

**BALD HILLS
WIND FARM PROJECT
EES, EES SUPPLEMENT AND
CALLED-IN PLANNING PERMITS**

PANEL REPORT

24 June 2004

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.....
Rynd Smith, Chair



.....
Chris Banon, Member



.....
Peter Finn, Member

24 June 2004

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1. SUMMARY

The Bald Hills Wind Farm Project EES and SEES related to a proposal for the use and development of land for a wind energy facility at Bald Hills, near Tarwin Lower in South Gippsland. The project was the subject of a planning permit application to the Minister for Planning for the use and development of land and a called-in application for associated native vegetation works.

In summary, the proposal consists of:

- 52 wind turbines, not exceeding 106 m in height.
- Located in three areas or clusters.
- Associated access tracks and construction areas.
- Associated underground and overground cabling.
- Associated transformers and grid connections.

The project gave rise to vary considerable local controversy. Many submissions opposed the project and few supported it. Major public concerns related to:

- Suggestions that the greenhouse benefits of the project were insufficiently weighty to merit the level of intervention and harm to other values.
- Views that the adverse landscape impact of the project was of an order that should indicate against it proceeding.
- Views that natural environment impacts and particularly those to birds and/or bats had not been sufficiently identified, or would be adverse.
- Views that harm was done to Aboriginal and European cultural heritage.
- Views that the visual amenity of a large number of dwellings, rural workplaces and open land would be harmed.
- Views that there was likely to be a greater than predicted noise impact and that this would be adverse.

In evaluating these submissions, the Panel has undertaken a thorough evaluation of the site and surrounds, including a large number of site visits.

It has formed the following views:

- The greenhouse benefits of the project were not proven in detailed terms, but it is sufficient that these will be weighty and that the project will form a small but material part of a much needed and difficult transition of our energy economy.
- The project site was well selected in landscape terms to control adverse impacts on a regional scale and to ensure that there were no significant impacts on places of high landscape significance. There will be local impacts, but these have to be considered as acceptable in terms of government policy. Mitigation measures recommended include roadside windbreak and screening evaluations and planting programmes for surrounding roads and a relocation of the bird hide at the Bald Hills Wetland Reserve.
- The project will not unduly or unavoidably harm Aboriginal and European cultural heritage and appropriate monitoring protocols are in place.

-
- The turbines will be viewed from a large area. However, a capacity to view does not equate to harm to visual amenity, particularly in circumstances where distance has reduced the vertical scale and the extent of horizontal visibility of turbines. A few close dwellings will be adversely affected in visual amenity terms, but this impact is seen as acceptable in terms of government policy. Mitigation measures for some local dwellings have been recommended.

The Panel has also found that:

- In relation to impacts on birds, whilst there is no significant likelihood of harm to the Orange-bellied Parrot, investigations of other species and bird utilisation in general has been poorly documented. Existing survey work has not been presented in evidence in a way that sufficiently excludes the likelihood of harm. The Panel has recommended mechanisms for reviewing the work done to date.
- In relation to adverse impacts on the Southern Bent-wing Bat, these cannot be excluded, although they are likely to occur at a level that is not of population significance. The Panel concludes that a rigorous post-construction bat monitoring program is warranted.
- In relation to acoustic impacts, evidence by Mr Frits van den Berg, combined with analysis for the proponent is such the possibility of higher than predicted noise impacts and/or the existence of special audible characteristics cannot be completely ruled out. In these circumstances, the need to protect night time sleep suggests the adoption of a special means of determining compliance during the night period. The Panel has recommended accordingly.

Further to these findings and subject to an additional evaluation of bird impact to the satisfaction of the Minister for Planning, the Panel has recommended that the project can proceed.

2. THE PANEL PROCESS

2.1 THE PANEL

2.1.1 THE EES, SEES AND PERMITS CALL-IN PANEL

This Panel was appointed by the Victorian Minister for Planning on the 23 January 2004 pursuant to Section 9 of the *Environment Effects Act 1978* and Sections 97E, 153 and 155 of the *Planning and Environment Act 1987* to hear and consider submissions in respect of:

- the Bald Hills Wind Farm Project Environment Effects Statement (EES);
- the Bald Hills Wind Farm Project EES Supplement (SEES);
- permit application TRA/03/002 for a wind energy facility; and
- Called-in permit application 2003/563 for the related removal of native vegetation.

The Bald Hills Wind Farm Project is a controlled action under Sections 18, 18A, 20 and 20A of the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). The Commonwealth has accredited the Victorian EES process as the means of assessment for the purposes of this legislation.

The responsible and assessing authority is the Victorian Minister for Planning and the proponent is Wind Power Pty Ltd.

The Panel consisted of:

- Chairperson: Rynd Smith
- Member: Chris Banon
- Member: Peter Finn

The Panel was appointed under Terms of Reference approved by the Victorian Minister for Planning. A copy of the Terms of Reference is attached at Appendix A.

2.1.2 THE FORMER EES AND PERMIT CALL-IN PANEL

Readers should note that a separate Panel was initially appointed to hold an inquiry into the exhibited EES and to consider submissions in relation to called-in planning permit TRA03/001.

The former Panel consisted of:

- Chairperson: Rynd Smith
- Member: Chris Banon
- Member: Prof Catherin Bull

At a directions hearing held by that Panel on 5 September 2003, the proponent indicated its intention to make significant changes to the project. The Minister for Planning determined that

these changes required additional assessment. This requirement in turn triggered the withdrawal of permit application TRA03/001 and the preparation of the SEES and permit applications described in sections 2.1.1 above.

Once these changes to documentation had been made and exhibited, it became clear that Prof Bull would not be available to conduct hearings within the now changed timescale. On this basis, the appointment of the former Panel was cancelled and the current Panel was appointed.

The functions of that Panel were brought to a conclusion by the cancellation of its appointment. It follows that its terms of reference and directions are not directly relevant to the matter before the current Panel and are only referred to below as necessary to address transitional issues.

2.2 HEARINGS, DIRECTIONS AND INSPECTIONS

2.2.1 DIRECTIONS

A Directions Hearing was held on Thursday 19 February 2003 at the Council Chamber, South Gippsland Shire Offices, Leongatha.

A number of directions were made, which regulated the conduct of the full hearing. These were recorded in writing and circulated to all parties. They are not reiterated here.

The proponent requested the Panel to make directions providing for the hearing of a substantial part of its evidence in Melbourne and to prevent cross-examination by certain parties. The Panel declined to direct in these terms.

In relation to the hearing venue, the Panel noted that the great majority of parties requested to be heard in Leongatha. The Panel was conscious that the issues before it were of great interest to the local community. It considered on balance that the proponent being heard in places that were reasonably accessible to the majority of parties and capable of observation by the local community would best serve the public interest in a transparent planning process. The Panel did provide an opportunity for third parties to be heard in Melbourne if they wished.

In relation to the limitation of cross-examination, the Panel considered that section 161(3) of the Planning and Environment Act 1987 and its Terms of Reference provided a clear and adequate basis for the regulation of cross examination. The proponent had demonstrated no basis for any further limitation beyond the normal practice of Planning Panels.

Detailed written reasons for the Panel's determinations on these questions were provided to the proponent and made available for public inspection.

Turning to the issued directions, all were complied with, with the exception of directions relating to the timing of exchange of expert witness statements, which were breached by the proponent and by professionally represented third parties.

Public hearings on the issues before the Panel had long been foreshadowed. There was no reasonable excuse for the breaches of directions that occurred. However, the Panel determined to hear all evidence that was the subject of breaches, as not to do so would have diminished its capacity to present a report that properly addressed the substantive planning merits of the issues before it. However, the Panel wishes to record its view that major

represented parties should respect the public and the Panel's expectations that evidence is provided in a timely fashion.

2.2.2 HEARINGS

The Panel Hearings were held on the dates and at the venues listed below.

- Monday 15 March Leongatha: Football Club Rooms
- Tuesday 16 March Leongatha: Football Club Rooms
- Wednesday 17 March Leongatha: Football Club Rooms
- Tuesday 23 March Leongatha: Football Club Rooms
- Wednesday 24 March Leongatha: Football Club Rooms
- Thursday 25 March Leongatha: Football Club Rooms
- Wednesday 31 March Leongatha: Football Club Rooms
- Thursday 1 April Leongatha: South Gippsland Shire Council Offices
- Tuesday 6 April Melbourne: Planning Panels Victoria
- Tuesday 13 April Leongatha: Football Club Rooms
- Wednesday 14 April Leongatha: Football Club Rooms
- Thursday 15 April Leongatha: South Gippsland Shire Council Offices
- Friday 16 April Leongatha: South Gippsland Shire Council Offices
- Wednesday 21 April Leongatha: Football Club Rooms
- Thursday 22 April Leongatha: Football Club Rooms
- Friday 23 April Leongatha: South Gippsland Shire Council Offices
- Thursday 29 April Leongatha: South Gippsland Shire Council Offices

2.2.3 SITE INSPECTIONS

The Panel inspected the site and surrounding areas on the following occasions.

- Thursday 19 February (unaccompanied)
 - Inspection of the site from public roads.
 - Drive to the site from Inverloch via Tarwin Lower and Tarwin Lower – Waratah Road.
 - Drive from the site to Leongatha via Buffalo – Waratah Road, Buffalo, Meeniyan and Koonwarra.
- Wednesday 17 March (unaccompanied)
 - Inspection of the northern area from Bald Hills Road.
 - Walk to Bald Hills Wetland Reserve nature walk, constructed wetland and bird hide.
 - Drive through Mount Liptrap, Loop Road and Fish Creek – Walkerville Road.
 - Late afternoon views to the site and Wilsons Prom from

-
- the Loop Road Lookout.

Inspection of Coastal Park areas and walk along Walkerville beaches and kilns trail.
 - Thursday 18 March (unaccompanied)

Inspection of Venus Bay estates and beaches.

Inspection of Five Mile Track and walk along dunes and beach in the Coastal Park accessed by the track.

Morning views to the site, Toora Windfarm and Wilsons Prom from the Loop Road Lookout.

Drive to Cape Liptrap.

Inspection of Cape Liptrap Lighthouse area.

Drive to Waratah North.

Inspection of Waratah Bay environs including beaches at Waratah Bay township and Sandy Point.

Inspection within Wilsons Prom National Park. Walk along the Tongue Point Walking Track from Derby Saddle. Views towards the site and Toora Windfarm were observed from Sparkes Lookout.

Drive to Toora.

Approaches to Toora Windfarm from Yanakie, Hoddle and Foster were observed.

Inspection of Toora Windfarm viewing area and environs (late afternoon).

Drive from Toora to Inverloch via Foster, Fish Creek and Middle Tarwin.
 - Friday 19 March (accompanied)

Inspections within the site.

 - Site south: independent GPS reference points taken of 7 turbines.
 - Site centre: independent GPS reference points taken of 3 turbines.
 - Site north: independent GPS reference points taken of 14 turbines.
 - Thursday 25 March (unaccompanied)

Drive of Stewart and Dunlops Road, Buffalo – Tullaree Road and linked roads north of the Site. Observation of views to the site.

Drive of Buffalo – Waratah Road. Observation of views to the site.

Drive of Kings Flat Road. Observation of views to the site.
 - Friday 26 March (accompanied)

Inspection of adjacent and nearby land, properties and dwellings:

-
- Hooper property and proposed dwelling site.
 - Jukes property and dwelling.
 - O'Loughlan property.
 - Thwaites property and dwelling.
 - Kilsby property, existing and proposed dwelling sites, viewing points, cattle yards and access to –
 - Kings Flat Nature Reserve.
 - Burfield subdivision, existing and proposed dwelling sites (including land under contract to Lausberg).
 - De Merlos Pit Road.
 - Don and Sally Jelbart property (part) and proposed dwelling site.
 - McDougall proposed dwelling (land under contract from Overall).
 - Overall property and dwelling.
 - Crockett property and dwelling.
 - Tuck and White property and proposed dwelling.
 - Svenson property and dwellings.
 - Debenham property and dwelling.
- Friday 2 April (accompanied)
- Inspections of adjacent and nearby land, properties and dwellings:
- Bray property and dwelling.
 - Liley property, dwelling and views to the site from Rock Hill/Mount Lavinia.
 - Cape Liptrap Coastal Park boundary and views to Sandy Point and Wilsons Prom.
 - Lloyd and Hinksberger properties.
 - Kerrs Road and views to the site.
 - Brown property, bed and breakfast and dwelling.
 - Landy property and proposed dwelling site.
 - Uren property, dwelling, proposed subdivision and dwellings.
 - Fairbrother property, bed and breakfast and dwelling.
 - Buckland property.
 - Price property and dwelling.
 - Fox property and dwelling.
 - Don and Sally Jelbart property (part) ('Brown's').
 - Holz property and dwelling.

- Thorpe property.
- Wednesday 21 April (unaccompanied)
 - Drive from Inverloch to Toora via Middle Tarwin, Tarwin, Meeniyian and Foster North.
 - Inspection of Toora Windfarm viewing area and environs (late afternoon to night).
- Wednesday 28 April (accompanied)
 - Inspections of adjacent and nearby land, properties and dwellings:
 - Rod and Lyndell Cope property, dwellings and proposed dwelling.
 - Dunlop property.
 - McRae property, Tullaree Homestead and dwelling.
 - Matthew Marriott property and dwelling.
 - Arch Rock, beach, bat caves and coastal path.
 - Dorothy and Lloyd Jelbart property and dwelling.
 - Tricia Jelbart property and proposed dwelling.
 - Don and Sally Jelbart property (part) and dwelling.
 - Commadeur property and dwelling.
 - O'Sullivan and Wooldridge properties, dwellings and proposed dwellings.
 - Argus property and dwelling.

Specific mention should be made of the Panel's use of a hand held Global Positioning System (GPS)¹ during its site visits. The Panel took GPS reference points for 24 out of 52 staked turbine locations on the proposed windfarm site. It undertook this exercise as an 'audit', to verify the location of the proposed turbines independently from data provided by the proponent and as a means of supporting its own calculations to assess likely visual and landscape impact.

The chosen reference points included turbines proposed to stand on the perimeter of the various clusters. These were used to assess the extent to which views to turbines might be obtained from places beyond the site. When visiting places beyond the turbine site, the Panel took GPS references of lookouts, other key publicly accessible places, dwellings and proposed dwellings, to assist its location of these during the report writing process. It took distances and bearings from such places to relevant reference turbine locations on the proposed cluster perimeters. This data enabled the Panel to check its and submitter's impressions of the extent of views to and visual impact of the proposed turbines from off-site observation points.

The process of obtaining GPS distances to turbines from off-site observation points does not provide locational accuracy of the degree required for a formal survey. However, it is sufficient to inform broad appreciations of potential impacts to be formed at a time when wind turbines themselves cannot be seen on the ground. It was accurate and consistent within the

¹ The Panel used a Garmin 'Etrex Summit' GPS.

limits of the technology (with verification also being undertaken during the visits using a separate GPS by the proponent).

The process of obtaining bearings using the Panel's GPS electronic compass was found in practice to be less consistent, to the extent that the Panel has placed limited reliance on this data, backing it up where necessary with the use of a Computer Aided Design package (CAD)² to calculate angles of view from an observation location to proposed turbine positions. GPS altimeter readings were found to be inaccurate and have not been used. Reliance instead has been placed on digital terrain data obtained from the proponent, verified by reference to the Australia 1:100,000 topographic survey³.

When carrying out site visits to locations at which visual or landscape impact was raised as an issue, the Panel also used a digital camera to obtain reference images of the characteristics of the place (for example at a dwelling, the location of main rooms, outdoor areas and garden landscaping) and of views to proposed turbines from the place. No particular lens setting was used and no particular reliance as to scale was placed on these photographs in the Panel's assessment: rather they represented an aid to the Panel's memory, augmenting its notes and impressions about visited places.

It should be noted that whilst the Panel sought and obtained the consent of landowners to undertake these observations from private land, there were circumstances in which consent was sought by the proponent to undertake similar observations during the site visit program, but was not granted. The proponent was refused access to some land by some parties (although all parties were willing for the proponent's legal counsel to be present to assure proper conduct and balance in an accompanied site inspection). On other land, the proponent was admitted, but was not permitted to take photographs. The Panel did not see its role as being to facilitate the collection of assessment data by the proponent against the will of landowners. Whilst it enabled the proponent's legal counsel to explain the proponent's view of the consequences of refusing access or consent to photograph, it did not make any directions seeking to over-ride the decisions of landowners about access to land and consent to make observations.

Mention should also be made of inspections undertaken at the operational Toora Windfarm, where observations were made during daylight, sunset and at night. Observations at night took place on 21 April in apparently stable atmospheric conditions. Whilst the turbines were rotating, there was a very low wind speed and apparently limited background noise due to wind at ground level. These conditions were used to gain impressions of acoustic as well as visual and landscape effects. The Panel made staged visits to downwind locations. A GPS was used to measure the distance between these locations and a central reference point at the windfarm. However, the Panel did not use any acoustic monitoring equipment and its observations were only of the nature of impressions.

In addition to its formal inspections, Panel Members made their own individual and unaccompanied visits throughout the region to obtain a broad overview of its social, economic,

² The Panel also used IMSI Visual CADD (Computer-aided design and drafting) Version 4 for Windows, with the following data provided by the proponent, but subject to audit using the Panel's independent GPS and other records: cadastral and terrain data; proposed and alternative turbine locations; existing dwelling locations; native vegetation (by aerial photograph). The data files enabled evaluation within a region extending some 35.7 km south and 26.8 km east from Pound Creek, broadly including the coastline of Anderson's Inlet, Venus Bay, Cape Liptrap and Waratah Bay.

³ Australia 1:100,000 Topographic Survey, Division of National Mapping, Department of Minerals and Energy, RASC, 1977: Victoria Edition 1, Sheets 8020 (Wonthaggi) and 8120 (Foster).

environmental and landscape characteristics. The coast from Phillip Island to Tarwin Lower was driven on a number of occasions by each Member, using both the Bass Highway and the Bunurong Coastal Drive. The South Gippsland Highway was driven between Korumburra and Toora on a similar basis. Visits were made to Cape Liptrap, the Walkerville beaches, Anderson Inlet and ocean beaches at Inverloch and to a number of beaches and lookouts accessible from the Bunurong Coastal Drive between Inverloch and Cape Patterson. Some visits were made during weekends and holidays, to appreciate the levels of recreational access and use that cannot be observed during 'office hours'. The site of the permitted Wonthaggi Windfarm was visited.

Members also made individual and unaccompanied visits to operational windfarms at Chalicum Hills (near Ararat) and Codrington (near Port Fairy) in south west Victoria.

2.3 SUBMISSIONS

A list of all written submissions to the EES, EES Supplement and the called-in planning permits is included in Appendix B. The Panel has considered all written and oral submissions and all material presented to it in connection with this matter.

All people who made written submissions were provided with an opportunity to be heard by the Panel. It should be noted that the Panel was required to extend this opportunity to people who made submissions to the original EES and permit application, in addition to submitters to the SEES and current permit applications. The Panel has discharged this obligation, although it should be noted that insofar as submissions to the original permit applications made references to specific numbers or locations of turbines, the Panel has interpreted these concerns as being 'translated' to refer to the specific numbers and locations of turbines in the proposal currently before it.

The Panel heard the following parties, generally listed in order of appearance. However, it should be noted that split appearances only have a single reference.

Submitter	Represented By
The Department of Sustainability and Environment and the Minister for Planning as responsible and assessing authority.	Ashley Stephens and Richard Nichol-Smith (Officers of the Department)
Wind Power Pty Ltd	Jeremy Gobbo QC and Juliet Forsyth of Counsel, instructed by Deacons, Solicitors for Wind Power Pty Ltd calling: <ul style="list-style-type: none"> – Graham White, Garrad Hassan, Wind energy engineering – John Cleary, John Cleary Planning, Visual and landscape issues – Allan Wyatt, ERM, Visual and landscape issues – Andrea Murphy, Terraculture P/L, Archaeology – Virginia Jackson, Harlock Jackson P/L, Planner – Brett Lane, Brett Lane and Ass, Flora and fauna issues – Dr Charles Meredith, Biosis, Flora and fauna issues

Submitter	Represented By
	<ul style="list-style-type: none"> – Tim Offor, OfforSharp, Social and economic issues – David Cotterill, Sinclair Knight Merz, tourism issues – Ross Ipenburg, VEMTEC P/L, Utility infrastructure services – Peter Fearnside and Dr Noel Morris, Marshall Day, Noise
Tarwin Valley Coast Guardians	<p>Matthew Townsend of Counsel by direct instruction for Tarwin Valley Coast Guardians calling:</p> <ul style="list-style-type: none"> – Dennis Williamson, Scenic Spectrums, Visual and landscape impact. – John Jess, J Jess and Associates, Valuation; – James Fowler, Graeme Harding & Associates, Noise. – Frits GP Van den Berg, University of Groningen, Netherlands, Noise (by audio link). – June Blenkhorn, Victoria University of Technology, Psychology and social impact. – Dr Belinda Appleton, Dept of Genetics, University of Melbourne, Bats. – Bob Dearing, local resident in relation to use of land for artillery practice at Bald Hills. <p>Submissions for the Coast Guardians were also made by Jenny O'Sullivan and Tim Le Roy.</p>
Steven Garito and Jane Thackeray	Themselves
Mark Burfield	Himself
John Wischer	Himself
Bob Foster	Himself
Bird Observers Club of Australia and WESBOC (Westernport Bird Observers Club)	Don Saunders
Damian Closs	Himself
Noel and Bruce Uren	Paul Falzon of Kahns, Solicitors for Noel and Bruce Uren.
Department of Sustainability and Environment (incorporating Parks Victoria)	Tony Edgar, Tania Brooker, Peter Menkhorst and Kim Lowe (Officers of the Department)
Gippsland Coastal Board	Anthony Costigan (Acting Executive Officer of the Board)
Sustainable Energy Authority Victoria	David Young (CEO of the Authority) and Megan Wheatley (Officer of the Authority)
Prom Coast Guardians	Noreen Wills
National Trust (Vic), Central Office and South Gippsland Branch	Dr Juliet Bird and Elizabeth Landy
Tony Landy	Himself
Elizabeth Landy	Herself
Don Jelbart	Himself

Submitter	Represented By
South Gippsland Conservation Society	John Gunson
Stewart and Dunlops Rd Residents	Rod Cope
The Mittag family	Alison Mittag, Robert Mittag and Fiona Mittag
Robert Jukes	Himself
Di Hooper	Herself
Tarwin Landcare Group	Dr Murray Hooper calling – Dr Jacob Malmo, Veterinarian.
Lyndsay Marriott	Himself
Dorothy and Lloyd Jelbart	Dorothy Jelbart
Walkerville Ratepayers & Residents Ass Inc	Julie Macphee
Lucas Bluff	Himself
Ian Lyon, Stephen Jelbart and Susan Reece Jones	Ian Lyon
John Fincher	Himself
Don and Dorothy Fairbrother, the Price, Fox and Holz families.	Don Fairbrother
Jill McCulloch and Mardi Paul	Jill McCulloch
Graham Box	Himself
Anne Box	Herself
Chris Hayward	Himself
Thomas & Lyn Butcher	Themselves
The Bray family	Bill Bray (Junior) and Lucy Bray
Joan and Rob Liley	Themselves
The Kavanagh family	Marion Kavanagh
Trish Jelbart	Herself
Sue Svenson	Herself
Rob Greaves	Himself
Paul O'Sullivan	Himself
Inverloch Ratepayers & Residents Ass	David Sutton
Marion Chapman	Herself
Andrew Chapman	Himself
South Gippsland Shire Council	Cr Warren Raabe and Joshua Clydesdale (Planning Officer of the Council)
Rohan and Megan White	Rohan White
Ian Tuck	Himself
Russell Mullet	Himself

Mr Russell Mullett made a submission that contained references to Aboriginal Cultural knowledge, expressed as being confidential.

Before the Panel was appointed, an administrative oversight in the Department of Sustainability and Environment led to a copy of this submission being placed on the public record. However, as soon as this was discovered, steps were taken to remove the submission from the record. Mr Mullett was invited to place the issues that he had raised before the Panel, for consideration as to whether they could be heard as a confidential submission.

Once the Panel was appointed, steps were taken to enable Mr Mullett to request a confidential hearing. He made a request and was heard confidentially.

This report does not summarise the issues raised by Mr Mullett and does not provide the Panel's response to them. In this way, Mr Mullett's confidence has been maintained. A confidential summary of the issues raised by him has been provided to the Minister for Planning under separate cover.

3. WHAT IS PROPOSED?

3.1 THE SUBJECT SITE AND SURROUNDS

The subject site is located within Cape Liptrap, in South Gippsland Shire. Cape Liptrap and the physical features described in this section are outlined on Figure 1 below.

Cape Liptrap is one in a series of six capes comprising Cape Schanck, the Nobbies, Cape Woolamai, Cape Paterson, Cape Liptrap and Wilsons Promontory. These extend into the Bass Strait over 150 km of south west facing coast between Port Phillip Heads and the tip of Wilsons Promontory, which is also the most southerly point in mainland Australia. This coastline is characterised by a succession of cliffs and headlands, interspersed with sandy bays. It lies within a day's drive of Melbourne and is a focus for a wide range of leisure and tourism pursuits.

Key coastal localities and towns in the region include Phillip Island, Kilcunda, Wonthaggi, Cape Paterson, Inverloch, Waratah Bay, Sandy Point and Tidal River in Wilsons Promontory National Park. Phillip Island and Wilsons Promontory are the main tourism destinations.

Much of the region's coast is easily accessible by road and can be viewed from coastal roads. For example, from Anderson to Dalyston, the Bass Highway provides spectacular coastal views, before passing inland to Wonthaggi and Inverloch. The well signposted Bunurong Coastal drive diverts from the highway at Wonthaggi and provides a similarly spectacular coastal drive via Cape Paterson to Inverloch. However, at Inverloch, the major route passes inland, the Bass Highway diverting northwards to rejoin the South Gippsland Highway at Leongatha. Wilsons Promontory, a major tourism destination, tends to be accessed from the north – inland – via either Meeniyah and Fish Creek or Foster.

The coastal route westward from Inverloch via Cape Liptrap to the Prom appears to experience relatively limited usage in comparison to the routes identified above. This can in part be explained by the facts that this route has been little promoted, is relatively indirect and that a key link between Walkerville and Fish Creek was not sealed until relatively recently. However, with the exception of the component of this route, which runs along the Mount Liptrap ridge (which provides some extraordinarily visually pleasing vistas across Waratah Bay to Wilsons Promontory), the bulk of the route does not provide extensive coastal views. Access to coastal recreation and to townships is in general via side routes, with the main route via Tarwin Lower having a generally rural/agricultural character. The Cape coast in short remains more inaccessible and less well known than its proximity to Melbourne or activity levels in adjacent coastal areas would otherwise suggest.

Cape Liptrap is a prominent landform extending some 16 km seawards (south west) of the prevailing coastal alignment. Dividing the adjacent Venus and Waratah Bays, the landward extent of the Cape measures some 22 km from Venus Bay township to Cape Waratah township in the west. Townships within the Cape include Tarwin Lower, Liptrap, Walkerville South and Walkerville North.

The west (Venus Bay) coast of the Cape is low lying and sandy, with some 26 km of open beach found between the mouth of Anderson Inlet and the first substantial rocky outcrops at Arch Rock. East of Arch Rock, the tip, south and east coasts of the Cape are much rockier, with substantial cliffs, broken by small coves containing settlements such as Walkerville South and Walkerville North, before the resumption of the broad sandy sweep of Waratah Bay.

Inland, the Cape reflects its coastal structure, with broadly low lying coastal plains extending from Venus Bay township to the vicinity of Arch Rock. The outcropping coastal cliffs mark the passage to the sea of a backbone of higher land, extending from the Cape itself, via Mount Liptrap to the Hoddle Range.

Significant coastal inlets and wetland areas are found to the east and west of Cape Liptrap. Anderson Inlet is found immediately to the west, over 2000 ha of tidal water, opening to the ocean at Inverloch. Shallow Inlet and Corner Inlet are found to east.

The subject site is set on the 'Bald Hills' range. This is an isolated ridge some 9 km long, running in a gentle curve north east to south west within the centre of the otherwise lower lying portion of the Cape. It rises to a maximum of some 90 metres AHD close to its northern extent. The range is fully exposed to south westerly winds from the Bass Strait.

To the north, the range is at its topographically most complex, forming three generally parallel but rapidly undulating ridges of rounded eminences, extending over 2.25 km east – west. The distinctive and locally visually dominant landscape character of this section of the range extends for some 3.5 km, being located generally between the Bald Hills Wetland Reserve (to the north) and the Kings Flat Nature Reserve (to the south).

The height of the ridge declines as it moves broadly south and west, approaching the coast. The range also narrows and its terrain becomes gentler and less distinct. In its southern section, the range is perceived more as a gentle rise than as a locally dominant landscape feature. At a point some 2km from the coast, the range ceases to be evident, having declined to the general height of the surrounding coastal plains before becoming absorbed in a more complex and small-scale terrain of coastal dunes.

The Bald Hills range can be described as isolated, because it is surrounded by generally more low lying areas, comprising Tarwin Meadows, coastal flats and dunes (to the south and west), the now largely drained Tullaree Swamp (to the north) and an open, low lying valley (unnamed but broadly following the alignment of the Buffalo – Waratah Road to the east).

This lower lying area is in turn enclosed by higher land to the west, formed by the Grasree Hill ridge (159 m AHD). This ridge rises some 15 km north west of the subject land. It extends generally from Anderson Inlet and rises towards the north east, intersecting with the Strzelecki foothills north of Koonwarra. It provides a landscape and viewshed break between the site and the landscape settings of Inverloch and Wonthaggi (including the permitted Wonthaggi windfarm).

To the north, the land rises gently in the Tarwin River valley, towards Middle Tarwin, Buffalo and Fish Creek, eventually rising to the foothills of the Strzelecki Ranges around Dollar, Dumbalk North and Nereena.

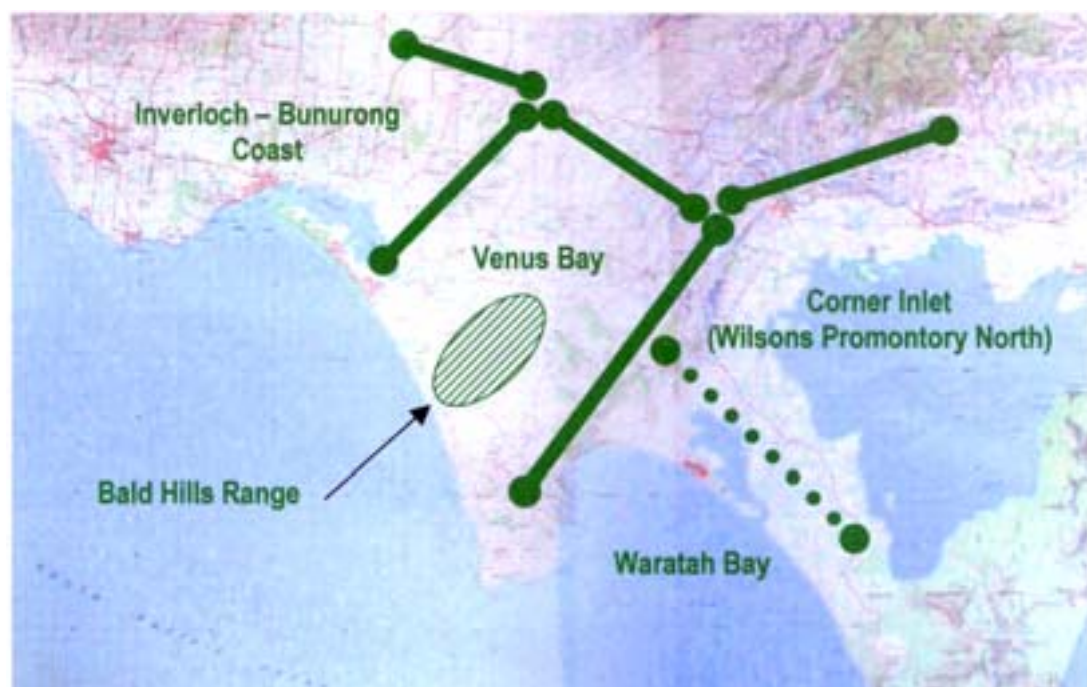
To the east, the range of Mount Hoddle (304 m AHD) extends via Rock Hill/Mount Lavinia (162 m AHD) to Mount Liptrap (171 m AHD), the backbone of Cape Liptrap. This high land is some 6.5 km south east of the subject site. Again, it provides a landscape and viewshed

break between the site and the settings of Waratah Bay, Wilsons Promontory National Park and the existing Toora windfarm.

The Panel refers to the landscape within these bounds as the 'Venus Bay' landscape region. Land to the east of the Mount Liptrap – Hoddle viewshed it refers to as the 'Waratah Bay' landscape region. Land to the west of the Grass Tree Hill viewshed it refers to as the 'Inverloch – Bunurong' landscape region.

The subject site comprises some 1763 ha of private land in seven ownerships and nineteen separate titles, in the Rural Zone (RUZ) in the South Gippsland Planning Scheme. Much of the site is cleared land, currently used for grazing.

Figure 1: The Proposal in its Region



Key

Landscape Region/Viewshed Boundary



Reduced

Project area



Not to scale

Base: Division of National Mapping 1:100 000; composite of sheets 8020 and 8120. © Crown.

The site is divided into 3 main areas as shown on Figure 2 below:

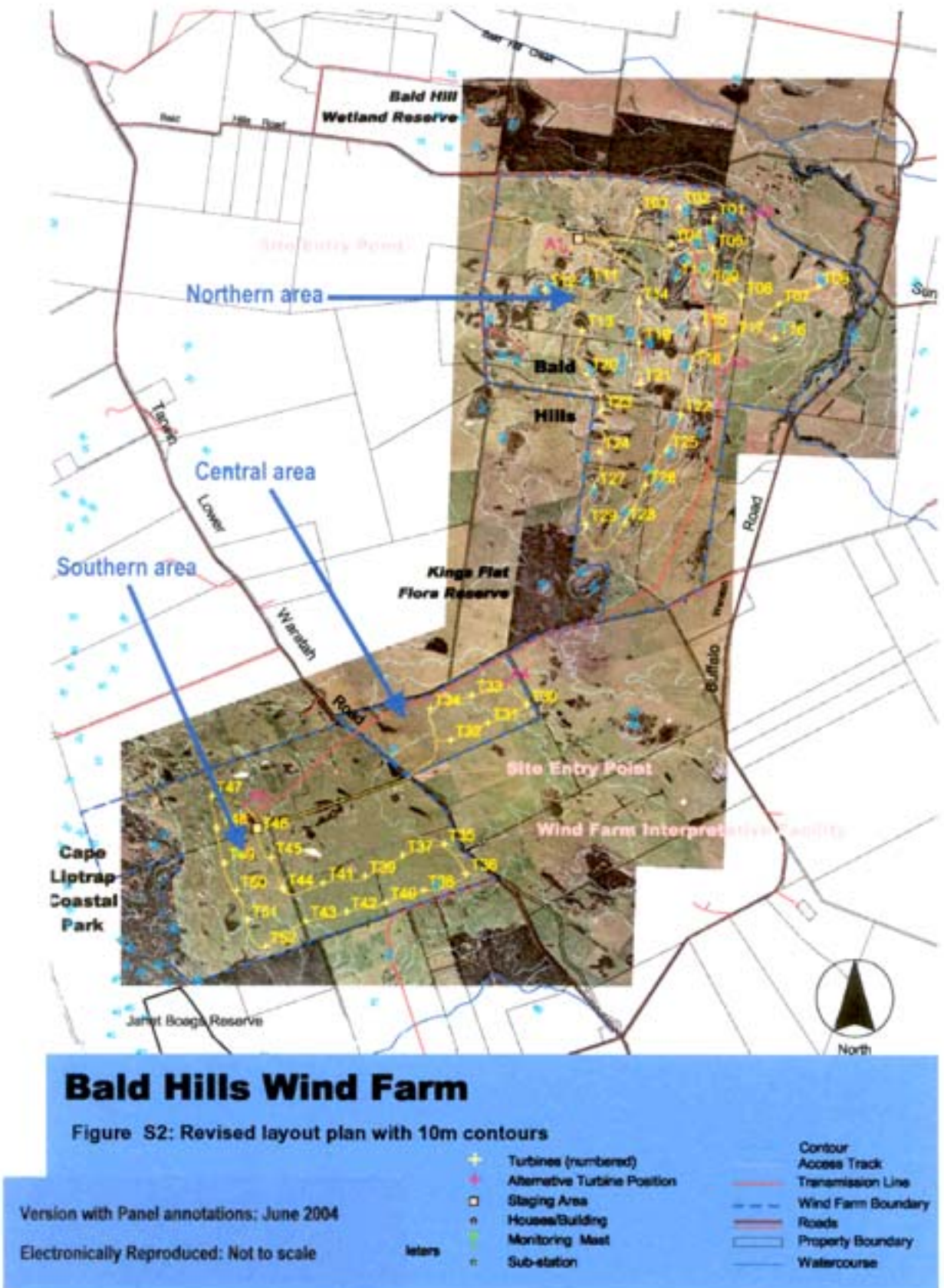
- The northern area consists of some 1034 ha of land over twelve titles located in the triangle described by the Tarwin Lower – Waratah Road⁴, Buffalo – Waratah Road and Bald Hills Road. It is in multiple ownerships and contains three dwellings. There are small but significant areas of remnant native vegetation present in the area. The area also abuts two areas of crown conservation reserve; the Bald Hills Wetland Reserve (to the north) and the Kings Flat Nature Reserve (to the south) which are further described below. The northern area contains the most prominent and locally distinctive component of the Bald Hills range. The hills between the Bald Hill Wetland Reserve and the Kings Flat Nature Reserve extend to some 90 m AHD and are generally some 40 to 50 metres above the average elevation of the surrounding land.
- The central area is again located in the triangle described by the Tarwin Lower – Waratah Road, Buffalo – Waratah Road and Bald Hills Road, but is separated some 1.2 km south west of the northern area, this separation comprising the Kings Flat Nature Reserve. It consists of some 119 ha of land over one title (Bissett) and contains no dwellings. It contains little remnant native vegetation. It has a limited abuttal to Kings Flat Nature Reserve (to the north). At approx 70 m AHD, this area lies beyond the southern extent of the locally dominant range of the Bald Hills. Here the land forms a gentle rising crest, higher than the surrounding land but not dominant after the manner of the Bald Hills range in the northern area.
- The southern area is located adjacent to the central area, south west of the Tarwin Lower – Waratah Road, between that road and the coastal reserve. It consists of some 610 ha of land over four titles and contains two dwellings, all within a single ownership (Box). There are small but significant areas of remnant native vegetation present in the cleared portion of area, which also contains a larger extent of uncleared vegetation contiguous with the coastal reserve. The area abuts the coastal reserve which here forms the Cape Liptrap Coastal Park and the Janet Boag Reserve. It also abuts significant areas of uncleared private land. The land is generally low lying, with a gentle slope towards the sea and some small-scale complexity of relief due to dunes.

The site surroundings consist largely of cleared pastoral land in the Rural Zone, again with limited but sometimes significant remnant native vegetation. Larger uncleared areas of remnant vegetation remain, particularly on private land adjacent to the coastal reserve and in the Liptrap area (between De Merlos Pit Road and Cape Liptrap Road).

The area contains scattered farm dwellings and a small number of rural lifestyle dwellings, dwellings providing holiday homes and tourist accommodation. Whilst land has been subdivided into lots as small as 20 ha in some areas, the typical holding pattern is in tenements of multiple lots, with between 100 to 600 ha held in single ownerships. Some landowners hold more than one tenement.

⁴ Place and road names used in this report are those used in the EES documentation and the VicRoads Country Street Directory of Victoria. The Panel received submissions to the effect that there are differences between names in EES and VicRoads documents, South Gippsland Shire Council documents and local usage. The Panel intends no statement as to which usages are correct. However, it has adopted the names used in the EES and by VicRoads to ensure consistency between its findings and earlier phases of project documentation.

Figure 2: The Subject Site: Areas



Source: SEES Figure S2.

Reference should also be made to Crown land in the environs of the proposal site. There are three significant entities as follows:

- **Cape Liptrap Coastal Park.** This designation includes former crown coastal reserve (which extend generally in the region of 1km inland) fronting Venus Bay extending from Venus Bay township to Cape Liptrap. The park fronting Venus Bay contains the primary dune and is well covered in native coastal heath vegetation. The Janet Boag Reserve is a section of coastal crown land adjacent to the project site, which is effectively managed as part of the Park.

Access to this section of the Park is obtained by most users at Cape Liptrap and at Venus Bay township. There is only one formal access between these points, via the Five Mile Track close to the project site. There is a coastal walking track, but the absence of regular vehicular access points ensures that this is a long walk, most suitable for experienced and well equipped bush-walkers. Some informal access points exist, but the Panel understands these to be used exclusively from within private land abutting the park, to access the beach or recover strayed stock. Dense coastal vegetation controls public access to much of this section of the Park, including areas with significant outlooks to the project site.

Beyond Cape Liptrap, the park includes a more substantial component of forested coastal hinterland, providing a strong natural landscape backdrop to the western side of Waratah Bay. This in turn complements the highly attractive and natural landforms and vegetation of Wilsons Promontory National Park, which encloses the bay to the east. This area of the Park has vehicular and pedestrian access via the Walkerville townships.

- **Bald Hills Wetland Reserve.** This is an area of remnant woodland and wetland, including the margins of the former Tullaree Swamp. It contains an ancient wetland area and a larger constructed wetland. The latter is accessed by a walking track and has a bird hide. Parks Victoria provides an interpretive leaflet and bird lists and an observation book for the reserve are available.
- **Kings Flat Reserve.** This is a small area of remnant bush on crown land. It cannot be accessed by a constructed road and does not contain and access or interpretation infrastructure.

3.2 NATURE OF THE PROPOSAL

The proposal is for the construction of a wind energy facility in the three areas identified above. Section 1.2 of the SEES provides a succinct summary of the proposal before the Panel in the following terms:

... [T]he revised proposal involves the construction and operation of a wind farm.[...] It is anticipated that the output of the wind farm will be 104MW.

The development will involve the installation of 52 wind generators, two small on-site sub-stations, control facilities, access tracks, an interpretive centre and a 66kV distribution line linking the northern and southern areas of the wind farm [...].

In order to establish a clear reference and terminology for discussion of these areas in the remainder of this report, the Panel refers to them as follows:

Area	Proposed turbines referred to as	Number of turbines
northern	the Northern Cluster (Bald Hills Range)	29 + 3 alternatives
central	the Central Cluster (Bisset)	5 + 1 alternative
southern	the Southern Cluster (Box)	18 + 1 alternative

Figure 3 below also sets out and defines some key wind energy and power system terms and measures that are used to describe and assess the proposal.

Whilst advanced as a single proposal, the project effectively amounts to two freestanding wind farms, with a substation and grid connection for each; one located to serve turbines in the northern area, and one located to serve turbines in the central and southern areas. Within the body of the Northern Cluster (Bald Hills Range), the wind turbine locations are proposed to be linked to a substation and the grid connection by underground interconnectors. Similarly, within the combined body of the Central Cluster (Bisset) and the Southern Cluster (Box), the wind turbines are proposed to be linked to a second substation and the grid connection by underground interconnectors.

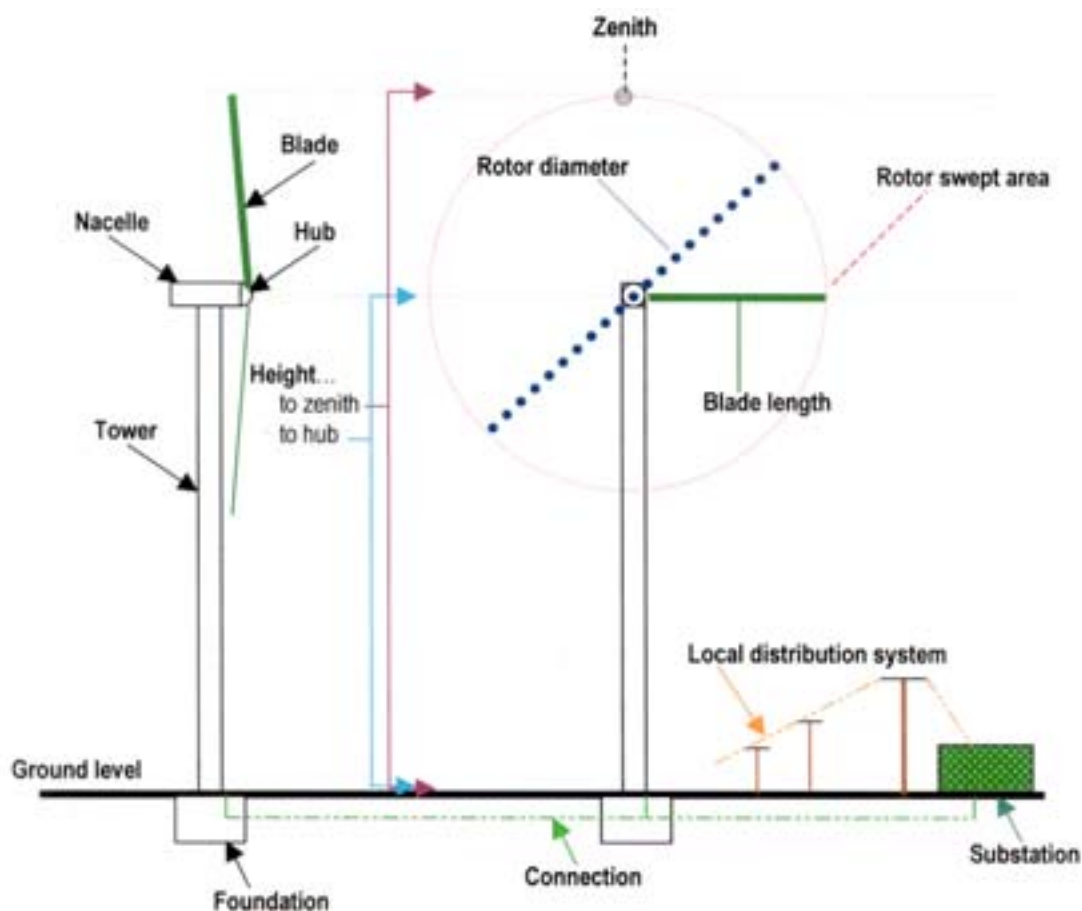
It is then proposed that the two substations would be linked via an overground 66kV distribution line, of the type generally described in the evidence of Ross Ipenburg of VEMTEC Pty Ltd for the proponent. As Mr Ipenburg's evidence made clear, whilst this overground link has been described in the EES process, there would be nothing to distinguish it from local distribution system assets. It could lie beyond the substations (and therefore 'outside' the windfarms in land use terms). It could connect directly into other appropriately designed components of the local distribution system. To this extent, it remains possible that such a link would not form part of the project but would form part of the local distribution system, an issue that is discussed further below in relation to the composition of the project for assessment and approval purposes.

The point of proposed connection to the grid for both wind farms is described in the SEES as the northernmost of the proposed substations. However, the thrust of Mr Ipenburg's evidence is that the point of connection could be either this northern substation, or alternatively both proposed substations.

The SEES makes clear that whilst a final generator specification for the turbines has not been confirmed, planning has proceeded on the following basis:

- the REPower MM82 turbine is likely to be used;
- the generator diameter would be 82 m (implying a blade length in the region of some 38 m);
- the rotor swept area per turbine would be some 5,281 m².
- The height of tower to the centre of the rotor hub would be 65 m.
- The height to turbine zenith would not exceed 110 m.

Figure 3: Wind Energy and Power System Terminology

**KEY**

(Terms shown in bold are illustrated)

Wind farm	A number of wind turbines, their control systems and connection to the grid.
Cluster	A group of wind turbines within a wind farm.
Wind turbine	A structure to harness and convert wind energy, generally comprising:
Foundation	- a subsurface concrete base onto which the structure is mounted;
Tower	- a tubular steel sectioned structure supporting other turbine components;
Nacelle	- a housing for a generator, gearbox and control facilities;
Generator	- housed in the nacelle, this transforms rotation into electricity;
Hub	- a central rotating component, harnessing blades to the generator;
Blade	- a mobile aerodynamic foil to catch energy from the wind; and
Rotor	- the combination of the hub and blades can be referred to as the rotor.
Cut in speed	Low wind speed above which a wind turbine can commence generation
Cut out speed	High wind speed above which a wind turbine will be shut down to prevent damage.
Connection	Located underground, this cable connects turbine power output to a substation.
Substation	This transforms turbine power output for export to the local distribution system.
Local distribution system	This takes electricity at 66kV from the windfarm to demand sources in the locality.
Height to zenith (metres)	Height from ground level to the tip of a blade at its highest point of rotation.
Height to hub (metres)	The height of a wind turbine from ground level to the centre of the hub.
Blade length (metres)	The length of a blade from its mounting point on the hub to its tip.
Rotor diameter (metres)	The diameter of the circle described by the tips of the rotating blades.
Rotor swept area (metres ²)	The area of the circle described by the tips of the rotating blades.
Rotor speed (rpm)	The rotation of the rotor measured in revolutions per minute (rpm).
Tip speed (m/s)	The speed of blade tips passing through air measured in metres per second (m/s).
Wind speed (m/s)	The speed of the wind passing through the wind turbine rotor.

This lack of final certainty in the selection of a turbine is not an insurmountable problem for an environmental assessment and development approval processes. However, as detailed assessments of landscape, visual, acoustic, natural environment and aviation impacts have taken place using the dimension and sound power output assumptions derived from the preliminary choice of the REPower MM82 broadly located as shown in the SEES, these assumptions now provide an effective assessment 'envelope' for the project. Namely, if the project were to proceed:

- in relation to acoustic impacts, the sound power output of a chosen turbine should not be materially greater than that of a REPower MM82 turbine;
- in relation to acoustic impacts, the chosen turbine should not exhibit any materially different acoustic performance characteristics to those of a REPower MM82 turbine (eg in terms of emissions of a tonal or impulsive character); and
- in relation to natural environment (avian), visual and aviation impacts, the proposed hub height, blade length, zenith and rotor swept area or the number or location of turbines should not materially change to increase these values or impacts.

The proposed configuration of turbines is best shown in SEES figure S2, reproduced above as figure 2. This shows the proposed locations for the 52 turbines, together with an additional 5 alternative turbine sites.

The purpose of the alternative turbine sites is not to enable an increase in turbine numbers over the 52 proposed, but instead aims to provide scope to relocate individual existing proposed turbines, should detailed on ground investigations demonstrate that sites currently considered suitable by the proponent are, for whatever reason, no longer considered suitable at the detailed design stage. This in turn provides a means by which the design output of the windfarm can still be maximised without further approvals, in circumstances where up to 5 of the primary turbine locations could not proceed.

Finally, SEES figure S2 shows the location of other relevant components of the proposal, which in summary amount to:

- a vehicular access point from Tarwin Lower – Waratah Road to the central and southern areas of the site;
- a vehicular access from an un-named road running south of Bald Hills Road to the northern area of the site;
- access tracks for construction and maintenance purposes, linking the proposed wind turbine locations;
- 2 wind monitoring masts to be retained or replaced in each of the northern and southern areas of the site;
- 2 'staging areas' or hard stands within each of the northern and southern areas of the site, to which wind turbine components would be delivered during the construction process; and
- the location of a roadside 'Wind Farm Interpretative Facility' on Tarwin Lower – Waratah Road.

3.3 THE ASSESSMENT AND APPROVAL PROCESS

In relation to the approval process, mention must be made of the EES and SEES and their relationship with planning permit applications also referred to the Panel and the Commonwealth's approval process under the EPBC Act.

The EES and SEES are not themselves an approval process. They are a mechanism whereby a proponent is required to investigate and document the potential environmental, social and economic effects of a proposal, for consideration at a public inquiry and to inform the making of a formal 'assessment of environmental effects' by the Victorian Minister for Planning. This assessment in turn forms the basis on which the Commonwealth Environment Minister determines whether and on what terms actions controlled under the EPBC Act could proceed.

In relation to these processes, the role of the Panel is to make findings and recommendations enabling the Victorian Minister for Planning to make her assessment and the Commonwealth Environment Minister to determine whether controlled actions should proceed in the light of Victorian Minister's assessment.

The EES and SEES, public inquiry and assessment process also form the key input into development approval decision making by the Minister for Planning, in relation to the two planning permits referred to the Panel. Here, the role of the Panel is to make findings and recommendations to assist the Victorian Minister for Planning to determine the permit applications for which she is the responsible authority; to resolve whether they should be granted and, if so, on what conditions or requirements as to design, environmental monitoring environmental management or other relevant matters.

The first planning permit application (ref TRA/03/002) is for the use and development of land for a wind energy facility: the term used to define a wind farm in the Victoria Planning Provisions (VPP). The South Gippsland Planning Scheme provides that a wind energy facility is a discretionary (section 2) use in the Rural Zone for which a permit is required (see clause 35.01-1). The Minister for Planning is the responsible authority for proposals for the use and development of land for a wind energy facility over 30 MW in capacity, a trigger that applies to this project (see clause 52.32).

However, it has not been clear that by acting as the responsible authority in this capacity, the Minister automatically assumes the mantle of responsible authority for associated or ancillary works, where a permit discretion is created by controls in the scheme other than those found in the Rural Zone. This is particularly the case in relation to the clearance of native vegetation, for which discretion is provided under clause 52.17 of the scheme. It was for this reason that the proponent then applied for a separate permit for native vegetation works to South Gippsland Shire Council by.

The Panel does not need to turn its mind to the question of whether this step was strictly necessary in law. The second application has been called in by the Minister and is on the table before the Panel. The Panel views it as a necessary corollary of and part of a common whole with the wind energy facility application.

Having outlined the use and development for which approval has been sought and by what means, it is also necessary to briefly outline that there are aspects of the broader project for which approval is not sought and are therefore outside the scope of this Panel's findings or recommendations. Most critically, approval is not sought for the construction of a 66 kV distribution system link between the grid connection point(s) of the proposed wind farms and the existing distribution system assets capable of accommodating the anticipated output, some 35km to the north at the TXU Leongatha zone substation. This is for a number of reasons:

- The construction and operation of such a link is not the responsibility of the wind energy operator. It is the responsibility of a local utility undertaking, administering the local distribution system (although clearly the cost of such works would be assigned to the wind energy operator). In short, it is a separate, albeit contingent project.
- Such a link is defined in clause 74 of the planning scheme as a *Minor utility installation*. In short, it is as a matter of law a distinct land use from that of a *Wind energy facility*.
- A permit is not required in the Rural Zone at clause 35.01-1 for a *Minor utility installation*.
- Whilst it is possible to envisage that a planning permit for native vegetation works may be required for elements of such a link pursuant to clause 52.17 of the planning scheme, this fact alone does not draw it within the scope of the project for assessment or the exercise of planning discretion that is currently before the Panel.

The Panel appointed to hear the initial EES and permit application held a directions hearing on 5 September 2003. It heard detailed submissions on this point and made a ruling documented in its written directions. Whilst that ruling in no way binds the current Panel, it has nevertheless had regard to it. It adopts it, as it considers that the relevant law and facts which led that Panel to its ruling have not changed. The reasons for the ruling are extracted in full below.

Submissions

The Panel received submissions from a number of parties that it should declare the planning permit application TRA 03/001 and/or the published EES documentation void, invalid or incomplete, in relation to the fact that neither record a route or route options whereby the electrical output of the proposed wind farm could be provided to the current power distribution network. In the view of some, the consequence of such a declaration should be that a date for the proposed hearings should not be set down. Natural justice considerations in relation to the potential need for notice to additional affected parties were also raised.

Wind Power Pty Ltd strongly opposed these submissions. It acknowledged that the alignment of such a route was not shown. However, it took the view that the use of land for such an alignment was separate from that of the windfarm and that a permit would not be required for the separate use. In relation to the EES process it took the view that the effects would be minor and could be assessed by an addition to its expert witness statements. However, it took the alternative view that as the EES and planning jurisdictions were being exercised together, the Panel should not consider itself as being 'at large' in relation to matters beyond the scope of planning control.

The Department of Sustainability and Environment tendered the written legal opinion of Mark Dwyer of Freehills in support of its contention that the planning permit did not need to contain details of the alignment and that it would be a

question of fact for the Panel to determine as to whether details would be required in order to prepare an assessment of environmental effects.⁵

Panel Reasons

At present, existing distribution network components of appropriate capacity to accept the proposed windfarm power output are found some 35 km to the north of the site, at Leongatha. It is not disputed that an alignment or alignments to join the windfarm output to the distribution system are not shown in the permit application or the EES.

The Panel has considered whether failure to show the route or options in any way makes the permit application void, invalid or incomplete. It has considered the same issues in relation to the EES. In relation to both it has also considered whether they otherwise require to be remedied before arrangements can be made for the public hearing. It has also considered whether the failure to provide this information in the permit or the EES amounts to a default of natural justice to any party and the steps that it should reasonably take to ensure that any such default does not occur.

In relation to the argued voidness, invalidity or incompleteness of the permit application, the Panel finds that the permit application cannot include an application for a proposed route for a power distribution network connection if this is a 'Minor utility installation' and no other basis than use exists for the exercise of discretion. As a matter of fact, such a connection would consist of a maximum 66kV line (three individual cables mounted on typical roadside poles) and form part of the electricity distribution system. Turning to the planning scheme, such a use is a separately defined land use to the proposed wind farm and is characterised as a minor utility installation. The Panel also remarks that it would be most unlikely (although not necessarily impossible) that the alignment would be constructed or managed by Wind Power Pty Ltd. Common practice would be for the alignment to be constructed and managed as part of the wider local distribution network, again underscoring the degree to which it is a separate use of land. A minor utility installation does not require a planning permit for use in any relevant zone. It follows that the planning permit application before the Minister should not purport to apply for permission for a use for which permission is not required. It flows that the issue raised does not of itself invalidate, void or make incomplete the permit application that has been made.

The Panel now turns to examine the arguable circumstances in which a permit were to be required for the development of the proposed alignment or for part of it, for example pursuant to Clause 52.17 of the planning scheme (native vegetation). The Panel is also clear that as a matter of law, because the minor utility installation use is a separate use to that of the windfarm, notwithstanding the close nexus between the two uses, associated development is not required to be assessed within the framework of the same permit application as for the windfarm itself.

The Panel has also considered the interpretation that should be placed on the term 'connections to the electricity grid' as set out in the 'Policy and planning guidelines for development of wind energy facilities in Victoria' and Clause 52.32

⁵ This legal opinion is on the public record and a copy is attached at Appendix C1.

of the planning scheme. It has considered whether this clause and the associated incorporated document act to establish a condition precedent for a valid permit application that the proposed alignment has to be shown on a plan. Again the Panel finds that it does not. The Panel accepts the view that the application plan for a windfarm must show the location (or metering point) at which the electricity is to pass from the producer, to the distributor. The submitted plans accomplish this requirement.

For the reasons and in relation to the issues set out above, the Panel therefore declines to find that the permit application is void, invalid or incomplete.

Turning to the EES, the Panel notes that an EES, arising from its own legislation, may address matters beyond those for which a planning permit is required if it is necessary to do so. In this regard, the Panel notes that an EES may be required for an action that does not require a planning permit, or even for one that is beyond the scope of planning control. There is therefore no essential conjunction between that which is necessary to be assessed in the EES process and that which is required to comprise part of a planning permit application. There does not as a matter of law appear to be a clear definition of what must be comprised within an EES for the purposes of a 'valid' EES document. Past practice suggests that Panels and government assessing authorities have provided 'issues based processes'. Instead of focussing on the question of whether an EES is at any one time formally 'valid' or complete, they have simply sought the necessary information to enable an assessment to be made, a process that typically continues until the conclusion of the Panel component of the EES process.

The Panel accepts the proposition that an EES should contain information that is relevant to an assessment of environmental effects. To the extent that the term 'environment' for environmental impact assessment purposes is broadly accepted to comprise a wide range of environmental, social and economic considerations, the effect of the construction of 35 km of 66 kV power line necessitated by a project subject to an EES is not in principle irrelevant to the EES process. However, the degree to which it is relevant cannot as a matter of fact be determined until more is known about it. For this reason, the Panel has directed that Wind Power Pty Ltd. must prepare and disclose as part of its expert witness statements, a 'distribution system statement' mapping and describing the proposed alignment or alignments whereby the proposed windfarm could be connected to the current distribution system, indicating potential environmental effects and the steps (if any) to be taken in mitigation or these. With this information in hand, the Panel will then be able to hear submissions from all parties on the degree to which it is relevant to the overall assessment of environmental effects.

Turning to natural justice considerations, the Panel considers that the advance disclosure of the statement directed to be provided is likely to enable existing interested parties to review it sufficiently before the commencement of the hearing to enable them to respond to it. The Panel is conscious of the view that the proposed changes may arguably provide a basis for further parties to be heard. Again, it does not propose to direct conclusively on this point until it has itself seen the statement directed to be provided, at which point it will provide parties with a further opportunity to address it on the natural justice considerations (if any) which arise at that time.

In reaching its reasoning, the Panel has had regard to and adopts the legal opinion of Mark Dwyer, of Freehills for the Department of Sustainability and Environment, copies of which were tabled at the Directions Hearing. In relation to the question of planning permit requirements for minor utility installations offsite from but associated with other utility land uses, the Panel also considered and has adopted the reasoning of the Panel for Moira Combined Amendment C11 and Permit TP02/062, at Section 7 and Appendix D2 of the report for that matter.⁶

This Panel remarks that, further to that ruling, the proponent did provide the 'distribution system statement' sought by that Panel for EES (as opposed to planning permit) assessment purposes. It also called the evidence of Ross Ipenburg in relation to the distribution system design implications of the approval of wind farms as generally proposed on the subject site. Having received this information and evidence, the Panel considers that it now has sufficient information to hand to consider the relevance of distribution system changes for the purposes of the EES alone, which it undertakes at Section 19 of this report below.

Turning to the questions of natural justice raised by the former Panel above, this Panel would note that the exhibited SEES contained the 'distribution system statement', which mapped potential route alignment options and a preferred alignment corridor option. As such, the Panel considers that any possible natural justice issues arising from the non-availability of this information at the point of first exhibition have been addressed. In this regard, it should be observed that where a proposal is one for which use and development do not require a permit under the planning scheme, a potentially affected person would not normally be entitled to notice of it, let alone to have their views considered by the decision maker. It therefore follows that the information provided pursuant to the SEES does not need to resolve questions of individual, property specific effects. It only need address broad questions of the scale or order of impact, to ensure that there is no likelihood of a major order environmental impediment.

If the project proceeds and the alignment is to be constructed in a manner that impacts on native vegetation, a permit application for native vegetation works will require to be made under clause 52.17 of the planning scheme, under which there is no exemption from notice. Questions of detailed impact would properly be resolved through that process.

⁶ Extracts from the Moira Combined Amendment C11 and Permit TP02/062 Panel Report are reproduced at Appendix C2.

4. ISSUES

The purpose of this section is to summarise:

- the number and nature of the submissions raised;
- the issues emerging from these; and
- the degree to which these are relevant to the reasoning adopted by the Panel.

4.1 NATURE OF SUBMISSIONS

The Panel has had 1,422 submissions referred to it arising from two notice and exhibition processes.

The first process was the provision of notice for and exhibition of the EES and the originally associated planning permit under reference TRA03/001. This proposed a wind energy facility on the same site as that currently before the Panel and delivering a broadly equivalent power output using 84 1.3 MW wind turbines. Following the proponent's revision of this proposal to that currently before the Panel, the originally exhibited EES did not proceed to a public inquiry and the associated permit application was withdrawn. That being said, the Panel's terms of reference require it to consider all 274 submissions arising from this process. The Panel has done so and has taken into account all issues raised, in so far as the changes to the specifics of the proposal have not rendered them irrelevant. In numbering submissions from this process, the Department of Sustainability and Environment identified that the same body or person in some cases has made more than one submission. In such cases, the same submission number has been assigned to the submissions, ensuring that the Panel considers the combined and aggregate view of the submitter.

The second process was the provision of notice for and exhibition of the SEES and the two associated planning permits for a wind energy facility (under reference TRA/03/002) and removal of native vegetation (under reference 2003/563). This resulted in 1,148 submissions being referred to the Panel.

There is inevitably considerable duplication of content between submissions made in this second process and submissions made in the first process. Whilst second process submissions have been numbered separately, the Panel has also considered them alongside submissions made in the first process, to ensure that common issues and themes emerging from submissions by the same body or person are properly considered.

To further complicate matters, the permit application for the removal of native vegetation (under reference 2003/563) was originally made to South Gippsland Shire Council and then called-in by the Minister for Planning, but not until it had been advertised with the municipality as responsible authority. Until the call-in took place, there was a period when stakeholders were required to direct their comments to two separate responsible authorities. For this reason, a number of the submissions made to the Shire come from the same submitters and reiterate issues raised in submissions to the permit for a wind energy facility (under reference TRA/03/002), for which the Minister has remained the responsible authority throughout.

Again, the Panel has identified where submissions from the native vegetation permit relate to or reiterate issues raised in submissions on the wind energy facility. It has again read these submissions together, to ensure that it appreciates the views of the same body or person, albeit expressed to different responsible authorities.

In this regard, the Panel notes that it would assist the public and future Panels to understand the issues raised if permit application and exhibition processes were managed to ensure that submitters were not put to the task of addressing comments to two separate entities, when it is clear that only one of these will be the eventual decision maker.

The submissions break down in the following terms.

- a submission on process from the Department of Sustainability and Environment as responsible and assessing authority;
- submissions on policy issues and merits from government instrumentalities, including:
 - Department of Sustainability and Environment in its capacity as lead department for environmental issues, conservation and public land management;
 - Sustainable Energy Authority of Victoria;
 - Gippsland Coastal Board;
- submissions on policy issues and merits from South Gippsland Shire Council, broadly opposing the proposal;
- submissions and evidence on policy and merits from the proponent, supporting the proposal;
- submissions on merits from landowners associated with the proponent, supporting the proposal;
- submissions on merits from many third parties the overwhelming majority of which oppose the proposal, including:
 - submissions from adjacent and nearby agricultural landowners;
 - submissions from tourism interests (including operators and users of holiday accommodation and owners of holiday houses);
 - submissions from residents in nearby towns;
 - submissions from persons concerned with the use, management and effects on the natural environment and land reserved for conservation purposes; and
 - submissions from more broadly located parties with an interest in the area.

4.2 ISSUES IDENTIFIED BY THE PANEL

Flowing from its consideration of submissions, the Panel has identified the following broad themes and groups of issues.

- Sustainable development issues: found in Section 8 of this report below.
 - Concerns were expressed about the existence of a 'greenhouse effect'; the necessity and/or desirability of acting to control and reduce atmospheric carbon emissions.
 - There were submissions that wind energy generation cannot effectively displace carbon emissions.

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- Concerns were raised about the contribution of wind energy towards carbon reduction and its relative cost and benefits against other technologies.
 - Some submitters considered that wind energy is a recipient of government subsidy, and suggested that wind technology would not be an economic source of energy in an undistorted market.
 - **Landscape issues:** found in Section 9 below;
 - There were concerns about the methods adopted by the various expert witnesses to determine landscape value and effect.
 - There were calls for a moratorium on wind energy development, or a delay in relation to this individual decision until a clearer strategic framework for coastal wind energy development was in place.
 - There were widespread concerns about the effect of wind energy development on landscape and coastal values.
 - Relevant values in the region of the project site were argued to be of a significance that indicated against the project.
 - Concerns were raised about cumulative impact and circumstances where the projects stood alongside currently contemplated and/or potential future windfarm development.
 - Specific issues were raised about the degree to which the project would adversely impact upon views to and from Wilsons Promontory, the Cape Liptrap Coastal Park, the Inverloch – Cape Paterson Bunurong Coast. Places of more local import were raised, including Rock Hill (or Mount Lavinia), the Prom View lookout, Bald Hills Wetland Reserve and Kings Flat Flora Reserve.
 - Submitters were also concerned about the impact of wind turbines on views in general.
 - **Natural environment issues:** found in Section 10 below;
 - There were widespread concerns that the project entails the avoidable removal of native vegetation.
 - There were widespread concerns that the effects of the project on avifauna (birds and bats) would be adverse.
 - It was suggested that the effects of the project on avifauna (birds and bats) could not be properly predicted, due to limitations or flaws in survey methods.
 - Some concerns were also expressed about the effect of the project on other fauna.
 - **Cultural environment issues:** found in Section 11 below;
 - The project was suggested by some as having a potentially unacceptable effect on Aboriginal cultural heritage.
 - The project was suggested as having an adverse effect on European cultural heritage.
 - The adequacy of the proponent's assessment of cultural and heritage effects was questioned.
 - **Physical environment issues:** found in Section 12 below;
 - Concerns were raised about a number of the physical effects of the project on the environment, including:
 - Geological/geomorphological concerns, with the suggested location of the site nearby a fault.

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- Erosion management concerns, relating to the construction of foundations, underground interconnector alignments and access tracks in sandy terrain prone to wind erosion.
 - Sediment management, run-off and water quality concerns, related to possible declines in water quality and or the deposition of eroded materials, particularly in surrounded reserved lands, wetlands and water courses.
 - Acoustic amenity issues: found in Section 13 below;
 - Concerns were expressed about the generation of noise by wind turbines and the propagation of wind turbine noise in the environment.
 - Concerns were expressed about state of scientific knowledge and/or the predictability of acoustic impacts.
 - Concerns were expressed about the adequacy of the New Zealand Standard 6808 as a basis for predicting and managing acoustic impacts.
 - Visual amenity issues: found in Section 14 below;
 - Concerns were raised about the degree to which the project or components of it would be seen from existing nearby dwellings and private land and the effect that this had on amenity.
 - Concerns were raised about shadow flicker and blade glint effects.
 - Road and access issues: found in Section 15 below;
 - Concerns were raised about making of safe access to the site via local roads.
 - The effects on roadside vegetation were raised.
 - The possible need for local road upgrades was argued.
 - Issues about economic effects: found in Section 16 below;
 - Concerns were raised about the effects of the project on tourism and accommodation business and the attractiveness of the area more generally for tourism.
 - It was suggested that the project would adversely affect the value of surrounding agricultural land by reducing or removing its attractiveness for 'lifestyle' uses, and consequent capacity for subdivision to the zone minimum of 40 ha.
 - It was suggested that the proposal represented a transfer of economic value and capacity from surrounding landowners to stakeholder landowners.
 - It was suggested that there would be little countervailing economic benefit, with limited local employment or expenditure to be generated by construction and operation.
 - The value, function and location of an interpretative centre were disputed.
 - Issues about social effects: found in Section 17 below;
 - It was suggested that the local community strongly opposed windfarm development, in contrast with other communities, (viz Ararat, Codrington or Portland) argued to support them. It was suggested that such projects should be located in places where there was community support.
 - Concerns were focussed on the community division that had emerged from the project assessment process. The local community was seen as being strongly divided between the minority who supported the project and would benefit from it financially, and the majority who would not.

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- This division was argued in turn as having caused damage to or loss of valued social institutions.
 - It was suggested that approval could result in further damage to or loss of valued social institutions, or decisions by individuals to leave the district.
 - The proponent's means of social impact assessment was strongly criticised, with views expressed that little real opportunity had been provided for community input to siting or design evaluation in the early stages.
 - **Issues about land use effects:** found in Section 18 below; and
 - Concerns were raised about the effects of a wind farm on stock and agricultural practices.
 - Concerns were raised about the effect of the proposal on the consideration of permit applications for subdivision or change of use on adjoining land.
 - Concerns were raised about the exposure of proposed rural dwellings to adverse amenity impacts.
 - **Issues about other effects:** found in Section 19 below.
 - Concerns were raised about connection to the electricity distribution system.
 - Decommissioning concerns, including concerns that a proper site reinstatement and clean-up requirement be included in any approval and desires to ensure that reinstatement and clean-up costs were the responsibility of the operator.
 - Aviation issues were not a major concern but are mentioned for completeness
 - EMR and broadcast quality issues were not a major concern but are mentioned for completeness.

The identification of these broad groups of issue have in turn driven the structure of the remaining sections of this report.

5. STRATEGIC CONTEXT

This section identifies the strategic context within which issues associated with the Bald Hills Wind Farm Project must be considered.

The Harlock Jackson Planning Assessment Report (November 2003) contained in the proponent's SEES identified a number of planning policies at state and local level relevant to consideration of the Bald Hills Wind Farm Project. The Panel has drawn extensively from the material contained in the Harlock Jackson Report in identifying and analysing the relevant strategic documents. That being said, where necessary to respond to submissions or to the Panel's own analysis of policy, the content and conclusions of that assessment have been varied.

The relevant parts of documents that provide the strategic context for considering the project are identified under the following headings below:

- South Gippsland Planning Scheme:
 - State Planning Policy Framework (SPPF); and
 - Local Planning Policy Framework (LPPF);
- Greenhouse and Wind Energy Policy;
- Coastal and Parks Policy;
- Environmental Legislation and Policy; and
- Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984 and Victorian Archaeological and Aboriginal Relics Preservation Act 1972

5.1 STATE PLANNING POLICY FRAMEWORK (SPPF)

Many elements of the SPPF are relevant to the Bald Hills Wind Farm these include:

- 15.01 Protection of catchments, waterways and groundwater.
- 15.02 Floodplain management
- 15.05 Noise abatement
- 15.08 Coastal areas
- 15.09 Conservation of native flora and fauna
- 15.09 Conservation of native flora and fauna
- 15.11 Heritage
- 15.12 Energy efficiency
- 15.14 Renewable energy
- 17.04 Tourism
- 17.05 Agriculture

15.01 Protection of catchments, waterways and groundwater. The objective of this clause is:

To assist the protection and where possible, restoration of catchment, waterways, water bodies, groundwater and the marine environment.

Planning authorities are required to have regard to the relevant aspects of any approved regional catchment strategies. The West Gippsland Catchment Management Authority has an approved 1997 Catchment Strategy and has prepared a new Strategy submitted for approval in January 2004. These documents are discussed below.

In addition:

Responsible authorities should use appropriate measures to restrict sediment discharge from construction sites in accordance with Construction Techniques for Sediment Pollution Control (EPA 1991) and Environmental Guidelines for Major Construction Sites (EPA 1995)

These policies and reference documents are relevant to the Panel's consideration of potential erosion associated with the construction and ongoing use of access tracks to the proposed wind generators. These issues are addressed in Chapter 12 of this report.

15.02 Floodplain management. The objective of this clause is:

To assist the protection of:

- *Life, property and community infrastructure from flood hazard.*
- *The natural flood carrying capacity of rivers, streams and floodways.*
- *The flood storage function of floodplains and waterways.*
- *Floodplain areas of environmental significance.*

The policy states that flood risk must be considered for land use planning decisions to avoid intensifying the impacts of flooding through inappropriately located uses and developments. Land affected by flooding is land inundated by the 1 in 100 year flood event or as determined by the floodplain management authority.

This policy is only relevant insofar as part of the Bald Hills Road is affected by ESO6 and this overlay identifies areas that may be subject to flooding. This issue is considered in Chapter 12 of this report.

15.05 Noise abatement. The objective of this clause is:

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

The policy states that planning and responsible authorities should ensure that development is not prejudiced and community amenity is not reduced by noise emissions, by ensuring that there is suitable separation between potentially amenity reducing and sensitive land uses and developments.

This clause is relevant to the Panel's consideration of siting wind turbines in relation to existing and future house sites. These issues are addressed in Chapter 13 of this report.

15.08 Coastal areas. The objective of this clause is:

In coastal areas to assist the protection and maintenance of significant environmental features and sustainable use of natural coastal resources.

It states that:

Land use and development planning is to be coordinated with the requirements of the Coastal Management Act 1995 to:

- *Provide clear direction for the future sustainable use of the coast, including the marine environment, for recreation, conservation, tourism, commerce and similar uses in appropriate areas.*
- *Protect and maintain areas of environmental significance.*
- *Identify area and opportunities for improved facilities.*

Planning authorities are required to have regard to any Victorian Coastal Strategy endorsed by the Minister for Conservation and Land Management and any relevant coastal action plan. The relevant strategy and plans in respect of this proposal include: the Victorian Coastal Strategy 2002, Integrated Coastal Planning for Gippsland – Coastal Action Plan 2002 and the Cape Liptrap Coastal Park Management Plan. These sources of policy are discussed further below in sections 5.4 of this report.

This clause and related documents are relevant to the Panel's consideration of landscape impact, biodiversity issues and general impact issues on the Cape Liptrap Coastal Park in particular as well as coastal areas more broadly. These issues are addressed in several later sections of this report in particular Chapters 9, 10, 14, 16 and 17.

15.09 Conservation of native flora and fauna. The objective of this clause is:

To assist the protection and conservation of biodiversity, including native vegetation retention and provision of habitats for native plants and animals and control of pest plants and animals.

Planning and responsible authorities are required to have regard to the need to conserve the conservation values of national parks and conservation reserves, assist the conservation of habitats of threatened and endangered species and communities, address potentially threatening processes identified under the Flora and Fauna Guarantee Act and assist the re-establishment of links between isolated habitat remnants.

The clause also requires planning to assist in the re-establishment of links between isolated habitat remnants. It also requires planning to have regard to 'Victoria's Native Vegetation Management - A Framework for Action' (Department of Natural Resources and Environment). In this regard the clause states:

Planning and responsible authorities should have regard to Victoria's Native Vegetation Management – A Framework for Action (Department of Natural Resources and Environment 2002). If native vegetation is proposed to be removed as part of a land use or development proposal, planning and responsible authorities should achieve a Net Gain outcome as defined in the Framework. This is achieved firstly, as a priority, by avoiding adverse impacts, particularly native vegetation clearance; secondly, if impacts cannot be avoided,

by minimising impacts by appropriate consideration in planning processes and expert input into project design; and thirdly, by identifying appropriate offset actions. The criteria for determining the appropriate response and offsets are contained within the Framework.

Victoria's Native Vegetation Management - A Framework for Action' (Department of Natural Resources and Environment is further discussed in section 5.5.3 of this report below.

This clause is particularly relevant to the Panel's consideration of:

- Removal of native vegetation associated with siting of some proposed turbines and associated access tracks and construction.
- Impact of the proposed wind turbines on native fauna.

These issues are addressed in chapter 10 of this report.

15.11 Heritage. The objective of this clause is:

To assist the conservation of places that have natural, environmental, aesthetic, historic, cultural, scientific or social significance or other special value important for scientific and research purposes, as a means of understanding our past as well as maintaining and enhancing Victoria's image and making a contribution to the economic and cultural growth of the State.

Responsible authorities are required to identify and conserve places of natural or cultural; value from inappropriate development. These include:

- *Places of botanical, zoological or other scientific importance, including national parks and conservation reserves and the habitats of rare or endangered plants and animals.*
- *Places of Aboriginal cultural heritage significance, including historical and archaeological sites.*

This clause has relevance to the Panel's consideration of:

- Impacts on flora associated with adjoining and nearby reserves including the Cape Liptrap Coastal Park and the Bald Hills Wet Land Reserve
- Aboriginal cultural heritage issues.

Impacts on flora are addressed in chapter 10 and Aboriginal cultural heritage is addressed in Chapter 11 of this report.

15.12 Energy efficiency. The objective of this clause is:

To encourage land use and development that is consistent with the efficient use of energy and the minimisation of greenhouse gas emissions.

There are no relevant implementation measures but the objective of the clause has general relevance to the development of wind farms by virtue of the minimisation of greenhouse gas emissions.

Greenhouse gas emissions are addressed in chapter 8 of this report.

15.14 Renewable energy. The objective of this clause is:

To promote the provision of renewable energy, including wind energy facilities, in a manner that ensures appropriate siting and design considerations are met.

The policy states:

Energy underpins the economy and quality of life of all Victorians. The Government is committed to achieving a more sustainable energy future for all Victorians by:

- *Contributing to national and international efforts to reduce greenhouse emissions by reducing the long term dependency on energy from fossil fuels.*
- *Increasing the security and diversity of Victoria's energy supply by increasing the proportion supplied from renewable sources including wind energy.*
- *Encouraging and supporting the development of sustainable industries.*

Planning should contribute to the provision of renewable energy by facilitating wind energy development in appropriate locations. In particular planning should:

- *Facilitate the consideration of wind energy development proposals.*
- *Recognise that economically viable wind energy facilities are dependent on locations with consistently strong winds over the year and that such sites are likely to be close to the exposed coastline and may be highly localised.*
- *Consider the economic and environmental benefits to the broader community of renewable energy generation and the effects on the local environment.*

In planning for wind energy facilities, planning and responsible authorities must take into account the Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria, 2002.

The Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria, 2002 are further discussed in section 5.3 of this report.

Renewable energy issues are addressed in chapter 8 of this report.

17.04 Tourism. The objective of this clause is:

To encourage 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.

It states that planning and responsible authorities should encourage the development of a range of well-designed and sited tourist facilities. Facilities should have access to suitable transport and be compatible with and build upon the assets and qualities of surrounding urban or rural activities and cultural and natural attractions.

Tourism issues relating to the impact of the proposed wind farm on existing tourist behaviour and the potential of wind farm as a tourist destination in its own right are addressed in Chapter 16 of this report.

17.05 Agriculture. The objective of this clause is:

To ensure that the State's agricultural base is protected from the unplanned loss of high quality productive agricultural land due to permanent changes of land use and to enable protection of productive farmland which is of high quality and strategic significance in the local or regional context.

It states that:

In considering a proposal to subdivide or develop agricultural land, the following factors must be considered:

- *The desirability and impacts of removing the land from primary production, given its agricultural quality and productivity.*
- *The impacts of the proposed sub-division or development on the continuation of primary production on adjacent land, with particular regard to land values and to the viability of infrastructure for such production.*
- *The compatibility between the proposed or likely development and the existing uses of the surrounding land.*
- *Assessment of the land capability.*

Protection of agricultural use of the land is relevant to the Panel's consideration of:

- the effect of additional income from wind turbines on farm operations;
- the effect of wind turbine operation on the continued agricultural use of the land and nearby land; and
- future use and development proposals on adjoining land.

These issues are addressed in chapters 16 and 18 of this report.

5.2 LOCAL PLANNING POLICY FRAMEWORK (LPPF)

There are various elements of the South Gippsland Planning Scheme LPPF that are relevant to Bald Hills Wind Farm. Many of the issues and objectives of the LPPF directly overlap with those of the SPPF. The following clauses are of particular relevance.

- 21.02 Municipal Profile
- 21.03 Key Influences
- 21.04 Vision- Strategic Framework
- 21.04 The Strategic Framework Plan
- 21.06 Settlement Objectives and Strategies
- 21.07 Environment Objectives and Strategies
- 21.09 Economic Development Objectives and Strategies
- 22.01 Wind turbine and wind farm development.

5.2.1 MUNICIPAL STRATEGIC STATEMENT (MSS)

21.02 Municipal Profile

Environment. The MSS recognises that the environment is one of the Shire's most important features from both a landscape and resource perspective. It lists the environmental challenges facing the Shire as: erosion and land degradation, water quality, salinisation, acidification, loss of native flora and fauna habitats and the introduction of pests.

The MSS also recognises that South Gippsland Shire contains some of Victoria's most significant coastal areas, which are important for their picturesque landscapes and rugged appeal. They are also important for their environmental, economic, recreational, cultural and heritage values.

Numerous flora and fauna reserves exist throughout the Shire and there are also important sites within the various National, State and Coastal Parks and other reserves throughout the Shire as well as roadside reserves and on privately owned land.

The MSS recognises that South Gippsland contains significant areas of public land. These areas host a variety of land uses from timber production through to recreation activities. However the MSS states that the principal purpose of public land is for the protection of significant environments and ecosystems.

This part of the MSS is relevant to the Panel's consideration of natural environmental issues addressed in chapter 10 of this report.

Economic Development. The Shire's economy is largely dependent on agriculture with tourism is becoming an increasingly important part of the economy especially within major townships and coastal areas. Coal Creek and Wilsons Promontory are said to be the major attractions. Major economic growth opportunities exist in forestry, agricultural diversification and value adding and in tourism.

This part of the MSS is relevant to the Panel's consideration of the effect on agricultural use of the by the wind farm and by other future uses as well tourism issues. These are addressed in chapters 16 and 18 of this report.

21.03 Key Influences. The MSS identifies a range of opportunities and constraints that bear on the future of the municipality. Strong pressure for development is being experienced in coastal villages (including Venus Bay and Walkerville). Environmental constraints, poor servicing and drainage restrict their growth. Pressures for urban and rural subdivision and tourism generally are also being experienced along the coast.

Native vegetation clearance is an on-going concern, with insufficient integration of the management of public and private land to provide a diversity of flora and wildlife refuge areas. The importance of roadside vegetation in maintaining and restoring connectivity to the fragmented parcels of public land for the long-term survival of many species is also noted.

This part of the MSS has general relevance to consideration of the proposed wind farm by virtue of providing information concerning the future directions of the area.

21.04 Vision- Strategic Framework. The MSS establishes a vision for the Shire based on elements which include the following:

- To protect and promote and wherever possible improve the environmental qualities of the Shire for their ecological, scientific, agricultural, economic and heritage significance, and protect, promote and where possible improve the urban environmental quality of towns. This includes the coastal environment, flora and fauna and heritage.
- To promote realistic economic development opportunities, based on the Shire's rich resource base and existing strengths and which will not have a detrimental impact on the environment or the intrinsic qualities of the Shire. As part of this the Shire will seek to promote sustainable agricultural practices which are both economically and environmentally efficient.

This part of the MSS has general relevance to consideration of the proposed wind farm by virtue of providing information concerning the future of the area.

21.04 The Strategic Framework Plan identifies:

- A preferred wind farm area to the north of Toora. The subject land is not located in this area.
- Areas of high quality agricultural soils where sustainable agricultural practices should be protected and promoted.
- Sensitive coastal areas where the coastal environment should be promoted for its environmental, recreational and heritage values. (The southernmost portion of the site sits within this area).

This part of the MSS has general relevance to consideration of the proposed wind farm by virtue of providing information concerning the existing features of the area. It does seek to provide some level of locational guidance for wind energy development, directing development to a preferred area north of Toora. However, regard must be had to the fact that the framework plan is now old: it was prepared at a time when there was limited understanding of the extent of the wind resource in the Shire or the State. Nor were the State Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria or the Victorian Wind Atlas in place when the plan was drafted. Its original intention was to identify the undeveloped site of what now largely comprises the Toora wind farm, an intent that has now been achieved.

21.06 Settlement Objectives and Strategies. The general objective for small towns in the Shire is:

To maintain a network of viable small towns and villages with a range of services designed to cater for the needs of residents and visitors to the Shire.

The strategies to achieve this (as relevant to this proposal) include:

Maintain Tarwin Lower as an important local centre serving the needs of the local community and tourists in the southern portion of the Shire. It is also expected that it will be promoted as a tourist centre.

Retain Sandy Point and Waratah Bay as small coastal villages by restricting any further development to within existing town boundaries.

Maintain Walkerville South, Walkerville North and the Promontory Views Estate as principally unserviced holiday destinations.

Discourage any further commercial development in the Walkerville South, Walkerville North and Promontory Views Estate area apart from non retail commercial facilities which are aimed at the tourist market and which could be readily confined to a house or residential property.

Encouraging development that is sympathetically designed and located so as to protect the environmental and landscape values of the area.

This part of the MSS has relevance to consideration of the proposed wind farm by virtue of providing information concerning the future development of existing settlements in the area.

21.07 Environment Objectives and Strategies. The objectives and strategies relating to the environment address the physical environment, the coastal environment, flora and fauna, heritage and public land. They focus on protecting important and fragile environmental characteristics and coastal areas as important features of the Shire.

The following physical environment objectives are relevant:

- *To protect the important and fragile environmental characteristics of the Shire for their ecological, scientific, economic and cultural values.*
- *To protect the quality of both ground and surface water throughout the Shire.*

Strategies include the following.

- *Ensure that future development does not impinge on water quality*

These physical environment objectives and this strategy are relevant to the Panel's consideration of potential erosion associated with the access tracks to the wind generators and also during the construction phase. These issues are addressed in Chapter 12 of this report.

The following coastal environment objectives are relevant:

- *To protect and promote coastal areas as an important environmental, economic and cultural feature of the Shire.*
- *To protect coastal areas from inappropriate development.*
- *To recognise the coastline as an important community asset.*

Relevant strategies include the following.

- *Protect the environmental qualities of the coastal area, particularly in respect to existing landscape and cultural values.*
- *Promote sensitive design and siting for all new developments.*

Other strategies relating specifically to foreshore development are not relevant. It is of interest that implementation measures include:

Applying the Environment Significance Overlay-Coastal Areas to the coastal and coastal hinterland of the Shire to ensure that development is sensitive to the environmental values of the area.

The relevant overlay is ESO3, which has not been applied to any of the land proposed to host wind turbines.

These coastal environment objectives and strategies are relevant to the Panel's consideration of landscape issues addressed in chapter 9 of this report.

The following flora and fauna objectives are relevant:

- *To protect the flora and fauna of the Shire in order to maintain bio-diversity, to protect catchments and to protect important landscapes.*
- *To protect, conserve and enhance native ecological communities under threat from extinction or isolation.*

Relevant strategies include:

- *Recognise not only the ecological significance but also the economic and cultural significance of flora and fauna.*
- *Encourage wildlife survival through the establishment of wildlife corridors and bio-links.*
- *Protect native forests, wetlands and significant flora and fauna communities.*

These objectives and strategies are relevant to the Panel's consideration of native vegetation clearing and the effect of the wind turbines on flora. These issues are addressed in chapter 10 of this report.

The following heritage objectives are relevant:

- *To protect and promote the heritage of the South Gippsland Shire for its cultural, historic and environmental significance.*

Relevant strategies include:

- *Identify, protect and enhance the heritage of the Shire.*
- *Promote the identification, protection and management of Aboriginal cultural values.*
- *Ensure that the development of places of historic, natural and cultural heritage significance is compatible with the integrity of such places.*

These are relevant to the Panel's consideration of historical and cultural values, addressed in chapter 11 of this report.

21.09 Economic Development Objectives and Strategies. The general objective for economic development is:

To provide for and promote economic development within the Shire which is economically, environmentally and socially sustainable including primary industry, manufacturing, commercial and tourism opportunities.

Strategies to achieve this general objective focus on protecting the shire's agricultural base and encouraging tourism at appropriate locations. It is noteworthy that one strategy would:

Encourage the utilisation of natural energy sources including the development of wind farms.

In exercising discretion, the MSS states that applications for wind farms and wind turbines will be considered with reference to the local planning policy for wind farms (discussed below).

These objectives and strategies are relevant to the Panel's consideration of the degree to which renewable energy and wind energy facilities should be supported in South Gippsland and the effect of the proposed wind farm on:

- agricultural use of the land and nearby land; and
- the existing and future tourism industry.

These issues are addressed in chapters 16 and 18 of this report.

5.2.2 LOCAL POLICY

22.01 Wind turbine and wind farm development. This policy applies to all land within the South Gippsland Shire.

The policy basis states:

The South Gippsland contains valuable natural resources, which include untapped wind resources. The Municipal Strategic Statement requires the Shire to identify and promote realistic economic development opportunities based on the Shire's rich resource base and existing strengths, and which will not have a detrimental impact upon the environment or the intrinsic qualities of the Shire. Appropriate controls are required to balance the potential benefits and detrimental impacts of development intending to make effective use of this resource.

The objective of the policy is:

To establish South Gippsland Shire as a leading provider of alternative energy within Victoria, while ensuring that the valuable environmental and aesthetic qualities of the Shire are protected.

It is policy that:

The development of wind turbines and wind farm facilities are encouraged in the area to the north of Toora as shown on the Shire Framework Plan.

The following matters are to be taken into account when considering planning applications to use or develop land for the purpose of a wind turbine or wind farm facility:

Landscape & visual environment

- *The need to protect the scenic quality and visual integrity of the landscape.*
- *The impact of the turbine or facility upon the existing visual characteristics of the landscape.*
- *The impact of the turbine or facility upon significant views, including visual corridors and sight lines.*

Land use

- *The existing use and possible development of the land and of surrounding areas.*
- *The protection of the land and of surrounding land for its recreational, residential, agricultural, commercial or other values.*
- *The likely impact of the turbine or facility upon surrounding areas in relation to noise, shadow flicker, electromagnetic interference and any other matter considered applicable by the Responsible Authority.*

Birds and other biological resources

- *The need to conduct independent pre-application biological risk evaluation.*
- *The potential disruption of existing physical and ecological relationships of flora and fauna species.*
- *The need for mitigation and/or avoidance measures, where applicable, to minimise the impact upon birds and other biological resources.*
- *The preservation and maintenance of the natural environment and natural systems.*
- *The preservation of existing native vegetation.*
- *The Shire's obligations under all State, Federal and International flora & fauna protection instruments.*
- *Alternative methods of constructing or carrying out development or works.*
- *The view of the relevant public agencies.*

Public health and safety

- *The need for safe setback distances from turbines and/or facilities and habitable dwellings, public roads and property lines.*
- *The potential for fire hazard.*
- *The need to reduce or prevent any significant increase in biological exposure to magnetic fields.*
- *The need to prevent unauthorised access to the site and/or wind turbines and their associated equipment during construction, operating and re-powering/de-commissioning stages.*

Noise

- *The need to establish an agreed acceptable noise level above ambient for dwellings surrounding a proposed turbine or wind facility.*
- *The need for on-going monitoring of noise levels associated with a turbine or facility.*
- *Appropriate mitigation and/or modification techniques as appropriate.*
- *Cultural and social impacts*
- *The likely impact upon potentially sensitive resources such as local landmarks, sacred sites and areas, and other significant features of the landscape.*

- *The need to protect and conserve significant cultural sites, areas and resources.*
- *The need for mitigation and/or avoidance measures, or where applicable, alternative methods of constructing or carrying out development or works.*

Solid and hazardous waste

- *The need to remove all obsolete plant and equipment from the site.*
- *The need to address avoidance, handling, disposal, and clean-up issues of all hazardous wastes throughout the life cycle of the turbine and/or facility.*
- *The requirements of the Environment Protection Authority Act and the Dangerous Goods Act.*

This policy is clearly relevant on its face to the Panels consideration of a wind farm proposal with regard to a variety of issues set out in the policy. The weight given to the policy provisions needs to be considered with regard to the provisions of clause 15.14 of the SPPF and Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria, which is an incorporated document in the South Gippsland Planning Scheme. The SPPF clause and the guidelines both post date the local policy.

The issues in the policy relevant to the Panel's considerations include:

- Landscape considered in chapter 9 of this report.
- Land use effects considered in chapter 18 of this report.
- Natural environment considered in chapter 10 of this report.
- Visual amenity considered in chapter 14 of this report.
- Acoustic issues considered in chapter 13 of this report.
- Cultural Environment considered in chapter 11 of this report.
- Decommissioning issues considered in Chapter 19 of this report

5.2.3 SOUTH GIPPSLAND PLANNING SCHEME AMENDMENT C10

In addition to the existing MSS and local planning policies, the Panel has been referred to a major amendment to the planning scheme that is in progress: Amendment C10.

As exhibited, this amendment entailed a review and change to the MSS. Major strategic changes regarding rural subdivision were proposed. It also included a replacement local policy (clause 22.01) concerning wind farms.

The amendment was:

- exhibited in March 2002;
- considered by a Panel which reported in December 2002;
- adopted by Council in a modified form in November 2003 (although in a manner not entirely consistent with the findings and recommendations of the Panel report); and
- submitted for Ministerial approval in January 2004.

However, at the date of issue of this report on 24 June 2004, the amendment has not been approved.

The Amendment C10 Panel recommended that the exhibited replacement wind farm policy not be substituted for the existing policy and made further recommendations concerning the eventual preparation of an entirely new policy. The Panel also made adverse recommendations concerning the exhibited changes to rural subdivision and development strategies.

This Panel is aware that the amendment submitted for approval contains a local policy for wind farms that has been changed in a manner not anticipated by the findings and recommendation of the Amendment C10 Panel Report. The adopted local policy also appears to conflict with State policy and the Policy and Planning Guidelines for the Development of Wind Energy Facilities in Victoria. In these circumstances, whilst it is normal to weight an adopted amendment as 'seriously entertained', the Panel does not propose to do so for replacement Clause 22.01. The Panel takes the view that where a policy is adopted that on its face is in conflict with the findings and recommendations of the Panel appointed to consider submissions about it, whilst also being in conflict with relevant State tier policy, it cannot be assumed that the adopted policy would received Ministerial approval unchanged, or even at all. In short, unless the Minister or the department were to indicate in favour of the changed adopted policy prior to approval, the Panel cannot see that it can be considered as 'seriously entertained'. Accordingly, the Panel has given only the most limited of weight to the new wind farm policy included in the Amendment C10, submitted by the Council, for approval.

On the other hand, the Panel considering Amendment C10 generally supported the rest of the amendment, subject to changes that Council has largely included in the adopted amendment. In these circumstances, Amendment C10 as submitted for approval but excluding the new wind farm policy should be given weight as a seriously entertained planning document.

The new adopted MSS is essentially a redrafting of the existing document with minor changes in strategic emphasis. These changes identified as being relevant to the wind farm proposal include the following:

- A marginally increased recognition of problems associated with subdivision of rural land for non agricultural purposes as evidenced by the strategies for rural subdivision in clause 21.04-2
- Less emphasis on recognition of coastal areas and their protection by removal of the section specifically relating to the coastal environment.

The first point has minor significance in the Panel's consideration of issues relating to future development and uses of land in the vicinity of the wind farm. These issues are addressed in Chapter 18 of this report.

The second point is of relatively little weight, as the protection of the coast environs is covered in SPPF provisions identified above, to which the adopted local provisions add little.

5.3 GREENHOUSE & WIND ENERGY POLICY

5.3.1 NATIONAL GREENHOUSE STRATEGY 1998

This strategy sets out the requirements for the Mandatory Renewable Energy Target (MRET). The MRET is embodied in the *Renewable Energy (Electricity) Act 2000*, which requires wholesale energy purchasers to purchase a specified percentage of their electricity from renewable sources. The MRET targets an increase of 9500 GWh in renewable generation by 2010. It is clearly of relevance to a planning decision in this case that it seeks to contribute towards the meeting of this target.

5.3.2 VICTORIAN GREENHOUSE STRATEGY 2002

Greenhouse gas emissions and resulting climate change are amongst the most serious environmental issues facing the world today. Australia is the worst greenhouse gas emitter in the world on a per capita basis, and Victoria's share of national greenhouse emissions (at 21.3% in 1999) is disproportionately large in turn. Victoria's high share of greenhouse gas emissions is largely due to its heavy reliance on burning of brown coal for electricity production - the stationary energy sector (primarily the production of electricity and the use of gas) was responsible for nearly 72% of Victoria's greenhouse gas emissions in 1999.

The Victorian Greenhouse Strategy sets out the State Government's current strategies for reducing greenhouse emissions and addressing the threat of climate change. A major focus of the strategy is support for less greenhouse-intensive forms of energy production such as renewables and cogeneration. Other strategies such as more efficient energy use, increased public transport use, improved waste management practices, improved agricultural practices and investment in greenhouse sinks are also included in the strategy, but these are expected to have less significant impacts on greenhouse gas emissions.

Greenhouse implications are an important consideration in the assessment of the Bald Hills Wind Farm proposal, and the Victorian Greenhouse Strategy also includes a number of references to the need to consider greenhouse issues:

The Victorian Greenhouse Strategy will ensure that greenhouse issues are fully considered in future decisions regarding asset refurbishment and replacement, and the creation of new assets. In this context, it is particularly important to consider greenhouse implications relating to future developments in the energy sector, and developments relating to transport and urban planning.

and

In late 2000, the Government announced a review of Victoria's environmental impact assessment procedures under the Environment Effects Act 1978 to help deliver better-balanced environmental, social and economic outcomes. The procedures need to be updated to reflect leading practice and to ensure that Government decision-making on major public and private works is informed by comprehensive, open and accountable impact studies. The Government will

ensure that where an assessment is required under the Act, appropriate examination of greenhouse gas considerations occurs.

Some findings about the impacts of climate change caused by greenhouse gas emissions are also relevant to issues associated with the proposed wind farm development. Those findings are that:

- Sea levels may rise by 0.09 to 0.88 metres from 1990 to 2100, creating a long-term risk to coastal areas
- Other coastal impacts will occur as a result of changes in storm and a surge events, with sea-level rise adding to their severity
- The most vulnerable coasts are those that are low-lying with very little setback to allow for adaptation
- Water is likely to become a much scarcer commodity, due to reduced rainfall and increased evaporation resulting from higher temperatures
- Natural systems will be vulnerable to climate change and some will be irreversibly damaged
- Australian ecosystems that are particularly vulnerable to climate change include freshwater wetlands

5.3.3 GUIDELINES FOR THE DEVELOPMENT OF WIND ENERGY FACILITIES (PPG – WEF)

The Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria (PPG - WEF) (May 2003) state:

The Government's overall policy on renewable energy will be implemented by the establishment of the State Planning Policy for Renewable Energy outlined in this document.

This policy in turn now forms Clause 15.14 of the SPPF referred to above, which cross refers back to PPG – WEF.

PPG - WEF is incorporated into the South Gippsland Planning Scheme as well as all other Victorian Planning Schemes. It is designed to ensure a consistent approach to the development of wind energy facilities throughout Victoria.

The following parts of the PPG - WEF are of particular relevance.

Section 1: Introduction

The purpose of the guidelines is to outline how the Victorian Government will facilitate the appropriate development of wind energy facilities, balancing environmental, social and economic outcomes.

The guidelines outline:

- *The Government's overall policy with respect to wind energy development.*
- *The role of wind energy projects in achieving a sustainable energy future for Victoria.*
- *The state assessment mechanism for wind energy projects of 30MW or greater.*

- *A planning framework for the consideration of wind energy projects which will ensure a consistent and balanced approach to assessment across the State; and*
- *Government support available to assist wind energy proponents in the development of appropriate wind energy projects.*

Section 2: Wind Energy in Victoria

This section considers (inter alia):

- the role of wind energy in reducing greenhouse emissions;
- employment and regional development considerations;
- the importance of location to a wind energy facility; and
- the need to balance impacts to facilitate appropriate wind energy development.

In relation to greenhouse emissions control, the section concludes that:

Wind energy will help Victoria meet its future energy needs without producing the emissions which contribute to climate change. A 10 MW wind energy facility will displace approximately 40,000 tonnes of greenhouse gas emissions per annum.

In relation to employment, operational wind farms are not major employers. However, employment benefits are to be found in manufacturing and construction, suggesting the need to develop a significant scale industry in Australia and to service potential growth markets in Asia. The section concludes that:

Installation [construction] creates between 0.5 and 0.8 jobs per MW.

[and]...

The local sourcing and fabrication of components will build local capacity and is encouraged.

Some care is required in the application of the policy's discussion of locational factors, as it was drafted before the completion of the Victorian Wind Atlas. The locational data used in drafting the policy dates from 1991 and was very limited in comparison with the data now available. In relation to location, the following conclusion still holds good:

Across Victoria, local topographical conditions can have a significant effect on wind speed with minor changes in location resulting in major variations in speed. Wind speed is the single most important factor affecting the financial viability of a wind energy facility.

...

For Victoria to meet its goals for renewable energy development, wind energy facility proponents will need to have access to sites with good wind resources.

The sub section on balanced wind energy development identifies that benefits of wind energy facilities should be balanced against possible negative effects on recognised environmental and cultural values. These identified environmental and cultural issues include:

- **Environmental values.** Wind energy facilities should not lead to any unacceptable impacts on critical environments or cultural values. Critical values are those protected under Commonwealth or Victorian legislation ie Environment Protection and Biodiversity Conservation Act 1999 and the Flora and Fauna Guarantee Act 1988. In addition to

protection of species and ecosystems of statewide importance, afforded by National Parks and Reserves, important habitat on private land is protected by the Net Gain principle outlined in Victoria's Vegetation Management Framework.

- **Aboriginal heritage values.** These values are protected from disturbance by relevant legislation.
- **Landscape values.** The guidelines note that the landscape value of a site or location is highly subjective. National Parks are suggested as protecting some of Victoria's most significant landscapes, including many along the coast. Other landscapes may also be valued by the community for their scenic value with the Significant Landscape Overlay (SLO) providing the opportunity to identify landscapes considered to be of critical value. The SLO ensures an appropriate level of consideration in decision making.

Section 4: Planning Framework

The planning framework contains five matters for consideration by responsible authorities in assessing applications for wind energy facilities. These are:

- **Contribution to government policy objectives.** The guidelines conclude that considerable weight should be given to the contribution made to the achievement of government policy objectives by the development of renewable energy.
- **Visual amenity.** In assessing visual impact, the guidelines suggest a consideration of planning scheme objectives including whether the land is subjected to an ESO, VPO or SLO. It goes on to say that consideration of the visual impact of a proposal should be weighted having regard to the government's policy in support of a renewable energy development. A range of measures to reduce visual impacts is provided for consideration. These include the following.
 - Siting and designing to minimise impact on recreation areas and from dwellings.
 - Locating arrays of turbines to reflect dominant topographical features.
 - Reducing impacts from key vantage points by use of such techniques as colour.
 - Selection of turbines that are consistent in height, look alike and rotate the same way.
 - Spacing turbines to respond to landscape characteristics.
 - Undergrounding electricity lines wherever practicable.
 - Minimising earthworks and provide measures to protect drainage lines and waterways.
 - Minimising removal of vegetation.
 - Minimising additional clutter on turbines such as unrelated advertising and telecommunications apparatus.
- **Amenity of the surrounding area.** Amenity considerations include: noise, blade glint, shadow flicker, overshadowing and electromagnetic interference. Performance measures for each of these amenity considerations are:
 - A WEF should comply with the noise levels recommended in New Zealand Standard NS6808: 1988 Acoustics – The Assessment and Measurement of Sound from Wind Turbine Generators.
 - Turbine blades should be finished with a surface treatment of low reflectivity to ensure that glint is minimised.

- Shadow flicker experienced at any dwelling in the surrounding area must not exceed 30 hours per years as a result of the operation of the wind energy facility.
- Turbines should be sited so as to avoid locations in the line of sight between communications system transmitters and receivers
- **Aircraft safety.** Turbines should not protrude into any obstacle limitation surface for any airfield. The Civil Aviation Authority should be consulted to determine any airfields within a 30km radius and associated requirements.
- **Flora and fauna.** The flora and fauna found at a site should be considered in relation to:
 - whether the species or communities are protected under the EPBC Act or the FFG Act;
 - the sensitivity of any protected species to disturbance; and
 - the potential loss of habitat of species protected under the EPBC Act or the FFG Act.

Limited reference is made to survey and monitoring requirements.

Relevance

The PPG - WEF is highly relevant to the Panels consideration of the wind farm proposal as it sets out the State Government Policy. It identifies issues to be considered and provides performance measures which, if met, result in the proposal satisfying government policy.

The various issues raised are addressed in Chapters 9 to 19 of this report.

5.3.4 VICTORIAN WIND ATLAS

The Victorian Wind Atlas presents the results of modelling and analysis of the wind resource for the State as a whole, and for individual Local Government Areas.

The Atlas points out that there are a range of factors that need to be considered which may impact on the commercial viability of a wind farm proposal. These are:

- **Wind speed.** It is pointed out that if wind speed doubles, power output increases eight fold.
- **Access to the electricity network.** Both the distance to the grid and the capacity of the grid to accept additional electricity affect the viability of a proposal.
- **Vegetation.** Tree cover can create turbulence in the wind, which impacts on the effective operation of wind turbines.
- **Accessibility.** Steep terrain or insufficient transport infrastructure constrains wind energy development.
- **National Parks.** Wind farms are excluded from land reserved under the National Parks Act.

The Atlas maps wind speed (the resource) across Victoria, against a range of identified constraints to wind energy development. The Wind Atlas demonstrates (in a consolidated resource and constraint map on page 23) that there are only limited parts of Victoria suitable for wind farm development, by virtue of the relationship between constraints. The best wind resources are located generally along the coast and in central Victoria.

The wind speeds in the vicinity of the proposed Bald Hills wind farm are shown to be in the range 7.5 to 8 metres per second in an area of freehold land with pockets of tall and dense vegetation and a 10 to 30 kilometre distance to the electricity grid.

On a broad brush scale the Wind Atlas demonstrates the proposed wind farm is well located with regard to the constraints identified. The major constraint appears to be grid distance, in turn suggesting that only a project of medium to large scale will be sufficient to make a substantial investment in grid connection viable.

The Atlas is relevant to the Panels consideration in the context of the State Government Policy on supporting sustainable alternatives in that from a commercial constraints perspective the wind farm is well located. This issue is addressed in chapter 8 of this report.

5.4 COASTAL & PARKS POLICY

5.4.1 VICTORIAN COASTAL STRATEGY

The Victorian Coastal Strategy 2002 is the key document which provides a shared vision to guide all decision making by the community and governments that affects the coast.

The Strategy provides for long term planning for the Victorian coast to:

- *ensure protection of significant environmental features;*
- *provide clear direction for the future use of the coast, including the marine environment;*
- *identify suitable development areas and opportunities on the coast; and*
- *ensure the sustainable use of natural resources.*

The Strategy's objectives for coastal development are that:

- *the extent of settlements is defined;*
- *areas between settlements remain largely undeveloped; and*
- *the extent of recreational nodes are defined, having regard to the principles of coastal planning and management outlined in this strategy.*

Appropriate development is development that:

- *enhances protection and rehabilitation of the natural environmental and biodiversity;*
- *results in increased public benefit, having regard to environment, social and economic implications;*
- *is sensitively sited and designed, having regard to the 'Siting and Design Guidelines for Structures on the Victorian Coast' and 'Landscape Setting Types for the Victorian Coast';*
- *minimises public risk;*
- *is set back from the coast as far as practicable in line with vulnerability assessments;*

- *facilitates multiple -use of sites and existing and infrastructure, without resulting in over-use;*
- *facilitates improvements of sites or existing developments that have poor environmental or social performance; and*
- *is consistent with the requirements of coastal planning strategies and plans, and relevant planning schemes*

The Strategy makes specific mention of sustainable energy infrastructure in general and wind farms in particular.

It recognises that the coast's exposure to Bass Strait and the southern ocean means that sections of the Victorian coast are well suited to these technologies. The Strategy concludes:

That whilst these projects offer significant environmental benefits, a strategic approach to siting is important to ensure minimal impact on the aesthetic values of the coast and on marine and bird communities.

The relevant objective is to:

Facilitate sensitively sited sustainable energy infrastructure.

Actions to achieve this objective include:

- *Large scale sustainable energy systems on the coast shall be subject to comprehensive planning assessment and required to consider:*
- *environmental impacts and benefits;*
- *social impacts and benefits; and*
- *economic impacts and benefits.*
- *Best practice guidelines on siting and design of wind farms will be developed. The cumulative impacts of adjoining proposals on coastal values and community enjoyment of the coast will be assessed.*

The Strategy also refers specifically to scenic coastal roads. It identifies that :

The development of a Victorian Scenic Coastal Drive will continue. Existing coastal roads between Warrnambool and Inverloch and between Seaspray and Loch Sport will be designated and promoted as scenic drives or tourist roads, with improved signage and facilities.

The Strategy is relevant to the Panel's consideration of the wind farm proposal with regard to:

- Impact on views from the coastal environment, addressed in chapters 9 and 14 of this report.
- Issues regarding future development in the area generally, addressed in chapter 18 of this report.
- Issues concerning the status of the Tarwin Lower Waratah Road, addressed in chapters 9 and 16 of this report.

5.4.2 SITING & DESIGN GUIDELINES FOR STRUCTURES ON THE VICTORIAN COAST

This document has been developed to assist the Victorian Coastal Council, coastal managers, Local Government and other stakeholders to:

Implement the Victorian Coastal Strategy by ensuring sympathetic development which complements the surrounding landscape and results in excellence in design and more generally by raising awareness of the importance of achieving sensitive design and development along the Victorian coast.

Its primary purpose is to define those issues which should be considered in the siting, design and construction of new structures and the improvement of existing structures in coastal areas. It is not intended to be used as a manual for design and siting in the coastal areas, rather the focus is to raise awareness of more sensitive design and development.

The guidelines were prepared before the current version of the Victorian Coastal Strategy 2002 and well before proposals for sustainable energy systems such as wind farms were being considered in Victoria. Accordingly the Guidelines have only limited relevance to the Panel's consideration of visual amenity issues addressed in chapters 9 and 14 of this report.

5.4.3 LANDSCAPE SETTING TYPES FOR THE VICTORIAN COAST

The publication Landscape Setting Types for the Victorian Coast was developed to assist the Victorian Coastal Council, coastal managers, Local Government and other stakeholders to implement the Victorian Coastal Strategy by encouraging sympathetic coastal development and promoting excellence in coastal design, responsive to broad coastal landscape character types.

The Landscape Setting Types for the Victorian Coast aim to provide a better understanding of the landscape character of the coast by identifying significant features and characteristics of various sections of the coast. The identified landscape character should be considered and respected in the development of proposals for structures at specific locations in order to achieve an integrated development which is sympathetic to the surrounding landscape.

Development of the 'Integrated Coastal Planning for Gippsland- Coastal Action Plan 2002' further delineates and refines characteristics of the setting types at a site specific level.

The coast in the vicinity of the subject land falls within 2 landscape setting types:

Landscape Setting Type 26: Kilcunda to Arch Rock/Morgan Beach Area

This setting type is described as follows:

This setting type consists of mainly medium to high cliff landscape interspersed with ponds and inlets including the Tarwin Lowlands. Where not under pasture or residential use, this setting type features extensive native vegetation. There is considerable pressure for residential development and yet it is a landscape that can accommodate such uses in more suitable places and still maintain its intrinsic visual character.

Critical viewpoints include the cliffs in the vicinity of Cape Patterson/Eagles Nest and from car parks and roads that occur throughout the setting type.

Special Considerations are stated to be:

- *Beyond the sensitive coastal edge, there are a range of opportunities for development. This is a setting type that faces considerable threat from development in the narrow coastal area.*
- *This area is of high scenic quality and requires appropriate planning controls to protect this significant landscape.*

Landscape Setting Type 27 Cape Liptrap – Arch Rock/Morgan Beach Area to Waratah Bay

This landscape setting type is described as follows:

This table top sedimentary unit is a patch work of pasture and native bushland. The Cape Liptrap lighthouse provides the key focal point with scattered development generally tucked into the treed plateau top. The setting type falls dramatically to the sea with dense shrub cover. The cliff edge is particularly exposed and development should be held back from this location.

Spectacular views are gained from almost every position in the landscape setting type, particularly along coastal cliffs.

Special considerations are stated to be:

- *The cliff escarpment and ridgeline areas should not be developed. Inland from these locations there is considerable scope for clustering development.*
- *The setting type is of outstanding scenic quality with a number of heritage sites and requires appropriate planning controls to protect this significant landscape.*

The descriptions and special considerations for the two landscape types, especially when viewed in conjunction with the 'Integrated Coastal Planning for Gippsland- Coastal Action Plan', are important in the Panel consideration of landscape visual amenity issues considered in chapters 9 and 14 of this report.

5.4.4 INTEGRATED COASTAL PLANNING FOR GIPPSLAND (COASTAL ACTION PLAN)

The study area extends from the eastern boundary of San Remo to the NSW state border and extends about 5km inland.

The plan notes that the Gippsland coast has many areas of high landscape value. The Cape Liptrap Coastal Park is listed as one of the highlights.

Population growth is projected to occur in Inverloch, Paynesville and Metung with a lesser trend in Cape Patterson, Kilcunda, Venus Bay, Lakes Entrance and Lake Tyers Beach. Low growth or negative growth is predicated for all other coastal settlements in Gippsland.

The Action Plan supports the need to avoid strip development along the coast and protection of coastal values. Public and private land along the Gippsland coast will provide for a range of activities at suitable locations and allow public access to foreshore, beach, lake and estuary recreational areas (suitable locations will be determined based on the character, function and environmental significance of a particular site).

The Strategy states that most settlements for which some growth is forecast have adequate physical infrastructure to cope with growth except Venus Bay and Loch Sport where sewerage and water supply infrastructure capacity will limit further growth. However this statement needs to be counterbalanced by Table 1(a) which provides a Coastal Settlement Infrastructure Development Rating for coastal towns in the region. The table provides all of the coastal towns in South Gippsland Shire with an infrastructure rating of 3 (“available infrastructure is a major impediment to further development”) with the exception of Port Welshpool. On either measure however, the Venus Bay, Cape Liptrap and Walkerville areas appear to have limited capacity for growth.

Table 2 of the Plan contains the decision criteria for coastal developments outside existing townships and settlements. Development of coastal land outside existing townships and settlements should not result in strip or ribbon development and should provide for an overall benefit to the community. The criteria include:

- *Ecological sustainability;*
- *Impact on significant flora and fauna;*
- *Impact on coastal processes and site of geological/geomorphological significance;*
- *Impact on cultural and archaeological sites;*
- *Impact on surrounding landscape;*
- *Ability to meet siting and design guidelines;*
- *Land not subject to flooding;*
- *Compliance with planning scheme;*
- *Does not result in ‘strip or ribbon’ development;*
- *Capacity of existing infrastructure (access, water, sewerage disposal, power availability);*
- *Ability to upgrade to existing or provide new infrastructure;*
- *Ability to upgrade or improve existing public facilities;*
- *Retention of adequate access to public foreshore and coastal land;*
- *The need to consolidate adjacent Crown land;*
- *Minimal increase in public risk or management costs for public land managers;*
- *Social implications (population shifts, provision of education and health services);*
- *Meets a demonstrated need;*
- *Availability of other suitable land; and*
- *Economic viability.*

The Plan deals with the protection of coastal values. It notes that the Gippsland coast is remarkable for its diversity and relatively unspoiled nature. Inappropriate coastal development has the potential to threaten natural, cultural and landscape values. The Plan states that the protection of coastal values on private land requires the identification, recording and inclusion into local government planning schemes of sites of natural, cultural and landscape

significance. This will enable all data to be included into planning overlays, thereby allowing adequate consideration when assessing planning proposals.

It goes on to conclude with the following policy statements:

- *Significant natural, cultural and landscape values along the Gippsland coast will be maintained and protected.*
- *Development along the Gippsland coast will be subject to the principles of ecologically sustainable development and management.*
- *Coastal and marine planning and management will comply with national and international agreements.*
- *Public land management plans and municipal planning schemes will incorporate current and accurate data on coastal values including natural, cultural and landscape sites of significance.*
- *Parks and reserves along the Gippsland coast will maintain a representative sample of coastal ecosystems and landforms.*
- *Public and private land along the Gippsland coast will provide for a range of activities at suitable locations and allow public access to foreshore, beach, lake and estuary recreational areas (suitable locations will be determined based on the character, function and environmental significance of a particular site).*

The plan supports the concept of 'activity nodes' to deliver the avoidance of strip development along the coast.

The plan also notes that the Gippsland coast has potential for new types of use and development such as aquaculture, wind power and interstate sea transport. The following assessment criteria are suggested for the preliminary evaluation of wind farm proposals:

- *Identified preferred locations/sites.*
- *Impact on landscape and visual environment.*
- *Surrounding land use.*
- *Bird impact avoidance measures.*
- *Impact on physical and biological resources.*
- *Public health, safety and access.*
- *Noise, acoustics, shadow flicker and electromagnetic interference.*
- *Cultural and social impact.*
- *Solid and hazardous wastes.*
- *Transport issues.*
- *Reference: Clause 22.01 of the South Gippsland Planning Scheme (Wind Turbine and Windfarm Development Policy)*

A strong theme throughout the Action Plan is the need for an integrated approach to development and land management along the whole of the Gippsland. Towards this end the Plan includes a draft planning policy designed for inclusion in all planning schemes that

contain land along the Gippsland coast. This policy is designed to give effect to the provisions of the Action Plan on all coastal land in Gippsland including private and public land.

The Action Plan is relevant to the Panel's consideration of:

- Landscape issues and visual amenity, these issues are addressed in chapters 9 and 14 of this report.
- Tourism issues addressed in chapter 16 of this report.
- Future development in the area addressed in chapter 18 of this report.

5.4.5 DRAFT WEST GIPPSLAND REGIONAL CATCHMENT STRATEGY

The Strategy is in draft form but has been submitted to the State–Federal Accreditation Coordination Group for approval in January 2004.

The Draft Strategy applies to land and water, including coastal water, administered by the West Gippsland Catchment Authority. The Strategy is designed to act as a roadmap to coordinate natural resource management into the future and target our investments to those areas that matter the most. Various action plans sit within the framework of the Draft Strategy, the most relevant one to the wind farm proposal is the Gippsland Coastal Action Plan 2002.

The Draft Strategy identifies the following threats relevant to the wind farm proposal:

- Erosion issues associated with construction generally and access tracks in particular.
- Biodiversity issues.
- Detrimental effects on valued landscapes due to irrevocable change.

The Draft Strategy also recognises the significant threats arising from climate change and it acknowledges the role of wind farms can play in mitigation of such change. The potential of the Gippsland coast with its significant level of wind resource is recognised and it is acknowledged that wind farms are likely to increase in the area.

The need to address biodiversity, landscape and amenity issues in the planning process is emphasised. The implementation of the State Policy and Planning Guidelines for development of Wind Energy Facilities in Victoria is considered to be important.

The relevance of the Draft Strategy is limited given its general and non specific nature.

5.4.6 CAPE LIPTRAP COASTAL PARK MANAGEMENT PLAN

The Cape Liptrap Coastal Park Management Plan was prepared by Parks Victoria in 2003. The planning area includes the park (4175ha), which encompasses the coastline from the residential subdivision at Waratah Bay westwards to Point Smythe on Anderson Inlet to the low water mark, and the Cape Liptrap Lighthouse Reserve (0.03ha) which is encompassed by the coastal park.

Twenty nine threatened fauna species occur in the park, including ten listed as threatened under the Flora Fauna Guarantee Act. Seventeen species of waders using Andersons Inlet are covered under the JAMBA and CAMBA international migratory bird agreement. These are listed in Appendix 2 of the Plan.

Of particular note is the Hooded Plover, a nationally vulnerable species listed under the Flora and Fauna Guarantee Act, lives and breeds on the park's ocean beaches. The Orange-bellied Parrot, a critically endangered species also listed under the Act has been recorded feeding on strand vegetation near Point Smyth. There is a colony of Common Bent-wing Bats listed as vulnerable in Victoria.

The park is a popular destination for visitors as well as residents of the region. Activities occurring in the park include swimming, surfing, camping, fishing, walking and boating. Other activities in the park include horse riding, gemstone fossicking and shellfish collecting.

Overnight accommodation is available in the nearby townships, caravan parks, and other private accommodation. An informal camping area is provided in the park at Bear Gully. The park is mostly used by day visitors.

The Plan states that the park receives more than 250 000 day visits a year. Two hundred thousand of these visits are to Venus Bay.

Future management is to be based on maintaining the good condition of the ecosystems, providing a range of day-use facilities and undertaking enhanced information and interpretation programs.

The plan states that the park contains a number of significant landscapes including:

- *The broad sweep of ocean beach at Venus Bay, backed by high dunes.*
- *The impressive high cliffs and bluffs of Cape Liptrap, together with offshore stacks, platforms and reefs.*
- *The more intimate enclosed coves of Walkerville, Grinder Point, Bell Point and Bear Gully, including the cultural landscapes of the old limekilns on the beach at Walkerville.*
- *The spacious view across the water to the prominent peaks of Wilsons Promontory National Park.*
- *The estuarine landscapes and tidal flats of Anderson Inlet.*
- *Spectacular coastal views from many vantage points notably Cape Liptrap, the Walkerville heathlands and Waratah Bay.*

Most of the park and surrounding private land is included in ESO3 which aims to protect and enhance the natural beauty (including landscape values) of the coastal park.

The plan aims to minimise visual intrusions on natural landscape within the park, especially from major viewing points. Related management strategies include:

- *Minimise the visual intrusions on natural landscape within the park especially from major viewing points.*
- *Where possible, remove or shield undesirable visual intrusions.*
- *Maintaining and improve existing viewing points in the park at Cape Liptrap and Walkerville North.*
- *Formalise the existing low-key viewing area on the loop road above the heathlands of Walkerville.*

The Park lies within the western-most lands of the Gunai-Kurnai Nation which extends into east Gippsland. There are numerous sites, mostly along the coastline which are of significance to the local aboriginal community and traditional owners. Degradation of these sites by erosion, illegal vehicle traffic and pillaging are major threats to the integrity of cultural sites.

The plan recognises that the Park offers opportunities to develop themes related to the park's complex geological sequences, its flora and fauna and Aboriginal and post-settlement cultural heritage. The plan also recognises that the park compliments other tourist destinations in the area. Management strategies are oriented to improving the information to enhance the visitor experience.

A number of unauthorised vehicle and pedestrian access tracks exist within the park particularly at Grinder Point, Morgan's Beach, Five Mile Creek and Venus Bay. These tracks are poorly sited and are leading to significant soil erosion. The Five Mile Track leads to a relatively remote section of the ocean beach. This would not be upgraded above its present capability, which is for 4WD access only. The 350m track through the park is earmarked for closure under the plan. Human activity at this location is therefore unlikely to increase.

Camping occurs at Bear Gully (16000 camper nights). Camping also occurs at the end of the Five Mile Track where there are no facilities. A new informal camping area is recommended on the Five Mile Track.

Boats can be launched at Walkerville North and South. These are proposed to be retained. The informal boat launching area at Bear Gully is to be closed.

The park provides a diverse range of walking opportunities from short nature trails to extended walks along remote sections of coastline. These are proposed to be upgraded and extended. Opportunities for horse riding, cycling, hang gliding and paragliding and fossicking are also discussed.

95% of the park has been allocated to a Conservation Zone, which focuses on protection of sensitive natural environments and provision for minimal impact recreation activities and simple visitor facilities.

The plan discusses the impact of public utilities and aims to manage them to minimise their impacts on the park's natural and scenic values. It seeks to rationalise and concentrate utilities to minimise impacts on the park and to protect foreground views and sightlines at popular visitor sites.

The majority of the park adjoins private agricultural land and also abuts the settlements of Venus Bay, Waratah Bay, Promontory Views and Walkerville. There is an increasing amount of small rural holding adjacent to the Park. This development results in impacts on the Park and its agricultural neighbours relating to:

- Clearing
- Fire protection
- Effect of pest plants and animals
- Uncontrolled access
- Loss of landscape values
- Encroachment.

The Management Plan is relevant to the Panel's consideration because it describes the existing and future activities in the park and sets out issues that are important for existing and future development. It provides useful information in consideration of the following issues

- Landscape addressed in chapter 9 of this report.
- Natural environment addressed in chapter 10 of this report.
- Cultural environment addressed in chapter 11 of this report.
- Visual amenity addressed in chapter 14 of this report.
- Economic effects addressed in chapter 16 of this report.
- Land use effects addressed in chapter 18 of this report.

5.4.7 PARKS VICTORIA CONSERVATION RESERVES MANAGEMENT STRATEGY

This Strategy is applicable to Conservation Reserves that are managed by Parks Victoria directly or as a Committee of Management. It specifically lists 379 priority reserves. It does not apply to Coastal Reserves, which are guided by the Victorian Coastal Strategy.

Due to the large number of Conservation Reserves in Victoria, individual plans will not be prepared for the Conservation Reserves managed by Parks Victoria. Instead, this Strategy provides strategic management objectives for programming management activity in those reserves. The Strategy goes on to provide management objectives and recommendations about a range of activities and uses in different categories of reserve.

The Bald Hills Wetland Reserve is classified as 'Nature Conservation Reserve'. Management objectives are:

- *Conserve and protect species, communities and habitat of indigenous plants, animals and other organisms. (Primary objective)*
- *Provide for research and study of the natural environment of the reserve where this is consistent with the primary objective and where there is minimal impact on the reserve.*
- *Provide opportunities for appropriate enjoyment and recreation and education by the public where this does not conflict with the primary objective.*
- *Protect Aboriginal cultural sites and places.*
- *Protect historic features in specific reserves where noted.*

Relevant activities and uses are

Permit passive recreation by small numbers of people.

The Strategy is relevant to the management of the Bald Hills Wetland Reserve and provides information on issues concerning the effect of the proposed wind farm on the Bald Hills Wetland Reserve. These issues are addressed in chapter 10 of this report.

It should be noted that although the Kings Flat reserve potentially falls within the scope of this document, it has not been identified as being subject to any specific management objectives or activity/use prescriptions.

5.5 ENVIRONMENTAL LEGISLATION & POLICY

5.5.1 EPBC AND FFG ACTS

Under the assessment and approval process of the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act, projects that are likely to have a significant impact on a matter of national environmental significance (a controlled action) are subject to a rigorous assessment and approval process. Matters of national environmental significance include: Ramsar wetlands; listed threatened species and communities; and listed migratory species.

Where a project is determined to be controlled action under the Act, surveys are required to be carried out to determine whether any species protected under the Act are likely to be adversely impacted upon.

The Bald Hills Wind Farm Project has been assessed as a controlled action because of potential impacts on listed threatened species and communities, and listed migratory species.

The Victorian Flora and Fauna Guarantee (FFG) Act provides for the protection of threatened species in Victoria. Threatened flora and fauna species, ecological communities and threatening processes can be listed under the Act.

Under the FFG Act a permit is required to kill, disturb or collect protected flora. Similarly, under the Wildlife Act 1975 a permit is required to capture or intentionally kill invertebrate species listed under the FFG Act.

5.5.2 VICTORIA'S BIODIVERSITY STRATEGY

In 1996 the Victorian Government, along with the governments of all other Australian States and Territories agreed on the National Strategy for the Conservation of Australia's Biological Diversity, the goal of which is protect biological diversity and maintain ecological processes and systems.

Following the national agreement, Victoria published a complementary strategy on biodiversity in 1997. The Victorian strategy includes proposals for guaranteeing the survival, abundance and development in the wild of all taxa and communities of flora and fauna.

5.5.3 VICTORIA'S NATIVE VEGETATION MANAGEMENT FRAMEWORK, 2002

The primary goal of the Native Vegetation Management Framework is:

A reversal, across the entire landscape, of the long-term decline in the extent and quality of native vegetation leading to a Net Gain.

Net Gain refers to the situation where losses of native vegetation and habitat are reduced, minimised and more than offset by commensurate gains. The framework also includes a set of tools for estimating general vegetation/habitat quality on a consistent Statewide basis, and a proposed accounting system to implement the concept of Net Gain.

5.5.4 TARWIN-POWLETT LANDSCAPE ZONE PLAN

This plan translates the statewide biodiversity strategy to the regional scale. It provides the foundation for producing detailed local area biodiversity action plans to direct on ground works by private landholders, community groups, corporations and all levels of Government.

The Plan covers the Tarwin-Powlett Landscape Zone located between Philip Island and Wilson's Promontory, which is part of the Gippsland Plain bioregion.

In the Tarwin-Powlett Landscape Zone the Plan:

- Compares pre 1750 Ecological Vegetation Classes (EVCs) by area name and location. It compares the area of EVCs pre 1750 with the present day.
- Lists and locates 20 species of threatened flora.
- Lists and locates 57 species of threatened fauna including 7 vulnerable and 4 endangered species under Australian Status.

The Plan provides a list of priority biodiversity actions for the Tarwin-Powlett Landscape Zone as follows:

- *Future biodiversity gains across much of the zone will depend upon protection, management and restoration of freehold remnants, major creek lines and small but significant conservation reserves, and the extent to which their connection with remnant roadside vegetation networks can be bolstered and secured.*
- *Protect and retain hollow bearing trees.*
- *Minimise impacts of firewood collection.*
- *Control weeds and predators.*
- *Exclude domestic grazing from all remnant native vegetation within public land reserves and water frontages, and (wherever possible) from freehold land.*
- *Revegetate using locally indigenous species, enlarging and connecting existing remnants, particularly along waterways and around wetlands.*
- *Buffer existing remnants and introduce understorey species, to reduce the impact of dieback from insect attack.*
- *Promote enhancement of connectivity between water frontages and remnants on adjoining tenures, giving priority to the Powlett and Tarwin Rivers.*
- *In consultation with licensees and local landcare groups, target revegetation sites to abut and extend high quality roadsides and improve quality of unused roads through supplementary planting of understorey species.*
- *Protect known nesting sites of White-bellied Sea-eagle and provide a suitable buffer zone around nests, from human and habitat disturbance.*
- *Develop appropriate ecological burning programs.*
- *Encourage, support and expand voluntary landholder participation in community habitat conservation projects and improve community understanding of management of native biodiversity on private land.*

- *Encourage land managers to produce and implement management plans focused on protecting and enhancing flora and fauna values as well as mitigating threatening processes at the representative bushland and flora reserves throughout the zone.*

The Plan is relevant to the Panel's consideration of natural; environment issues addressed in chapter 10 of this report.

5.6 HERITAGE CONSERVATION LEGISLATION

5.6.1 THE ABORIGINAL AND TORRES STRAIT ISLANDER HERITAGE PROTECTION ACT

The Aboriginal and Torres Strait Islander Heritage Protection Act 1984 provides for the protection of Aboriginal cultural property, which includes any places, objects and folklore that are of particular significance to Aboriginal people. The Act requires written consent from the relevant Victorian Aboriginal community to disturb, destroy, interfere with or endanger any Aboriginal place, object or archaeological site.

5.6.2 ARCHAEOLOGICAL AND ABORIGINAL RELICS PRESERVATION ACT

The Archaeological and Aboriginal Relics Preservation Act 1972 relates to all material relating to Aboriginal occupation of land in Victoria. The Act also establishes administrative procedures for archaeological investigations and reporting of the discovery of Aboriginal sites. The Act is administered by Aboriginal Affairs Victoria, including granting of consent to carry out archaeological fieldwork that will involve disturbance to a site. Consent will not usually be given without prior permission from the relevant Aboriginal community.

5.7 OTHER DOCUMENTS

The Panel was provided with copies or has access to several documents that, whilst not formally of a strategic nature, have included relevant considerations and have assisted the Panel. These include:

- Individual Biodiversity Assessments of the following properties:
 - D & S Jelbart
 - P & J O'Sullivan
 - R & S Svenson
- Environmental Guidelines for major construction Sites (EPA 1996)
- Construction Techniques for Sediment Pollution Control (EPA 1991).
- Control of Erosion on Construction Sites (Soil Conservation Authority).
- New Zealand Standard NS6808: 1998 Acoustics
- Best Practice Guidelines for Implementation of Wind Energy Projects in Australia by the Australian Wind Energy Association March 2002

Specific comment is provided on two of these documents below.

5.7.1 NEW ZEALAND STANDARD 6808

The standard sets out methods of predicting and assessing acoustic impact due to wind turbines. It is not an Australian Standard. However, by virtue of reference in PPG – WEF it has a formal status in Victoria as the standard supported by policy for use in acoustic assessment.

5.7.2 BEST PRACTICE GUIDELINES FOR IMPLEMENTATION OF WIND ENERGY PROJECTS

These guidelines are not strategic in nature and they have no statutory basis. The Panel however found the guidelines useful as an indication of industry best practice as to investigation procedures that in general terms are appropriate from an industry perspective. Appendix 2 to the guidelines in particular is useful it relates to ecological issues.

6. STATUTORY CONTEXT

It is one function of this report to support decisions on planning permit applications 2003/563 and TRA/03/002, called in for determination by the Minister for Planning. The purpose of this section is to digest the statutory provisions relevant to the Minister's exercise of discretion in these permits. It considers:

- Zone provisions;
- Overlay provisions;
- Particular and other relevant provisions;

all from the South Gippsland Planning Scheme.

The Panel has had regard to all relevant statutory provisions in reaching its findings and making its recommendations.

6.1 ZONES

The subject land and adjoining lands in private ownership are all included in the Rural Zone. The Cape Liptrap Coastal Park, Bald Hills Wetland Reserve, Kings Flat Reserve and Janet Boag's Reserve all adjoin the subject land and are all in the Public Conservation and Resource Zone. There is no residentially zoned land within 6.6 kilometres of the proposed wind farm.

6.1.1 RURAL ZONE

A Wind energy facility is a section 2 use in the Rural Zone. The purposes of the zone have been drafted with more conventional rural land uses in mind and have limited relevance. The only relevant zone purpose is:

To encourage:

- *Protection and enhancement of the biodiversity of the area.*
- *Promotion of economic development compatible with rural activities.*

Relevant decision guidelines include:

General issues

- *The capability of the land to accommodate the proposed use or development, addressing site quality attributes including soil type, soil fertility, soil structure, soil permeability, aspect, contour and drainage patterns.*
- *How the use or development relates to rural land use, rural diversification and natural resource management.*

Rural issues

- *The maintenance of farm production and the impact on the rural economy.*
- *Whether the site is suitable for the use or development and the compatibility of the proposal with adjoining and nearby farming and other land uses.*
- *The farm size and the productive capacity of the site to sustain the rural enterprise and whether the use or development will have an adverse impact on surrounding land uses.*
- *The need to prepare an integrated land management plan.*

Environmental issues

- *An assessment of the likely environmental impact on the natural physical features and resources of the area and in particular any impact caused by the proposal on soil and water quality and by the emission of noise, dust and odours.*
- *The impact of the use or development on the flora, fauna and landscape features of the locality.*
- *The protection and enhancement of the natural environment and the character of the area, including retention of vegetation and fauna habitat and the need to revegetate land including riparian buffers along waterways, gullies, ridge lines, property boundaries, discharge and recharge areas.*
- *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.*

Design and siting issues

- *The design, colours and materials to be used and the siting, including the provision of development and effluent envelopes for any building or works.*
- *The impact of the use or development on the existing and surrounding rural uses.*
- *The location of any building or works with respect to the natural environment, major roads, vistas and water features and the measures to be undertaken to minimise any adverse impacts.*
- *The location and design of existing and proposed roads and their impact on the landscape and whether the use or development will cause significant traffic generation which will require additional traffic management programs to be initiated.*
- *The location and design of existing and proposed infrastructure services including gas, water, drainage, telecommunications and sewerage facilities.*

6.2 OVERLAYS

There are two relevant overlays to consideration of the wind farm viz:

- The Environment Significance Overlay Schedule 3 (ES03)
- The Environment Significance Overlay Schedule 5 (ES05)

6.2.1 ENVIRONMENT SIGNIFICANCE OVERLAY SCHEDULE 3

This overlay does not apply to the area of land on which it is proposed to construct the wind farm. It does apply generally along the coastline and extends a varying distance into land adjacent to the coast line and beyond the perimeters of the Coastal Park. It extend into land in the same tenure and apparently it applies to land that includes titles on which the wind farm is proposed to be constructed. The closest proposed wind turbine to the boundary of ES03 is approximately 330 metres.

The statement of environmental significance in the schedule to the overlay indicates that the purpose of the overlay is to protect coastal areas important for their picturesque landscape and rugged appeal as well as for their environmental, economic, cultural and heritage values.

The provisions of this overlay clearly do not apply to the proposed wind farm and the only significance of the overlay relates to the omission of the subject land from the overlay given the purpose of the overlay.

6.2.2 ENVIRONMENT SIGNIFICANCE OVERLAY SCHEDULE 5

This overlay applies to areas identified as susceptible to erosion it specifically does not apply to areas identified as being prone to land slip. Land prone to land slip is subject to the Erosion Management Overlay.

ES05 applies to the land containing the northern group of proposed turbines. All of this group of proposed turbines are within the overlay except for turbine number 12.

The relevant parts of the Statement of environmental significance are:

- The land subject to the overlay has been identified as being subject to erosion but not to land slip.
- Best practice should be encouraged for works associated with all development involving land disturbance
- Public awareness, that processes involving earthworks, water run-off and removal of vegetation may exacerbate erosion, should be increased.

The environmental objectives to be achieved are:

- *To protect areas prone to erosion by minimising land disturbance and vegetation loss.*
- *To prevent increased runoff or concentration of surface water runoff leading to erosion or siltation of watercourses.*

The Overlay requires a permit for development that includes:

- Removal of any vegetation except if the vegetation has been planted for pasture, timber production or any other crop. There are other exemptions that are not relevant to the development of the proposed wind farm.
- Construction of fences except in association with agricultural activities.
- Construction of all building or works except:
 - Buildings less the 200 square metres in area the construction of which comply with Construction Techniques for Sediment Pollution Control (EPA 1991) and Control of Erosion on Construction Sites (Soil Conservation Authority).
 - Construction of underground telephone or power lines provided they do not alter ground topography.
 - Telephone or power lines that do not involve construction of towers

The Overlay list matters that must be considered by the responsible authority before making a decision. The relevant decision guidelines are:

- The statement of environmental significance and environmental objectives.
- The following publications:
 - Environmental Guidelines for major construction Sites (EPA 1996)
 - Construction Techniques for Sediment Pollution Control (EPA 1991).
 - Control of Erosion on Construction Sites (Soil Conservation Authority).
- Any proposed measures to minimise the extent of soil disturbance and runoff.
- The need to stabilise disturbed areas by engineering works or vegetation
- Whether the proposed building or works are likely to cause erosion or landslip.
- Any Land Capability Report Guidelines prepared by the Department of Natural Resources and Environment, Centre for Land Protection Resource
- The Views of the Department of Natural Resources and Environment in respect to:
 - Applications, which in the opinion of the responsible authority may cause erosion, land degradation or effect land stability on either the subject land or adjoining land.

6.3 PARTICULAR AND OTHER RELEVANT PROVISIONS

6.3.1 CLAUSE 52.17 NATIVE VEGETATION

Clause 52.17's purpose is:

To protect and conserve native vegetation to reduce the impact of land and water degradation and provide habitat for plants and animals.

It requires a permit to remove, destroy or lop native vegetation, subject to defined exemptions.

Decision Guidelines are reproduced below:

- *The goal of Net Gain expressed in Victoria's native Vegetation Management – A Framework for Action (Department of Natural Resources and Environment 2002 and relevant operational guidelines*

- *The conservation and enhancement of the area.*
- *The preservation of and impact on the natural environment or landscape values.*
- *The role of native vegetation in:*
 - *Conserving flora and fauna*
 - *Protecting water quality.*
 - *Providing shade and shelter.*
- *The role of native vegetation in preventing:*
 - *Land degradation, including soil erosion, salinisation, acidity and water logging.*
 - *Adverse effects on ground water recharge.*
- *The need to retain native vegetation:*
 - *Where ground slopes are more than 20 percent.*
 - *Within 30m of a wetland or waterway.*
 - *Where groundwater recharge occurs.*
 - *On land subject to or which may contribute to soil erosion, slippage or salinisation.*
 - *On land where the soil or sub-soil may become unstable if cleared.*
 - *In a proclaimed water supply catchment.*
 - *In areas where removal, destruction or lopping could jeopardise the integrity or long term preservation of any identified site of scientific, nature conservation or cultural significance.*
 - *If it is rare or supports rare species of fauna or flora.*
 - *That forms part of a wildlife corridor.*
- *The conservation of native vegetation protected under the Archaeological and Aboriginal Relics Preservation Act 1972 or the Aboriginal and Torres Strait Islander Heritage Protection Act 1984.*
- *Any relevant permit to remove destroy or lop native vegetation in accordance with a land management plan or works program.*
- *Whether the application includes a land management plan or works program.*
- *Whether provision is made or is to be made to establish and maintain native vegetation elsewhere on the land.*
- *The benefit of a condition requiring:*
 - *Planting, replanting or other treatment of any part of the land.*
 - *The retention of a buffer strip of native vegetation within specified distances of wetlands, waterways, roads and property boundaries.*
 - *The fencing off of areas of native vegetation in particular to exclude stock or vermin.*
 - *The identification of native vegetation that is to be retained, including the methods to be used to protect and manage the native vegetation.*
- *The approved Regional Vegetation Plan (where prepared).*
- *In the case of timber production, the benefit of including a condition requiring operations to be carried out in accordance with any relevant code*

of practice under Section 55 of the Conservation, Forests and Lands Act 1987.

6.3.2 CLAUSE 52.32 WIND ENERGY FACILITY

Clause 52.32 applies to proposals to use and develop land for the purpose of a wind energy facility.

The purpose of this clause is

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

The clause sets out application requirements and the following decision guidelines:

- *The views of the Sustainable Energy Association of Victoria about the contribution of the proposal to reducing greenhouse gas emissions.*
- *The effect of the proposal on the surrounding area in terms of noise, blade glint, shadow flicker and electromagnetic interference.*
- *The impact of the development on significant views, including visual corridors and sightlines.*
- *The impact of the facility on the natural environment and natural systems.*
- *The views of the Civil Aviation Safety Authority if within a 30 kilometre radius of an airfield.*
- *The Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria, 2002.*

6.3.3 CLAUSE 65 DECISION GUIDELINES

Relevant matters set out in clause 65, to be considered before deciding on a planning application, include:

- *The orderly planning of the area.*
- *The effect on the amenity of the area.*
- *The proximity of the land to any public land.*
- *Factors likely to cause or contribute to land degradation, salinity or reduce water quality.*
- *Whether the proposed development is designed to maintain or improve the quality of stormwater within and exiting the site.*
- *The extent and character of native vegetation and the likelihood of its destruction.*
- *Whether native vegetation is to be or can be protected, planted or allowed to regenerate.*
- *The degree of flood, erosion or fire hazard associated with the location of the land and the use, development or management of the land so as to minimise any such hazard.*

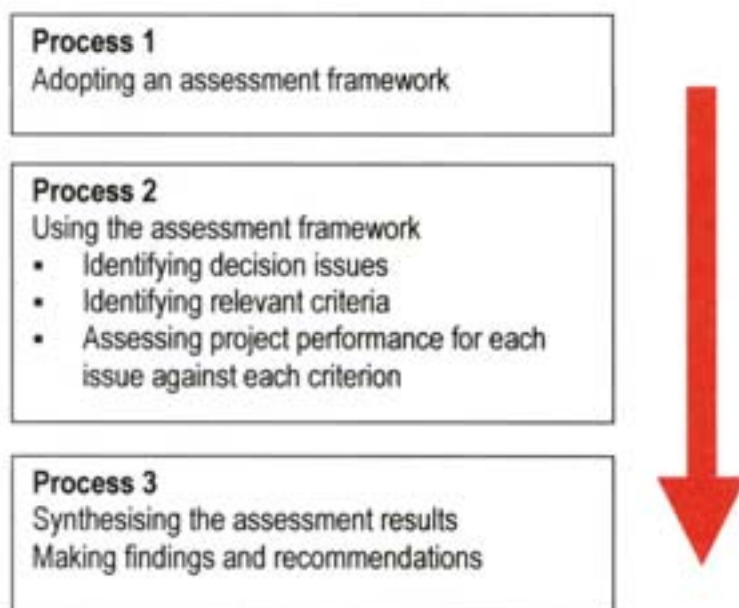
7. APPROACH ADOPTED BY THE PANEL

The purpose of this section of the report is to:

- set out the processes of analysis that the Panel has undertaken in reaching its findings and recommendations across a wide range of issues;
- explain the assessment framework that the Panel has adopted in its balancing of considerations;
- explain the relationship between EES and planning permit, planning condition and environmental management considerations in this report; and
- provide a clear and logical framework for the undertaking of the Panel's tasks, structuring the remainder of this report.

7.1 ANALYSIS PROCESSES

In reaching and setting out its findings and recommendations, the Panel has undertaken the following processes of analysis:



The report is structured in accordance with this sequence of processes.

Section 6.2 below carries out process 1. It contains the Panel's consideration of the appropriate assessment framework to use in its analysis.

Sections 7 onwards carry out process 2. They identify the decision issues that need to be considered in relation to the Bald Hills Wind Farm Project. These issues have been drawn out of submissions and are considered in an 'issues based' assessment framework. They are broadly categorised as follows:

- Section 8: ESD – sustainable development;
- Section 9: landscape;
- Section 10: natural environment;
- Section 11: cultural environment;
- Section 12: physical environment;
- Section 13: acoustic amenity;
- Section 14: visual amenity;
- Section 15: site traffic and access;
- Section 16: economic effects;
- Section 17: social effects;
- Section 18: land use effects; and
- Section 19: other effects.

Readers should note that the use of this framework precludes the Panel's individual presentation and discussion of the entire content of each submission as an individual submission: this is because many submissions range across many of the issues in the framework set out above. However, all submissions have been carefully considered and all relevant issues arising from submissions have been identified and responded to as part of the issues-based assessment framework.

Having identified the range of issues that are relevant to the decisions that must be made, process 2 then articulates criteria arising from relevant legislation, policy, provisions and good practice that the Panel considers should be performed, in relation to each identified issue. The Panel then provides its assessment of the performance of the project (and, where relevant, of components of the project) against each criterion. These tasks are accomplished in sequence within each individual issue focussed section of this report. Detailed findings and recommendations on individual issues are made as part of this process.

Process 3 is carried out in Section 20 of this report - 'performance evaluation'. Here the Panel undertakes a synthesis of the outputs from its assessment framework. It identifies the 'balance of performance' of the project and/or component parts, leading to its primary recommendation.

7.2 THE ASSESSMENT FRAMEWORK

As a means of providing an audit trail of the Panel's own reasoning processes, it has set out an explanation of its own assessment framework below, explaining the basis for its framework and reasons for adopting it over other possible frameworks.

When a Panel evaluates a proposal or proposals, its key reference in adopting a method must be its Terms of Reference and any project specific assessment guidelines published by the Department of Sustainability and Environment, in this case the guidelines published in February 2003. With regard to these documents, the Panel considers that its starting point should be the identification of relevant issues drawn out in the documentation prepared and exhibited by the proponent and issues raised in written and verbal submissions. In recommending responses to these issues, the Panel must be guided by and seek to implement the objectives of relevant national, State and local legislation, policies and

practices. Its evaluation method must provide a mechanism whereby it measures the performance of the Project against relevant objectives or 'baskets' of objectives using overarching measures or criteria that respond to the requirements of objectives. It must synthesise an overview of the environmental effects of the project proposals, leading it towards findings and recommendations.

The identification of relevant issues arising from submissions has taken place in summary in Section 4 of this report above, augmented by more detailed discussion in Sections 8 to 19 below. Relevant policies are identified in Section 5. Statutory controls over the use and development of land are identified in Section 6. Overarching criteria that respond to and measure the project in terms of the identified issues and the objectives arising from policies and controls are constructed and explained in Sections 8 to 19 below. However, when the Panel weighs and balances the outputs of these processes, it engages in multi-factor analysis. In carrying out this analysis, the Panel's reasoning must still be grounded in the identified issues, objectives and criteria: its final recommendation must be a logical product of the balancing of all of these.

Panel reasoning provides the basis for public decision making. For this reason it must be robust and transparent, in terms described in Volume 4, Section 4.1 of the Panel Report "Planning for Wind Energy", June 2002.

Robustness implies two approaches. Firstly, the achievement of clarity, simplicity and brevity through precision in reasoning; and secondly, the 'sensitivity' testing of recommendations to ensure that, in terms of the range of information provided to the Panel, they are not likely to be upset by minor order changes to either project design or evaluation.

Transparency implies that the readers of a Panel report can identify an unbroken chain of logic, an 'audit trail', taking them from the basic identification of issues to the Panel's recommended outcome.

Panels have over time developed an evaluation method and means of presenting complex multi-factor decision information in a simple form, referred to in a paper prepared in October 2002 by the former Chief Panel Member Helen Gibson as the 'Objectives-Based Assessment Model' (OBAM) and in some other Panel reports as the objective based qualitative evaluation matrix model (OBQEM). This provides a robust and transparent basis for Panel findings and recommendations. This was developed because traditional methods of qualitative textual analysis have tended to be over complex and to obscure the chain of logic and reasoning in complex matters. Pre-existing quantitative methods such as benefit cost analysis (BCA) or mathematical multi-criteria analysis (MCA) would have to operate to a more than typical level of complexity and scale to encompass all of the relevant issues. They have also demonstrated widely accepted limitations in responding to subject matter involves necessary levels of qualitative assessment and cannot be neatly reduced to a quantitative form without an unacceptable risk of loss of decision relevance and quality. For readers interested in these matters, this Panel refers to and generally adopts the discussion in the Gibson OBAM paper of October 2002. That being said, for reasons that are made clear elsewhere⁷, this Panel rests strongly on the qualitative basis of the model and does not attempt to sum or otherwise mathematically process the scores presented in its matrices.

⁷ See for example the discussion of the OBAM method in Volume 4, Section 4.1 of the Panel Report "Planning for Wind Energy", (June 2002) and the Report of the Panel considering the EES for the Strathmerton Deviation of the Goulburn Valley Highway (February 2001).

The key steps in the operation of an OBAM model are summarised below:

1. Identify the existing condition of the study area and the nature of the proposed project.
2. Identify all relevant objectives against which the project should be assessed, from legislation, national, State and local policy and planning scheme provisions.
3. Identify all relevant issues raised by the existing conditions of the locality, the project and submissions.
4. Having regard to the issues and the relevant objectives or group of objectives, define criteria by which the performance of the project can be measured.
5. Evaluate the degree to which the project and each key component of the project meets each criterion and summarise conclusions using a scoring method.
 - A high score means that the project or component provides a more optimal means of meeting the criterion;
 - A low score means that the project or component provides a less optimal means of meeting the criterion; and
6. Collate the scores into an 'evaluation matrix' in which overall project and component performance is presented summary form.
7. Test the scoring presented in the 'evaluation matrix' using qualitative analysis methods that apply transparent value judgements responding to outstanding issues, objectives, qualifications or weightings, accounting for the fact that the matrix is unlikely to have fully represented all of these.
8. Where necessary, make fully reasoned adjustments to the project and component rankings, based on the outcome of the model testing process.
9. Use the adjusted model to support Panel findings and recommendations.

By examining the balance of evaluation scores obtained by the project and its components, the model allows the readers of a report to appreciate the Panel's evaluation in a simple and summarised form. The clarity and brevity of the matrix, together with the potential that the method offers for sensitivity testing, ensures that recommendations based upon it are robust. Its use to draw and compare conclusions in relation to all relevant issues and objectives side by side provides transparency. It is for these reasons that the OBAM method has been developed and they underlie this Panel's decision to adopt it for use in Section 20 of this report below.

The following qualifications of OBQEM models as developed and used by Panels should be noted.

Evaluation matrices are wholly qualitative

The numbers used in an evaluation matrix are graphic representations of the Panel's evaluation. In the mathematical sense they are not 'numbers' at all. They are not calculable things. They do not stand for any 'actual' values (such as dollars, megawatts of energy production or hectares of habitat). Words, letters or colours could be used for this purpose in a matrix, more or less effectively than numbers. However, readers are familiar with the use of numbers to represent proportional movement along a scale from worst to best performance and it is in this sense only that numbers are used in a matrix. This approach differs from a mathematical model in which numbers can represent 'actual' values and are also calculable.

Evaluation matrices are not numerically weighted across nodes

Both evaluation matrices as developed by Panels and MCA mathematical models use numbers to score the evaluator's assessment of performance. However, MCA will then attempt to model a real life decision process by calculating an overall net benefit 'score' for a project, based upon the weighted sum of preference scores provided for it against each criterion. To do this in a methodologically sound manner requires the modeller to assign weights to preference scores to account for the facts that the length of evaluation scales can differ and that the decision maker may value performance against different criteria differently.

[...] weights must then be adjusted to ensure that the simple number of criteria that it uses for evaluation and their distribution across model nodes does not skew the model. Irrespective of these structural methodological concerns, it is in the process of establishing, adjusting and applying these weights that a mathematical model loses transparent between issues and objectives on the one hand and recommended outcomes on the other.

An OBQEM model does not take these steps and does not therefore lose transparency. It presents the simple and unadjusted order of performance against unweighted criteria and then reserves judgements about differential weightings to a second stage of clearly qualitative written analysis. In this way, the transparency of a Panel's reasoning is preserved.⁸

The OBAM method does not rely on the presence of an option or 'base case' for an evaluation to proceed. Fundamentally, the test of performance in such a model is of the entity undergoing assessment, against each relevant objective using appropriate composite criteria. The model does lend itself to an additional step in which the performance balance of options are compared to support the identification of a preferred option, and most instances of its use in Victoria have taken this step. However, such an approach is not required in this case as options are not being compared, and this Panel has not taken it. In this respect however, the model used in this report must be distinguished from the comparative options models previously used by Panels, for example in the Hume-Craigieburn, Calder and Goulburn Valley Highway reports referred to in the Gibson OBAM paper of October 2002. If direct comparisons are made, they should be made to the model employed by the Portland Wind Energy Project Panel.

The Panel notes that, as at Portland and in line with general government policy, it has given full consideration and weight to social, economic and environmental considerations (triple bottom line) in its evaluations.

For these reasons, and with the methodological explanation set out above to make clear the nature of the step that it is taking, the Panel considers that it is appropriate to use the evaluation matrix method in this case.

Finally, it should be noted that the Panel has not referred to the Strategic Assessment Guidelines Practice Note in this process. It did not direct parties to use the guidelines and has not used them to structure its own deliberations. Some explanation of this step is required in circumstances where the great majority of Panels use the guidelines. However, the matter

⁸ PWEF Report Vol 4, Section 4.1

before this Panel is not a planning scheme amendment. The guidelines on any sensible interpretation are designed to refer to and be used in processes that include an amendment to the planning scheme. The Panel has referred to the guidelines in spirit and has certainly adhered to the discipline intended by the guidelines, that of continually testing the proposal against the strategic framework set out in identified relevant policy (see chapter 5 below). However, the Panel has not framed its analysis by responding to questions emerging from the guidelines that are not strictly relevant to the determination of an EES and SEES or decisions on planning permits.

7.3 PERMIT, CONDITION AND ENVIRONMENTAL MANAGEMENT CONSIDERATIONS

The Panel's approach to planning permit, condition and environmental management considerations has been a consequential one. It has undertaken a primary analysis of environmental, social and economic issues, leading it to its performance evaluation in Section 20 below. Having undertaken this exercise to the point of determining the degree to which the project might proceed in principle, the Panel has then turned its mind to the conditions and environmental management requirements that require to be applied to the project if it is to proceed. This task is undertaken in Section 21 below.

8. SUSTAINABILITY

The purpose of this chapter is to address issues around sustainable development, and particularly the control and reduction of greenhouse gas emissions and the role of wind energy development in achieving this goal.

In commencing this task, it is important to identify that the Panel was not appointed to undertake a general inquiry into sustainable development and greenhouse issues. Here, its role must be distinguished from that of the Portland Wind Energy Project Panel, which was also appointed as an Advisory Committee to undertake some inquiries of a general nature. That Panel also sat before the government's approval of the "Policy and Planning Guidelines for the Development of Wind Energy Facilities in Victoria" (PPG – WEF), in circumstances where relevant government policy had not yet been developed. In contrast, the role of this Panel is to consider and advise on a particular project, within a now much clearer policy framework. As made clear at its directions hearing, the role of a Panel in such circumstances should normally be to consider the project, in the light of the relevant policy settings.

That being said, policy is not law. A policy should normally be implemented unless it is clearly shown to be flawed or irrelevant. However, the directions of any policy are not mandatory. They are capable of rebuttal. It is therefore possible to conceive of circumstances where an established component of policy ought not to be implemented, for example, if clear evidence could be provided, leading a decision maker to the view that to implement it would lead to manifest perversity of outcome. This approach is a normal part of a policy based planning process. Policy (as opposed to more directive legislative or regulatory requirements) is used precisely because it supports the genuine and flexible capacity of the decision maker to react to new information and to take decisions within the context of the continually advancing frontier of human understanding. This is an important aspect of policy when it is applied to decisions about technically complex issues such as the sourcing of energy in the context of greenhouse and carbon control objectives.

It was in this sense and this sense alone that the Panel did not rule out submissions of a general nature about greenhouse and carbon control issues. It was conscious that if it made a general ruling against such submissions before the commencement of its hearings, it would potentially fail to provide natural justice to submitters, by pre-judging questions as to whether demonstrable change in human knowledge had led to a change in the basis of current policy. However, in commencing this examination of such issues as were raised in submissions, the Panel would remark that they have a high threshold to cross, for unless they clearly demonstrate a reason to depart from existing policy, then the presumption should be that a decision in line with policy should be taken.

8.1 ISSUES RAISED

The following issues were raised in submissions.

- Concerns were expressed about the existence of a 'greenhouse effect'; the necessity and/or desirability of acting to control and reduce atmospheric carbon emissions.
- There were submissions that wind energy generation cannot effectively displace carbon emissions.
- Concerns were raised about the contribution of wind energy towards carbon reduction and its relative cost and benefits against other technologies.
- Some submitters considered that wind energy is a recipient of government subsidy, and suggested that wind technology would not be an economic source of energy in an undistorted market.

8.2 CRITERIA TO BE MET

Within Australia, the principle definition of sustainable development is set out in the National Strategy for Ecologically Sustainable Development (NSESD), as follows.

Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.

The strategy also states succinctly that ESD is:

... development which aims to meet the needs of people today without compromising the ability of future generations to meet their own needs.

Environmental, social and economic considerations should be integrated into decision making - the 'triple bottom line' - within a long term frame of reference.

