponent does not consider that aviation safety lighting is either necessary or desirable. Ms Quigley in closing submissions put it thus:

> *Mr Dunn's evidence in relation to aviation lighting was also very clear and it is Acciona's submissions that it should not be under any obligation to provide lighting until some time in the future when a legal requirement to do so exists. From a risk point of view, there is no justification for this at present.*

The Proponent called Mr Mel Dunn from Hart Aviation to provide expert evidence on aviation safety. In relation to lighting he outlined (at Section 5 of his expert witness statement) the current regulatory framework for obstacle marking of wind turbines.

Mr Dunn concluded after reviewing the particular circumstances at the Mortlake Wind Farm that the risk to aviation is low enough to avoid the need for aviation obstacle lighting. In forming this view he provided a comprehensive list of the reasons for this conclusion. He also stated:

> *It should be further noted that no evidence could be found of any collisions by aircraft with any wind turbine anywhere in the world.*

Individual submitters to the project who spoke at the Hearing were generally opposed to aviation lighting (for example Mr Cumming (submission 9), E & G Conheady (submission 44), S & A Dennis (submission 45), Mr Povey (submission 134)), on the basis that it is an unwanted extension of the negative daytime visual impact. The visual impact of night lighting is discussed further in Chapter 3.

Local aerial operations

Three aspects of local flight operations were raised in submissions. These were:

- the location and use of the airfield on South Boorook near Mortlake South;
- impacts on aerial fire fighting; and
- impacts on aerial agriculture.

The Allens (submission 6B and 42) have an existing airfield on their property South Boorook on the Mortlake – Framlingham Road. The airfield is

currently not used but the Allens indicated it is likely to be used again in future.

In particular turbines S50, S49, S48, S47, S46 and S45 are close to the airfield and flights using the east west runway would likely be affected.

The Allens and other submitters including Ms McDonald and Susan and Alexander Dennis raised issues in relation to both aerial fire suppression and impacts on aerial agriculture such as chemical spraying and aerial fertiliser application.

Aerial fire suppression may be restricted due to both the capacity to access existing water storage by helicopters and restraints on fire bombing by both fixed wing aircraft and helicopters.

It was submitted that aerial agriculture may be restricted on adjoining properties due to the proximity of turbines and the need for adequate turning and safety distances for aircraft. A particular example given was the Allen property east of the Mortlake – Framlingham Road at Mortlake South where turbines surround the property on three sides.

In response Mr Dunn in evidence concluded that there would be a conflict between the South Boorook airfield if reactivated and the Mortlake South cluster of turbines if constructed as planned. He provided a number of options for the airfield ranging from closure to relocation to wind farm modification. The Panel notes that the Allens are somewhat resistant to relocation on the grounds that the current location of their airfield, close to the farm gate, assists with their biosecurity program by limiting the need for vehicle access to internal areas of their farm.

The Proponent provided a memorandum from Allens Arthur Robinson (Document 113) on the issue. This memorandum drew the Panel's attention to the recent Lal Lal Wind Farm Panel Report (extract in Document 114) which addressed the issue in depth and in turn drew upon a decision of the Victorian Civil and Administrative Tribunal50.

Essentially the Lal Lal Panel concluded that even though an airstrip may exist and be in use, its continued safe operation is a matter for the operator of the airfield who must consider developments occurring on adjoining properties as necessary.

[50] *Upson V Corangamite SC* [2005] VCAT 2267

Additionally, consideration of a permit for the adjoining use must weigh up the broader societal benefits to be gained compared with the continuing operation of the airfield.

The Proponent in putting this case forward also suggested that they would not object to a permit condition requiring them to assist with the relocation costs of the airfield.

Mr Dunn also addressed the issue of aerial fire fighting efforts in and around the wind farm and concluded that access to the major water storages on the Mortlake – Framlingham Road by helicopters would not be affected. He also submitted that aerial fire fighting within the wind farm by either fixed wing aircraft or helicopters should be avoided for safety reasons.

The Country Fire Authority (CFA) in their submission did not address this issue.

In relation to aerial agriculture within the wind farm Mr Dunn's evidence was that it should not be undertaken for safety reasons, possibly leading to the need for more expensive ground based operations.

10.2.3 Discussion

Turbine obstacle marking

The provision of aviation obstacle lighting for wind farms has been problematic due to confusion over CASA's regulatory power and the absence of support for risk based assessment of obstacle marking needs. This confusion is evident in the approach various Panels have taken to the issue over the past eight years.

For this project the following points are clear:

- the Proponent would prefer not to light the turbines;
- many submitters object strenuously to the impact on their night sky; and
- the expert aviation witness called by the Proponent (Mr Dunn) considers that the risk at this location is low to the point where obstacle lighting is not required.

The Panel considers that all-night lighting of the turbines is clearly not necessary in an area of extremely low night flying aircraft movements (none of which are meant to occur below 1,000 feet above the highest obstacle within 10 nautical miles under night visual flight rules) and is an unreasonable and unacceptable impost on the local and regional community.

The Panel is also aware that 'on-demand' (lighting when aircraft are in the vicinity at night or in low visibility conditions such as smoke or fog) obstacle lighting for wind farms has been approved for use in other countries and considers that if lighting is required, it should be in this form.

Local aerial operations

The Panel is satisfied that a solution to the South Boorook airfield issue can be found. If the wind farm is constructed, there should be an opportunity, perhaps with the Proponent's assistance, to construct a useable runway in an appropriate location.

Even if this opportunity did not exist, the Panel considers that the guidance from VCAT and other Panels suggests that the net community benefit (renewable energy generation) in issuing a planning permit for the wind farm would outweigh any particular use rights attributable to the airfield.

In relation to fire fighting, the Panel accepts that aerial fire suppression within the wind farm will effectively be excluded and ground based attack will be the only option. The Panel considers that this will produce an additional complexity in fire planning, but is not in itself a reason for refusing the permit. Fire planning for the area can include strategic aerial fire suppression (if needed and available) around the wind farm and a normal ground attack approach in the wind farm.

The wind farm itself may provide additional opportunities for contributing to fire planning and response efforts via improved access, water sources, equipment and training. The Panel is given some comfort in this regard by the evidently successful arrangements in place at the Waubra Wind Farm (see Document 118).

In relation to aerial agriculture the Panel considers that in general the activities on adjoining properties should not be adversely affected. However in some cases (such as the Allen property east of the Mortlake – Framlingham Road) there would appear to be a case to be made that aerial agriculture may be curtailed.

If this leads to additional expenses for non-stakeholders it may warrant further investigation. Ultimately it may fall into a similar category as an airfield. Whilst aerial contractors may use adjoining airspace for turning and commencing runs, is this an entitlement that must be protected in the planning system or rather an additional constraints to be managed by the land holder undertaking the spraying themselves? The Panel considers the latter is more likely.

10.2.4 Conclusions and recommendation

The Panel concludes that based on the submissions and evidence before it 'all-night' aviation obstacle lighting is unnecessary and an unacceptable impost on the community. If the aviation regulatory authority or other body requires aviation obstacle lighting then it should only be illuminated on demand, whether in the detected presence of aircraft at night or in low visibility daytime situations (fog or smoke).

The Panel recommends:

> **16. Night time aviation obstacle lighting of the Mortlake Wind Farm should be prohibited via condition. If it must be provided it should only be on the basis of 'on demand' illumination.**

The Panel has recommended a draft condition accordingly.

In relation to aerial fire fighting and aerial agriculture the Panel considers that these issues, whilst requiring careful consideration during project construction, are not of sufficient concern to warrant refusing a planning permit. The Panel has provided a draft permit condition in relation to the South Boorook airfield.

10.3 Cultural heritage

10.3.1 Aboriginal cultural heritage

According to the Shire's MSS:

> *Prior to white settlement the northern portion of the Shire was occupied by the Kirrae, Buloke, Tjapwuurong, Gournditch-mara and Gunditjmara Tribes. The Peek Whunrong Tribe roamed in small bands along the southern coast and banks of rivers between Portland, Kirkstall and the Hopkins River. The Barath gundidji clan occupied the mouth of the Curdies River. The Mallungundidji clan was centred on Griffith Island and was the only Victorian Aboriginal community to be based on an island along the open coast. Given the nomadic nature of various tribes many of the groups occupied the same areas across the Shire at different times. Following European contact Aboriginal missions were established at Lake Condah and Framlingham in the 1850s.*

Mr Gane raised the history of Aboriginal life in this part of the Shire including the conflicts that occurred with agricultural settlement. His argument is that this history imbues the land with certain characteristics which are as yet unrecognised in the planning assessment for this proposal.

The Panel has already discussed his submission and alternative approaches to wind farm landscape assessments in Chapter 3 of this report.

Potential, direct impacts on Aboriginal cultural heritage have been assessed through a mandatory cultural heritage management plan prepared and approved pursuant to the V*ictorian Aboriginal Heritage Act 2006.* This satisfies the statutory requirement for the Mortlake Wind Farm application.

10.3.2 Post-contact cultural heritage

The MSS states in relation to the Mortlake area:

> *The northern area of the Shire including the Mortlake area was settled in the 1850s. Large pastoral stations developed along with the dairying industry. Smaller farms were established by soldier settlement and the closer settlement schemes. Farming continues to support Mortlake, however changes in farm practice has seen the slow decline in population in the northern portion of the Shire in recent years.*

There would be no direct impacts on heritage features through development of the wind farm. The Panel discusses the relationship between heritage and landscapes in Chapter 3 of this report.

10.4 Shadow flicker and blade glint

An assessment of shadow flicker was undertaken by Acciona in the PAR and updated in the in the PAR Addendum Report. Shadow flicker diagrams were shown for Mortlake East and Mortlake South in the original report.

Based on the revised project layout, Acciona suggested that for a 100m hub height turbine at Mortlake East the maximum hours per annum any house would be affected would be 14. For Mortlake South the equivalent figure was 18 hours per annum.

No evidence was called to refute the technical basis for the shadow flicker assessment or its specific conclusions. As the Victorian standard is for no dwelling to receive more than 30 hours per annum of shadow flicker the Panel is satisfied that this figure can be met.

Professor Dunt in his expert evidence addressed the issue and identified flicker sensitive epilepsy as a medical condition that may be triggered by flickering light. He suggested that the frequency of the flicker is critical and that flash frequency should be kept to a maximum of 3 per second (or 60 revolutions per minute (rpm) for a three bladed turbine). The Panel understands that modern turbines have a maximum rotation speed in the order of 20-25rpm. Whilst it is conceivable that two turbines in line with the

sun could achieve a flicker frequency approaching perhaps 2.7 per second (50rpm) if they were out of phase, the likelihood of this occurring in the presence of a susceptible recipient is very low.

Professor Dunt also noted in his evidence that keeping shadow flicker to a minimum is important because research has shown it can exacerbate annoyance with the noise from a wind farm.

The Panel notes that a non reflective coating is proposed for turbine blades and does not consider that blade glint will affect nearby houses or roads.

10.5 Electromagnetic interference (EMI)

Garrad Hassan Pacific Pty Ltd prepared a detailed assessment of EMI as part of the PAR. They provided additional advice in the PAR Addendum Report.

Their conclusions in chief from the main assessment were:

- three point to point links across the wind farm were identified but these should not be affected by the design assessed;
- several point to multipoint transmission licences were identified in the area and may require further assessment and consultation with the licensees; and
- analogue television interference could potentially occur at up to 67 houses in the vicinity of the wind farm and these may require post construction equipment upgrades.

The PAR Addendum report included an e-mail from Garrad Hassan Pacific. This suggested that a range of assessments should be carried out as well as reviewing the ACMA (Australian Communications and Media Authority) database to see if additional transmitters have been put in place.

The Panel considers that this is an issue that will require investigation and remediation works as necessary during the construction and operation of the wind farm at the Proponents expense. However, it does not consider that the issue is an impediment to the issuing of a permit for the wind farm.

Ms Quigley for the Proponent summed up the position as:

> *Mitigation is available and this can be provided for via an appropriately worded condition.*

The Panel concurs and a draft condition is put forward in Appendix C.

11. Summary of recommendations

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

1. That subject to the recommendations in this report and the draft permit conditions contained in Appendix C, a planning permit for Moyne Planning Scheme Planning Permit Application 2008/0538 only be issued for the Mortlake South cluster of the Mortlake Wind Energy Facility.

Visual Screening

2. That provision for voluntary offsite landscaping (i.e. with the landowner's consent) be made for non-stakeholder properties within 3km of any turbine.

Noise

3. The Minister for Planning consider replacing the New Zealand Standard NZS6808:1998 *Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators* in the Wind Farm Guidelines and planning schemes with NZS 6808:2010 *Acoustics – Wind Farm Noise* subject to review of the new and revised elements in the Standard.

4. If the turbine hub height is to be increased to 100m, new noise predictions for Mortlake South and East must be undertaken in accordance with the New Zealand Standard NZS1998:6808 based on the type and hub height of turbines to be used. The results of such assessment should be submitted, with an independent peer review as to its adequacy and conclusions, to the Minister for Planning for consideration.