The NSESD includes strategies for various industry sectors including the energy sector. The energy sector strategy objective is:

to limit harmful emissions arising from energy production and distribution wherever economically efficient, and to promote alternative energy sources.

There are many other sources of policy. However, in terms of distilling a means by which the performance of the project before the Panel should be measured, the above appear to be an excellent summary synthesis.

8.3 DISCUSSION

8.3.1 THE EXISTENCE AND RELEVANCE OF A GREENHOUSE EFFECT

A number of submissions expressed doubt about the existence or relevance of a 'greenhouse effect' to energy or planning policy. They suggested that it was not necessary or desirable to act to control and reduce anthropogenic atmospheric carbon emissions.

Mr Bob Foster presented the broadest of these submissions in which, amongst a wealth of data, he sought to demonstrate the following.

- Variability in solar activity and other non carbon factors had not been sufficiently weighted as climate drivers in IPCC scenario development and as a consequence there was no linkage or an insufficiently demonstrated linkage between global temperature change and anthropogenic carbon emissions.
- IPCC scenarios included unrealistically high economic growth and emissions assumptions for a range of lesser developed overseas economies, suggesting in turn that global rates of emission change were likely to be lower than assumed over all scenarios.

Mr Foster cautioned against the acceptance and deployment of current understandings of the effects of carbon emissions as a 'greenhouse religion'. Sound science and economics should underlie the acknowledgment of the greenhouse effect and the acceptance of IPCC scenarios as a basis for planning. If it could be demonstrated that these were not based on sound assumptions, they could be discounted or ascribed less weight in a decision maker's reasoning. This in turn would suggest that a wind energy facility might provide less overall community benefit than that claimed for it, in turn changing the benefit balance that a Panel or a decision maker might find across the range of issues examined in the EES and SEES.

Although claiming some expertise, Mr Foster was not called as a witness. Nor was he subject to cross examination.

The proponent's position was that it did not accord much weight or consideration to such submissions. In closing, it retained the view that:

The big picture is that greenhouse is real and must be addressed. Wind energy is a form of clean and efficient renewable energy unequivocally supported through all aspects of government policy. The benefits of wind energy are a given before this Panel.

8.3.2 PANEL RESPONSE

The Panel commences by making clear that all planning decision making in Victoria should be soundly based on logical and rational considerations. Major development approvals processes must be subject to critical analysis. It is not sufficient merely to state that an end will be so. It is necessary to examine the causes of ends, to base proposals on sound analysis as opposed to mere assertion. The emergence of 'religions', in the sense of received bodies of wisdom about the need for and effects of particular types of use or development

should always be capable of challenge. It is that capacity for challenge that the EES and Panel processes are in part there to provide within the Victorian decision making process.

However, without substantial supporting material and weight in argument, the Panel is unwilling to allow submissions such as those advanced by Mr Foster to displace the more broadly held understandings of the effects of carbon emissions emerging from the IPCC process. This Panel considers that the approach taken to this question by the Portland Wind Energy Project Panel is still appropriate.

The Panel notes that the IPCC TAR⁹ is generally considered to be the best information available on the likely climate effects of the enhanced greenhouse effect. It is used as such by national governments, including the Australian government. In that there is scientific dissent from the position expressed in the IPCC TAR, the Panel notes that this is minority dissent, largely based on the work of individual scientists or research teams. The IPCC process is a collaborative process of peer review and conclusions based on the consideration of global scientific opinion. It provides mechanisms whereby substantial dissent about its findings on scientific grounds would have to be considered and recorded and would in turn translate into its findings.

...

Fundamentally, the Panel takes the view that, in the absence of clear policy direction from the Victorian Government to the contrary, IPCC findings provide the single best source of scientific opinion on global warming and its likely impacts. It considers that where these are raised in issues before a Panel or other planning decision maker, IPCC findings should normally be adopted in preference to contradictory scientific opinions.¹⁰

It flows from this analysis that, in the Panel's understanding, whilst by no means a 'religion', infallible or irrefutable, it appears that analysis emerging from the IPCC process is still the best available at present. Dissent from it does exist, but the Panel still understands this to be the product of researchers working as individuals or in small teams, in ways that are not necessarily exposed to the global peer review and adoption processes to which IPCC work is subject.

Preparatory work for IPCC AR4¹¹ is now well underway, with submissions invited from participating experts and governments. This appears to the Panel to provide the best and clearest process through which concerns that have been expressed about outputs from the IPCC TAR should be resolved. Certainly it will be a far better, more comprehensive and integrated process than any one nation or State and certainly any one Planning Panel could ever provide.

Further to these comments, the Panel notes that since the Portland report, the Victorian government has clarified its policy position by including in the SPPF policy in support (inter alia) of:

⁹ Intergovernmental Panel on Climate Change, Third Assessment Report

¹⁰ PWEF Panel Report, Volume 4 at pg 48.

¹¹ Intergovernmental Panel on Climate Change, Fourth Assessment Report.

contributing to national and international efforts to reduce greenhouse gas emissions by reducing the long term dependency on energy from fossil fuels.¹²

This is a clear policy indication from Government that Victoria accepts the basic validity of the need to control carbon emissions as a strategy to limit and reverse an anthropogenic greenhouse effect. In such circumstances, the Panel, consistent with its indication of its general approach to policy in the opening remarks to this section, considers that the policy is entitled to be implemented, unless weighty material is brought to bear to demonstrate that it ought not to be implemented for sound reason. In such cases, the evidential burden is principally upon those disputing the validity of the greenhouse effect as a consideration to make out their claim.

Mr Foster and others have provided little material of weight in this regard. By weighty material, the Panel fundamentally means material received as evidence: delivered to it by a witness who is ready to stand accountable to the Panel through questioning and to the public through cross examination for the statements that they have made. These processes test the conclusions of a witness. They can be tested to destruction, in that Panel questions or cross examination expose flaws that the witness is unable to adequately explain. However, where this does not take place and evidence passes through these processes but retains its logic and integrity, then it is entitled to be substantially weighted.

In these terms, no 'evidence' countering IPCC based views on greenhouse issues was brought before the Panel. The material that was brought before the Panel was a secondary reportage of the concerns of others, incapable of effective testing.

In these circumstances, the Panel does not propose to weight submissions that the greenhouse effect does not exist, or is not caused by carbon emissions, or would be less serious than suggested by the range of scenarios in the IPCC TAR, or is not relevant in the matter before it. Nor does it propose to seriously entertain submissions that relevant government and policy responses to the greenhouse effect should not be considered or indeed highly weighted. On this front, the PPG - WEF is clear when at page 23, after a recitation of the relevance of greenhouse to the achievement of government policy objectives, it states:

Considerable weight should be given to the contribution to Government policy objectives in relation to the development of renewable energy.

It is in this context that the Panel has distilled the sustainable development objective outlined above, and it is on this basis that the Panel proposes to evaluate the project before it.

In conclusion therefore, the Panel finds that the greenhouse effect does exist, and should be considered relevant, significant and weighty. It does not accept submissions that the greenhouse effect is driven by mechanisms other than anthropogenic carbon emissions or is significantly smaller in effect than assumed for the purposes of global analysis in IPCC documentation.

¹² SPPF Clause 15.14 and PPG - WEF at pg 16.

8.3.3 CARBON DISPLACEMENT

Several submissions, but most notably those of Mr Ian Tuck and Mr Tim Le Roy expressed concern that wind farms in general (and by extension the particular proposal before the Panel) would not displace carbon emissions at the rate suggested by the proponent or as calculated to support the government's policy position by the Sustainable Energy Authority of Victoria.

The concern was that wind energy facilities are in essence an intermittent source of energy supply, producing output when the wind is blowing between cut in and cut out speeds. In such circumstances, submissions argued that it would not be possible for wind generated electricity to be fully accounted within the system as base load electricity. Nor would each unit of wind generated electricity fully displace a unit of carbon based electricity. This was argued to be because coal fired power stations cannot be readily 'switched off', they take considerable periods to cycle down and then cycle up to full production again. Immediate fluctuations in coal fired generator output are obtained by manipulating the steam turbine system as opposed to controlling the rate of fuel input. This in turn was argued to mean that some coal generation (and hence carbon emissions) would remain on stream to account for the intermittency of wind generation, and would count against the carbon free emissions of a wind energy facility in full production.

Mr Ian Tuck provided the clearest and most fully stated submission on this issue. The Panel devotes some time to its analysis, as it also covered issues raised by others, most particularly by Mr Tim Le Roy. Mr Tuck's basic position was that wind should not be considered as a base load power provider, on the basis of its limited and contingent availability, when compared with conventional means of power generation. From this position, he then moved to set out his view that wind farms could not possibly offset 1.3 tonnes CO₂ /MWh, as to meet this figure assumes that wind generated electricity is available to displace carbon generated electricity with what must amount to nearly 100% efficiency.

Mr Tuck drew attention to two documents.

- The 'South Australian Wind Study' prepared by that State's Electricity Supply Industry Planning Council (ESIPC) in March 2003, and
- 'The Costs of Generating Electricity', prepared by the UK Royal Academy of Engineering (UK-RAE) in March 2004.

The ESIPC study examined a range of scenarios for wind energy development in South Australia, ranging from 150MW to 1000MW of additional generation. It concluded that whilst wind energy would reduce CO₂ emissions, an estimate of national reduction would be between 0.52 and 0.49 tonnes CO₂ /MWh, a significantly lower reduction than that embodied in the PPG – WEF and submitted by the proponent and by the Sustainable Energy Authority of Victoria (SEA Vic) as forming the basis for their respective calculations. The basis for this conclusion was that a relatively small proportion of wind energy plant could be considered as firm capacity (in practical terms between 6 and 13%), due to the intermittency of wind as an energy source.

The UK-RAE study sought to draw out units costs of electricity generation by fuel type across a range of current generation technologies, to quantify as far as possible the degree to which wind capacity should be regarded as firm in the UK market and to examine the contribution of firmness and reserve issues to the costs of wind energy. It estimated a higher firm capacity

figure than ESPIC, of between 20 and 25%, although then used a third party figure of 35%¹³ for modelling purposes. It then estimates that in the UK market, approximately one third of wind generated electricity costs were accounted for by the costs of standby generation. In terms of what that standby generation might be, the study noted that cost could best be minimised by using existing thermal and hydro plants with sunk costs for standby generation, although the study then went on to evaluate costs with reference to standby generation being provided as new open cycle gas turbine plant. This study did not go on to refer to a particular carbon emission value as being due to the running of standby generation. It nevertheless implied that if a standby generation cost is attributable to wind energy generation and some of that standby capacity is carbon emitting, an offset of carbon ablation from a wind farm against standby carbon emissions necessitated by the wind farm must take place.

Mr Tuck augmented his discussion of these documents with the view that recent public comment from AusWEA was to the extent that a displacement rate of approximately 0.55 tonnes CO₂/MWh was now accepted by the industry body as reasonable¹⁴.

It followed in Mr Tuck's submission that there would be a considerable difference between the greenhouse benefits likely to be derived using the proponents, PPG-WEF and or SEA Vic methodology and the more realistic figures or descriptions emerging from other countries and States, or even AusWEA. In his view, the following followed:

The stated key objective of wind energy is greenhouse gas abatement. Mr White's projection that the Bald Hills Power Station would, if installed, reduce greenhouse gas emissions by 435,000 [tonnes]/year. [...] Australian evidence which I've cited suggests that the emissions reduction from the Bald Hills Power Station would (at a displacement rate of 0.55[tonnes]/MWh be around 180,000 [tonnes]/year, or 255,000 [tonnes]/year less than projected – at [sic] level of abatement at which the Power Station should not proceed.

One issue emerging from much of the material on this issue placed before the Panel by opponents of the project was that it was either unattributable, or from secondary sources, largely media analysis. Tellingly, Mr Tuck said,

[d]uring my research, I found that the many people I contacted in the industry and in government agencies were, with few notable exceptions, helpful and cooperative. However, many who cooperated did so on the basis that they weren't cited as the source of information. This was particularly the case in the Victorian and Federal agencies, as well as in the broader power industry.

On a related issue of concern over greenhouse abatement, a number of submitters, although not directly allying themselves with Mr Bob Foster's views on greenhouse issues (summarised above), did submit to the Panel that representatives of the proponent had, during earlier consultation stages of the project's development, suggested that:

you could build a line of turbines from here to Perth and it won't make any difference to greenhouse gas emissions.¹⁵

¹³ David Milborrow "Renewables, are the Fears Overegged?", Power UK, 2002.

¹⁴ The source cited for this reference was Dr Karl Mallon of AusWEA in a Radio National Broadcast: "Whipping Up the Wind", Earthbeat, 6 December 2003. The ABC transcript quotes Dr Mallon as stating, '[t]here's some work just been finished by the AGO, and that is indicating that a typical wind farm of about 50 MW is displacing about 85,000 tonnes of CO₂'. Reduced to tonnage/MWh, this appears to refer to 0.55 tonnes CO₂/MWh.

¹⁵ As quoted in the submission of Mr Ian Tuck, document 138S.

The proponent's response to these issues was twofold. It stated that:

- a) *the Panel is bound by the Scheme and the Guidelines as to the way it must calculate greenhouse gas reductions per megawatt; and*
- b) *Mr Tuck's "information" has not been subjected to proper scrutiny and the Panel cannot give it weight, especially the "information" that is not yet published and was given to him over the phone.*

In turn, it stated that it relied on the evidence of its own engineering consultant, Mr White of Garrad Hassan.

On the other hand, Mr White's evidence is in accordance with the Scheme and international practice, and he is a person of considerable experience in the field. His evidence, [...] is, inter alia:

- a) *The SEA Vic methodology used to calculate the CO₂ abatement that will occur for the Bald Hills wind farm predicted energy production is from the International Panel on Climate Change and is used for the electricity energy sector in calculating the Greenhouse Gas Inventory for the Australian Greenhouse Office.*
- b) *The value published by the SEA Vic (1.3t/MWh) takes into account the mix of fuels (including natural gas and hydro) in Victoria, but is different to the value that would be appropriate for South Australia.*
- c) *The value published by the SEA Vic (1.3t/MWh) actually underestimates the greenhouse gas emissions from coal fired plants by not including the emissions from mining.*
- d) *There is no additional 'standby' generation needed for the Bald Hills WEF.*
- e) *A recent study by the AGO concludes that the issues raised by the NEMCO paper regarding the introduction of wind farms can be managed by technical and location and predictive solutions.*

The proponent was clear that in its view the Panel should rely on an emissions abatement of 1.3 tonnes CO₂/MWh, which in turn would mean a greenhouse pollution abatement of 450,000 tonnes CO₂/annum, a substantial benefit by any measure.

In terms of independent analysis from SEA Vic, that body's submission broadly concurred with the analysis provided by the proponent.

- The project would amount to over 10% of the government's wind energy installed capacity target.
- It would generate 320 GWh/annum, or enough electricity for 60,000 homes.
- It would deliver a greenhouse pollution abatement of 440,000 tonnes CO₂/annum.

However, it should be noted that the SEA Vic submission also referred to the current Victorian pool coefficient as being 1.39 tonnes of CO₂ for every MWh of electricity consumed in Victoria.

8.3.4 PANEL RESPONSE

The Panel response to this issue is that neither the submissions of the proponent, nor those of opponents to the project are fully made out. However, on balance, the Panel does accept that the project will directly generate emission free electricity and will indirectly contribute towards a State power system in which emissions are materially offset. This in turn is beneficial in policy terms and to the environment, economy and society as a whole, by offsetting some of the requirement for the generation of significant volumes of electricity by means that directly cause carbon emissions. Quite what that benefit will amount to must remain unproven within the confines of this process, but the Panel considers that clearly substantial benefits will flow.

Turning first to the submission of the proponent the Panel is “bound by the Scheme and the Guidelines as to the way it must calculate greenhouse gas reductions per megawatt”, this is not the case. As stated in the opening remarks to this section, policy is not the writ of law. It should not be slavishly adhered to if there was clear proof that fundamental assumptions inherent within it have changed. Further, in interpreting the role of particular components of policy, regard must be had to its drafting and to its plain English meaning.

The greenhouse benefit calculations used for this project are set out at page 29 of PPG - WEF which expresses them as “a guide to calculating greenhouse benefits of wind energy facility proposals”. In turn, the key bases of the calculations are recorded as “assumptions”, and relevant assumptions such as capacity factors, displacement volumes and household consumption are liberally qualified. The term “approximately” is widely used.

In short, no reasonable reader of PPG - WEF should conclude that it expresses a binding statement of the means and methods whereby greenhouse displacement must be calculated in Victoria. It merely provides guidance, and the applicability of this guidance is subject to an obvious proviso, that its key assumptions (identified as such) have not been overtaken by more up-to-date research and analysis.

The Panel would also observe that it does not see the method set out in the policy as being the sole or definitive means whereby a proponent should calculate greenhouse benefit for the purposes of development assessment – indeed the policy states:

Computer modelling is generally used to predict the actual output of the wind energy facility. Where available, this figure should be used by developers when determining greenhouse benefits. Where this information is not available, an estimated capacity factor can be used.¹⁶

The proponent is free and indeed expected where possible to use independent means to calculate and verify the greenhouse benefit to be offered by a project. It follows that the key question in the Panel’s mind is not one of law, but one of evidence.

However, the policy in force does identify a generic CO₂ displacement volume by Victorian wind energy facilities of approximately 1.3 tonnes/MWh and the proponent has claimed the benefit of this figure in its evidence. In the Panel’s view, the evidential burden is principally upon those disputing the validity of this figure to make out their claim that it is flawed, or that there is a better alternative figure. This view is again consistent with the Panel’s initial

¹⁶ PPG – WEF, Appendix 1, at pg 29.

statement of principle about the role of policy, namely that a policy in force is entitled to be implemented, unless the clear weight of evidence is against it.

Having reached this position, the Panel must consider what is before it in the way of material that it may weight as evidence to counter the approach to calculating carbon displacement in the policy in force. The answer is that in terms of the discussion of the greenhouse effect set out above, again relatively little well supported and weighty material was placed before the Panel.

When the Panel turns to what has been provided before it, it has only one witness in the formal sense: Mr Graham White of Garrad Hassan, appearing for the proponent. Mr White underwent questioning and cross-examination and the Panel is entitled to place weight on his conclusions to the extent that his material is his own.

The Panel has had a submission from SEA Vic. Whilst containing a wealth of information, this was again a submission. It was not cross examined and cannot enjoy the weight of 'evidence'.

Mr Tuck and others also provided a wealth of material within the body of their submissions, but called no witnesses. Some of this material provided in submissions cannot be weighted in any sense because it is secondary, untested and untestable. Examples of such material are unattributed industry comments and secondary analysis including media coverage of all sorts.

The Panel does consider the ESIPC and UK-RAE reports to be of themselves substantial and relevant documents. They appear to be the products of expert inquiries in their respective jurisdictions. However, they have their limitations, principally in that both studies made a range of assumptions that may limit their applicability to the Victorian context, and the Panel did not have access to their authors to subject them to test. It is therefore unable to place substantial amounts of weight on these documents. However, that being said, it is also unable to entirely support the proponent's characterisation of them.

The proponent submitted that the SEA Vic methodology used to calculate the CO₂ abatement that will occur for the Bald Hills wind farm predicted energy production is from the IPCC and is used Australian Greenhouse Office (AGO) in calculating the Greenhouse Gas Inventory for the electricity energy sector. It was suggested that the application of IPCC/AGO accounting methodology to the circumstances of the Victorian electricity generation sector accounts for the figure of 1.3 tonnes CO₂/MWh displacement, although the mechanism of that linkage was not made out. In considering that very question for the purposes of closing, Mr White for the proponent states that:

The values used to calculate CO₂ abatement that will occur for the Bald Hills wind farm predicted energy production are from the Sustainable Energy Authority Victoria.¹⁷

This reference is then footnoted, with the footnote making clear that the source is PPG – WEF. In short, it appears to the Panel that Mr White has not brought his own calculations to the table, which happen to concur with those of the SEA Vic. He appears to have applied the generic SEA Vic methodology to his client's proposal. Considerable weight and reliance is therefore placed by the proponent on the SEA Vic method for calculating CO₂ displacement. This in turn is material that has not been provided in evidence and has not been tested.

¹⁷ Appendix 3 to Document 149 S.

Turning to the SEA Vic submission, the Panel is clear that if its reporting of the Victorian pool coefficient as 1.39 tonnes of CO₂ /MWh is correct, then for a wind farm to achieve a carbon displacement of 1.3 tonnes of CO₂ /MWh suggests that the Victorian transmission and distribution system is strikingly efficient, able to react almost instantly to the bringing on-stream of intermittent generation. This figure suggests that each MWh of wind energy immediately offsets almost 100% of the volume of emissions due to power generated by the conventional Victorian mix of means.

In the SEA Vic's submission this view is, or at least can be, correct. SEA Vic's basis for this view is that wind energy is unscheduled and hence electricity from a wind farm enters the market whenever it is generated, effectively displacing the marginal generator at the time it is brought to the market. This in turn flows through and reduces the requirement for energy generated using conventional means, assuming the marginal generator to be a carbon emitter at or around the rate expressed in the pool coefficient. That being said, SEA Vic were also of the view that this position is somewhat theoretical at this stage. If wind generation capacity were to grow, a greater ability to respond to market source fluctuation would be required. In such circumstances, some standby coal generation may clearly be required. Arguably however, once significant and widely geographically dispersed wind capacity is available across many NEM regions, there should be a relatively constant input of wind to the NEM. In these circumstances, wind would amount to an equivalent of base load and the reliance on standby generation could be reduced.

However, the Panel retains the concern that, in the light of the relationship between the claimed carbon displacement and the pool coefficient, for this view to be correct, the electricity supply system would have to have a capacity to respond immediately to the bringing on stream of wind energy. This is difficult to accept for the medium to long term in a State where, using SEA Vic figures, over 90% of electricity generation is from a small number of brown coal generators¹⁸. Coal fired generating plant cannot be "switched" on or off with immediate or even short term effect. Power generation and output can be controlled minutely, but coal burning itself (which remains the source of CO₂ emissions) typically continues round the clock (and indeed for very long continuous periods) in all plant that is not out of service. The reason for this is that the relatively long periods of time necessary to bring a furnace and boiler to optimum efficiency preclude short term shut downs and re-starts. In summary, to retain the ability to respond to significant intermittency in a system, or a lack of system certainty in the short to medium term, some coal fired plant has to be operational, but not providing power to the grid - spinning reserve. In such operation, coal plant clearly makes CO₂ emissions. These in turn suggest that a verging on 100% displacement attributable to wind is very unlikely.

In this regard, the responses to questions of clarification by SEA Vic are illuminating. In responding to questions, Mr David Young for the authority acknowledged that the precise carbon displacement effect of wind was not fully knowable until significant wind capacity was present in the NEM. For example, the presence of widely geographically distributed wind generation assets, generating at different times because of different wind conditions in their catchments, but all connected to the same grid, may reduce the intermittency effects of wind generation. This in turn may reduce the amount of standby generation needed to respond to the same amount of wind capacity, than if this capacity was concentrated in a single catchment and subject to similar generation patterns. Further, as more effective meteorological forecasting becomes available, the NEM can take much more effective and

¹⁸ See Document SEA Vic 58 S, page 6.

efficient steps to respond to likely availabilities of the wind resource overall. Assuming that these conditions fully eventuate, then it will become increasingly possible to substitute wind generated power for carbon generated power, with reasonable efficiency and limited standby requirements. This in turn will control the carbon emissions that may otherwise be necessitated by standby generation and increase the carbon efficiency of wind generation.

The proponent referred the Panel to the Australian Greenhouse Office National Wind Power Study, November 2003¹⁹ as standing for the proposition that such issues can be managed by technical, locational and predictive solutions. However, perusing that paper, the Panel understands that its author retains significant concerns about the potentially insufficiently geographically dispersed nature of current wind energy development and the degree to which accurate forecasting was being developed to best utilise wind output in the NEM.

In relation the ESIPC study, the proponent stated that the value published by the SEA Vic (1.3 tonnes CO₂/MWh) takes into account the mix of fuels in Victoria, but is different to the value that would be appropriate for South Australia. The Panel is quite prepared to accept that the carbon displacement figure for Victoria could be different to that of South Australia. This could be for reasons relating to the different carbon emissions characteristics of existing generation plant in the two states and the different ability of this plant to have its output quickly substituted by wind output. However, the proponent's submission does not respond to the face of the ESIPC document, which claims its emissions reduction analysis to have a national basis²⁰. If South Australia or Victoria were to calculate their own figures, they might very well differ from an eastern Australian/NEM figure, but the Panel finds it difficult to accept Mr White's suggestion that the reason for the difference between the ESIPC and SEA Vic figures relates to the specific generation mix in South Australia. Mr White's view appears to be based on the mistaken belief that the ESIPC figure is a South Australian figure. The Panel concludes that it is but one of the many figures that can be arrive at in this task of assessing benefit, with all figures being dependent on substantial (and varying) assumptions about the make-up and change over time of the remainder of the generation mix.

Turning to the UK-RAE study, the Panel does not accept this as providing a particular (in this case cost) figure for standby generation that can be applied to Victoria. Again, standby costs to support wind energy could differ from place to place, based on the operating costs and capacities of existing generators in the market and the yield pattern of the local wind resource, making it unsound in principle to generalise a UK figure to Victoria. However, there does appear to be a basically sound principle here, namely that wind energy capacity in general will require the existence and operability of some 'standby' generation to maintain the certainty of system operation and output, once it exceeds a minor contribution to Victorian demand and in circumstances where large percentages of Victorian power are still generated by brown coal.

The proponent has submitted that "[t]here is no additional 'standby' generation needed for the Bald Hills WEF." In the strict sense it appears to the Panel that this assertion is correct. Just because an individual wind farm becomes operational, there is not as a logical consequence and immediate need to produce additional 'standby' generation that was not previously present in the system. It stands to reason that, at a phase in the development of wind energy generation where wind still supplies a very small proportion of Victorian demand, that the reserve necessary to take best advantage of the output of an individual wind farm is simply that reserve that is already present in the system. This is a 'first in – best dressed' argument, but one that will not necessarily hold good in future years.

¹⁹ National Wind Power Study, Ass Prof Hugh Outhred for AGO, November 2003.

²⁰ See Document Tuck 140B page 5 paragraph 4

However, that is not the issue raised by Mr Tuck. The issue is what reasonable claim for net carbon displacement may be made for this wind farm, making allowance for the fact that wind energy is unlikely to deliver an ongoing verging on 100% displacement of carbon based generation?

On this point, the Panel must observe that the material brought before it is inconclusive. The documents brought by Mr Tuck and Mr Le Roy are not evidence. The Panel cannot adopt Mr Tuck's figure of 0.55 tonnes CO₂/MWh as a hard figure: it would be improper to do so as it proceeds from AusWEA radio reportage and relies on calculations that cannot be referred back to an author for testing.

However, there would appear some basis for concern about whether the SEA Vic sourced 1.3 tonnes CO₂/MWh displacement figure is accurate as a 'blanket' or unqualified figure, having regard to Victoria's pool coefficient of 1.39 tonnes CO₂/MWh in a system in which much of the generating capacity is coal fired and not being clear as to the generation mix change scenarios that might be embedded in the SEA Vic figure.

So, where does this lead? Mr Tuck and Mr LeRoy have not in the Panel's view demonstrated conclusively that the project's greenhouse benefit is significantly less than that claimed by the proponent or supported in policy. They have however demonstrated at least a need for SEA Vic to consider more closely whether the basis of calculation set out in Appendix 1 of PPG – WEF can be fully justified and to explain more fully and transparently the assumptions on which it is based.

The Panel accepts the premise of the proponent's submission that the SEA Vic carbon displacement figure underestimates the greenhouse gas emissions from coal fired plants by not including methane emissions from mining. Nor indeed are emissions due to coal haulage and processing apparently accounted for. It is clear that the greenhouse record of coal plant will be larger than is stated by an account for the CO₂ emissions due to coal combustion. However, this of itself does not address the core of Mr Tuck's concern. Nor does it directly address the task in hand, which is to attempt to make a robust and transparent assessment of the project's likely greenhouse benefits.

In this regard, the Panel has also referred for some illumination to the detailed assessment of greenhouse benefits prepared for the Portland Wind Energy Project by Sinclair Knight Merz²¹. The Panel considers that it is appropriate to refer to that report, as it was written in relation to the assessment of greenhouse benefit for a Victorian wind energy project, considering the balance of performance of the Victorian component of the NEM and the role of wind within this. It was not the subject of significant qualifying findings in the PWEP EES process. It was a significantly more sophisticated piece of analysis than any provided in this EES or SEES process. It also demonstrates the degree to which assumptions about the generation mix are critical to the calculation of emissions benefits.

That report makes clear that the precise greenhouse benefits of wind generator will depend on the type, operation and despatch order of generation plant currently and foreseeably serving the Victorian market. That report also suggests that wind generation as an unscheduled generator will have its output accepted into the NEM at the time of production. This will displace the equivalent output from the marginal generator at that time. It will not displace run of river hydro, as that too is unscheduled and runs on the same market terms as wind. It may displace storage based hydro, but this would only be a temporal, not a permanent

²¹ Portland Wind Energy Project EES Greenhouse Gas Abatement Analysis, Sinclair Knight Merz, October 2001 (PWEP EES Supplemental Volume A, Report 1)

displacement, as the non-discharge of water at one period reserves the potential output capacity of that plant for another period, when either wind is not present to the same degree, or to provide a larger contribution (and a carbon emissions reduction) to peak load.

That report concluded for the period 2001 to 2010 that the marginal or displaced generator was likely to be gas plant, where relatively rapid reactions to market conditions and hence the most efficient control of greenhouse emissions are available. In the longer term, the report suggested that wind (within a more diversified and efficient generation sector) might be able to reduce the need for new base load coal plant.

That paper concluded that, using two different methods, and assuming steady growth of gas capacity and reduction in brown coal capacity, that a 10 year average emissions reduction could range from 1.38 to 0.88 tonnes/ CO₂/MWh. This was based on a view that wind capacity and gas capacity would grow in tandem, such that there would always be a responsive ability to halt the marginal carbon emitting generator in response to wind power coming on stream. For example, the authors had assumed that in 2010, brown coal would supply only 50% of Victorian non-renewable demand. Black coal was assumed to supply 40% and gas 10%.

If such a scenario eventuates, then clearly wind plant is likely to continue to offset carbon emissions at approaching 100% efficiency, unless and until wind itself grows to be a much more substantial component of the generation portfolio than even the predicted 10% gas sector. However, if this scenario does not eventuate, and traditional brown coal plant remains a very substantial contributor to Victorian electricity demand, it is likely that growth in wind power capacity would reach a point at which the marginal gas generating capacity is fully displaced when wind is available, but some coal burning continues apace, even though there is no demand for power produced thereby.

These are our choices as a society. If wind energy is to make a substantial and ongoing contribution to Victorian greenhouse emissions, we cannot just 'build wind'. We must turn our minds to the entire structure, mix and operation of our generating sector. This is a major and strategic undertaking that this EES and SEES process cannot ever begin to resolve. Resolution will take many years, if not decades of public impetus, political will and technical ingenuity. Depending on a wide range of decisions, we may optimise or sub-optimize the greenhouse benefits to be obtained from a range of current and rising technologies. However, the most clear and obvious foundation in all of this is that if there is not some embracing of change, and of wind energy as a component of change, greenhouse 'business as usual' will continue to eventuate.

This is as much a marketing, opinion forming and political issue as it is a technical one. One sure means of ensuring that renewable energy development does not fall at an early hurdle is to ensure that calculations and assumptions used to assist in determining likely greenhouse benefits are explained in a way that is widely accessible, with appropriate qualifications being made clear. Such figures are not absolutes, and their use as absolutes will only serve to bring them into unwarranted doubt, turning the minds of our society away from the seriousness of the task at hand.

Turning to the more minor matter of the apparent statement of the proponent's representatives at earlier stages of the project's development to the apparent extent that wind energy development might not affect greenhouse gas emissions, the Panel notes firstly that that is not the formal position sought to be advanced before it in the EES, SEES and the proponent's submissions. These documents are quite clear in their claim of a greenhouse benefit for wind

energy development, and the quantum of this claim and the relationship between it and government policy has been discussed above.

However, the Panel also notes that the remark quoted above came from a number of sources. Nor was it sought to be rebutted or denied in submissions for the proponent. It therefore appears at least likely that remarks of this nature formed part of the information provided to the public at some stage in project development.

The Panel considers that remarks of this nature, if made, were unfortunate. Firstly, they are in the Panel's view, wrong on their facts. In short, significant volumes of wind energy development will make a material difference to the greenhouse intensity of our electricity supply. Wind energy is not a magic bullet. It alone is not going to cure our society's unsustainable dependence on carbon emitting energy sources. However, it does provide directly emission free power and it does have role to play in a diversified and more sustainable future energy sector, which overall should (if current policy objectives are implemented) lead first to a stabilisation of growth, then to control and finally to reduction of greenhouse emissions. This is the prime policy justification for government policies and market instruments that seek to develop renewable energy generation. Without such a justification, renewables are just another energy source and deserve no particular policy preference.

Such remarks, if made, therefore only serve to cloud the issues before the public. In circumstances where a community is being requested to surrender aspects of its interest in the current values of its local landscape and environment 'for the greater good', the suggestion emerges from proponent sources that there may be no greater good. On this basis, can there be any wonder that many third parties then move towards active opposition to the project?

The Panel is persuaded that significant greenhouse benefits that will flow from the project before it. These accord with government policy and are a persuasive and weighty consideration in support of the project.

The precise quantum of these benefits is not made out in this case. However, greenhouse information in policy and assessment processes should be presented in a way that does not simply state benefits as an 'absolute', but also draws public attention to the need for action in terms of diversifying the energy generation portfolio and the long term maximisation of emissions reduction benefits.

It flows from this finding that the Panel considers that SEA Vic should undertake a re-evaluation of Appendix 1 to PPG – WEF, with a view to ensuring that it contains or that readers can be referred to robust carbon emissions offset figures, taking account of scenarios for the potential role of wind in a rapidly changing energy market mix.

Further the Panel observes that it should not be seen as acceptable practice for proponents simply to base their calculations on PPG – WEF as a 'gold standard', without making reasonable independent enquiries and demonstrating the results of these, in the context of explicit scenarios about broader energy sector development.

8.3.5 ECONOMICS AND SUBSIDIES

A number of submissions, again most clearly represented by Mr Le Roy and Mr Tuck, raised concerns that wind energy development was a creature of a distorted market and a product of subsidy. The Commonwealth MRET²² requirement under the Renewable Energy (Electricity) Act (2000) was described as amounting to a subsidy regime. It flowed that wind energy was either not an economically viable source of energy in level playing field terms, or that its development would unduly add to the costs paid by Australian energy consumers. It was further suggested that wind energy facilities and operators would be hostages to the fortunes of the skewed market conditions and subsidy regime that gave birth to them. If the MRET were to change in a manner adverse to the profitability of the industry, this in turn was argued as likely to leave the countryside littered with graveyards of wind energy ambition.

Mr Tuck again referred to the UK-RAE paper as suggesting that the full costs of the wind sector were not properly evaluated, drawing attention to the additional cost per MWh applied to wind facilities in that study to account for the cost of standby generation.

The proponent was happy to rest within the frame of SEA Vic analysis of wind energy costs, which suggest that at present they are within the region of \$45/MWh. This in turn suggests that wind is within a group of renewable technologies, including landfill gas, wastewater, bagasse and small hydro that all potentially offer energy to the market at a feasible price. This group of technologies can be contrasted with others ranging from energy crops to solar photovoltaic which have costs ranging from approximately \$90 to \$260/MWh and are less 'market ready' as a result.

The proponent also rested within the strategic support for wind energy provided by the SPPF and PPG – WEF. At the level of a planning decision, it was not for a Panel to make detailed inquiries into the comparative economics of wind as against other sectors of the energy industry.

Ms Jackson, planning witness for the proponent, did not expressly factor electricity costs into her analysis of net community benefit. This was because she had reviewed the evidence of Mr White in relation to the MRET review process. From this review she had concluded that environmental considerations led to a substantial benefit that were considerably more material to a planning outcome in terms of current government policy than concerns about the price of the electricity generated by wind farms.

8.3.6 PANEL RESPONSE

The Panel's primary response to this as an issue is to question the very existence of an energy market that is free of some level of subsidy, intervention or regulatory market effect. The winning and conversion of energy is a major strategic concern for all human societies. It is one in which governments engage in many levels and for many reasons. Historic policy endeavours to develop 'domestic' energy industries for both economic and military benefit have been matched by endeavours to secure supply, to develop safe working practices and employment, to control consumer costs and, more latterly, to control the environmental externalities of these industries.

²² Mandatory renewable energy target.

As was made clear in evidence from Mr White for the proponent, such interventions exist in the oil, coal, hydro and nuclear energy sectors in many countries of the world, including Australia. In contemporary terms, the coal and oil industries that fuel our power stations and cars are directly 'subsidised' to a substantial extent. In terms of existing accounting practices, a wide range of energy generation is subject to insufficiently quantified and largely environmental costs, which can be argued to amount in some instances to indirect subsidies.

For example, many forms of conventional generation do not perform well in terms of embodied energy accounting (a measure of plant efficiency and environmental impact, in summary terms the period over which an item of plant returns the energy invested in its construction). However, there is no formal requirement that all generators disclose their return on embodied energy as a measure of the environmental impact and efficiency of their plant, let alone perform to a standard benchmark. All carbon based generation is indirectly subsidised in that it is not required to pay a charge that amounts to the full environmental cost of unsustainable levels of carbon emissions (other than to a limited extent through MRET with a requirement for the acquisition and redemption of Renewable Energy Certificates). Nuclear plant has not been charged with the full cost of its waste stream (a practice which is perpetuated in the analysis of nuclear fission costs in the UK-RAE report).

It follows that simple suggestions of that a 'subsidy' is paid for wind energy, without which it would not be 'economic' do not bear a great deal of scrutiny. Equivalently, the concept that the wind sector is not the only part of the energy industry in which some cost components remain to be identified and quantified does not withstand examination. This position emerges with some clarity from Mr Tuck's own papers.

There is still some distance to travel before effective 'level playing field' analyses of the costs and benefits of various generating systems and their relationship to systems of taxation and government funding at various levels are available. The UK-RAE paper for example, in seeking to establish a 'level playing field' of generation costs across a range of technologies, finds it necessary to measure not only the standby cost of wind energy (the issue that raised Mr Tucks concern), but also the carbon cost of carbon based generation. However, in doing so, it still does not fully account for some potentially accountable values.²³

These submissions do give rise to considerations, but in the Panel's view these are of a relatively remote and macro economic nature and are not specific to the project undergoing assessment. The questions raised are in truth ones about the costs of all wind energy and all renewables, as against all power generation. The judgement to be made is a market and policy judgement. It is about the degree to which Victoria, or Australia prefer and are willing to pay value for a more sustainable portfolio of energy sources, or alternatively considers that they should not do so.

The Panel has considered the degree to which these considerations can and should affect an assessment of environmental effects and a planning assessment. Its view is that they are of limited weight, for two reasons.

- Beyond very remote considerations of macro economic performance, it is difficult to demonstrate that questions of subsidy, accounting and power price at the relevant levels will have any tangible effect on the local social, economic or environmental conditions.

²³ For example, in relation to wind energy, whilst accounting for standby generation, the UK-RAE paper does not account for a carbon emissions cost from that generation, where it is carbon based.

They therefore have limited relevance to a project specific assessment of environmental effects or to a planning assessment of that project.

- The remote macro economic considerations raised are in any case issues on which the Government has given very substantial policy direction in the SPPF and PPG – WEF. It is clear that, for the purposes of the decision at hand, the Government strongly weights the achievement of its greenhouse objectives and seeks the achievement of a wind energy output target. Inherent in this weighting and target are understandings of current cost relationships between wind, other renewables and generation generally. In short, the Government has made a judgement that on the balance of social, economic and environmental conditions, it is appropriate to seek wind energy development.

It has not been suggested that the issues raised run to the heart of Government policy set out in the SPPF or PPG - WEF, or that they have in any material way changed the explicit assumptions made in policy or the assessment measures used for policy purposes. It therefore appears on balance that the policy is entitled to be implemented in this regard.

On balance the Panel does not consider that it is necessary to an assessment of environmental effects or to a planning assessment, to understand precisely how and to what extent various of our energy industries enjoy some level of subsidy or the price at which they deliver electricity to the market. The Panel finds accordingly.

8.4 SUMMARY OF FINDINGS

Drawing these issues together and with reference to the criteria set out in this chapter, the Panel considers that the criteria are met.

Anthropogenic global warming is clearly taking place, with social, economic and environmental processes likely to become subject to substantial and disrupting effects. These effects have the potential to devastate entire cultures and ecological systems, both locally and globally. In such circumstances, the Panel observes that the project will generate electricity by a means that will clearly, substantially and materially reduce carbon emissions per unit generated. In these terms, it is clearly 'development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends'. Nor does the proposed development compromise the ability of future generations to meet their own needs. Approval of the project will limit harmful emissions arising from energy production and distribution and promote alternative energy sources.

Precisely what the quantum of these benefits will be is not entirely made out and will depend far more on the decisions of others about the make-up of the Victorian and NEM generation mix as it does on this project. However, on balance, the Panel still considers them to be significant and weighty considerations in favour of the project. It should be observed that often only small portions of 'benefit' will lie in individual projects. In the great movement towards sustainable development and stabilisation of greenhouse emissions, many changes to social and economic arrangements will be required. Many technologies will be deployed. This wind farm on this site is but a very small step, but a step that is still in a positive direction and one that is strongly endorsed by policy.

9. LANDSCAPE

Before embarking on an analysis of landscape issues raised in submissions, it is necessary in the Panel's mind to state what is within the scope of this chapter of the report. In addressing 'landscape', it is the Panel's intention here to address a strategic concept: the idea of landscape quality as a local, coastal, regional, state or national resource, enjoyed by the public as a whole. In such a concept, landscape is both an environmental value and a public good. Furthermore, public, mass or professional concepts of landscape quality and character inform the way in which we enjoy landscape as a society. They lie at the foundations of myriad individual decisions, for example about where to live, travel, tourism and recreation. By doing so, they become 'social facts' and generate economic and environmental consequences.

In the Panel's mind, this strategic concept of landscape is distinct from more individualised concepts of landscape as being the outlook enjoyed by individuals, which it deals with further under the heading of visual amenity below. All places offer some level of personal visual amenity to those who happen to live or work locally, whether they are located in a wilderness, in the heart of a great city, or somewhere between these two extremes. There is a public interest in maintaining reasonable standards of personal visual amenity and the planning system undertakes this task. This report addresses it in Chapter 14 of this report below.

The Panel should explain its method. It has reviewed the assessments prepared by Mr John Cleary. Whilst individual issues emerging from submissions are discussed below, the results of the Panels deliberations have been tested within Mr Cleary's evaluation framework and this work has also led the Panel towards its understandings of his method and views on his conclusions. In undertaking this task, the Panel has had regard to methodological concerns about Mr Cleary's work and these are discussed below and in Chapter 17.

The Panel should also make clear its view that there are some landscapes that are so sensitive and have such high significance that in principle there will be a landscape reason for determining that wind turbines should not be constructed. These are landscapes where the best response is avoidance. Guidance on the levels of significance and impact necessary to trigger such a decision is set out in PPG - WEF. It is also proper that such a decision takes place not as an exclusively 'landscape' decision, but in the Panel's overall synthesis and evaluation of its findings below. For moderate order but substantial landscape impacts, the Panel considers that there are design and layout based strategies that can help to reduce these. For local order landscape impacts and most visual impacts, there are mitigating steps that can be taken if necessary.

Following the Portland Panel, this Panel refers to this approach as a hierarchy of mitigation, design and avoidance. Its view is that to test any given design, it needs to determine whether it is acceptable exactly as planned. If not, it should proceed to examine whether localised mitigation will improve it sufficiently to warrant approval and this becomes a matter to be addressed in conditions. If not, it should then examine if macro scale re-design will improve matters. Finally if not, a site, or component of it should be avoided.

The Portland Panel set about its task of evaluation in the following way:

In regard to both landscape and visual impact, the Panel therefore needs to test mitigation and design strategies to respond to the proponents' consultants and the Panel's own findings of high impacts.

This exercise was in effect the 'threshold test': if acceptable mitigation or design strategies emerged from it, the proposal could proceed in landscape terms. However, if they do not, then it, or a component of it, should not proceed.

This Panel has adopted the same approach. It has first examined Mr John Cleary's conclusions to determine whether it differs from them materially. If it differs, it has then turned to the question of what if any mitigation could be carried out. Only if mitigation would appear to be inadequate and significant harm was still eventuating would the Panel then turn to the relocation of turbines or consideration of the possible refusal of the permit.

In relation to the basis for the Panel's conclusions and the conclusions of the expert witnesses before it, it should be remarked that landscape evaluation that is not based on sound social research is inevitably a subjective process. Training, for example as a landscape architect, architect, rural or natural resource planner or as a fine artist, may inform and refine the exercise of such subjective judgments. However, in the absence of reference to wider social values, the opinion of an individual remains just that – an interesting and informative guide, but nothing more.

The Panel notes that all of the landscape evidence provided to it falls into this category of subjective and personal evaluation, albeit informed by professional or practice insight. Mr John Cleary, landscape witness for the proponent was not using the results of social research to define his views of landscape significance. He based these on his opinion, as framed using an assessment method that he had developed. A similar approach, albeit using a different method was taken by Mr Dennis Williamson for Tarwin Valley Coast Guardians. Mr Alan Wyatt as peer reviewer again relied upon his individual professional opinion. Further, as evaluators, the Panel themselves offer no more magic than the opinions of three, who have in their practice in planning, engineering and architecture often been charged with the task of appraising the impact of large infrastructure projects on landscapes.

However, it is clear that in this case there has been no formal social research or community opinion based evaluation of landscape significance undertaken, which could be argued to direct the Panel or decision makers with reference to more objective evaluations. The Panel has separately considered the degree to which there was a necessity for a social research input into the landscape assessment as part of its social impact evaluation in Chapter 17 below.

9.1 ISSUES RAISED

The following issues were raised in submissions:

- There were concerns about the methods adopted by the various expert witnesses to determine landscape value and effect.
- There were calls for a moratorium on wind energy development, or a delay in relation to this individual decision until a clearer strategic framework for coastal wind energy development was in place.
- There were widespread concerns about the effect of wind energy development on landscape and coastal values.
- Relevant values in the region of the project site were argued to be of a significance that indicated against the project – this was a ‘special place’.
- Concerns were raised about cumulative impact and circumstances where the projects stood alongside currently contemplated and/or potential future windfarm development.
- Specific issues were raised about the degree to which the project would adversely impact upon views to and from Wilsons Promontory, the Cape Liptrap Coastal Park, the Inverloch – Cape Paterson Bunurong Coast. Places of more local import were raised, including Rock Hill (or Mount Lavinia), the Prom View lookout, Bald Hills Wetland Reserve and Kings Flat Flora Reserve.
- Submitters were also concerned about the impact of wind turbines on views in general.

In addressing these issues, there was also debate between expert witnesses about appropriate methods for assessing landscape value and impact.

There was also widespread public concern about the degree to which consultation should form part of any assessment of landscape value and impact, although this issue has been addressed further below in Chapter 17.

9.2 CRITERIA TO BE MET

The Panel has adopted the following measures as means by which the performance of the project can be measured, taking into account the requirements of current policy.

To ensure that any proposed development is sensitively sited and designed so as to have minimal impact on the significant landscape values of the coast and surrounding land.

To ensure that areas of natural scenic beauty and importance are conserved and maintained.

In adopting these measures, reference must specifically be made to PPG – WEF, which highlights the subjective nature of landscape value. It also suggests that landscapes considered to be critically significant should be identified through a relevant overlay control in the planning scheme. Further, it emphasises that:

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

However, close attention has also been paid to LPPF, Victorian Coastal Strategy, Coastal Action Plan and Park plans identified in Section 5 above, where these provide landscape direction.

9.3 DISCUSSION

9.3.1 METHODOLOGY

There were strong debates between expert witnesses about appropriate methods to be deployed in assessing landscape impacts. For Tarwin Valley Coast Guardians, the view was presented that Mr John Cleary's method was poor. More specifically Mr Cleary should have adopted or more closely followed the Victorian Visual Management System (VMS) a technique used in forest management and now further developed as a proprietary system by Scenic Spectrums Pty Ltd.

For the proponent, views were expressed that Mr Dennis Williamson's development and recent use of the VMS was over-sensitive, insufficiently adapted to the requirements of wind energy policy, and in this case carried out with insufficient rigour to make concrete recommendations for design change.

There were also concerns raised by submitters that Mr John Cleary for the proponent had not incorporated significant social research into his work. This led to two concerns, firstly that he had a limited capacity to make findings about landscape significance as this was a socially conditioned concept, and therefore could not effectively dispute wider community views that the landscape was significant and would be significantly harmed. Secondly, there were concerns that in that Mr Cleary had undertaken only limited consultation, he could have no practical insight as to what the local community valued as significant landscapes, vistas and views. He was therefore ill placed to advise the Panel as to whether there were any significant impacts on significant landscapes, vistas and views.

9.3.2 PANEL RESPONSE

The Panel does not propose to enter into a detailed methodological breakdown of the techniques utilised by the principal expert landscape witnesses in this case, Mr John Cleary and Mr Dennis Williamson.

Suffice it to draw forward from the preamble to this chapter that neither expert has based their findings on a rigorous social research method. It therefore follows that neither can claim the privilege of any objective or scientific standing for their evaluations. Both operate, as indeed this Panel operates, within what the Portland Panel characterised as a 'traditional' (if somewhat elitist) frame of reference, in which persons with experience of landscape evaluation bring that to bear in the making of evaluations that are based on opinion.

This has been the only approach brought to the Panel table. The Panel does not consider that such an approach is of principle invalid, or insufficient to the purpose of identifying landscape impacts. The Panel does not consider that it has any basis for rejecting the approach out of hand, as it has been and continues to be widely used for the assessment of landscape impacts across a wide range of projects in Victoria and elsewhere.

Turning to a more specific level of analysis, the Panel has some limited issues with some of the conclusions reached by Mr Cleary and these are drawn out below. However, of principle the Panel considers that his frame of reference and study method are reasonable and appropriate to the task at hand. In reaching this conclusion, the Panel has noted that the Wonthaggi Panel reached similar conclusions in relation to Mr Cleary's work for that project.

In contrast, the Panel notes that Mr Williamson's proprietary version of the VMS has yet to be formally deployed in the landscape assessment of a wind farm, although it has been used in analysis undertaken for the presentation of expert evidence in opposition to wind farm development. That being said, the Portland Panel criticised the approach taken by Mr Williamson as inherently conservative, placing too high a weight on considerations that, in relation to wind energy development, did not merit that weight and hence leading to adverse evaluations. This Panel reiterates that finding, noting that application of the VMS as advocated by Mr Williamson in this case would not dispute the basic suitability of the site for a windfarm, but would nevertheless then recommend significant design changes that appear to the Panel not to be warranted.

This analysis is best expressed through working with its practical outcomes and is carried forward to subsequent sections of this chapter.

9.3.3 LANDSCAPE STRATEGY

There were concerns about the strategic context for coastal wind energy site selection, with a view that the current site by site merits appraisal approach to approval did not enable effective decision making about the conservation of coastal landscape values. Individual decision making in the absence of a sound strategic framework potentially represented in the views of some, the death of the coast by a thousand cuts.

Views expressed included that there should be a moratorium on all wind energy development, or a halt to the consideration of coastal sites, or a halt to the consideration of a permit in this case, pending resolution of a clearer strategic analysis of where on the coast might be appropriate locations for wind energy facilities.

Concerns were expressed about the view in PPG – WEF as to the extent of coastal land that was meaningfully safeguarded in land reserved under national parks legislation. Concern was also expressed that this land did not necessarily represent the portions of the coast of highest landscape value, or those that were more accessible to or capable of enjoyment by the most people.

The Gippsland Coastal Board represented the strategic view in their submission. Whilst being clear as to Government policy support for wind energy facilities in general, the Board stated that this approach had to be considered in the context provided by the Victorian Coastal Strategy and the regional coastal action plan Integrated Coastal Planning for Gippsland. Its concluded view was that it was unable to support substantial projects such as the Bald Hills Wind Farm, unless this was in the context of new strategic locational analysis for wind energy undertaken throughout the Victorian Coast.

[T]he Board is most concerned that wind farm assessment and development is proceeding across the State and across Gippsland without the benefit of a strategic assessment of coastal landscapes. Such an assessment would build substantially on the initial work of the Victorian Coastal Council [...] and the National Trust. The assessment should provide sufficient analysis and detail to enable significant landscape overlays to be prepared for municipal planning schemes and would identify those high and medium value coastal landscapes where wind farms should generally not be permitted.

This approach was supported by the National Trust and the South Gippsland Shire Council. The former body pointed to their ongoing collaboration with AusWEA at the Commonwealth level to develop landscape siting criteria for wind energy, capable of support between the Trust and the main body of wind energy developers. The Shire acknowledged the need for some level of additional locational guidance and assessment of landscape values. However, in their view, the detailed implementation of such a project was not within the normal bounds of local government's expertise or resources. It would also have to enjoy Government support to have any realistic prospect of success.

In contrast, the proponent's view was that policy as to the location of wind energy facilities was settled. The combination of PPG – WEF, the Victorian Wind Atlas, SPPF and LPPF policy gave sufficient guidance as to location and landscape impact issues. There was a clear expectation by Government that individual decisions could and would be made, and no realistic suggestion that moratoria or abeyance of permit applications were warranted to facilitate the development of yet a further raft of policy.

Further, the project site itself was, in the evidence of John Cleary, located in largely cleared agricultural land, on a low range of hills which, whilst pleasant, were of a landscape type reasonably well represented in the region and to this extent unexceptional and a good site for a wind farm in landscape terms. There would be no reasonable prospect that any strategic exercise would come to another conclusion.

The proponent supported this assessment with reference to other wind farm sites, making clear that in the acknowledgment of many, the now approved sites in the Portland Wind Energy Project affected sites of higher landscape value than the current project site.

9.3.4 PANEL RESPONSE

In opening its consideration of landscape effects, the Panel wishes to articulate what it considers to be the threshold of landscape impact which emerges from approved policy, beyond which a proposal should be considered so harmful as to outweigh other benefits or indicate that it should be refused.

If the Panel takes one strong direction from policy and from government decision making in relation to wind energy issues, it is that relatively limited weight is to be put onto issues of landscape harm in decision making processes, unless that harm is of a most significant order. To pass that threshold, the Panel considers that it would be necessary to demonstrate clearly that a proposed windfarm would significantly adversely affect a landscape of acknowledged high value and significance – possibly at a regional, but more clearly at a national or State level.

Policy makes clear that there is only one locational factor constraining wind energy development in absolute terms: the avoidance of land designated under the *National Parks Act 1975*. The Panel notes the concerns that were expressed as to whether such designation protects 43% of the coast, or 32% of the land within 1 km of the coast. The Panel does also note that criteria used in designating national parks have not always included reference to landscape value and that as such national parks cannot always be considered as protective of the highest value landscapes (as opposed to the highest value biodiversity resources). However, it does not consider that it needs at this stage to enter into detailed considerations as to whether these measures are accurate as the current project is not to be located on land that is subject to that strategic protection.

Indicatively, PPG – WEF also makes clear that high landscape values on private land should normally be identified through the use of appropriate overlay controls and that landscape considerations should thus be express considerations in the exercise of planning permit discretion. It has to be noted in this case that the landscape in and around the project site has not been subjected to planning controls that specifically call up landscape considerations. There is no Significant Landscape, Vegetation Protection or Environmental Significance Overlay designed to achieve landscape objectives on the project site or its surrounds. However, this absence may in itself be a product of factors other than a lack of landscape significance. Indeed, in the submission of South Gippsland Shire Council, it was a product simply of the fact that, to date, the Shire had not considered there to be sufficient priority in devoting significant resources to a strategic landscape study.

On this basis, the Panel does not consider that it appropriate to be too formalistic or to place too much weight on the simple absence of a statutory landscape control. It notes that these controls have hitherto been applied by local planning authorities. The arguments about cost and priority advanced by South Gippsland Shire Council will hold good in many rural areas, where the absence of landscape controls should not then be taken as being a statement of anything other than that the task of evaluation has simply not been undertaken yet. In the Panel's view, a key issue should be whether a site has a landscape control (in which case regard must be had to it) or whether it is a reasonable candidate for the imposition of such a control.

The Panel notes the strategic concerns of the Gippsland Coastal Board in expressing the view that a major coastal study should be undertaken, drawing together historic work undertaken for the Victorian Coastal Council (Landscape Setting Types on the Victorian Coast). In the Panel's view, that Board is correct in identifying that a shortcoming of the previous strategic work undertaken for the VCC has been that it has not been reported at a resolution sufficient to enable it to be used to provide a direct strategic basis for statutory landscape controls. Indeed, the experience of this and past Panels of working with the publication "Landscape Setting Types on the Victorian Coast" is that it is a document expressed at too broad a grain, which provides insufficient concrete guidance on the degree to which sections of coast are considered to merit landscape protection. In turn, the generic and broad grain nature of the VCC analysis has not to date enabled resource-poor rural municipalities to easily translate its findings into meaningful local strategy or controls. Previous wind energy Panels have made recommendations that called for a revisitation of this work in the manner suggested by the Board, leading to analysis that would support local statutory controls, if these were found to warranted on a State-wide comparative basis.

However, such Panel recommendations were made in a context in which PPG – WEF was not finalised. Since the finalisation of PPG – WEF, it has become clear, (although with one possible exception, that being the process of strategic landscape assessment undertaken in the preparation of the Government's Great Ocean Road Strategy) that wind energy decisions are to be taken individually on their merits.

In this regard, the Panel considers it should pay attention to the question of whether the project site in this case is somehow 'missing land', which on any reasonable measure ought to be the subject of a Significant Landscape Overlay or similar control, identifying a high tier landscape significance. However, it has no basis under which to recommend that the approval process for the Bald Hills project be held in abeyance, pending the possible undertaking of some wider coastal strategic appraisal in Gippsland, to which the Government has no current commitment.

It is on this basis that the Panel has sought the opinions of expert witnesses on the question of whether the project site could be argued to be a missing significant landscape, to which statutory controls should apply. Unfortunately, it did not obtain clear answers. Mr Cleary, in a somewhat overzealous response argued that controls should apply, but qualified this view stating that he considered that landscape controls should apply to the whole of South Gippsland Shire. The Panel notes that landscape controls in the VPP are intended to respond to values and to include an expression of comparative qualitative assessment. They are not intended to apply generically or trigger permit applications in areas of lower significance. It takes from Mr Cleary's response the view simply that landscape ought be a general planning consideration against which all projects should be assessed. It does not interpret him as offering the opinion that all landscapes in the Shire are significant landscapes, or further, landscapes of a significance that could be harmed by the siting of a windfarm. His other evidence and conclusions about the well represented and unexceptional nature of the site clearly run against any such interpretation.

Mr Allan Wyatt had provided a peer review of Mr Cleary's analysis for the proponent. In strategic terms, he considered that the project site was close to offering perfect conditions for wind energy development. It enjoyed an excellent wind resource, but yet was of pleasing but unexceptional value in landscape terms.

Mr Williamson provided a useful assessments in this regard, in that he had collaborated in an independent strategic evaluation of landscape significance for the former Shire of Woorayl²⁴. This had systematically evaluated much of the subject site and its regional coastal landscape setting. In October 1998, he had also appeared as an expert witness in the consideration by VCAT of an early wind farm proposal for Cape Bridgewater²⁵. In his evidence there²⁶, he provided a strategic overview of locations on the Victorian coast that would merit investigation for the location of wind energy facilities. He identified the subject site and the coast broadly between Anderson Inlet and Cape Liptrap (although not the exposed tip of the Cape itself) as being a location that merited investigation for wind energy development on landscape grounds. From his knowledge of the area through these exercises and through preparation of expert evidence for this Panel, he had formed the view that there were no strategic landscape quality issues that ruled out a windfarm in this landscape region. His concern was more focussed towards ensuring that the individual project site had been appropriately assessed (which he contended it had not been) and that appropriate design mitigation had been undertaken (which again, he contended it had not been).

In this regard, the Panel would remark that, broadly in concurrence with all of the expert landscape witnesses, its own experience and assessment of the Victorian coast and potential locations for wind energy facilities leads it to a similar conclusion. Wide evaluations of the Gippsland coast have been undertaken as part of the Panel's site visits in this matter. As a member of former Panels considering wind energy related matters, the Panel Chairman has also visited the entire Victorian coast from Wilsons Promontory to the South Australian Border and the South Australian Coast from the border to Kingston. These visits specifically focussed on questions of comparative landscape value in the context of possible wind energy development. Flowing from its visits and experience, the Panel cannot help but observe that it

²⁴ Shire of Woorayl Coastal Landscape Study, Scenic Spectrums P/L, Henshall Hansen Associates and Melbourne University, 1990.

²⁵ The "Energy Equity Case", Hislop and Ors v Glenelg Shire Council.

²⁶ At page 40.

agrees with Mr Williamson's assessment. It considers that the coast and hinterland between Anderson Inlet and Arch Rock offers scenic value that is broadly comparable with that found in the western Moyne Shire, from Port Fairy to Codrington, or in South Australia in the region of Lake Bonney. Both of these sections of coast have, in a number of separate and independent decisions by different State and local governments been found to include appropriate locations for wind farms. It considers that this section of coast would be most unlikely to be capable of being subject to a Significant Landscape Overlay ranking its values as being high in regional, State or National terms. In fact, the Panel would go so far as to express doubt as to whether the coastal hinterland of the project site (as distinct from the immediate shoreline of Venus Bay in the Cape Liptrap Coastal Park) could objectively be suggested as warranting any level of special statutory landscape control.

Clearly, the same cannot be said with such certainty once one passes Arch Rock and enters the rocky coastline of the tip of Cape Liptrap. Further, when one moves around the Cape or ascends the Liptrap ridge and looks east to Walkerville, in the Panel's view the landscape is clearly of National significance. The immediate local landscape value of that coast, with its intimate, sheltered bays, rocky stacks and forested slopes are of very high landscape value in their own right. Allied to the vast views out to Wilsons Prom, there are vistas that are seldom paralleled in Australia. However, the project is not proposed to be placed in a location that is subject to or significantly impacts on these evaluations.

The Panel notes the comparison between landscapes at the project site and landscapes at Portland. Care is required in drawing direct equivalences between Portland and the current case in relation to landscape considerations. Firstly, the Portland case was heard outside the framework of PPG – WEF, which had not been approved. Secondly, evaluations of landscape quality in the Portland case were qualified by evaluations of tourism impact and the broader economic effects of wind energy industry inward investment. The tourism factor is relevant here and is further considered below. However, it has been no part of this proponent's case to pray in aid that its proposal will lead to specific inward investment or employment benefits that should be set in the balance against otherwise weighty landscape considerations.

Some of the landscape character areas affected by the Portland project were clearly of greater significance than the current site. This Panel does not accept the proposition that all landscape types affected by the Portland project were of higher quality than the current site. Indeed, it would observe a reasonable equivalence of landscape value and character between the current project site and that found in some components of the Portland development. The Yambuk windfarm site in Moyne Shire and the Malings Cluster component of the Cape Nelson site appear to offer analogues with the current site in terms of location vis a vis the coast, landscape value and character. Perusal of the Portland report in relation to those locations does indicate that that Panel considered them to be excellent locations for wind energy development in landscape terms. The same conclusion can, as one examines the detail below, begin to emerge in this case.

Drawing these issues together, the Panel finds that there is no reasonable prospect of a strategic landscape assessment process for wind energy emerging or gaining government support, within a timeframe that could be relevant to this decision. On that basis, there seems no tenable argument that the proposal is premature or that decision should be delayed. However, even if a strategic landscape assessment were to be undertaken, the Panel does not consider that this site would be found to have the high tier landscape values necessary to warrant site avoidance in terms of the weighting on

landscape issues provided in PPG – WEF. On balance, the site appears to be soundly selected in strategic terms.

9.3.5 PROJECT IMPACTS

Many submitters were very strong in their view that the prospective landscape effects of the project were unacceptable. They should lead to findings that the environmental impact of the project was unacceptable and should in turn lead to a refusal to grant the planning permits as applied for. The primacy of this view found clear expression in the masthead of campaign newsletters issued by Tarwin Valley Coast Guardians, which included the slogan:

Don't bugger up the coast.

Graphic material widespread in the area included similar slogans, such as:

Bracks – coastal vandal.

Although less succinctly expressed, underlying concerns about adverse coastal landscape effects were a commonly expressed theme through many submissions.

Mr John Cleary had set out his general view in his evidence that wind farms do not significantly affect views. This view was based on the concept that wind farms are largely undeveloped and are thus visually permeable. As such, it was argued that they do not prevent views being enjoyed through the wind farm to objectives beyond it, a characteristic which makes them different from more typical large scale built development.

This position was strongly opposed by many submitters who stated that if a wind farm were to intervene between the viewer and a valued view, the view would be diminished or even destroyed.

Many submissions identified concerns about individual locations and the degree to which the proposals would interfere with views from those places, or to those places. Key amongst these were:

- Wilsons Promontory National Park.
- Waratah Bay.
- Cape Liptrap Coastal Park, where there were concerns about effects of views within the Park and along the Venus Bay beaches.
- The Inverloch coast, Cape Paterson, and the intervening Bunurong Coastal Drive.
- Land to the north, including Tullaree Swamp and the Strzelecki foothills.

More locally, concerns were raised about views from and to:

- Bald Hills Wetland Reserve
- Kings Flat Nature Reserve

Concerns were also raised about the nature of views and landscape perceptions from roads through and adjacent to the project site.

The proponent's perspective was that the project would do some harm to landscapes and views, but these would be within the short range and local settings and would in any case be within limits that had to be seen as acceptable, taking the policy directions of the SPPF and PPG – WEF into account.

Mr John Cleary's evidence characterised the project site itself as a pleasant but 'well represented' landscape type. It was his approach that a wind farm will inevitably impact adversely on the landscape in which it is located. He did not seek to advocate the view that the project would enhance any existing landscape values. It followed in selecting a viable wind farm site, one should ideally have the combination of a high wind resource with unexceptional landscape. It would further be relevant that the proposed site was of a type that could still be found and enjoyed unimpacted in other locations, even after the project was constructed. To this extent, the well represented nature of the project site was a valuable attribute. It suggested that whilst harm to its values would occur, this would not be a harm that would have wider than local community effects.

Turning to the wider setting of the project, it was Mr Cleary's view that it would have limited to negligible impacts on more significant or less well represented landscapes in surrounding regions, such as Wilsons Promontory, the Walkerville area or the Bunurong Coast.

Mr Allan Wyatt as peer reviewer concurred with this view, identifying the project site as being almost an 'ideal' windfarm site in landscape terms.

Whilst Mr Dennis Williamson, landscape witness for Tarwin Valley Coast Guardians did dispute some levels of impact in some locations, the Panels interpretation of his evidence was that in general terms he also concurred with these broad assessments.

9.3.6 PANEL RESPONSE

The Panel here considers that the evidence of Mr John Cleary and Mr Allan Wyatt, to the extent that landscapes and locations will not be materially adversely affected is generally supportable and correct. However, it has undertaken its own detailed programme of site visits and made extensive analyses of its own to assist its understanding of the conclusions reached by the witnesses and submitters. The following analysis examines impacts within a regional and then local framework, before continuing to address issues of impacts on roads and views.

Wilsons Promontory

Wilsons Promontory is a landscape of the highest quality, protected as a National Park. It is also a major State, interstate and international tourism destination. It is clearly valued by many as a wilderness, and to that extent, merits steps being taken to preserve its wilderness integrity as a place where the apparent hand of human development rests lightly, if at all.

In that submissions raised concerns about adverse impacts on Prom landscapes or on views to or from the Prom or its setting, the Panel considered that these should be investigated. The Panel notes that the initial landscape appraisals undertaken for the proponent did not address the Prom at all. It may well have appeared 'obvious' to a landscape analyst associated with wind energy development that an appraisal was unnecessary, as there was unlikely to be any significant impact. However, the concerns of some submitters, combined with the apparent weightiness and significance of the landscape values of the Prom to all Victorians struck the Panel as representing an instance in which some analysis should be done to satisfy public concern.

It was for this reason that the Panel undertook amongst its site visits a journey around Waratah Bay, focusing on the identification of views to the Prom and to the project site and the

degree to which views to or of the project site might affect perceptions of landscape. This site visit also entailed the assessment of views to the project site from within the Prom.

The Panel identified that areas of the Prom west coast offering accessibility to walkers and extensive views to the west would be likely to be the most sensitive locations to potential landscape impact and change. It selected the walking track from Derby Saddle to Fairy Cove as offering a range of wide western outlooks and being a reasonably representative location from which to assess likely impacts. It judged that any disclosed impacts would be of a similar or less significant order at other well used west coast locations such as Tidal River and adjacent walking tracks and lookouts, Mount Oberon, Squeaky Beach, Picnic Bay, Whisky Bay or the Derby River Mouth. This track was also chosen, because it offered views to the north east, to the existing Toora wind energy facility, at a range similar to that of the range to the project site, thus enabling the Panel to achieve a reasonable impact comparison. For this reason also, the Panel instructed the proponent to undertake terrain modelling from Derby Saddle²⁷.

Having undertaken these exercises, the Panel notes that the Toora windfarm can be observed from the Fairy Cove track²⁸. Blade movement can be discerned. However, in the Panel's view, observations of that wind farm from the walking track involve the observer making a willing effort to seek it out. When engaged in walking and viewing of flora, fauna and the diverse and high quality near to mid range landscapes, the Toora windfarm did not intrude upon the Panel's perceptions. In short, it could be seen, but in no way was simple perception a source of adverse impact on Promontory landscapes at that location.

The Panel does not wish to enter at all into debates about the degree to which Toora may generate adverse impacts from other, closer viewing points in the northern Prom (for example from Millers Landing or the Vereker Range). It does not need to do so as, critically, the equivalence of range and impact between Toora viewed from the Fairy Cove Track and the project site viewed from the same location provides the best comparison of likely maximum impact of the project on the Prom. Closer range views such as that to Toora from the northern Prom will not be widely available from the National Park to the current project site.

Having undertaken this exercise, the Panel is clear that the project site will be seen from walking tracks and outlooks on the west coast of the Prom. Direct line of site can be obtained from various locations on the Prom coast to turbines on the project site, by virtue of a saddle in the Liptrap ridge, occupied by the 'Prom View Estate'. However, the distance between the viewer and the approximate centre point of the proposed wind farm will be in the region of 35 to 40 km, depending on the viewer's location.

At this range, the Panel considers that the extent of impacted horizon will be small and the scale of the visible upper portions of turbine structures will also be very small. The turbines will be seen against a background of sky, a factor that in the Panel's view will make their visibility and motion less apparent at far distance than those of Toora, commonly perceived from the Prom against a highly contrasting background of cleared and forested hills. There will be periods at sunset when turbines at the project site will be viewed in dark silhouette

²⁷ The primary assessment location on the Fairy Cove walking track selected by the Panel was Sparkes Lookout. This was a high lookout, 39.5 km from the proposed wind farm centre point and 38.6 km from Toora.

²⁸ Although the degree of visibility and impact would be contingent on atmospheric conditions. The Panel visit coincided with sunlight, blue sky, a clear atmosphere and sufficient wind to rotate the Toora turbines: on balance excellent conditions to undertake a 'maximum impact' assessment.

against the lower sky by viewers from the Prom. However, again, owing to the distance and the smallness of scale at this distance, the Panel can reach no conclusion other than that the impacts will be insignificant.

In the Panel's view, the location of the project site, sheltered as it is from direct Prom views by the bulk of the Mount Liptrap Ridge, offers distinct advantages over other potential sites in the environs of Cape Liptrap, in terms of perception from the Prom. In the evidence of Mr White, the proponent highlighted that the Mount Liptrap Ridge was a tenable wind farm location, because of its high wind resource, but a range of constraints had precluded site search on that ridge. Although the project site is visible across the ridge, the base of the turbines fall outside the Prom's primary western viewshed and landscape region. If for example one were to locate turbines along the Mount Liptrap – Hoddle ridge, this would no longer be the case, and assessably significant impacts on the Prom and its setting would be likely to emerge. However, the proponent's avoidance of this ridge has much to commend it and in the Panel's view demonstrates correct analysis of broader scale landscape impacts.

The Panel finds that the project will be seen from west coast areas of Wilsons Promontory National Park that are well-used by tourists. However, the capacity to view turbines does not equate to landscape harm. The remoteness of the site from the National Park and the intervention of the Mount Liptrap – Hoddle Ridge will prevent any tangible landscape impact on the Prom or harm to its wilderness qualities. The project is well located in terms of minimising impact on this highly significant landscape area.

Waratah Bay

The Panel uses the term Waratah Bay landscape region to describe all land within the viewsheds enclosed by the western flanks of the Prom mountains, the Yanakie Isthmus, land sloping from the Strzelecki foothills to Waratah Bay, and land sloping from the Hoddle and Mount Liptrap ridge to Waratah Bay.

This landscape region contains a mix of cleared and uncleared land, highland, lowland and coastal landscape types. However, it is fair to observe that the dominant landforms are the mountains, cliffs and uncleared forested slopes of Wilsons Promontory and the east coast of Cape Liptrap. Whilst a composite region, the predominant character is therefore upland and natural. It is also a region of high to exceptional visual and landscape quality.

The Panel visited the settlements of Walkerville South, Walkerville North, Waratah Bay, and Sandy Point and observed the landscape between, linking Cape Liptrap and Wilsons Promontory.

In general terms, views to the west from the eastern areas of Waratah Bay will include glimpses of the project, through the saddle in the Mount Liptrap – Hoddle ridge at Prom View Estate. However, many of the beaches on the Bay and the Yanakie Isthmus are remote and difficult to access. They are also in a scale and grandeur of landscape that will dwarf and diminish the turbines of the project site, located at considerable distances from the viewer.

Examining areas with vehicular access to the coast and thus likely highest levels of viewer activity, the Panel considers that there may be views to turbine elements from Sandy Point, via the Prom View Estate Saddle. These views at most will be to hubs and blade movements across the horizon. Complete turbines would not be visible, as their foundations and towers will fall below the horizon. In making this observation, the Panel notes that the Sandy Point beach offers clear views towards Cape Liptrap and the Saddle. The Sandy Point SLSC is

located some 18.4 km from the centre of the proposed wind farm. That being said, owing to the range and the topography of the Mount Liptrap – Hoddle Ridge, the Panel does not consider on balance that a possible capacity to view from this location will lead to any tangibly adverse impact. On this basis, the Panel did not consider that it was necessary to undertake detailed modelling of viewlines and levels using a terrain model to determine visibility. The enclosure of dune landscapes and vegetation in the township itself is likely to eliminate any practical possibility of views to the site from dwellings. Nor did the Panel observe that the local landscape character was one in which possible limited views to turbines at long range might constitute an unwarranted intrusion.

As one approaches the site in Waratah Bay, closer townships such as Waratah Bay itself, Walkerville North and Walkerville South, benefit from location at the foot of the Mount Liptrap – Hoddle Ridge. The Panel considers it possible that some turbine elements may again be viewed from the beach at Waratah Bay. Despite being somewhat closer to the site than Sandy Point, the Panel evaluates the landscape impact of these views as being of a similar order, namely small to insignificant. It makes a similar observation about the immediate local landscape setting of Waratah Bay township.

Approaching Walkerville from Waratah Bay, key local concerns were expressed about views from Rock Hill, or Mount Lavinia. Although on private land owned by the Liley family, this has been acknowledged as a significant lookout, and has been a site for community celebrations. This site does provide extensive and unencumbered views to the north and central clusters (in the range 6 to 7 km distant) and the southern cluster (in the range 7 to 9 km distant). These views would extend over approximately 40 degrees of the horizon, suggesting that the turbines will become a substantial (although not in the Panel's view dominant) component of the outlook from this point.

Mention must also be made of the Prom Lookout, a public roadside turnout from which extraordinary views can be obtained to Wilsons' Prom, some 30 km distant across Waratah Bay. This lookout sits atop a viewshed boundary, affording views into two adjacent landscape regions. The mountains and forests of the Prom are visible to the east, across the gentle curve of Waratah Bay. There are also extensive views to the west, which take in Cape Paterson and even Cape Woolamai when atmospheric conditions are favourable. That being said, to obtain the best of these views, the viewer has to cross the road. The main parking and viewing area is focussed to obtaining views to the east, towards the Prom. The lookout also affords views to the existing Toora wind farm at some 37 km distant. The Panel considers it is fair to conclude that the greatest public use and enjoyment is obtained from views to the east that will not be directly affected.

Crossing the road to look west, it is fair to observe that turbines would become a substantial component of the western view. The northern cluster would be viewed between 10 and 8 km distant. The central cluster would be between 6.5 and 6.7 km distant. The southern cluster would be 5.6 and 7 km distant. Views to turbines could be available across approximately 80 degrees of the horizon, and would occupy a substantial portion of an observers' view. Although at a greater average distance to the site than those obtained from Rock Hill, this viewing position will enable the turbines to be seen over a significantly greater extent of the horizon. The Panel considers that this will clearly harm currently uninterrupted views to the west. That being said, these views are into a landscape region or viewshed that does not in the Panel's mind share the breathtaking and awe-inspiring qualities of the eastern view to the Prom. The westward views are extensive and enjoyable. However, they do not appear in the Panel's mind to be exceptional in the context offered by the Victorian coast as a whole. In

terms of the weighting on landscape considerations suggested by PPG – WEF, although harm is clearly done, the Panel cannot find that this at a level that would warrant refusal to grant a planning permit or indeed any macro scale mitigating action.

It should be noted that views to Toora fall within the eastern viewshed. The Panel has considered submissions that this is a location from which cumulative impacts would be unacceptable, as the adverse effect caused by the presence of Toora in the highly significant eastern viewshed would be magnified by the substantial presence of the current project in the western viewshed, taking this lookout towards 'turbine dominance'. However, whilst a significant concern to some submitters, the Panel found the Toora views to be at a range and scale and obvious physical separation from the Prom that they did not detract significantly from the enjoyment of the eastern view. They are not a significant component of that view. On that basis, the Panel concludes that the combination of views to Toora and views to the project will not leave the lookout dominated by views to turbines as the majority of horizon (and most critically the eastern horizon) will not be significantly affected by turbines.

Moving to the Walkerville townships, the Panel notes that these sit in a landscape of very high quality. This quality also in the Panel's mind enjoys a high social significance, as the Walkerville beaches are obviously much enjoyed by residents and visitors alike. This enjoyment emerged from submissions and from references to the well known children's books 'My Farm' and 'Magic Beach' by Alison Lester. Both are set in the Walkerville area and the 'magic beach' of the second title is based upon the Walkerville beaches. Site visits over Easter suggested the beaches to be much enjoyed by family groups, swimmers, snorkellers, fishers and boaters.

Set directly against the wooded and heathland backdrop of the Mount Liptrap Ridge (here in Cape Liptrap Coastal Park), the townships sit in small and intimate and sheltered bays, with sheltered beaches, displaying varying cliffs and stacks. The beaches are the focus of highly attractive landscapes. Views across the bay to the Prom from these locations are nothing short of breathtaking. However, at or close to sea level under the shoulder of the steeply ascending Mount Liptrap Ridge, the Panel is clear that residents and users of the beaches will not have any views to turbines, as the entire structures will be below the western horizon. On this basis, the Panel considers that the project has no landscape impact in this otherwise highly sensitive and valuable location.

That being said, the Panel must observe that as boats move offshore, views towards the turbines will open up, through the lowest point of the Mount Liptrap – Hoddle Ridge, at the Prom View Estate saddle. The Panel's evaluations suggest that such views are unlikely to emerge until boats are in the region of 4 km offshore east of Walkerville. At this range, the Panel observes that only blades will be visible, crossing the horizon, and the turbines themselves will be some 11 km distant, at which they will not form a dominant landscape component. Moving further out to sea towards the east, more substantial views to turbines will be seen. However, these will never be of full turbines and will all be at a range where the Panel does not consider the effect to be dominant or harmful.

The Panel has also considered the sections of the Cape Liptrap Coastal Park that lie in the Waratah Bay landscape region, east of the Mount Liptrap – Hoddle ridge viewshed. The Panel notes that much of the Park landscape is covered with coastal heath and forest. Views on walking tracks are generally either confined by vegetation or open to the east and to Wilsons Prom. The Panel considers that users of this section of the Park will experience no adverse impacts.

Moving to Cape Liptrap itself, the Panel notes that this again is a likely tourism destination. Site visits over the Easter period disclosed a reasonably high visitation, with the car park never found empty. The bulk of visitors will access the Cape by car. The road to the Cape lies roughly along the high point of the Mount Liptrap Ridge as it declines towards the Cape. As such, this road has potential to afford significant views both to the east and west, into the two landscape regions discussed in relation to the Prom Lookout above. John Cleary's mapping of areas potentially visually affected includes the road in the viewshed to the turbines. That being said, roadside vegetation to the west and coastal heath to the east have the effect of significantly limiting views in both directions. There are few opportunities to look out over the landscape, and the Panel does not consider that there will be many significant views to the project site observed by travellers on this road, although broken glimpses might be obtained. If the road were widely used by walkers, the capacity to look through foreground screening might afford greater views and greater impact to the viewer. However, as far as the Panel is aware there is little if any pedestrian use of this route and in any case that Panel still considers that the impact would be minor and filtered.

The Cape Liptrap lighthouse is located below the break of the land in the final fall of the cliffs to the sea, at approximately 80 metres AHD. As such, its landward views are constrained by close horizons. At approximately 6.9 km distant from the nearest turbines in the south cluster, the Panel nevertheless considers that it would be most unlikely that any turbines could be viewed from the lighthouse. There is therefore no issue in the Panel's mind of a direct impact on the setting of this spot that is otherwise attractive for its wild and lonely aspect.

Whilst at the lighthouse, the Panel observed a lookout with a westerly aspect towards Venus Bay, located on slightly higher land. In the Panel's judgement, it is difficult to ascertain whether turbine views would occur from this location. The combination of a higher viewing location than the lighthouse and reduced vegetation screening (when compared with the road) mean that only small order changes that are not readily amenable to onsite verification might account for whether there would be views to the site or not. That being said, the Panel considers that this lookout is of secondary importance to the lookout in the immediate setting of the lighthouse. Even if it were impacted, the Panel would not see that harm would necessarily eventuate. In fact, as in the Panel's observations of the Cape Duquesne – Blowholes location in the Portland report, this appears as a stark and sea-blown location in which views to turning turbines might add interest landscape interest in the views of some.

The Panel finds that impacts on landscapes and key locations in the Waratah Bay landscape region will be limited and acceptable in terms of PPG – WEF.

- The landscapes and views of Walkerville North, Walkerville South and their settings are of high significance and quality. However, the project will not be viewed from them and will have no impact, other than for marine recreation a considerable distance off-shore.
- Sections of the Cape Liptrap Coastal Park located within the Waratah Bay landscape region will be unaffected.
- Cape Liptrap lighthouse and its immediate setting will be unaffected. Turbines may possibly be viewed from a nearby lookout but the Panel considers the landscape impact would be acceptable.

- The project will have insignificant or no impact on the townships and environs of Sandy Point and Waratah Bay.
- The westward aspects of lookouts at Rock Hill and Prom Lookout will be significantly adversely affected, but the impact will relate to landscapes that are not of the levels of significance weighted for protection under PPG - WEF.

Venus Bay

Rounding Cape Liptrap, the Panel considers that the viewer enters a new landscape region, which the Panel terms Venus Bay and considers to be enclosed between the viewsheds of the Mount Liptrap – Hoddle ridge (to the east) and the Grass Tree Hill ridge (to the west).

As one passes into this new landscape region, there is a general change of character. Lowland and cleared land become dominant in the landscape. The dramatic landforms of Waratah Bay and the Prom give way to smoother, more regular rhythm of gentler hills, plains and coastal dunes, in general dominated by agricultural activity.

The character of the coast also changes, with the rocky cliffs of Cape Liptrap giving way after Arch Rock to the broad sandy sweep of Venus Bay, stretching to Inverloch. Here, the beaches back onto dunes covered with the coastal heath vegetation of Cape Liptrap Coastal Park. However, unlike the Waratah Region, the enclosure of the foreshore is not a substantial forested ridge, but is instead a complex combination of dune ridges ranging in height from 15 to 40 metres AHD, located approximately 200 metres inland from high water. This dune land is located in the Cape Liptrap Coastal Park, which extends approximately 1 km inland to the commencement of the cleared coastal plains.

For in the region of 20 km from Cape Liptrap to Venus Bay township, the coast is not easily accessible. Vehicles can approach via the recently renovated Five Mile Track, accessible to two wheel drive vehicles in dry weather. However, it is then necessary to walk approximately 1 km to access the coast. A coastal path proceeds from Venus Bay to Cape Liptrap via Arch Rock. From Venus Bay to Arch Rock, walkers use the beach.

In these locations it is a matter of fine judgement as to whether the combination of dune crest heights and heathland vegetation will be sufficient to screen extensive views to the turbines. John Cleary's analysis indicates that there will be significant linear sections of the coast where the dune crest will form a close horizon, sufficient to obscure views to the turbines from viewers on the beach. The Panel's observations suggest that this will be a close run thing. Assuming an average dune crest height of 30 m AHD, the Panel's analysis suggests that shore and beach up to 500 m to seawards of the dune crest could thus be sheltered from views to turbines. However, the complexity and changing levels of the dune terrain together with the limited local accuracy of topographic mapping makes it very difficult to predict the locations of this screening with precision. Taking a conservative view, the Panel considers that it is possible that there will be repeated instances of glimpses to turbine blades and hubs through gaps in the dunes.

Once the coastal path approaches Arch Rock, it leaves the increasingly rocky beach and ascends the cliff for the approach to Cape Liptrap. There is no doubt that as walkers pass over the rolling cliff-top landscape, they will have clear and unobstructed views to turbines from significant areas of the path.

Whilst the Panel was made aware that the coastal path is promoted in bush walking literature, it does not have the status of a formal long distance path (such as the Great South West Walk). Nor in the submissions of local residents does it enjoy regular maintenance by Parks Victoria. The Panel's observations suggest that whilst it is clearly walked sufficiently regularly to prevent vegetation overgrowth, usage levels are not high. One would speculate in the order of hundreds as opposed to thousands of walkers per year use the track.

The Five Mile Track is the primary vehicular access point between Venus Bay township and Cape Liptrap and is likely to enjoy some visitation from people who are not completing the long distance walk. That being said, the beach at this point does not appear to be a major recreational focus. The access track itself is enclosed in a largely continuous native vegetation screen. However, there would be mostly filtered but some open views from the track to turbines in the southern cluster at close range. As the track can only be driven at low speed, the appreciation and impact of these views would be likely to be similar for walkers and drivers. The track has recently been repaired and is accessible to two wheel drive vehicles in dry weather. However, these works have also cut off the last section of the track, and visitors must now walk in the region of 1 km from the track head to the beach, through the dunes.

Walking through the dunes, the track passes across the dune crest at approximately 20 m AHD²⁹, before descending to the beach. At this dune crest, the track is some 2.3 km away from Turbine 47, the closest turbine, from which the southern cluster would stretch away for another 1.6 km to Turbine 52. The beach is located some 2.5 km distant from Turbine 47. Having proceeded 200 metres onto the beach and descended to sea level, the Panel considers that it is still likely that turbine components (blade tips) would be observed from the beach in this location. However, entire turbines would not be seen.

Walkers passing along the foreshore between Five Mile Track and the Janet Boag Reserve would pass within approximately 2 km of the six closest turbines in the southern cluster. Again, topographic complexity combined with turbine proximity suggest that whilst there will not be continuous views of entire turbines, there are very likely to be discontinuous views of turbine components (blades).

Having considered the effect of the project on the landscape as perceived by walkers on this remote and windswept beach, the Panel acknowledges that some will consider their enjoyment of its to have been lessened by the intrusion of turbine components, visible in some locations across the dune crest. Whilst a coastline backed by little more than 1km of coastal reserve does not qualify as 'wilderness' in the strict sense, it is nevertheless true that the viewer on the coastal path has long periods of landward vistas of dune and native vegetation, apparently unaffected by human influence. This sort of landscape experience is relatively rare within close proximity of Melbourne and is valued by some. The intrusion of turbine components will harm it. However, in terms of the numbers of people enjoying this aspect of the landscape and the weighting on landscape harm provided by PPG – WEF, the Panel cannot see that it approaches the level of significance or effect sufficient to suggest that a permit not be granted or that action be taken to relocate turbines.

As the walking track comprises the main means of public access to this section of Cape Liptrap Coastal Park, the Panel considers that impacts on the walking track and Five Mile

²⁹ A GPS elevation of 17 m was obtained for this location. Whilst GPS elevations can be unreliable, this was referenced shortly thereafter to the high tide mark on the adjacent beach, suggesting accuracy within a range of 5 m.

Track access point largely also describe impacts to the Park. The Panel does observe that land within the Park to the landward side of the dune crest would in principle offer the potential for high levels of impact from closely proximate turbines in the southern cluster (Turbines 43 to 52). However, the Panel's observation of this land is that, with the exception of a limited number of narrow access tracks used by abutting landowners to fence, remove strayed stock or access the beach from their properties, it is densely and impenetrably vegetated and remains unvisited by public users of the Park.

Venus Bay township is the only significant settlement with vehicular access located on this coastline. The developed area is located in dune country between the head of Anderson Inlet and the Bass Strait. The township is divided into two 'estates' or subdivisions, separated by approximately 2 km. The Panel conducted an appraisal from the beach located at the SLSC, in the easternmost 'estate' (ie closest to the project site), which was some 12.9 km away from the centre of the wind farm. It also evaluated the potential for views from subdivisional roads, dwellings and lots in the dune terrain within the township. The Bass Strait beaches at Venus Bay township are within the Cape Liptrap Coastal Park but, unlike the remaining beaches in this landscape region, are easily accessed and used as urban/holiday beaches.

In the Panel's view, the complexity of the dune terrain again makes the precise location and extent of potential views to the site hard to quantify. However, the Panel is satisfied that turbines at this range will not in any case be dominant. As at Sandy Point (discussed above) the local complexity of the terrain and vegetation cover is such that very few if any dwellings will have views to the project site. On balance, the Panel considers there to be no tangibly adverse impact flowing from the potential capacity to view the site from some locations in and around the township.

Tarwin Lower is a significant township, located on the Tarwin River close to its entry into Anderson Inlet. The Panel notes that although the town is in relatively flat terrain, it does have a close enclosure of bushland to the south and west. It considers that views to the project site will be of a similar order to those from Venus Bay and will in broad terms be acceptable.

Inland terrain in and around the project site is low lying and extensively cleared grazing land, of generally pleasant but unexceptional character. The most significant landscape feature within this area is the Bald Hills Range itself, on which the project is proposed in part to be located. This is a subsidiary ridge, lower than the Mount Liptrap – Hoddle ridge to the east, the Grass Tree Hill ridge to the west and the Strzelecki Ranges to the north, which define and to a large extent enclose the landscape region within which the project is proposed to be located. This is a factor which assists in the broader range landscape absorbance of the project and the control or prevention of adverse impacts on more significant landscapes in adjoining regions.

At close range, there will be an inevitable significant and adverse landscape impact. The Panel notes that the turbines will be unavoidably dominant on the Bald Hills Ridge. Extending to 105 m to the blade zenith, they will more than double the actual elevation of the ridge. They will triple its apparent elevation from many nearby viewing locations. This ridge is in turn surrounded by gently sloping meadow land (to the south and west) and flat drained swamp land (to the north and east), both of which landscape types provide little relief from views of significant numbers of turbines. There will be many locations in paddocks from which entire clusters will be viewed. There will be some locations from which the entire project will be viewed.

However, the Panel agrees with Mr Cleary's assessment. Whilst harm will be done, this will be done in the local setting and to a landscape that is pleasant but unexceptional and of a type that is well represented. The weighting provided to landscape considerations in PPG WEF does not admit that this level of landscape harm should prevent the proposed development or require mitigation to it.

It is from the north and north east of the project site that the Panel considers the most significant offsite landscape impacts will be observed. To the north and east, the Bald Hills range (which rises gently from the coast) cuts off in a steep scarp, making it a more distinct and visible landscape feature than from other locations. The surrounding land is flat, drained former marsh and the Tullaree Swamp. This has limited remnant vegetation or exotic tree cover, and limited landscape relief. There will be relatively uninterrupted views to the site over a 6 to 8 km radius. The impact on these flat lands will clearly be adverse. However, they are also of relatively low landscape quality and subject to significant human intervention in the form of drains and channels. Having regard to the weighting to be applied to landscape impact pursuant to policy in PPG – WEF, the Panel is clear that the adverse impact is not of the significance that would warrant design mitigation in terms of relocating turbines or refusal of the permit.

North of the former swamps, the Tarwin Valley rises rapidly into the undulating foothills of the Strzelecki Ranges. On this rising land, the landscape character rapidly changes. There is an intimacy of scale and local focus of views in these small hills. They support significantly increased volumes of remnant native vegetation, which begins to change from coastal to taller forest forms. Whilst some of this rising land will provide long range open views to the project site across the flat and open former swamps to the south, on balance the Panel considers this to be an absorptive landscape character type, in which the more local patterns of hill, valley and vegetation retain dominance over a wind energy facility that is now at some 8 km distance. On balance, the Panel views landscape impacts here as limited and acceptable.

The Panel finds that impacts on landscapes and key locations in the Venus Bay landscape region will be limited and acceptable in terms of PPG – WEF.

- Close to the project site, landscape impacts in agricultural land will be high. However, the Panel agrees that the site and environs forms a pleasant but unexceptional and well represented landscape. The acceptability of high levels of local harm on such a landscape is made clear in current policy.
- There will be high landscape impact on land in Cape Liptrap Coastal Park on the landward side of the dune ridge, adjacent to the project site. However, the Panel observes that this land is, for all practical purposes, inaccessible and unvisited.
- To the seaward of the dune ridge, it the complexity of the terrain makes landscape impact on the Park foreshore difficult to assess. The Panel notes that the dunes will control and limit views to turbines but considers that these will not be completely excluded. Walkers on the Venus Bay to Cape Liptrap coastal trail are likely to experience repeated instances of blade movement across lower sections of dune horizon and this will impact adversely on their perception of landscape value and wilderness quality in the Park. The section of the trail from Arch Rock to the Cape will be the most significantly affected. Nevertheless, the acceptability of adverse impact on such a landscape is made clear in current policy.

- There will be high landscape impact from drained swampland to the north and east of the project site. This will offer limited capacity for mitigation through planting as this landscape does not host significant scale trees. Nevertheless, the acceptability of high levels of local harm on such a landscape is made clear in current policy.
- The landscape impact as perceived from the townships of Venus Bay and Tarwin Lower will be limited and acceptable.

Inverloch and the Bunurong Coast

Moving westwards, the Panel considers that the landscape region containing the subject site is bounded by the Grass Tree Hill Ridge. This extends to meet Anderson Inlet at Nolan Bluff and, although not high at that point, will serve to significantly control and limit views from Anderson Inlet, its foreshore and nearby roads towards the site. It thus follows that Inverloch, much of the Anderson Inlet north shore and the Bunurong coast fall into a further landscape region. In the Panel's view, this region is similar in character to the Venus Bay region, being dominated by cleared land and agricultural activities. However, the open water of Anderson Inlet, the higher hills behind Inverloch and the contrast between sandy and rocky foreshore, dunes and cliffs along the Bunurong coast suggest that it has a higher landscape value than the Venus Bay region.

Some long range views to the site will exist along the length of Anderson Inlet, past the base of Nolan Bluff. These will be experienced by boaters, windsurfers, jet-skiers and the like using the open water. They will also be experienced from the southern shore of the inlet. However, these will be at a range at which no significant landscape harm could be said to flow.

It follows that equivalently, whilst there will be some views to the site from parts of the urban area of Inverloch, these again will be limited and controlled. The turbines will be subsidiary in scale to local vegetation, building heights and terrain variation and will not have a significant effect.

More open vistas to the site will be obtained from the Inverloch surf beach, although dunes will prevent direct views from dwellings there. Open vistas will also be obtained from the Bunurong Coastal Drive between Inverloch and Cape Paterson. For much of this route, the road is located on the cliff top and is a well used and promoted for tourism. Many lookouts, beaches and rock platforms accessible from the road face south east and will provide vistas to the site. However, at some 20km distant from the viewer the site will not be dominant in the landscape and the Panel judges the impacts to be limited and acceptable.

The project will be widely seen from locations in the Inverloch and Bunurong Coast landscape region. However, the impact will be at a separation and scale that is sufficient to prevent harm and will be acceptable.

Nature Reserves

The project site lies close or adjacent to two nature reserves.

The Bald Hills Wetland Reserve is in part a remnant verge of the former Tullaree Swamp, containing an ancient wetland. It also contains a constructed wetland, with an access track and bird hide. It is promoted as a location for bird observation and quiet enjoyment of natural environment values. It has clearly been managed to provide access and interpretation for

viewers for a considerable time. Visitor log records in the hide suggest reasonably high levels of usership.

It is located hard under the shoulder of the Bald Hills Range and will be visually dominated by turbines in the northern cluster standing on high land to the south and east. The entrance, car park and interpretational shelter would be 1.3 km from Turbine 12. Turbines 1, 2 and 3 are proposed to closely approach the reserve boundary again on higher land. The Panel considers that the large number of turbines visible from the entrance location, together with their promise of close proximity to reserve users will impact significantly adversely on viewers' perceptions of the location as offering a natural landscape experience.

However, the reserve does have excellent vegetation cover. Once a reserve user is inside the reserve, views are tightly limited by vegetation. A walking track meanders pleasantly through rolling terrain towards the constructed wetland and bird hide. This is located at a straight line distance of some 0.5km from the car park. However, the track appears to cover significantly greater ground than this. Once at the constructed wetland, open views across water are available towards Turbines 1, 2 and 3. Turbine 3 would be at some 1.6 km from the viewer.

There was considerable dispute in the Panel hearing as to the visibility of turbines from this location, and their effect upon the viewer. This issue has been addressed in Chapter 10 below because the Panel considers that it runs as much to perceptions of natural environment value and 'naturalness' as it does to landscape.

Mr Dennis Williamson provided evidence that ran in parallel with a number of submissions in suggesting that not a single turbine component should be visible from the bird hide location, as visibility would unduly compromise the naturalness of the viewer's experience of both the landscape and nature. Parks Victoria as manager of the reserve submitted through DSE that it would prefer turbines not to be visible at the hide. The proponent took the view that this was a simply unrealistic stance and that glimpses to turbines within the reserve and views to a number from the hide would not be unreasonable in the light of the approach taken to the Baxter Wetlands at Wonthaggi by the Panel in that case. Further, Mr Cleary gave evidence that the hide could be relocated if users considered this to be necessary, to place turbines behind the observation point. Conflicting evidence and submissions were given by persons including Mr David Cotterill (tourism for the proponent) and Mr Andrew Chapman to the extent that users of the reserve and the bird observing experience would be significantly affected or would be unaffected by the capacity to view turbines from the hide location.

On balance, the Panel considers that users of the reserve are likely to be divided into two groups. There will be those who go simply to observe birds. Their enjoyment is unlikely to be changed, unless the development also affects the bird utilisation of the wetland. However, others go for a broader experience – quiet contemplation of nature. For these people, the observation of large man-made rotating structures at close range is likely to have a significantly disruptive effect on their perception of naturalness in landscape. Some of these will be turned away because of the effect of the wind farm on the entrance, car park and interpretation area. However, if the bird hide is also impacted, the Panel considers that the word in the birding community would be that on balance the site was no longer valued by a significant number of users.

The Panel notes the views of the reserve manager expressed through DSE and considers that they are entitled to full and proper consideration and weighting in its findings. On balance, the Panel considers that a relatively low cost and simple solution is available, namely the construction of a short section of deviated track and a re-orientation of the bird hide, to ensure that turbines are not viewed from it. The Panel notes the views of some that such a re-

orientation might reduce the effective surveillance of open water in optimal light conditions. However, the Panel considers that the balance of benefit for most viewers is more likely to rest with a re located and reoriented hide than with one that remains with a view to turbines. The Panel does not consider it appropriate to make any detailed recommendations about the location of the track or the orientation of the hide. Changes can be planned after the turbines are constructed, with the knowledge of the precise location of the turbines as against the local screening afforded by minor variations in foreground relief and vegetation. Changes can also be the subject of consultation with reserve users before they are designed and implemented. However, the Panel is clear that it is appropriate to provide the proponent with a performance requirement that turbines not be visible from the bird hide and to recommend that they enter into an agreement under section 173 of the Planning and Environment Act providing for the reasonable funding of a scheme of works to the walking track and hide to achieve this end.

Some submitters took the view that if the project were to proceed, the proposed wind energy interpretation facility could co-exist with the existing facility at the Wetland Reserve. This was proposed as means of providing proponent input to the cost of reinterpreting the reserve with a wind farm in its landscape setting. Its also provided opportunities for the public to observe the close relationship between a site used by birds and a windfarm, with interpretation of the issues raised and the monitoring undertaken. The proponent was not opposed to this in principle, although it preferred a more directly accessed site for its own interpretational facility.

On balance, the Panel does not see an interpretational facility as being a major component of the public benefit afforded by a wind energy facility. However, it is not opposed in principle to the possible opportunity to locate a facility jointly with the Bald Hills Wetland Reserve. Land controlled by windfarm stakeholders and road reserve could augment the existing entrance and car park area and provide good views to the wind farm in addition to an entrance to the reserve. There would be scope for a walking trail on private land to provide closer views of turbines, to complement the trail to the bird hide. On balance, the Panel considers that such an approach may well be of interest to users of the reserve and deserves further exploration.

The Panel does note that the walking track to the constructed wetland only scratches the surface of the reserve. Significant areas of vegetation and the ancient wetland lie to the east. These were not visited by the Panel as there is no formed trail to them. The Panel acknowledges that local naturalists familiar with the site will no doubt access these parts of the reserve; however, this will not be part of the great majority of visitor's experience. To this extent, like the largely inaccessible inland slopes of coastal dunes in the Cape Liptrap Coastal Park adjacent to the southern cluster, the Panel finds that whilst there will be a high landscape impact, few observers will ever be present to appreciate this fact.

Turning to the second reserve, this is the Kings Flat Flora and Fauna Reserve. The Panel visited this reserve as part of its private land visits to the Kilsby property, as it proved to be practically inaccessible via unconstructed road reserves. The Panel notes that this small reserve would be located between the northern and central clusters. Its enjoyment as a natural area and natural landscape would in the Panel's view be compromised. However, in considering whether any mitigation is required for this effect, the Panel notes the relatively low landscape quality of the reserve. It also notes the total absence of access or interpretation facilities. It notes that no strategic objectives or use prescriptions have been set out for the reserve to guide decision makers on this issue. It considers that it is a place enjoyed by very small numbers of dedicated naturalist visitors and surrounding private landowners. On this basis, the Panel is not disposed to find that any mitigation is required.

The natural landscape setting of Bald Hills Wetland Reserve will be harmed.

- The proximity of turbines to the reserve entrance will harm visitors' perceptions of the reserve and their view of the natural landscape experience to be obtained there.
- Opportunities exist to combine wind energy with natural environment and landscape interpretation at this site and to assist users to comprehend the nature and function of the landscape change and advise them that landscape values observed from accessible locations within the site remain little changed.
- Within the reserve, foreground vegetation and topography will largely control and limit any adverse landscape effects for viewers on the trail
- Viewers' experience of nature at the bird hide will be adversely affected, but this impact is mitigable by changes to the track and bird hide orientation.

The natural landscape setting of Kings Flat Reserve will be compromised. However, the low significance of its landscape and the lack of strategic direction, access or interpretational facilities lead the Panel to the conclusion that no mitigation is reasonably required.

Based on these findings, the Panel makes the following recommendations:

Parks Victoria should consult with users of the Bald Hills Wetland Reserve to determine options and costs for the relocation and reorientation of the walking track and bird hide in the reserve, to ensure that turbines cannot be viewed from the bird hide. Detailed design should take place following construction of the wind farm. The proponent should be required to enter into a legal agreement requiring it to cover the reasonable cost of this work.

Parks Victoria, the Proponent and Stakeholder landowners should enter negotiations to determine the possible value, content and design of a combined wind energy and reserve interpretation facility located at or near to the current entrance to the Bald Hills Wetland Reserve.

Views From Roads

There was much discussion during the Panel about views from roads, including methodological disputations between expert witnesses about whether particular roads were coast roads or rural roads, tourist roads or not, of high, medium or low sensitivity for viewers.

As outlined above, the Panel considers much of this debate to have been overly academic, as at the end of the day, the witnesses concerned were conducting subjective evaluations based on little more than their own values and experience. With that in mind, the Panel has turned to consider its own again essentially subjective position, informed by its site visits and reading and hearing of submissions.

The primary route through the project site is the Tarwin Lower – Waratah Road. Whilst clearly not heavily used, this route is now part of a newly sealed route connecting Inverloch to Fish Creek and Wilsons Promontory. It is not located on the coast. Nor is it likely to provide the most convenient long distance travel route between major destinations for persons other than local residents. However, it connects coastal townships and is the means of connection closest to the coast. Whilst it is clearly not and never can be an equivalent to the Great Ocean Road or even the Bunurong Coastal Drive west of Inverloch, it enjoys some current tourist use

and could enjoy more if further promoted. To this extent it offers some undeveloped potential to the locality. This should be safeguarded.

That being said, the Panel must observe that the outlook from the section of the road passing east from Tarwin Lower to the crest of the Mount Liptrap Ridge is of a pleasant but ordinary landscape quality. It passes across relatively flat largely cleared land, to which it provides views that are often limited by or filtered through native vegetation and pine wind breaks. Although as a road user one is conscious of the presence of the sea just beyond the horizon, it is seldom directly seen. In short, the road approaching and through the project site is of a similar pleasant nature to many rural roads in coastal areas that do not afford regular, striking or interesting views to the sea. The Panel notes that there will be locations around the Box, Wooldridge and Uren properties where turbines would closely approach the south western side of the road and be dominant. However, in general terms, the filtered views towards the northern, central and southern clusters will limit the impact of the project on road users, assuming current levels of visual screening are maintained. On this basis, the Panel considers the impact on this road to be low.

In this regard, the Panel does not support the planting of what were referred to by some as 'bullshit strips' to completely enclose the road between green walls. It is important to retain a sense of visual interest and rurality by retaining windows through roadside vegetation to cleared land beyond. Some of these windows will provide views to turbines and, in the Panel's view this should not be adverse to the landscape enjoyment of most road users, as long as these windows remain as such and do not become extensive and monotonous views of turbines at a dominant scale.

Whilst much roadside screening between Dumbarton Downs and Tarwin Lower is provided by relatively dense native vegetation, from Dumbarton Downs towards Mount Liptrap, pines are more common. The Panel noted during its site visits that a significant number of pines were apparently senescent or diseased, lending weight to the views of some submitters that removal would become necessary. The O'Sullivan – Wooldridge family had clearly removed many of their pines. Similar steps appear likely to be required on the Uren and Kilsby properties. For this reason, the Panel does not weight non-native vegetation on this road as having much medium to long term screening value. On this basis, there is scope for impacts on road users and adjacent property owners on this route to significantly increase, in a location close to the proposed turbines.

For this reason, the Panel considers that the proponent should fund and prepare a roadside landscape and windbreak management plan for this road in collaboration with the South Gippsland Shire Council and abutting landowners. This process should involve initial assessments of the likely viability of the current pine windbreaks. Where this is found to be limited, a staged clearing and replacement programme should be drawn up, with works again funded by the proponent. This should focus on retaining the wind break and visual screen functions of the roadside vegetation, preferably using native as opposed to exotic planting.

Once the route passes beyond the Mount Liptrap Ridge and moves on towards Fish Creek, the same cannot be said. Occasional views to the east (discussed above) are spectacular. The route is enclosed by much denser and more consistently native vegetation. The few views are tantalising. That being said, the Panel notes that for considerable extents, the road is located on the eastward side of the Mount Liptrap – Hoddle Ridge. Views towards the project site are extensively controlled by both landform and native vegetation. The Panel

views the project as having an insignificant impact on this component of the route and does not consider that any specific screening action will be necessary.

The Buffalo – Waratah Road passes east of the project site. This is an unmade local road. It experiences relatively low levels of usage and does not appear to the Panel to offer a potential tourist link in the same manner as the Tarwin Lower – Waratah Road.

This road is subject to a significant level of impact, as it passes close to the Bald Hills Range at some 50 metres lower in general elevation than the ridge of the range on which turbines would be located. Turbines in the northern cluster will clearly dominate views from this road for a significant distance and, by virtue of proximity and elevation there will be little that existing or possible additional planting could do to mitigate this impact. The impact will clearly be adverse, but again, having regard to the weighting to be applied to landscape impact pursuant to policy in PPG – WEF, the Panel is clear that the adverse impact is not of the significance that would warrant design mitigation in terms of relocating turbines or refusal of the permit. There is some scope for the appraisal of existing planting and some augmentation, to ensure that its filtering effects are not lost. Issues emerge in relation to the amenity of dwellings located on this road, but these are discussed further below in Section 14.

The Bald Hills Road is a dead end road accessing properties within and adjacent to the northern cluster. The road runs to the east, accessing adjacent properties and the Bald Hills Wetland Reserve, and is generally well screened from the project site by native vegetation. It then turns south and has open vistas to the site, but at this point is used largely to access stakeholder properties in the wind farm development.

The Panel considers there is limited impact on views from the eastward leg of the road. There will be a higher impact on the southward leg, but its limited use, combined with its function largely to serve proponent stakeholder properties make this impact of little weight.

Land to the north of the site is served by Stewarts and Dunlops Road. Much of this passes over flat land, the Tullaree Swamp. This is an indirect and unsealed road serving only frontaging properties. There are extensive views to the south towards the Bald Hills Range, on which the project would be located significantly higher than the surrounding land. In comparison with the other roads described, there is relatively limited roadside vegetation. Impacts on views from this road will in the Panels view be moderate to high. However having regard to the weighting to be applied to landscape impact pursuant to policy in PPG – WEF, the Panel is clear that the adverse impact is not of the significance that would warrant design mitigation in terms of relocating permits or refusal of the permit.

Owing to its further distance from the site than the Buffalo – Waratah Road, roadside planting might achieve more valuable screening. That being said, roadside planting would alter the open vistas which link this landscape to its history as swamp. On balance the Panel considers that consultation with the Shire and frontaging landowners may provide scope for some additional planting activity if this were desired.

The Panel also notes that some general landscape enhancement and mitigation may also be achieved from 'landcare' type on-farm revegetation as an alternative or in addition to roadside planting.

In relation to impacts on views from roads, the Panel finds that these are generally acceptable in the terms required to satisfy PPG – WEF.

- Significant sections of the Tarwin Lower – Waratah Road are currently screened from the project site by pine windbreaks that are likely to require removal in the near future. Action to coordinate replacement roadside and windbreak planting using native vegetation to maintain the current character of this tourist route is warranted.
- Views from Stewarts and Dunlops Road will experience character change due to the elevated situation of turbines and the open nature of the drained swamp land in which the road is situated.
- There will be harm to views in the section of the Buffalo – Waratah Road closest to the Bald Hills ridge. The proximity of the ridge and the elevation of the turbines above the road will make effective landscape mitigation difficult to achieve. However, existing roadside planting provides some screening. It should not be lost and may be augmented.

The Panel recommends as follows.

The proponent should fund and prepare a roadside landscape and windbreak management plan for the Tarwin Lower - Waratah Road and the Buffalo – Waratah Road in collaboration with the South Gippsland Shire Council and abutting landowners, largely to address the likely widespread loss of pine trees on these roads.

Subject to consultation with and support of the South Gippsland Shire Council and abutting landowners, the proponent should fund and prepare a roadside landscape management plan for Stewarts and Dunlops Road

The proponent should also be encouraged to contribute towards on-farm revegetation works that may render landscape benefits, through programmes such as Landcare.

Views in General

Mr John Cleary had set out his general view in his evidence that wind farms do not significantly affect views. This view was based on the concept that wind farms are largely undeveloped and are thus visually permeable. As such, it was argued that they do not prevent views being enjoyed through the wind farm to objectives beyond it, a characteristic which makes them different from more typical large scale built development.

This position was strongly opposed by many submitters who stated that if a wind farm were to intervene between the viewer and a valued view, the view would be diminished or even destroyed.

The Panel notes that whilst it is true to observe that wind farms are visually permeable, it is not satisfactory to argue that they are preservative of views. Even a single wind turbine is a very powerful symbol in the landscape. In a rural area it will be of unprecedented scale. When functioning, it will rotate. For these reasons it will become a strong visual focus for many viewers. Some will come to enjoy the experience. Some will perceive it as a damaging intrusion or distraction. However, the Panel considers that few except the most dispassionate or trained observers will find it easy to look past or through the operational windfarm to continue to appreciate a view or vista that once lay beyond it. The Panel suspects that landscape consultants may be amongst the few who possess such a skill, but that it is unlikely to be generally shared.

On this basis, the Panel finds that a wind farm proposal can obstruct and or harm views of the landscape as perceived by some viewers. However, the critical question in the Panel's mind is the degree to which the obstructed or harmed, how significant that harm is and how weighty it appears to be in terms of PPG – WEF policy. In this case, the Panel has not found any instances of harm to views that appear to merit design mitigating action or refusal of the permits applied for, other than as discussed above.

9.3.7 LANDSCAPE DESIGN

It is a matter of some interest to the Panel that few submitters raised significant concerns about the proposed pattern of distribution of turbines in clusters in the landscape. In part this can be attributed to the fact that most objecting submitters were concerned that the project should not proceed. The bulk of their effort therefore appeared to be focussed on the achievement of this end. Relatively little debate had emerged about whether the particular choice of turbine locations or approaches to locating groups or clusters of turbines had been successful or otherwise.

The proponent, through the evidence of their landscape consultant Mr John Cleary, were at pains to emphasise that they had not sought to locate the turbines other than to:

- optimise energy yields;
- respond to micrositing considerations as known (including natural environment, cultural environment and physical environment considerations);
- control and mitigate noise impacts;
- control and mitigate local amenity impacts;
- control and mitigate sub-regional and regional landscape effects.

Mr Cleary had seen his role as being to identify landscape values as a means of determining whether in principle the site was suitable as a windfarm location. He then sought to advise the client about the landscape impact of particular configurations of turbines proposed within the project site and whether these were broadly acceptable in landscape and visual amenity terms. He had also assessed impacts from key viewpoints. Mr Cleary was not a landscape architect. Nor had he sought to bring any design considerations to bear on decisions about turbine layout other than those drawn out above.

It followed that it was no part of the proponent's submission or Mr Cleary's evidence that the turbines were laid out in particular ways so as to evoke particular visual or cultural responses. Their location was not an artistic endeavour. It should be noted that this approach is similar to that taken in other constructed wind energy facilities in Victoria. It is however in significant contrast to the Portland Wind Energy Project, where the landscape consultancy EDAW advanced arguments in favour of the gestural or geometric ordering of turbines in landscape as offering visual and landscape benefits over and above a simple power optimised layout.

Similarly, this project had followed generally established practice in locating turbines in informally laid out clusters or groups. This again contrasts with Portland where 'strings', or linear alignments of single turbines had also been used.

Insofar as this issue was commented on in submissions and evidence, there was little criticism of the basic approach towards landscape design adopted by Mr Cleary. There were strong concerns that he had wrongly rated the significance of the site (leading submitters to

conclusions that the turbines should not be there at all) or that he had wrongly assessed impacts from viewpoints, suggesting that some turbines should be in different places. These issues are discussed above. However, there was little suggestion that the proponent could or should have mitigated landscape or indeed amenity impact by taking a more consciously 'visual design' led approach to turbine location and site planning, for example, by using geometric or gestural turbines layouts, or by placing turbines in strings or linear arrays across the landscape. Certainly, such approaches were not advanced in landscape evidence for the Tarwin Valley Coast Guardians given by Mr Dennis Williamson.

The most strongly advanced design considerations did not relate to approaches to turbine siting per se, but to ones ability to view turbines from locations beyond the site and to means of mitigating their dominance in the near to medium range views.

Here, Mr Williamson's evidence was as follows:

- No turbines should be located within approximately 1 km of the Lower Tarwin – Waratah Road, to avoid any hint of 'an industrial image'. This would require the removal of Turbines 31, 32, 33 and 34 – effectively the entire central cluster – and 35, 36, 37 in the south cluster.
- The most prominent turbines located on ridges in the northern cluster above 80 metres AHD should be removed or, more tellingly, relocated to less prominent sites. The affected turbines would be Turbines 1, 2, 5, 9, 10, 15, 18, 19, 21, 25 and 26. Mr Williamson also indicated that the Panel should explore the removal or relocation of turbines above 70 metres AHD 'as it would no doubt produce a preferable result visually and in terms of tourism image.

The proponent strongly resisted these submissions of Mr Williamson. It contended that:

- In relation to Mr Williamson's evidence generally, his entire approach indicated to the Panel that he was not thoroughly prepared and had simply failed to appreciate the facts of the case, as he was unaware of how many turbines were proposed or how high they might be.
- He had never done a full landscape assessment of a windfarm, having acted only in opposition. In those terms, his assessments in previous cases tended to support the project.
- In relation to the removal of turbines adjacent to the Tarwin Lower – Waratah Road, the proponent took the view that Mr Williamson was being too conservative. The outcome from the Portland process suggested that the location of a relatively small number of turbines within 1 km of a relatively little used road was not objectionable per se. Further, even if 7 turbines were removed, the bulk of the balance of effect for most users of the road along most of its length would remain unchanged, as there would still be views to many turbines outside this setback.
- In relation to the removal of turbines above 80 metres AHD, Mr Williamson had simply failed to analyse what the visual effect of such changes might be and whether they would be material to public perceptions of impact. 5 of the 9 turbines proposed to be removed would fall in the top 10 yielding turbines on the development overall. The proponent took the view that such a change might significantly reduce the wind energy yield to be expected from the project and exacerbate problems such as boundary separation or the management of soil erosion. However, it would only have a negligible impact on most views to the site from most locations.

9.3.8 PANEL RESPONSE

In terms of basic design approach, the Panel considers that the proponent has been wise in seeking to principally respond to the landform and to optimisation of energy yield. If the site were a flat and open site (as is common in the Netherlands), with the principle landscape features being cultural and rectilinear (for example roads, flood defences and drains), then the Panel would agree that there may be some scope for the placement of turbines in geometric layouts. On an open and uninterrupted plain, gestural layouts can have merit. However, on rolling coastal terrain influenced in form by wind transport of sand, Panels experience suggests that yield optimisation and landform responsiveness will provide a far more visually harmonious result than attempts to provide order through the deliberately designed placement of turbines.

It is further the Panel's experience that in landscapes such as that of the project site, defined clusters of many turbines on balance reduce landscape impact relative to project scale. This is when compared with the visual effect of assembling the same number of turbines into linear strings or arrays across the landscape.

The Panel also in general terms considers that given a choice between larger numbers of smaller turbines, or fewer larger turbines for the same power yield, the latter design approach (as taken in the SEES) is considerably to be preferred in visual and landscape terms to the former (taken in the EES).

On balance, the Panel considers that the assembly of large numbers of turbines on this site will have a significant local impact, but that the proponent has generally selected the least impactful means of placing the turbines onto the site to obtain a given power yield.

Another benefit of the proponent's informal and landscape responsive approach to turbine siting is that it provides significant scope for micrositing location changes to be made to turbines to respond to, for example, geotechnical or Aboriginal archaeological and cultural considerations, without obvious harm being done to a 'grand design'. In a project of this scale and in potentially difficult terrain with known archaeological and cultural issues, this is wise.

That being said, the Panel has considered Mr Williamson's evidence in relation to siting and design mitigation with great care. It must observe that it was not persuaded of the merits of the proposed measures.

In terms of setback from the Tarwin Lower – Waratah Road, the Panel considers that the requested setback would remove significant numbers of turbines, but for little road user benefit, assuming the windbreak and landscape strategy recommended above to be pursued. Even at a 1km setback from the road, it would be apparent to users in the unvegetated sections that they were passing through a windfarm. Those viewers who would have a negative reaction are likely to retain this with the larger setback. Those viewers who would have a positive reaction to the turbines may even conclude that they have lost an opportunity to view the structures at close proximity. On balance, the Panel does not consider that minor landscape benefit to be achieved justifies the loss of energy yield occasioned by taking this measure.

In relation to the removal of turbines above 80 metres AHD, the Panel observes that this will reduce the effective height of the combined facility from most viewpoints by less than 10%. Having regard to the orders of landscape impact assessed above, the Panel concurs with the proponent's view that this will be of immaterially minor public benefit. However, it will be

significant in terms of reducing energy yield. The Panel cannot take a proposal that it examine removal of turbines above 70 metres AHD with much more than a pinch of salt. This proposal would amount to the relocation of almost the entire facility and would require the acquisition of additional land. It would significantly reduce energy yield such as to throw the economic justification of the project into question. It would amount to a change to the project so significant that it could not be delivered by planning condition. The permit would need to be refused. In relation to the levels of landscape impact assessed above and its weightiness in policy terms, the Panel considers such an approach is not reasonable. Nor does it respond to the strategic assessment of Mr Williamson that the site is generally strategically appropriate in landscape terms.

The Panel supports the approach to turbine numbers, layout, siting and design taken by the proponent in the SEES. It is landform responsive and mitigates landscape harm as far as possible. It provides a given power output with fewer larger machines. It offers micrositing flexibility without harm to a 'grand design'.

9.3.9 CUMULATIVE IMPACT

Many submitters were most concerned that the Panel should not just identify and consider the proposed project against existing wind farms. This would imply that only Toora would be considered, a concern to many who also took the view that the Panel should have regard to the approved Wonthaggi facility and to ongoing wind farm proposals at Dollar and Welshpool. In addition to these, reference was also made to possible wind farm proposals closer to the project site at Powneys Road, Grass Tree Hill and on the Hoddle and Mount Liptrap Ridge. There was a strong concern that the project should be assessed against all such proposals or potential proposals, to ensure that its impact in context on regional and sub-regional landscape values could be properly understood.

Mr Dennis Williamson gave landscape evidence for the Tarwin Valley Coast Guardians. In his view, it was appropriate when locating and designing a wind farm to have regard to concepts of landscape capacity. One should consider the effect that a particular siting or design decision might have on the prospects for locating other wind farms in the same landscape region or visual catchment at some future date.

The proponents' view was that cumulative impact assessment could only reasonably be undertaken as against projects that were constructed, or about which there was reasonable certainty, by virtue of relevant approvals having been granted. It cited with approval the finding of the Panel for the Wonthaggi project, which stated:

Other wind farm developments that are proposed but not yet approved are not relevant to the assessment of this wind farm proposal.

It took the view that there must necessarily be a 'first in – best dressed' approach to cumulative landscape assessment. The first wind farm to be constructed within a landscape region or broad viewshed would have an inevitable privilege of being the first impact, relative to which latecomers' projects would have to be cumulatively assessed. On this basis, it was necessary to consider the impact of the project against the actual landscape effects of the Toora windfarm and the prospective effects of the approved Wonthaggi windfarm. It was however not necessary to consider the Dollar or Welshpool proposals as these had yet to undergo formal assessment.

That being said, the proponent did not discount the merits of a landscape capacity approach as advanced by Mr Williamson.

9.3.10 PANEL RESPONSE

In identifying cumulative landscape impact as an issue for its consideration, the Panel first needs to identify the basis on which it does so.

By cumulative landscape impact, the Panel is addressing two concepts:

- cumulative impact within the project; and
- cumulative impact between the project and other wind energy facilities.

Cumulative impact within the project is an issue that was given much consideration in the Portland report. It was relevant there because the project consisted of four wind farms, three of which were further divided into discrete clusters and strings of turbines, spread over large areas of rural land across more than one landscape region or viewshed. In several instances, these clusters and strings were in themselves of sufficient scale and dispersal to be seen in the landscape as if they were separate windfarms. Irrespective of the impacts of other projects in that case, it was appropriate to ensure that the regional cumulative impact of the individual windfarms and their components was assessed.

In comparison with Portland, the current project is relatively modest in scale. It is located within a single landscape region, described above as the Venus Bay region, enclosed between the Grass Tree ridge to the west and the Mount Liptrap - Hoddle ridge to the east. Unlike the Portland project, the project site does not extend beyond the boundaries of this single region. There is therefore no sense in which internal cumulative impact as between components of the project will suggest to the observer that the windfarm dominates the scale of the landscape by taking it beyond horizons and viewsheds to cross more than one region.

That being said, at a subregional level, the project will have a significant impact. Divided as it is into three clusters, there are nevertheless a number of locations from which the clusters will be seen to coalesce and will not be read as separate visual entities. The northern area, located on the Bald Hills ridge will undeniably occupy a prominent location within the landscape region. However, again, at the risk of repetition, having regard to its findings on the significance of the project site and the Venus Bay region in landscape terms, the Panel is unable to conclude that this subregional coalescence is so harmful as to require mitigation or avoidance.

Turning to cumulative landscape impacts in relation to other projects or proposals, the Panel considers that, submissions to the contrary notwithstanding, the only meaningful basis for cumulative impact assessment is to examine the proposed project in the regional landscape context created by constructed and approved projects. This means that the Panel has had regard to the actual effect of the project as against Toora and the proposed Wonthaggi windfarms. To require a cumulative impact assessment against the Dollar or Welshpool proposals would be premature at this stage. Having regard to their situation in the project development and approval process, it is still possible that these projects might not eventuate or that the proposed siting and design could change. However, if this project is approved and those projects fall to go through a formal approval process in due turn, the Panel considers that the appropriate time to consider cumulative impact with each other, with this project and indeed with Toora and Wonthaggi also will be during their approval processes.

The Panel considers that all other facilities advanced as potentially proposed for the region are either not sufficiently certain or have been denied as being contemplated. It does not propose to consider them beyond stating that the principle of assessment that it has articulated above for Dollar and Welshpool should also apply to any other later proposals. It will also be the case that later proposals will have a harder task to demonstrate that their cumulative impact is acceptable, should there already be one or more well located and designed wind energy facilities within their landscape region.

The Panel considers the Toora facility to be located in the Corner Inlet – Wilsons Promontory North landscape region. However, because of the low lying nature of the Yanakie Isthmus, Toora can be widely viewed across the Waratah Bay region, to the viewshed on the Mount Liptrap – Hoddle ridge. That being said, Toora is a small facility that does not dominate that region or do untoward harm to its acknowledged high landscape values.

Views to Toora from within the Venus Bay landscape region of the project site are at long distance and small scale. They are also limited. The Panel does not consider that there will be sufficient intersection between views to Toora and views to the project site, such that viewers in either the Venus Bay region or the Waratah Bay region will perceive their region as a whole to have become subject to a transregional coalescence of wind energy facilities, dominating the scale and harming the value of the transregional landscape.

Turning to Wonthaggi, the Panel notes that this facility will be closer. However, it also lies in an adjacent landscape region, the Inverloch – Bunurong region. It is also a very small facility. The Panel does not consider that there will be sufficient intersection between views to Wonthaggi and views to the project site, such the viewers in either the Venus Bay region or the Inverloch - Bunurong region will perceive their region as a whole to have become subject to a trans-regional coalescence of wind energy facilities, dominating the scale and harming the value of the trans-regional landscape.

The project will not give rise to trans-regional landscape dominance by virtue of its relationships with the Toora and Wonthaggi windfarms.

The project does not require to be cumulatively assessed with the Dollar or Welshpool proposals, although they as later comers should be assessed in the light of the impact of the project if it is approved.

The project cannot be sensibly be cumulatively assessed against other 'projects' that exist as speculation or rumour, or the existence of which has been denied by the alleged proponent.

9.3.11 REGISTER OF THE NATIONAL ESTATE

Having set out its substantive considerations, the Panel is also conscious that it should consider effects on places subject to registration on the Register of the National Estate, where the citations raise issues of landscape value.

The Panel adopted a criterion in terms of impact as follows:

That the proposal will not adversely affect any registered site on the Register of the National Estate.

It has examined whether areas that could be affected by the project are currently listed on the Register of the National Estate, for reasons that are wholly or partly related to their landscape values. The currently listed areas are set out below, together with their statutory status under the *Australian Heritage Council Act 2003*:

▪ Cape Liptrap and Waratah Bay Coastal Area Walkerville	Indicative
▪ South Gippsland Marine and Coastal Park Area Foster	Registered
▪ Bunurong Cliffs Coastal and Marine Area Cape Patterson	Registered
▪ Wilsons Promontory National Park	Registered

Where sites are registered, they are included on the permanent Register of the National Estate. The Commonwealth government must not take action that would result in an adverse impact on such places, unless there is no reasonable and prudent alternative.

Where sites have an indicative status, they have been nominated for inclusion on the register. However, at this stage they have not proceeded to interim listing or undergone any public review. They have no formal status in relation to Commonwealth decisions .

The southern cluster of wind turbines is proposed to be located on land adjoining but not in the indicative Cape Liptrap and Waratah Bay Area. All of the other areas listed areas are remote from the project and the Panel judges that it could not result in a direct landscape impact upon them. Noting the indicative status of the Cape Liptrap and Waratah Bay listing, the Panel considers that there are no considerations arising for the Commonwealth in this regard.

The project will have no impact on the landscape values of registered places on the Register of the National Estate.

9.4 SUMMARY OF FINDINGS

In general terms, the Panel makes the following combined finding on landscape issues.

- The project will significantly harm its landscape setting at the local level. However, this setting is not a landscape character or quality that merits protection in terms of PPG – WEF.
- It will harm the landscape values of nearby parks and reserves, in one case to the level of compromising that value. However, the levels of harm are either acceptable and mitigable or, where findings of high harm or the compromising of landscape values have been made, relate to land that is for all practical purposes inaccessible and so the harm is not highly weighted.

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- The project's impact on its wider landscape and main travel routes through that region will be moderate and on balance acceptable.
 - The project will not impact on high quality landscapes in adjacent landscape regions.
 - Cumulative impact with other existing wind farms is low and acceptable.

However, examining these findings in terms of the Panel's adopted criteria, the Panel considers that on balance they are met well.

The Panels examination of the location of the site within its landscape region, the pleasant but unexceptional nature of landscape values in that region, together with the limited nature of trans-regional impacts, leads it to the view that the proposed development is sensitively sited and designed so as to have minimal impact on the significant landscape values of the coast. There will be some impact. However, on balance this will be acceptable impact. The project does take sufficient steps to ensure that areas of natural scenic beauty and importance are conserved and maintained, largely by avoiding them as an in principle siting decision.

In noting the existence and level of local impact, the Panel has adopted the direction on landscape considerations set out in PPG-WEF. It considers that with this policy framework in place, there is clear direction to decision makers that the orders of landscape impact arising from this project do not warrant site avoidance or significant design mitigation measures.

10. NATURAL ENVIRONMENT

Natural environment issues formed one of the key concerns of submitters both in writing and before the Panel. In structuring this chapter of the report, the Panel has identified that submissions fell into two broad groups.

The first group of issues raised in submissions related to the general form of the reports provided to the Panel with reference to natural environment.

The second group of issues were matters of substance.

- There were widespread concerns that the project entails the avoidable removal of native vegetation.
- There were widespread concerns that the effects of the project on birds and bats would be adverse.
- It was suggested that the effects of the project on birds and bats could not be properly predicted, due to limitations or flaws in survey methods.
- Some concerns were also expressed about the effect of the project on other fauna.

In opening its consideration of these issues, the Panel has divided this chapter into three main sections, considering flora, ground fauna and bats and finally birds. It has then considered the relevance of the registrations on the Register of the National Estate for the purposes of Commonwealth decision making in this area. However, before moving to the substance of issues raised under each of these headings, the Panel feels that it must express some general concern about the form of the reports provided on flora and fauna issues.

10.1 ISSUES

Natural environment issues raised fell into the following groups:

- In relation to native vegetation:
 - issues in relation to protection of native vegetation, particularly the question of whether the project needs to have any impact upon it; and
 - issues in relation to mitigation and revegetation programs.
- In relation to ground fauna and bats:
 - issues in relation to the adequacy of surveys;
 - issues in relation to protection of non avian fauna; and
 - issues in relation to mitigation measures.
- In relation to birds:
 - issues in relation to the adequacy of surveys; and
 - issues in relation to protection of birds;
 - issues in relation to mitigation measures.

In addition to these matters, the Panel has also considered:

- the potential for the project to impact on natural environment values under the Register of the National Estate; and
- the degree to which the EES and SEES represented appropriate process in terms of environmental impact assessment.

10.2 CRITERIA TO BE MET

With reference to the Panel's identification of sources of relevant legislation and policy above, the Panel considers that the appropriate criteria should be:

That the proposed development will not impact on conservation of biological diversity and ecological integrity within the development sites and surrounding lands.

That the wind turbines, access roads, underground power cabling, substations/switchyards, construction areas and other infrastructure are sited and designed to minimise removal of native vegetation.

That removal of native vegetation to provide for siting and construction of the development will be as far as reasonable unavoidable and be offset by a net gain, measured in terms of habitat hectares.

That the proposed development will not lead to degrading processes that would have detrimental impacts on native flora, such as spread of pest plants and animals and soil erosion.

That the proposed development will not impact on species listed under the Environment Protection and Biodiversity Conservation Act 1999, and the Flora and Fauna Guarantee Act 1988

Referring to the EES and SEES literature, the Panel has paid particular regard to the following listed species:

- **Vegetation:**
 - Caladenia fragrantissima subsp. Orientalis (Cream Spider –orchid);
 - Prasophyllum frenchii (Maroon Leek–orchid, Slaty Leek-orchid, Stout Leek-orchid);
 - Pterostylis cucullate (Leafy Greenwood);
 - Sowerbaea juncea (Rush Lily);
 - Caladenia vulgaris (Slender Caladenia);
 - Agrotis avenacea var. perennis (Wetland Blown-grass); and
 - Monotoca glauca (Currant-wood).
- **Terrestrial and Aquatic Fauna and Bats**
 - Australian Grayling (Prototroctes maraena)
 - Dwarf Galaxias (Galaxiella pusilla)
 - Long-nosed Potoroo (SE mainland) (Potorous tridactylus tridactylus)
 - Southern Bell Frog, Growling Grass Frog, Warty Bell Frog (Litoria reniformis)
 - Southern Bent-wing Bat (Miniopterus schreibersii)
 - Southern Brown Bandicoot (Isodon obesulus obesulus)

- Spot-tailed Quoll (south-east mainland and Tasmanian subspecies) (*Dasyurus Maculatus maculatus*) (S. Lat.)
- Swamp Antechinus (*Antechinus minimus*)
- Swamp Skink (*Egernia Coventry*)
- Tree Goanna (*Varanus Varius*)
- White-footed Dunnart (*Sminthopsis leucopus*)
- **Birds**
 - All listed migratory species;
 - Orange-bellied Parrot (*Neophema chrysogaster*); and
 - Swift Parrot (*Lathamus discolor*).

In setting out these criteria, the Panel has had regard to the provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, and the Register of the National Estate; the *Flora and Fauna Guarantee Act 1988*; the *Catchment and Land Protection Act 1994*; the National Strategy for the Conservation of Australia's Biological Diversity; Victoria's Biodiversity Strategy; Victoria's Vegetation Management Framework; and SPPF clause 15.09 - Conservation of native flora and fauna, relevant components of the LPPF, zone and overlay provisions of the South Gippsland Planning Scheme.

10.3 DISCUSSION

10.3.1 VEGETATION

In general terms, submitters were reasonably satisfied with the identification of native vegetation and vegetation classes in the EES and SEES documentation. Some concerns were expressed about the degree to which surveys had extended to consider roadside vegetation that might be affected by construction transport and access to the site. However, the main vegetation concerns related to the environmental and policy consequences of the species and vegetation classes that had been identified.

Listed Species

A flora assessment of the proposed wind farm sites was carried out by Brett Lane and Associates for the proponent. This involved:

- Obtaining flora records from the Flora Information System (FIS) of DSE. These records related to the broad region from Walkerville to Tarwin Lower and about 10 kilometres north of the project site.
- Field investigations on 16th and 17th October 2002.

The field surveys identified 110 plant species on the site. Of these 98 were indigenous and 12 were introduced.

The Brett Lane assessment concluded from the FIS information that in the wider region the following species of conservation significance could be present:

- Cream Spider Orchid;
- Maroon Leak Orchid;

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- Thick-lipped Spider Orchid;
 - Leafy Greenwood;
 - Rush Lily;
 - Slender Caladenia
 - Wetland Blown-grass; and
 - Current-wood.

The above species are listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) or the Flora and Fauna Guarantee Act 1988 (FFG Act).

During the field investigations *Eucalyptus Kitsoniana* (Gippsland Bog Gum) was identified at a number of locations. This species is considered 'rare' on both a State and National level.

The EES was specifically required to investigate for the following nationally threatened orchid species:³⁰

- Cream Spider Orchid (*Caladenia Fragrantissima*)
- Maroon Leek Orchid, Slatey Leek Orchid, Stout Leek Orchid (*Prasophyllum Frenchii* Ssp *Orientalis*); and
- Leafy Greenhood (*Pterostylis Cucullata*).

With the exception of *Eucalyptus Kitsoniana*, none of the other species of conservation significance potentially present on the site were identified during the field surveys conducted on 16 and 17 October 2002. Mr Lane did however indicate that some of those species would have been difficult to identify, due to the time of year in which the field surveys were carried out. Mr Lane recommended that further surveys in late spring early summer should be carried out to:

Investigate the occurrence of any of the Flora Information System (FIS) listed or other threatened flora species where Sand Heathland is proposed for removal.

The report further indicates that if the additional field surveys establish the presence of any of the nominated species in areas to be disturbed then turbines would be relocated to avoid significant areas.

Mr Gobbo for the proponent in his closing submission said:

....this is appropriately dealt with by way of a permit condition. It is an issue for micro siting.

There were views expressed that survey work should be complete before approval and that post approval investigations were not appropriate. However, in general terms, submissions did not raise concerns about this work, other than to highlight the presence of *Eucalyptus Kitsoniana*, highlighting the need for a roadside vegetation survey before works commenced to enable access by construction vehicles to the site.

³⁰ DSE Assessment Guidelines, February 2003 at pg 9

EVCs

The field investigations identified four distinct vegetation types on the site as follows:

- Exotic Pasture;
- Sand Heathland;
- Lowland Forest/Damp Sands Herb-rich Woodland Mosaic; and
- Swamp Scrub.

The last three of these vegetation types are Ecological Vegetation Classes (EVCs) classified as follows:

- Sand Heathland EVC has a conservation status of rare and is considered by Mr Lane to be of regional conservation significance. It occurs on the uncleared hilltops and upper slopes of the elevated land in the eastern part of the northern site. Two turbines (1 and 10) are proposed to be located within areas of this EVC.
- Lowland Forest/Damp Sands Herb-rich Woodland Mosaic EVC has a conservation status of vulnerable and is considered by Mr Lane to be of high regional conservation significance. It occurs on the mid-slopes and lower hills of the proposed site. None of the turbines or any associated works are proposed to be located within areas of this EVC.
- Swamp Scrub EVC has a conservation status of endangered and is considered by Mr Lane to be of high regional conservation significance. It occurs in poorly drained depressions and on the margins of some drainage lines. None of the turbines or any associated works are proposed to be located within areas of this EVC. The rare *Eucalyptus Kitsoniana* or Gippsland Bog-gum occurs in association with this EVC.

Lane describes the sites of the proposed turbines as being:

Predominantly agricultural land, supporting a mosaic of pasture and remnant native vegetation.

The patches of native vegetation forming the EVCs described above have in some cases been fenced to prevent stock access. Much of the remaining Sand Heathland which exists only on the northern site has been fenced for between 12 and 16 years and accordingly is mostly of high quality according to Mr Lane. The other two EVCs have not all been fenced and their quality varies from poor to moderate. Whilst the Sand Heathland EVC may in objective terms be the least significant of the native vegetation groups present on the site, where no allowance is made for impact and quality, in qualitative terms it appears to present the best native vegetation resource found on the site. Also, noting that it is the only EVC proposed to experience direct impact through clearing, it clearly requires the closest consideration.

With the exception of turbines 1 and 10, all wind turbines are all proposed to be located within cleared agricultural land. The amount of clearing associated with turbines 1 and 10, associated internal access roads and work platforms is estimated to be a total of 0.25 hectares. 0.1 hectares of clearance is required for turbine 1 and 0.15 hectares for turbine 10. A larger clearing area is required for Turbine No. 10 due to a longer access track alignment passing through vegetation along a ridgeline.

The site description, identification of individual flora species and EVCs together with their relevant conservation status provided by Brett Lane and Associates were not effectively challenged by any parties at the Panel hearing.

Vegetation Policy and Design

Of the 52 turbines, turbines 1 and 10 are the two proposed to be sited in areas containing existing native vegetation (Sand Heathland EVC). This EVC also potentially includes the nationally threatened orchid species referred to earlier.

A number of submitters were strongly concerned that this should be the case. They took the view that Victoria's Native Vegetation Management Framework was predicated on the assumption that vegetation should only be removed where this is for all practical purposes unavoidable.

Concerns were also expressed that whilst there had been on-site avoidance of the Swamp Scrub EVC, surveys had not extended to local roadsides, with reference to the likely access and travel routes for low loaders containing turbine components. Site access will involve some measure of roadside vegetation clearance, to provide safe access to the site for large vehicles and to enable these to wait, pass and corner on narrow country roads. Several submissions suggested that *Eucalyptus Kitsoniana* was located along road sides and concern was expressed that some may need to be removed.

The proponent stated that the turbines and associated works have been specifically located to minimise removal of native vegetation and with the exception of the two nominated turbines and their associated works, no removal of native vegetation is proposed within the site. Roadside vegetation issues should be a detailed matter requiring preparation of a detailed management plan after approval.

Victoria's Native Vegetation Management Framework requires a three step approach to achieve a Net Gain in native vegetation when assessing applications for removal of native vegetation. These are:

- To avoid adverse impacts, particularly through vegetation clearance.
- If impacts cannot be avoided, to minimise impacts through appropriate consideration in planning processes and expert input to project design or management.
- Identify appropriate offset revegetation and management options to replace lost vegetation on a habitat hectare basis.

It followed that a number of submitters were concerned that when the wind farm site consisted largely of cleared pasture, there was any necessity to clear native vegetation to locate turbines at all.

In responding to these three steps the Brett Lane report states that they have been achieved by:

- Only having 2 out of 52 turbines located in areas of native vegetation.
- All construction that takes place is to be in accordance with an approved management plan.
- Sites to be cleared have been selected based on their disturbed nature and with regard to limiting clearance to a minimum.
- A nearby area with the same EVC is proposed to be protected from existing threats such as grazing and ad hoc clearing and to be improved by additional planting.

The proponent's view was that they proposed to go significantly beyond what was required to meet the requirements of SPPF policy and Victoria's Native Vegetation Management Framework.

The primary area of offset proposed to achieve the net gain is on a property owned by Mr Cameron Delbridge, which is subject to the windfarm proposal. It is in a different, but adjoining property to that from which vegetation is proposed to be removed. The offset area consists of approximately 6 hectares of land containing the same EVC as that to be cleared for turbines 1 and 10. The habitat hectare calculations provided in the Brett Lane report indicate that an offset area of 1.3 hectares is required, suggesting that the Delbridge site represents a substantial over-provision.

The proponent indicated that the proposed offset area is currently unfenced and is used regularly for stock. The proposal is to exclude stock by fencing and to protect and enhance the vegetation values offset area. This proposal would be implemented by an agreement under the provisions of Section 173 of the Planning and Environment Act 1987 between the permit holder, the registered proprietor of the land and the Minister for Planning.

The Panel heard submissions that the area proposed for the offset was not appropriate because it had not in practice been used for grazing. It was suggested that it was a parcel of largely uncleared land in reasonable condition that, now being subject to native vegetation clearance controls, would be unlikely to be further cleared and therefore the proposal did not represent a net gain and had no benefit in policy terms. It was further suggested that grazing may have been introduced recently, for the benefit of the EES process. However, the proponent provided a letter from the landowner Mr Delbridge to the effect that he purchased the land early in 1990 and that he has since then regularly used the land for cattle grazing. He also stated that prior to his acquiring the land it had previously been used regularly for cattle grazing.

In addition to this formal offset area, the Panel was advised by Mr Marriot (a proponent landowner stakeholder) that Wind Power had agreed to fence other areas of existing native vegetation on his property. These fencing proposals are identified in Figure 1 of the Brett Lane report in Appendix 2 of the EES.

The Brett Lane report also identifies the presence of weeds in the existing patches of indigenous vegetation. Weeds include exotic and pasture grasses and bracken. In general terms the report indicates that these areas will be managed to improve and enhance the existing value of the vegetation. These measures include:

- Weed control
- Periodic controlled burning
- Infill planting with local indigenous understorey plants

The report also identifies as a critical issue the:

Potential occurrence of the plant disease Cinnamon Fungus in the Heathland areas.

Mr Lane goes on to recommend that the presence of this fungus should be confirmed by:

Proper investigation of the site including laboratory analysis of suspected infected areas.

In the event that the fungus is present appropriate measures as required by Environment Australia and DSE would need to be undertaken during construction including road building and earthworks.

Draft permit conditions proposed by the proponent also indicate a willingness to fence out the existing unfenced area of Kings Flat Reserve where it adjoins land to the south, again suggested as providing a tangible vegetation benefit in respect of this land that is currently accessible to stock from the neighbouring Kilsby property.

All in all, the proponent's view was that these measures combined to ensure that the wind farm offered a substantial net benefit in native vegetation terms over the status quo.

The Brett Lane report lists eight general recommendations to guide construction of the Windfarm. These are:

- *Where road construction and upgrade will be required, native vegetation should be avoided;*
- *Access points will need to be established to the existing paddocks and these should be located away from remnant vegetation;*
- *Wind generators should be located to allow a buffer distance between the construction zone and any wetlands and drainage lines;*
- *All machinery bought on site should be cleaned of weed propagules and soil pathogens prior to entering and before leaving the site;*
- *Runoff and siltation should be controlled by diverting runoff around construction areas, minimising soil loss from construction areas and detaining sediment-laden runoff to reduce sedimentation of downslope area. If Sand Heathland is to be removed then bare sand should be stabilised as soon as possible to prevent wind erosion;*
- *Storage of fuel and chemicals should be located sensitively to avoid contamination of drainage lines, dams and adjoining vegetation in the event of a spill. Appropriate material handling protocols should apply to the site to ensure that leaks and spills are avoided.*
- *All areas of soil disturbance in exotic pasture should be rehabilitated through the rapid re-establishment of the construction zones with appropriate pasture species;*
- *If construction takes place during the fire danger period (December to March) then welding and other activities, which are potential sources of wildfire ignition, should be carried out with consideration of weather conditions and with fire suppression equipment on hand.*

The Department of Sustainability and Environment while endorsing the proposal to provide the offsets proposed raised concerns as follows:

- There should be more information provided as to the appropriateness of the offset for habitat given its close proximity to turbine sites.
- The proposal to fence off various areas of remnant vegetation in the Marriott property would be improved if the fenced off areas were rearranged to provide a habitat corridor rather than isolated clumps of existing vegetation.

The issue of the proximity of the offset area to the wind turbines and the effect on its habitat value is discussed further below.

In response to the habitat corridor issue the proponent indicated that the habitat fencing plan for the Marriott property proposed exceeds the requirements of Victoria's Native Vegetation Framework and has been arrived at by agreement between Wind Power and the land owner. To this extent, it was not necessary to view this as formally required offset works.

10.3.2 PANEL RESPONSE

The Panel responds to the flora effects of the proposal below, specifically examining impacts in terms of listed species, before turning to more general flora and net gain concerns.

In general terms as to flora, the Panel considers that the project is capable of offering a no harm to net gain scenario, assuming appropriate permit conditions and environmental management. It raises the prospects of no harm as opposed to net gain, as the project is in the Panel's view very close to circumstances in which little material impact on native vegetation need take place. In such circumstances, there is little or no need to provide a net gain. To this extent, the Panel considers that design responses have become a little confused, with much effort going in to a significant 'net gain' response, when in fact by simply reconsidering the location of what the Panel considers amounts to one turbine, an effective no harm or de minimis scenario could be obtained. The Panel considers that this is a material consideration, for if resources are to be deployed to habitat management, there is a strong argument that they should be devoted not to net gain management on the wind farm site for its own sake, but to approaches for habitat and indeed landscape enhancement more broadly.

Listed Species

In relation to the flora survey's failure to find any of the listed species identified above, the Panel notes that Mr Lane concluded that additional surveys in late spring should be carried out for the three species identified above as being difficult to detect at the time of his survey. The Brett Lane report indicates if these species occur, they are only likely to occur in the area of the Sand Heathland EVC. That being said, the Panel notes that the conditions prevalent at the time of his survey were uncharacteristically dry. On balance, if clearing is to proceed, a survey should examine for the presence of all relevant statutorily listed flora species.

The Panel appreciates that the proposal includes clearing in this area limited to 0.25 hectares and it also appreciates that further surveys are proposed to identify some of the threatened species and that micro-siting of turbines will occur if appropriate after these additional surveys. In an ideal world, such surveys should be concluded before a development approval is sought. However, assuming a worst case scenario, that the relevant species are found to be located within the vegetation surrounding proposed turbine sites, to the extent that micrositing appears unfeasible, it would in any case prove possible to utilise the proposed alternative turbine locations that do not lead to a native vegetation impact. That being said, the Panel refers this issue forward to its broader consideration of impacts at an EVC and vegetation policy level below.

Given the small area of proposed clearing and the potential for micro-siting or re-siting of wind turbines to avoid all listed threatened flora species that might be present, the Panel is satisfied that flora species listed under the EPBC Act and the FFG Act need not be impacted by the proposed development. However, if the proposed clearing is to

proceed, the Panel notes that additional survey work will need to be carried out in spring and that this work will need to be directed to all the relevant statutorily listed flora species.

The Panel recommends as follows.

Before the commencement of construction, a spring survey should be undertaken for the following listed flora species (preferably following normal rains):

- *Caladenia fragrantissima* subsp. *Orientalis*,
- *Prasophyllum frenchii*,
- *Pterostylis cucullate*,
- *Sowerbaea juncea*,
- *Caladenia vulgaris*,
- *Agrotis avenacea* var. *perennis* and
- *Monotoca glauca*).

Should any of the species be found to be present in areas proposed to be cleared for construction, consideration should then be given to micrositing and/or turbine relocation.

That being said, in its broader discussion of net gain issues below, the Panel does turn its mind to impact avoidance on uncleared land. It must be observed that an impact avoidance strategy would reduce the extent of land required to be subject to survey and has much to commend it.

Vegetation Policy and Design

In considering the appropriateness of the proposed native vegetation clearance, the Panel has considered the nature of the EVC proposed for clearance, the possible although unproven presence of listed flora and the capacity for alternative locations to be used. It has also taken into account the various environmental offsets proposed in addition to the specific off set proposed to achieve a net gain in native vegetation, measured in terms of habitat hectares. In summary these are;

- 6 hectares of offset on the Delbridge land to achieve net gain, with the originally required offset area being 1.3 hectares;
- fencing and environmental improvement works on additional scattered remnant vegetation areas on the Marriott property identified in Figure 1 of EES Appendix 1; and
- boundary fencing on the north side of King Flat Flora Reserve.

The Panel notes that it is the specific intent of the proponent that the wind should be designed to avoid native vegetation losses as far as possible. Only two turbines out of 52 are intended to be located within areas containing native vegetation (turbine numbers 1 and 10). Access tracks and underground power for interconnection of turbines have similarly been located to avoid native vegetation (with the exception of short sections leading to turbine numbers 1 and 10). All other works such as substations, site offices, construction compounds and viewing facilities have all been located clear of native vegetation. In general terms, the Panel considers that the fact that 50 turbines have been well located in cleared land is a solid indicator of the general acceptability of the site in native vegetation terms. Further, an additional 5 'alternative' turbine locations have been assessed, against the possibility of the emergence of siting limitations with the currently proposed 52 locations. Of these, 4 out of 5 are also in cleared land.

Turbine 1 is located within but close to the edge of an area of Sand Heathland EVC. Brett Lane describes this as generally being of good quality. Mr Lane observes that the site proposed for turbine 1 is partially degraded due to the presence of an existing trig station. The area to be cleared is estimated as being 1000 square metres to facilitate siting and construction as well as access. The turbine can be relatively easily accessed along a ridge from adjacent cleared land, removing the need for a long access track clearance. This turbine is rated in the Garrad Hassan report as being the highest yielding turbine proposed for the site. All turbines are ranked for comparative efficiency, with the most efficient, turbine 1, being given a relative output index of 100 and the least efficient turbines being 48 and 51 with a relative output index of 80.2.

The Panel observes that there are conceivable alternative locations for turbine 1. The Native Vegetation Framework tends to suggest relocation. However, on balance and also highly weighting the most energetic turbine location against what in the Panel's view would amount to the limited if not de minimis harm caused by the proposed vegetation removal, the Panel considers the location of turbine 1 to be justified, subject of course to a listed flora species survey requirement as discussed above. It should always be recognised that a possible outcome from such a survey could be a requirement for micrositing or even relocation to avoid a finding of the presence of one or more of these listed flora species.

In contrast, turbine number 10 is located centrally in an area of Sand Heathland which, from the Panel's visit and other data appears to be in good condition, more intact and diverse than that adjacent to turbine number 1. The area to be cleared is 1500 square metres in this case. The larger area is due to the need for a longer access track – the most direct access being up a slope that would pose potential erosion risks. The relative ranking of this turbine is 89.3, being the 28th most energetic of 52 in the Garrad Hassan report. In these circumstances, the Panel considers that the weight that should be provided to the Native Vegetation Framework becomes higher and more compelling, in circumstances where there are also cleared land sites, assessed as capable of hosting this turbine. Equivalently, the benefits of the location in terms of energy yield become less compelling.

For these reasons, the Panel considers on balance that turbine 10 should be relocated to one of the five alternative turbine locations that have also been assessed. However, in making this observation, the Panel also considers that it must indicate against the use of alternative location A2. This is also in a vegetated (although less intact) area and would necessitate a long access track through native vegetation, leading to likely net impact of a similar or greater order to that required by the maintenance of the current turbine 10 location.

This then turns the Panel's mind to whether the proposed offsets are needed and/or adequate. The Panel concludes that the removal of turbine 10 from its proposed site significantly reduces arguments of necessity or adequacy in relation to native vegetation offset, as this is now to be provided only to offset the limited impact in area and value necessary to site turbine 1.

Here the Panel considers that the offset proposed on the Delbridge land (or an equivalent area) is still on balance warranted. The Panel reaches this conclusion on the basis that whilst the proposed offset would significantly overcompensate for loss in strict habitat hectare terms as required by the Native Vegetation Management Framework, other factors come into consideration, such as:

- The existence of the Delbridge vegetation as a single consolidated and un-fragmented parcel, amenable to cost effective and beneficial enhancement in a way that smaller fragments present elsewhere would not be.

- The situation of the Delbridge vegetation outside the turbine perimeter, maintaining its higher potential habitat value for fauna.
- The likelihood that some level of roadside native vegetation removal may be required, triggering offset requirements that have not yet been calculated, but are likely to be able to be addressed within the Delbridge land.

On the basis of the information provided by Mr Delbridge, the Panel is satisfied that the area proposed for the offset on his land has been grazed by cattle from time to time in the past. Whilst submissions were heard to the contrary, having regard to the terrain and vegetation cover, the Panel cannot imagine how any but the closest of observers would be able to prove conclusively that stock have not been accessing the site. Certainly it has not been grazed intensively. However, there are sufficient paths and tracks through the vegetation together with apparently cleared areas to suggest that the stock have been accessing this land and its management as native vegetation has by no means been optimal.

The Panel accepts the unchallenged evidence of Mr Lane to the effect that excluding stock will improve the vegetation quality of this land. In his recommendation on offsets and his calculations of habitat hectare, Mr Lane has assumed a 'premium' quality of management of the offset site.

Finally a proposed planning permit condition relating to an agreement under the provisions of section 173 of the Planning and Environment Act ensures the security of the offset. It follows that the Panel is satisfied regarding the assessment criteria relating to net gain. The question of the suitability of the offset site being appropriate because of its proximity to wind turbines and the possible effect of the turbines on habitat value is discussed further below.

Moving to other offset options, on the basis that turbine 10 is to be resited to a location where no native vegetation removal would be required, the Panel does not consider that native vegetation offsets in other locations or amounting to a greater area than the Delbridge vegetation can be justified. The Panel considers that there would be no justification for formal controls by condition or agreement to deliver the Marriott or Kings Flat/Kilsby enhancements. This is not to say that they might not be beneficial and should not go ahead, but this would be on a voluntary basis as they would strictly not be needed as a response to the vegetation impacts of the project.

In relation to the Marriott proposal, the Panel tends to support the view advanced by DSE, that the isolated and fragmented nature of vegetation patches, together with the relatively higher cost of fencing and maintaining such patches, would limit the benefit to be obtained. However, if the benefit is not formally required, this ceases to be an issue.

With reference to the fencing of the Kings Flat Flora Reserve the Panel commences by noting that the reserve is currently unfenced on at least one boundary and is accessed by cattle. Its value for flora and fauna would clearly be much more adequately protected if it were to be fenced. However, the Panel is also aware that the issue of cattle ingress is in relation to property owned by the third party Kilsby family. The Kilsby family do not support the project. The boundary between the reserve and the Kilsby property is not defined and significant vegetation clearance or a boundary re-alignment may be needed to enable fencing to proceed. In such circumstances, the Panel has doubts about the wisdom or necessity of including a requirement for fencing works affecting this property in the wind farm development approval, in circumstances where there appears to be no direct link to the project. In these circumstances it would be prudent to consider this fencing proposal as voluntary, subject to

agreement by the Kilsbys and the relevant authority, rather than providing by condition for what may turn out to be a source of dispute. In the final analysis, this is a matter for the public land manager to resolve with the Kilsbys, free of complication with the wind farm saga.

Turning finally to the issue of roadside vegetation, the Panel considers that the proponent does need to provide a full flora survey of any location where turn outs, corner clearance or access points for construction traffic may be proposed. The avoidance of impact to *Eucalyptus Kitsoniana* should be a key criterion of this evaluation. Should clearance of any native roadside vegetation be required, the Panel considers that in the circumstances of turbine 10 being relocated to cleared land, the Delbridge land should provide sufficient scope to address any necessary offset.

In considering issues around the potential spread of pest plants and animals, the Panel is satisfied that appropriate permit conditions can be included.

Subject to the caveats outlined above, the Panel concludes that the significant overall quantum of environmental improvements proposed, as outlined above, are sufficient to satisfy the assessment criteria relating to biological diversity and ecological integrity in floristic terms.

The Panel concludes that with respect to flora issues the proposal is satisfactory subject to appropriate permit conditions generally in accordance with conditions proposed on behalf of the proponent, subject to the following:

- Turbine 10 will on balance cause an avoidable need for vegetation removal and alternative locations are available.
- The relocation of Turbine 10 in turn significantly simplifies the application of native vegetation net gain policy by confining the offset requirement to the Delbridge land.
- Where Turbine 10 is relocated, fencing of remnant vegetation on the Marriott property and the northern boundary of the Kings Flat Flora Reserve adjacent to the Kilsby property are not strictly necessary in offset terms. They should not be subject to a permit condition or agreement.
- Some evaluation of possible flora impacts on roadside vegetation in relation to the movement of construction vehicles is required. Avoidance of the rare *Eucalyptus Kitsoniana* should be a primary consideration. Offsets may be necessary but are likely to be capable of accommodation in the Delbridge land.

The Panel recommends as follows:

Turbine 10 should be relocated to one of the assessed alternative turbine locations (A1 – A5). In selecting a location, A2 should be avoided as development there would also be likely to cause avoidable vegetation loss.

The project Native Vegetation Management Plan should provide for an evaluation of the flora values of roadside vegetation in locations proposed for construction vehicle access, turn outs or corner clearance. Locations containing *Eucalyptus Kitsoniana* should in principle be avoided.

10.3.3 TERRESTRIAL FAUNA AND BATS

Submissions did raise some concerns about terrestrial fauna issues. DSE particularly wished to be assured that terrestrial fauna and habitat concerns would be addressed. However, the bulk of third party submitters and concerns focussed on bats, where third party expert evidence was also called.

Listed Species

A non avian fauna assessment of the proposed wind farm sites was carried out by Brett Lane and Associates. This involved:

- Obtaining non avian fauna records from the Atlas of Victorian Wildlife for the area from Walkerville to Tarwin Lower and ten kilometres to the north of the site.
- Consideration of the Management Plan for the Cape Liptrap Coastal Reserve 2001.
- Field investigations from February to September 2002. These involved four six day site surveys in each season in February, May, July and September. Two nights of investigation also took place in March 2004.
- Targeted surveys of the Southern Brown Bandicoot, Growling Grass Frog, Swamp Skink, Swamp Antechinus and Tree Goanna.
- Recording incidental non avian native fauna records during bird surveys.
- Bat surveys conducted from 17 to 23 March 2003 and 5 days in March 2004.