5. If a permit is to be issued for the wind farm, then conditions generally in accordance with those applied to the recent Lal Lal Wind Farm should be applied with modifications to take into account the specific circumstances at Mortlake.

6. A condition should be applied to the project in relation to potential adjoining wind farms to ensure effective treatment of the cumulative impact of noise.

Flora and fauna

7. That prior to development commencing, an Environmental Management Plan (EMP) be prepared in conjunction with the relevant agencies and to the satisfaction of the Minister for Planning. The EMP should include details of how the vegetation management framework would be applied and should outline procedures to be followed to minimise flora and fauna impact during the construction and operation of the wind farm.

8. That a Bat and Avifauna Management Plan be developed in consultation with DSE and to the satisfaction of the Minister for Planning, to monitor bat and/or bird mortalities for at least five years and establish measures to be taken in the event of bat and/or bird mortalities as a result of the operation of the wind farm.

9. That any remnant areas of native vegetation on the Mortlake South site, including on the former Mortlake rail reserve, should be avoided during construction and operation of the wind farm.

10. That due to the possible impact on Latham's Snipe and Brolga, a planning permit not be issued for the Mortlake East component of Mortlake Wind Farm in its current form. Issue of such a planning permit should only be considered following:
    a) The provision of further information indicating there will be no significant impact on the Latham's Snipe population. This will require further targeted survey, assessment and analysis of the results of the assessment in conjunction with DSE;
    b) The revision of the turbine layout to ensure enhanced protection of Brolga flocking and potential breeding sites, and the provision of further information indicating there would not be a significant impact on the Victorian Brolga population from this development. The requirements would include:
        - Establishing a five kilometre turbine free buffer around the Long Dam flocking site;
        - Undertaking a comprehensive assessment of current and potential future Brolga breeding habitat based on assessment criteria developed in agreement with DSE;
        - Undertake additional Brolga surveys over a number of years to increase the observation data set of Brolga movements in the Mortlake East area. The additional survey methodology, timing and frequency should be developed with DSE;

- Use the existing data and additional data to generate appropriate breeding site buffers. This process should be undertaken in consultation with DSE and could include techniques such as home range mapping;
- Undertaking additional collision risk modelling using the revised observation data set;
- Undertaking revised population viability assessment based on the outcomes of the updated collision risk modelling; and
- Ensuring that the results of the revised population viability assessment indicate that the impact of this wind farm project would not have a significant impact on the Victorian Brolga population.

Social Issues

11. The Minister for Planning in conjunction with relevant agencies investigate the issue of community division with the aim of developing protocols for engaging and supporting communities affected by large wind farm developments.

Traffic

12. Prior to the development of the Traffic Management Plan the Proponent prepare updated figures for traffic volumes, types and travel routes. These should be submitted for review to VicRoads, Moyne Shire and where relevant Corangamite Shire.

13. A Traffic Management Plan must be prepared for the project to provide the detailed management framework for traffic. The Traffic Management Plan must include, among other things:
    - The identification of ODV routes;
    - The identification of HV routes and sources of all bulk materials;
    - The identification of light vehicle routes and proposals to use mass transport for workers where possible;
    - Management of project traffic in relation to local traffic and school bus routes;
    - Details of any road, intersection or related infrastructure upgrades required and post construction restitution standards;
    - Mechanism for input and approval by VicRoads and relevant local councils; and
    - Details and timing of pre-construction condition surveys and timetables for maintenance and post-construction restitution works.

14. Traffic impacts related to dust be managed in accordance with the Environmental Management Plan proposed in the draft permit conditions in this report.

Cumulative impact

15. The Minister for Planning urgently consider developing a framework for assessing cumulative impacts of wind farms in areas undergoing the most development activity. This should include region wide strategic assessment(s) of landscape values and identification of areas for protection (if any) for inclusion in planning schemes.

Aviation obstacle lighting

16. Night time aviation obstacle lighting of the Mortlake Wind Farm should be prohibited via condition. If it must be provided it should only be on the basis of 'on demand' illumination.

Appendix A List of submitters

NAME		ORGANISATION
Martin	Slocombe	Country Fire Authority
James R	Baxter	
B N	Clingan	
S F, N R & L M	Anderson	
Scott & Jodie	Dennis	
Lisa	Allen	
Patricia	Coleman	
Claire	Craven	
Hamish	Cumming	
Leo J	Gee	
Carol	Gilmour	
Michael	Gilmour	
Leon	Golsworthy	
Gaye D	Haworth	
Timothy J	Haworth	
Heather	Hicks	
Nigel	Hogan	
Christine P I	Kirk	
Helen E	Kirk	
Hilda I	Kirk	
Adrian P	Leishman	
Ashley	Leishman	
Sean M	Leishman	
Stephen R	Leishman	
Colin K	McDonald	
Michele C	McDonald	
Matthew	McPhee	
Frank	Quinlan	
Jon	Vermaas	
Peter J	Walmsley	
Marcus	Little	Glenelg Hopkins CMA
D, D & R	Selman	
W John	Morrison	
James	Rothman	

Nick	Rees	Powercor Australia
J A	Morrison	
Beverley	McArthur	
Clive	Jamieson	
Anna	Jamieson	Mortlake Business Owners
Jack	Roxburgh	
Margaret	Allen	
Peter	Allen	South Boorook Pastoral Co.
Neil & Hazel	Chard	
Edward & Geraldine	Conheady	
Susan & Alexander	Denis	
Emma	Elsworth	
Kerry	Hicks	
Joanne & Paul	Hill	
Jannie	Hodgson	
C G	Luckock	
John G	Mosley	
David J	Sewell	
		Tonnerre Pty Ltd
Doug	Robinson	Trust for Nature
Claire	Tesselaar	Department of Sustainability and Environment
Ross	Quail	
Heather	Barker	
Richard	Hunter	Bird Observation & Conservation Australia
Casey	Bolden	
Margaret	Campbell	
Rita	Cassar	
Jenny B	Cumming	
Samantha	Dayman	
Tessa L	Dayman	
Kayla	Dwyer	
Tony	Edney	
Brendan C	Egan	
James W	Elsworth	
William J	Elsworth	
Cassie	Franzose	
Kelvin	Goodall	
Sharon	Fulton	
Michelle	Hall	