The Assessment Guidelines for the EES prepared by DSE list species of non avian fauna identified as being present in the vicinity of the proposal. These fauna are required to be assessed. They are:

- Southern Brown Bandicoot (*Isodon obesulus obesulus*)
- Southern Bell Frog, Growling Grass Frog, Warty Bell Frog (*Litoria reniformis*)
- Spot-tailed Quoll (south-east mainland and Tasmanian subspecies) (*Dasyurus maculatus maculatus*) (S. Lat.)
- Long-nosed Potoroo (SE mainland) (*Potorous tridactylus tridactylus*)
- Dwarf Galaxias (*Galaxiella pusilla*)
- Australian Grayling (*Prototroctes maraena*)

The Assessment Guidelines also require assessment of risk to bat species listed under the EPBC Act or the FFG Act, particularly the Southern Bent-wing Bat.

The Brett Lane reports assess each of the above species. In addition the reports also assess species as follows:

- Swamp Skink (*Egernia Coventry*)
- Tree Goanna (*Varanus Varius*)
- White-footed Dunnart (*Sminthopsis leucopus*)
- Swamp Antechinus (*Antechinus minimus*)

These additional species were identified as being present in the general area in the Atlas of Victorian Wildlife and are classified by DSE as follows:

- Swamp Skink – Vulnerable
- Tree Goanna – Data Deficient

- White-footed Dunnart – Vulnerable
- Swamp Antechinus – Near Threatened

None of the above species specified in the Assessment Guidelines or further species listed in the Lane reports from the Atlas of Victorian Wildlife were discovered in the surveys carried out by Brett Lane and Associates. Targeted surveys were carried out for the four specific species identified from the Atlas of Victorian Wildlife.

Bat surveys also did not detect the presence of the Southern Bent-wing Bat (sub species *oceanensis*). These targeted and specific surveys are discussed further below.

The Brett Lane reports at Appendix 1 in the EES list 30 species as being likely to occur on the wind farm sites. Of these 13 were confirmed present on the sites during surveys. However, with the exception of the Southern Bent-wing Bat, none of the species listed in the Assessment Guidelines or by Brett Lane from a review of the Atlas of Victorian Wildlife were either identified as being present on the site by survey, or were in Mr Lane's view likely to be present.

The conclusions contained in the Brett Lane reports concerning each of the species specified in the Assessment Guidelines or identified from a search of the Atlas of Victorian Wildlife are set out below.

The Swamp Antechinus (listed as lower risk near threatened) has been sighted in the Bald Hills areas in 1980, probably in the Bald Hills Wetlands Reserve. There is limited suitable habitat on the wind farm site. Habitat is limited to the lower patches of Heathy Woodland or the lower areas of the site which are unaffected by any of the proposed development. The Swamp Antechinus habitat is near coastal areas comprising dense wet heath, tussock grassland or sedgeland. Mr Lane states that this habitat type does not occur on the ridge where native vegetation is proposed to be removed. On this basis together with the failure to identify or trap the species on site, Mr Lane concludes the species is unlikely to occur in the areas where vegetation is proposed for removal.

Spot-tailed Quoll (listed as endangered in Victoria). The only sighting in the area was in 1973, 5 kilometres south of the wind farm. The species prefers densely forested areas and has disappeared from parts of its range that have been cleared. On this basis Mr Lane concludes that the species is unlikely to be present either on the site or in the area.

Southern Brown Bandicoot (listed under the EPBC Act as endangered nationally but not considered threatened in Victoria). The closest sighting is from Cape Liptrap Coastal Park approximately 11 kilometres from the site of the wind farm.

Mr Lane states that the vegetation on the ridgeline may provide suitable habitat, however, he concludes its presence in these areas is unlikely due to:

- The small sizes of the patches of suitable habitat and lack of connectivity.
- The abundance of foxes in the area.
- Lack of evidence of characteristic bandicoot diggings.
- Failure to capture the species during the targeted survey.

Long-nosed Potoroo (listed as lower risk (near threatened) in Victoria). The nearest population is at Wilsons Promontory. There are no recent records of its presence between there and Philip Island.

Mr Lane indicates there is very little suitable habitat on the wind farm site.

The absence of recorded sightings, suitable habitat, scats or distinctive diggings combine, in Mr Lane's view, to justify the conclusion that this species is unlikely to be present on the site.

Southern Bent-wing Bat (listed as vulnerable in Victoria and also listed under the FFG Act). There is a known colony of Southern Bent-wing Bats at Arch Rock, about 7 kilometres south east of the southern wind farm site.

Mr Lane confirms that a large colony exists at Arch Rock in the winter. Mr Lane also states that in winter the bats hibernate and they breed in summer and spring. After breeding and weaning the bats are known to disperse over wide areas, up to 850 kilometres have been recorded. Mr Lane indicates that the status of the Arch Rock colony is unclear as to its breeding function.

Mr Lane concluded initially that bat monitoring should be carried out to determine the presence of the Eastern Bent-wing Bat at the wind farm site. Subsequently, after monitoring was carried out with inconclusive results, Mr Lane concluded that there may be Bent-wing Bats at the site, but it was impractical to determine this.

In the circumstances where it is not known if the bats occur on the wind farm site Mr Lane considers the site to be of potential state conservation significance. If the species was confirmed at the site in significant numbers the site would be of state conservation significance.

In assessing whether the bats are likely to forage for food over the site from Arch Rock Mr Lane states that this species of bat can forage up to 30 kilometres at night in search of food. Accordingly he concludes that the wind farm is well within the nightly foraging range, but that the generally cleared farmlands of the wind farm are not optimum foraging sites.

Based on the worst cases in the United States up to 210 bats of all species may be killed, but due to sub-optimal foraging habitat the figure in Mr Lane's view, is more likely to be a total kill of 64 bats per year. The breakdown between bat species is difficult to predict but the White Striped Free-tail Bat is likely to be much more frequently killed than other species. Mr Lane's final conclusion is that the appropriate outcome is to monitor the wind farm for bat kills after operation to test these predictions.

Swamp Skink (listed as Vulnerable by DSE and listed under the FFG Act). There are 5 recordings in the Atlas of Victorian Wildlife all from the vicinity of Cape Liptrap, four of these were prior to 1980 and one in 2000.

It is noted that in the report by Brett Lane and Associates dated March 2004 which records and analyses the results of the targeted survey there is an inconsistency with the early report. This inconsistency relates to the recording of the species in the Atlas of Victorian Wildlife. In the second report it indicates there are no records within the search area whereas in the earlier report it states there are 5 results.

In his peer review Dr Meredith indicates that the Swamp Skink would potentially occur on the site. The Panel has not been able to access the Database to determine the correct position. Using the precautionary principle the Panel has worked on the assumption that the earlier reference is the correct one.

There is suitable habitat in the lower portion of the northern wind farm site and Mr Lane concludes that the species may occur there. These areas are not proposed to be developed and the implication is that the species will not be adversely impacted by the proposal. Mr Lane concludes the habitat on the ridgeline is unsuitable and that the species is unlikely to occur in the areas proposed for vegetation removal. This conclusion is no doubt reinforced by the absence of positive results from the targeted survey though Mr Lane does not say so.

Tree Goanna (listed as Vulnerable in Victoria by DSE). The newest record is in the Cape Liptrap Coastal Park and in other nearby larger native vegetation remnants between Tarwin Lower and Walkerville North.

The species was not found in the targeted survey.

Mr Lane concludes that the species is unlikely to occur regularly on the site due to the relatively small size and unconnected nature of the remnant patches of vegetation.

Growling Grass Frog (listed as vulnerable in Victoria by DSE). Mr Lane advises that there are no records in the Atlas of Victorian Wildlife for the local region but that it is recorded in the broader region. The species was not found in the target surveys nor were any frogs detected on site during spotlighting.

The lack of records in the local region and the unsuitable habitat on the ridgelines lead Mr Lane to the conclusion that the species is unlikely to occur in the area.

Dwarf Galaxias and Australian Grayling are both listed as threatened freshwater fish species.

The Brett Lane report indicates that there is no suitable habitat on the wind farm site and that accordingly the species are not present.

In summary Mr Lane concludes that none of the listed threatened fauna species except the Southern Bent-wing Bat will be significantly adversely impacted by the wind farm.

These conclusions of Mr Lane were generally not contested except in the aspects set out below.

Dr Charles Meredith of Biosis Research undertook a peer review for the proponent. He considered that specific surveys should be carried out for the Southern Brown Bandicoot, Growling Grass Frog, Swamp Skink and Swamp Antechinus. However, Dr Meredith concluded that even if these species were proven to be present by such surveys any impacts may be low. These additional surveys were subsequently carried out and formed part of the documentation provided by Mr Lane to the Panel.

Dr Meredith specifically supported all the conclusions in the Brett Lane report concerning the Bat investigations.

DSE raised several concerns as follows:

- They were critical of the targeted survey carried out by Brett Lane and Associates for the Southern Brown Bandicoot, White Footed Dunnart and Swamp Antechinus.
 - However, when the Department appeared at the public hearings it became clear they had not read several of the Brett Lane reports including the March report, which addressed the targeted surveys. The additional survey work for the Swamp

Antechinus was only identified as being necessary in the initial response to the EES by DSE.

- The Panel requested a written response from DSE to the combined Brett Lane reports.
- On this basis the Panel concludes that the DSE concern relating to additional surveys for terrestrial fauna is in fact limited to the Swamp Antechinus as issues in relation to other species appear to have been resolved.
- DSE also expressed concern consistently through all its responses regarding the possible effect on fauna due to noise in close proximity to habitat, with reference to the offset site on the Delbridge land.
- Additional survey work for the Eastern Bent-wing Bat population was requested with reference to the colony at Arch Rock, with a suggestion that banding was an appropriate method.
- Further evaluation of mortality rates due to the relocation of fauna on sites where habitat is disturbed were sought.

Ms Trish Jelbart drew the Panel's attention to an article in "Mammals of Victoria" by Peter Menkhorst (who also appeared on behalf of DSE at the public hearings). Mr Menkhorst identifies dominant habitat plant species for the Swamp Antechinus as:

- *Leptospermum Myrsinoides*
- *Xanthorrhoea minor*
- *Banksia marginata*
- *Melaleuca squarrose*
- *Leptocarpus tenex*
- *Allocasuarina paludosa*

Ms Jelbart pointed out that the above vegetation was common in heathland south of the southern cluster of turbines.

Mr Menkhorst's article also points out that both the Swamp Antechinus and the White Dunnart are difficult to trap with the success rate for the former being in the range of 2 to 10% but mostly 2 to 4%.

Several objectors expressed concern regarding the potential effect of the wind farm on the Eastern Bent-wing Bat. In particular Mr Townsend called Dr Belinda Appleton who is an expert on bats, with particular expertise on Bent-wing Bats.

Dr Appleton expressed the opinion that:

the wind farm should not be approved until the necessary investigations into effects on bat mortality have been carried out.

She said:

- Bent-wing Bats are known to forage in open areas such as the wind farm site;
- Bent-wing Bats are known to fly quite high (ie within the rotor swept area) as are White Striped Free-tail Bats;
- Bent-wing Bats partially hibernate during winter but wake every week or so to feed and drink so cannot be concluded to be inactive;
- Search for food has been known to involve flights of up to 40 kilometres;

- The bats breed in the summer; and
- Arch Rock is known to be a winter roosting colony but is not used for breeding.

Dr Appleton quotes case studies from Europe and the United States that indicate higher bat mortality rates than Mr Lane indicated in his reports.

In response to questions by the Panel Dr Appleton said:

- She would not rely on overseas data to predict bat mortality due to wind farms in Australia, as the species here were different and could be expected to have different flight, foraging and avoidance behaviours;
- She could not predict the likely long term effect of the wind farm on the Bent-wing Bat due to lack of data; and
- There is no reliable knowledge of the population of Bent-wing Bats in Victoria. At the Naracoorte Cave a count in 1960 indicated 200,000 bats in the Cave. Recent attempts to replicate this count was unsuccessful. Use of infrared cameras at cave mouths counted 20,000 – 30,000 bats emerging. She said that bats needed these sort of populations to survive in a colony as they require heat generated by numbers in maternity caves.

Finally, Dr Appleton and others did raise the concern that if the project went ahead, it might operate as a mortality sink or 'black hole' for Bent-wing Bats. In circumstances where the Arch Rock colony continued to offer good roosting sites, but the colony population was subject to significant mortality due to a wind farm, the availability of uncontested roost and food resources might attract replacement individuals from other colonies to become resident, in turn exposing them to raised mortality risk. This in turn could suggest that the project might have wider population effects than would otherwise appear likely to be the case.

Surveys

Some concerns were expressed over bat and ground fauna surveys.

The Department of Sustainability and Environment and Dr Appleton both concluded that the Bat Surveys on the site were inadequate.

Mr Lane indicated in his reports that it is difficult, if not impossible, to determine the quantum of the Bent-wing Bat presence at the wind farm site. These difficulties are increased by the relevant information requirement being to determine the quantum of a particular bat species at rotor swept height.

Anabat detectors have a limited useful range. On ground units cannot detect bat calls in the rotor swept area. Information regarding the quantum at or close to ground level is not useful, in the absence of any known model providing correlation between bat numbers against height above the ground. Further, the Bent-wing Bat is a high flying species and may just not be detected at low levels.

Mr Lane attempted to determine if the Bent-wing Bats is present on the wind farm site. To do this he used two Anabat recorders, one at ground level and one mounted on a single wind monitoring tower within rotor swept height. These surveys were conducted for two periods in March 2004 for 5 nights and in March 2003 for 4 nights. The first survey was intended to be over 6 nights but due to equipment failure only 4 nights results were obtained.

The technique used does not allow for the number of bats of any species to be ascertained. This is because while individual bat calls are counted it is not possible to determine if a single bat is registered several times or if several bats are registered once. This limitation is agreed by Dr Appleton.

The results of the surveys were that whilst some utilisation by White-striped Freetail Bats at rotor swept height was noted, no Bent-wing Bats were recorded. DSE considered that more surveys should be conducted and suggested banding as an option. Dr Appleton recommended against this option due to the adverse effect of such a procedure on the bats, noting that banding surveys on bats had been discontinued. Mr Lane advised that such an option would be expensive and would in any case not help to determine the number of Bent-wing Bats on the wind farm site at rotor swept height. Accordingly such a procedure would not assist in determining likely impact on the species.

Dr Appleton considered that the proponent's surveys were deficient because they should have been conducted over a longer period and at both wind monitoring towers instead of one. She also suggested that up to 20 Anabat recorders could be obtained from bat researchers. She made no suggestions as to how these could be utilised to determine bat numbers at rotor swept height. Her evidence was that extensive surveys over two years should be carried out prior to any approval.

The proponent's response to these suggestions were to the effect that long and extensive targeted surveys were impractical and costly. The work undertaken for the proponent to date was considered to be ground breaking, in the sense of attempting to measure bat utilisation at both low level and rotor swept height. It had proved inconclusive in respect of the Southern Bent-wing Bat, but the proponent should not be penalised for that by being required to undertake significantly more extensive or onerous reviews than had been undertaken elsewhere, or being forced to extend the frontiers of knowledge.

DSE also made submissions to the effect that the targeted survey for the Swamp Antechinus was inadequate. The Department considered that the traps used were inappropriate, were insufficient in number and the period of survey was too short (2 days and nights). Given that the species targeted are difficult to trap this effort was seen as insufficient.

However, the Department did not query Mr Lane's proposition that the vegetation type being removed was not suitable habitat for the Swamp Antechinus and that the species is not likely to be impacted by the proposal. Nor did it address the clearly acknowledged situation that even a much larger trapping programme did not have high prospects of determining conclusively that the site was used by the species.

Mitigation Measures

The mitigation measures recommended by Mr Lane included:

- Minimising the removal of native vegetation
- Confining all areas of disturbance due to construction
- Confining construction activities within 100 or 150 metres of remnant habitat or reserve boundaries to late summer/autumn when breeding activities have generally ceased.

This last point applied particularly to the Bald Hills Wetland Reserve and the Cape Liptrap Coastal Park in the turbine layout proposed in the earlier 84 turbine layout. The amended 52 turbine layout sees the closest turbine to the Wetland Reserve being 250 metres and to the

Cape Liptrap Coastal Park being 430 metres. These distances were very much less in the earlier layout being 55 and 84 metres respectively, a factor in which the current design provides a significant improvement.

In addition, the mitigation measures relating to vegetation net gain are also relevant.

DSE expressed concerns regarding the possible effect on terrestrial fauna both during construction and after construction due to on going noise of the turbines. The Department has also expressed concern regarding the opportunity of migrating species to relocate during construction due to the possibility of vacant territory not being available.

Mr Lane stated that construction for individual turbines will be limited to two period of 2 weeks for site preparation foundations and access tracks and 10 days for actual tower construction. Construction would migrate around the site, but unlike a freeway or equivalent installation, the project would not result in extensive impacts on large areas of land at once.

Mr Lane agreed that terrestrial fauna may be disturbed temporarily within 100 metres of a turbine site, on remnant vegetation sites. The distances of turbines in the new layout from reserves will, on Mr Lane's figures, ensure that there will be no disturbance impact on terrestrial fauna in the Bald Hills Wetland Reserve or the Cape Liptrap Coastal Park areas

For turbines close to or within native vegetation remnants, Mr Lane considered the impacts from construction to be minimal. The on-going noise impacts, in Mr Lane's view, will be similar to that which occurs when new freeways are constructed and fauna becomes acclimatised. It is generally acknowledged that fauna can acclimatise to infrastructure noise where there is no associated hazard. In the case of ground fauna there would be no hazard posed by the operational wind farm.

DSE nevertheless requested further investigations to justify Mr Lane's assumptions in this regard.

10.3.4 PANEL RESPONSE

Listed Species

In the Panel's view, the critical assessment of impacts on fauna other than birds is that for bats – particularly the Southern Bent-wing Bat.

With the exception of the Bent-wing Bat, the evidence of Brett Lane is that none of the statutorily listed species identified as having potential to be present in the local area are likely to be impacted by the proposed development in other than the most peripheral or recoverable of fashions.

There were no submissions to the effect that Mr Lanes identification of listed species was incomplete and accordingly it is accepted by the Panel as being complete.

Mr Lane's evidence was that none of the listed terrestrial species were likely to be present in the areas of native vegetation proposed to be removed. In the event that any of the species were present, the areas of vegetation were so small that the effect would be very little impact. Having made a finding above in relation to the avoidance of the site of turbine 10 for native vegetation policy reasons, the Panel would observe that the benefit of that minor change also

flows through here, by further reducing the already small potential for ground fauna impact. The Panel accepts the correctness of Mr Lane's position in these circumstances.

Further with reference to the two fish species, Dwarf Galaxia and Australian Grayling, there are simply no bodies of water on the site that provide suitable habitat.

Mitigation Measures

There was concern that terrestrial species would be disturbed by the removal of vegetation or construction activities close to habitat. The turbines are located 250 metres from the Bald Hills Wetland Reserve and 430 metres from the Cape Liptrap Coastal Park and on Mr Lane's evidence these distances are sufficient to ensure no disturbance impact on ground fauna using these areas. Mr Lane also suggested that in so far as isolated patches of native vegetation within 100 metres existed, works would be designed to avoid the breeding season. If these locational and construction constraints are met, the Panel concludes that disturbance impacts on terrestrial fauna are likely to be minimal. This is especially the case in circumstances where construction activities are likely to have a limited duration of one month over two separate periods for each turbine, moving about the site from place to place. The site will not be affected by wholesale construction disturbance of the kind more typically found for infrastructure projects.

There were also concerns that the on going noise from turbines may affect the habitat value of areas of native vegetation especially in the area of the proposed offset vegetation, particularly the Delbridge land. The Panel is not persuaded that this issue requires further investigation in relation to ground fauna. In the Panel's experience major infrastructure works such as freeways pose similar issues with on-going noise and it is accepted in such circumstances that the fauna becomes acclimatised. Unlike a freeway, the noise impact of a wind farm on ground fauna will not pose a risk of harm eventuating: indeed, it is possible to speculate that reduced avian predator utilisation rates in the air space above the wind farm might reduce population risks to ground fauna. The Panel sees no reasons, and none were provided, why habituation of ground fauna would not take place on an operational wind farm.

Surveys

DSE criticised the targeted ground fauna surveys, with reference to the Swamp Antechinus. The Panel agrees that these surveys were minimal. DSE however acknowledges that this species is difficult to trap. In these circumstances and when it is generally agreed that the populations and impacts are likely to be low, there is in the Panel's view little to be gained by further trapping efforts. Increasing these tenfold would still be likely to yield no result. Further, even if one assumes the presence of the species, the siting, construction and habituation considerations outlined above would appear to make any impact acceptable, particularly if one provides for the re-siting of turbine 10 referred to above. The Panel is also aware that during the targeted survey which included the trapping exercise, no other evidence of the species was discovered. The Panel is satisfied that sufficient investigation has been carried out to establish minimal impact on the Swamp Antechinus.

Species requiring particular assessment under the EPBC act include the Southern Bell Frog and Warty Bell Frog as well as the Growling Grass Frog. The Panel understands that the Southern Bell Frog and Warty Bell Frog are alternate names for the Growling Grass Frog (*Litoria reniformis*). Mr Lane has assessed the impact on the Growling Grass Frog and has concluded that there will be no impact due to lack of habitat on the site and the distances of

the development from suitable habitat. This evidence was not contested and the Panel accepts it.

It follows that the Panel concludes that the proposed development will not impact on ground fauna species listed under the EPBC Act or the FFG Act. In arriving at this conclusion the Panel has taken into account the native vegetation mitigation measures proposed and the conclusion is subject to the caveat that the mitigation measures detailed in the vegetation section of this report are carried out.

It also follows for the same reasons and with the same caveat that the Panel concludes in relation to ground fauna that the proposed development will not impact on conservation of biological diversity and ecological integrity within the development sites and surrounding lands.

The Panel is satisfied that the proposal will have minimal impact on ground fauna, assuming that site design and native vegetation offset mechanisms remain as discussed in this report.

Bats

Due to the known presence of a roosting colony of Bent-wing Bats in the Arch Rock Caves some 6 kilometres from the wind farm site, application of the precautionary principle indicates that allowance should be made for some presence of Bent-wing Bats on the wind farm site.

It is not known how many bats are likely to be present nor is it known what the impact of the wind farm will be on the bats. These unknowns exist in spite of Mr Lane's efforts to detect the bats using an Anabat recorder attached to a wind monitoring tower at rotor swept height.

Application of the precautionary principle can be argued to lead to a conclusion that, in such circumstances, more survey information should be obtained before the project proceeds. This was the approach taken by the Panel in its assessment of the Portland Wind Farm and it is the approach recommended by both DSE and Dr Appleton for this project.

The difficulty that exists with such an approach in this case is what information should be collected? How it should be collected? What use could it be put to in assessing the likely impact on Bent-wing Bats? Would collecting additional pre-construction data place decision makers in any more certain position to conclude on potential impacts to the bat? These are relevant matters to be considered by this Panel, which has been exposed to a considerably more thorough exposition of approaches to bat survey techniques than its predecessors in wind energy matters.

Dr Appleton suggested that up to 20 Anabat recorders should be used to better determine the presence of the bats on the site over a two year period. The difficulty with this approach is that it does not assist with determining the presence of the bats within the rotor swept height of the turbines, unless some of these units were further hoisted up masts. There is no model available to correlate bat recordings at ground level with the numbers of bats present at height above ground level. In addition Anabat recorders do not distinguish between numbers of bats: they simply record the number of times a particular species of bat is present. The results may indicate a single bat is present 10 times or 10 separate bats are present. In short, it appears to the Panel that very substantial time, effort and cost could be invested in survey work, which in practical terms might take knowledge of bat utilisation of this site little further forward.

DSE suggested an additional survey could involve banding of the bats at Arch Rock. Dr Appleton on the other hand did not favour this approach as she considered it was too intrusive and could have a detrimental impact on the Arch Rock colony. In any event, as Mr Lane pointed out in his response to this suggestion, such a method is not likely to produce meaningful results. The questions that arise include what sort of banding? Where should the recorders be placed if the banding includes radio transmitters? What size sample is appropriate? Even if very large numbers of bats (say 25% of those understood to be resident) were radio tagged, fast flying creatures with a 40 km foraging range would be relatively unlikely to be located by a radio survey team. A non-radio tagging regime relies on recapture or corpse recovery and would be likely to yield results very slowly and in a form that said little about utilisation of the site, as opposed to of a much wider region. Such work provides no information about the height or location of bat flight and may not result in any useful information as to bat numbers flying at rotor swept height over the Bald Hills area. In short, it appears to the Panel again that substantial effort and cost could be invested in survey work, which might take the knowledge required for this decision little further forward.

Here is a key distinction in the Panel's mind. In calling for additional survey work to be undertaken specifically on or in relation to this site, submitters must turn their minds to the degree to which the work will help to answer questions about this site, in relation to the immediately proposed use and development. Whilst undoubtedly there would be much of interest and value to be gained from more generic survey work, the Panel cannot endorse the proposition that this proposal on this site should be the means of undertaking it. The Panel concludes that any additional pre-construction survey conducted using currently available technologies and methods may well provide generically interesting information. However, it is unlikely to provide much assistance in determining the likely impact of this wind farm on Bent-wing Bats.

The impact of wind farms on bats is a relatively new issue and there is very little knowledge available regarding Australian species and conditions. The information from overseas is more extensive and reported bat mortality from wind farms is now recognised as an issue, particularly in the United States. Mr Lane and Dr Appleton both agree that caution should be exercised in applying overseas data to Australian conditions as the species and their behaviours are different. Nevertheless, bat mortality rates at some overseas wind farms clearly indicate that issues that need to be addressed can emerge.

The fundamental question to address is the likely impact of the wind farm based on the known information such as it is.

- It is acknowledged that there is a roosting colony of Bent-wing bats at Arch Rock. Dr Appleton advised that the colony is not a breeding colony. The size of the colony is not known but Dr Appleton estimated about 100 bats in two groups during a recent visit. There may be other unknown roosting colonies in the area along the shoreline cliffs.
- Males will tend to stay in the roosting colony all year round where as the females will depart to breeding colonies in November and return to roosting colonies after giving birth in December or January. Young will also depart from maternity caves for roosting caves after the breeding female have left. Travel between maternity and roosting caves will be in concentrated waves of a few days duration.
- There is a maternity colony at Lakes Entrance but the preferred flight path between Arch Rock and Lakes Entrance is not known.
- The bats have been known to forage for food from roosting caves up to distances of 40 kilometres.

- The bats will continue to forage for food during winter months but will be more active at other times.
- Open pasture land is not optimal foraging ground for the bats but they will still use it. Optimum foraging areas include areas such as the Bald Hills Wetland Reserve and this is well within the range for foraging bats from Arch Rock. However, there are numerous other optimum foraging areas within the range.
- Bent-wing Bats are expected to fly at similar heights to White-striped Freetail Bats, a common variety that has experienced mortalities at other Victorian wind farms.
- No Bent-wing Bats were recorded during the Brett Lane Anabat survey either at ground level or at the elevated recorder. 90 White-striped Freetail bat calls at rotor swept height were recorded. These occurred over a three nights in March 2003. No other calls were recorded at the elevated recorder over the 5 nights of recording in March 2004. In relative utilisation terms, Freetail activity would appear likely to predominate over Bent-wing activity over the site.

The Panel concludes that there is a possibility that Bent-wing Bats will fly over the wind farm site and that such flights could arise from foraging activity or during migration. The Panel also concludes that the number of bats likely to fly over the site during foraging is likely to be relatively low given the many options for foraging within 40 km of the Arch Rock caves. It follows that the impact from this activity on the site is likely to be relatively low.

The Panel now turns to the question of the possible effect on the integrity of the species in population terms. We have no accurate information on the Bent-wing bat population and we only have an estimate of 100 bats at Arch Rock, assessed on one occasion by Dr Appleton. In response to a question from the Panel, Dr Appleton indicated that 200,000 bats had been counted at the Naracoorte maternity cave in 1960. An attempt to replicate this count recently failed and 20,000 to 30,000 bats had been counted emerging from the cave using an infrared camera. Taking conservative assumptions to the extent that 30,000 bats at Naracoorte represents the entire population (although this is clearly not the case, having regard to a breeding colony known at Lakes Entrance - Nowa Nowa) and assuming that Dr Appleton only observed half of the resident Arch Rock or surrounding population, it appears that these bats would still amount to 0.66% of the population. Even then assuming a high and ongoing wind farm mortality from the Arch Rock colony, and then assuming a 'replacement' through in-migration by new individuals, it would take some considerable time before this could combine to produce adverse effects on a population scale.

On the basis of this information and analysis, the panel concludes that while the species is threatened and any number of deaths is to be avoided, when the relatively small numbers at Arch Rock are combined with the likely low numbers to be impacted by the wind farm, the chances of serious impact on the species is remote. These conclusions are not to say there will be no impact. There is simply not enough information to reasonably reach such a conclusion.

These conclusions in turn might be different if the Arch Rock colony was a breeding colony where the numbers would be much larger and the number of migration flights and potential population impacts would be higher.

However, in arriving at this position, the Panel has accepted Mr Lane's suggestion to the effect that a monitoring program should be implemented at the wind farm after completion. There is a real lack of knowledge concerning an endangered species. It is possible although at this stage apparently not likely that the new and growing wind farm industry might impact

the species. The gathering of effective pre-construction data using current techniques is difficult, if not impossible.

In these circumstances the Panel considers that there is a benefit in constructing the wind farm conditional upon a serious monitoring program that will contribute to scientific knowledge of the species as impacted upon in known circumstances. This knowledge can then be used to better assess the likely impact of future wind farms on the species with resultant better and more informed decisions. In short, if monitoring discloses a particular Bent-wing Bat mortality issue at Bald Hills, it will place decision makers in a much clearer position to evaluate later proposals than any level of pre-construction research ever could. Minds could also be turned to strategies for the management of the wind farm and/or the management of the Arch Rock colony to limit ongoing impacts, if these turn out to be at an ongoing level that could have adverse population consequences.

The Panel makes clear that it would not have supported such an approach if there had been a potential for more substantial impacts to the bats on a population scale. However, in relation to the small colony at Arch Rock it has found that population effects are likely to be limited. It therefore considers that the opportunity to gain extra knowledge provides some degree of offset to any impact of the wind farm on the Bent-wing Bat in this location.

For the reasons discussed above the Panel is of the view that the proposal is acceptable in terms of its potential for impact on the Bent-wing Bat. This view is subject to the caveat that a realistic, extensive and worthwhile monitoring program should be implemented. Such a program should be drawn up in conjunction with DSE and it should address the following:

- a thorough assessment of bat numbers over time at Arch Rock, to be used as a reference for impact analysis;
- placing of Anabat recorders on the ground and on turbine towers at various heights to obtain relative bat utilisation data;
- examination of bat utilisation trends (if any), including weather, diurnal and seasonal changes; and
- extension of the count of bird kill monitoring to include bat kill, with an appropriate scavenging rate for small mammal carrion applied to this work.

The Panel has considered the equity of this approach and recognises that it is at a significant cost to the proponent. However in the circumstances where:

- the species potentially subject to impact is known to be present within a reasonable range of the site;
- there is an unlikely but potential and at present un-excludable risk to a threatened species as a result of a particular proposal which is part of an emerging and growing industry;
- the impact of the industry on the particular species has quite recently become an issue; and
- the alternative is to delay approval until less effective and possibly far more costly pre-approval research is carried out;

the Panel considers this to be a reasonable approach that has significant benefits for the proponent and the community.

It follows that the Panel considers the proposed development may impact on the Bent-wing Bats a species listed under the Flora and Fauna Guarantee Act 1988. It also follows that the proposed development, with regards to the Bent-wing Bat may impact on conservation of

biological diversity and ecological integrity within the development sites and surrounding lands. However, the impact appears likely to be small. Effective measures can be put on hand post construction to determine whether or not this is the case. It impacts prove to be larger than anticipated, to the extent of being significant in population terms, useful data has been obtained for the wind energy development process and attention can be turned to means of managing the site or the Arch Rock bat colony to control or limit any ongoing adverse effects.

The Panel notes the possibility that the project may have an adverse impact on the Southern Bent-wing Bat because of the known presence of a colony at Arch Rock. However due to the practical difficulties associated with accurately assessing the level of use of the site by Bent-wing Bats and the general lack of knowledge concerning this species, an extensive post approval bat monitoring program should be implemented.

It follows that the Panel recommends changes to the proponent's fauna monitoring program for the site.

The fauna monitoring program for the site should be modified to include:

- a thorough assessment of Southern Bent-wing Bat numbers over time at Arch Rock, to be used as a reference for impact analysis;
- placing of Anabat recorders on the ground and on turbine towers at various heights to obtain relative bat utilisation data;
- examination of bat utilisation trends (if any), including weather, diurnal and seasonal changes; and
- extension of the count of bird kill monitoring to include bat kill, with an appropriate scavenging rate for small mammal carrion applied to this work.

10.3.5 BIRDS

It should be observed at the outset that the potential for bird impacts arising from the project was, alongside noise, the most strongly contested and argued of issues in the EES and SEES process.

This section examines the approach to bird utilisation surveys adopted by consultants to the proponent. It then examines outputs from this work, following which it considers in more detail the criticisms emerging from submissions.

Bird Utilisation Surveys

An assessment on birds for the proposed wind farm site was carried out by Brett Lane and Associates. This was presented to the Panel in 6 separate documents, 4 of which were peer reviewed by Dr Charles Meredith of Biosis Research. The most clear and consistently reasoned of these reports was in fact a report produced as Appendix 8 to the closing submissions of the proponent. As such, it was not subject to cross examination, although the Panel did make specific provision for it to be the subject of additional written comment in that it clearly did contain some new material. It should be noted in this regard that Dr Meredith did not review this final report.

The Lane assessment relied up two principal sources of information viz;

- the Atlas of Victorian Wildlife; and
- field surveys.

The Cape Liptrap Coastal Park Management Plan and the Recovery Plan for the Orange-bellied Parrot were also referred to.

The Atlas of Victorian Wildlife was utilised on the basis of Mr Lane's observation that it was an excellent quality and reliable data source. When questioned as to why he had not utilised EPBC Act database, Mr Lane expressed a concern that these combine actual species records from field work with conjectural or model output indications of the species likely to be present. The 'Bioclim' model used by this database combines climate and EVC data to 'predict' the species that might be present, a process that Mr Lane considers to be less than satisfactory when using the database for impact assessment purposes.

It should also be noted that Mr Lane did not refer to locally available observations, such as the bird list for Bald Hills Wetland Reserve or other lists available from local field naturalists organisations, and no clear explanation was provided for this omission, a fact that was remarked upon by submitters. Further, Mr Lane did not refer to the DSE prepared Landscape Plan for the Gippsland Bioregion Tarwin-Powlett Landscape Zone and Biodiversity Assessments for local individual properties. In the view of both Mr Lane and Dr Meredith, these latter sources were of doubtful quality. That being said, their authors appeared for DSE and, although not formally appearing as expert witnesses, were exposed to questioning.

The field surveys involved 24 days of observations at 16 impact sites (in or around which wind turbines were proposed to be constructed) and 8 reference sites (at locations where by intent it would be possible compare impact sites with similar habitat on which no turbines would be located). This selection was designed to assist with post approval monitoring, providing a basis for the calculation of a rate at which the wind farm is causing birds to avoid the site. That being said, during the progress of research for the EES, four of the reference sites became subsumed within the permit application areas for the central and southern portions of the wind farm site. Of these, R7 and R8 are separated by some 200 to 400 metres from proposed turbines 32 and 34. Sites R5 and R6 retain a more acceptable separation, but will be enclosed on three sides by turbines at a range of 700 to 900 metres. This leaves the overall research with access to 4 ongoing and clearly undisturbed reference sites, R1, R2, R3 and R4, all located within very close proximity of each other on Kerr's Road.

Surveys were designed to obtain a statistical 'bird utilisation rate', from which to reach conclusions about potential blade collision risk, broken down by species. The key risk to birds posed by a wind farm is collision in flight, so the studies were limited to observation of birds in flight. The methodology was representational. For example, if a bird is well represented in the study, this translates to a higher utilisation rate and increased risk to the bird. Reference can then be made to the conservation status of the bird and knowledge (if any) about species specific avoidance behaviour, to determine whether utilisation of the site by that species is likely to pose an unacceptable risk in population terms. Similarly, if a bird is not found in the survey, or is little represented, the conclusion can be drawn after reference to conservation status and behaviour, that it poses limited risk in population terms.

However, by adopting such an approach, it can be seen that heavy weight is placed on the validity of the observation design, as means of obtaining sound samples of birds using the site. The approach also contrasts with that used for ground fauna and flora studies, where targeted observations to seek specific species of potential concern were or will be built into the survey method.

Observations were undertaken over 4 periods of 6 days each, one in each of the 4 seasons commencing in the summer of 2002. The surveys recorded numbers of birds and their height at each site. Each survey day was divided into four periods of approximately 2 hours. Surveys were initially reported as commencing at 8.00a.m. and finishing at 5.00p.m. In his closing report, Mr Lane did seek to suggest that in fact these times may have been longer at the commencement and end of some days. However, that was not the initially documented position. The surveys were taken at fixed points. Each survey had a duration of 15 minutes, during which all birds in flight in a defined radius were counted and identified by species.

The survey method was designed to provide an equal distribution of survey effort by survey location, season and time of day. In this regard, the absence of a specifically designed and reported early morning survey segment (dawn to 8-00am) and an equivalent evening segment (5-00pm to dusk) was remarked upon by many submitters.

Additionally, noting that the proposed site was adjacent to the Bald Hills Wetland Reserve, Kings Flat Fauna Reserve and the Cape Liptrap Coastal Park, the surveys did not include targeted site margin observations of these locations to examine (for example) the degree to which roosting of relevant species might occur in this adjacent land. The degree to which roost to range and range to roost movements, or overflight movements to and from this adjacent land might affect the site were not specifically tested for. Further, it was argued by submitters that the absence of dawn to 8-00am and 5-00pm to dusk survey segments would have damaged the capacity of the survey to identify such movements on site.

The method of survey and review of available literature by Mr Lane were the subject of considerable criticism at the public hearings. These issues are addressed further below under the Panel's detailed examination of submissions in relation to Mr Lane's approach.

Survey Findings

The surveys identified 81 separate species, 16 of which are listed under the EPBC Act as migratory species and 5 of which are introduced species. No birds listed under the EPBC Act or the FFG Act as threatened were observed in the survey process.

Twenty nine species were observed flying at rotor swept height. Of these twenty nine species 8 were raptors and 9 were water bird species and 10 were species listed under the EPBC Act as migratory species. None of the species recorded are listed under the FFG Act. Common Starlings and English Sky Larks accounted for 35% of all birds observed at rotor swept height, both of these being introduced (pest) species.

Mr Lane's reports then assess the likely impact on birds in groups as follows:

- birds of prey (raptors);
- water birds; and
- other species – in relation to which the Panel has focussed on statutorily listed species.

Raptors

Raptors are assessed based on the species observed in field surveys, with additional reference made to the White-bellied Sea Eagle and the Nankeen Kestrel. These additions were made on the basis of records in the Atlas of Victorian Wildlife; two at Cape Liptrap and Shallow Inlet for the Sea Eagle and one in the region at an unspecified location for the Nankeen Kestrel. However, the reports provide no information as to the status of these two species.

Mr Andrew Chapman's submission indicates that the White-bellied Sea-eagle is listed as threatened under the FFG Act and migratory under the EPBC Act. He also indicated that the Nankeen Kestrel is listed as migratory under the EPBC Act.

The Panel was informed by several submitters including Mr Chapman that there are White-bellied Sea Eagle nesting sites at Nolans Bluff and near Cape Liptrap. A number of other submitters highlighted their view that the site was widely used by raptors, particularly Wedge-tailed Eagles. Raptor use was often highlighted on site visits.

Mr Lane concludes based on the total number of observations of raptor species at rotor height including 12 Wedge-tail Eagles, that wind farm area is not an area of high significance for birds of prey. He concludes that the 12 sightings of Wedge-tailed Eagles are most likely one pair or a family group. This latter assumption is based on the range of Wedge-tail Eagles being around 30 square kilometres.

The implication from Mr Lane's reports are that raptors are not likely to be impacted due to low numbers. Mr Lane provided no specific analysis or model to support this conclusion other than low numbers and his assumptions about family groupings. No estimate of significance, impact or mortality was provided, notwithstanding that overseas work provides some grounds for caution in relation to raptor impacts.

In his response to submissions, Mr Lane stated that based on the bird utilisation figures:

very few raptors soar over the Bald Hills site so the risk of raptors colliding regularly with wind generators is considered to be comparatively low.

Water Birds

Water birds were then considered and Mr Lane acknowledges these are potentially at higher risk. The bird utilisation surveys indicate a low utilisation rate of water birds at rotor swept height of 0.156 birds per hectare per hour compared to an overall average bird utilisation rate of between 3 and 4 birds per hectare per hour.

He also notes that utilisation rates for water birds at the impact assessment points 1, 2, 7 and 8 (which are the closest points to the Bald Hills Wetland Reserve) indicated utilisation rates for water birds well below the average for the site. The figures quoted indicated utilisation rates at these points being approximately 10% of what would be anticipated from the survey effort at these points.

Mr Lane states that this indicates that water birds infrequently move across the Bald Hills from the Bald Hills Wetland Reserve and that they move across this area less frequently than average for water birds in the study area as a whole.

In response to submissions from DSE amongst others, Mr Lane produced additional material to address the issue of disturbance to water birds at the Bald Hills Wetland Reserve by wind turbines. The material showed the summary of known water bird disturbance in a table which tabulated species against disturbance distances.³¹ The table covers wild fowl, shore birds and others and it shows that disturbance distances range from 0 to 800 metres. Mr Lane also relied upon more recent overseas investigations involving 21 sites. These investigations show that disturbance effects are species, seasonal and site specific.

³¹ This table is shown in section 2.2 of report No. 2003.17(6).

Mr Lane concluded that:

- The nearest wind generators to the area of open water most frequented by the largest number of water birds at Bald Hills Wetland Reserve is beyond the distance observed for bird disturbance in any investigation in Europe and North America.
- Based on the low numbers of water birds observed on the bird utilisation surveys, the offset distances from water bodies and the generally unsuitable habitat for water birds on the site, Mr Lane concludes that there will be no significant impact on water birds.

Listed Species

The DSE Assessment Guidelines identified two threatened bird species listed in the EPBC Act for assessment. These are:

- Orange-bellied Parrot (*Neophema Chrysogaster*)
- Swift Parrot (*Lathamus Discolour*)

Orange-bellied Parrot (OBP)

The Brett Lane report included in Appendix 1 to the EES provides details of sightings of Orange-bellied Parrots in the region. This information was sourced from the Orange-bellied Parrot Recovery Team and is reproduced below in Table 1. The locations of those sightings closest to the wind farm site are shown in Figure 4 below.

In addition to sightings at these locations, submitter Mr Don Fairbrother considered that he had seen Orange-bellied Parrots in 2003, at a range approximately 2 km from the proposed wind farm site. Mr Fairbrother was the only observer and photographs were not obtained. He had reported this sighting to the OBP Recovery Team which he said had indicated that it was worthy of investigation.

The Lane reports indicate that the wind farm site does not contain suitable feeding habitat for this species. However, Mr Lane and DSE both agree that the Orange-bellied Parrots may fly over the wind farm site when moving between winter feeding areas.

DSE's view was that the wind farm will increase the cumulative risk to the species posed by the wind farm industry. Their solution was that the proponent should investigate compensatory habitat management activities off site.

Mr Lane, on the other hand, considered that

the numbers and frequency with which the species would migrate across the site is considered to be so low that no significant risk of mortality to the species exists.

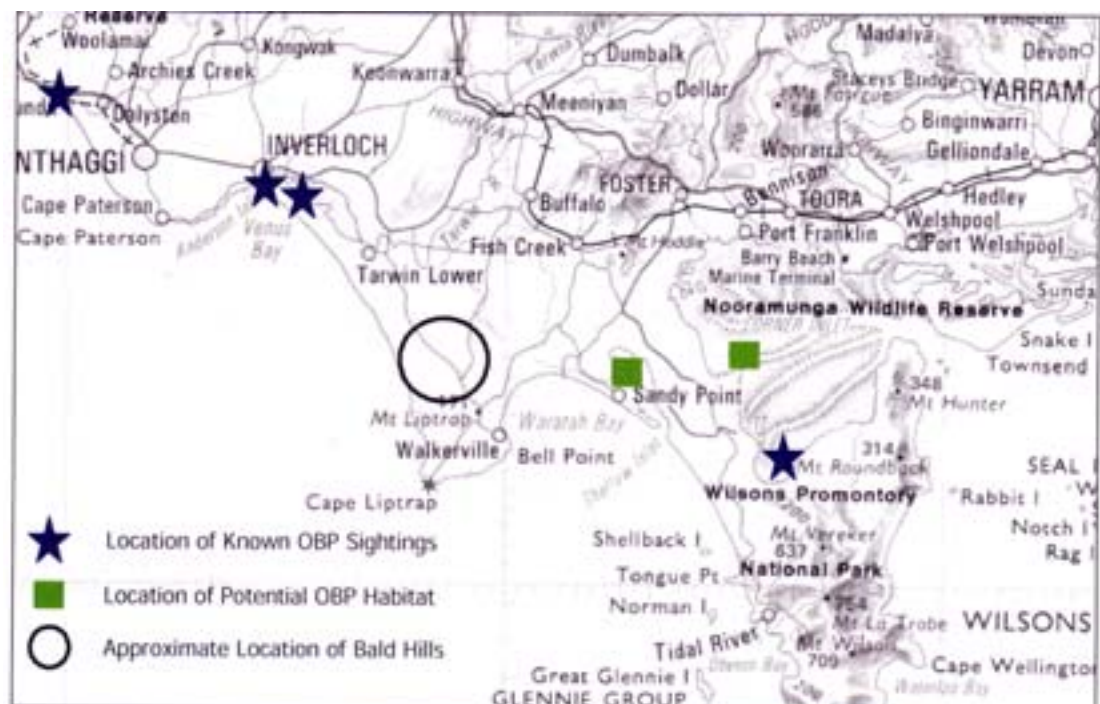
He based this conclusion on the limited number of and time gaps between sightings in the region. He noted that the frequency of observations and numbers observed decline progressively as one moves eastwards. Further:

the main areas where the species occurs on mainland Australia are in salt marshes and dune vegetation near the coast from Port Phillip Bay westwards to the northern end of the Coorong, in South Australia. The key sites where it occurs consistently for one or several months over winter supports a high diversity of saltmarsh vegetation that provides a range of seed resources as different salt marsh species successively set seed. (Yugovic 1984)

Table 1: Orange-bellied Parrot Sightings

Date	Location	Number
4/06/1985	Powlett River	18
23/07/1986	Corner Inlet, islands	3
11/06/1987	Mangrove I., Corner Inlet	1
29/06/1988	Un-named I., Corner Inlet	1
15/04/1966	Powlett River	2
20/04/1966	Powlett River	2
12/05/1966	Powlett River	1
17/05/1998	Anderson's Inlet	6
18/05/1998	Anderson's Inlet	3
12/06/1999	Anderson's Inlet	2

Figure 4: Orange-bellied Parrot Siting Locations



Mr Lane was clear that there are no such habitats in or near the wind farm site. Further, he suggested that salt marshes in eastern Victoria including Corner Inlet, support a lower diversity of vegetation and hence a more limited feed supply than those from Port Philip Bay westwards.

Dr Meredith agreed with Mr Lane and concluded in his peer review that impacts on the OBP were very unlikely. In response to a question from the Panel, Dr Meredith rated likely impacts on the OBP at three windfarm sites on a scale of 1 to 10 with 10 being the highest likely impact. His view can be summarised in the following terms:

- Yambuk 10;
- Woolnorth 4; and
- Bald Hills 1.

Noting that the Minister's Assessment in the Portland case had found the level of potential impact at Yambuk to be acceptable, Dr Meredith had no hesitation in suggesting that the levels of potential impact posed by this site were of a very small order indeed.

Mr Andrew Chapman disagreed with both DSE and Mr Lane. He contended that there were a number of locations around Anderson Inlet providing high quality feeding habitat. Further, he indicated his view that the parrots could feed on the pastures in the wind farm site, based on observations of OBP's feeding on introduced grasses or on a golf course on Swan Island. He stated that the Panel should not be sanguine about the potential for impact on this endangered species.

Swift Parrot

Mr Lane indicated that the nearest records for this bird are at Yanakie (northern Wilsons Promontory) and at Inverloch in 1987. He considered that the Tambo and Snowy River Valleys are likely to be the main migratory routes northwards to eastern New South Wales. The core non-breeding distribution and occurrence in Victoria is around Melbourne and on the northern slopes of the Great Dividing Range.

The habitat on the proposed wind farm site is not considered particularly attractive to the species as the main species of eucalypt on the site are Messmate and Coast manna gum. These species are not frequently used by the Swift Parrot.

Mr Lane concluded that the Swift Parrot might occur on the area of the wind farm very infrequently and accordingly the impact of the wind farm is negligible.

Mr Lane's sources of information are quoted as being:

- Emison Atlas of Victorian Birds 1987 and
- Higgins Handbook of Australian, New Zealand and Antarctic Birds Vol. 4, 1999

Mr Andrew Chapman disagreed with Mr Lane. He cited several recordings of the Swift Parrot recorded in the Bird Atlas. He informed the Panel that from 1976, each spring he has observed Swift Parrots in Inverloch as they pass through on migration to Tasmania. Mr Chapman believes that the Swift Parrot migratory path is in part directly over the Bald Hills area and that there are suitable eucalypt feeding areas on the wind farm site.

DSE made no comment on Mr Lane's assessment other than to indicate that the overall assessment was satisfactory with some exclusions, which made no direct mention of the Swift Parrot.

Migratory Species Generally

Mr Lane identified 15 bird species listed in the EPBC Act as migratory species and that have been identified on the wind farm site.

Ten of the fifteen species were observed in varying numbers as flying at rotor swept height. Six of these migratory species are water birds and seven are raptors. (Species in these groups are addressed above).

The remaining two species are the Lathams Snipe and the White-throated Needle-tail. The Lathams Snipe was observed (8 recordings) at reference site R8 and not at any of the 16 impact census points (although again it must be observed that R8 currently stands within the central area and approximately 400 metres from proposed turbine 34). The manner in which this information is recorded in Mr Lane's report on pages 41 and 42 is confusing, because initially the list of migratory species are listed as being recorded on the wind farm site, whereas later it is stated that the bird was only recorded at a single reference site on the ground. This confusion did not escape Mr Chapman's attention. However, Mr Lane concluded that the Lathams Snipe will not be significantly affected.

Mr Lane provided no information on the habitat of the Lathams Snipe, no details of any sighting records in the region or any details of migratory routes or their relevance.

Mr Chapman and others advised the Panel that the species is regularly seen in the area though he also provided no information concerning preferred habitat or formal records of sightings.

In relation to White-throated Needletails, a large flock of 80 birds was recorded at rotor swept height in Mr Lane's bird utilisation surveys at one site on one occasion. Mr Lane then used a mortality model to calculate a bird mortality rate based on this single sighting. This model assumes no avoidance, and it is based on the percentage 15-20% of air space occupied by the turbines at rotor swept height. The result of this modelling gives a figure of 7 mortalities per turbine per year for 80 1.3 MW turbine (the original EES proposal) used by Mr Lane in his assessment. This then equates to a mortality rate for all turbines of 560 birds per year.

Mr Lane then indicated that most birds avoid individual turbines to a level in excess of 95% (although this is a generic and not a species-specific figure). Mr Lane calculates the total mortality rate as 18 Needletails per year. This figure makes no allowance for general avoidance behaviour of wind farms by birds, which if mirrored by the Needletail, would tend to reduce utilisation and hence mortality. No figures are available for this type of avoidance so Mr Lane adopts a conservative approach and makes no reduction for this phenomena. That being said, the Panel checked the calculation and has found that by way of a mathematical error, the 18 mortalities per year should in fact be 28.

The SEES indicates that this figure will be further reduced by the fewer number of turbines in the revised 52 turbine proposal. A formal calculation to determine this has not been done and the Panel does not have sufficient hard information to perform this. The Panel, however, notes that a key factor is the quantum of rotor swept area for the original EES layout as against that for the revised SEES 52 turbine layout with longer blades. In short, using π ,

blade length and turbine number to calculate the aggregate rotor swept area, the former and current projects do not appear to be materially different.

Mr Lane concluded that numbers are such that the White-throated Needletail may be affected each spring, but that the impacts are not considered to be significant at a population scale. Mr Lane provides no figures to support this contention other than to say that while the species is listed on the EBPC Act as migratory, it is not listed as threatened at either state or national level.

Mr Andrew Chapman indicated his view the projected mortality rates constituted a breach of the JAMBA and CAMBA treaties between Japan, China and Australia, leading to a conclusion that an approval admitting such harm would represent a breach of international obligations.

Other species

Mr Lane identified the following three bird species as being considered of regional significance on the Gippsland Plains Bioregion:

- Brush Bronzewing (*Phaps elegans*);
- Oliver Whistler (*Pachycephala Olivacea*) and;
- Beautiful Firetail (*Stagonopleura bella*).

However, he also pointed out that none of these species was recorded at rotor swept height and are unlikely to fly at such heights, being generally confined to dense heathy vegetation.

Concerns about Method and Findings

The conclusions reached by Mr Lane that the proposed wind farm has a low impact on birds in general was challenged by several submitters, in particular Mr Andrew Chapman, Mr Lucas Bluff and the South Gippsland Conservation Society. These submissions raised the following concerns.

- The literature search was too restrictive and accordingly missed important birds recognised and documented to be in the area.
- The survey periods were too short.
- The survey methods were inaccurate.
- The surveys did not take account of abnormal seasonal conditions (drought).
- The time of surveys started too late and finished too early.
- The surveys and subsequent analysis did not adequately identify or respond to bird species known to be present in the area and on the site, but simply not recorded during observation periods.
- Specific utilisation assessment should have been made for the Bald Hills Wetland Reserve and the Kings Flat Fauna Reserve, given the potential significance of these sites for birds and their proximity to the proposed wind farm.

The Panel received a detailed submission from Mr Andrew Chapman which amongst other matters identified numerous threatened and migratory species present in the area, provided information on the biodiversity value of the Bald Hills Wetland Reserve and drew the Panel's attention to the recently completed Landscape Plan for the Gippsland Plan Bioregion Tarwin-Powlett Landscape Zone, a DSE document. (DSE subsequently advised the Panel that this document is still in draft form but is likely to be approved in the near future).

The Chapman submission was very critical of the methodology and conclusions reached in the Brett Lane reports, stating that the reports significantly diminished and understated the conservation significance of Bald Hills for bird life.

Mr Lucas Bluff provided the Panel with an analysis of the survey methodology used in the Brett Lane reports, against standard survey literature. Mr Bluff was critical of the survey techniques used by Mr Lane. He said that the surveys were conducted at times that would miss major bird activity and were therefore flawed. He therefore concluded that bird utilisation of rotor swept area is under-estimated by a significant but indeterminate amount.

Dr Meredith in his peer review for the proponent said that the survey was a:

relatively low survey effort.

He was satisfied that the bird observation method using stationary point counts was a valid and indeed standard method for assessing bird risk at wind farm sites. However, when attending to give evidence he was more critical of the times chosen for the survey periods. In response to a question by Mr Chapman he indicated that the 8.00a.m. to 5.00p.m. survey hours would limit data and it would have been valuable to have a wider spread of survey hours. That being said, Dr Meredith concluded that the survey carried out was on balance:

adequate to determine whether the site is a potential high risk site.

Only high risk sites (e.g. where there are large numbers of birds or where endangered bird species are known to be or are likely to be present) normally merit more detailed studies and risk prediction techniques such as bird collision risk modelling.

DSE in its final response to the various Brett Lane reports advised the Panel that additional survey work and information is required with respect to birds as follows:

- Amelioration measures to be applied to the operating wind farm to reduce the risk to birds if the proposal proceeds; and
- Orange-bellied Parrot compensatory habitat management activities.

Earlier DSE indicated that:

"The Department acknowledges that overall the survey effort is adequate and the conclusions reasonable, with the following exceptions;"

The Department then went on to address the various outstanding issues which included two points relative to birds. These were:

- The level of threat to the Orange-bellied parrot will be increased by the proposal. The parrot is not likely to utilise the site, however, it is highly likely to fly across the site while commuting between habitat patches in South Gippsland. Commuting flights are often at heights encompassed by the rotor swept area.
- Some fauna species including birds may not habituate to noise generated by the wind farm. Such birds that occupy the Bald Hills Wetland Reserve may be adversely impacted and may abandon the habitat. Overseas experience indicates that some water birds are in this category.

In the Department's view the second dot point now appears to be satisfied as a result of the additional reports provided by Mr Lane.

In response to criticism of his methodology by submitters and questions by the Panel, Mr Lane explained more fully the processes he used in his assessment. He said that if threatened species were present on the site in sufficient numbers to result in an unacceptable impact then they would be picked up by the surveys. He said that target surveys for threatened species are only warranted in the following circumstances:

- There is a sufficiently large number of records of the species regularly in a region.
- Habitats on the proposed wind farm site are suitable for the species.
- There is a likelihood, on the basis of the suitability of adjacent habitats, that it might fly across the wind farm site regularly.
- Rare or threatened species were regularly observed during bird utilisation surveys.

Mr Lane indicated in his response that none of these criteria were present and therefore targeted surveys were not warranted. He concluded that his survey was sufficient to demonstrate that bird utilisation of the site was generally low and hence that impacts would be also low.

With regard to targeting roosting flights of birds which occur around dawn and sunset, Mr Lane agreed that such roosting flights involve larger numbers of birds than would be observed in the usual morning bird utilisation peak i.e. within four hours of dawn. By implication it follows that the utilisation surveys would have recorded higher utilisation rates if they had been undertaken in early hours. Mr Lane, however stated in his closing remarks that:

No roosts of significant numbers of ibis or other community roosting birds were found on the wind farm site or in the Bald Hills Wetland Reserve during several initial site surveys (in spring-summer 2001-2000) undertaken to identify risks, and scope and design bird investigations or on subsequent occasions.

That being said, this was the first mention of any survey having been undertaken for roosting in the wider setting of the project site, such work having received no mention or documentation in any of the reports prepared up to and including Mr Lane's expert witness statement. This response was supplied in the closing submission to the Panel in response to questions raised by the Panel and others. Accordingly this material could not be tested by cross examination or Panel questions directly to Mr Lane.

Mitigation Measures

Mr Lane identified the following mitigation measure:

- Siting of wind turbines to allow sufficient space (150 to 300 metres) between turbines so as to provide space for bird flight between turbines. All the turbines are located at least 300 metres apart.
- Siting of wind turbines so as to provide sufficient distance from open water so as avoid water bird disturbance. The closest turbine to the main body of water at the Bald Hills Wetland Reserve is over 1400 metres distant, although smaller water bodies are closer.
- Avoiding siting wind farms on significant bird movement paths or migration routes. Mr Lane indicates that this has been achieved, although several submitters did not agree.
- Siting wind farms away from areas of high bird usage. Mr Lane indicated that this had been achieved, although again several submitters did not agree.
- Minimising direct and indirect impacts on habitat (an issue that has been separately addressed above in the consideration of native vegetation issues).

- Introducing a bird monitoring program after construction, to test the predicted impacts on birds. This is proposed to be addressed in conditions.

In the face of this range of actions, DSE maintained its view that the provision of off-site offset vegetation suitable for Orange-bellied Parrot habitat should be further investigated.

10.3.6 PANEL RESPONSE

The Panel commences by setting out its responses to submissions on survey methods, as these largely condition its broader response. It then goes on to consider impacts on species and groups of species as necessary.

Survey Methodology

One of the most contentious issues before the Panel and the subject of several detailed submissions were the methods by which Mr Lane had considered his initial species and risk assessments and had designed and implemented his bird utilisation surveys.

As discussed above, Mr Lane responded to many of these criticisms of his work in Appendix 8 to Mr Gobbo's closing submission for the proponent. This response from Mr Lane set out an explanation of his methodology. He drew a distinction between general ornithological surveys, 'bird watching' and the bird utilisation surveys he conducted. His surveys were designed to provide information about the numbers and species of birds likely to be impacted by the wind turbines. Some of the criticisms said that the surveys did not pick up birds that objectors knew to be present on the site at various times. Mr Lane did not dispute this. Instead he said that his surveys were designed to indicate if sufficient birds of particular species were likely to be present at rotor swept to indicate that an impact on the species would be significant in population terms. He said that if sufficient birds were present to result in a significant impact his survey would identify them, and it was carefully designed to do this.

In response to criticism that his surveys were carried out at times that would miss peak bird activity Mr Lane said this was not so. His surveys were designed after several preliminary site visits including visits to the Bald Hills Wetland Reserve. Amongst other matters these preliminary surveys established that there were no significant roosting sites at the reserve. In these circumstances Mr Lane said that his surveys which generally commenced at 8.00 am and finished at 5.00 pm would not miss any roosting flights because there were none.

In so far as the surveys missing the peak bird activity period associated with such phenomena as the 'dawn chorus,' Mr Lane said the peak activity period for flying birds extended well into the period of his surveys.

As a starting point, the Panel finds it most unfortunate that these explanations were provided by Mr Lane at the point of closing and were not available as key components of his initial work. Had they been available in the main body of his work, Mr Lane could have been questioned on them. The lingering doubt that they were *ex post facto* justifications could have been dispelled. However, although largely clear, his late explanations do leave his work now tainted with a level of concern as to its initial robustness.

As the matter now stands, the Panel does not doubt Mr Lane's veracity in informing us that his survey design was informed after preliminary investigations were carried out. However, these

preliminary investigations have at no point been documented in detail and the Panel finds it very difficult to place much weight upon them.

It is important to provide an example in relation to the most contested of issues, the hours of survey, related to the absence of targeted species evaluations or off-site evaluations, particularly in the Bald Hills Wetland Reserve. Mr Lane comes to the end of the process and after much examination of this issues by many parties, tells us that he reached the conclusion that such activities were not necessary, because he undertook some informal observations at the reserve, and in fact he and his research colleague Khalid al-Dabbagh did in fact attend the site at earlier hours on some occasions. These additional and initially unreported actions were sufficient to justify conclusions to the extent that there was no significant roosting in the adjacent wetland, and the roost to range and range to roost or relevant overflight activity was not taking place across the project site in the dawn to 8-00am period and the 5-00pm to dusk period.

The Panel's response is to state that we appreciate that this may well be so, but in the publicly contested circumstances of an EES process, was it not obvious that if this was so, it should have been documented from the outset? It was not documented and to bring in the late fashion that it was brought clearly reduces weight and credibility to a substantial extent. In such circumstances, there is little in terms of weight in argument between those who argue that the method was appropriate, and those who argue that it was not.

Turning again to the question of the hours of survey, related to the absence of targeted species evaluations or off-site evaluations. Mr Lane has stated quite clearly that it was his intention to develop a representative sample of bird activity on the site, across the hours when this would occur. To this extent Appendix 8 to the closing submissions states quite unequivocally:

The timing of bird surveys therefore included all relevant periods of the day from a bird utilisation perspective, including periods of both higher and lower activity. In this way a realistic measure of bird utilisation rate could be obtained, rather than one biased by unequal emphasis on any particular period of the day. To place additional emphasis in fieldwork on the morning bird utilisation peak and apply these data to the whole period when the wind farm will operate would bias upwards any measurement of bird collision risk.³²

With the greatest of respect to Mr Lane, the Panel considers that he has missed the point raised by submitters. It was not the intention of Mr Chapman or Mr Bluff to suggest that he should bias his survey towards the early morning or indeed evening periods of observation. Their concern simply was that these periods of the day, which happen to be periods when bird utilisation takes place, were not represented in his survey in any formal sense. The Panel shares this concern.

This lack of representation then leads the Panel to examine whether there is any potential for significant change to Mr Lane's results, should a truly representative sample survey be undertaken in which these times of day took they proportionate role in the temporal sample frame. Dr Meredith as peer reviewer was of the interim view that as the survey indicated low bird utilisation overall, the lack of these periods of the day was unlikely to change the picture significantly. However, the Panel again observes that Dr Meredith was not reviewing the

³² at pg 23, witness emphasis.

entire Lane story and did not provide any additional concluding comment on Appendix 8 to the closing submissions.

On balance, the Panel considers that it is broadly likely that Dr Meredith's assessment is correct. However, the Panel has itself examined scenarios in which (for example) a typical day bird utilisation rate might be doubled, further to adding additional and equally distributed early morning and evening survey periods to the study. Such an outcome may be unlikely, but at this stage it cannot be effectively excluded, and reasonable steps to exclude it have not been taken.

One must add into this scenario the lack of formal knowledge and evaluation of the degree to which roosting might be present on adjacent land (and particularly the Bald Hills Wetland Reserve) and the possibility that relevant movements to and from roost that might have affected the site could credibly have taken place within the periods not included in the formal survey. When one also adds to this scenario that the studies contain little formal reference to scoping activities, including the use of local field naturalists data about the presence and activities of particular species to assist in determining its design, a further gap appears.

The Panel can only conclude that this is a body of work that is approaching the threshold beyond which it cannot be used for effective, rationally based public decision making.

In terms of obtaining a benchmark for good practice in this regard, the Panel has turned to the AusWEA Best Practice Guidelines, Appendix 2. This is a wind industry publication providing a significant body of guidance. This appendix was prepared by Mr Lane and it describes the recommended approach to bird, bat and other ecological surveys.

The Appendix indicates that it is good practice to carry out a form of scoping exercise, prior to designing a detailed assessment including bird utilisation surveys. There is a list provided which indicates the sort of preliminary information that should be compiled or mapped and sources for this information. These are reproduced in table 2 below.

The Appendix indicates that it is appropriate to open discussions with relevant state and regional authorities at an early stage and that data sources should include State and Commonwealth databases and data available from local field naturalists.

The Panel has had no details of preliminary investigations placed formally before it. It has scant information regarding the basis for the design of the surveys. The Appendix indicates that a long list of material and sources. The Panel does not know the quantum of preliminary material obtained or indeed if any of it has been. It appears unlikely to the Panel that any effort has been made to contact local naturalists or birdwatchers as recommended: certainly none of the individuals or bodies represented in the hearings had been contacted to obtain data. If this had been done several of the issues of contention may have been at least partially resolved, and the studies may have received acknowledgment for reasonable rigour, even where the results were still in contention.

Significant aspects of survey design and data input from government sources recommended by AusWEA do not appear to have been followed, but again the reasons are (with the exception of an explanation provided about the limitations of the Bioclim model in EPBC databases) not made clear. There has been little apparent consultation between the proponents and DSE on ecological and particularly avian matters. The Panel is not aware where the fault lies. However, the Panel finds it unsatisfactory that DSE appeared at the hearing in circumstances where they did not have access to copies of all of Mr Lanes many

extant reports. One of the comments made by DSE at the hearing was to the effect that none of the issues raised by the Department were likely to be fatal and all should all be capable of resolution by discussion. The Panel comments that the proposal in one form or another has been in the public arena for almost a year and this should have been plenty of time to sort out issues that can be resolved. The Panel expects to be able to get reliable accurate and up to date advice on ecological matters from DSE. There should be no difficulty in this occurring, especially if early consultation takes place as recommended in Appendix 2 to the AusWEA Guidelines.

Table 2: AusWEA Scoping Guidelines (Extract for Birds)

Group	Information to be compiled and/or mapped	Source of Information
Identifying potential bird and bat risks		
Songbirds	Locations of native vegetation remnants Location of headlands near island chains	Topographical maps. Aerial Photos. Vegetation mapping by state environment agency. Regional state Environment agency personnel.
Neophema parrots	Location of feeding, roosting and breeding sites; Location of flight paths between known and potential habitats	Orange-bellied Parrot Recovery team. Aerial Photos. Topographic Maps Regional state environment agency personnel.
Birds of Prey	Location of significant known breeding sites. Areas where birds of prey are known to congregate or migrate (e.g. parts of Bass Strait Coast).	State and Commonwealth wildlife databases. Australasian Raptor Association. Local naturalists/birdwatchers. Regional state environment agency personnel.
Shorebirds	Location of large coastal and non-coastal wetlands. Location of principal feeding areas and roosting sites. Migration sector from main feeding and roosting sites (NW to NE).	Topographical Maps Wetlands International Oceania Program (at Environment Australia, Canberra). Australasian Wader Studies Group. Local naturalists/birdwatchers. Regional state environment agency personnel.
Waterfowl	Location of large coastal and non-coastal wetlands; Flight paths between wetlands; River valleys and coastlines Location of waterfowl breeding colonies or roosting sites and dispersal routes.	Topographic Maps. State and Commonwealth wildlife databases Local naturalists/bird watchers. Regional state environment agency personnel.

Most pertinently, the Appendix advises that:

[t]he development approval process is usually open to public comment and the work of proponents can be subject to rigorous third party technical reviews.

...

Development approvals and on-going management decisions related to ecological matters will inevitably be made in an environment of partial uncertainty. Thus, proponents need to carefully manage wider community and regulator expectations and not just rely on technical investigations to address ecological issues.

This appears to be a very practical acknowledgment of a key reality of EES processes. These are processes whereby scientific investigations are deployed in public development decision making. It is critical that the science is sound. However, it is also critical that the science is seen to be sound, such that a decision can credibly be based upon it. A considerable component of effective study method in an EES process is to address this latter end. To this extent, neglecting to fully explain the basis for survey design, and neglecting to formally address advice that certain approaches to scoping and data input should be used, tends to undermine the public and the scientific credibility of a body of work.

The Panel considers on balance that the wind farm site is not likely to be a site at particularly high risk for bird mortality. It comes to this conclusion on the basis of the low number of birds recorded during Mr Lanes bird utilisation counts. However, in the Panel's view such a balance is not an appropriately precautionary test. The Panel recognises and agrees with the proposition outlined in the AusWEA Guidelines to the effect that decisions on environmental assessments will in most cases be made in a climate of uncertainty because of such issues as variations in ground conditions over years. However this is not sufficient to justify approval based on assessments in circumstances where there is still an unnecessary or, in the original sense of that word, incredible degree of uncertainty. Put another way, in circumstances where assessments by their very nature are not precise, it is important to have well documented and complete reports in order to avoid as much uncertainty as possible.

The Panel does not as a general comment consider that the bird assessment as presented to the Panel entitles the Panel to conclude that the proposal will not adversely impact on conservation of biological diversity and ecological integrity within the development sites and surrounding lands. Further there is at this stage insufficient information to allow proper assessment against the criteria of no impact on species listed under the EPBC Act or the FFG Act.

In the Panel's view, the bird impact evaluations undertaken for the EES and SEES required to be rigorously evaluated through liaison between the proponent and officers of the Department of Sustainability and Environment, to the satisfaction of the Minister for Planning. The Department examine Mr Lanes existing EES and SEES material and he should work with them to produce:

- A simple and clear statement of the identified issues for birds.
- A simple and clear statement of the results of preliminary discussions and investigations, including of contact with Commonwealth and State agencies, local field naturalists groups and use of relevant databases to scope which species are likely to be present. Where in the view of the Department additional data sourcing is required, this should take place.

- A simple and clear statement of the results of all preliminary or scoping surveys, including any work undertaken to determine the likelihood of relevant species presence or absence (including the absence of roosting use) in adjacent reserves, particularly Bald Hills Wetland Reserve. Individual species requiring specific attention should be itemised, together with an assessment of their conservation status. Where in the view of the Department additional on site scoping is required, this should take place.
- A simple and clear statement of the considerations which led to the design of the bird utilisation surveys, with an explanation how these have been adjusted to take account of the results of initial discussions and investigations and scoping surveys. The following issues should specifically be examined: the hours of survey, the possible need for replacement of any of the reference sites, and the possible need for targeted surveys offsite. Where in the view of the Department additional or replacement survey or statistical work is required to address a potential for significant change to bird utilisation or species population risk, this should take place.
- A simple and clear statement of predicted outcomes for bird species in the locality that utilise the wind farm site, explaining the predicted level of impact to those that are listed under the EPBC and FFG Acts, including migratory species. This should list species, their conservation status and where a population is under any level of threat should set out a justified mortality rate and conclude on the degree to which population effects might flow. The conclusions should allow for the alteration in wind turbine numbers including the reduced number of turbines, larger individual swept area and reduced ground clearance provided for in the SEES.

In preparing this material, the AusWEA Guidelines on Pages 53 and 54 of Appendix 2 should be used as guide. The review should also address the issues and material identified in the DSE Assessment guidelines.

The Panel envisages that large amounts of the existing material will be relevant and is not suggesting this should be discarded. Nor at this stage is it suggesting that existing survey data will not be capable of re-use. Steps clearly need to be taken to ensure that the lack of morning and evening data did not skew the survey in terms either of the missing of relevant species or undue reduction of the bird utilisation rate. It may well be that statistical means of sensitivity testing the results of the Lane study could prove sufficient to fill some or all of these gaps. However, it is also clear that if these gaps become filled with data that appears likely to change the broad conclusions of the EES and assessment process, it will be necessary for the integrity and credibility of the approval process that this material be subjected to further independent review, with that reviewer having the benefit of an orderly and logical train of presentation and the capacity to test and require proof or justification of inputs and assumptions and finally to require augmenting inputs if it appears they are required.

Listed Species

In the following sections of this chapter the Panel makes some comments regarding specific species and the review of the bird assessment should take account of these comments as well as those above.

Orange-bellied Parrot

The panel accepts the evidence of Mr Lane and Dr Meredith regarding this species, to the extent that utilisation will be negligible and harm effectively unmeasurable. In coming to this conclusion the Panel acknowledges that the Parrot may fly over the site from time to time and it may even alight on occasions. It acknowledges the possibility that the bird has been locally sighted by Mr Don Fairbrother. It also acknowledges that the species has very low population numbers. However, given the basic condition and location of the site, paucity of sightings in the region and the lack of desirable habitat for the bird, the Panel considers that the frequency of OBP utilisation is likely to be so low that the risk to the species is in the Panels view negligible.

The Panel recognises DSE concerns regarding the cumulative effect of wind farms on the species but does not agree that the Bald Hills site will quantifiably add to that cumulative effect to an extent that would justify the provision of anything more than the most negligible amount of additional off site habitat, to proportionately address the very remote potential for harm.

It follows that in the Panels view, this issue is de minimis and the assessment criteria are complied with in so far as the OBP is concerned.

The Panel would observe that there is a similarity between the OBP issue and issues of cumulative impact discussed in its examination of landscape above. This wind farm alone is likely to negligible harm to the parrot. The likelihood of any greater harm would only arise in circumstances where this wind farm stood cumulatively with a very substantial number of other wind farms, affecting not just the margins, but a significant percentage of the core of the OBP's coastal wintering habitat. There is a 'first in – best dressed' advantage at present, in that a wind farm coming early to the coast will not individually do any measurable harm, but yet no realistic assessment of potential cumulative impact can be made.

The Panel observes that there may be some medium to long term benefit in this issue being addressed on a strategic basis, rather than through individualised wind energy facility approvals. High level discussions between DSE, the OBP Recovery Team and AusWEA could be used to identify priority actions across the coast to respond to a range of assumptions about the effect of coastal wind farm development on OBP wintering habitat usage. An industry-wide agreement on contributions to funding the implementation of such a strategy could then be reached. Such work is far more likely to provide long term benefit than the use of individual approval processes to generate individual contributions to 'pocket' off site habitat conservation and enhancement measures.

Raptors

The Panel heard submissions to the effect that the Bald Hills area was often frequented by Wedge-tailed Eagles, a species particularly at risk. Mr Lane's surveys identified 12 sightings at rotor swept height on several different days. Given the large home range of the species he

believed that those observed came from one family or group. This conclusion would have been better supported if a breakdown of sighting data had been provided.

The Panel that the bird assessment surveys most likely give an accurate indication of occupation rates. There were no submissions that indicated circumstances relating to raptors would result in the surveys giving an incorrect rate. Such circumstances for other species include roosting flights or seasonal occupation of the site.

With reference to Sea Eagles Mr Lane indicated there were no sightings in the area and therefore he discounted any impact. Mr Chapman and others indicated that there were two established nesting sites in the area and that he had personally observed the species over the Bald Hills Wetland Reserve. Mr Lane's reports needs attention in light of this information.

Water Birds

The assessment for these birds requires the attention.

Firstly documentation on details of a roosting site assessment needs to be provided as discussed earlier. Should water birds be found to be roosting at, for example, the Bald Hills Wetland Reserve, this could change the results of the bird utilisation study and individual species impacts. Secondly an analysis of how the surveys were designed to encapsulate particular species in large numbers under particular seasonal conditions would be warranted. After these preliminaries are complete and documented, additional survey work may be required, further to the review program outlined above.

The preliminary work also needs to identify the species under consideration and to provide clear information on their conservation status.

Other Species

The sighting information for Lathams Snipe needs to be clarified. Its likely frequency of occurrence needs to be further assessed in light of the reported regular sightings.

The Swift Parrot is required to be assessed under the provisions of the EPBC Act. Mr Chapman provided details of some personal sightings. Similar reinvestigations and assessments should be carried out as for the Lathams Snipe.

The assessment of the White-throated Needletail is quite thorough, with the exception of an error in the calculations for the predicted mortality rate. This should be corrected and if necessary adjustments made to the conclusions. In addition, information as to the status of the species should be provided as well as estimates of the species population for analysis against the predicted mortality rate.

Findings

Flowing from its examination of submissions in relation to birds, the Panel makes the following findings.

The Panel considers it likely that proposal will not impact on the conservation of biological diversity and ecological integrity of bird species within the project site and surrounding lands. However, it does not consider that the bird assessment as presented enables it to credibly endorse this conclusion.

Similarly, the Panel considers that there is insufficient information to allow a credible general conclusion that there will be no material impact on bird species listed under the EPBC Act or the FFG Act.

That being said, the Panel is satisfied that the project will not materially harm the Orange-bellied Parrot and does not consider that it will be necessary to provide any off-site habitat mitigation for this species.

Flowing from these findings, the Panel makes the following recommendations.

The bird assessment should be re-documented by Brett Lane and Associates in close consultation with DSE, using existing data, plus such additional data as in the reviewer's opinion is necessary to be provided. The re-documentation should provide the following in a single document.

- A simple and clear statement of the identified issues for birds.
- A simple and clear statement of the results of preliminary discussions and investigations, including of contact with Commonwealth and State agencies, local field naturalists groups and use of relevant databases to scope which species are likely to be present. Where in the view of the department additional data sourcing is required, this should take place.
- A simple and clear statement of the results of all preliminary or scoping surveys, including any work undertaken to determine the likelihood of relevant species presence or absence (including the absence of roosting use) in adjacent reserves, particularly Bald Hills Wetland Reserve. Individual species requiring specific attention should be itemised, together with an assessment of their conservation status. Where in the view of the department additional on site scoping is required, this should take place.
- A simple and clear statement of the considerations which led to the design of the bird utilisation surveys, with an explanation how these have been adjusted to take account of the results of initial discussions and investigations and scoping surveys. The following issues should specifically be examined: the hours of survey, the possible need for replacement of any of the reference sites, and the possible need for targeted surveys offsite. Where in the view of the department additional or replacement survey or statistical work is required to address a potential for significant change to bird utilisation or species population risk, this should take place.
- A simple and clear statement of predicted outcomes for bird species in the locality that utilise the wind farm site, explaining the predicted level of impact to those that are listed under the EPBC and FFG Acts, including migratory species. This should list species, their conservation status and where a population is under any level of threat should set out a justified mortality rate and conclude on the degree to which population effects might flow. The conclusions should allow for the alteration in wind turbine numbers including the reduced number of turbines, larger individual swept area and reduced ground clearance provided for in the SEES.

This review should be carried out to the satisfaction of the Minister for Planning. The issue of a permit should await its completion.

10.3.7 ADEQUACY OF EVALUATION OVERALL

Many submitters were strongly concerned in their submissions with the adequacy of the natural environment reports prepared for the EES, SEES and Panel processes. Detailed concerns were expressed in relation to bird evaluations and these have been examined above. However, at least part of this concern had clearly arisen because submitters had generally found the reports difficult to use, inconsistent in terms of their presentation of material and therefore doubtful in their conclusions. These concerns were shared in part by Dr Charles Meredith, peer reviewer on behalf of the proponent.