James	Hicks	
Madeleine	Homberg	
Joanne	Jackson	
Katie	Jeffery	
Emilie	Kenny	
Andrei	Khaidurov	
Megan A	King	
A	Lee	
Kellie	McLeod	
Renate	Metzger	
Peter	Moloney	
Cate	Nash	
Jim	O'Brien	
Laura	O'Brien	
Marcus	O'Brien	
Shelley	O'Brien	
John H	Pollard	
Robin	Pollard	
Judy	Prasser	
Alexia	Preston	
Zuraiyer	Rantall	
Sophie	Read	
Sandra J	Rogerson	
William R B	Rogerson	
Caitlin	Simper	
Sondra E A	Solomon	
Shannon	Smit	
Heather	Stewart	
Louise	Thomas	
Izzy	Trigg	
Christopher	Molan	
Donald L	Walters	
Sophie	Warnock	
Kelsie	Waterson	
Christie	Williams	
Kirsty L	Williams	
Rebekah V	Withers	
Michael	Williamson	Sustainability Victoria
G A	Fowler	

Marion	Kavanagh	
Graeme & Catherine	Keating	
Bruce R	Keen	
S M	Lambert	
Shelley	McDonald	
James T	Moloney	
Russell	Guest	Moyne Shire
Rodney J	Read	
Susan M	Reidy	
John I	Stepnell	
Valerie I	Stepnell	
Andrew	Whitson	
Dyllon	Effingham	
Reginald C	Brownell	
Robert J	Foster	
Grant & Michele	Holmes	
Peter R	Mitchell	
Michael	Leong	VicTrack Access
Jocelyn	Mitchell	
Kathy	Russell	
Jannie	Hodgson	
Neil	Povey	
Janet	Jackson	
Teresa	Conheady	
J	Goold	
Gordon	Roberts	
Rosalind	Jamieson	
Andrew	Mason	Corangamite Shire Council

Appendix B Additional submissions on noise

NAME		ORGANISATION
P & L	Allen	
Heather	Hicks	
Pointon Partners		Tonnerre Pty Ltd
Allens Arthur Robinson		Acciona
Louise	Thomas	
Shelley	McDonald	
Russell	Guest	Moyne Shire

Appendix C Permit conditions recommended by Panel

PLANNING PERMIT

Permit No: 2008/0538

Moyne Planning Scheme:

Responsible Authority for Administration and Enforcement of this Permit: Moyne Shire Council

ADDRESS OF THE LAND: Land generally described as:[1]

THE PERMIT ALLOWS:

Use and development of land for a wind energy facility – "Mortlake Wind Farm", comprising 51 wind turbines and associated infrastructure (including the construction of access tracks, electrical cabling, two substations, control and maintenance facility, three permanent anemometers, temporary construction facilities, business identification signage, car parking and bicycle facilities) as described in those portions of the "Mortlake Wind Farm" planning permit application report relating to the "Mortlake South" component.[2]

Alterations to an existing access point to a Road Zone Category 1 (Terang – Mortlake Road).

THE FOLLOWING CONDITIONS APPLY TO THIS PERMIT:

DEVELOPMENT PLANS

1. Before the development starts, development plans must be prepared to the satisfaction of the Minister for Planning. When approved, the plans will be endorsed by the Minister for Planning and will then form part of this permit. The plans must be drawn to scale with dimensions and three (3) copies must be provided.

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1 Panel note: The land description will depend on the final permit decision.

2 Panel note: If Mortlake East is also approved the permit description will need to revert to the original.

The plans must show:

a) the location, setbacks to property boundaries, layout and dimensions of all on-site buildings and works including all wind turbines, access tracks, underground cables, temporary concrete batching plant, the sub-station(s), the switchyard, landscaping, any designated car parking areas, and ancillary works, such as construction compounds, fire fighting infrastructure and water tanks, as well as off-site road works;

b) at least a 50 metre setback of turbines from designated waterways;

c) global positioning system coordinates using WGS84 datum for each turbine;

d) details of the model and capacity of the wind turbines to be installed;

e) dimensions, elevations, materials and finishes of the wind turbines and other buildings and works;

f) any directional signage and any required safety signage;

g) business identification signage including dimensions, details, colours and graphics; and

h) Any staging of development.

The plans must be generally in accordance with the Mortlake South Planning Panel Layout Plan 1D (file reference \MOR_PLP_004_01A) dated 26/02/10 as tabled at the Directions Hearing.[3]

2. The use and development as shown on the endorsed plans must not be altered or modified without the written consent of the Minister for Planning; except that the micro-siting of wind turbines and consequential micro-siting of associated tracks and reticulation lines as defined below, does not require consent and will be viewed generally in accordance with the endorsed plans.

For the purpose of this condition, micro-siting of wind turbines:

- is where the siting of a wind turbine is altered by not more than 100 metres but is not relocated closer to a nearby boundary of a non-stakeholder property than shown on the endorsed plans;
- ensures any micro-siting does not move a turbine closer than 1,005 metres to a non-stakeholder dwelling;
- ensures no turbine is located within 50 metres of a title boundary of a non-stakeholder or a public road;

[3] Panel note: If Mortlake East is also approved reference to Plan 1C will need to be included.

- includes any consequential changes to access tracks and electricity reticulation lines; and
- is only allowed where the Minister for Planning is satisfied that the relocation of the turbine(s) and associated access track(s) and reticulation lines(s) will not give rise to an adverse change to assessed landscape, vegetation, cultural heritage, visual amenity, shadow flicker, noise, fire risk or aviation impacts when compared to the site shown on the endorsed plans.

To this end any request for confirmation of the Minister's satisfaction must be accompanied by supporting material addressing the above matters as relevant.

Note: For the purpose of this condition, a non-stakeholder means the land holder of an abutting property without a contract for the installation of the permitted wind turbines on that person's property.

SPECIFICATIONS

3. The wind energy facility must meet the following requirements:

a) the wind energy facility must comprise no more than 51[4] wind turbines;

b) the overall maximum height of the wind turbines (to the tip of the rotor blade when vertical) must not exceed 141 metres above natural ground level;

c) wind turbines must be mounted on a tubular tower with a height of no greater than 100 metres;

d) each wind turbine is to have not more than three rotor blades, with each blade having a length of no greater than 41 metres;

e) the transformer associated with each wind generator must be located beside each tower and pad mounted, or be enclosed within the tower structure;

f) the wind turbine towers, nacelles and rotor blades must be of a colour or have such markings that minimise ground level impact to the satisfaction of the Minister for Planning, on advice from CASA;

g) the colours and finishes of all other buildings and ancillary equipment must be such as to minimise the impact of the development on landscape to the satisfaction of the Minister for Planning;

[4] Panel note: If Mortlake East is also approved reference will need to be amended to original application.

h) access tracks within the site are to be sited and designed to minimise impacts on overland flows, soil erosion, the landscape value of the site, environmentally sensitive areas and, where appropriate, the farming activities on the land to the satisfaction of the Minister for Planning;

i) new on-site electricity reticulation lines associated with the wind energy facility must be placed under the ground, except, with the written consent of the Minister for Planning;

j) on-site fire fighting infrastructure must be provided in accordance with Condition 13(f); and

k) business identification signage on the wind farm must not exceed $3m^2$ in total.

LANDSCAPE/VISUAL AMENITY

4. Before the development starts, an on-site landscape plan must be prepared 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 may be submitted in stages, if required. The plan must include:

a) A statement outlining the design intentions of the plan;

b) landscaping or building works to screen the substation, switchyard and associated buildings other than the turbines;

c) details of plant species proposed to be used in the landscaping, including installation size, numbers, height and spread at maturity;

d) a timetable for implementation of all landscaping works;

e) a maintenance, replacement and monitoring program; and

f) Arrangements for surfacing of access tracks in a manner which does not unduly contrast with the landscape and the rehabilitation of track margins.

The landscaping as shown on the endorsed on-site landscaping plan must be completed to the satisfaction of the Minister for Planning in accordance with the implementation timetable.

5. Within 6 months of the date of endorsement of the development plan under Condition 1:

a) a program of voluntary landscape mitigation works to the satisfaction of the Minister for Planning must be made available to the owners of dwellings within 3.0 kilometres of the nearest turbine.

b) if a program of voluntary landscape mitigation works is accepted by one or more owners under Condition 5(a), as part of that program, an

off-site landscaping plan must be prepared in consultation with the landowners specified in Condition 5(a) 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 to reduce the visual impact of the wind turbines at the dwellings of the participating landowners.

The off-site landscape plan must include:

(i) the design intention of the plan;

(ii) details of the plant species to be used, including the height and spread of plants at maturity and their suitability in terms of;

- appropriateness for local conditions (may include indigenous and exotic species) and fire safety (low combustibility)
- impact on native vegetation (weed propensity, overshadowing of remnants on roadsides)

(iii) use of a mix of tubestock and advanced planting with good survival potential to provide immediate and long term screening;

(iv) reinforcement planting for existing senescent vegetation likely to die within the project lifespan;

(v) maintenance of landscaping for at least three years; and

(vi) a timetable for implementation of the landscaping works to ensure planting is undertaken at a seasonally appropriate time.

c) The availability of offsite landscaping to those owners identified in Condition 5(a) must remain in place until 12 months after the commissioning of the last turbine.

d) The landscape works as shown on the endorsed off-site landscape plan must be completed to the satisfaction of the Minister for Planning within the timetable provided in the plan.

LIGHTING INCLUDING AVIATION OBSTACLE LIGHTING

6. Except in the case of an emergency or any operational call-out, no external lighting of infrastructure associated with the wind energy facility, other than low-level, low-intensity security lighting and aviation lighting in accordance with Condition 8 below, may be installed or operated without the further written consent of the Minister for Planning.

7. Aviation obstacle lighting must not be installed unless the written consent of the Minister for Planning has been obtained.

8. If consent to install aviation obstacle lighting is obtained it must be installed under the following conditions:

a) the aviation obstacle lighting must be installed such that it is activated only:

(i) If at night, when an aircraft is in the immediate vicinity of the wind energy facility

(ii) During low visibility daytime conditions such as the existence of smoke and fog

b) for each lit turbine, the lighting must consist of a pair of lights mounted above the nacelle so that one is visible from an aircraft approaching from any direction;

c) each light must be a red medium intensity, flashing light as defined by Civil Aviation Safety Authority (CASA). Each light must be shielded so as to restrict the vertical spread of light to not more than 3 degrees and light spread below the horizontal to not more than 1.0 degree;

d) all lights must flash in unison;

e) the duration of the light flash must be the minimum period recommended by CASA and the duration of the period between the flashes must be the maximum period recommended by CASA;

f) the lights are to switch on and off at times of ambient lighting conditions as recommended by CASA; and

g) before the wind farm is commissioned, a lighting maintenance plan must be prepared to the satisfaction of the Minister for Planning.

AVIATION SAFETY CLEARANCES

9. Within 14 days of approval, copies of the endorsed development plans must be provided to CASA, the Department of Defence (RAAF Aeronautical Information Service), Airservices Australia, any aerodrome operator within 15 km, the Aerial Agriculture Association of Australia and to any organisation responsible for providing air ambulance services in the area, to enable details of the wind energy facility to be shown on aeronautical charts of the area.

TRAFFIC MANAGEMENT

10. Prior to the development of a traffic management plan an accurate reassessment of vehicle numbers for over dimensional, heavy duty and light vehicles must be undertaken in consultation with Moyne Shire

Council, Corangamite Shire Council and VicRoads to the satisfaction of the Minister for Planning.

11. Before the development starts, a traffic management plan must be prepared in consultation with Moyne Shire Council, Corangamite Shire Council and VicRoads 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 include:

a) an existing conditions survey of public roads to the satisfaction of Moyne Shire Council, Corangamite Shire Council and VicRoads (as relevant) that may be used for access and designated construction transport vehicle routes in the vicinity of the wind energy facility, including details of the suitability, design, condition and construction standard of the roads;

b) the designation of appropriate construction and transport vehicle routes to the wind energy facility site;

c) the designation of operating hours and speed limits for trucks on routes accessing the site so as to avoid school bus routes and school bus times where relevant, and to provide for resident safety;

d) the identification and timetabling of any required pre-construction works;

e) the designation of all vehicle access points to the wind energy facility from surrounding roads. The location and detailed design of the connection between the internal access tracks and the public roads must ensure safe sight distances, turning movements, and avoid potential through traffic conflicts;

f) 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. This is to include engineering plans demonstrating how truck movements can be accommodated on sealed roadways. The plan must include details of any required road construction works;

g) 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) a program of regular inspections to be carried out during the construction period to identify maintenance works necessary as a result of construction traffic;

i) a program to rehabilitate roads to the condition identified by the surveys required above by Condition 11(a) above ; and

j) if required by Moyne Shire Council and/or Corangamite Shire Council, the payment of a security deposit or bond for a maintenance period of 12 months in respect of works covered by the traffic management plan. Such security deposit or bond is to be applied to road works not completed under the Traffic Management Plan or to be released at the end of that period.

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 to the satisfaction of the Minister for Planning and the cost of any works including maintenance are to be at the expense of the permit holder.

ENVIRONMENTAL MANAGEMENT PLAN

13. Before the development starts, an environmental management plan must be prepared to the satisfaction of the Minister for Planning, in consultation with the Department of Sustainability and Environment, Moyne Shire Council, Country Fire Authority and other agencies as specified in this condition or as further directed by the Minister for Planning. The environmental management plan may be prepared in sections or stages. When approved, the plan will be endorsed by the Minister for Planning and will then form part of this permit.