Confusion was generated from the outset by the sheer number of reports in circulation and requiring to be read in relation to one another in order to comprehend what Mr Lane had actually done. There were a total of 9 reports from Brett Lane and Associates. By itself the number of reports made the public's, statutory authority's and the Panel's tasks more onerous than they would otherwise have been, had at least some of the reports been consolidated into a single document with a good table of contents and an index. The Panel has referred above to circumstances in which it became clear that DSE, a key stakeholder, had not obtained all of the Lane reports. This is but one example of an untoward outcome that can result once the documentation of an assessment process becomes unduly complicated.

There was considerable criticism of methodology used by Mr Lane in his bird utilisation survey. The Panel has recorded above how Mr Lane sought to address this through the inclusion of new material in the proponent's closing. An introduction to an initial paper addressing this issue would have assisted in the overall understanding and clarity of the subsequent reports. It may have reduced the number of submissions raising concerns and reduced the length and all encompassing nature of those that remained. Submissions and argument before the Panel could have been confined to the issues remaining in dispute, rather than ranging widely across the entire body of this work.

Another example of lack of clarity is provided in Appendix No. 1 to the EES, which provides detailed descriptions of non avian fauna under the sub headings of mammals, reptiles, frogs and fish. The first section on mammals clearly states that the species described have been selected because they are listed for the region in the Atlas of Victorian Wildlife or identified in the Assessment Guidelines for the EES prepared by DSE. For the remaining groups (reptiles, frogs and fish) there is no indication of the basis for selection of the species discussed. Again, this lack of clarity gave rise to concern and dispute that need not necessarily have arisen.

Similar comments to those set out above apply to Mr Lane's decisions to select particular data sources as his starting points. Many submitters were concerned that Mr Lane had not used EPBC Act databases, or made reference to locally sourced species lists. Nor had he clearly explained why he had not done so. This led to the widespread view that species were missing, that Mr Lane's work was flawed, or that he had deliberately set out to minimise the numbers of significant species addressed in his work. Mr Lane's response to criticism in the proponent's closing submissions sought to explain limitations with data sources such as the EPBC Act databases. However, an introductory explanation in an initial paper as to why the 'Atlas' was the preferred reference would have assisted. However, no equivalent explanation was provided of his decision not to refer to local data sources such as those from field naturalists organisations.

At risk of labouring matters, the reports contained a number of data copying, presentation and mathematical errors that, whilst small, altered or affected the results of Mr Lane's work.

Examples of relevant areas with variable figures included the number of species of birds flying at rotor swept height and calculations of mortality figures. A number of tables and figures were wrongly titled or labelled or acknowledged to contain the wrong data. Such errors, although typically small and simple, did not provide confidence as to the reliability of key conclusions in the reports, or of the team responsible for compiling them. These in turn added fuel to community concerns about the adequacy of Mr Lanes work and the soundness of his conclusions.

10.3.8 PANEL RESPONSE

The Panel must comment that, issues of content aside, the reports provided by Brett Lane and Associates could have been far better formatted and presented than they were. They were a difficult body of work, sometimes verging on the impenetrable, and this in circumstances where the Panel considers that there were no issues of principle that made them necessarily so. The Panel makes the following comments in the hope that future environment assessments will be prepared in a more coherent and user friendly fashion. Environmental Assessment is an important undertaking that is rendered more difficult than it need be, where information is delivered in a form that makes it hard to consider and assess.

The main difficulties were as follows:

- There were simply too many individual reports with cross relating subject matter, making a combined appreciation of the whole body of material very difficult to achieve.
- It was often difficult and time consuming to drill down to the answers to simple questions that needed to be resolved.
- Individual reports were often poorly crafted, badly structured and illogical in their layouts.

There were a total of 9 reports from Brett Lane and Associates. By itself the number of reports made the public's, statutory authority's and the Panel's tasks more onerous than they should otherwise have been, had at least some of the reports been consolidated into a single document with a good table of contents and an index. The Panel appreciates that there may need to be more than one report in circumstances where new issues arise during the course of an EES process. However, of the 9 reports, 7 were prepared before the commencement of the public hearings and could at least have been consolidated at the stage of preparing evidence. That being said, a single consolidated exhibition document would also have been advantageous and is commonly provided in most EES processes, with reference to background documents where necessary.

The reports would have been improved by better indexing and more careful structuring and editing. For example, the introduction to the first report in Appendix 1 to the ESS suggests that there are 6 sections in the report and gives a summary of the content in each section. There are however only 4 sections in the report. The content of the remaining two sections is instead located within first four sections. This disordered approach to drafting exacerbates the difficulties experienced by the reader seeking for specific material.

Important functions of the reports from the Panel's perspective are to:

- Identify flora and fauna listed in the EBFC Act and the FFG Act that may be present on the site and on nearby sites.
- To rate the likelihood of the presence of these species on the site and the likely level of threat as a result of the proposal.

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- In rating the likely population impact, some form of quantitative and statistical analysis would be of assistance. If this cannot be done then reasons should be given.
 - Clear and unambiguous recommendations should be provided as to:
 - mitigation measures; and
 - further surveys/investigations.
 - Definite conclusions should be provided with clear reasons.

Whilst it would be hoped that reports would address these basic functional requirements in a logical manner, the body of work provided by Brett Lane and Associates did not fully do so, or was so disaggregated in its structure and reasoning that it was hard to appreciate after several readings whether it had done so or not.

The issues in question are complex and of necessity the reports will need to use technical language. That said, it is reasonable to expect that EES reports will be prepared in such a manner that they can be relatively easily understood and appreciated by intelligent and fair minded members of the general public. These reports also fail this test.

In considering whether the approach taken by Brett Lane and Associates was damaged by lack of logical structure, clear reasoning in selection and explanation of methods and accurate presentation of data, the Panel has considered the advice provided in the Best Practice Guidelines for Implementation of Wind Energy Projects in Australia. The Panel appreciates that this document has been prepared for the wind energy industry and understands Mr Lane to have been principle author of the relevant parts. However, the Panel considers that Appendix 2 to that document provides a useful source of advice in relation to the issues raised concerning form and content of environmental reports.

Appendix 2 of the guidelines provide a clear and logical basis on which to structure environmental reports for the Wind Energy Industry. The Appendix sets out clearly that initial assessments should be conducted at an early stage to provide the basis for more in depth surveys and investigation. It sets out and recommends various sources of information and level of initial survey work and suggests how this initial information should be documented.

It clearly explains in summary how assessments should be built from the general to the particular in a logical fashion. If environmental reports were structured in this way so that a normally intelligent member of the general public reading the report could clearly understand the methodology and presentation of content, without necessarily agreeing with either the method or the outcomes, considerable time and expense would be saved. Submitters and indeed the Panel would then be better able to concentrate on substantive issues rather than first having to consider concerns about the lack of a logical and methodical approach.

The Panel concludes that environmental reports and accompanying associated specialist surveys should have been accompanied by a clear and well documented explanation of the methodology used including details of preliminary assessments and surveys which drive the later more detailed work. They should also provide:

- details of the persons, organisations and data sources consulted;
- the outcomes of these consultations and the reasons they were done; and
- lists of literature and source material referred to and reasons for its selection in preference to other material.

The Panel has addressed the issues of substance arising from a failure to adopt a clear and rigorous approach to these reports in its analysis of bird impacts above. However, it is pertinent to record that, issues of substance aside, the documentation associated with this aspect of the EES left much to be desired in terms of simple comprehension and user friendliness. The Panel trusts that future EES processes undertaken by this proponent and/or consultant will focus more fully on the need to credibly communicate to the diverse audience that comprises the user group for EES documentation.

The exhibited EES and SEES natural environment documentation and expert witness reports were disaggregated, poorly structured and difficult to use. In the Panel's mind, these factors added unduly to community concern about this key subject matter. They have also added unduly to the work required to analyse and respond to the information provided.

10.3.9 REGISTER OF THE NATIONAL ESTATE

Having set out its substantive considerations, the Panel is also conscious that it should consider effects on places subject to registration on the Register of the National Estate, where the citations raise issues of natural environment value.

The Panel adopted a criterion in terms of impact as follows:

That the proposal will not adversely affect any registered site on the Register of the National Estate.

It has examined whether areas that could be affected by the project are currently listed on the Register of the National Estate, for reasons that are wholly or partly related to their natural environment values. The currently listed areas are set out below, together with their statutory status under the *Australian Heritage Council Act 2003*:

- | | |
|--|------------|
| ▪ Cape Liptrap and Waratah Bay Coastal Area Walkerville | Indicative |
| ▪ South Gippsland Marine and Coastal Park Area Foster | Registered |
| ▪ Bunurong Cliffs Coastal and Marine Area Cape Patterson | Registered |
| ▪ Wilsons Promontory National Park | Registered |

Where sites are registered, they are included on the permanent Register of the National Estate. The Commonwealth government must not take action that would result in an adverse impact on such places, unless there is no reasonable and prudent alternative.

Where sites have an indicative status, they have been nominated for inclusion on the register. However, at this stage they have not proceeded to interim listing or undergone any public review. They have no formal status in relation to Commonwealth decisions .

The southern cluster of wind turbines is proposed to be located on land adjoining but not in the indicative Cape Liptrap and Waratah Bay Area. All of the other areas listed areas are remote from the project and the Panel judges that it could not result in a direct natural environment impact upon them. Noting the indicative status of the Cape Liptrap and Waratah Bay listing, the Panel considers that there are no considerations arising for the Commonwealth in this regard.

The project will have no impact on the natural environment values of registered places on the Register of the National Estate.

10.4 SUMMARY OF FINDINGS

In considering the assessment criterion that the wind turbines, access roads, underground power cabling, substations/switchyards, construction areas and other infrastructure are sited and designed to minimise removal of native vegetation' the Panel is satisfied that the siting of turbine number 1 in an area of native vegetation should nevertheless proceed. This is on the basis of the high efficiency of the turbine, the impacted nature of the surrounding vegetation, the short access track and the limited vegetation removal required, combined with successfully designing all of the remaining infrastructure to avoid removal of native vegetation. However, turbine 10 which is less efficient and requires the removal of a larger amount of more intact vegetation should not proceed on this same measure.

In considering the assessment criterion that removal of native vegetation to provide for siting and construction of the development will be unavoidable and be off-set by a net gain, measured in terms of habitat hectares, the Panel is clear that the siting of turbine 1, whilst not strictly 'unavoidable', offers a balance of benefit that indicates the acceptability of meeting this criterion only in part. By removing turbine 10 from the equation, a greater harm with a less clear justification can be avoided.

Having regard to the design of the project, the Panel considers that the proposed development will not lead to degrading processes that would have detrimental impacts on native flora, such as spread of pest plants and animals. Normal design and environmental management processes, adequately provided for in the general location of turbines and in proposed permit conditions will achieve a positive result in terms of this measure. Clearly, minimisation of native vegetation disturbance will also contribute towards a successful result against this measure.

Having regard to the criterion that the proposed development will not impact on species listed under the Environment Protection and Biodiversity Conservation Act 1999, and the Flora and Fauna Guarantee Act 1988, the Panel considers that this may be satisfactorily met in respect of flora and terrestrial and aquatic fauna, subject to an additional survey for statutorily listed flora species in land proposed to be cleared and the relocation of turbine 10 from a location with high quality native vegetation.

In considering the assessment criteria that the proposed development will not impact on conservation of biological diversity and ecological integrity within the development sites and surrounding lands the Panel considers that this can be met on the same terms.

Reservations must be adopted from this position in relation to the two assessment criteria set out above, in terms of bat and bird impacts.

In relation to bats, the Panel shares with proponent the view that utilisation of the site by the Southern Bent-wing Bat has not been excluded. However, it also shares the view that existing methods of pre-approval study are unlikely to conclusively resolve this question in a manner that does not entail excessive cost or effort. On this basis, the Panel has endorsed a proposal for post construction monitoring to be designed in consultation with DSE that is designed to determine whether Southern Bent-wing Bat utilisation of the site occurs and whether this leads to harm on a species level. The Panel considers that the results of this study should be of general assistance to environmental assessment and approvals consideration for coastal wind farms more generally.

Turning to birds, the Panel is satisfied that the criteria outlines above can be met in respect of the Orange Bellied Parrot. However, in relation to broader questions of species utilisation and potential impact, the Panel considers that the work carried out to date has not effectively demonstrated that the proposed facility would meet the criteria. The Panel considers that it is likely that it would. However, a number of issues in relation to the method and presentation of the bird analysis in the EES and SEES documentation have left sufficient doubt such that further evaluation by reference to an independent peer reviewer would be warranted before the commencement of construction.

11. CULTURAL ENVIRONMENT

The purpose of this section is to consider the impact by the wind energy facility on the aspects of the immediate cultural environment, there are two of these:

- Aboriginal cultural heritage
- Historic archaeological issues from European occupation

They are separate and covered by their own legislative requirements:

11.1 ISSUES RAISED

The issues raised in were summary terms as follows:

- The adequacy of the proponent's assessment of cultural and heritage effects was questioned.
- The project was suggested by some as having a potentially unacceptable effect on Aboriginal cultural heritage.
- The project was suggested as having an adverse effect on European cultural heritage.

11.2 CRITERIA TO BE MET

The Panel notes the operation of State and Commonwealth legislation protecting Aboriginal places and notes that separate consents to disturb or destroy places is required. State legislation also protects European heritage places and separate consents can be required.

With reference to the Panel's identification of sources of relevant legislation and policy, the Panel considers that the appropriate criteria should be:

To ensure that any proposed development avoids direct impact to significant places.

To ensure that indirect impact to significant places is effectively controlled.

In setting out these criteria, the Panel has had regard to the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* which provides for the protection of Aboriginal cultural property, including any places, objects and folklore that are of particular significance to Aboriginal people. The Act requires written consent from the relevant Victorian Aboriginal community to disturb, destroy, interfere with or endanger any Aboriginal place, object or archaeological site.

The Panel has also considered the *Archaeological and Aboriginal Relics Preservation Act 1972* which relates to all material relating to Aboriginal occupation of land in Victoria. The Act also establishes administrative procedures for archaeological investigations and reporting of the discovery of Aboriginal sites. The Act is administered by Aboriginal Affairs Victoria, including granting of consent to carry out archaeological fieldwork that will involve disturbance

to a site. Consent will not usually be given without prior permission from the relevant Aboriginal community. The Act provides blanket protection for all aboriginal materials both before and after European occupation.

The Panel has also considered the Australian Heritage Council Act 2003 and the Register of the National Estate. It should be noted that there are no places on the register with citations that refer to relevant cultural heritage values that would be affected by the proposed use and development.

Finally, the Panel has considered SPPF and LPPF policy in the planning scheme. It has also examined the degree to which places are subject to heritage control through incorporation on the Victorian Heritage Inventory, the Victorian Heritage Register or listed as a heritage place on the schedule to the Heritage Overlay in the planning scheme.

11.3 DISCUSSION

11.3.1 ADEQUACY OF SURVEYS

The initial EES evaluations were carried out by Marshall and Hyett from Terra Culture. The work was concluded by Ms Andrea Murphy, cultural heritage consultant with Tardis Enterprises Pty Ltd. The surveys had assessed for both Aboriginal and European archaeological potential on the site.

In relation to Aboriginal significance, a number of submitters were concerned that there had been insufficient attention or rigour of analysis in the surveys undertaken. Direct concerns were expressed by the Mittag family. They owned a coastal property on which their ancestor, the ethnographic collector Wishart had been active. A collection of Aboriginal stone tools had been recovered by Wishart from the coast adjacent to the southern cluster. The collection is now in the National Museum at Canberra. Ms Alison Mittag was most concerned that the existence of this collection had not been reflected in survey work undertaken for the EES. It suggested a likelihood of further archaeologically significant sites being located in the southern portion of the site.

Mr Dennis Williamson, providing landscape evidence for Tarwin Valley Coast Guardians, was equivalently concerned that a wide range of cultural considerations had not been taken account of. He questioned the degree to which the studies undertaken for the EES had documented Aboriginal associations with the land. Early European explorations of the region including those of Bass, Grant, Hovell, Broadribb and Robinson were not recorded. 1840s activities associated with early cattle runs (McMilan, Hobson and Black) were equivalently unrecorded.

Ms Murphy took the view that her and her predecessors had undertaken appropriate surveys and proper inquiries. Aboriginal Affairs Victoria was contacted by Ms Murphy and she was directed to contact the Central Gippsland Health and Housing Co-operative Ltd as the statutory Aboriginal organisation. The AAV raised no direct matters of concern.

Ms Murphy confirmed to the panel that both she and Marshall and Hyett formally approached the Central Gippsland Health and Housing Co-operative Ltd. Their response to her was that there was no specific significance in the Bald Hills area and that the CGH&HC community had

prior knowledge that could be attributed to the area. She was advised however that the community was well aware of the high cultural significance of land immediately south, in the lower fore dunes, and that there was high concern for the cultural heritage of this landform but not for the area within the boundary of the study area.

When questioned by the panel as to why the adjacent Bald Hills Wetlands was not investigated, Ms Murphy replied that as it was not a sheltered location it would not provide a permanently habitable site, but may contain some evidence from hunting forays. However, evidence from the 1920s/30s suggested the highest frequency of aboriginal occupation was on the coast and not on the relatively exposed and inhospitable Bald Hills range and adjacent marshes.

When specifically questioned as to whether information may have been withheld because of her gender, Ms Murphy replied that the earlier work had been carried out by male researchers and that she was confident that nothing had been withheld.

Ms. Murphy further confirmed that she searched for documents and archives in the State library and that she was confident that this and all other avenues of information had been exhausted.

In relation to European significance, Ms Murphy did not change her position in response to the evidence of Mr Williamson. She remained of the view that the overall historic potential of the windfarm site is low.

11.3.2 PANEL RESPONSE

In determining whether there is an issue of adequacy with the cultural environment surveys undertaken for the EES process, the Panel has first to ask whether there are any matters that could have given rise to a decision to resite the project or parts of it, that have apparently been missed in the survey, or whether there is any reasonable likelihood that such matters could emerge.

First considering Aboriginal issues, the Panel indicates that full and adequate consultation with the relevant community has been undertaken. This has led to the view being provided that there is nothing of principle that would warrant the avoidance of the site or parts of it. Further, the work to date is but the first step on a longer road. Should detailed archaeological supervision disclose additional and unpredicted issues, there will be ample means of resolving those, through the medium of statutory consents to disturb or destroy. The Panel notes that in reaching these conclusions it has had regard to confidential submissions on Aboriginal cultural values but has not recorded the nature of those submissions here.

Turning to the adequacy of European surveys, the Panel must remark that it was quite astonished at the degree to which Mr Williamson as an expert witness appeared to support the view that the proponent should produce what amounted to an entire thematic history for a region, before embarking on any intervention. Certainly, the Panel notes that the studies did not refer to the detail of early exploration or pastoralism in the district. However, in terms of the current cultural landscape and artefacts within it, the Panel is at a loss to understand how for example the voyage of George Bass and Matthew Flinders, or the pioneering activities of the Black family at Tarwin Meadows could possibly have added any impetus to a decision to avoid or confirm the subject site as a location for a wind farm. When cultural studies are done, it is relevant for an author to direct themselves to key questions. What is being proposed?

How will it affect perceptions of cultural values? What values exist and how are they likely to be affected by the proposal? If identified values are not likely to affect or be affected by the proposal, there is no value in their being documented and brought to the table, notwithstanding that they otherwise have considerable significance.

Significantly in the Panel's mind, had there been issues or places that had been 'missed out' from the cultural heritage studies, the Panel considers that these would have emerged through submissions and site visits. The Mittag family's issue is potentially significant. However, the Panel considers that this was not 'missing', the potential for archaeological significance in the southern area having been acknowledged by Ms Murphy. Aboriginal cultural heritage legislation discussed above provides an appropriate means for additional survey and design response, should this be required. Other issues in contrast appeared to the Panel to be more generic in nature, giving rise to no clear view that the survey work had not been fully and appropriately carried out in relation to the identification of issues and places on which the proposed windfarm might have an impact. Site visits did not lead the Panel to any heritage places with relevant and undiscussed values.

In summary, the Panel finds that both Aboriginal and European cultural heritage studies were carried out appropriately.

11.3.3 ABORIGINAL CULTURAL HERITAGE

Turning as far as is appropriate to the detail of Ms Murphy's evidence, the land within the northern site has been extensively ploughed over a period of time to a depth sufficient to disturb the top surface at least to nominally 600mm. Through this destruction of the spatial and temporal integrity of the site, the scientific value of archaeological artefacts has been compromised. However, during excavation for the WEF, items of a cultural and archaeological may be unearthed and the procedures for dealing with this are covered by the relevant legislation.

The site survey revealed four aboriginal stone sites in the southern section of the wind energy facility. These included three locations of surface scatters of stone tools and a single occurrence of an artefact site. The stone sites were determined as being of low scientific significance and as such not overly of concern in terms of impact from the WEF. The artefact site was determined as being of moderate significance and possibly containing further artefacts. It was further determined by the survey that it is highly likely that the southern section contains campsite locations and may contain burial remains. These findings appear to relate to the concerns raised by the Mittag family addressed above.

The proponent was clear that prior to any disturbance of these, a permit must be obtained from the statutory organisation. Prior to excavation work an archaeologist and the person nominated by the CGH&HC community are to conduct on site inspections of turbine locations to determine if any require specific investigation of the sub surface area.

Excavation work for the project is to be carried out with the attendance of a qualified archaeologist and nominated person from the aboriginal community. Should material of cultural significance be unearthed it could then be relocated to the previously agreed location. The above noted Acts are clear about the requirements for this. Ms Murphy told the Panel she is confident that if some relocation is necessary then approval to do this is likely. It is expected that if sites of interest were discovered they would be so wide spread that they would not require removal of a particular turbine site.

Nevertheless, the availability of assessed alternative turbine locations does provide reasonable flexibility if micro-siting proves to be an insufficient response.

11.3.4 PANEL RESPONSE

The Panel accepts the evidence of Ms Andrea Murphy to the extent that there is likely to be little undisturbed extant Aboriginal archaeological significance in cleared land on the northern section of the site. That being said, the Panel does note that normal site protocols for the archaeological supervision of ground works should nevertheless be observed.

The southern (coastal) section of the site appears to warrant considerable care. Ms Murphy's review together with the Mittag family submission suggest that there may be areas of Aboriginal archaeological and cultural significance. From the available data, the likelihood of significance rises as one passes from the coastal plain into the dune and foreshore area. On this basis, it appears to the Panel that:

- the area of greatest significance is most likely within the Cape Liptrap Coastal Park and will not be disturbed by the project; and
- the decision to set turbines back from the coast in the SEES, when compared with the EES is likely to have been a valuable step in controlling and limiting potential impact.

The panel finds that there are matters of significance for Aboriginal cultural heritage that may be affected, but on balance considers that all matters, including those that may arise during construction, can be adequately dealt through permit conditions.

Conditions will secure Aboriginal cultural heritage locations, through a management plan that includes:

- A survey by a qualified archaeologist of the parts of the site that will be affected by the proposed development, in association with the relevant aboriginal communities.
- Attendance by a qualified archaeologist and nominated person from the aboriginal community during initial excavation work associated with the development.
- Protocols for activities of construction workers.
- Protocols for on-going consultation with relevant aboriginal communities.
- Procedures for obtaining necessary consent to disturb any identified archaeological site, place or object.
- Provision of workshops and training courses for construction workers.
- Procedures to be followed if any human remains are found during construction works.

The Panel notes that the proponent's proposed conditions require the production of a management plan to address these issues.

The northern site is unlikely to give rise to issues of Aboriginal cultural significance, but normal supervision protocols will in any case apply.

There is considerable scope for the discovery of Aboriginal artefacts in the southern section of the site. However, this scope is sufficiently provided for by the combination of legislative protection and the regime of supervision proposed in draft permit conditions.

11.3.5 EUROPEAN CULTURAL HERITAGE

Turning to European cultural value, a number of submitters expressed concerns that the EES and SEES paid no attention to significant elements of the culture and heritage of the region. References were not made in the documentation to the history of pastoral runs in the area or to the settlement and land clearance processes.

Mr Dennis Williamson, providing generally landscape evidence, nevertheless sought to demonstrate that the EES should have paid closer attention to a range of European cultural values that were manifest in the local history and landscape.

The proponent made relatively limited remarks in closing on European heritage considerations. It rested on its initial view that the work done had been appropriate.

11.3.6 PANEL RESPONSE

The Panel notes that all areas have a heritage, manifest in physical and historical forms. Road alignments, house positions, the balance and location of cleared as against uncleared land, all serve to tell stories about the day to day decisions and actions of post European settlement occupation of the landscape.

However, in determining whether or not a development such as a wind farm can proceed, one must determine the significance of the heritage, and the degree to which its significance and manifestation might be harmed by the proposed use and development.

History in itself is not harmed by development. History, whether as document or tradition, can continue to be referred to and re-told, even when new events impact on the land to which that history applies. Clearly, there are some physical artefacts that assist in evoking or explaining history, and it is damage to these or to their settings that it is most relevant to a decision of the nature of that before the Minister in this case. It must also be noted that there are artefacts with more or less significance in heritage terms. Generally, where an artefact is unique or rare and relates to more significant or remote historical events, it will be accorded significance such that efforts will be made to retain it and its setting in an intact form. However, as the history becomes less remote, more related to the day-to-day, well represented by a larger number of artefacts, conservation strategies are more likely to focus on representative sampling. Change or loss affecting the individual artefact becomes easier to justify.

In this case, the Panel is clear that the project site does not contain any European cultural artefacts that, of themselves have a significance that merit resiting of the project or of any turbines within it.

The project site has been relatively recently cleared. It contains no significant or historic homes or agricultural buildings that would be affected. Beyond the site, reference must be made to the historic Tullaree homestead. However, the Panel considers that this is set at a range and with a capacity for vegetation screening such that the wind farm will have no materially adverse impact on its setting.

The most strongly present European cultural value present is in fact that of the cleared agricultural landscape. However, the Panel has accepted above that this is also of a pleasant but unexceptional and well-represented nature.

Given the general need to avoid harm to places of heritage significance, this site appears to be a good site for a wind farm, where little harm to European heritage significance will be caused.

11.4 SUMMARY OF FINDINGS

In drawing together its conclusions in relation to cultural heritage values, the Panel must state its basic conclusion that any site chosen for an infrastructure facility of the scale of a wind farm will give rise to some impacts.

The critical issue is to determine the performance of the project in relation to the Panel's criteria. In general terms, the Panel is satisfied that the project has been sited to ensure that it avoids direct impact to significant places. There are no places of a significance that would suggest that the project or any part of it is wrongly sited. Nor do there appear to be any indirect impacts to significant places that would warrant resiting in whole or part.

The most likely cultural heritage impacts remain as being in relation to Aboriginal cultural heritage. However, the control and consent regimes under relevant legislation will ensure that this is appropriately managed. Where necessary, individual turbines may need to be micro-sited or relocated.

The Panel does commend the proponent for selection of a site design approach that anticipates the possible need for turbine relation and also enables micrositing without any obvious damage to a 'grand design'.

12. PHYSICAL ENVIRONMENT

This chapter concerns itself with the physical condition of the site, in terms of geology, geomorphology and soils, and the degree to which the development might affect these.

12.1 ISSUES RAISED

Concerns were raised about:

- Geological/geomorphological issues, with the suggested location of the site nearby a fault.
- Erosion management concerns, relating to the construction of foundations, underground interconnector alignments and access tracks in sandy terrain prone to wind erosion.
- Sediment management, run-off and water quality concerns, related to possible declines in water quality and or the deposition of eroded materials, particularly in surrounded reserved land, wetlands and watercourses.

12.2 CRITERIA TO BE MET

The Panel has adopted the following measures as a means by which the performance of the project can be measured, taking into account the requirements of current policy.

To ensure the structural integrity of the proposed wind towers by comprehensive geotechnical investigations prior to design of foundations and other structural elements.

To ensure that appropriate measures are in place during construction and subsequently to ensure that erosion and sedimentation are minimised and controlled.

12.3 DISCUSSION

Mrs Landy advised the Panel of a geological fault located east of the Bald Hills site. She expressed concern regarding the possible impact of the fault line or the structural stability of the wind turbines.

The fault line is identified on the geological map in Appendix 5 of the EES, however, neither documentation in the EES or the SEES makes any particular reference to this feature. That being said, conditions proposed by Wind Power include a comprehensive geotechnical investigation to ensure the structural stability of the towers.

Most of the northern cluster of turbines is located within the Environment Significance Overlay Schedule 5. This identifies the area as being susceptible to erosion. Most submissions drew the Panel's attention to the susceptibility of the area to erosion due in particular to the light

sandy soils. It was pointed out that ground disturbance and removal of vegetation tended to be a catalyst for erosion.

The Panel was shown examples of mass soil movement as a result of ground disturbance which included the burying of entire fence lines.

The effect of erosion could easily extend off site and produce detrimental effects due to sedimentation of drainage lines and water courses. Particular concern was expressed regarding the potential impact on the Bald Hills Wetland Reserve.

The South Gippsland Shire Council submission included the suggestion that all permanent roads to and on the site should be sealed to assist in preventing erosion.

The EES identifies the potential erosion hazards. The Geotechnical Report in Appendix 5 proposes that erosion risk be reduced and controlled in three ways;

- Minimising land disturbance and vegetation loss
- Minimising the exposure of disturbed land
- Prevention of increased or concentration of surface run off.

An accountable erosion monitoring program during construction and subsequently is also proposed.

12.4 PANEL RESPONSE & SUMMARY OF FINDINGS

The issues of geotechnical stability and erosion control could have serious consequences if not addressed properly. That said, there are established and standard procedures common to the construction industry which deal with these issues to the extent that they are likely to affect the site. The Panel observes that none of the issues raised appear to be of a level of seriousness or significance such that the site or parts of it should be avoided.

Once the potential problems have been identified, which has occurred, it is then necessary to ensure that the appropriate standard techniques, modified to site conditions, are put in place, with performance to these required by conditions.

The Panel is satisfied that the proponent has identified the issues, and draft conditions ensure that the appropriate measures are in place to ensure that criteria to be met are satisfied.

The Panel concludes that issues relating to the physical environment are satisfactorily addressed by proposed conditions.

13. ACOUSTIC AMENITY

Acoustic amenity is the enjoyment of the place in which one lives or works, without undue or unreasonable exposure to unwanted sound that is a by-product of adjacent land uses. The degree to which wind turbines adversely affect acoustic amenity has been a point of considerable debate across the world for a number of years. Issues have been raised overseas, but turbine design and technology advances in the past 15 years have (amongst other issues) been suggested to have largely controlled noise as an adverse impact issue, assuming the responsible siting decision are taken.

It is therefore fair to open by stating that to date in Victoria, whilst wind energy approvals processes have involved the technical appraisal of likely acoustic effects, these have not been the focus of critical public comment. Public concerns have been focussed on other issues, particular visual amenity, landscape and natural environment related concerns. For example, during the Portland Wind Energy Project EES and permit process, whilst third party concerns led to the calling of most of Victoria's senior landscape professionals as witnesses, the only acoustic expert to address that Panel was provided by the proponent.

Until recently, Victorian experience also suggested that noise was not a major concern. The constructed Codrington and then Challicum Hills wind farms have not given rise to significant numbers of noise complaints. Subjectively, Panel visits to these facilities also suggest that they operate in a manner that does not give rise to significant concerns.

Furthermore, Victoria has seemed well placed to take advantage of the apparent resolution of the acoustic debates that have taken place in other countries. To this extent, early wind energy development proponents in this State advocated use of the New Zealand Standard: Assessment and Measurement of Sound from Wind Turbine Generators: NZS 6808:1998. This was accepted as a useful standard, capable of protecting appropriate levels of acoustic amenity by the Victorian Civil and Administrative Tribunal in its Toora decision and then by Portland Panel. It subsequently became a reference document in Victorian planning schemes, having been called up in PPG - WEF.

The NZ standard had the apparent benefit that, whilst it could be used to derive a method under which wind farm designs can be tested for likely acoustic effect and compliance during the assessment and approval processes, it could also be used as a simple performance based measure. If a condition was applied requiring the standard to be met at all relevant sensitive receptor locations, actual complaints could be subjected to post construction monitoring and offending turbines could (if needs be) be optimised in operation, relocated or decommissioned.

At Bald Hills, it is fair to observe that that acoustic impact issues have given rise to high levels of concern from the public, alongside issues of natural environment, landscape and visual amenity impact. Acoustic concerns have been strongly raised in a number of submissions. Third party expert acoustic evidence has been provided, with Tarwin Valley Coast Guardians calling both a Victorian and an overseas expert.

Furthermore, the Bald Hills assessment proceeds at a time when parties have been exposed to the public debate about the now constructed and commissioned Toora windfarm. The tribunal having applied a condition regulating noise with reference to the NZ standard in that case, there is now a public debate about whether the standard is being met there. Given that a conclusive answer to this question is not clear, if there is reasonable doubt that the standard is not being met, what is being done to monitor or enforce it? Alternatively, if the standard is being met, are the acoustic amenity standards enjoyed by residents on balance reasonable, delivering equivalent protections to those afforded to residents from other industrial or commercial activities in Victoria?

These are significant questions that require investigation. However, before marching off to undertake what could potentially be broadly based investigation, far beyond its term of reference, the Panel wishes to clarify that it is not an entity that has been appointed to review the applicability and effectiveness of the NZ standard. Nor can it sit in judgement over previous planning decisions, such as the Toora case. However, it can and in its view should seek to learn such lessons as can at this stage be learned from previous cases, to ensure that an appropriate assessment of likely acoustic impact takes place at Bald Hills and that, if the project is approved, an appropriate framework of acoustic regulation is put into place. In circumstances where there is doubt as to these lessons, some level of caution in regulation is also warranted.

13.1 ISSUES RAISED

The Panel records from the outset that acoustic considerations.

- Concerns were expressed about the generation of noise by wind turbines and the propagation of wind turbine noise in the environment.
- Concerns were expressed about state of scientific knowledge and/or the predictability of acoustic impacts.
- Concerns were expressed about the adequacy of the New Zealand Standard 6808 as a basis for predicting and managing acoustic impacts.

13.2 CRITERIA TO BE MET

PPG – WEF establishes a requirement that is summarised below and on its face is clear.

To comply with the noise level recommended for dwellings in NZ6808.

In simple terms, that requires the wind farm noise at a dwelling must not exceed:

- the natural background plus 5 dBA (L₉₅); or
- 40 dBA (L₉₅);

whichever is the greater.³³

However, as will be seen below, there is considerable room for manoeuvre in interpreting the standard, to determine what natural background precisely is (ie over what time of day or night, duration of time or averaging mechanism), how particular meteorological and turbine noise

³³ From NZS6806 at para 4.4.2.

characteristics might be responded to and by what means therefore exceedance might be determined.

The following should be noted:

- The Standard provides that where a wind farm gives rise to special audible characteristics (by which issues such as tonal or impulsive noise, or marked and regular cyclic variations, described by some as pulses, beats, thumps or knocks), and additional 5 dBA (L_{95}) 'penalty' value must be added to the recorded emission. This responds to the adverse subjective response that often arises in relation to such emission characteristics.³⁴
- The Standard does not set the dwelling limit as a formal 'requirement'. It provides guidance and is expressed as subject to the territorial authority (which in the Victorian context this Panel construes as being the responsible authority) setting such alternative compliance levels as it sees fit³⁵. Further in relation to establishing the benchmark background level critical to application of the dwelling limit, the Standard notes:

*It may be necessary to separately correlate background sound levels with wind speed for different wind directions and/or time of day.*³⁶

Insofar as anything can be considered 'standard' in a fledgling industry such as the wind industry in Victoria, it has become standard to model potential noise exposure at dwellings, assuming a worst case wind direction scenario, that the wind delivers the noise directly from the emitting turbine(s) to the dwelling. This is a sound and precautionary practice. However, it has also become 'standard' not to differentiate between day and night time noise periods. This approach has been taken in good faith, because the Standard expresses itself as providing a design limit 'based on the avoidance of sleep disturbance', which for most impacted third parties is clearly the base line criterion. However, as will become clear in the discussion, some evidence is emerging that there may be circumstances in which the Standard, applied with no day/night differentiation, may lead to a situation in which undue sleep disturbance conditions are experienced.

Taking these factors into consideration, the Panel has also adopted the following additional criterion:

To protect residents in a dwelling from undue sleep disturbance due to wind turbine noise.

13.3 DISCUSSION

The proponent's starting point in relation to acoustic issues was to take comfort from the reference to the NZ standard in the Policy and Planning Guidelines for Wind Energy facilities in Victoria. It had appointed a leading firm of acoustic consultants, Marshall Day Pty Ltd., who had used accepted industry practice to model the project's compliance with the standard.

Marshall Day had used the location of the proposed turbines and a sound power output curve from the selected RePower generators over a range of wind speed conditions to make a noise propagation model. Having then taken representative background noise measures at

³⁴ NZS6808 para 4.4.3

³⁵ NZS6808 para 4.4.4

³⁶ NZS6808 para 4.5.5

dwelling deemed potentially exposed to noise that might breach the NZ standard, these were correlated with on-site wind speeds and hence with predicted acoustic outputs. Having undertaken this exercise, it was then possible to determine if and by how much the potential turbine noise would exceed background noise at the studied dwellings. Highly conservatively, this modelling assumed a worst-case propagation regime in which the wind blew from the emitter (the turbines) to the receptor (the studied dwelling).

In simple terms, the modelling concluded that, with the turbine locations as proposed in the SEES, dwellings controlled by third parties would not on the face of the data, experience emission levels sufficient to breach the NZ standard.

Further and generally in relation to noise effects, it was not sufficient for objectors to demonstrate that noise would be perceived above background. They were in the Rural Zone and some level of noise from surrounding and legitimate rural land uses had to be accepted, a proposition that was well supported by many Tribunal decisions. Further, the NZ standard had been accepted as an object standard for wind farm purposes in PPG – WEF and embodied acceptance of noise perception at up to 5dB over background above 40 dB.

However, the story may not be that simple, for a number of reasons. The Tarwin Valley Coast Guardians led two acoustic witnesses, supported by legal submissions and submissions from Mr Steven Garito and Ms Jayne Thackeray, with direct experience of noise at Toora. The foundation of their approach was to suggest that noise emissions at Toora either:

- broke the New Zealand standard; or alternatively.
- did not break the Standard, but were manifestly unreasonable, having regard to the need to safeguard sleep.

A further line of argument related to stakeholder dwellings stating that it was necessary for an appropriate standard of acoustic amenity to be met in these locations, in addition to third party dwellings.

In the case of the first proposition, they were of the view that caution was required, as the current proponent's primary expert witness from Marshall Day, Mr Peter Fearnside, had also had carriage of noise modelling for Toora and had given clear evidence to the Tribunal that the Standard could be met by the design of that facility as now constructed. This suggested that the evidence before this Panel may not be as solid as it first appeared. It also raised the issue that there should be a well-resourced external and independent body charged with monitoring and enforcing any noise condition. Notwithstanding complaints about noise at Toora, it appeared that South Gippsland Shire Council, as the responsible authority for that permit, had taken no little action to investigate whether the condition was being met³⁷.

In the case of the second proposition, caution was also required, not because of any inherent flaw in the evidence of Mr Fearnside, but simply because the Standard itself was a flawed instrument, incapable of reasonably protecting residents from sleep disturbance. If the Standard was being met, it was suggested that it was simply inadequate, as the amenity

³⁷ The Panel put this point to the Shire, which agreed that whilst it had authorisation to carry out a strategic study into wind energy noise evaluation issues, it had done no detailed individual compliance monitoring at Toora. Further to advice it had received about the likely professional and legal costs of pursuing enforcement action, it was currently of the view that it was unlikely to take any action. Correspondence was provided in which the Shire had sought to refer the issues raised in complaints to the EPA, with an EPA rejoinder that wind farm noise was not a matter for them.

experienced by Toora residents was alleged to be far below that which any resident should reasonably be expected to endure within their home.

Mr Garito and Ms Thackeray submitted the view that turbine noise at Toora was very difficult to live with, for very considerable periods. Their dwelling was located within the turbine perimeter of that wind farm, at distances between 500 and 800 metres from turbines. The principle reasons for their concerns were as follows:

- subjectively, the operating turbines were far louder than they had been led to expect before commissioning;
- the noise was often cyclic, with regular patterns of 'whooshes' or 'thumps';
- it could not be predicted if such effects would occur at night, and if so for how long;
- however, if they commenced at night, they would disturb sleep;
- sleep could remain disturbed for the duration of the noise event;
- entire nights of sleep had been lost, to the extent the fatigue had led them to use sleep medication (to little effect) and to reside in rental accommodation elsewhere;
- in addition, regular tonal or 'mechanical' noise were heard, characterised as an 'endless train';
- individual turbines seemed to be noisier than others, raising questions about set-up and maintenance; and
- what they claimed were infrasound effects were also noted in their dwelling, with noticeable vibration and rattling of structure and percussive effects, registerable in the body cavity.

A video by Mr Roger Fenwick, also of Toora, made some similar points, raising concerns of significant audibility of cyclic noise out to approximately 1 km from the turbines.

In seeking possible scientific explanations for these effects, Tarwin Valley Coast Guardians sought advice from two experts. Although not called first, the initial contribution in terms of logic of argument came from Mr Frits (G P) van den Berg, an acoustic scientist of the University of Groningen. He was introduced by audio link from the Netherlands, a process that nevertheless exposed him to full cross examination.

Mr van den Berg had undertaken research at a wind farm (wind park in Dutch terminology) at Rhede. The wind farm itself was located in Germany, but the nearest dwellings were in the Netherlands. It had given rise to noise complaints at unexpected levels, particularly at night. The Rhede wind farm has 17 1.8 MW turbines on towers with a 98m hub height, of an equivalent output but significantly taller than those proposed for the current site.

Mr van den Berg calculated that sound immission³⁸ levels at 400 metres from the Rhede facility were elevated over predicted values for 72% of the study night time hours. At 1500 metres, levels were elevated over 38% of the study night time hours. The level of observed immission over prediction reached a maximum of +15 dB at 400 metres and +18 dB at 1500 metres. Most significant variations were observed to be in stable atmospheric conditions. During such conditions, the reference height wind speed at 10 m AGL on the turbine site typically used for noise modelling (and used in the modelling this case by Marshall Day) would be substantially exceeded at hub height. In practical terms, this would mean that whilst the

³⁸ immission being a term used to describe the opposite of emission: a sound level recorded at a receptor, due to an emission.

ground level receptor would have low to no wind and typically then a very low natural background noise level, the turbine blades would be capturing large amounts of wind energy and generating significant noise emissions thereby. The wind profile in such circumstances was different to that of the normally used logarithmic model, that was still accepted as valid for daytime purposes.

In practical terms, the effects observed amounted to much higher than predicted noise exposures during some night time hours. Observation also noted other related effects, including turbines going into rotation phase, with peaks of sound emission from different turbines coalescing at the observation point to provide an effective amplification. This manifested as sequences of:

low pitched thumping sound superimposed on a broadband 'noisy' sound, the 'thumps' occurring at the rate at which blades pass a turbine tower. It appears that the characteristic but usually small 'swishing' pulses that can be heard at the rate at which blades pass a turbine tower, coincide because turbines operate nearly synchronously. Two coinciding pulse trains thus give a 3 dB higher pulse level, three a 5dB higher pulse level.

Mr van den Berg concluded:

The number and severity of noise complaints near the wind park are at least in part explained by the main findings of this study; actual sound levels are considerably higher than predicted, and wind turbines can produce sound with an impulsive character.³⁹

Mr van den Berg was put to questions as to why these phenomena (referred to in the hearing by the shorthand "the van den Berg effect") had not been more widely observed before now in locations other than Rhede. His response was that turbines were growing taller, and that taller machines would tend to exacerbate the potential difference between ground and hub height wind speeds in stable air conditions. Further, much of the research conducted in this field was commercial, for wind farm proponents. In his view, such research tended to minimise the adverse acoustic perceptions of residents, where this did not appear to match with the expected outputs of normal modelling and measurement. As such, established modelling techniques were not being exposed to critical evaluation, even though wind turbine technology was changing.

Tarwin valley Coast Guardians also called a Victorian acoustic expert, Mr James Fowler of Graeme E Harding and Associates. Using the van den Berg effect as a starting point, he had then turned his mind to interpretation and application of NZS6808. He highlighted paragraph 5.1.1 of the document which in terms of testing post construction compliance with the standard by the wind farm states:

This section outlines a precise method for the post installation compliance testing of sound from WTGs in the far field, ie at distances where the cyclic variations in sound due to blade rotation are no longer discernible.

In other words, compliance is achieved at NZS6808 levels, assuming that cyclic variations can no longer be heard at the receptor.

³⁹ from "Effects of the wind profile at night on wind turbine sound", G P van den Berg, in press, Journal of Sound and Vibration (JSVI), Elsevier, 2003. Note this refereed paper was also used as a proof of evidence.

The traditional view is that cyclic variation in wind turbine noise decays close to the source, leaving a generally unexceptionable broad band noise, with little variation in characteristics. However, Mr Fowler took the view that this may not always be the case and that, if the van den Berg phenomena were manifest on the site, would not be the case for significant periods of time at locations as close to the wind farm as the dwellings at which Marshall Day had conducted their evaluations.

It followed that modelling had to be undertaken which assumed:

- a possible need to apply a 5dB 'penalty' for special tonal characteristics, where 'thumps' are discernible for significant periods of time at locations in the region of 1 km from the wind farm turbine perimeter.
- a possible need to model for significantly higher than expected noise emissions and immissions during stable atmospheric conditions at night.

The purpose of both of these refinements would be to preserve the most significant aspect of acoustic amenity, the ability to enjoy generally undisturbed sleep during night time hours.

Mr Fowler then undertook a comparative review of NZS6808 against a wide range of international and interstate noise regulatory standards, for wind farms and for general industrial and commercial land uses.

His first criticism was the practice of averaging day and night background figures for the purposes of establishing a pre-development background. However, his key criticism was that the NZS then enabled compliance assessment to take place across an unspecified survey duration, with the only requirement being that it must be measured for 10 minute periods over a sample of wind speeds from 0 to rated windspeed, calibrated to anemometer readings. Obtaining at least 1440 data points is recommended as a sound basis from which to then repeat the regression analysis originally used to calculate background and hence to check for exceedence.

He highlighted for example the approach taken by Victorian SEPP N1 and interim guidelines for noise in country Victoria, which define a night time and seeks to protect it for residents. The SEPP and guidelines also enable levels to be taken at observed maximum annoyance and specify much more limited and precise methods for noise averaging where atmospheric effects are relevant.

In Mr Matthew Townsend's submissions, the approach taken to monitoring and enforcement under NZS6808 as currently normally applied:

- ran the significant risk of exposing residents to greater than predicted acoustic impacts, particularly at night;
- potentially enabled the differences between noise performance and residents' reasonable expectations of an unbroken nights sleep to be averaged away;
- proved expensive and impractical for all but the largest and most well-resourced of organisations to effectively police.

Detailed evidence was then provided from Mr Fowler, which sought to suggest that, if the van den Berg effect were accepted as likely to occur, changes to the configuration of the wind farm would be necessary to ensure compliance with NZS6808 as currently drafted, assuming good will in monitoring and the application of a 5 dB special tonal characteristics penalty at some periods.

The proponent's response to this material can be summarised in the following terms. Its primary position was that NZS6808 was the appropriate standard to be used. It had been endorsed by the Tribunal in the Toora decision, which had led to its wider use in the Victorian planning system. It had been endorsed by the Portland Panel. It had been endorsed by the State Government and given formal status by reference in PPG – WEF.

Whilst acknowledging that:

It is unfortunate that the proponent of the Toora wind farm appears, at best to have done the bare minimum in providing the results of its monitoring available to the community ...

and noting too that there was potentially a credibility issue emerging because of the circumstances at Toora, the proponent was at pains to emphasise that:

- the Panel should not accept invitations implicit in the evidence and submissions of others to seek other standards whereby to regulate noise; and
- the noise survey and modelling done to date and the proposed noise condition were sufficient to overcome doubts over the independence of data and an effective capacity to monitor and enforce.

It was in the proponent's view difficult to tell too much from the Toora case. Whilst it was possible to optimise turbine operation to reduce noise (albeit accepting some loss of yield), it was not clear that Stanwell Corporation had ever gone so far as to take that basic step. The site included dwellings within its turbine perimeter, a situation that was not repeated as Bald Hills. This would arguably account for more severe and continuous noise exposure than any potentially impacted party would experience in this case. A dwelling such as that of Mr Garito and Ms Thackeray stood to receive down wind noise from nearby a turbine when the wind was at a number of points of the compass. Further, it was closer to turbines than any dwellings at Bald Hills. There was also the potential that these parties were expressing sincere views that were however coloured by their emotional attachment to the circumstances at Toora.

In this regard, the proponent advanced material in closing from their turbine supplier, to the extent that the chosen RePower MM82 turbine was capable of optimisation to significantly reduce noise when compared with other comparable models. It would also be possible to configure turbine controls such that if particular problems were caused by particular wind directions or other observed climatic conditions, individual turbines could be shut down whilst those conditions endured. Here, the proponent took a considerable step from the position of Pacific Hydro in the Portland case, which was to argue most strongly that they would not implement selective shutdown routines for individual turbines, placing a much stronger focus on precision in initial decisions about siting.

The proponent placed great weight on the analysis of the Tribunal in the Toora case and of the Panel in the Portland case, to the extent that the NZS6808 was an effective 'performance based' planning tool, referring to the following passage.

The [Portland] Panel considers that noise exposure for dwellings is an issue that is relatively simple to resolve. Basically, if it is accepted that the New Zealand standard is the appropriate standard to use when protecting sensitive uses, there is no necessity to go to the integrity of Mr Botha's modelling. If the proponent is happy to accept the need for individual background noise surveys at each sensitive receptor before the commencement of development, combined with the use of the NZ standard as a performance based control, it will follow that any

turbine causing a breach will have to be relocated. The cost of such work would be severe and the design evaluation tools necessary for the proponent to avoid it are all available.

The proponent did not take issue with the technical basis for Mr van den Berg's evidence. However, it did take issue with the leap performed by Mr Fowler, from a finding at one location, in one set of terrain, climatic, turbine and tower technology conditions in Europe, to a general proposition that elevated night time noise and cyclic special audible characteristics would be sufficiently common to warrant a change to the proposed Bald Hills project layout.

Mr Fowler takes an overconservative approach because the 'Van Den Berg' phenomenon does not occur at every site.

A 5dB correction should not be automatically added when you don't know that the cyclic noise is going to occur. The RePower MM82 does not display tonal characteristics: WPPL29B: Summary of Test Report for RePower MM-82: Kotter Consulting Engineers, Rheine, Germany. If adjustment is required for special audible characteristics, then the NZ Standard requires that adjustment be made to the measured levels during compliance testing. That is the more logical safeguard because we cannot say with any degree of safety that special audible characteristics will occur. Mr Fowler applies what are on any view unusual circumstances to every wind farm in Australian when anecdotally we believe those circumstances are not occurring.

The study at Bald Hills shows that most of the time the relationship between background and wind speed is close at higher levels. A well thought-out part of the Standard is the requirement to put the line of best fit through sound levels that occur the most. Although some people say that you should take them at day and night or at different wind directions, if you do that, you may have too few data to have a meaningful result.

It is possible but highly improbable that you will get non-compliance with the Standard by differentiating day and night-time readings. This is illustrated by looking at C13⁴⁰ where prior to 30 June 2003, all wind speeds were hovering around 2-4m/s but on 30 June, as soon as we get up to wind speeds of 6m/s or 7m/s, the background levels head skywards so the scatter of data narrows.

The proponent had no concern that the application of NZS6808 was performance based. It had no concern that a permit condition should highlight the potential for application of a 5 dB penalty in circumstances where special audible characteristics were proven to exist. It stated that it was common ground between it and objectors that in a case of complaint, noise loggers would be provided to be record the sound environment experienced a dwellings, with the potential that action should lead to turbine optimisation, selective shutdown, the total shutdown if necessary. However, to design the wind farm on the basis of an unproven van den Berg effect being in continuous operation was just too conservative.

Detailed work was introduced in closing to attempt to demonstrate:

- Bald Hills has relatively infrequent episodes of stable air (suggested as the cause of the van den Berg effect); and
- There was no particular virtue in disaggregating day time and night time noise.

⁴⁰ SEES Appendix 11, Sub Appendix C, Figure 13

Table 3: Air Stability Class Representation for 24 hours: Bald Hills 2002-3

Stability Class	Incidence
A	54.7%
B	18.4%
C	8.8%
D	10.4%
E	4.7%
F	2.9%
Total	100%

A – C: broadly unstable air
No 'van den Berg effect'

E – F: broadly stable air
Garrad Hassan consider potential for 'van den Berg effect'. van den Berg considers class D is also stable.

Source: Garrad Hassan Document 145B App 3 pg 5, with Panel notes as to potential effect from van den Berg.

Table 4: Air Stability Class Representation at Night: Bald Hills 2002-3

Stability Class	Incidence
A	28.3%
B	19.6%
C	11.1%
D	13.7%
E	6.6%
F	3.9%
Total	83.2%

A – C: broadly unstable air
No 'van den Berg effect'

E – F: broadly stable air
Garrad Hassan consider potential for 'van den Berg effect'. van den Berg considers class D is also stable.

Source: Garrad Hassan Document 145B App 3 pg 5, with Panel notes as to potential effect from van den Berg.

General Note:

The Panel has some concern with the night figure expressed in this table, as the incidence does not total 100%.

Garrad Hassan⁴¹ were asked to investigate meteorological records and to form a view on the frequency of stable air conditions from the anemometry data available for the site. They produced a table of stability class representation, based on data from 4 August 2002 to 6 September 2003. They classified air into 6 categories. Categories A to C were air that was broadly very unstable to neutral. Over 24 hours, these categories occurred 82% of the time. Highly stable category F air occurred 2.9% of the time. At night, categories A to C occurred

⁴¹ See Document 149S Appendix 3 page 5.

for 59% of the time and category F for 3.9% of the time. In turn, Marshall Day⁴² interpreted this as meaning that such occurrences would be rare.

However, it must then be noted that on circulation back to Mr van den Berg as 'new material', this was not a characterisation with which he was minded to agree, noting that stable air conditions include in his view classes D, E and F, suggesting that they would occur on the project site some 24% of the time at night. He suggested that class D would be accompanied by winds at 70 to 100 metres AGL that were 20 to 40% faster than predicted. Classes E to F in his view could lead to a doubling of predicted hub and above wind speed.

The proponent were clear in relation to other issues that submissions in respect of low frequency noise or infrasound had not been made out or supported by expert evidence.

In their views it was:

...a trite principle of planning law that a decision maker must assume that the planning scheme will be complied with and that a permit condition will be complied with. The only exception is where a permit applicant has previously demonstrated an inability to comply with permit conditions.

The proponent had advanced a condition of a performance based nature and was happy to be bound by it.

Finally, it is necessary to record Mr Mark Burfield's detailed submission on noise considerations that took issue with the accuracy of the proponent's published background data for his dwelling, based on the apparent lack of transparent data pair relationships. The Panel put this point to Marshall Day and it was conceded that Mr Burfield's background data set was in fact a composite set and that it was not therefore possible to trace particularly background noise occurrences and relate these to particular wind speeds on particular days, in the way that logically it should. Marshall Day acknowledged in closing that failing to place a clear technical explanation for its treatment of the Burfield background data into the initial reports had been an error of judgement.

13.4 PANEL RESPONSE & SUMMARY OF FINDINGS

In principle, the Panel would note that the project site is reasonably well located to be able to control adverse noise effects. Relatively few dwellings are closer to the turbines than 1 km. No dwellings are located as at Toora, at short range, with turbines surrounding them such that almost any wind direction will deliver down wind turbine noise, with little relief. As an opening observation on siting, the Panel would suggest that such siting vis a vis dwellings is now beginning to appear somewhat unwise, and on a precautionary basis to be avoided.

The first issue that the Panel needs to address is the reasonableness of noise emissions in a rural environment, in the Rural Zone. Whilst many people see rural areas as havens of tranquillity in an otherwise increasingly crowded and noisy world, in assessing whether this tranquillity is a given, or even part of a reasonable expectation, the Panel turns to the purposes and decision guidelines of the Rural Zone.

⁴² See Document 149S Appendix 6 page 4.

What are the legitimate expectations of residents living within the Rural Zone? Having regard to the purposes and decision guidelines of the Rural Zone, it must be noted that it embodies wide discretions. In exercising these, the minds of the decision makers should always return to the purposes of the zone, and to the particular decision guidelines that are relevant to the matter at hand.

To provide for the sustainable use of land for Extensive animal husbandry (including dairying and grazing) and Crop raising (including Horticulture and Timber production).

To encourage:

- *An integrated approach to land management.*
- *Protection and creation of an effective rural infrastructure and land resource.*
- *Improvement of existing agricultural techniques.*
- *Protection and enhancement of the bio-diversity of the area.*
- *Value adding to agricultural products at source.*
- *Promotion of economic development compatible with rural activities.*
- *Development of new sustainable rural enterprises.*

To ensure that subdivision promotes effective land management practices and infrastructure provision.

The acoustic amenity of rural dwellers is not addressed.

However, turning to the decision guidelines, noise clearly is a relevant environmental consideration. The decision guidelines require consideration of:

- *An assessment of the likely environmental impact on the natural physical features and resources of the area and in particular any impact caused by the proposal on soil and water quality and by the emission of noise, dust and odours.*

That being said, the degree to which this consideration of noise as an impact bears on residential amenity is limited in the view of the Tribunal.

In *Air Ag Gippsland PL v South Gippsland Shire* [2002] VCAT 166 (1 March 2002) in its examination of legitimate expectations, the Tribunal said:

In the Rural Zone, residents cannot expect the same level of amenity as that offered in other zones, eg the Rural Living or Residential Zones. As the Tribunal acknowledges Mr. Dudley's submission about land holders residing in the vicinity of the proposed airstrip having chosen to live in this part of Gippsland for the natural beauty and for the lifestyle benefits. It is acknowledged that the Township of Leongatha and the rural hinterland around it are pleasant and that some residents may have moved into the area in appreciation of a pleasant outlook, or as the Shire's motto says "Come for the beauty, stay for the lifestyle". However these expectations need to be tempered in the light of the rural zoning of the land, the purposes of the rural zone, and the fact that many rural activities can be noisy at times. If residents wish residential standards of amenity they should be directed to residential or rural residential zones rather than assume

false expectations and then expect the Responsible Authority to impose restrictions on legitimate rural activities.

This Panel considers that the answer is clear: acoustic amenity is not a weighty consideration in the Rural Zone. It is clearly envisaged that dwellings may be exposed to noise emerging from lawful land uses and operations on adjoining or nearby land. The tribunal faced with a circumstance of conflict will tend to safeguard the legitimate rural operation from action by the irate residential neighbour.

That being said, the finer points of where a reasonable boundary of acoustic amenity impact might lie are simplified in relation to wind energy, due to PPG – WEF’s adoption of NZS6808. The Panel considers that, this standard having been adopted, the primary consideration is then that it be met, at all relevant dwelling locations. The Panel does not consider that it has any reasonable scope within the directions of policy or previous decisions to suggest that any higher standard might be relevant or should apply.

However, before moving on to examine the degree to which the Standard is met, the Panel must address issues raised in submissions and evidence about the means whereby it can be met.

Firstly, in relation to assessing whether the Standard can be met, a critical factor is the presence of an unambiguously representative pre development background sample data set. To retain credibility and robustness in any possible instance of complaint or enforcement, where it would be used as a reference, this data must be of good integrity. By good integrity, the Panel simply means that it should have been obtained on site, and should not have required any significant level of laboratory ‘adjustment’, before use in a model. Mr Burfield’s submission followed by the Panel’s audit of data resulted in the proponent’s consultant Marshall Day agreeing that background data for the Burfield property was a compilation, not a single set. The Panel considers that this property requires re-survey to obtain a single background data set of good integrity.

Marshall Day evidence acknowledged that the Fox dwelling on Buffalo – Waratah Road had not been modelled using its own background⁴³. Given that this is one of the closest third party dwellings to turbines, the Panel considers that this property requires re-survey to obtain a background data set of good integrity from a location on the property. The absence of such a data set could affect the capacity of either the Fox family or the proponent resolve complaints in the future.

The Panel notes submissions to the extent that at Toora, some background noise measurements were re-taken at a time when construction (and hence construction noise) had commenced. It is clearly critical to the integrity of pre-development background noise surveys that they be completed before the commencement of any construction activities.

Turning to Toora, the Panel must refer to its own site visits to the operational Toora facility. It undertook two visits. One took place in the afternoon, during a day when ground wind speeds were reasonably high, leading to a reasonably high ground background. That being said, in significant contrast with other visited wind farm facilities, turbine noise remained clearly audible downwind for a considerable distance, up to 1 km away from the turbines. Some 400 metres to the closest turbines, on the road reserve adjacent to the existing Garito and

⁴³ SEES App 11, at fig E7.

Thackeray dwelling, turbine noise was strongly audible and had at times observably cyclic characteristics, although without 'thumps'.

The Panel repeated its visit over sunset and at night, when, to the extent that could be inferred without instrumentation, more stable air conditions were present. There was negligible detectable air movement at ground level during the sunset and dusk period, with some freshening of the low level breeze in full darkness. The turbines were nevertheless active throughout the sunset and dusk period and after dark. Some 400 metres to the closest turbines, on the road reserve adjacent to the existing Garito and Thackeray dwelling, turbine noise was again strongly audible and had at times observably cyclic characteristics, although no 'thumps' were observed. The Panel also conducted drive back observations and was able to detect noise at ranges to 1.5 km, with considerable topographical intervention. At further distances, aerodynamic noise seemed to reduce, but an underlying mechanical noise, excellently described as the 'endless train' could be heard. That being said, the Panel notes that these noises were neither loud nor disturbing.

Whilst the Panel places little weight on these subjective and un-instrumented observations, they do lend a basic level of understanding to the issues raised by Mr Garito and Mr Thackeray. Whilst the Panel cannot claim to have experienced any of alleged low frequency or infrasound effects complained of, it must record some surprise at the noise emissions observed at Toora. It could understand that nearby residents would be annoyed. It could also understand in practical terms that there may well be circumstances on calm evenings and nights when, despite low wind speeds at ground level, with attendant low background noise, and indeed low wind speeds at the standard reference height of 10 m for noise modelling, there would nevertheless be high wind speeds at hub height and above, with significant turbine noise emissions. It could equally understand their great frustration at circumstances where the responsible authority was apparently taking little action to resolve their complaints.

Beyond such a statement, there is little that this Panel can achieve for the residents of Silcock's Hill. However, it can observe that there is an apparently reasonable question for this case, in terms of ensuring that circumstances of predicted compliance with NZS6808 do not leave residents with no practical recourse, should a constructed wind farm appear to be noisier than predicted. That being said, the Panel also strongly endorses the proponent's submissions in this case. It is most unfortunate that Toora has no independent monitor in relation to its planning permit noise condition. It is most unfortunate that we cannot even discern whether for example any or all of the turbines at Toora have been noise optimised, or are still operating in power optimised mode, regardless of spreading discontent on the ground beneath. It is equivalently most unfortunate that South Gippsland Shire Council has hitherto not undertaken an investigation.

The Panel accepts that from the perspective of a rural shire, the possible expenditure of many tens of thousands of dollars on a single planning investigation may appear as bad value for money. However, if the Shire and indeed the State is to maintain its core value of fairness in the administration of its planning schemes and public confidence in approvals processes for major developments, potential noise complainants in good faith must be given the assurance that somebody is looking after their reasonable interests.

The Panel now moves on to the much more critical and involved issues of the existence and relevance of the van den Berg effect, in circumstances where it is a new effect, apparently hitherto undocumented in the wind energy acoustic literature.

As made clear above, van den Berg has observed two broad phenomena:

- higher than expected turbine noise emissions, apparently in stable air conditions at night; and
- unexpected variations in emission character, amounting to regular ‘thumps’.

In relation to the first phenomenon, the Panel notes that if Mr van den Berg’s hypothesis that stable air is the cause is correct, and if the turbines are sufficiently tall to place the hub and above into air moving at faster than predicted speed, then it is clear that the basic effect of raised noise emissions and immissions would take place. However, there are three major ‘ifs’ here.

The first ‘if’ relates to the degree to which the effect observed by Mr van den Berg’s is due to stable air. As the Panel understands his evidence, it is based on one body of work and one set of analysis, in one location. His hypothesis has considerable logical integrity, is well argued and appears to fully support the data that he has recovered from that site. However, before giving full weight and effect to such a hypothesis, the Panel would wish to see it tested in some other locations, and/or repeated in the same location by different observers. If it could be repeated in different locations or by different researchers, it would appear much more weighty in driving a decision maker towards a conclusion.

The second ‘if’ relates to the variable of turbine height. The Rhede turbines have a hub height of 98 metres, significantly greater than the hub height currently proposed.

The third ‘if’ relates to the actual turbine sound power output characteristics at Rhede and their comparison with the MM80 turbine proposed here. This work has not been done. The machines may have an equivalent performance, or they may not. (At least one tenable explanation for the Toora situation in the view of the proponent’s turbine supplier in this case is the difference in noise performance of principle between the MM80 and the Toora turbines).

In short, the Panel considers that it is too soon to leap to the immediate conclusion that because this effect has been observed at Rhede, it would automatically be observed here. Further, if it was observed, there is an unresolved dispute between experts as to precisely what quantum of time at night stable air might emerge. Mr White’s figures summarised in tables 3 and 4 above appear to suffer from a mathematical inaccuracy. Recalculating from the base data presented in his report, it appears that if air class F is the only class of concern, then issues will emerge in 4.7% of night time, as against 1.4% of day time. If however, Mr van den Berg is correct and air classes D, E and F are of concern, then issues may emerge in 29.1% of night time and 8.8% of day time. That being said, it is clear from Mr van den Berg’s paper that an 18 dB or 15 dB performance above prediction is ‘top of the range’, more likely to occur for smaller rather than larger percentages of the time.

In relation to the second phenomenon, of the passing of blade movement sounds from more than one turbine into phase, causing audible ‘thumps’, again the Panel can appreciate the potential for this to occur. It has heard cyclic variation at Toora and can understand in theory that by such cyclic noise from more than one turbine coming into phase, amplifying effects can be produced. (It notes that an audio clip of actual Rhede sound was made available to it at the hearing by Mr Tim Le Roy, although not formally introduced by Mr van den Berg or Mr Matthew Townsend of Counsel. That being said, the Panel can put very little weight on such a recording, played at unknown amplification through a less than adequate sound system.)

However, the precise configuration of the Rhede site in terms of turbine layout and topography is different to that at the Bald Hills site. Whether effects of the same nature would emerge at Bald Hills, again cannot be said.

Having made these observations, the Panel clearly considers that Mr Fowler's analysis is too conservative. However, it does not consider that Mr van den Berg's material can be lightly passed over or set aside, particularly in the light of Mr White's analysis (and the apparent mathematical error therein). It is a relevant cause for caution in this decision and a driver towards additional investigation and research in government and the wind energy industry.

In terms of caution in this decision, the Panel notes that if Mr van den Berg is correct, performance to NZS6808 at night is a critical issue. The Panel notes and accepts the evidence of Marshall Day that there is no material difference between night and day periods for the purposes of the observed backgrounds at the noise surveyed properties. However, it also notes the view from Garrad Hassan, endorsed by Marshall Day, that there will be periods of stable air at the Bald Hills site. These will amount to potentially significant periods of the year. It further notes the view from Garrad Hassan, subject to arithmetic correction, that the condition is significantly more likely to occur at night, when it would be far more likely to be a source of annoyance to those trying to sleep. The Panel would particularly note that when it attempted to sum the percentage incidence figures in Garrad Hassan's night table (reproduced above as table 4), it was unable to deliver these to 100%. It concludes from its audit of the day and night time count data in the background report that an error was made in the percentage calculations in the night table. It has recalculated the percentages on that basis.

It follows that the Panel does not consider that it is adequate or appropriately precautionary to allow post construction/operational night impact monitoring data, or data that has been gathered with a view to enforcement to be placed into an average with day data for the purpose of assessing compliance. NZS6808 itself contemplates that data disaggregation can be justified.⁴⁴ The Panel's approach is that this would be a reasonably precautionary step to take. If Marshall Day's advice and hence Mr Gobbo's submissions are correct, the proponent has nothing to concern it in such an approach. The van den Berg effect would occur seldom, and night performance would not differ materially from day performance. However, if the van den Berg effect does eventuate to a significant extent, a clearly defined night period for data averaging will prevent the dilution of night data into day data.

In terms of defining the 'night' for these purposes, there is ample Victorian experience with SEPP N1, and the SEPP defined night (22-00 to 07-00 hours) would appear to serve the purpose well.

In terms of averaging within the night, the Panel notes concerns in the evidence of Mr Fowler that repeated instances of night disturbance are acknowledged as potentially harmful to health. It also notes his evidence that cyclic or rhythmic characters of noise can make sleep significantly more difficult to obtain after a disturbance. It is for this reason that SEPP N2 uses octave banding to respond to the peculiarly subjectively annoying rhythmic characteristics of music noise. That being said, the Panel considers that it is a trifle early to start drawing components of N2 into the assessment of wind energy facilities, without a more detailed technical evaluation. At this stage, and in order to form a hard measure against which sleep

⁴⁴ See NZS6808 para 4.5.5.

can be protected, the Panel considers that an evidenced breach of NSZ6808 for more than 10% of a SEPP N1 night would be a breach against which action could be pursued.

In such circumstances at night, the Panel considers that a complaint would be lodged. Monitoring equipment should then be made available to the complainants dwelling. If a substantiated instance of 10% breach were recorded, the following action would flow. The first step would be for the wind farm operator to identify the relevant climatic circumstances, with particular note being taken of the wind direction and any unpredicted difference between the 10m and hub height wind speeds. The operator would then be provided with a period within which to 'noise optimise' the turbine or turbines considered likely to be the source of the complaint. If a further substantiated instance of 10% breach were recorded after optimisation had occurred, the operator would then be invited to consider climate specific turbine shutdown. Only if this failed would formal action against the operator be commenced.

During SEPP N1 day and evening hours, the Panel considers that normal NZS6808 averaging provisions should apply, subject to the use of only combined day and evening data in the averaging. However, the Panel considers the same breach hierarchy of complaint, monitoring, formal notice, noise optimisation, specific turbine shutdown and only then formal enforcement action should be followed.

For similar reasons, the Panel highlights the existence of the 5dBA penalty for special audible characteristics under NZS6808. It was not disputed by the proponent that a well drafted planning condition would call this up. That being said, the Panel would consider that a sensible interpretation of the Standard has to allow for this penalty to be applied where such effects are apparent in the field, it is not merely to be applied to the certification test of the RePower turbine. In the Panel's view, this is the clear intent of the standard, as manifest in paragraph 5.1.1 which states that post installation compliance testing takes place 'in the far field, ie at distances where the cyclic variations in sound due to blade rotation are no longer discernible.

Turning to the question of the interpretation of NZS6808, the Panel has asked itself whether any of this would dishonour the approach taken in that document. It responds that it would not. That document, although criticised at the hearings, at least offers the capacity to respond to issues such as were raised in evidence and submissions before this Panel.

However, the Panel also has to ask whether the approach taken here it represents a long term solution. On balance, whilst the Panel considers that it will render a precautionary and reasonable result in this case, it would be better for the sake of future consistency if such issues were not dealt with case by case, condition by condition, but were the subject of investigations at State government level, with the publication of a formal protocol to augment the operation of NZ6808 in Victoria. The Panel also notes that a relevant Australian Standard is shortly to emerge, suggesting that this may also be an appropriate time to re-evaluate the standard that is used.

On balance, the Panel considers that there is a role here for an expert body such as the EPA, in formulating a SEPP or augmenting policy to provide detailed and consistent standards for the regulation of wind energy noise in Victoria, whether within the framework of NZS6808, the forthcoming Australian Standard, or possible even as a freestanding document.

Turning to the question of monitoring and enforcement, the Panel notes that the proponent's draft conditions require all relevant determinations and satisfactions to be those of the

Minister. This will relieve the local community and South Gippsland Shire Council of the residual doubt and concern that a technically specialist task might devolve onto them. However, whilst the Panel notes that the proponent has offered to underwrite the cost of necessary post construction monitoring, it is nevertheless the case that the Department of Sustainability and Environment regional services division does not routinely contain the capacity or expertise to consider such material. The Panel considers that if the Minister appoints the independent person responsible for the monitoring study, that person could in turn make recommendations to the Minister about any action that might be required.

However, again in the medium term, the Panel considers that there would be some wisdom in evaluating a possible role for EPA in this sort of condition and compliance monitoring task. In principle an entity with the mission, human resources and expertise of the EPA would appear well placed to conduct such monitoring across several windfarms with consistency and efficiency.

Finally, turning to proponent stakeholder dwellings, the Panel notes that relevant standards may not be met at some. This is not a major concern, on the basis that these are to be treated as 'caretaker' dwellings and removed from the general housing stock. This is a concept which the Panel considers further in Chapter 15, visual amenity, below.

There are no non-stakeholder dwellings located as at Toora, enclosed within the windfarm or cluster turbine perimeter, exposed to ongoing multi-directional acoustic impacts from turbines at close range.

The closest non-stakeholder dwelling is located 930 metres away from the nearest turbine. The great majority of non-stakeholder dwellings have a separation from the windfarm turbine perimeter of more than 1 km.

Logger failure issues have prevented the establishment of a local background at the Fox dwelling and have resulted in researcher changes to the data set for the Burfield property.

Compliance with NZS 6808 using long periods of averaged data that does not differentiate between day and night hours has the potential to expose sensitive receptors to significant levels of adverse noise impact. However, the standard explicitly contemplates the use of a defined night time or other exceedence period to ensure that emissions and effects are properly evaluated for the purposes of setting performance requirements.

It is possible that stable air conditions at night may result in significant increases in predicted noise emissions, as found in the work of Fritz van den Berg at Wind Park Rhede, located in Europe on the Germany – Netherlands border. This effect can manifest in an area significantly larger than predicted in normal acoustic modelling being subject to significant tonal variations, experienced as cyclic beats. However, little work has been done to demonstrate whether the van den Berg effect is specific to Rhede or is found in other locations with more or less severity. Whilst the adverse impact of such an effect on sensitive receptors could be significant, it has not been demonstrated as being likely to be experienced on and around the project site.

The 5dbA penalty provisions of NZS 6808 could apply if a van den Berg phenomenon of annoying tonal variations and cyclic beats was found to occur on the subject site.

The proponent has established that it is technically feasible and considers that it is appropriate to noise optimise (ie reduce power yield) or even switch off individual or groups of turbines under particular wind or other climatic conditions, as a means of controlling adverse acoustic impacts in breach of a relevant approval condition or standard.

The absence of an independent entity charged with acoustic condition compliance monitoring adds considerably to difficulties in assessing operational performance in the face of noise complaints. Municipalities are not likely to possess the budgets or the expertise necessary to monitor or enforce wind farm acoustic conditions. The Department of Sustainability and Environment Planning and Building and/or Regional Services Divisions do not directly possess the expertise necessary to monitor or enforce wind farm acoustic conditions. The EPA possesses the theoretical expertise to carry out this task but lacks a formal role under the planning scheme or SEPP.

Four proponent stakeholder dwellings are located between 390 and 760 metres from the nearest turbine. The Panel doubts whether relevant acoustic standards can be met at these locations.

It follows that the Panel makes these recommendations:

Before the commencement of construction, new local backgrounds should be taken at the Fox and Burfield properties.

Where the relevant acoustic performance standard for a dwelling cannot be met on a proponent stakeholder property, the property owner should enter into an agreement under section 173 of the Act, providing that the dwelling may only be occupied by a person who is a shareholder in or entitled to receipt of turbine rents from the project, and the family of such a person.

A night compliance period should be defined for the purposes of NZS 6808. Of preference, this should be the night as defined in SEPP – N1. Within the defined night period, the wind energy facility should not exceed the standard more than 10% of the time. This approach should protect the interests of occupants in undisturbed sleep.

In accordance with NZ 6808, a 5dbA penalty should apply to noise experienced at sensitive receptors that contains annoying tonal variations and cyclic beats.

For the purpose of meeting any limit pursuant to NZS 6808, including a 5dbA penalty limit, the proponent is entitled to seek to demonstrate to the satisfaction of the responsible authority that time or climate responsive acoustic optimisation and/or temporary turbine shutdown regimes can be implemented, before enforcement is commenced seeking the permanent removal of a turbine or turbines.

In this case, the Minister for Planning should retain the ongoing responsibility for monitoring and enforcing acoustic conditions. The proponent should underwrite the actual cost of a monitoring programme to the satisfaction of the Minister.

In the medium term, consideration should be given to the establishment of a role for the EPA in monitoring and enforcing acoustic conditions.

In the medium term, consideration should be given to the use of a SEPP or other relevant Victorian standard to define the specific application of NZS 6808 and or the forthcoming Australian Standard to wind energy facilities within Victoria.

14. VISUAL AMENITY

This chapter addresses the degree to which the project provides appropriate standards of visual amenity. As the Panel has already made clear in its consideration of landscape impacts above, it considers that it is useful to distinguish for environmental assessment and development approval purposes between landscape impact (which relates to commonly perceived values and the public good in attractive landscapes) and visual amenity impact (which relates to the individualised impact of a project on the setting and enjoyment of a private place).

In considering what this might consist of, the Panel notes that it clearly does relate to the reasonable enjoyment of outlooks from a dwelling and recreational or garden land around a dwelling. Noting the views of many rural submitters, that the land is their workshop and the place that they spend most of their waking hours, the Panel has considered and responded to this position too.

Visual amenity also relates to basic visual conditions: freedom from unreasonable shadow flicker and blade glint.

14.1 ISSUES RAISED

The following issues were raised in submissions.

- Concerns were raised about the degree to which the project or components of it would be seen from existing nearby dwellings and private land and the effect that this had on amenity.
- Concerns were raised about shadow flicker and blade glint effects.

14.2 CRITERIA TO BE MET

The Panel has distilled relevant policy to provide the following criteria to be met by the project.

To control demonstrably adverse and unreasonable visual effects on the settings of dwellings.

To meet the objective criteria of PPG – WEF in relation to blade glint and shadow flicker – that blades be finished in a low reflective coating and dwellings must not exceed 30 hours shadow flicker per year.

However, in assessing impacts against these criteria, the Panel also had regard to PPG – WEF, which makes clear at page 24 that:

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

14.3 DISCUSSION

14.3.1 VISUAL EFFECTS ON DWELLINGS AND WORKPLACES

Like landscape issues, matters of visual amenity impact on dwellings were often matters of high emotion. During its many site visits, the Panel was requested to view outlooks from many dwellings, gardens, outdoor entertainment areas, paddocks and stockyards. Many of the most closely involved submitters were residents and workers in the rural landscape. As farmers, it represented their home and their shop floor. In contrast with the position for many urbanites, the home was not occupied just in the mornings, evenings and at weekends. It was a day round, year round place of work – the office, the canteen, the meeting location. Nearby paddocks, barns and yards were used continuously as places of work. Mr Don Fairbrother expressed this theme most strongly in his submission, but it was endorsed by many others.

A similar and much expressed theme in submissions was that if amenity circumstances in the home or the workplace were not perceived as good, many folk would have a respite in the daily move from one to the other. The same could not be said of the farmer, where these locations are largely one and the same.

These concerns were amplified in many cases by the sheer hard work and dedication that many had put into their farm properties, with attention to visual and environmental as well as practical detail. No offence to others is meant, but the Panel must acknowledge the manifest pride in presentation of properties such as those of the Fairbrother, O'Sullivan/Wooldridge, Debenham, Bray or Liley families. Buildings had been designed, constructed and finished with care. Fencing and tracks were meticulously maintained. Astonishing quantities of native planting had taken place. In short, much effort had gone into the combined visual and ecological enhancement of these properties. Such owners were deeply upset at the prospect that the erection of wind turbines (which they viewed as visually detrimental) could so rapidly change the surroundings and circumstances of places into which they had invested so much care and effort. That this change could be at the behest of the environment, when so much of their own effort was also towards environmental ends was a further source of upset. The feelings and perceptions of many in the local community about their place, its specialness to them and the sense of wellbeing they derive from it, were clearly being damaged.

Without hearing any submissions on these issues, the Panel's site visits were also a silent and emotional testimony to this bruising of the feelings and perceptions of a community, with time and again the sad or crestfallen looks of a property owner having observed a verification of turbine locations from their property being only too easy to observe. The places that parties requested the Panel to visit also provided testimony to these widespread perceptions.