The environmental management plan must include the following:

a) A **construction and work site management plan** which must include:

(i) procedures for access, noise control, dust emissions, spills and leaks from the handling of fuels and other hazardous materials and pollution management. Such construction and work site procedures are to be in accordance with the Environment Protection Authority Publication 480, *Environmental guidelines for major construction sites* and any other EPA requirements;

(ii) the identification of all potential contaminants stored on site;

(iii) the identification of all construction and operational processes that could potentially lead to water contamination;

(iv) the identification of appropriate storage, construction and operational methods to control any identified contamination risks;

(v) the identification of waste re-use, recycling and disposal procedures;

(vi) appropriate sanitary facilities for construction and maintenance staff in accordance with the Environment Protection Authority Publication 891.1 *Septic Tanks Code of Practice*;

(vii) a timetable, where practicable for the construction of turbine bases, access tracks and power cabling during warmer months to minimise impacts on ephemeral wetlands, local fauna and sediment mobilisation;

(viii) procedures to ensure that construction vehicles and equipment use designated tracks and works areas to avoid impacts on native vegetation;

(ix) the covering of trenches and holes at night time and to fill trenches as soon as practical after excavation, to protect native fauna; and

(x) the removal of works, buildings and staging area on completion of construction of the project.

b) A **sediment, erosion and water quality management plan**. This plan must be prepared in consultation with the Corangamite Catchment Management Authority, the Environment Protection Authority and other authorities as may be directed by the Minister for Planning. The plan must include:

(i) procedures to ensure that silt from batters, cut-off drains, table drains and road works is retained on the site during and after construction and replaced as soon as possible. To this end:

- all land disturbances must be confined to a minimum practical working area;
- soil to be removed must be stockpiled and separate soil horizons must be retained in separate stockpiles and not mixed and replaced as soon as possible in sequence; and
- stockpiles must be located away from drainage lines;

(ii) criteria for the siting of any temporary concrete batching plant associated with the development of the wind energy facility and the procedure for its removal and reinstatement of the site once its use finishes. The establishment and operation of any such temporary concrete batching plant must be designed and operated in accordance with the Environment Protection Authority Publication 628 *Environmental Guidelines for the Concrete Batching Industry*;

(iii) the installation of geo-textile silt fences (with sedimentation basins where appropriate) on all drainage lines from the site which are likely to receive run-off from disturbed areas;

(iv) procedures to suppress dust from construction-related activities. Appropriate measures may include water spraying of roads and stockpiles, stabilising surfaces, temporary screening and/or wind fences, modifying construction activities during periods of heightened winds and revegetating exposed areas as soon as practicable;

(v) procedures to ensure that steep batters are treated in accordance with Environmental Protection Authority Publication 275 *Construction Techniques for Sediment Pollution Control*;

(vi) procedures for waste water discharge management;

(vii) a process for overland flow management to prevent the concentration and diversion of waters onto steep or erosion prone slopes;

(viii) pollution management measures for stored and stockpiled materials including waste materials, litter, contaminated run-off and any other potential source of pollution to ground or surface waters;

(ix) incorporation of pollution control measures outlined in Environment Protection Authority Publication 480 *Environmental Guidelines for Major Construction Sites*;

(x) siting of concrete batching plant and any on-site wastewater and disposal and disposal treatment fields at least 100 metres from any watercourse;

(xi) appropriate capacity and an agreed program for annual inspection and regular maintenance of any on-site wastewater management system constructed to service staff, contractors or visitors; and

(xii) a program of inspection and remediation of localised erosion within a specified response time.

c) A **blasting plan.** *This plan is only required if blasting is proposed to be undertaken at the site as part of the construction of the wind energy facility.* The plan must include the following:

(i) name and qualification of the person responsible for blasting;

(ii) a description of the location of where the explosives will be used, and the location of every licensed bore on any property

with an adjoining boundary within 1km of the location of the blasting;

(iii) a requirement for the identification and assessment of any potentially sensitive site within 1 km of the location of the blasting, including the procedure for pre-blast and post-blast qualitative measurement or monitoring at such site;

(iv) the procedure for site clearance and post blast reoccupation;

(v) the procedure for the storage and handling of explosives;

(vi) a requirement that blasting only occur after at least 48 hours prior notification in writing of the intention to undertake blasting has been given to the occupants of the properties which are located in whole or in part within 1km of the location of the proposed blasting; and

(vii) a requirement that blasting only be undertaken between the hours of 8am and 4pm.

d) A **hydrocarbon and hazardous substances plan**. The plan must include:

(i) procedures for any on-site, permanent post-construction storage of fuels, lubricants or waste oil to be in bunded areas; and

(ii) contingency measures to ensure that any chemical or oil spills are contained on-site and cleaned up in accordance with Environment Protection Authority requirements.

e) A **flora and fauna management plan** to be prepared in consultation with the Department of Sustainability and Environment. This plan must include:

(i) measures to protect native vegetation in the site area including application of the Native Vegetation Management Framework principles (removal of such vegetation is not approved by this permit);

(ii) measures to protect native fauna during construction and operation of the wind farm; and

(iii) procedures for the rehabilitation of construction zones with appropriate pasture species.

f) A **wildfire prevention and emergency response plan** prepared in consultation with and to the satisfaction of the Country Fire Authority, the Department of Sustainability and Environment, and Moyne Shire. This plan must include and consider:

i. Constructed roads should be a minimum of (4) four metres trafficable width with a four metre (4m) vertical clearance for the width of the formed road.

ii. Roads should be constructed to a standard so that they are accessible in all weather conditions and capable of accommodating a vehicle of 15 tonnes for the trafficable road width.

iii. The average grade of should be no more than 1 in 7 (14.4%) (8.1◦) with a maximum of no more than 1 in 5 (20%) (11.3◦) for no more than 50 metres.

iv. Dips in the road should have no more than a 1 in 8 (12.5%) (7.1 ◦) entry and exit angle.

v. Water access points shall be located in safe easily identifiable areas, accessible in all weather conditions.

vi. Water access points should be designed, constructed and maintained for a load limit of at least 15 tonnes.

vii. A turning point with a minimum radius of 10 metres is required for fire appliances at all water access points.

viii. Fire brigade appliances should be able to park within four (4) metres of the water supply outlet on a hard standing area.

ix. Bulk static water storages (22500 Litre) should be provided adjacent to main access tracks for fire fighting. Locations should be determined in consultation with CFA Fire safety officers and with operational staff.

x. All tanks should be manufactured with at least one (preferably two) 64mm, 3 thread/25mm x 60 mm nominal bore British Standard Pipe (BSP) round male coupling 50 mm from their base. Outlets should be a minimum of two (2) metres apart.

xi. Water access points are to be marked by appropriate signage as per CFA's *Guidelines for Identification of Street Hydrants for Fire Fighting Purposes.*

xii. Grass should be no more than 100mm in height and leaf litter no more than 10mm deep for a distance of (30) thirty metres around constructed buildings and viewing platforms.

xiii. A fuel reduced area of (4) four metres should be maintained around the perimeter of electricity compounds and sub station type facilities.

xiv. There should be no long grass or deep leaf litter in areas where plant and heavy equipment will be working.

xv. All plant and heavy equipment should carry at least one 9 Litre Water Stored pressure fire extinguisher with a minimum rating of 3A.

xvi. Internal fire protection systems, where appropriate, to assist with fire suppression.

xvii. Lighting protection devices, where appropriate, installed on each wind farm.

xviii. Dedicated monitoring systems within each wind turbine that detect temperature increases in turbines and shuts them down when the threshold temperature is reached.

xix. Construction of the wind farm outside the fire season where possible.

xx. A program of training of volunteer and paid CFA personnel in fire suppression in and around the wind energy facility.

g) **A pest animal management plan** to be prepared in consultation with the Department of Sustainability and Environment and the Department of Primary Industries to the satisfaction of these Departments. This plan must include:

(i) procedures for the control of pest animals, particularly by avoiding opportunities for the sheltering of pests; and

(ii) follow-up pest animal control for all areas disturbed by the wind energy facility construction works for a period of two years following the completion of the wind energy facility.

h) **A pest plant management plan** to be prepared in consultation with the Department of Sustainability and Environment and the Department of Primary Industries to the satisfaction of these Departments. This plan must include:

(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) revegetation of disturbed areas; and

(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.

i) **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.

j) **A program for reporting** including a register of environmental incidents, non-conformances, complaints, corrective actions and advice on to whom the reports should be made.

k) **A timetable for implementation** of all programs and works identified in a plan referred to in Conditions 13 (a) to 13 (j) above.

14. The environmental management plan must be reviewed and if necessary amended in consultation with the Moyne Shire Council to the satisfaction of the Minister for Planning every five (5) years to reflect operational experience and changes in environmental management standards and techniques and must be submitted to the Minister for Planning for re-endorsement.

15. The use and development must be carried out in accordance with the endorsed environmental management plan to the satisfaction of the Minister for Planning.

BATS AND AVIFAUNA

16. Before the development starts, a Bat and Avifauna Management Plan (BAM Plan) must be prepared in consultation with the Department of Sustainability and Environment to the satisfaction of the Minister for Planning. When approved the plan will be endorsed and will then form part of the permit. The use must thereafter accord with the endorsed plan to the satisfaction of the Minister for Planning.

The BAM 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 5 years duration, either commencing upon the commissioning of the last turbine of the first stage of the approved development and use (if any) or alternatively such other time of commencement as is to the satisfaction of the Minister for Planning.

The monitoring program must include surveys during the breeding and migratory seasons to ascertain:

- the species, number, age and sex (if possible) and date of any bird or bat strike;
- the number and species of birds and bats struck at lit (if aviation obstacle lighting is installed) versus unlit turbines;
- any seasonal and yearly variation in the number of bird and bat strikes;
- whether further detailed investigations of any potential impacts on birds and bats are warranted.

Any such required further detailed investigations are to be undertaken in consultation with the Department of Sustainability and Environment and to the satisfaction of the Minister for Planning;

c) procedures for the reporting of any bird and bat species listed under the *Environment Protection and Biodiversity Conservation Act 1999* or the *Flora and Fauna Guarantee Act 1988* struck by or colliding with turbines to the Department of Sustainability and Environment within 7 days of becoming aware of any strike identifying where possible whether the strike was by a lit or unlit turbine;

d) information on the efficacy of searches for carcasses of birds and bats, and, where practicable, information on the rate of removal of carcases by scavengers, so that correction factors can be determined to enable calculations of the total number of mortalities;

e) procedures for the regular removal of carcasses likely to attract raptors to areas near turbines;

f) procedures for periodic reporting, within agreed timeframes, of the findings of the monitoring to the Department of Sustainability and Environment and the local community;

g) 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 to the satisfaction of the Minister for Planning; and

h) implementation measures developed in consultation with the Department of Sustainability and Environment to offset any impacts detected during monitoring including turbine operation management and on-site or off-site habitat enhancement (including management or improvement of habitat or breeding sites).

17. Following the completion of the monitoring program of at least 5 years duration as specified in Condition 16(b), a report must be prepared by the operator of the wind energy facility setting out the findings of the program to the satisfaction of the Minister for Planning. If, after consideration of this report, the Minister for Planning directs that further investigation of potential or actual impacts on birds and bats is to be undertaken, the extent and details of the further investigation must be to the satisfaction of the Department of Sustainability and Environment and the investigation must be carried out to the satisfaction of the Minister for Planning.

CONSTRUCTION NOISE

18. 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.

NOISE ASSESSMENT

19. If the turbine hub height is to be increased above 80 metres, new noise predictions for Mortlake South[5] must be undertaken in accordance with New Zealand Standard NZS6808:1998 based on the type and hub height of turbines to be used. The results of such assessment should be submitted with an independent peer review (undertaken by a suitably qualified person not otherwise associated with the project) as to its adequacy and conclusions to the Minister for Planning for consideration.

NOISE STANDARD

20. Except as provided below in this condition, the operation of the wind energy facility must comply with the noise criteria specified in *NZS6808:1998 'Acoustics - The Assessment and Measurement of Sound from Wind Turbine Generators*' at any dwelling existing on land in the vicinity of the proposed wind energy facility as at the date of the issue of this permit, to the satisfaction of the Minister for Planning.

In determining compliance the following requirements apply:

a) The sound level from the wind energy facility within 20 metres of any dwelling must not exceed a level of 40dBA (L_{95}) or where the relationship between background noise levels and wind speed has been determined by the method specified in Condition 21 of this

[5] Panel note: If Mortlake East is also approved this reference will need to change.

permit, the background noise level by more than 5dBA, or a level of 40dBA L_{95}, 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 and measured sound level must have a penalty of 5dBA applied.

Any dwelling on the subject land may be exempt from this condition. This exemption will be given effect through an agreement with the landowner that must apply to any occupant of the dwelling and must be registered on title. Such dwellings will be known as host dwellings.

NOISE COMPLIANCE

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

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

The use must be carried out in accordance with the noise compliance testing plan to the satisfaction of the Minister for Planning.