The Panel also obtained a view of strong attachment to land from many farming families. They spoke of their early work on the land. Strenuous efforts to clear it in any cases had been followed by equally strenuous efforts to avoid clearing too much. Many viewed themselves as early environmentalists in this regard, having stood against government agencies in an attempt to avoid clearance, at a period when orthodoxy dictated the removal of vegetation. Because of the relatively late clearance of much of the land in the district, a number of families such as the Landys or the Jelbarts were effective 'first generation' settlers, in which living family members spanned the entire history of much of the land as farmland. In such

circumstances, the Panel observed a passionate love for the land and an equally passionate concern that any one else should have the right to disrupt the object of that love.

Amenity in such circumstances was a very broad concept. For many, it would be an unacceptable impact upon their amenity if any turbines were visible from their dwellings or lands at all. Mrs Dorothy Jelbart spoke for many when she summarised her concern not:

... to have the amenity of the view from all our living areas windows despoiled by the sight of rotating blades on my skyline.⁴⁵

Others were more pragmatic. Mr Mark Burfield was not concerned particularly with the presence of turbines per se. However, he was concerned that he would see them extensively from his house. He took the view that in the line of limited adverse amenity impact, it would be relatively cost efficient and easy for the proponent to fund work to his dwelling, to orient its key outlooks away from the turbines. He also offered another creative solution, namely that if the amenity circumstances of the proponent stakeholder landowners was not a major consideration, why should not turbines be relocated within the stakeholder properties, potentially significantly adversely affecting the settings and circumstances of dwellings there, but to the greater good?

However, the Panel would observe that the relative sanguinity of Mr Burfield was in the minority. By far the greater number of submitters considered that the harm to their amenity was substantial and that the only acceptable response to this level of harm would be to stop the project.

The proponent's view of these issues was that most of them were immaterial. Its starting point was to note the situation of the project site in the Rural Zone, together with the absence of amenity and particularly visual amenity considerations from the purposes and decision guidelines of that zone. It went on to highlight the considerable weightiness of wind energy and renewable energy policy in the planning scheme, emphasising that this policy sought to facilitate wind energy development. In such circumstances, only limited weight could properly be accorded to visual amenity considerations. This being a primary submission of the proponent, it was well and succinctly expressed in the closing submissions of Mr Jeremy Gobbo. Rather than attempt to paraphrase this argument, the Panel excerpts from the two most relevant passages:

The wind farm is proposed to be located in the Rural Zone. The wind farm fulfils the purposes of the Rural Zone, co-existing with rural activities and supplementing farmers' incomes.

In the Rural Zone, residents cannot expect the same level of amenity as that offered in other zones, eg the Rural Living or Residential Zones.

[...]In the present case, while the Guidelines set out particular standards for residential amenity in relation to [...] shadow flicker, residents' expectations about amenity impacts need to be considered in light of the purposes of the zone within which their dwellings are located.

Further, as the Panel will be aware, "it is not the role of the planning system to maintain the status quo in terms of the existing level of amenity": Design a Plan v City of Whittlesea (1992/14676 unreported editorial comment 9 AATR 101).

⁴⁵ Document 93S

The question is one of reasonableness in the context of the relevant planning controls.

[...]

The discretion to decide whether or not to grant a permit and, if so, on what conditions must be exercised in accordance with the purpose for which the discretion has been conferred: Shalit v Jackson Clements Burrows Architects Pty Ltd (2002) 12 VPR 329.

In the present case, the primary purpose of the discretion under the Rural Zone is to consider the WEFs impact on rural uses of the land. That is made clear by the purposes and decision guidelines of the Rural Zone.

In fact, the claims of people living in the Rural Zone to higher levels of residential amenity is one of the primary driving forces behind limiting residential development in rural areas.

The Rural Zones Review Project 1: Zone Purposes states:

The principal purpose of the RUZ should be related to supporting Agriculture, not to be a defacto rural living zone, or a "holding" zone for future urban development. The zone purpose as stated does this. But the zone has not been applied in a way consistent with this purpose; it has been applied where RLZ and in some cases ERZ would have been more appropriate.

This mis-application of zones, together with a too-open table of uses and subdivision controls which, when read with the cultural concept that it can be expected that a lot in a rural area can be used for a dwelling, have combined to effectively "degrade" RUZ as a zone for Agriculture – even though "To provide for the sustainable use of land for Extensive animal husbandry (including dairying and grazing), and Crop raising (including Horticulture and Timber production)" is a key zone purpose. Effectively it has become a mixed use zone with, in some cases, farming being constrained by other uses in the zone.

Further, the zone controls and actual practice in relation to control of subdivision do not lead to achieving the zone purpose of ensuring that subdivision promotes effective land management practices. The use tables effectively create a large-lot mixed use zone. The key issue in this is the ability to locate dwellings in farming areas, although the establishment of other uses requiring large areas (for example, schools) is also an issue.

...

The purposes for RUZ and ERZ are generally appropriate, but the controls do not match them properly, and the zones have been inappropriately applied.

...

Much attention to planning in the RUZ is directed to limiting the opportunities to use land for a Dwelling which is not associated with farm use. ...

This attention is given because:

- *The location of Dwellings - particularly non-farm Dwellings - in a farming area is a source of land use conflicts. Not only does it lead to*

- complaints about farming activities by residents who have concepts about country lifestyle and amenity which may be inappropriate in a farming environment, but the presence of Dwellings can lead to constraints on new, expanding or changing rural enterprises – particularly related to potential smell, noise, dust, and crop spraying.*
- *The expectation that any lot may be used for a Dwelling – and that lots can be subdivided to be used for Dwellings – gives rural land “per hectare” values related to the value of a residential lot, which in localities perceived to have a good lifestyle amenity, or convenient access to an urban area, may be far in excess of that from which an economic return could be achieved from farming.*

In the present case, we urge the Panel to not fall foul of the mistake which has been made in the past. We urge the Panel to give due weight to the purposes of the Rural Zone, rather than allowing residential amenity concerns to overly influence its recommendations.

In Goddard v Baw Baw SC [2003] VCAT 251 (27 February 2003), the Tribunal commented on the expectations of residents living in the Rural Zone as follows:

35. *It seems that the Applicant for Review has unrealistic expectations of what the planning controls affecting this area are intended for, and she has unrealistic expectations about how her ‘residential amenity’ should be protected. In this regard, the Tribunal concurs with Mr Deidun’s summation of the situation where he stated:*

Rural activities involve quite a number of possible ‘detriments’, including the operation of machinery, often early in the morning, the use of various sprays and chemicals, and even sometimes the constant animal noises and associated smells. To afford protection to residential amenity in such areas would effectively restrict the efficient operation of a number of farms, particularly where they are located adjacent to smaller lots which are used purely for residential purposes. Due to past inappropriate subdivisions, these lots are dotted throughout the rural landscape. While the planning scheme recognises their presence, the rural zone intentionally gives them little right of residential amenity over the predominant use of the land for rural activity.

In Air Ag Gippsland PL v South Gippsland Shire [2002] VCAT 166 (1 March 2002), the Tribunal considered an application to use part of agricultural land near Leongatha, for a north south agricultural airstrip and parking of aircraft for the purposes of seasonable aerial agricultural spraying.

The Tribunal summarised the submissions of legal Counsel as follows:

Mr. O’Brien referred to the purposes of the Rural Zone and claimed that unlike the case for Rural Living or Residential zones, protection of residential amenity is not one of the stated purposes of the zone. He claimed the priority that the zone places on agricultural farming within the purposes of the zone is a significant factor favouring the approval of the proposal. He claimed it was significant that the distinction between the purpose of the Rural Zone and Rural Living Zone are in substitution of the

second purpose for the following in the Rural Zone, that is "To provide for residential use in a rural environment".

*He argued that the role of the Tribunal is to assess this proposal on its merits and the suitability of the subject site for the use proposed, not to canvass whether or not alternative sites are preferable or more suitable. He referred to *Spong v Minister for Planning and Environment (1985) 15 APAD 412.**

The Tribunal said, under the heading "legitimate expectation" (and quoted in the introduction to this submission):

58. *The Tribunal acknowledges Mr. Dudley's submission about land holders residing in the vicinity of the proposed airstrip having chosen to live in this part of Gippsland for the natural beauty and for the lifestyle benefits. It is acknowledged that the Township of Leongatha and the rural hinterland around it are pleasant and that some residents may have moved into the area in appreciation of a pleasant outlook, or as the Shire's motto says "Come for the beauty, stay for the lifestyle". However these expectations need to be tempered in the light of the rural zoning of the land, the purposes of the rural zone, and the fact that many rural activities can be noisy at times. If residents wish residential standards of amenity they should be directed to residential or rural residential zones rather than assume false expectations and then expect the Responsible Authority to impose restrictions on legitimate rural activities.*

In the Wonthaggi case, the Panel noted at p 59 that:

The Panel notes that the adjoining residents are currently able to enjoy a very peaceful existence, where the only sounds they hear are the sounds of the wind in the trees, the roar of the surf and the songs of birds. However, the Panel also notes that their properties are located in a Rural Zone in the Bass Coast Planning Scheme, a zone that provides for agricultural production. Whilst the subject land is currently occupied by a very passive use (low intensity cattle grazing), the land could be used tomorrow for a more intensive and more intrusive agricultural use without further consent. The planning scheme does not confer on the adjoining land owners any special rights to the peaceful existence that they currently enjoy. Only noise levels outside EPA standards are not permitted, and these would not be exceeded by the proposed development.

Drawing these arguments together, it was the proponent's view that the Panel should not be greatly concerned about visual amenity considerations, because, beyond base line issues of ensuring that residents' conditions were not made miserable and untenable by the project, the thrust of policy and provisions was that the project should proceed.

It was on this basis that the proponent's relevant expert witnesses provided relatively scant attention to individual impact on homes or other places of relevance to submitters.

Mr John Cleary's analysis concluded acceptable visual impact in general terms. Ms Virginia Jackson reached a similar conclusion in relation to planning policy and provisions. However, whilst it should be noted that Ms Jackson did evaluate the particular circumstances of some individual places in her evidence, this was met with scepticism by some submitters, on the basis of her recall and presentation of conditions.

14.3.2 PANEL RESPONSE

The Panel structures its response to these submissions in terms of the two sets of key tests that it must apply.

- Firstly in terms of policy, provisions and their reasonable interpretation in decisions, what are the standards of visual amenity that can reasonably be expected in the Rural Zone?
- Secondly, in terms of physical appraisal and the application of policy in practice, what outcomes are found?

Legitimate Amenity Expectations

What are the legitimate expectations of residents living within the Rural Zone. Can residents expect the same level of amenity as that offered in other zones, eg the Rural Living or Residential Zones? In short, the Panel's answer to this question is no, they cannot. Having regard to the purposes and decision guidelines of the Rural Zone, it must be noted that is just that – a rural zone. It embodies wide discretions. However, in exercising these, the minds of the decision makers should always return to the purposes of the zone, and to the particular decision guidelines that are relevant to the matter at hand.

To provide for the sustainable use of land for Extensive animal husbandry (including dairying and grazing) and Crop raising (including Horticulture and Timber production).

To encourage:

- *An integrated approach to land management.*
- *Protection and creation of an effective rural infrastructure and land resource.*
- *Improvement of existing agricultural techniques.*
- *Protection and enhancement of the bio-diversity of the area.*
- *Value adding to agricultural products at source.*
- *Promotion of economic development compatible with rural activities.*
- *Development of new sustainable rural enterprises.*

To ensure that subdivision promotes effective land management practices and infrastructure provision.

The visual amenity of rural dwellers is not addressed.

Turning to the decision guidelines, a wide range of considerations in relation to landscape character, flora, fauna, heritage and related considerations emerge. But again, there is no specific mention made of visual amenity.

Drawing this circumstance together with its consideration of the many hours of thought that the Tribunal and other Panels have given to this question, this Panel considers that the answer is very clear: visual amenity is not a weighty consideration in the Rural Zone.

There are various possible activities that are accepted within the rural zone, not all of these are welcomed by all residents. Quite often these activities impact on pleasant aspects of rural life for residents. However, for planning purposes it appears that residents must accept that this is a valid part of living within the Rural Zone. Amongst the legitimate activities in the zone

in terms of policy are wind energy facilities: and residents must accept that these too will impact on the standards of visual amenity to be enjoyed.

Wind energy policy is also highly relevant. SPPF Clause 15.14-2 suggests that decision making should place greater weight on global environmental benefits and the needs of the many, over local amenity disbenefits. It states that decision makes should:

[c]onsider the economic and environmental benefits to the broader community of renewable energy generation and the effects on the local environment.

PPG – WEF attaches a very clear meaning to this direction when in relation to visual amenity considerations it states⁴⁶:

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

As the Tribunal has also made clear on occasions too numerous to list, the individual has no 'right' as such to a view or outlook that is protectable by the planning system.

That being said, it is not for a proponent or for a Panel to dismiss visual amenity as an irrelevant consideration. Moving back to the foundation stones of the planning system, the objectives of planning in Victoria found at section 4 of the Planning and Environment Act 1987 do suggest that it rests there as a base line 'safeguard' in all circumstances. The objectives of planning include:

[T]o provide for the fair, orderly, economic and sustainable use and development of land; [and]

to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria.

Turning to the SPPF, the Panel observes that Clause 11.03 (Principles of Land Use Planning) makes the following observation:

Land use and development planning must support the development and maintenance of communities with adequate and safe physical and social environments for their residents, through the appropriate location of uses and developments and quality of urban design.

It follows that, regardless of the provisions of the zone, it is relevant and necessary to planning decisions about windfarms to ensure that a development does not entail the unwarranted or unfair exposure of individuals to unpleasant, unsafe or disorderly visual circumstances, where reasonable attention to siting and design considerations could control such impacts. Policy is clear that visual amenity is not weighted highly. However, that is in turn no planning charter for uncontrolled and extensive visual squalor. In short, the planning system does provide an underpinning of basic visual amenity standards.

For the purposes of wind energy development, the PWEF Panel sought to set out a practical measure of what those standards might be in a rural context.

Private dwellings [...] should retain outlooks that are not dominated by wind farm plant. That is not to say that a wind farm cannot affect outlooks from dwellings or

⁴⁶ at Page 24.

public places. Clearly, it may unavoidably be the case that outlooks from say 3 out of 5 habitable rooms in a dwelling or over 180 degrees of horizon from a garden may be substantially affected by development, (although this does not mean that steps to mitigate such impacts should not be explored). However, it should not be acceptable in principle to dominate all available outlooks from all habitable rooms and 360 degrees of horizon from a garden, especially if a significant contributor to this effect is plant located at short range (such as switchyards or transformers).

It is in this context and in the context of the policy framework drawn together in the Panel's criteria that the following evaluations have been conducted.

Practical Tests

A first critical input into the Panel's evaluations against this measure has been a map and table prepared by the proponent at the Panel's direction, recording all dwellings out to a 3km radius from the turbine perimeter. The proponent expressed some surprise and pain at the Panel's direction of the production of this map, considering it to extend the sphere of detailed evaluation considerably further beyond the wind farm site than had been accepted to be necessary in past cases. In contrast, many submitters felt a 3 km radius to be insufficient, suggesting that tangible adverse amenity impacts would occur at far greater ranges than 3km.

As a starting point for any objective testing of the proponent's conclusions on amenity impact, the Panel needed a secure identification of locations about which submitters were concerned, vis a vis the wind farm. The Panel's reasoning for establishing a 3km cut-off was based in part on the need to strike some reasonable compromise as an assessment threshold between the views of submitters and those of the proponent, although acoustic evidential considerations discussed in Chapter 13 above also played a part in this reasoning. It was also to ensure a rigorous cataloguing of dwelling by the proponent in consultation with the community, in circumstances where it was not clear that the proponent's initial mapping had correctly identified all dwellings. By the end of the hearing, whilst details of ownership were still not fully clear, there was no suggestion that there were occupied dwellings still waiting to be discovered within this 3km radius. The Panel therefore considered that it could have reasonable confidence that its understanding of the immediate site context for amenity purposes was complete.

Whilst the Panel has not found that there are any materially adverse amenity impacts at the 3km range, its experience with this documentation would suggest that 3km represents an excellent precautionary threshold within which detailed mapping should be made available to a decision maker.

A second critical input to the Panel's evaluations against this measure has been the design and conduct of its site visit, GPS and CAD testing regime⁴⁷. In this, it visited many properties, including some far beyond the 3km radius. By undertaking such visits, it was able to confirm understandings on site with the landowner and the proponent present, of the likely vertical scale and extent of horizon over which turbines might be seen. This exercise, very similar to

⁴⁷ Whilst the Panel's GPS location and hence distance data proved to be very accurate in the field, bearing and elevation data were less so. Where bearings and elevations are used in the discussion below, it should be noted that they have been obtained from CAD data. Distances obtained by GPS have also been audited against CAD and a sample of hard copy plan distances.

that conducted for the Portland Wind Energy Project, enabled responses to key questions in the Panel's mind.

- Will the turbines be unduly vertically dominant by way of close proximity?
- Will the turbines be unduly horizontally dominant by way of extent across the horizon?
- What is the setting of the observation point as against the turbines?
- Do or can elements such as built form or vegetation constrain horizontal views or absorb vertical dominance of turbines?
- What are the main outlooks from living rooms, outdoor entertainment areas or key work areas and will these be dominated by turbines?

In undertaking these tests, the Panel has also sought to determine, having regard to relevant cases and policy, whether a visual amenity impact is acceptable or unacceptable. In order to achieve this characterisation, it has graded visual amenity impacts in principle into the following categories.

- Extreme – entailing close proximity vertical dominance or extensive horizon dominance or both in an exposed location incapable of effective mitigation, where in principle the Panel would see development impinging unacceptably on visual amenity, leading prima facie to a breach of policy.
- Substantial – where impacts will be substantial, but not undue. Typically in these cases, there may be some element of horizontal or vertical dominance. However, the location will retain significant unimpacted outlooks, together with some capacity for local action to control impacts, for example through close foreground planting. As indicated at Portland, a 180 degree horizontal impact by turbines is not on its face unreasonable, but might become so if (for example) a significant portion of unimpacted horizon then because the site for a poorly or unscreened sub-station. In these cases, the Panel has also found that the affected dwellings should be included in the proponent's proposed off site landscape scheme.
- Moderate – where by virtue of greater distance, the horizontal and vertical scale of impact starts to be significantly reduced or there is significant and effective screening already in place. The scale of existing vegetation can absorb turbines to some extent. In these cases, the Panel has generally found that the affected dwelling should not be included in the proponent's proposed off site landscape scheme. However, some exceptions to this principle have been proposed, where dwellings are very close to the proposed turbines, or have outlooks controlled by vegetation that may be reaching the end of its life. In such circumstances, the Panel considers that a specific objective of the landscape scheme should be to assess the likely life and screening value of existing vegetation, making recommendations for augmentation or replacement if required.
- Limited – where by virtue of greater distance, setting in a landscape enclosure or high quality mature vegetation screening, impacts are present but are effectively controlled. The Panel recommends no off site landscape works in these circumstances.

Where the Panel makes recommendations for off site landscaping program works, it should be noted that this should be subject to agreement with the relevant landowner. That being said, if a reasonable agreement cannot be reached, the Panel considers that the Minister for Planning should have a mechanism to consider the circumstances and release the proponent from any obligation if warranted.

The Panel structures its responses to submissions and the circumstances of site visits in the following way below:

- dwellings within the 3km radius;
- dwellings outside the 3km radius;
- the approach taken to farm workplaces and rural land; and
- the approach to proponent stakeholder dwellings.

Dwellings within the 3km radius

As responses to the tests that it undertook, the Panel makes the following observations.

- The Panel has subjected the following properties with dwellings to detailed evaluation on the basis of proximity and potential vertical scale issues alone:
 - the Walker/Holz property (14)⁴⁸ at 1,190 metres to the closest turbine;
 - the Fox property (7) at 930 metres to the closest turbine; and
 - the Price property (5) at 990 metres to the closest turbine.
- In relation to extent of horizon impact, the following properties with dwellings will experience impacts of 90° of horizon or more have been subjected to detailed evaluation⁴⁹:
 - the Price property (5);
 - the Fairbrother property (10);
 - the Uren property (26);
 - the main Wooldridge and O’Sullivan properties (28 and 29);
 - the Commadeur property (23);
 - the Don Jelbart property (9);
 - the Overall property (4);
 - the Burfield property (2); and
 - occupied and unoccupied dwellings on the Kilsby property (18 and 20).
- The Panel has also conducted site visits to 26 of the 32 properties in the 3km radius. However, its assessment is that amenity impacts in all other instances are lower than those in the properties that have been subject to detailed appraisal and therefore by definition acceptable in policy terms.

The Walker/Holz property (14)

At 1,190 metres to the closest turbine and approximately 50 metres lower relative elevation than the turbine site, this dwelling was potentially sufficiently close to turbines in the northern area to experience vertical dominance.

The dwelling is apparently non-permanent/holiday accommodation in a simply converted former agricultural metal building.

⁴⁸ The proponent’s property numbering system from Document WPPL151B is adopted.

⁴⁹ It should be noted that the Panel does not evaluate properties in this report in detail unless a site visit was requested. However, it has also undertaken desk top evaluations of horizontal impacts at unvisited properties 11, 25 and 27, which it has also benchmarked to nearby properties for which detailed assessments were undertaken. It has concluded that visual amenity impacts at these locations would be likely to be substantial, substantial and moderate respectively, but acceptable in policy terms.

The dwelling has limited outlooks to the turbines. Its primary outlook was generally to the east. Further, its construction type and level of conversion would suggest that internal outlooks could readily be adapted at relatively low cost, should this be desired. Significant external areas have outlooks to the north with no turbines in view, although there are also open outlooks to turbines to the south. There is considerable scope for mitigation through foreground planting.

On balance, the amenity impact is substantial but acceptable in policy terms.

The Panel considers that this property should fall within the scope of the offsite landscaping program provided for in conditions (see Appendix E). A survey and recommendations for new screening planting for the dwelling should be undertaken.

The Fox property (7)

At 930 metres to the closest turbine and approximately 40 metres lower relative elevation than the turbine site, this dwelling was potentially sufficiently close to turbines in the northern area to experience vertical dominance.

The dwelling was of traditional timber weatherboard construction.

The dwelling has limited outlooks to the turbines. Its primary outlook was generally to the north and east, where the main veranda/deck and garden land were also located. The main rooms and veranda would have no turbine outlooks. Vegetable garden areas and a small kitchen deck to the rear (south and west) would have outlooks towards the wind farm. These were not the primary outlooks or recreation areas of the dwelling. High mature vegetation on this aspect gave partial screening at relevant scale.

On balance, the amenity impact is moderate and acceptable.

Despite a finding of moderate impact, the Panel considers that this property should fall within the scope of the offsite landscaping program provided for in conditions because of its proximity to the site (see Appendix E). A specific purpose for inclusion in this case will be to undertake an appraisal of existing vegetation health and its ongoing screening value. If necessary, augmenting and/or replacement planting should be provided.

The Price property (5)

At 990 metres to the closest turbine and approximately 40 metres lower relative elevation than the closest turbine site, this dwelling was potentially sufficiently close to turbines in the northern area to experience vertical dominance. It was also assessed in terms of horizontal impact with impacts potentially extending over 157° of horizon (not allowing for screening or distance). However, it should be noted that turbines at relevantly close proximity (the northern area) fell within a view range of 124° of horizon.

The dwelling was of traditional weatherboard construction.

Despite its potentially substantially impacted circumstances, the dwelling has surprisingly limited outlooks to the turbines. Its primary outlook was generally to the east, where the front garden was also located. Main rooms and the garden adjacent to the house would have no turbine outlooks. Potential outlooks to the north, west and south were substantially controlled by relevant scale close range vegetation screening and outbuildings. The Panel observed that

one potentially relevantly located mature cypress that might have offered additional screening had been removed in recent times. If visual amenity remains a concern to the Price family, the Panel would caution that further tree works should be carefully evaluated. Long term replacement plantings for the currently mature trees could be pursued.

On balance, the amenity impact is moderate and acceptable.

Despite a finding of moderate impact, the Panel considers that this property should fall within the scope of the offsite landscaping program provided for in conditions because of its proximity to the site (see Appendix E). A specific purpose for inclusion in this case will be to undertake an appraisal of existing vegetation health and its ongoing screening value. If necessary, augmenting and/or replacement planting should be provided.

The Fairbrother property (10)

This dwelling is located at 1.6km range from the closest turbine in the northern cluster. Not allowing for screening, distance or cluster separation, turbines extend over 145° of horizon. However, it should be noted that turbines at relevantly close proximity (the northern area) fell within a view range of 64° of horizon. The combined central and southern areas form a second sector of 29° of horizon. The separation between these sectors is 52° of horizon, sufficient to be perceived as an unimpacted corridor.

The dwelling is a substantial weatherboard home, adjacent to which is a smaller home currently used as a bed and breakfast business and separately assessed in the tourism impact chapter. Although apparently a historic home, it has been relocated to its current site.

The main dwelling has been located to command substantial and much valued views to the west, the north and the east. Northern views are said to extend to Alpine snow during the winter months, although the Panel did not view this. Views to the west and north (including those from primary living areas), will be towards turbines in the northern area, which will form the skyline. Views to the east, towards a more sheltered garden court, will not include views to turbines.

As the dwelling is reasonably newly located, it is not in a mature vegetation setting. There is no significant exotic vegetation and the recently planted native vegetation has attained limited height. Swamp Gums and Mallee Gums will provide some screening to the north that will limit horizontal effects to in the region of 27° of horizon, although this vegetation cannot be expected to attain substantial vertical scale. Sufficient land is controlled to extend this screening. Consideration could be given to some exotic planting that would attain a more rapid vertical emphasis, although the Panel understands that Mr and Mrs Fairbrother would be unlikely to wish to take this step.

The amenity impact on the dwelling is on balance substantial, but acceptable and mitigable to some further degree.

The Panel considers that this property should fall within the scope of the offsite landscaping program provided for in conditions (see Appendix E). A survey and recommendations for new screening planting for the dwelling and bed and breakfast business should be undertaken.

Mr Fairbrother was also concerned about visual amenity from his land. Impacts will be of a similar order to those experienced from the dwelling and environs. Whilst there are significant areas of tea tree and other native vegetation, this lacks vertical scale. The aspect of much of the land is flat and open, with significant views to the turbines from many places. However, as explained below, the Panel has not significantly weighted visual impacts from private land.

The Uren property (26)

The dwelling is located within 2 km range of the closest turbine in the central area. Views to the northern area at similar range would be present, as would views to the southern area commencing at approximately 3 km range. Not allowing for screening, distance or cluster separation, turbines extend over 127° of horizon. However, it should be noted that turbines in the central and the northern area are at relevantly close proximity. The central area visually combines with the southern area, together amounting to a view range of 40° of horizon. The northern area forms a second sector of 42° of horizon. The separation between these sectors is 45° of horizon, sufficient to be perceived as an unimpacted corridor.

The dwelling is in open land and does not benefit from vegetation screening. Farm buildings do not contain the potential outlook to turbines.

The visual amenity impact on this location will be significant. However, there would also be substantial opportunities to provide visual screening through vegetation at close range to the dwelling. It must also be noted that the current condition of the property did not offer high standards of visual amenity, a factor which the Panel does have to take into account. On balance, the impact will be substantial but acceptable and there is great scope for mitigating action.

The Panel considers that this property should fall within the scope of the offsite landscaping program provided for in conditions (see Appendix E). A survey and recommendations for new screening planting for the dwelling should be undertaken.

Mr Noel Uren was also concerned about visual amenity from his land. The Panel was requested to visit his stockyards close to the south area, from which turbines would be dominant. However, as explained below, the Panel has not significantly weighted visual impacts from private land. Mr Uren also wished to subdivide and develop, the approach to which the Panel discusses in Chapter 18 below.

The main Wooldridge and O'Sullivan properties (28 and 29)

The O'Sullivan dwelling (Malabar Cottage) the Panel takes as dwelling 28, some 2.76km from the closest turbine. Not allowing for screening, distance or cluster separation, turbines extend over 102° of horizon. The northern area forms a sector of 29° of horizon. The central area forms a second sector of 15° of horizon. The southern area forms a third sector of 18° of horizon. It should be noted that the relatively narrow corridors of separation between the three areas may not be read as such, particularly between the south and central clusters.

That being said, this dwelling is relatively low set and enclosed in mature and semi mature native and exotic vegetation. It has views from main living and outdoor entertainment areas that will extend to the north area, at some 4 km and greater separation. Views to the closer central and south areas will be significantly controlled by relevant scale vegetation. This dwelling is the first of those assessed where the Panel would assess impacts as moderate, but moving towards limited in scale and clearly acceptable in policy terms.

The main Wooldridge dwelling the Panel takes as dwelling 29, some 2.47km from the closest turbine. A second dwelling on a lot east of the Buffalo Waratah Road was not inspected. Horizontal impact not allowing for screening will be similar to that for the O'Sullivan dwelling and has not been separately assessed. This dwelling is set on a rise, with a significantly more open outlook to the north and west. There is some limited scope for mitigation through additional planting, but topography and wet ground conditions down slope from the dwelling

are likely to limit what can be achieved. The impact is moderate in scale and acceptable in policy terms.

Mr Paul and Ms Jenny O'Sullivan were also concerned about visual amenity from their land. The Panel was requested to visit areas of bush, which were found to be in excellent quality and to offer secluded and enclosed areas within which views to turbines would be limited by mature vegetation. Other parts of the property would have significant open views to turbines in the north, central and south areas. However, as explained below, the Panel has not significantly weighted visual impacts from private land. A visit was also undertaken to two proposed house sites on the 'top block', a separate lot of over 40 hectares, suggested as being a possible future home for a family member not currently connected to agriculture. Both sites were less than 500 metres from proposed turbines in the centre and south areas and would clearly be places in which a range of amenity impacts would be unacceptable. The Panel discusses its approach to additional dwellings on agricultural tenements that already have a primary dwelling in Chapter 18 below.

The Commadeur property (23)

This dwelling is some 2.2 km from the closest turbine in the southern area. Not allowing for screening, distance or cluster separation, turbines extend over 92° of horizon. The southern and central area forms a combined sector of 62° of horizon. The northern area and most likely the central area will be screened from this location by mature native vegetation.

Whilst apparently used as a main dwelling, this was of the nature of an occasional or holiday house rather than a principal residence. The main outlook was to the north and west towards the southern area. The design of the dwelling, with exterior boardwalks linking to a Japanese bath-house with open views towards the southern area, was such that there was only limited scope for mitigation without major change to the design concept. The dwelling was in a mature bushland/clearing setting. Upper turbine towers, nacelles and blades will be visible over the trees. However, there will be no views to complete turbines.

On balance, the Panel considers the impact to be high-moderate but acceptable.

The Don Jelbart property (9)

This dwelling is some 1.6 km from the closest turbine in the southern area. Not allowing for screening, distance or cluster separation, turbines extend over 96° of horizon. The southern and central area forms a combined sector of 76° of horizon. The northern area is for practical purposes screened from this location by mature native vegetation.

The dwelling is in a mature bushland/clearing setting. Upper turbine towers, nacelles and blades will be visible over the trees. However, there will be no views to complete turbines. The Panel did not view living rooms at this dwelling, but the kitchen had a northern outlook towards the turbines.

On balance, the Panel considers the impact to be high-moderate but acceptable.

The Overall property (4)

This dwelling is some 1.3 km from the closest turbine in the southern area. Not allowing for screening, distance or cluster separation, turbines extend over 92° of horizon. The southern area forms a sector of 81° of horizon, which would stand in the foreground in front of the central sector. The northern area is for practical purposes screened from this location by topography and native vegetation.

The dwelling is set adjacent to a vegetated creek gully. It is in a relatively sheltered and low lying situation, with an intermediate horizon ridge between it and that wind turbines. That being said, the Panel would expect the nacelles and blades of many of the southern area turbines to be visible above the horizon. Main living areas and outdoor entertaining areas are oriented towards the north and will provide outlooks to turbines. That being said, sufficient land to the south is also controlled to provide external areas that do not provide outlooks to turbines.

The Panel considers the impacts to be significant but acceptable in policy terms.

The Burfield property (2)

The existing dwelling is some 1.24 km from the closest turbine in the southern area. Not allowing for screening, distance or cluster separation, turbines extend over 198° of horizon. The southern area forms a sector of 95° of horizon. The central area forms a second sector of 15° of horizon. The northern area forms a sector of 28° of horizon. That being said, it should be noted that views to the northern sector would be considerably filtered by vegetation and are at longer range (3.8 to 5km).

This dwelling is partly enclosed by vegetation to the south and east that will provide some level of filter and screen against outlooks to turbines from the ground floor. However, as a two storey dwelling with an upstairs living space, upper floor windows will provide substantial views to most of the southern area turbines. There will be little capacity to mitigate the visual effect of the upper floor outlook. Ground floor impacts will be capable of quite substantial mitigation by additional close range vegetation screening. Consideration might be give the balance of room uses in the dwelling, with possibly less use being made of the upstairs to provide living space.

The Panel views this level of impact as being verging extreme, but on balance still substantial and on the margin of acceptability in policy terms. The Panel appreciates that such a finding leaves Mr Burfield with little comfort. However, the capacity to provide acceptable amenity at ground floor level, combined with possible options to reconsider internal space usage on the upper floor drew the Panel to its finding here.

Mr Burfield did make strong submissions about the degree to which a re-configuration of turbines in the southern area, or physical works to his dwelling at the proponent's expense might overcome the impacts that he is likely to experience. Having made its finding, the Panel considers that it should not explore these options as they are unnecessary in relation to a finding of substantial but acceptable visual amenity impact.

The Panel considers that this property should fall within the scope of the offsite landscaping program provided for in conditions (see Appendix E). A survey and recommendations for new screening planting for the dwelling should be undertaken, together with screening works for upper floor windows and/or the making of new upper floor windows with western outlooks, if desired by Mr Burfield.

Mr Burfield was also concerned about visual amenity from his land, in circumstances where he had approval granted for a five lot subdivision. Large parts of all lots in the subdivision would have significant open views to turbines in the southern area. However, as explained below, the Panel has not significantly weighted visual impacts from private land. A visit was also undertaken to a proposed house sites on the lot closest to the southern area turbines, which proved to be 551 metres from the closest turbine, at which range it would be likely that amenity impacts would be unacceptable. The Panel discusses its approach to additional dwellings on agricultural tenements that already have a primary dwelling in Chapter 18 below,

although in this case it should also be noted that the lot was submitted as being under conditional contract to Mr Peter Lausberg of Wind Power Pty Ltd.

Occupied and unoccupied dwellings on the Kilsby property (18 and 20)

The occupied dwelling is some 1.98 km from the closest turbine in the northern area. Not allowing for screening, distance or cluster separation, turbines extend over 155° of horizon. The northern area forms a sector of 37° of horizon. The central area forms a second sector of 15° of horizon. The southern area is for practical purposes screened from this location by mature vegetation although if viewed would form a sector of 53° of horizon. However, screening is by mature to senescent pines that may require replacement in the near to medium term.

The dwelling is has good screening to the north and west. Views to the south and east are more open. These would include views to turbines in the northern and central areas from open garden land and from the main living areas of the dwelling. That being said, there is considerable scope for greater vegetation screening to be provided. The amenity impact on the dwelling is on balance moderate, but acceptable and mitigable.

The Panel has not subjected the unoccupied dwelling to a detailed analysis. It was at a similar distance to turbines in the northern area to the occupied dwelling, but in a location more closely controlled by vegetation. As observed on the site visit, it was in poor condition and would require substantial renovation if it were to be considered habitable. It would clearly be within the scope and cost of such work to entirely re-orient the outlook of this dwelling, should that be required.

Mr and Mrs Kilsby were also concerned about visual amenity from their land. The Panel was requested to visit areas of bush, which were found to be in excellent quality and to offer secluded and enclosed areas within which views to turbines would be limited or excluded by mature vegetation. Other parts of this large property would have significant open views to turbines in the north, central and south areas. Open areas of land would closely abut turbines in the northern and central areas. However, as explained below, the Panel has not significantly weighted visual impacts from private land.

A visit was also undertaken to two proposed house sites understood to be on separate lots of over 40 hectares, suggested as being a possible future home for family members. The first site described as 'Upper Box' was sheltered by native vegetation from the wind farm and provided open views to the west. It was 1.44 km from the closest turbine in the northern area and would not in principle present as an untenable location for a dwelling in amenity terms. The second site described as 'Sea View' had extensive open views. It was 390 metres from the closest turbine in the central area and appeared to offer standards of amenity that in principle would be unacceptable if the turbines are constructed. The Panel discusses its approach to additional dwellings on agricultural tenements that already have a primary dwelling in Chapter 18 below.

Dwellings outside the 3km radius

The Panel also undertook extensive site visits and heard submissions from many third parties about visual amenity impacts outside the 3km radius. It does not deny the heartfelt concerns of those such as the Bray, Liley and Landy families, the Brown family, Ms Svenson or Mr Tuck. Those who happen to occupy land on the Mount Liptrap – Hoddle ridge will undoubtedly have the potential and in some cases the actuality of grandstand views to very many wind turbines. That being said, at their longer range, they will also in most cases retain

significant views and outlooks to other places without turbines. This would be particularly true of the Brown and Tuck properties, which will retain significant and highly attractive unimpacted outlooks. However, having regard to its findings above in relation to many parties at much closer range, and being continuously informed by the low policy weighting for visual amenity enjoined upon it by PPG – WEF, the Panel could not find that any of these impacts were in any way material to a change of outcome.

Amenity impacts on rural land

Similarly, in noting the many submissions about the degree to which the land is the farmer's workplace, the Panel has referred back to policy. It appears that whilst visual harm to that land may be capable of being weighted in landscape terms, particularly if a relevant overlay were present, there is no sound basis for its consideration at anything above the most basic weight in terms of visual amenity. Certainly the decision guidelines in the Rural Zone whilst raising a diverse range of considerations as relevant, make no mention of the visual amenity of residents, let alone users of rural land. Again, having regard to the low policy weighting for visual amenity enjoined upon it by PPG – WEF, it could not find that any of these impacts were in any way material to a change of outcome.

Proponent stakeholder dwellings

Finally, the Panel turns to proponent stakeholder dwellings.

Having regard to the tests outlined above, it is clear that some proponent stakeholder dwellings fall closer to turbines and experience higher levels of impact than those nevertheless assessed as being substantial and verging on unacceptable.

However, in terms of submissions from the proponent that these dwellings would amount to 'caretaker' dwellings and be exempt from planning permit conditions guaranteeing amenity standards, the Panel does not consider that it is necessary to undertake detailed evaluations or to directly safeguard these dwellings. Clearly, some base level of habitability does have to be maintained if these dwellings are to be permanent residences and this will dictate attention to relevant amenity standards, ensuring the health of residents in these dwelling is not prejudiced by for example loss of sleep due to noise exposure. This is a factor that the Panel has given further attention to in relation to noise. That being said, the Panel must observe that it does not consider visual amenity considerations are of any particular weight for these dwellings. As their inhabitants have chosen to develop and will benefit from a wind farm, the Panel can see no merit in holding them to meet any visual amenity standards whatsoever.

The only caveat that the Panel places on this position is its view that such dwellings should not then become part of the general dwelling pool and should by condition or agreement be removed from the housing supply for persons other than those directly interested in ownership or management of a wind farm property.

The Panel considers on balance that the project as assessed does not harm visual amenity.

However, in relation to the issue of the lack of visual amenity standards for proponent stakeholder dwellings, the Panel recommends as follows.

Specific off site landscape program works to address residential amenity impacts should take place at the following properties, subject to agreement with the landowners:

- Walker/Holz (14) (screening planting);
- Fox (7) (assessment of existing planting and possible augmentation or replacement);
- Price (5) (assessment of existing planting and possible augmentation or replacement);
- Fairbrother (10) (screening planting);
- Uren (26) (screening planting); and
- Burfield (2) (screening planting and possible physical screening and minor dwelling works).

Steps should be taken to ensure that proponent stakeholder dwellings where normal amenity standards may not be met do not form part of the general dwelling pool. Occupation should be restricted to those persons directly interested in ownership or management of a wind farm property.

14.3.3 SHADOW FLICKER AND BLADE GLINT

The adverse visual effects of shadow flicker and blade glint were generic ones, raised by many submitters. Reference was largely made to shadow flicker, although blade glint was seen as a potential source of annoyance and visual disturbance.

The views of most submitters in relation to shadow flicker were summarised in the widely circulated video "Living Next Door to a Windfarm: The Toora Experience". This demonstrated patterns of large rotating shadows moving fast across complex topography. Submitters considered these effects to be disconcerting or disturbing. They were concerned that the effects should not impact on their dwellings or, within reason on the land that they worked.

14.3.4 PANEL RESPONSE

The Panel's response to these issues is to note from the outset that very clear and directive guidance is provided in PPG – WEF.

The standard for the assessment of glint is that:

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

The proponent has undertaken that the blades will be finished in such a material.

There are now many years experience of this as an issue within the wind turbine manufacturing industry and current practice is to manufacture composite blades with a gel coat that, to the greatest extent possible, controls unwanted reflection. There will be certain solar conditions when some level of reflection will occur. However, the Panel is clear that the adoption of contemporary practice in blade materials technology will control this problem to the extent that it can be controlled.

In terms of observing whether blade glint would ever be likely to pose an unacceptable impact, the Panel notes that the separation distances of dwellings from the wind farm recorded above

should be sufficient to ensure that only that dwelling controlled by the proponent company themselves and currently the residence of Mr Peter Lausberg would ever be likely to experience unduly adverse effects. As the Panel has also observed above, such a dwelling is best treated as being a caretaker dwelling. The Panel does not consider that it gives rise to any requirement to consider the effects that might be observed from this dwelling and its surrounds.

Blade shadow effects are at their most troublesome when the sun is low in the sky. Shadows reach out for long distances across the land, and because of their length, the perceived motion of a blade tip shadow can be very fast indeed. The Panel has experienced these effects, observing Toora in westering sun, before and at sunset.

It is therefore of reassurance in relation to shadow flicker that the site design has adopted a sound precautionary discipline. At no location have turbines been sited so that they stand on either side - broadly east and west of a dwelling - exposing it to a morning and an evening dose of shadow flicker.

PPG - WEF establishes the following performance standard.

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

The degree to which this standard has been met is relatively easy to determine using computer aided design techniques. By drawing the turbine siting into a solar model, the extent and duration of shadows at all times of day throughout the year can be mapped. It is then relatively simple to establish a set criterion, such as 30 hours per year exposure, and determine whether or not it can be met at a particular location.

The Panel was strongly conscious that this standard can be interpreted in two broad ways. Construed minimally, this would simply mean that shadows must not pass across the roof or elevations of a dwelling for more than 30 hours. This would protect internal amenity. However, for most people, the use and enjoyment of a dwelling also reasonably entails some capacity for outdoor living. Further, in non-urban settings, outdoor areas where a resident might sit and relax, take a drink or hold a barbecue might not necessarily be hard by a dwelling.

It was for this reason that the Panel questioned the degree to which standards might be met, not only at dwellings, but also within reasonable domestic curtilages. The proponent in turn produced a document demonstrating the position as it saw it.⁵⁰ This document mapped dwellings and an area approximately 50 metres around them, in terms of their exposure to shadow flicker. The analysis took no account of screening vegetation or buildings and so to this extent is a conservative analysis presenting a maximum or worst case scenario. Overcast weather conditions can also limit shadow effects and will in practical terms further reduce the values expressed here. The Panel accepts this analysis as providing a reasonable response to its request enabling to assess impacts on dwellings in their settings, where outdoor recreation might take place.

The document was accompanied by a brief note from Mr David Price of Garrad Hassan, explaining the effects observed. The note suggested that shadow flicker exposure can

⁵⁰ WPPL 35 B: Bald Hills Shadow Flicker Maps.

normally be expected to reach a minimal level, once a location is more than 1 km distant from the nearest turbine. Again, the Panel's experience and site observations lead it to concur with this view.

To this extent, the only non-proponent dwelling assessed as receiving a measured shadow exposure was the Price dwelling. Located on the Buffalo – Waratah Road at 990 metres from the nearest turbine, this dwelling is predicted to receive between 5 and 10 hours of shadow flicker per annum. Land within an approximately 50 metres radius of the dwelling broadly falls into three sectors. To the west of the dwelling, the surrounding land will receive between 5 and 10 hours of shadow flicker per annum. To the south west, but at a reasonable range from the dwelling, land will receive between 10 and 15 hours per annum. Land to the east (which the Panel construes as being the approximate alignment of the Buffalo – Waratah Road) will receive between 0 and 5 hours per annum. It can be seen on this basis that the Price dwelling can meet the PPG – WEF criterion.

Turning to other closely located non proponent stakeholder dwellings, comment is only required in relation to the Fox property. This is 930 metres from the closest turbine. However, located generally north of the windfarm it should not experience adverse shadow effects.

In relation to proponent stakeholder dwellings, the 30 hour standard will be met at all but that of Mr Lausberg's dwelling. Given the Panel's response to that dwelling above, this is not a weighty consideration.

The Panel has also had regard to the issue of blade shadow flicker on the land. In strict policy terms, this is not a consideration, as the relevant PPG – WEF standard makes no mention of it. The Panel cannot formally assess it. However, it does observe that on the basis of the analysis produced and discussed above, the bulk of adverse blade shadow flicker effects will be experienced on land controlled by proponent stakeholders.

No submissions or evidence were received to the extent that there were errors in these calculations and the Panel considers that it can rely upon them.

No existing third party dwelling will experience over 30 hours blade shadow flicker per annum or undue blade glint.

14.4 SUMMARY OF FINDINGS

In relation to visual amenity, the Panel notes the obvious emotion with which very many people sought to protect land to which they have a close affinity from what in their view amounts to visually damaging and unacceptable change. However, in the terms of public goods and private standards protected by the planning scheme, the project does not give rise to any breach of visual amenity standards on third party land.

Nor will any third party property experience unacceptable blade glint or shadow flicker effects.

15. SITE ACCESS & TRAFFIC

This chapter addresses issues raised in relation to making access to the site for construction purposes.

15.1 ISSUES RAISED

Concerns were raised about:

- Safe access to the site via local roads during construction and after construction.
- Drainage to the local roads during construction and funding of repairs.
- The need to remove roadside vegetation to facilitate large construction vehicles.
- The need to substantially upgrade the local road network to facilitate construction traffic.
- The capacity to construct turbine access tracks in sandy terrain.

15.2 CRITERIA TO BE MET

The Panel has adopted the following means by which the performance of the project can be measured, taking into account the requirements of current policy.

To ensure that the roads used as access by construction vehicles and equipment are of a sufficient standard to provide for:

- *safety for all road users; and*
- *no increased hazard to the environment by virtue of run off or contamination of drainage lines or watercourses.*

The Panel has also been concerned to ensure that any additional works or maintenance necessary to meet this criterion are carried out at the expense of the development. It also notes that any removal of native vegetation necessary for the passage of construction vehicles will require to be assessed against the relevant provisions of the South Gippsland Planning Scheme.

15.3 DISCUSSION

Concerns were expressed by the Shire and by a number of submitters about the condition of local roads and about the effects upon them of wind farm construction traffic. Greatest concern was expressed about the potential for damage to unsealed roads and in relation to the need to remove roadside vegetation to make passing bays and turning areas for large vehicles.

The construction period for 84 turbines was estimated in the EES as 21 months. The SEES indicates that this period will be marginally reduced as a result of the number of turbines being reduced to 52.

Access to the sites is proposed to be via Bald Hills Road for the northern site and via Tarwin Lower - Waratah Road for the southern and central sites.

The SEES set out the estimated total extra traffic generated on each of these roads due to construction.

Table 5: Summary of Traffic Impacts

Description	Construction Traffic	
	Total Loads/trips	Vehicle Type
Northern area of the wind farm using the Bald Hills Road		
Delivery of materials including sand, aggregate, cement, steel and piling components	441	Truck and Trailer
Delivery of hardstand gravels for the construction of access tracks, generator staging areas and misc staging areas	1228	Truck and Trailer
Delivery of wind generator components	130.5	Extend OD Vehicle
Construction personnel	2610	Car
Total two way traffic movements trucks	3599	
Total two way traffic movements cars	5220	
Average two way trips per day trucks	21	
Average two way trips per day cars	30	
Southern area of the wind farm using the Tarwin Lower Waratah Road		
Delivery of materials including sand, aggregate, cement, steel and piling components	108	Truck and Trailer
Delivery of hardstand gravels for the construction of access tracks, generator staging areas and misc staging areas	108	Truck and Trailer
Delivery of wind generator components	103.5	Extend OD Vehicle
Construction personnel	2070	Car
Total two way traffic movements trucks	2733	
Total two way traffic movements cars	4140	
Average two way trips per day trucks	20	
Average two way trips per day cars	30	

In summary these figures reduce to:

- An additional 101 vehicles per day generated by construction traffic on the Tarwin Lower Waratah Road ie. a 60% increase in traffic.
- An additional 51 vehicles per day on the Bald Hills Road ie. a 36% increase.

Significant proportions of the increased daily traffic will be heavy truck traffic. The increased traffic levels will apply for the entire construction period.

After construction is complete, increased traffic as a result of the wind farm will be negligible, limited to that caused by maintenance personnel and visitors to the display centre.

The Tarwin Lower Waratah Road is a sealed rural road apparently in reasonably good order. The Panel was not provided with any breakdown of the existing traffic between passenger and truck traffic. The Panel anticipates that the existing truck traffic on this road would be a much lower percentage of existing traffic than is the case with the construction traffic profile. It is possible that significant increases in truck traffic could result in deterioration in the road surface.

The Council indicated in its written submission that the reconstruction of Bald Hills Road may be required for the safe passage of construction traffic. The Council also expressed concern that all upgrading and maintenance of roads as a result of the proposal should be carried out at no cost to Council. The Council also expressed the view that Bald Hills Road should be sealed to avoid erosion problems.

Several submitters raised concerns regarding the dangerous nature of the loose unsealed surface on Bald Hills Road and that this would be exacerbated by construction traffic. They considered that the loose nature of the road surface would contribute to sedimentation and associated contamination of drainage lines and watercourses, with possible adverse impacts in the Bald Hills Wetland.

There were several submissions concerning the possible need to improve the alignment of the existing road servicing the site. This could involve the clearing of native vegetation including the stands of *Eucalyptus Kitsoniana* (Gippsland Bog Gum). This species is identified in the Brett Lane reports as 'Rare' on both a State and National level.

Submitters were also concerned about the effects of constructing internal access tracks and hard standings. It was pointed out that the terrain was subject to wind erosion, with a number of existing blow outs due to agricultural traffic being highlighted to the Panel. The Panel was shown locations where wind had mobilised many thousands of tons of material. Concerns were also expressed about track drainage, turbid run-off, saltation and declining water quality in the Bald Hills Wetlands.

15.4 PANEL RESPONSE & SUMMARY OF FINDINGS

There will clearly be significant increases in traffic on Bald Hills Road and on the Tarwin Lower – Waratah Road. This is especially the case for truck traffic.

The Tarwin Lower – Waratah Road is a properly constructed rural road, of an acceptable standard to carry the envisaged traffic. It clearly has the capacity to carry very much higher traffic volumes than it currently does. The horizontal and vertical alignments appear to be to a reasonable standard based on the Panel's inspections of the road during its numerous site visits.

This is not to say that the alignment of the whole road is ideal. There may be sections along its length that could be improved. Passing manoeuvres in some places are not possible.

However there were no particular sections of the road, drawn to the Panel's attention or noted by the Panel as requiring particular attention. The Panel has concluded that the road alignment is adequate to cater for the additional traffic in general terms.

The Panel agrees that in some places minor realignment work may be necessary to cater for 'Over Dimensional' traffic associated with the transport of wind turbine components. In the event that such realignments are necessary then there is no reason in principle why the work cannot be carried out. A vegetation survey of intended sites should be carried out. If there are options that avoid significant vegetation removal, these should take precedence over options that require removal.

If realignment involves removal of roadside native vegetation then a permit is required and the details can be reasonably assessed at the time of such application. However, the Panel has referred above to the retention of the Delbridge land as a vegetation offset area, despite it being over size for the strict requirements of the native vegetation management framework. The Panel would anticipate that offset requirements arising from any roadside vegetation works could be appropriately accommodated within the Delbridge land.

The strength of the road pavement is unknown and its ability to carry the additional traffic, particularly truck traffic, without significant deterioration is unknown.

The Panel considers that a pre-construction assessment of the road pavement should be made and agreed upon. Further assessments at regular intervals during construction should be made and if necessary the appropriate remedial work carried out at the expense of the development.

The Bald Hills Road is a back country road with existing traffic levels of 142 vehicles per day. The increased truck traffic will clearly cause deterioration to the road at the levels proposed approximately 20 truck movements per day for 21 months. The road will clearly need regular maintenance attention during this period. Such attention is likely to include regular grading and re-sheeting with appropriate surface material.

Local residents suggested that a local clay based gravel known as 'Fish Creek Gravel' is the most appropriate. This is not a material with which the Panel or the proponent's engineering advisors were familiar. In the Panel's view the type of material used will be important but the final decision on this should be left to the Council, bearing in mind the need to control dust, turbid run-off and sedimentation in nearby water bodies. The level of traffic proposed does not warrant full construction of the road to a sealed standard.

The Panel is satisfied that the adopted impact criteria will be satisfied by the application of appropriate permit conditions.

In relation to access tracks within the site, the Panel considers that the north area has the greatest potential for both wind and water based erosion due to the steep terrain. However, it also note that the proposed access tracks generally run with the terrain, minimising the need for significant scale cut and fill or exposure of large batters and hence the risk of sand mobilisation. It is clearly important that the tracks be properly drained with sediment traps. However, these are matters for which conditions and normal construction practices adequately provide.

The Panel concludes that issues relating to road and track design construction and operation can be satisfactorily addressed by permit conditions.

The draft permit conditions include the preparation and implementation of a 'Traffic Management Plan'. The Panel considers that this is an appropriate method of addressing public road upgrading and maintenance issues.

However, the Panel recommends as follows:

A pre-construction inspection of existing roads proposed to be used by construction traffic should be carried out by the proponent, DSE and Council. The inspection should determine and document the agreed condition of the roads and together with any works necessary to enable them to carry the anticipated traffic. This document is to be used as the basis for assessing the remedial work necessary as a result of the construction process.

The proponent's Traffic Management Plan should be amended to make it clear that:

- The cost of all required road works and the costs of maintenance attributable to the development should be carried out at the developer's expense.
- Regular inspections should be carried out to ensure that the required safety standards are provided.

16. ECONOMIC EFFECTS

The purpose of this chapter is to address issues of economic benefit, disbenefits and distribution raised in submissions. That being said, it does not examine general issues of power price or the economics of wind energy generation within the Victorian power sector. Insofar as it needs to be, that task is accomplished in section 8.3.5 above. Rather, this chapter examines the economic effects of the project on its surroundings.

In opening, the Panel considers that it is important to establish the 'ground rules' under which it has considered these issues, because it is conscious that many economic issues do not form grounds that are relevant considerations for the purposes of a permit decision under the Planning and Environment Act.

In relation to the consideration of planning permit applications, a planning decision maker must consider all objections and other submissions. It does not have to consider the economic effects of a proposal, but, in terms made clear by section 60(1) b (i) of the Act, may do so, if the circumstances appear to require that it does so. Section 57(2A) of the Act makes clear that:

The responsible authority may reject an objection which it considers has been made primarily to secure or maintain⁵¹ a direct or indirect commercial advantage for the objector.

The Panel makes clear as a starting point that it considers that some submissions include content that do seek to at least maintain a direct or indirect commercial advantage for a submitter: for example by seeking to maintain the asset value and yield from a property used or proposed to be used in some way for commercial tourism. However, such submissions also contain other material and do not therefore primarily serve a function that would entitle their rejection by the responsible authority. Further, the Panel is not the responsible authority: that duty lies on the Minister for Planning, who has not sought to reject any submissions on this ground.

Further, although not specified in the Act, there is ample authority for the view that valuation effects (in the sense of changes to the value of adjacent third party land or undertakings on land, arising from the proposed use or development) are not relevant considerations. The proponent referred the Panel to the following cases, which the Panel considers to contain a correct statement of law on the relevance of valuation material to a planning permit matter.

[I]t has been held that depreciation of land values in the locality as a result of a proposed development is not a planning ground: Ross v Shire of Rutherglen (1981) APA 101; Ralphsmith v City of Nunawading (1983) 11 APA 40; Briant v City of Knox (1985) 15 APA 443; Micaleff v City of Keilor (1993) 11 AATR 139.

Three general principles regarding land values as established in Zerbe v City of Doncaster and Templestowe (1984) 12 APA 201 are as follows:

⁵¹ Panel emphasis.

- a) *At best, the impact of a proposal on property values can provide secondary evidence about the amenity impacts of a proposal.*
- b) *Property values will not always be an accurate mirror of amenity impacts.*
- c) *As valuation is an imprecise science, valuation evidence must be treated with caution.⁵²*

However, the matter is not quite as straightforward as the proponent's submissions on law suggest, because the Panel is appointed under both planning and environment effects legislation. Whilst the Panel must acknowledge the irrelevance of valuation and commercial advantage issues (other than as an indicator of amenity impacts) for planning purposes, the same statement about relevance cannot be made safely about an EES, assessed under the Environment Effects Act 1978. The Panel is unaware of decided cases that determine conclusively whether such factors are relevant or otherwise for the purposes of environmental impact assessment. That being said, established practice and the application of "Guidelines and Criteria for Determining the Need For and Level of Environmental Impact Assessment In Australia" (ANZECC 1996) have tended to deliver an inclusive approach to relevance, in which economic and distributional factors are evaluated as part of an environmental impact assessment.

It is in this sense that the Panel has heard submissions on such matters and provides an analysis of them for consideration by the Minister for Planning in the making of her assessment of environmental effects.

16.1 ISSUES RAISED

In summary, the following issues were raised in submissions before the Panel

- It was suggested that the project would adversely affect the value of surrounding agricultural land by reducing or removing its attractiveness for 'lifestyle' uses, and consequent capacity for subdivision to the zone minimum of 40 ha.
- It was suggested that the proposal represented a transfer of economic value and capacity from surrounding landowners to stakeholder landowners.
- It was suggested that there would be little countervailing economic benefit, with limited local employment or expenditure to be generated by construction and operation.
- Concerns were raised about the effects of the project on tourism and accommodation business and the attractiveness of the area more generally for tourism.
- The value, function and location of an interpretative centre were disputed.

16.2 CRITERIA TO BE MET

With reference to the Panel's identification of sources of relevant legislation and policy above, the Panel considers that the appropriate criteria should be:

In the context of a net community benefit assessment, to maximise net economic benefit to Victoria and to local communities.

⁵² From closing submissions at paras 489-90.

To safeguard opportunities for the continued development and economic benefit flowing from tourism.

In formulating these objectives, the Panel has had regard to the SPPF and to relevant LPPF policy.

16.2.1 VALUATION AND VALUE TRANSFER

The proponent's basic position was that valuation was of little if any relevance as a planning consideration. To the extent that it may form a potentially relevant consideration in environmental assessment, the proponent had given it some thought, particularly in the light of EES submissions that had raised this as a concern. Material in response to such submissions was provided in the SEES at Appendix 11 and evidence was led from Mr Tim Offor on this material. Mr Offor commenced by making clear that there was little solid base for an analysis of property valuation effects as:

[t]here has been very little empirical work completed on this topic. A scan of the international literature has found only one study, which uses a sufficiently wide range of wind farms and locations from which to draw reasonable conclusions⁵³.

This study was carried out in the USA. It had analysed the rate of change in property prices within viewsheds before and after wind energy facility construction. That report's authors reached the conclusion that:

statistical evidence does not support a contention that property values within the view shed of wind developments suffer or perform lower than in a comparable region. For the great majority of projects ... values in the view shed actually go up faster than values in comparable regions.

However, the study did note instances of value decline, attributing these to larger installations of older (by implication more noisy and less visually pleasing) turbines.

Opinion research in Denmark and the UK provided little conclusive result on valuation issues.

Reference to real estate agencies in Australia had also provided little conclusive result. Too few properties had been offered on the market at Codrington or Chalicum Hills for local valuers there to reach a settled opinion. At Albany in Western Australia, wind energy development is close to urban residential development, but has not had an apparent impact on the local property market. A valuer at Toora offered the opinion that rural residential properties that had previously enjoyed the outlook from Silcocks Hills (the windfarm site) had been affected. However, this research source also disclosed that he was an active opponent of wind energy development.

Inquiries were also made by Mr Offor of real estate agents serving the Tarwin Lower – Liptrap market. Here it was suggested that land with access to ocean views, natural attractions or other lifestyle values did enjoy a value premium over and above agricultural value, contingent on the amenity and lifestyle opportunities they offered. It was suggested that had been difficulties selling two properties with views to the project site, notwithstanding buoyant interest in the wider area.

⁵³ Reference to Sterzinger 2003, USA, in SEES Appendix 10 at p 15.

From this review, Mr Offor had concluded that:

While the USA experience indicates a positive impact on property prices in the view shed of wind farms, local experience is ambivalent. There is certainly a reluctance to purchase when faced with an uncertain view from a rural block, but land primarily used for agricultural production appears to have been least affected. It appears that, on the balance of evidence, wind farms do not adversely affect property values once they have been established. There is little doubt that the uncertainty associated with the establishment of a new wind farm can adversely affect the market in the short term, but after construction and commissioning of the existing wind farms there appears to have been little or no adverse impacts on prices. In the Bald Hills area, the reluctance to purchase may be more related to uncertainty than a long term demand impact.⁵⁴

Notwithstanding these reassurances in the SEES material, several submitters were still concerned that the value of their properties and/or of businesses conducted upon them would be adversely affected if the project were to be developed.

Tarwin Valley Coast Guardians sought to quantify this concern by calling evidence from Mr John Jess, a certified practising valuer. He had valued four properties held by:

- Mr Don Jelbart;
- Mr Philip Wooldridge (instructed by Mr Paul and Ms Jenny O'Sullivan);
- Mr Don and Mrs Dorothy Fairbrother; and
- Mr Andrew and Mrs Margaret Kilsby.

The four valuations were conducted on the same basis and assumptions and provided:

- a current market valuation ignoring any effect of the project; and
- a market valuation assuming that the project would be constructed and completed.

As between the first and the second of these valuations, Mr Jess found losses ranging from 20% (Jelbart) via 17.5% (O'Sullivan/Wooldridge) to 15% (Fairbrother and Kilsby). The key conclusion reached by Mr Jess was that rural land in the locality of the project site had an underlying agricultural value that remained unaffected by the proposal. However, in addition it had an amenity, lifestyle and development value that proceeded from the degree to which it provided its owners with:

- a pleasant place to live and work, offering high standards of amenity;
- opportunities for a pleasant rural lifestyle in attractive land and close proximity to the sea; and
- opportunities for the realisation of returns on investment through the subdivision and sale of land down to the Rural Zone subdivision minimum of 40 hectares, assuming that purchasers would be primarily motivated by the amenity and lifestyle offered by new lots, as opposed to their underlying agricultural use or value.

He provided opinions to the effect that amenity, lifestyle and development value considerations formed a substantial component of the valuation of coastal rural properties in South Gippsland, possibly amounting to as much as a 40% premium over agricultural values. It was also his opinion that this aspect of land value would be adversely affected by a nearby

⁵⁴ SEES Appendix 10 at pg 18.

wind energy facility, as this would tend to reduce the number of potential purchasers seeking these attributes who came to the market.

Matthew Townsend for Tarwin Valley Coast Guardians addressed the Panel on these valuations in his written submission on behalf of objectors⁵⁵. Calling on the decision guidelines emerging from Clause 22.01 of the planning scheme, stated that the Panel must consider:

- *The existing use and possible development of the land and of surrounding areas. [and]*
- *The protection of the land and of surrounding land for its recreational, residential, agricultural, commercial or other values.*

In his submission, these components of local planning policy, together with a general capacity to have regard to the economic effects of proposals, have the effect of making valuation evidence relevant as an indicator of the effects of the project on the uses to which surrounding land might be put.

Other submitters were more direct about their view of Mr Jess' evidence. Mr Tim Le Roy had considered the quantum of loss in market value on the Kilsby property as an example⁵⁶. He had referred the quantum of loss to Mr Herby Webber, an advisor on pensions and investments who had estimated the degree to which the loss of such an amount of capital would affect returns to a self-funded retiree after sale of a farm. Mr Le Roy had also considered the degree to which the loss would affect the capacity of a farm property to offer security for borrowing and would result in a reduced capacity of the farm business to borrow. His concern was that if such circumstances were generalised to all properties within a certain radius of the project site, widespread and significant effects would flow in terms of security for borrowing and funding for investment and retirement in farming businesses and families.

Mr Ian Tuck took specific issue with Mr Ofor's evidence on the broader effects of property value loss. He accepted that it was tenable in Mr Ofor's words that wind energy facilities 'do not adversely affect property values once they have been erected'. However, he then argued that there was a one-off valuation loss attributable to such facilities. This was experienced at the point of construction and, whilst an impacted property would then continue to grow in value at a rate not dissimilar to that of un-impacted property, its value would remain proportionally less than that of un-impacted property, for the life of the facility.

Both Mr Le Roy and Mr Tuck spoke for themselves and summarised the views of others when they stated that there was also a broader issue of social equity and value transfer raised by the project. Mr Tuck's words best highlight this concern.

- (i) *the towers will provide participating farmers with levels of income not previously thought possible from their land; and*
- (ii) *this will be achieved at the expense of their neighbours and other affected farmers who will suffer a fall in land values and adverse impacts on their living and working conditions.*

⁵⁵ Document 141S

⁵⁶ Document 70(B)4

The few will experience great benefits but many will suffer as a result – on the grounds of social equity and justice this is totally unacceptable.⁵⁷

Specific valuation issues were also raised in the submission of Mr Steven Garito and Ms Jane Thackeray, resident at Toora. They provided their view that their property had experienced a substantial decline in value as a result of the construction of the Toora wind energy facility. This had amounted to a 24% decline in valuation over a period in which the windfarm was constructed and commissioned. This notwithstanding capital improvements to the property and a prevailing 18% capital growth rate for property in the Shire as a whole.

Rates notices for other Toora residents were submitted by Mr Le Roy under an agreement of confidentiality. These also showed on their face a decline in capital improved value over a period in which the windfarm was constructed and commissioned.

The proponent was at great pains to stress the inadequacy of John Jess' evidence as a basis from which the Panel could draw any sound conclusions:

We say that Mr Jess's "evidence" is not worth the paper it was written on and has served to increase fear and speculation in the community, rather than to provide a useful basis upon which the Panel can assess the potential amenity impacts of the proposal. Some of the fatal flaws in Mr Jess' "evidence" are:

- a) Not even one example of a comparable sale was provided in the valuation reports.*
- b) There was no analysis of the value of improvements.*
- c) There was no analysis of the carrying capacity of the properties. In fact, at one point Mr Jess said that carrying capacity was not relevant. He then said that, even though carrying capacity may have an effect, to a large extent the property's value is due to its location in the coastal strip.*
- d) Mr Jess said that he worked on the assumption that all of the properties could be subdivided down to 40ha and in his view, the Shire would have to grant a permit if a proposal met the minimum frontage requirements and other requirements. He said he was not familiar with the decision guidelines in the Rural Zone!*
- e) Mr Jess said that he did not work out the percentage reduction in land value by a financial assessment of the actual reduction of value of 40ha parcels of land, but rather he worked it out on his "gut feeling".*

What Mr Jess appeared to be asserting is that the choice as to whether people will buy land near turbines does not necessarily correlate with a reduction in amenity, but rather with a subjective perception by certain people about whether people they want to live in an area with turbines.

Further, we say that the Panel cannot possibly accept Mr Jess' unsubstantiated assertions, especially where the only credible study put before the Panel in evidence (ref section 4.6 Social Economic and Tourism Report, Appendix 10 SEES) shows that in the United States, properties within the viewshed of wind farms did not perform poorer than properties in a comparable region.⁵⁸

⁵⁷ Document 138S at pg 13.

⁵⁸ Document 149S at paras 493-5.

In relation to the Garito, Thackeray and Le Roy material pertaining to Toora, the proponent took the view that rate notices did not provide a good valuation. Pursuant to *Heard v City of Doncaster and Templestowe* (1986) 4 PABR 265 they should be characterised as 'mere figures', not as a 'good' valuation that could be persuasive in an assessment of amenity impact for planning purposes. Further, in practical terms, Mr Gobbo submitted that:

it may well be difficult to sell a property which has a large sign plastered to it saying "Mega What? Mega Noisy!", on a neighbouring property, regardless of the actual noise levels experienced at those properties.⁵⁹

In short, if there was a practical issue of saleability or valuation for property at Silcocks Hill in Toora, local residents were in part the authors of it, by what amounted to counter-advertising the merits of their own properties.

16.2.2 PANEL RESPONSE

Reviewing all of this material, the Panel must observe that there is little of a solid or persuasive nature on which it can reach what it would consider to be sound findings.

For the proponent, Mr Offor's contribution to the SEES on this issue appears honest and solid, as far as it goes. However, as Mr Offor was at pains to point out, he is neither a valuer nor an economist, so he lacks a direct professional basis on which to reach weighty and persuasive findings on material of this nature. He has undertaken a review. His review relies largely upon the findings of others, researchers, real estate agents and valuers, who were not brought before the Panel to be tested as witness in their own right. Whilst the Panel has no doubts about the veracity of Mr Offor's reportage on this issue, it can place little weight on his material as he is not its primary author. He is merely handing on the opinions and views of others.

Similarly, the Panel is not able to place much weight on conclusions drawn by Mr Le Roy and Mr Tuck, offered in submissions but not tested in evidence. Material on allocated pensions submitted by Mr Le Roy from Mr Herby Webber also suffers in weight because the author was not introduced as a witness.

Mr Jess did at least go through the process of exposing material based on his professional opinion to the test of Panel questioning and cross examination. By his own response to questions, he was not an experienced expert witness – although this alone is not a factor that should tell against him if his conclusions were otherwise sound. However, his responses to questions from the Panel and the proponent left the Panel with significant doubts as to how and on what basis he had struck figures for the valuation declines set out in his evidence.

In summary, his response was that these figures represented his professional experience, an intuitive response to apparent market conditions based on his knowledge of the local market. However, he had made no inquiries about the valuation effects of similar development projects on rural land elsewhere. The Panel considers that if one is to advance evidence that a particular form of use or development will cause a measurable decline in valuation on adjacent or nearby properties with credibility, it is essential to at least review the state of knowledge of market performance of similarly situated properties near equivalent constructed uses. Mr Jess did not do this and so his valuations remain little more than speculation.

⁵⁹ As above at para 492.

It also appeared to the Panel from Mr Jess' responses to questions that his he may have overvalued the amenity, lifestyle and development value premium argued to apply to rural land in the vicinity of the project site, by assuming what amounted to a 'right' to subdivide the many larger holdings down to the 40 ha subdivision minimum. He did not appear to be familiar with the subdivision provisions and particularly the decision guidelines in the Rural Zone. To this extent, it appeared to the Panel that he was not well placed to estimate the degree to which rural land has scope for further subdivision and development, and the degree to which this factor may contribute towards its value. That being said, as will be remarked further in relation to the Panel's consideration of land use issues in Chapter 17.4 below, Mr Jess' view of what was a 'reasonable' likelihood of subdivision or development potential in the Rural Zone is likely to have proceeded at least in part from the practice of South Gippsland Shire Council, which appears on its face not always to have fully responded to the purposes and decision guidelines of the zone.

Rate notices at Toora do suggest that there was a reduction in capital improved value for properties close to that windfarm, which came about at a time that coincided with its development and commissioning. However, the Panel cannot seriously entertain the view that it should make formal findings about valuation effects on the basis of such material alone, without a much deeper understanding, including an analysis of any independent or coincidental factors that may also have influenced values at Toora at that time.

All that appears to emerge from the range of submissions and evidence on valuation issues is the view that the effect of wind energy facilities on surrounding property values is inconclusive, beyond the position that the agricultural land component of value would remain unchanged. On this there appeared to be general agreement. It therefore follows that it has not been demonstrated to the satisfaction of this Panel that significant value changes, transfers or inequities would result from the project proceeding.

However, even if such effects had been demonstrated, they must be considered in the context of the Rural Zone, where the project and land argued to be affected by valuation change is located. The Rural Zone is not a residential zone. It does not from its purposes seek to safeguard residential amenity. There are many residents in the Rural Zone, but they live on the land, subject to the basic proviso that it can reasonably be used to meet the zone purposes and in accordance with its table of uses. This in turn limits the degree to which the planning system can be expected to protect residential amenity in the zone.

For example, the Rural Zone does not require a permit for uses including a Cattle feedlot of 1,000 head or less, Mineral exploration, Mining or Timber production, subject to relevant conditions. A permit is not required for most buildings and works for most agricultural purposes, as long as these are separated at least 100 metres from a dwelling in a separate ownership. Such buildings and works can include major stores and shedding, silos and the like. Associated impacts can include the bulk storage of feeds and wastes and transport movements for feed and stock. These are all uses, developments and operations on rural land that can be attended with impacts that would have a measurable affect on the amenity and lifestyle of a nearby resident, and quite possibly on the development value of nearby land for lifestyle (as opposed to agricultural) purposes. But, the zone permits them without a planning permit.

What does this amount to in terms of valuation? In short, it appears that the very purposes and provisions of the Rural Zone in the planning scheme anticipate the uncontrolled advent of a range of uses that could clearly affect and diminish the component of value that Mr Jess and Mr Offor agree could be affected by the project, the amenity, lifestyle and non-agricultural development component. Even taking the quantum of Mr Jess' effects on value as proven

(which the Panel does not, for reasons outlined above), the Panel does not consider that such effects on amenity, lifestyle, and non-agricultural development value of nearby land amounts to a significant environment effect. If it did so, then the corollary would be that similar order effects take place regularly in the Rural Zone, but without even a planning permit, let alone an EES being required. The Panel notes that the project extends over a wider area than a typical rural activity of the nature of that discussed above. However, its effects in relation to valuation, whilst extending to more properties, do not appear to be of a different order than those contemplated as normal for planning purposes in the Rural Zone.

For the purposes of making an assessment of environment effects, the Panel concludes that neither it nor the Minister can safely make any detailed finding about valuation effects on the material brought before the Panel. However, for reasons outlined above, it is not of the view that this is an issue that requires to be further addressed before an assessment can be made in this case.

Turning to planning permit considerations, the Panel makes clear that the inconclusive nature of evidence and submissions is not a concern, as valuation considerations would not have been relevant to a permit decision, as a matter of law. Further, it is concluded law that the only basis for the provision of compensation in the Victorian planning system is where land is reserved for a public use. Even if losses were demonstrated, the Panel would have no basis for recommendations that specific compensatory measures should be provided to individual property owners. So, under the current legal framework, the Panel cannot see the utility of requiring such information to form part of the planning decision framework.

The Panel can appreciate that members of the local community who own land adjacent to or near the project site are concerned about the possibility that their asset values may decline and the affect that this may have on their personal and business lives. There is little tangible evidence upon which to predict whether adverse effects will occur. Even taking evidence offered for objectors as being likely to eventuate (a proposition that the Panel does not in any case accept), the order and nature of the effect does not appear to be unwarranted in the Rural Zone.

In so far as it may be a relevant consideration to the EES and SEES process, the Panel notes that some valuation effects may occur. These would not be untoward having regard to the purposes and decision guidelines in the Rural Zone. That being said, valuation considerations are not a relevant consideration for the purposes of a decision on a planning permit.

16.2.3 EMPLOYMENT

Issues of employment were ones where opposing submitters and the proponent were in what amounted to loud agreement on the facts, if maintaining disagreement on the consequences of those facts or the propriety of the proponent's actions.

Unlike a number of previous wind energy facilities considered for planning approval, most notably Toora and Portland, Bald Hills has not been the subject of assertions about significant consequential employment and economic benefit in the region, Victoria or Australia.

Mr Matthew Townsend of Counsel for Tarwin Valley Coast Guardians had noted that the original Toora proposals was accompanied with predictions of 38 local jobs. The Portland process included predictions of significant regional employment, due to inward investment in wind energy technology manufacturing. Many submitters observed that the high end jobs

growth figures predicted in these cases had not eventuated. They noted the scepticism of the Portland Panel about the degree to which jobs growth would eventuate in that case. They suggested that similar results would flow here, with very limited community benefit flowing from ongoing (as opposed to construction) employment. They also noted that many of the high value and high technology components of the wind farm would be imported, leaving construction benefits to flow off shore.

However, the proponent did not seek to dispute the likelihood of a low ongoing employment scenario or its choice of significant volumes of high value imported componentry. Some \$95 million of the project budget was likely to be expended within the region and between 50 and 80 construction workers might be required. In terms of ongoing employment, the project would result in some 8.8 equivalent full time jobs, of which 4 would be in mechanical and electrical trades required for servicing and the remainder would be due to the multiplier effects of initial expenditures, a figure that was validated by Garrad Hassan. The proponent's conclusion was that:

The predictions in the economic report are reliable and will result in a small but tangible increase in job opportunities in the local area and the State.

A number of submitters were strongly concerned that during the assessment process, the Victorian Minister for Energy and Resources had issued a press release, 'Jobs Boost for Wind Energy in Victoria'⁶⁰. This heralded a collaborative venture between Elliott Engineering (a tower manufacturer), Bolwell Corporation (a blade manufacturer), RE Power, the supplier of turbines to the current project, EDI Rail, an assembly, maintenance and service business and Wind Energy Pty Ltd as a project manager and wind farm operator. The 'Victorian Wind Energy Network' (or VWEN) would enable wind turbine blades and towers to be manufactured and assembled in Victoria for Australian and overseas projects.

Submitters were of the view that a Ministerial announcement of this nature compromised the independence of the Panel hearing and pre-determined the Panel's recommendations and the outcome of the current case.

The proponent's response was to highlight that the Victorian government had no financial interest in this collaboration. In its view, the Minister for Energy was seeking simply to facilitate the creation of jobs in the energy sector in Victoria. Further, Mr Gobbo of Counsel submitted:

[A]t no stage has the Proponent sought to rely upon that local manufacturing to justify this project going ahead. However, it would obviously be beneficial to the economy if local manufacturing was established ...

The VWEN has been in the pipeline for a long time – well before the Panel hearing was shifted from last year to this year. It was not planned to co-incide with this Panel hearing, and the fact that it has co-incided is irrelevant to this panel process. We say, if anything, the proponent should be congratulated for facilitating local manufacturing, not castigated for doing so.

⁶⁰ TLR 70(B) 46 – press release of the Minister for Energy and Resources, 28 March 2004.

16.2.4 PANEL RESPONSE

First considering construction, the Panel has no reason to doubt that the project will be the subject of a substantial civil engineering contract if it goes ahead. This will result in significant regional expenditure, sourcing labour and locally available plant and materials. Likely local inputs would include excavating and grading, aggregates, concrete batching, trenching, drainage and cabling. It appears likely that in the region of 50 to 80 jobs may eventuate, although these will of course be temporary in nature, at least in relation to this project. The employment and economic contribution of such projects is best analysed in terms of sustaining an ongoing civil construction and contracting sector than in the 'creation' of jobs per se. However, in terms of the local and regional economies, these inputs would be temporary and are not highly weighted. (Very few but the largest construction projects are of a scale to provide weighty ongoing benefits in these terms.)

In terms of ongoing employment, the Panel considers that it is quite refreshing that the proponent in this case has not sought to rely on predictions of significant direct or indirect employment or inward investment as arising from the project. It has simply been the proponents' view that the project stands on its own merits, without there necessarily needing to be an argued significant employment or economic benefit. It is therefore no part of the proposal before the Panel that it will do significant harm in (for example) landscape or natural environment terms, but this harm should be de-weighted in the mind of the decision maker because it is balanced by some greater or over-riding economic benefit.

In the Panel's view, this approach to assessment has recognised that previous projects have made assertions of employment or economic benefit that have turned out not to be fully substantiable and used these to call for trade-offs in less than transparent terms. It has also lent significantly to the clarity with which the balance of economic as against other benefits can be assessed. The Panel considers that this aspect of the EES and SEES process is one that can be highlighted as being the product of clear and rigorous analysis, leading to a conservative estimation of effect.

It follows that the Panel has assessed the project in terms of a relatively small ongoing economic benefit of approximately 4 FTE direct jobs and between 3 and 4 FTE indirect jobs.

Turning to the issues raised about the VWEN and the relationship between this initiative and the project, the Panel would observe that, if successful, the VWEN might reduce the level of economic benefit flowing from construction of this project that might otherwise move offshore. However, the proponent has not sought to advocate the VWEN as a benefit of the project. Nor has it sought to quantify the effects that a successful VWEN might have on project economic benefits. On balance, the Panel considers that this conservatism of analysis is correct, particularly as the proponent maintained that this project and the VWEN have no direct linkage and that either could proceed without the other.