The noise compliance testing plan must include:

a) A determination of the noise limits to be applied during construction using the methodology prescribed in the *Interim Guidelines for the Control of Noise from Industry in Country Victoria,* N3/89.

b) A program of compliance testing to be implemented during the construction of the wind energy facility that:

   (i) Is designed by a suitably qualified acoustic expert, and

   (ii) Utilises the methodology prescribed in *State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No 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 35 dB (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 20 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'*.

   (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 dwelling 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 shown in Condition 20 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 relevant dwellings as soon as results relating to that particular dwelling are available, and

j) A procedure under which the implementation of the noise compliance testing plan is directed and supervised by a suitable qualified acoustic expert to the satisfaction of the Minister for Planning.

NOISE COMPLIANCE ENFORCEMENT

22. If an exceedance of the noise limits prescribed in Condition 20 of this permit is detected the wind energy facility operator must:

a) Within 5 days of the detection of the exceedance, take sufficient actions to reduce the wind energy facility noise level at the subject dwelling as predicted using the prediction methodology contained in *NS6808:1998 'Acoustics – the Assessment and Measurement of Sound from Wind Turbine Generators'* by an amount equal to or greater than the amount of exceedance

b) Within 7 days of the detection of the exceedance, provide the responsible authority and the owner/occupier of the dwelling with:

(i) The results of the compliance testing measurements including the magnitude of the detected exceedance

(ii) Details of the actions taken to reduce the wind energy facility noise emissions, and

(iii) Evidence that the actions taken will produce a decrease in the wind energy facility noise level at the dwelling by an amount equal to the magnitude of the exceedance based on a prediction using the methodology of *NZS6808:1998 'Acoustics – the Assessment and Measurement of Sound from Wind Turbine Generators'*.

c) Continue to operate the wind energy facility with the implemented actions until approval for a different mode of operation is given by the responsible authority under the provision of (d) below

d) Within 60 days of the detection of an exceedance provide the responsible authority and owner/occupier of the dwelling with either:

(i) The result of compliance testing using the procedures prescribed in Condition 21 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 20 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 21 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 Minister for Planning 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 Minister for Planning 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 21 of this permit.

Following implementation of the program, the wind energy facility operator must provide the Minister for Planning 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 Minister for Planning. Given such information and evidence the Minister for Planning may approve the operation of the wind energy facility in the alternative mode and such approval will not be unreasonably withheld.

CUMULATIVE NOISE IMPACT

23. If a turbine or turbines of another wind energy facility are constructed within 3km of any turbine at the Mortlake Wind Energy Facility a cumulative noise management plan must be prepared and implemented to the satisfaction of the Minister for Planning. This plan shall include:

a) identification of any dwellings likely to be affected by noise from both wind energy facilities;

b) an evaluation of the likelihood of the noise criteria in Condition 20 being exceeded by either or both of the wind energy facilities;

c) agreed protocols with the other wind energy facility operator for recording and responding to complaints from the identified dwellings in 23(a) above; and

d) agreed response measures with the other wind energy facility operator including turbine shutdown or noise management pending resolution of the complaint.

SOUTH BOOROOK AIRFIELD

24. Within 12 months of the commencement of development of the Mortlake South cluster a reasonable contribution to the cost of relocation of the airfield on the property known as South Boorook on the Mortlake – Framlingham Road shall be offered by the permit holder. This contribution will be limited to actual reasonable relocation costs and not normal recommissioning costs that might be expected to recommission the existing airfield. The actual contribution amount shall be determined to the satisfaction of the Minister for Planning or any mediation process as the Minister may establish.

BLADE SHADOW FLICKER

25. Shadow flicker from the wind energy facility must not exceed 30 hours per annum at any dwelling existing prior to the planning permit application date.

This condition does not apply to any dwelling on land on which part of the wind energy facility is erected. (This exemption will be given effect through an agreement with the landowner that will apply to any occupant of the dwelling).

26. Before the use starts, details of a complaint evaluation and response process must be submitted to and approved by the Minister for Planning to assess any alleged breach of Condition 25. Thereafter, the use must be carried out in accordance with the approved process and alleged breaches identified by this process must be addressed to the satisfaction of the Minister for Planning.

TELEVISION AND RADIO RECEPTION AND INTERFERENCE

27. A pre-construction survey must be carried out to the satisfaction of the Minister for Planning to determine television and radio reception strength at selected locations within 5kms of any wind turbine including non-stakeholder dwellings. The location of such monitoring is to be determined to the satisfaction of the Minister for Planning by an independent television and radio monitoring specialist appointed by the operator under this permit.

Note: For the purpose of this condition, a non-stakeholder means the land holder of an abutting property without a contract in respect of the installation of associated wind turbines on that person's property.

28. If, following commencement of the operation of the wind energy facility, a complaint is received regarding the wind energy facility having an adverse effect on television or radio reception at the site of any dwelling in the area which existed at the date of the pre-construction survey, a post-construction survey must be carried out at the dwelling.

29. If the post-construction survey establishes any increase in interference to reception as a result of the wind energy facility operations, the wind energy facility operator must undertake measures to mitigate the interference and return the affected reception to pre-construction quality at the cost of the wind energy facility operator and to the satisfaction of the Minister for Planning.

SECURITY

30. All site and wind turbine access points and electrical equipment must be locked when not in use and made inaccessible to the general public to the satisfaction of the Minister for Planning. Public safety warning signs must be located on all towers and all spare parts and other equipment and materials associated with 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.

PRELIMINARY INVESTIGATIVE WORKS

31. 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 commencement of the development.

DECOMMISSIONING

32. The wind energy facility operator must, no later than 2 months after any or 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 12 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 undertake the following to the satisfaction of the Minister for Planning within such timeframe as may be specified by the Minister:

a) remove all above ground non-operational equipment;

b) remove and clean up any residual spills or contamination;

c) rehabilitate 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 land associated with the use, development and decommissioning of the wind energy facility;

d) submit a decommissioning traffic management plan to the Minister for Planning and, when approved by the Minister for Planning, implement that plan; and

e) submit a post-decommissioning revegetation management plan, including a timetable of works to the Minister for Planning and, when approved by the Minister for Planning, implement that plan.

STAGING

33. 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 compliance with plans or other requirements including noise monitoring, but not including the preparation and approval of the development plan under Condition 1) may be similarly completed in stages or parts.

SP AUSNET[6]

[6] Panel note: If Mortlake East is also approved SP Ausnet requested that a number of conditions be applied to that part of the project. These can be found in SP Ausnet's original submission.

EXPIRY

This permit will expire if one of the following circumstances applies:

(i) the development is not started within 3 years of the date of this permit;

(ii) the development is not completed within 6 years of the date of this permit.

The Minister for Planning 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

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.