The Panel has turned its mind with some care to consider the view that the Ministerial announcement of the VWEN in some way prejudices the independence or outcome of the Panel hearing. This was a matter on which directions were sought during the hearing and verbally provided. However, the Panel considers that the thrust of its direction deserves reiteration here.

The Panel notes that it is an independent entity, appointed on agreement of the Governor in Council by the Minister for Planning. It reports its findings and recommendations to the Minister for Planning for her making of an assessment of environmental effects and determination of planning permit applications. However, beyond the Panel's letter of appointment, terms of reference and the assessment guidelines for the EES, the Minister for Planning has no direct communication with the Panel at all. The only means by which she could have such communication is to become a party and to make a submission, using exactly the same means as that used by all other submitters. It thus follows that the relationship between the Panel and the Minister for Planning is at arms length and transparent.

Further, the Minister for Planning is not the Minister for Energy and Resources. The Minister for Planning is not bound in her powers in relation to this case by any announcement of the Minister for Energy and Resources in relation to the VWEN.

Further, the Minister for Energy and Resources cannot communicate with the Panel about the VWEN unless he becomes a submitter in the normal way, again assuring a transparent and arms length relationship. That Minister has not sought to become a submitter and so the Panel has given no weight to his announcement.

It flows from these circumstances that the Panel does not consider that the Minister for Energy and Resources announcement of the VWEN during the Panel process impacted on the independence of the Panel or in any way affected the Panel's ability to consider submissions, or the Minister for Planning's capacity to consider the Panel's report.

The construction phase will provide significant if temporary employment, equivalent in nature to that typical for major civil engineering projects. The project will have limited direct and ongoing employment benefits (in the region of 4 FTE jobs). It will have limited indirect employment benefits (in the region of 3-4 FTE jobs).

16.2.5 TOURISM

A number of submissions raised concerns about the potential adverse impact of the project on existing and potential tourism. It was widely acknowledged that the project site was located in a portion of the Victorian coast that, having regard to its proximity to Melbourne and to major tourism drawcards such as Phillip Island or Wilsons Promontory, had not received the levels of visitation that might otherwise have been expected. This was largely due to the fact that high tier routes do not pass through the area and that, until relatively recently, the through route for anyone wishing to pass along the coast had included unsealed sections in the Walkerville – Mount Liptrap area.

That being said, the area was seen by many as part of the 'Gateway to the Prom'. Farm Stays and Bed and Breakfast accommodation formed a component of the income of some submitters such as the Svenson and Fairbrother families. Others owned rural property as holiday homes or 'getaways', such as the Le Roy's. More traditional coastal holiday and rental homes were found at the Walkerville townships, Prom View Estate and in the wider region, at Inverloch, Venus Bay, Waratah Bay and Sandy Point.

For a range of submitters engaged in tourism, there were concerns that the project would adversely impact on the setting and attractions of their particular property or enterprise. For others, there were concerns as to the market position of the region as a tourism destination. It was argued that visitors who did not respond positively to a wind farm would no longer be

attracted to the region, leading to a consequent decline in its tourism market share. Further, there were concerns about reductions to future tourism growth potential on a similar basis.

Tourism related issues having been raised in submissions, the Panel requested the proponent to ensure that direct analysis was provided in its evidence. Some of the social research undertaken by Mr Tim Offor had addressed tourism issues, but Mr Offor was not holding himself out as an expert in economic or tourism disciplines. On this basis, Economist Mr David Cotterill was commissioned from Sinclair Knight Merz to undertake a review of the tourism market conditions of the region and to evaluate the potential effects of the project upon it. Mr Cotterill's broad conclusions were as follows:

- Despite the icon status of Wilsons Promontory, the wider tourism region as defined by Tourism Victoria was ranked 10th of 12 in terms of international visitation.
- Similarly, in domestic terms, tourism visitation to this region was not as significant a driver to the economy as it was in other regions.
- There were limited numbers of visitation opportunities or 'attractions' in the region.
- There were limited numbers of tourism accommodation establishments, even taking account of significantly developed areas such as Venus Bay.
- There was no conclusive evidence to the extent that large numbers of tourists or potential tourists would be discouraged from visiting the region by a wind farm or wind farms.
- For some visitors, (although again this was likely to be a small number), a wind farm or wind farms might be an added attraction.
- The primary route through the project site should not be considered as a coastal road and was likely to remain little used in relative terms, for although it provided a link along the coast, this link was indirect.
- On balance, the project would have little impact.

From her perspective as a local tourism business operator, Ms Sue Svenson had several concerns about the accuracy of Mr Cotterill's evidence. These can be summarised as follows:

- Mr Cotterill had significantly underestimated the numbers of accommodation units available within the region.
- He had not had regard to available figures on visitation, with figures produced for the South Gippsland Shire apparently accounting for known visitation to Wilsons Promontory alone. This then failed to account for the 200,000 visits to the Venus Bay section of Cape Liptrap Coastal Park recorded in Parks Victoria figures.
- His analysis of tourism related employment was disputed.
- He had correspondingly produced an unduly depressed view of the contribution and prospects for tourism as a contributor to the local economy.

A yellow dot map was produced, seeking to itemise accommodation opportunities by location. Input was also provided from a tourism study in progress, commissioned by the South Gippsland Shire Council.

Ms Svenson was also concerned about her own tourism business, providing cottage style accommodation.

There was also considerable debate about the role of the Tarwin Lower – Waratah Road. Issues brought before the Panel included the degree to which this functioned and was promoted as a tourism route and/or coastal road, together with the degree to which it could be promoted to do so. Official Phillip Island and Gippsland Discovery tourism brochures were

produced for the Wildlife Coast Nature Trail and the Heritage Trail, passing along the Tarwin Lower – Waratah Road. These leaflets also directed visitors to destinations in the area including the Walkerville townships, Cape Liptrap Lighthouse and the Cape Liptrap Coastal Park walks.

Mr Cotterill responded by acknowledging that his estimate of accommodation was probably on the low side. This had come about because it was produced swiftly, using public domain data readily to hand. It was clear that locations such as Venus Bay had relatively limited numbers of 'traditional' accommodation providers, in the sense of hotels, motels and bed and breakfast establishments. However, it did have a large number of more or less available holiday rental opportunities. These varied between dwellings formally on the holiday rental market, to opportunistic lets of holiday cottages, negotiated between friends. This however was a market that was difficult to quantify. Much formally available accommodation was advertised in more than one location – leading to over counting. Other accommodation was patronised informally or by word of mouth, leaving little direct trace for a researcher attempting to analyse the market.

In terms of visitation, Mr Cotterill considered that his analysis and that produced for the Shire could be reconciled. He had stated a figure of 350 to 400,000 annual visitors to South Gippsland Shire. He distinguished a visitor from a visit to a place, and noted that one visitor may well produce visitations to many different places and multiple visits to the same place. One cannot aggregate the visitation figures from attractions, or those produce by Parks Victoria, and thereby gain a number of visitors to the Shire. In closing remarks he clarified that 350 to 400,000 annual visitors would equate to in the region of 600,000 visitor day/nights. Within such a context, 200,000 visits to the Venus Bay section of Cape Liptrap Coastal Park was feasible.

Mr Cotterill noted that there was in any case significant 'rubberiness' around tourism and visitation figures, with Tourism Victoria and Parks Victoria sourced figures both being subject to acknowledged methodological difficulties. However, they were the best available.

In relation to tourism related employment, Mr Cotterill relied on ABS census data as his source, which he was clear was reliable and provided a good comparative indicator from which to suggest that tourism was a present but not a major contributor to the economic life of the region. Again, he made clear that the data was presented in terms of full time equivalent employment (FTEs). Tourism employment was typically seasonal and/or part time. For example, 10 holiday rentals employing weekly cleaners would not in these terms amount to 10 jobs – significantly less than 1 FTE might eventuate from the aggregate of these and more engagements.

There was a residual issue about the definition of tourism for the purposes of evaluating its contribution to the local economy. A number of submitters were concerned to point out that South Gippsland Shire and the adjacent Bass Coast had experienced a boom in house prices and construction. Many of dwellings were occupied part time as holiday accommodation. Others were occupied full-time but by retirees. This was a contributor to the economy that was akin to tourism as it relied on the natural values and attractiveness of the region as a place to live. Mr Cotterill was unable to add much to this debate, falling as it did across a line in current data and understandings of the boundary between tourism and residence.

Finally, the Panel notes the discussion about the value and location of a wind energy facility visitor interpretation centre as a component of the proposed development. As submitted,

plans show this to be located south of the Tarwin Lower – Waratah Road, between proposed turbines 35 and 36.

A number of submitters questioned the degree to which this could have any material effect in offsetting harm to tourism otherwise likely to be caused by the project. Some suggestions also arose that if the development did proceed, an interpretive facility might better be located in tandem with the entrance and visitor interpretation area for the Bald Hills Wetland Reserve.

On balance the proponent considered that its initially chosen location was probably best, as it was on the main road. However, it did not oppose and was prepared to fully consider proposals for alternative locations.

The proponent did not seek to raise tourism visitation as a key benefit of the project, stating only that wind farms tend to make passing traffic stop and that it was looking for a safe and well presented opportunity to provide public information about the facility. The potential for 'wind farm tours' was noted.

16.2.6 PANEL RESPONSE

The key issues as the Panel sees them are:

- the degree to which areas within the project viewshed are subject to significant visitation by tourists; and
- the degree to which the presence of the project might affect tourism visitation.

This in turn breaks down into two broad evaluation areas:

- broader effects on the region; and
- immediate impacts on tourism businesses close to the proposed wind farm.

The Panel commences by observing that the broad region is one in which tourism occurs, but, to the extent that Tourism Victoria and ABS statistics provide a comparative window, is not the 'jewel' in Victoria's crown. That being said, there are clearly key tourism destinations within the region, with Phillip Island destinations and Wilsons Promontory leading these. More locally, the Panel notes considerable tourist activity at the Venus Bay beaches, Walkerville townships and at Cape Liptrap.

The Panel considers that landscape and wilderness values and visitors perceptions of these can be a key motivator in determining choices of tourism destination. There are some who might choose a destination because of the presence of a windfarm. However, equivalently and more likely, there are some for whom this factor will not be an attractor, particularly if the wind farm is perceived as having had a detrimental impact on otherwise high quality landscape or wilderness. The Panel can be no more concrete than this because, turning to the reviews of windfarm impacts on tourism elsewhere in Australia and overseas, this is about as certain as the evidence gets.

However, in the Panel's mind, one significant issue in tourism impact assessment is the degree to which a proposed wind farm is itself located at a tourism destination, sited and designed in a manner that is likely to significantly change the perceived values of that destination. This issue was relevant at Cape Bridgewater, where the Cape township and surrounding landscape features had been promoted for some time as a key tourism destination for the far western division of the Great Ocean Road region, in a manner that

relied upon landscape values. The profile of Stony Hill, the main eminence of Cape Bridgewater, was widely used in promotional literature for the attractions of that region, as was the Cape Bridgewater surf beach. The PWEF project as originally configured would have substantially affected views to and from these places. It therefore had the potential to significantly change the attitudes of visitors and potential visitors about the place and the region.

The Panel has asked itself whether the same is true of the current project in its site? The answer however is that it is not. The Bald Hills themselves are not a key destination in the Phillip Island and Gippsland Discovery Region. At most, the hills are a location past which visitors may travel, assuming that they choose to use the Tarwin Lower – Waratah Road. As the Panel has observed above in its consideration of landscape issues, this road is not the most direct link between key destinations. However, it is promoted in official tourism literature, forms part of touring route 97 and will clearly experience tourist traffic. The Panel judges that, having relatively recently been completed as a sealed route, this road has the potential to see increased tourism promotion and traffic.

People will be attracted to visit the region by key attractors such as Wilsons Promontory. They will also visit locations such as the Walkerville townships, the Cape Liptrap Lighthouse, walks in Cape Liptrap Coastal Park, the Venus Bay beaches and the Tarwin River boardwalk. Once in the region or en route, some may pass through the proposed wind farm site in the process of visiting some of these locations. Others may visit the Bald Hills Wetland Reserve.

With the exception of some capacity to view the turbines from the Cape Liptrap Coastal Park foreshore accessed from Five Mile Track and the Bald Hills Wetland Reserve, the Panel does not consider that the project will have any assessable impact on the region's tourism destination offer. This is largely because the tourism destinations concerned either experience no landscape impact (because the proposed development will not be seen) or only the most limited and insignificant of impact that is in turn unlikely to alter visitor behaviour. Certainly, the Panel does not consider that the project would deter a person who might have visited the Walkerville townships, Cape Liptrap Lighthouse or the Venus Bay beaches from doing so.

The Panel has given detailed consideration to the Cape Liptrap Coastal Park foreshore accessed from Five Mile Track and the Bald Hills Wetland Reserve in its consideration of landscape impacts above. In relation to the coastal park foreshore it has assessed that harm to landscape values would be limited but on balance acceptable. It also noted the view that levels of visitorship to the impacted section of the coastline were not high. The Bald Hills Wetland Reserve would be unavoidably impacted and the Panel concludes that this may have some effect on its choice as a destination by some visitors. On balance the Panel has there recommended mitigation works to control views to turbines from the wetland bird viewing area. It has also formed the view that the entrance to the reserve, as an existing tourism destination, might have some complementarity with a possible wind farm visitor interpretation facility.

Having examined destinations, the Panel then turns to consider the road itself. Is there any view that tourists who would otherwise have used the road to access an unaffected destination, might not use the road or choose a different route to their destination? Here the Panel has even less firm material to make a finding. However, it is clear that, to the extent that there are windfarms in locations such as Codrington, Ararat or Toora, it has not been suggested that their presence has somehow 'blocked' the movement of tourist traffic past them, or diverted tourists onto other routes.

Turning to issues around the definition of tourism, the Panel acknowledges that the South Gippsland Shire is a 'sea change' locality, a place that has experienced a growth in housing construction and prices due to an influx of people wishing to purchase coastal holiday homes or retirement dwellings. Changes to business patterns, with greater home working and 'telecommuting' may also be facilitating some housing growth. That being said, the Panel has also had regard to the planning scheme and the coastal action plan in considering where the bulk of such growth is likely to occur. Other than in the most limited of senses, due to the subdivision of rural land (about which the Panel has in case expressed reservations elsewhere in this report), the Panel cannot see any likelihood of this sort of development taking place at or around Bald Hills. The growth of Walkerville appears likely to remain constrained by infrastructure considerations. Venus Bay appears to be the nearest likely growth location in this sense, but is not significantly affected in landscape terms. It therefore appears to correct to find that the wind farm is not likely to have any materially adverse effect on tourism business, considered in terms of the continued prospect for growth in the market for new housing, used as tourism accommodation.

There may well be some possible or potential instances where future tourism opportunities might be lost due to the wind farm. Assuming that, subject to permit, a neighbouring landowner wished to pursue some landscape or nature based tourism accommodation or interpretation business, it is also possible to foresee that locations close to an operational wind farm might not be as attractive for such development as they are at present. However, that being said, the Panel received no detailed submissions to the extent that any such proposal were seriously contemplated. Even if such proposals had been contemplated or even approved, relatively little weight could be placed on their prospects for planning purposes, until they were actually constructed. The Wonthaggi Wind Farm Panel considered effects on an approved country cabins proposal and reached this position, in this Panel's view quite correctly.

Turning to existing local tourism businesses, the Panel considers that there may well be some localised adverse impact. Examining the Fairbrother family bed and breakfast business, the Panel notes that its proximity to the wind farm may be seen as unattractive by some visitors. The business is located within 1.6 km range of a significant number of turbines over 145° of horizon⁶¹, subject of course to some vegetative screening. It would experience views to skylined turbines along the Bald Hills ridge. In these circumstances, new bookings and repeat visitations may be harder to achieve than at present. These effects are difficult to quantify in business terms without much more detailed attitudinal data than the Panel has to hand. However, for that particular business they may be significant.

However, that being said, the Panel is not aware of any other formal tourism business located at this range to the project site, or in a site that would lead to such effects on a visual setting. The bed and breakfast cottage operated by the Brown family would experience open views from its veranda on the crest of the Mount Liptrap – Hoddle ridge towards the project site. Turbines would be viewed at a 6km range, in the region of 37° of horizon⁶². There is little that could be done about this, as the key attribute of this cottage is its open westward view. Planting to enclose the view would completely change its character and outlook. However, the turbines would not be dominant at this range. The environs of the cottage will also retain

⁶¹ This is a CAD derived figure.

⁶² This is a GPS electronic compass derived figure and is subject to the accuracy limitations of that hand held device in the field.

the attractive setting of the ridge and the capacity to obtain views to Waratah Bay and Wilsons Prom from nearby locations.

The Svenson business is located at between 4.8 and 11.4 km distant from turbines and these would extend over in the region of 29° of horizon⁶³. They would not be located on a dominating ridge. They would be capable of absorption within the scale of foreground planting. There would be many unimpacted views and vistas in the region of the business.

The Panel considers impacts of the order of those experienced by the Browns and the Svensons not to be in any way untoward. On balance, the Panel considers that whilst the impact on the Fairbrother tourism business is likely to be significant, there is no other tourism business on which the project is likely to have a tangibly adverse effect that is not capable of extensive mitigation in a manner that would leave the essential character of the location little changed. Further, the Panel can see no direct means of tangibly improving the impact on the Fairbrother business without relocating many turbines, which on the balance of a wide range of other considerations it is not prepared to recommend.

In reaching this conclusion, the Panel notes that tourism businesses in this location do rely on the Prom as an attractor. This element of attraction will not be lost as accommodation restrictions within the National Park will continue to deliver visitation to surrounding areas for the foreseeable future.

Turning finally to the issue of a windfarm visitor centre, the Panel agrees with submitters who do not see this as likely to make a tangible difference to the tourism offer of the locality. The Panel observes that there may be some attractor function in early years. Passing motorists may stop. However, as wind farms become a more ubiquitous feature of rural Victoria, the likelihood of visitation would decline. However, in considerable contrast with Portland, here the proponent has placed no reliance on a visitor centre or major tourism benefits as a means of positioning the project against otherwise unacceptable social, economic or environmental effects. A visitor facility was seen as a desirable add-on and no more.

If the wind farm itself proceeds, the Panel can see no planning reason why a modest visitor facility of the type envisaged by the proponent should not also proceed.

In terms of location, the Panel has noted submissions about the potential for co-location with the Bald Hills Wetland Reserve. For reasons set out in Chapter 9 above, it considers this option is tenable and worthy of further investigation. However, on balance, if co-location does not prove feasible for reasons that cannot be foreseen at this time, the Panel sees no reason why a visitor facility could not proceed at the SEES exhibited location.

Detailed arrangements in relation to access, parking and the construction of interpretative facilities should be the subject of a plan prepared to the satisfaction of the Minister for Planning, before the construction of these facilities goes ahead.

The project is likely to have some adverse impacts on one local tourism business. On a balance of a wide range of other considerations, these impacts cannot be mitigated by changes to the siting or design of the wind farm. Other local tourism businesses will not be significantly affected.

⁶³ This is a GPS electronic compass derived figure and is subject to the accuracy limitations of that hand held device in the field.

The project will not harm the wider tourism profile of the region and is considered to be acceptable in these terms.

A visitor centre is a valid component of a wind farm development, but is unlikely to have a material effect on tourism visitation to the region. However, the project does not rely on significant visitation to such a facility.

For convenience, recommendations from Chapter 9 above in relation to tourism effects on the Bald Hills Wetland Reserve and the location of the wind energy visitor facility are set out again here. Readers are referred to that chapter for detailed reasoning.

Parks Victoria should consult with users of the Bald Hills Wetland Reserve to determine options and costs for the relocation and reorientation of the walking track and bird hide in the reserve, to ensure that turbines cannot be viewed from the bird hide. Detailed design should take place following construction of the wind farm. The proponent should be required to enter into a legal agreement requiring it to cover the reasonable cost of this work.

Parks Victoria, the Proponent and Stakeholder landowners should enter negotiations to determine the possible value, content and design of a combined wind energy and reserve interpretation facility located at or near to the current entrance to the Bald Hills Wetland Reserve.

In relation to this recommendation however, the following finding should also be noted.

Further to investigations about the location of the wind energy interpretation facility, should it not prove feasible for this to be co-located with the Bald Hills Wetland Reserve, there are no basic reasons why the exhibited location should not be pursued.

16.3 SUMMARY OF FINDINGS

Drawing together its findings on economic issues, the Panel considers that the proposed wind energy facility may cause some valuation impacts in relation to the lifestyle development value component of immediately adjacent land. It will not affect agricultural land value. Having regard to the purposes and decision guidelines of the rural zone, the Panel considers that such valuation effects as may occur will not be untoward: similar effects are contemplated in the rural zone with regard to a wide range of use and development that meet the purposes of the zone, such as code compliant cattle feed lots.

The Panel has made findings in relation to valuation strictly in relation to the EES and SEES processes, noting that for planning purposes questions of valuation are not directly relevant to permit decision making by the Minister for Planning.

In relation to economic benefits, the project will have significant but transitional benefits through construction expenditure and employment. It will have limited ongoing employment benefits (in the region of 8 FTE jobs).

In relation to tourism, the project will have no tangibly adverse effect on tourism visitation to the region and is acceptable in these terms.

The project will have limited and acceptable impact on local tourist accommodation businesses.

The project will have an adverse impact on the Fairbrother tourist accommodation business, due to the proximity of that business to the project site and its situation beneath the Bald Hills Ridge. However, on a balance of other relevant considerations, the Panel considers that no siting or design steps can be undertaken to mitigate this.

The Panel has considered impacts on the Bald Hills Wetland Reserve in its landscape considerations above.

17. SOCIAL EFFECTS

The purpose of this chapter is to set out an analysis of the social effects of the project before the Panel. In doing so, it is pertinent to remark that two broad fields of social effect were remarked upon in submissions:

- the social effect of the project development and approvals processes, including the EES process; and
- the ongoing social effect of the project in situ, if it were to be permitted.

17.1 ISSUES RAISED

The issues raised were in summary terms as follows:

- It was suggested that the local community strongly opposed windfarm development, in contrast with other communities, (viz Ararat, Codrington or Portland) argued to support them. It was suggested that such projects should be located in places where there was community support.
- Concerns were focussed on the community division that had emerged from the project assessment process. The local community was seen as being strongly divided between the minority who supported the project and would benefit from it financially, and the majority who would not and would not.
- This division was argued in turn as having caused damage to or loss of valued social institutions.
- It was suggested that approval could result in further damage to or loss of valued social institutions, or decisions by individuals to leave the district.
- The proponent's means of social impact assessment was strongly criticised, with views expressed that little real opportunity had been provided for community input to siting or design evaluation in the early stages.

17.2 CRITERIA TO BE MET

With reference to the Panel's identification of sources of relevant legislation and policy above, the Panel considers that the appropriate criterion should be:

To provide for an ongoing diverse and rewarding social life in the Tarwin Valley and Liptrap area and the reduction of social conflict.

17.3 DISCUSSION

17.3.1 SOCIAL HARM

Many submitters were concerned that the project would lead to considerable social harm if it went ahead. Divisions created would harm the ongoing life of voluntary entities that contribute so much to the social life of and service provision in a rural community.

However, almost irrespective of the social effects of the proposed development if completed, others considered that simply the project development and assessment process had led to divisions in the local community that would prove almost impossible to heal.

These concerns related to the division emerging between agricultural neighbours, where one proposed to host turbines and another was a passionate opponent of the project. Mr Don Jelbart, Mr Don and Ms Dorothy Fairbrother, Dr Murray and Ms Di Hooper, Ms Jenny and Mr Paul O'Sullivan amongst others referred to the effects on the local community that such divisions had already had:

- Previous friendships had come to an end.
- Agricultural cooperation between neighbours, most clearly represented by a beef rearing discussion group that had existed in the locality for many years, had been placed on hold and may not resume. However, this issue was also manifest in less formal ways, for example through the withdrawing of normal 'neighbourly assistance'.
- Local community support and voluntary assistance based on mutual aid principles had been disturbed and reduced, for example, contributions to sporting clubs, the school council and the fire brigade.
- The efficient operation of businesses (such as Dr Hooper's Veterinary Practice) had been affected where proprietors stood on opposing sides of the wind energy debate. The amount of (economically unproductive) time devoted to the debate had also detracted from the good operation of largely farm businesses in the locality.

Some of these effects were argued to be capable of healing, should the project not eventuate. However, some were argued as likely to extend to affect the community adversely on a long term or ongoing basis, even if the project were not to be approved.

Concerns also related to the way in which the proponent's community consultation programme had been undertaken and the way in which information had in turn been fed back to the local community. It was suggested that:

- The community had not been adequately consulted about 'special considerations' in terms of landscape significance, site layout and design and hence arguable opportunities for project impact mitigation had been missed. This is an issue that is addressed further in relation to landscape in Section 9 above. However, it was also argued to hold good in relation to natural and cultural environmental considerations.
- Individual potentially affected landowners had not been consulted, in the sense of receiving direct contact from the proponent or its consultants. Opportunities to feed back views into the development process had therefore been missed. The proponent was also argued to have exacerbated community opposition through discourtesy.
- Community consultation meetings had resulted in the emergence of conflicting information about the environmental benefits of the project and suggestions that turbines had been located to annoy members of the local community as opposed to for objective purposes.

- The project configuration had changed on a number of occasions, in a manner that appeared more calculated to disenfranchise the community from genuine involvement than to respond to valid concerns. Commencing as a relatively limited scale project, it had grown to 84 turbines, before dropping back at the doorstep of the originally scheduled EES Panel process to the current configuration.
- The proponent was also argued to have other land in the locality in mind for wind farm development – most notably at Grass Tree Hill, Powney's Road and the Hoddle Range, whilst seeking to mislead the community and the Panel that the current Bald Hills project represent the maximum extent of likely development.
- Petty disruptions had included the tearing down or defacement of anti-wind farm protest signage erected on private land.
- The nature of the consultation process was so flawed as to represent a breach of the DSE assessment guidelines.

Mr Tuck was concerned that the proponent had not facilitated visits to the project by local community until in effect compelled to do so through the open public site visit process adopted by the Panel as part of its hearings. He considered that the proponent had denied natural justice to the opponents of the project.

These issues were argued to have engaged the community in unwarranted work to oppose the project and above all to have exacerbated disputes and conflicts, resulting in much more serious community division than need have been the case. Mr Tuck again drew these issues together by making clear his view that there was a strong community distrust of Wind Power Pty Ltd., that in his view that body's conduct of the consultation process had brought this distrust upon itself, the proponent having:

...lost few opportunities to get the community offside.

By its lack of preparedness to consult meaningfully with the community, and through many inappropriate statements and actions, it appears to have deliberately sought to grind down and disempower the Tarwin community. The community is deeply divided and traumatised. I believe the situation with Wind Power is beyond repair.⁶⁴

The proponent openly acknowledged that as Bald Hills and Wonthaggi were its first major projects run concurrently, these had provided a steep 'learning curve' in the design and implementation of EES processes. It acknowledged that mistakes had been made and highlighted the difference of approach between the analysis of social and community impacts in the EES and the SEES as representing learning in action.

Up to the point of the EES exhibition, the directors of Wind Power Pty Ltd had made a decision to undertake community consultation in house, rather than employing a consultant with expertise in this field. Experience emerging from the first round of exhibition and the Wonthaggi process had led the proponent to then appoint an independent expert, Mr Tim Offor to advise during the SEES stage. It was in turn appreciated that, as a matter of principle, similar expertise should be engaged from the outset of any major project.

⁶⁴ Document 138 S at pg 10.

In his closing submissions, Mr Gobbo of Counsel for the proponent freely admitted that concerns arising from the public process had largely arisen from the pre EES stage, when consultation was handled in-house:

Despite his endeavours, Mr Buckle has not hit a wavelength with the local community. He has been the focus of much animosity. It may be that on occasions he was glib, insensitive or even rude. His attempts at humour may have been misinterpreted. No doubt there have been occasions when he would have found his opponents difficult to deal with. However, it is not the Panel's task to sort out this history. We submit that Mr Townsend [of Counsel for the Tarwin Valley Coast Guardians] had the right approach to this matter – it didn't rate a mention in his closing submissions.

Critically, the proponent made clear that it had had no intent to deceive or mislead the local community. What had sadly occurred was what the Panel in questioning had characterised as a large scale exercise in the game of Chinese Whispers, where the lack of a concerted and comprehensive consultations and communications strategy had led to facts and issues about the project becoming disseminated slowly through the community. Once local rumour became a primary information source for many parties, there was inevitable damage to the clarity and accuracy of information. Assertions such as that the proponent had additional land in hand for development at Powney's Road or the Hoddle Range were simply false.

The proponent was unapologetic about the decision to change the configuration of the project from 84 to 52 turbines. It identified this as being a clear means by which it could respond to widespread concerns in the EES submissions, reducing landscape impact whilst broadly retaining power output and greenhouse benefits.

Assertions that representatives of the proponent did not consult with individual affected land owners or did not intend to do so were rejected. In relation to close landowners such as the Fairbrother or Uren families, visits had been made and calling cards left, but meetings at mutually convenient times had not been scheduled. In other cases, properties had been unoccupied and gates locked, or the proponent's representatives had been instructed to leave. In relation to properties at some distance to the site such as that jointly held by Mr Tuck and the White family, the proponent simply could not see the relevance of undertaking individualised consultations. If an individualised consultation with landowners at a 5km range was necessary, then a proponent on a wind energy project would need to individually meet many thousands of people upon whom there would be little objective measure of direct impact, should the project proceed.

The proponent also made known its view that misinformation had been issued by opponents and opponent groups. It made reference to the 'fact sheets' "Don't Bugger Up the Coast" issued for Tarwin Valley Coast Guardians, which included statements such as:

- *Wind power generation is one of the most expensive sources of "green" power. [or]*
- *Developers not obliged to dispose of obsolete wind power generators.⁶⁵*

Turning to the effect of the acknowledged shortcomings in consultation design, the proponent took the view that these should only effect the outcome in the following circumstances:

⁶⁵ "Don't Bugger Up the Coast" Fact Sheet No 2: TVCG 14 September 2002.

The Chair asked the question whether there could be a circumstance in which the communications strategy is so disastrous that it started to generate substantial levels of community disbenefit that ought to be considered in the planning process or whether a transitional process occurs whereby once the decision is made, the communications strategy effects come out in the wash?

Mr Offor's response was that:

- *a project such as this will create some rifts irrespective of the way it is rolled out; and*
- *he has never struck a situation where it takes people longer to deal with the decision once it is made because of flaws in the consultation process...⁶⁶*

The proponent was clear that its witness Mr Offor had willingly disclosed the flaws in the process in his paper for the SEES and in his evidence. They had not been 'dragged' from him in cross examination. The Panel was therefore entitled to rely upon his assessment as being fair-minded, independent and rigorous. Further, the flaws were of process, not substance. They would do no ongoing social harm and therefore did not provide a basis for a decision to refuse to grant a planning permit for the project.

17.3.2 PANEL RESPONSE

The Panel acknowledges from the outset that wind energy proposals cause significant dislocation and disruption in rural communities. However, the Panel also accepts that a distinction can generally be drawn between the community effects observable as a result of the project development and assessment process, and ongoing effects that can be observed for a significant time after approval, if a project is then constructed.

In considering the relative weight of these two effects, the Panel must observe at the outset that dislocations due to an approval process tend to be little weighted in environment assessment and planning approval decisions. The reasoning here is that such effects are transitional. Whilst they can be real and severe, it is generally held to be true that such effects as relate to the approval process cease to operate or to be significant with the passage of time. This approach is similar in philosophy to that taken to construction noise and disturbance, or to the local economic benefits due to construction.

As has been observed in the Portland and Wonthaggi processes and in many development approval processes for wind energy facilities overseas, it is almost impossible to propose a project of the scale of a wind farm, and not cause some polarisation of views in the affected community. Typically the polarisation appears to be between landowner stakeholders who will host turbines (who become passionate supporters) and close to medium range surrounding landowners (who consider themselves exposed to disbenefits and become passionate opponents). Opposition tends to be particularly strong from neighbouring landowners who have a significant lifestyle component in their landownership, or who consider there may be opportunities to use or develop their land in such a way. Divisions also tend to take place between those who will view a project in their day to day lives (often rural dwellers, who on balance tend to oppose) and those who will not (often urban dwellers, who may place a

⁶⁶ Document 149 S at pg 37

greater weight on renewable energy benefits and support projects perceived as 'reasonable' in broader social, economic and environmental terms).

In the Portland Report, the Panel there observed:

[W]hilst it is not unusual for communities to become polarised around a major development proposal, the levels of polarisation encountered in this project are substantial. Qualitatively, from the Panel's own hearing process, there appears to be a significant order division of values and opinions on the project between the urban population of Portland who largely support it, and the surrounding rural communities. Whatever outcome eventuates, action will need to be taken to help to heal these rifts. However, it should be noted that by no means all such social division can be attributed to the project. The Panel was regularly referred to long histories of the relationship between the former City of Portland and Shire of Heywood and to debates around the Portland Aluminium Smelter and other large scale industrial development proposals to illustrate that the sources of division existed before the project was conceived. Community healing will become a substantial task for the Glenelg Shire Council and community organisations in the town and surrounds.

At Yambuk it should be noted that there was not this deep sense of division. Yambuk is a small rural community, active members of which have sought to defend their town against a major development proposal. However, there was no sense of the formation of longstanding or deep divisions that would be carried forward after a decision is made. The one caveat in this regard has to be in relation between the townsfolk and the Aboriginal community in relation to the inclusion of Deen Maar⁶⁷ as part of the site.⁶⁸

Again, the Panel would suggest that the levels of community polarisation emerging from this project are more than normally substantial. However, here similarities with Portland end.

In that case, there was a substantial urban population that has a long history of supporting industrial development seen as being for the economic good of the town. Significant effort had also been put into the development of renewable energy industries over a number of years by current and former municipal administrations. Attracting a wind energy industry and providing sufficient market for its products was seen by many as a key benefit of the PWEF and as a long awaited maturation of hopes and efforts. The views of this large body of supporters ran against the views of a numerically smaller but articulate group of rural and lifestyle residents and persons concerned with the development of tourism projects, reliant on local landscape and natural environment values. Many opponents had been in longstanding opposition to other decisions over industrial and harbour development. Many opponents also happened to be active members of a range of community groups, from Landcare, to Friends of the Great South West Walk, to tourism bodies and heritage associations. They saw their opinions and efforts as being spurned and considered themselves likely to withdraw from the public life of Portland, which could effect the capacity of some voluntary community services and facilities.

In this case, the local community is not the subject of such longstanding debates and polarisation. The Tarwin and Liptrap communities have also been exposed to the Bass Link

⁶⁷ Land held by the Framlingham Aboriginal community.

⁶⁸ PWEF Volume 4 at pg 169.

process, in which a high voltage transmission line option ran close to the current project site. However, as far as the Panel could tell from submissions, the experience of Bass Link in the community was disturbing but broadly unifying, with most members of the community counting themselves as opponents. In this regard, The Tarwin and Liptrap communities are much closer in analogy to that of Yambuk, where the wind farm and only the wind farm became a major focus for community effort in opposition.

It flows that the Panel considers the wind farm project to be the author of the observed community division here. Here too, the bulk of the local community are opponents of the project. Polarisation has occurred, but the balance of numbers between proponents and opponents leave the proponents greatly outnumbered in the local community.

Whilst the Panel can appreciate that many opponents will have devoted much of their discretionary time to the campaign against the project, the Panel cannot see this burden continuing to the detriment of the community in the long term. It takes this view because it does not consider that the effect of the project has been to cause a central rift in the community. Rather a splinter has been created, consisting of a relatively small number of proponent stakeholders, with the broader bulk of the community remaining intact. Once the onerous obligation of campaigning is past, the Panel considers that it is likely that the bulk of the opponent community will find time to return to a wider range of community activities. It is on this basis that the Panel does not foresee ongoing harm to sporting clubs, the fire brigade, the school council and the like. Even an entity like the beef group, split as it currently is, appears likely to re-form around the views of its majority membership, assuming it to have enduring objectives that would still be met by its meeting. The Panel sincerely hopes this to be so and wishes the members of such groups well in their endeavours to re-form.

The evidence of Mr Offor referred to the potential for some parties to leave the land and the locality where they had in many cases been raised from birth. Opponents such as Ms O'Sullivan indicated that this assessment might reflect their position if the project was built. However, whilst not disputing that individuals may make such choices if the project is constructed, the Panel on balance considers that most members of the community in properties not immediately abutting the project would not be likely to take such steps. To the limited extent that it is useful, the Panel accepts that overseas research on this point tends to suggest that a population close to a wind farm becomes more rather than less accepting of it, once it is constructed.

If there is likely to be an adverse long-term consequence for any group in the local community, it appears to the Panel most likely that this group would be local proponent stakeholders. This body of people would, if the Panel process is any measure, find themselves out of step with the values and perceptions of the majority of their community if the project were to be constructed. However, as far as can be told, the Panel does not consider that there are sufficient members of this group to result in tangible long term adverse effects to social and community life, should it even be that they withdraw from it.

It was in this sense that the Panel sought to explore a key concept with Mr Offor in his evidence: namely, whether in his view the flaws in the community consultation process had led to any significant or enduring community harm that needed to be taken into account in the balance of performance of the project. His strong view was that there was no such significant or enduring harm.

The Panel concurs with this assessment. Further, in so doing, it wishes to make clear that it considers Mr Offor to have been a thorough, independent and reliable expert witness, who

clearly took seriously the primacy of his obligation to the Panel and to the decision making process. The Panel places great weight on his conclusions.

Further, the Panel is not a star chamber or an inquisition, established to enquire into the good faith of persons to its process. It cannot recommend the refusal of a planning permit in the same terms as a liquor license, based on some view of the 'fitness' or the moral fibre of the applicant. It is focussed on effects and outcomes and need inquire only so far as it needs to obtain enough credible information to make findings and recommendations on effects and outcomes. For these reasons, it does not proposed to indulge in an investigation of the conduct of members of the proponent team. Mr Matthew Townsend for the Tarwin Valley Coast Guardians had the most relevant and appropriate approach to these issues in that he made no submissions upon them at all. In that the proponent has sought to raise aspects of the conduct of Tarwin Valley Coast Guardian's team in a reply that otherwise acknowledged the wisdom of Mr Townsend's approach, that is equivalently a route down which the Panel does not need to travel to accomplish its tasks.

Drawing these issues together, the Panel remarks that findings of this nature will not offer much satisfaction to a community, nursing their immediate hurts from what was still in its judgement a more than necessarily bruising and gruelling EES, and approvals process. If there is any satisfaction to be gained, it must be from the Panel's observation that the social and community impact assessment and consultation aspects of the EES were poorly handled and, as the proponent has clearly stated, provide clear lessons in the value that proper programmes implemented by fair minded and independent professionals can add.

The Panel strongly advises the proponent to ensure that any future EES processes are conducted in a manner that makes best use of professional advice about consultation and avoids the dissemination of inaccurate information by providing clear and rigorously managed channels of communication.

The Panel finds the EES process to have caused division within the local community and to have exacerbated conflicts through the poorly founded consultation and communication. This however must be distinguished from the SEES process that was broadly well advised and conducted. That being said, the process as a whole has not been so poorly carried out as in the Panel's judgement to do long term social harm to the local community. The Panel does not consider that the social harm generated will be of a significantly adverse or enduring nature such that it requires to be considered in an assessment of environmental effects or a planning decision.

17.3.3 COMMUNITY SUPPORT AS A LOCATIONAL & DESIGN FACTOR

Two issues raised by many submitters related to the view that some attention should be paid to the opinion of the local community, when determining an acceptable location for a wind farm and then determining how the wind farm should be designed.

As a means of measuring local community opinion about the project, Tarwin Valley Coast Guardians had set out to survey the opinion of landowners in a very substantial radius to the wind farm. Under the coordination of Ms Sue Svenson, considerable efforts had been invested in the production of the Red Dot Map. This showed community opposition for the project as far as known, highlighted on a cadastral map by the application of red to any lot where the owner expressed opposition. The Tarwin Valley Coast Guardians collected this information and required the landowner to sign a statement of opposition before their property

could be noted in red on the map. The map showed what appeared to be verging on unanimous opposition to the project extending for many kilometres, with the notable exclusion of parties who were proposing to host turbines on their land.

Community concern about wind energy was also submitted as being evident from the preparation, public exhibition and adoption process for South Gippsland Amendment C10, and from the great majority of opposing submissions provided in the two exhibition processes for the Bald Hills project itself. Local media coverage had in the main been negative.

It was also strongly submitted that because of the limited consultation that had taken place, for example in relation to landscape issues, the proponent was not able to effectively assess whether, the community's terms, harm had been done to significant landscapes or to significant views.

It was suggested that whilst the Bald Hills project and indeed wind farms in general were strongly resisted by the majority of the Cape Liptrap and Tarwin Lower community, the same could not be said of other locations. Submissions highlighted that locations such as Codrington in the Moyne Shire and Challicum Hills in Ararat had been developed as wind farms with no significant opposition and substantial measures of community support. Submissions acknowledged the presence of a measure of opposition to wind energy in the Portland district. However, it was also noted that PWEF had enjoyed a strong groundswell of local support, to the extent that more recently the press had reported demonstrations in Portland seeking the swifter and more effective progressing of wind energy development there. In the minds of many submitters this factor, together with general indications as to the availability of exploitable wind resources in other parts of Victoria, pointed towards the view that wind farms should be directed of first principle towards communities that would support and embrace them.

The proponent's key submission was that people are more likely to make submissions in opposition to a project than in support.

Fear often leads people to fail to appreciate the true nature of the proposal, or to pessimistically assess its prospects of success. There is a natural human tendency to exaggerate difficulties and problems that may occur in the future.

[...]

We submit that that is particularly the case where the information about the potential impacts is of a technical nature and difficult for lay people to comprehend, and where there has been a strong community campaign which has provided unreliable information about wind farms ...⁶⁹

However, if the issues around wind energy are put to people as general propositions, there is a high level of community support. This was manifested in opinion polls which demonstrated in the region of 90% Victorian support for the proposition that additional wind energy facilities should be developed.

To this extent, the proponent took the view that much of the community concern was of a generic and ill-informed nature, of the sort that could typically be expected from any significant scale project.

⁶⁹ Document 149 S at page 32.

The proponent and persons associated with the project expressed doubts about the Red Dot Map process. They were also clear that, whether accurate or not, little weight should be attached to such exercises.

[E]ven if the red dot map is representative of community concern, whether misconceived or otherwise, the important question is whether or not the wind farm is consistent with policy: it is not an approval poll.⁷⁰

The proponent was also concerned that as the red dot map had been assembled by local people in the local community, it was not always possible for persons canvassed to sign to avoid signing without giving offence. This in turn provided an explanation for the proponent's understanding that a number of signatories to the map were people who had also given some indication of support to the proponent.

In terms of location and design, the proponent rested on its view that the project was well located on a wide range of measures and this, together with the assessment of these measures required by policy, should be sufficient to ensure approval. There was no basis in planning for the view that because a local community do not like a proposal, it should be removed elsewhere.

Consultation does not mean, as the opposing submitters seem to believe, the proponent going away because the local community doesn't want its project.⁷¹

In design terms, the proponent took the view that the suggested failings in consultation might be significant if they had resulted in it failing to identify a significant issue that should otherwise have been taken into account, in turn reducing the quality of the outcome. Turning to the effect of the acknowledged shortcomings in consultation design, the proponent took the view that these should only effect the outcome in the following circumstances:

[C]onsultation can only influence whether a permit should be granted if the Panel thinks the problems with consultation led to a 'bad' project outcome. It is submitted that this is not the case with this project. Mr Townsend [of Counsel for the Tarwin Valley Coast Guardians] has not suggested as much.

17.3.4 PANEL RESPONSE

The Panel's starting point in this issue is to observe that a planning decision at Panel level is not an opinion poll. This Panel's evaluation is of technical issues, within the framework provided by existing policy.

At Portland, the existence of demonstrated levels of support for wind energy did not sway the Panel from its investigation of the full range of social, economic and environmental effects, with its recommendations eventually being framed on the balance of these. Equivalently here, the existence of strong opposition does not sway the Panel from its primary task of a thorough appraisal across a wide range of considerations bearing on the eventual decision.

The Panel notes that the proponent has concerns about the means by which 'signatures' to the Red Dot Map may have been obtained. Where members of a local community who are well known for their views collect information, respondents may well be less willing to provide

⁷⁰ Document 149 S

⁷¹ Document 149 S

a frank response than they would to a disinterested and independent researcher. This is a normal consideration in consultation and social research program design, which tends to indicate towards the use of independent researchers where data is to be relied upon. However, in the matter before the Panel, as already indicated above, issues and project performance are the key considerations.

The Panel does not discount the considerable community effort that has been invested in the Red Dot Map. Nor does it in general terms consider that the Map is misleading. However, as outlined above, the Panel considers that it cannot weight the Red Dot Map highly in its considerations. The Map amounts to an opinion poll, a means of demonstrating immediate views about the project before the Panel held by, albeit a large number, of people. However, in common with other opinion polls, it does not provide the Panel with a basis for making findings or recommendations against the project.

Turning to the view that the project should or could be located elsewhere, in a community where there is more general support for such endeavours, the Panel also considers that there is no basis in planning or law for such an approach. It is for the planning decision maker to consider the merits of the proposal before it, in the light of policy. If the project advanced by the proponent is, on its merits and subject to policy, found to be broadly suitable to be accommodated on the proposed site, it is not for the decision maker to direct it elsewhere on the basis that it is not liked in this community, but that another community might be more positive about it.

Finally turning to the view that acknowledged shortcomings in consultation had led to the misidentification or non-identification of design issues, the Panel takes the view that on balance this has not been the case. The EES and SEES exhibition processes followed by the Panel process have enabled members of the community to raise a wide range of issues for consideration. The proponent has in the Panel's view effectively provided responses to all the issues raised, such that it has been able to sustain the project as sited and designed. This in turn suggests that the lack of effective consultation, particularly in relation to landscape issues has not adversely affected the project outcome.

This is a key consideration in relation to landscape issues, where a number of submissions advanced the view that a failure by Mr John Cleary to undertake substantial public consultation had disintitiled him to identify what may or may not be seen as significant landscape in the eyes of the community. This in turn meant that he had failed to identify significant landscape impacts that should lead to the re-design or relocation of the project.

In response to this issue, the Panel notes that similar suggestions arose in the PWEP process. There, whilst community consultation about landscape impacts had taken place, it was submitted that this had been kept at arms length and had not been used as a proper input into the landscape impact assessment and design processes. Once the Panel was underway, a site visit and GPS based audit of the landscape reports combined with an analysis of submissions, disclosed that elements of the community there were concerned about landscape impacts as perceived from particular and well visited places in the public realm, but that the landscape impact assessors had not considered or had wrongly assessed the impact from those places. The Panel in that case directed that assessments be repeated and new impact evidence be prepared.

However, the Panel must make clear that events of this nature have not occurred in this case. The Panel has examined submissions with care. It has provided every opportunity through an open site visit nomination process for the community to draw its attention to key locations from which impact should be assessed. The Panel has to record that the outcome of this

considerable and detailed evaluation has been to broadly endorse the conclusions of Mr Cleary's analysis. Submitters may feel concerned, indeed insulted that he did not talk to them. However, in terms of performance of the project, the Panel can only find one justifiable change to the project that would be made on the basis of its analysis of submissions on landscape, as against its consideration of Mr Cleary's evidence. That relates to the Bald Hills Wetland Bird Hide, on which it has made findings above.

That being said, the Panel observes that this situation is very much a product of accident, as opposed to design. In a different locality, the failure by a landscape professional to engage with local opinion about landscape values might lead to a significant oversight in assessment. It should be noted that PPG – WEF establishes the presumption that there will be pre-application discussions with surrounding landowners to identify the issues of importance to them⁷². The policy is not founded on the view that the first effective consultation processes will take place in preparation for or during a Panel. The proponent's chosen methods were such that, had it arrived at the hearing and found that the local community had strongly identified say significant landscape areas and significant views that were not properly accommodated by the proposal, this would have been at the peril of the project overall. It was simply lucky that this turned out not to be the case.

The Panel has not had regard to the view that the weight of community opinion against the project is of itself a reason for refusal of a planning permit or its location elsewhere.

The Panel considers the consultation design to have been flawed, but as a matter of luck, these flaws have not prevented the identification of relevant and weighty considerations to which the proponent has been unable to respond. As such, no substantive harm has been done to the project outcome by these failings. However, the Panel considers that the project cannot be held up as an example of good practice in public consultation as the approach adopted could well have prevented the identification of significant siting or design flaws in other circumstances.

17.4 SUMMARY OF FINDINGS

Drawing these issues together, the Panel considers that the criterion 'to provide for an ongoing diverse and rewarding social life in the Tarwin Valley and Liptrap area and the reduction of social conflict' can be met in the medium to long term.

The EES process has been flawed in relation to the approach taken to community consultation and engagement. Disputes have been exacerbated and time spent participating in them has been significant for the local community. However, the Panel has not found that any long term harm to majority community life has been done. Nor has the process failed to identify issues that would otherwise have resulted in significant change to the location or design of the project.

The Panel notes that the great majority of local opinion opposes the project. However, that of itself does not provide a valid basis for an adverse assessment or a refusal of planning permission.

⁷² at page 19.

18. LAND USE EFFECTS

18.1 ISSUES RAISED

- Concerns were raised about the effects of a wind farm on stock and agricultural practices.
- Concerns were raised about the effect of the proposal on the consideration of permit applications for subdivision or change of use on adjoining land.
- Concerns were raised about the exposure of proposed rural dwellings to adverse amenity impacts.

18.2 CRITERIA TO BE MET

With reference to the Panel's identification of sources of relevant legislation and policy above, the Panel considers that the appropriate criteria should be:

To maintain existing land uses within and adjacent to the turbine sites

To provide scope for reasonable land use change and development within the purposes of the planning scheme zones on land adjacent to the sites.

18.3 DISCUSSION

18.3.1 IMPACTS ON FARMING

Evidence was led by a veterinarian, Dr Murray Hooper to the extent that there was a possibility that wind energy facilities can adversely effect the behaviour, health, welfare and milk yields of dairy cattle in nearby properties. This was a matter of some concern to third parties with pastoral land adjacent and close to the proposed Bald Hills wind farm, as it suggested that a wind farm might reduce the suitability of their land for its primary agricultural use.

Dr Hooper had had brought to his attention by Mr David Debenham the concerns of a Mr Ditta, a dairy farmer near Toora. Mr Ditta was apparently concerned that, since the commissioning of the Toora wind energy facility, his dairy herd had become more difficult to manage, more prone to lameness and milk yields had dropped. Particular problems were observed when the wind was from the south west, the direction of the nearest turbine, some 1 km away.

Dr Hooper was also a neighbour and opponent to the project, making his own submission. Quite correctly he identified that he could not provide credible independent veterinary analysis and evidence in such circumstances. On this basis, he requested Dr Jacob Malmo, a professional colleague, to visit Mr Ditta and undertake an investigation of the issues that he raised. Dr Malmo did so and prepared a report which, in broad terms reiterated the concerns of Mr Ditta, based on a relatively brief interview. Dr Malmo speculated that turbine noise,

shadow flicker or blade glint might be responsible for the issued complained of. Dr Malmo reached the conclusion that Mr Ditta's concerns merited further investigation.

Third party submitters with farm interests were very concerned at the prospect of harm to their businesses. Ms Jenny O'Sullivan referred to the need to avoid stress to meat stock, and questioned whether an adjacent wind farm might be a source of stock stress that would reduce the quality and market premium available for meat.

The proponent was less concerned, pointing out that whilst there are many thousands of wind turbines operational in Europe and the US, there have been no substantiated claims of harm to stock or loss of milk or meat yields. Mid to low frequency noise, such as that emitted over medium to long range by wind turbines had not been shown to concern cattle. Issues of shadow or glint impact appeared hard to credit, given the Mr Ditta's farm was, by solar orientation, unlikely to experience significant effects. The proponent's response to Dr Malmo's evidence was:

The report by Mr [sic] Malmo is hearsay, mere speculation and goes against other available evidence and should be accorded no weight. He is really saying no more than if Mr Ditta is taken at his word, there is a basis for an investigation as to why his herd's productivity has fallen.

Other submitters were concerned that the presence of a wind farm would result in the introduction of controls over livestock practices on their farms. Further to the approval of the Woolnorth wind energy facility in northern Tasmania, it had become common knowledge that controls over lambing had been put in place on the Woolnorth property. These had been justified there on the basis that one key attractor of raptors was the kill and carrion available during the lambing season.

The proponent was clear that at Woolnorth, an issue with raptors had led to the development of strategies to reduce raptor attraction. These had included lambing controls on land within the wind farm site. However, the proponent placed on record that similar controls had not been requested here. Further, it was necessary first to distinguish between what could be achieved on an operational wind energy facility, by way of agreement between an operator and a landowner, and what could be achieved on adjacent land. The proponent could see no basis or legal capacity for the introduction of lambing or similar controls on land outside the wind farm, where there was no agreement between it and the landowner.

18.3.2 PANEL RESPONSE

On its face, the suggestion that wind energy development may result in harm to livestock, or reduction of milk or meat yields is one that requires to be taken with some seriousness. It has been accepted across many countries for many years that one of the clear benefits of wind energy development is that it enables a diversification of financial returns to a farm, without making any material difference to the use of the land for agriculture. If this position were to provably change, then the potential role of wind energy generation in the rural economy would require to be re-assessed. This would also imply a significant re-appraisal of land use issues, as it has been generally accepted that wind energy facilities do not change basic rural use, by reducing or limiting the productive capacity of rural land.

However, the above observations being made, the Panel must observe that the material that was brought before it in submissions and evidence on this point was anecdotal. It amounted

to little more than recycled and speculative tales. Placing the most charitable interpretation upon it, the Panel would suggest that some of the questions raised might merit additional evaluation through rigorously conducted research. However, being less charitable, the Panel would observe that there was no science in the 'evidence' advanced before it. Nor did it provide any clear basis for a determination that the wind energy facility before the Panel should not succeed.

Undoubtedly the Panel considers that Dr Jacob Malmo appeared before it in good faith, but he did not function as an expert witness. Dr Malmo had done little primary investigation. He had largely retold the concerns of Mr Ditta, a Toora based dairy farmer approximately 1km away from turbine 9 at that facility. The Panel's understanding of his involvement was that he did not carry out detailed and independent investigations of the behaviour, welfare and health of Mr Ditta's cattle. Rather he questioned Mr Ditta and then passed on his concerns to the Panel, with little of the critical, evaluative or evidence based analysis that one would expect of a veterinarian acting as an independent expert witness.

The Panel can make no judgement about the degree to which Mr Ditta's concerns are legitimate or in good faith. It received no genuine evidence about the condition of the cattle concerned. Nor did it see Mr Ditta in person. The Panel understands Mr Ditta to be an opponent of the Toora wind energy facility, but this is a position that it considers it should not judge in his absence from the Panel hearing.

However, turning to the critical question of whether Dr Malmo's 'evidence' tells anything of a weighty nature about a hitherto unsuspected capacity for wind energy facilities to affect cattle behaviour, reducing health and milk yields, the Panel concludes that it does not. It follows that the Panel does not accept the proposition that the Bald Hills facility would have any material effect on the use of land for pastoral activities on neighbouring properties.

Turning to issues of lambing controls, the Panel would observe that this represents an instance of a benign and prudent reality at one particular wind farm, being generalised to other circumstances out of context. Lambing controls have been imposed at Woolnorth, within the property that hosts the wind farm. The Woolnorth wind farm is on very large lots in a single ownership. At the time of the approval process, the Panel understands that the property was owned by the Van Diemens Land Company. However, it understands that subsequently title has been transferred to the wind farm developer and operator, Hydro Tasmania. To this extent, whether by way of lease or freehold control, the wind energy proponent can take whatever steps it is advised are necessary to control raptor attraction to the site.

It has not been suggested in this case that lambing controls would be warranted over the properties proposing to host wind turbines. The Panel has received no evidence to that end from the proponent. Nor have submissions from third parties suggested that it might be a desirable course of action. The Panel refers to its findings about bird impacts above and states that the absence of such a proposal to date may not be conclusive: further advice or monitoring may suggest a need to depress raptor attraction to the site. If this proves necessary, negotiations between the wind farm operator and the landowners of the wind farm site will undoubtedly occur.

However, what can be clearly stated is that there is currently no foreseen or foreseeable need to control lambing or equivalent activities on land that is not hosting wind turbines. Neighbours can rest easily on this point.

On the basis of the issues discussed above, the Panel makes the following finding.

There is no basis in evidence or the circumstances of the site for the view that a wind farm will reduce the normal capacity to use land within or adjacent to it for a full range of agricultural purposes.

18.3.3 NEW DWELLINGS AND RURAL LIFESTYLE DEVELOPMENT

Concerns were raised regarding the building of future houses on land adjoining or close to the wind turbine sites. Similar concerns were raised before the Panel by:

- Mr Richard and Ms Jeanie Kilpin;
- Mr Paul and Ms Jenny O'Sullivan, with representations also being raised on behalf of Ms O'Sullivan's brother Dr Wooldridge, who was not otherwise a submitter;
- The Roberts family;
- The Kilsby family;
- Mr Mark Burfield with an approved subdivision in progress;
- Mr John McDougall and Mr Lindsay Overall, relating to subdivision and an option to purchase part of a farm property in circumstances where the existing dwelling had been excided from it;
- Mr Don Jelbart in relation to a small isolated lot, expressly purchased as a 'lifestyle' development opportunity;
- Mr Noel and Mr Bruce Uren;
- The Thorpe family; and
- The Hooper family.

Others made general statements about the potential for new dwellings or subdivisions, but the Panel lists above those who made reference to particular locations, or referred to subdivisions or development plans in some degree of progress.

These submissions all had different individual circumstances within a common theme, to the effect that the proposed wind farm would prejudice future proposals to construct additional houses in particular locations, or to undertake subdivision to this end. Very frequently the particular locations for new housing were located on higher ground to take advantage of views to the coast. In some cases these nominated sites were clearly prejudiced by:

- views of multiple turbines between the nominated site and the coast; and
- proximity of turbines to the site including noise and shadow flicker issues

There were a variety of circumstances related to the Panel about the need or desire for additional houses to be built. These included:

- Land owners wishing to construct a dwelling or a new dwelling on their land for their own use, and wishing to choose the most attractive outlook.
- Land owners of large farm tenements, where the owner indicated future intentions to sell off the land in existing allotments, with the expectation that a dwelling could be built on each.
- Land owners intending to subdivide their farm into new 40 hectare allotments and dispose of some or all of the allotments, with the expectation that a dwelling could be built on each.

- Family members intending to return to the district and construct their own home on one of the allotments currently comprising a farm tenement.
- Excision of a small allotment to provide a house site for a member of the family.
- Isolated parcels of land currently being farmed but earmarked to be sold one day.

Clearly in some of the above cases, the proposed new dwelling would be occupied further to ongoing agricultural use. However, in a number of other cases, the intention was more to enable 'rural lifestyle' use and development, whereby agricultural scale lots in the rural zone would be used and developed for primarily residential purposes.

In most of the above circumstances proposals for dwellings could proceed as of right without the need for a planning permit, because the lot concerned was above 40 hectares. In other cases a permit is required but the land owner had an expectation (derived from their understanding of current Council practice) that a permit would be granted. In other cases, a permit for subdivision was a necessary precursor, but the land owner had an expectation (again derived from their understanding of current Council practice) that a permit would be granted.

In response to questions by the Panel, South Gippsland Shire Council indicated that permits for dwellings on existing allotments would generally be granted regardless of size, as would permits for subdivision of broadacre rural land to multiple lots of over 40 hectares.

In all of the circumstances described, the individual landowners appeared to believe that their expectations to construct additional dwellings were reasonable and legitimate proposals and that the siting of such additional houses to take advantage of the best locations with regard to views of the ocean were reasonable. Alternative locations without ocean views would not be as valuable or desirable and accordingly were not favoured. The landowners generally did not distinguish between circumstances that required a planning permit and those that did not. This situation no doubt arises because of the Council inclination to generally issue permits as a matter of routine.

The various landowners see the wind farm as in some circumstances being so close as to prevent their intentions being fulfilled in practical terms. In other circumstances the general proximity of the wind farm results in the preferred house site(s) being not as desirable (or possibly valuable – an issue considered in Chapter 16 above) as would otherwise be the case. Regardless, the presence of the wind farm impacts on their future aspirations for a dwelling or subdivision and they feel aggrieved.

The variety of circumstances described above lead to consideration of a fundamental question regarding the consideration of buffers between future housing on rural land and proposed wind turbines. The question amounts to should the buffer be located on land controlled by wind farmers? Alternatively, is it appropriate to use adjoining land owned by neighbours as part or all of the necessary buffer?

If it is concluded that all of the necessary buffer should be included within land controlled by the wind farmer there are obvious implications for this and future wind farms as to viability. Significantly larger areas of land would have to be under the direct control of the wind farm than is currently accepted as having to be the case, both in Victoria, interstate and overseas.

On the other hand if part or all of the buffer is to be located on adjoining property then there are implications for future use of those properties and possibly for the operation of wind farms.

Mr Gobbo for the proponent in his closing submission said:

Permit conditions regarding noise and shadow flicker should be confined to existing dwellings. If someone chose to build without needing a permit and chose to "come to" the nuisance, they should not have the protection of the existing permit, but would rather have to rely on common law or statutory nuisance provisions if they wanted to take action against the wind farm operator or land owner. Those laws take account of a person's choice in "moving to the nuisance". If a permit was required for subdivision or a dwelling, then there are mechanisms that can be put in place that recognise the presence of the WEF (such as a s173 agreement registered on title) and those mechanisms can be taken into account if enforcement action was taken against the WEF operator or land owner

On the other hand Mr Townsend for objectors said in his closing submission:

It is expected that the proponent will argue that planning operates on a first come, first served basis. While this might be true to some degree, the fact remains the first objective of planning in Victoria is that planning should be fair.

Yet it is the antithesis of fairness for a proponent to arrive in an area and cast a long shadow of sterility over land over which he has no control - land that has been earmarked for an alternative use that stands to be thwarted overnight. Each of the above properties, with the exception of the Thorpe property is over 40 hectares and therefore larger than the minimum area for which no permit is required to use land for a dwelling.

18.3.4 PANEL RESPONSE

Issues of impact by the proposed wind turbines on existing houses and their immediate environs has been addressed elsewhere in this report. The issue to be considered in this section relates to the impact of the turbines on future or potential future house sites in circumstances where a dwelling can be constructed without a permit and in circumstances where a permit is required.

The proponent has not generally considered or assessed the impacts of the proposed wind turbines on vacant allotments which may contain dwellings in the future. The exception to this general position is that part of the land owned by Mr Burfield immediately north of the southern cluster of turbines, which is subject to an option to purchase by the proponent if the development proceeds. The Panel must observe that it was given no clear explanation as to why such an option was entered into by the proponent. It is fair to observe that this has been a counterproductive process as it has sent messages to the wider community that financial benefit may be obtained from the preparation of a plan of subdivision for land close to the wind farm. However, clearly it is not necessary in planning or legal terms or indeed possible for the proponent to enter into similar arrangements with all abutting landowners.

The proponents current (legally advised) position is that it has no obligation to carry out such assessments or to make offers to purchase. Its obligations are limited to assessments of existing houses. To arrive at this position the proponent relies upon:

- the established practice in considering permit applications to take account of existing conditions as opposed to possible future uses or development; and
- the purposes and decision guidelines of the Rural Zone, which distinguish between the effects of development on residential amenity and use of the land for rural purposes; and

The provisions of clause 22.01 of the planning Scheme require consideration of wind farm applications to take account of existing uses as well as possible development of the land and surrounding areas. However, the proponent takes the view that this should be taken into account in the context of the whole planning scheme.

The proponent also indicated that in the event that future dwellings were constructed in such a location as to be adversely impacted by the wind turbines then the remedies available to owners of these dwellings should be restricted to common law or statutory nuisance provisions if they want to take action against the wind farm operator or land owner. They would be specifically excluded from the protection afforded to existing dwellings provided under the draft permit conditions.

The Panel reviewing the Portland Wind farm said:

... the Panel considers that it will not necessarily be reasonable or economically feasible to require a wind farm to control all of its noise and visual amenity buffers. However, again, this is one option, with the other being that a wind farm should do so. Consultation on this point will be necessary.

Turning to mechanisms, the Panel notes that the Rural Zone in particular cannot prevent a new use of land for a dwelling approaching an existing nuisance, the operational wind farm. For this reason, the Panel considers that a statutory tool needs to be developed to enable this safeguarding to be implemented. The requirements of such a tool would be to trigger a permit for buildings and works associated with a defined range of noise or visual impact sensitive receptor uses, of which use for a dwelling would be one. The permit would enable the consideration of siting and height. It would enable the imposition of conditions relating to height, visual screening and noise insulation. Decision guidelines would require the responsible authority to consider any safeguarding map for the windfarm, together with the outputs of any noise propagation or visual disturbance study.

However, irrespective of the above, the Panel also considers that there should be a reasonable attempt to safeguard the expectations of the owners of rural lots and tenements. As a matter of policy, a wind farm developer should be expected to identify all owners of lots and tenements that would be likely to be affected by their safeguarding requirements. They should discuss future land use intentions with each of these. Where a lot or tenement lacks a dwelling and the owner indicates a future intention to construct one, the Panel considers that the wind farm design should safeguard a reasonable building envelope for one dwelling together with an area of secluded private open space within the lot or tenement. This envelope should be identified on a plan and then wind farm plant should be designed and located to avoid exposing it to undue noise or visual amenity impacts. The Panel has considered whether it is necessary to safeguard one

envelope for each lot in a tenement comprising multiple lots. However, it takes the view that this is not necessarily reasonable: the purpose of such a safeguarding requirement is to provide a capacity for a person to reside on and hence efficiently use and develop a rural tenement. It should not become a mechanism for the encouragement of additional rural residential development or for the provision of a number of dwellings over and above those reasonably required to properly manage the tenement for rural purposes. The Panel considers that such an approach should be taken in the Rural Zone (RUZ).

That Panel recognised the possibility of wind farms providing buffers within land controlled by the wind farmers, although not seeing this as being a likely way forward in policy terms. It discussed the consequences of such an option on the viability of wind farms. The report also sets out mechanisms for dealing with future conflicting land uses in the event that buffers are providing on land in different ownership.

However, since that Panel wrote, the VPP have been amended to include Clause 52.32 Wind Energy in Victoria. Further PPG – WEF has been prepared and incorporated in all planning schemes. Neither of these documents give any indication that wind farms should be assessed to take account of impacts on future houses on land adjoining the sites of proposed wind farms. On the contrary, Clause 52.32 specifically identifies the need for wind farm proposals to show the location of all dwellings within a 500 metre radius of the site. The Guidelines provide evaluation criteria that relates to existing houses for both shadow flicker and noise. Further site analysis of surrounding areas are required to identify existing land uses as apposed to possible future uses.

In the circumstances of the provisions of clause 52.32 and the Guideline provisions taken together with the purposes and decision guidelines of the rural zone the Panel is satisfied that there is no general requirement for wind farms in the rural zone to assess future sites for housing on adjoining land. Only Clause 22.01 in the LPPF now stands for the limited proposition that some consideration of future land use might be warranted, providing that the following should be taken into account:

[t]he existing use and possible development of the land and of surrounding areas.

In applying this policy based decision guideline, the Panel notes that regard should be had to possible development, within the framework, purposes and decision guidelines of the zone applying to the land. The Panel does not consider that it is necessary to consider and provide for wide, unpredictable and discretionary new use and development. Further, whilst the Panel notes that the Rural Zone enables a dwelling as of right on a lot over 40 hectares, the purposes of the zone are (inter alia):

To provide for the sustainable use of land for Extensive animal husbandry (including dairying and grazing) and Crop raising (including Horticulture and Timber production).

To encourage:

- *An integrated approach to land management.*
- *Protection and creation of an effective rural infrastructure and land resource.*
- *Improvement of existing agricultural techniques.*
- *Protection and enhancement of the bio-diversity of the area.*

- *Value adding to agricultural products at source.*
- *Promotion of economic development compatible with rural activities.*
- *Development of new sustainable rural enterprises.*

To ensure that subdivision promotes effective land management practices and infrastructure provision.

These purposes do not of themselves directly support or encourage the disaggregation of effective rural tenements⁷³, notwithstanding that these comprise more than one allotment that may in strict terms be capable of separate disposal and the construction of a dwelling as of right. The key theme in the Panel's mind is the continuance of sustainable agriculture; an outcome that the disaggregation of farm tenements does not necessarily support.

It is for these reasons that the Panel does not conclude that it is reasonable for the proponent to be required to safeguard potential dwelling locations on each of every surrounding rural lot that just happens to lack a dwelling. There are many of these, but a future in which there was a dwelling on each would also be a future in which the currently viable agricultural units surrounding the project site had largely ceased to be. Such dwellings, if constructed wholesale in the pattern of lots around the project site, would not be required for the purposes of sustainable agriculture. They would amount in the Panel's assessment to a land use transformation of this rural area into a rural lifestyle area. In practice, the principal land use under such a scenario would be residential. To require a proponent to safeguard the potential for such a future would be contrary to State policy in Clause 17.05 of the planning scheme.

That being said, the Panel does consider that where a rural tenement of over 40 ha lacks a dwelling, there is a reasonable expectation that it should be capable of having one to serve agricultural purposes. The rural zones have recently been reviewed (see further below) and in circumstances where there was potential for as of right dwellings to be removed from zones applying to agricultural land, a strong commitment has been made to the retention of this right. In these circumstances, the Panel considers that it is not unreasonable for the proponent to use its good offices to examine the limited number of circumstances where tenements adjacent to the project site do not have a dwelling and there may be doubt as to the capacity of a dwelling to be accommodated that is not subject to unreasonable amenity impacts.

The Panel does not have sufficient information as to tenement ownership patterns (as opposed to lot boundaries) to determine if any of the land adjoining the wind farm sites is so configured as to prevent the construction of a dwelling for agricultural purposes on a tenement of over 40 ha without that house being within acknowledged amenity constraints such as noise and shadow flicker. The Panel does not consider that of principle there is likely to be a tenement located anywhere within the surroundings of the project, that would be entirely washed over in this way. However, the Panel considers that it is reasonable that the proponent should lend assistance to the relatively few neighbours who may seek reassurance about their position. It follows that, (and the Panel would emphasise that this is unlikely) it is found that a tenement lacks a viable location for an agricultural dwelling because adverse amenity conditions wash over it in entirety, then steps should be taken by turbine optimisation, or micro-siting to enable a reasonable dwelling envelope to be found.

⁷³ The term tenement is used in this passage in the sense defined in Clause 72 of the planning scheme.

For example, the Panel is aware that a rural tenement next to the southern area has been sold in separate lots, leaving a balance lot in agricultural use, but with no dwelling. This is the Overall land, now under contract to Mr and Mrs McDougall. The Panel notes that Mr and Mrs McDougall are contracted to acquire a lot of some 92 hectares and intend to farm it. The immediate site chosen for the McDougall dwelling may or may not prove tenable in amenity terms – it is on an exposed ridge, with commanding views to proposed turbines at 1 km range. Mr and Mrs McDougall currently fear that their land may not be able to accommodate a dwelling offering reasonable standards of amenity. In such circumstances it does not appear unreasonable that the proponent should assist them to determine a dwelling location that would not experience untoward amenity impacts, as a single dwelling on this tenement for agricultural purposes is a reasonable aspiration. The Panel trusts that simple cooperation with the proponent's design team will assist in dispelling their fear and in broadly delineating parts of the property in which relevant standards could be met. It would then be up to the McDougalls to follow or reject that siting advice as they saw fit. However, if they reject it and construct an as of right dwelling on a location where relevant amenity standards may not be met, then the consequence would clearly be that they would absorb such effects without recourse to any remedy under a planning permit condition. Should there be others in similar circumstances, the Panel considers that the same assistance should be offered, subject to the same caveat.

The Panel is also aware that there are other tenements without a dwelling. For example, the Panel visited the Hooper property and was shown a potential dwelling site, on which plans had been drawn up and a building permit prepared. However, at over 3 km to the closest turbine, whilst there may be issues of personal taste in outlook that emerge in terms of placing a dwelling on that lot, there would appear to be no reasonable prospect of adverse amenity standards preventing a dwelling from being located. The Panel cannot conceive of the proponent needing to engage in discussions with parties who are any more remotely located than approximately 1 km from the nearest proposed turbine.

The Panel has also considered the circumstances of others holding lots or tenements below 40 hectares in size, where a permit would be required for a first dwelling. It has also considered the circumstances of those with tenements with lots larger than 40 hectares but where there is already at least one farm dwelling and related improvements. It has considered the circumstances advanced by those who wished to bring back family members to live on a holding in circumstances that were not directly related to the needs of agricultural production.

For circumstances in which a permit is required for a dwelling, the Panel concludes that the presence of a discretion means that there can be no reasonable expectation of a 'right' to a dwelling (the apparently somewhat anomalous historic practices of the South Gippsland Shire Council aside). In such circumstances equivalently, the current policy framework appears to stand well for the view that no special provision need be made to safeguard use of land for a dwelling. That is not to say that a new dwelling may not be constructed subject to permit. However, it would clearly be in the wind farm operator's interests to object to such a permit and to seek as a minimum appropriate siting and/or the erection of relevant shadow and acoustic screening such that impacts were controlled at the receptor – not the source.

The Panel is conscious that this embodies a principle that is somewhat adrift from the normal tenets of EPA SEPPs, where the preferred approach has been to control emissions at source. However, this is not an instance to which SEPPs are directly applicable. In recent policy

evaluations around live music impacts in urban areas⁷⁴, the Minister for planning has adopted the following principle:

One of the key principles adopted by the Live Music Taskforce is that the 'onus of responsibility' – for the cost of management of music noise – 'should fall upon the agent of change'. For the resident, this implies a continued protection of amenity in the event of a change in venue operation or the development of a new venue. For the venue operator, this implies that where a venue is currently compliant with relevant noise attenuation standards and its operation does not change, new residential or other noise sensitive development should not lead to new compliance costs for the venue.

The Panel considers that in an area of ambiguity around the application of PPG – WEF to future sensitive receptor land use, and the current absence of relevant SEPP provisions, the same principle should also apply. As in the development and management of music venues, a principle is sought whereby to equitably A substitution of the words 'wind energy facility' for 'venue' in the above passage demonstrates this meaning clearly.

The onus of responsibility – for the cost of management of turbine noise and blade shadow amenity impacts – should fall upon the agent of change. For the resident, this implies a continued protection of amenity in the event of a change in wind energy facility operation or the development of a new wind energy facility. For the wind energy facility operator, this implies that where a wind energy facility is currently compliant with relevant noise and shadow standards and its operation does not change, new residential or other noise or shadow sensitive development should not lead to new compliance costs for the wind energy facility.

The Panel is conscious that this reasoning leaves a balance of circumstances where potentially a dwelling may be constructed as of right on a lot over 40 ha, but this would be the second or subsequent dwelling on an existing agricultural tenement. However, the Panel's basic logic in this consideration of submissions has been to facilitate a position supportive of sustainable agriculture, not to support the disaggregation of farm tenements or protect or encourage circumstances in which dwellings would be erected on rural land that are not required for agriculture. It notes that dwellings may well be erected as of right in these circumstances. It notes that the wind farm operator will have no legal means of being notified of this, or of requesting that appropriate design or construction standards will be used. It notes that the potential occupant might then experience conditions that the planning system otherwise defines as unacceptable and protects other from. Nevertheless, the Panel notes that such persons would come after the wind farm. Sensibly and equitably they should make their own amenity provision. They should not benefit from approval conditions to secure amenity. The principle should still apply that the 'onus is on the agent of change'.

In terms of the legal position of such after comers, the Panel notes the submissions on the application of the common law of nuisance made by Mr Gobbo in his closing address. It views these to be correct and considers that such persons would be viewed by the Court as having 'come to the nuisance'. It would be most unlikely that the common law would afford them any protection against an otherwise properly operated wind farm in such circumstances.

⁷⁴ See the report of the Live Music Task Force, 5 December 2003 and the Minister for Planning's announced response, 21 May 2004.

Finally, and independently of the above, the Panel notes that at all relevant periods during its hearing process, the State Government's ongoing review of rural zone provisions remained unfinalised. It was not possible for parties to comment on the detail of likely outcomes. That being said, the paper "New Zones for Rural Victoria: Final Package" was published in early June 2004, just prior to the finalisation of this report. In turn the VPP were amended by VC24 on 11 June, to incorporate the new suite of rural zones.

The terms of implementation are such that the current Rural Zone is intended to be largely translated into the Farming Zone at VPP Clause 35.07. However, subject to consideration by the planning authority, a possible alternative future zone for the land in and surrounding the project site might be the Rural Activity Zone at VPP Clause 35.08. That being said, the current Rural Zone will remain in the VPP and the planning scheme, with the expectation that an amendment to apply a replacement zone will be prepared at least by the point of the next 3 year statutory review of the scheme. It follows that the current Rural Zone provisions will continue to apply during the timeframe for decisions on the project.

Having regard to the purposes, dwelling provisions and decision guidelines of the new zones, the Panel does not consider that any great change is likely, even when the Rural Zone is substituted for one of these. The Farming Zone purposes would provide a greater than current emphasis on controlling new dwellings subject to permit not required for agriculture. The new decision guidelines of both zones draw attention to the need to assess the effects of dwellings on agriculture. However, beyond this, neither zone generates significant new rights or expectations in relation either to wind energy facilities or dwellings that should affect the Panel's findings or require any further consultation with any party in relation to the land use effects of the project.

The Panel concludes with respect to land use that it is not necessary to assess amenity impacts on proposed house sites on adjoining land, except where there may be an adjoining rural tenements of over 40 ha without a current dwelling, where the owner may reasonably request assistance to determine where a dwelling can be located without adverse amenity impacts.

It follows that the Panel recommends as follows:

The proponent should enter discussions with the McDougall family and any similarly located owners of rural tenements over 40 ha close to the proposed wind farm which currently lack a farm dwelling. The purpose of these discussions should be to advise of areas within their land where a dwelling site can be selected to ensure that appropriate amenity standards, equivalent to those of existing dwellings, will apply.

In relation to all other dwellings that post date the wind farm planning process, whether as of right or subject to permit, the following principle should apply: the onus of responsibility – for the cost of management of turbine noise and blade shadow amenity impacts – should fall upon the agent of change.

Where a new dwelling is as of right, it should not be subject to the amenity protections otherwise provided in the wind farm development approval.

Where a new dwelling is subject to permit, it will be normal to expect that the wind farm operator may object and request the application of a permit condition to ensure appropriate siting and or design measures to reasonably control amenity impacts.

18.4 SUMMARY OF FINDINGS

In relation to land use issues, the Panel has considered the degree to which a wind farm might limit ongoing agricultural activities on surrounding farms, or lead to loss of stock health or productivity. No adverse impact of any description was found.

In relation to the retention of opportunities for other rurally related use and development, the Panel has considered planning scheme policy which directs it to consider possible future development. It has concluded that as a general position, where new dwellings are sought as of right or subject to permit in locations within a range where adverse amenity impacts might apply, the onus of responsibility – for the cost of management of turbine noise and blade shadow amenity impacts – should fall upon the agent of change; generally the constructor of the new dwelling.

The only exception to this principle appears to be where an existing agricultural tenement lacks an existing single dwelling for agricultural purposes. In such circumstances, the Panel considers that it is reasonable for the landowner to be able to seek the assistance of the proponent in locating the best and most feasible location for a dwelling and for amenity standards at that location then to be protected by permit condition binding on the wind farm operator.

19. OTHER EFFECTS

In addition to the primary heads of evaluation examined above, the Panel noted that the EES and SEES or submissions to them raised some other issues at least in passing that warranted some level of comment, although in the Panel's view none of these would be determinative issues.

In no particular order of priority therefore, this section considers:

- distribution system alignment
- aviation impacts
- electromagnetic issues
- historic military use;
- hazardous substances; and
- decommissioning.

19.1 DISTRIBUTION SYSTEM ALIGNMENT

At the stage of initial hearings for the EES, prior to the amendment of the proposal and the exhibition of the SEES, there was a considerable level of public anxiety about the means whereby the project would be connected into the electricity supply system.

The region having not long before gone through the Basslink process, there had been considerable exposure to visual and environmental effects of major transmission line proposals. Wind farms were seen as objectionable by many, but major transmission lines were seen by many others as being equally objectionable, if not more so. Should such an alignment be required, there would in the views of some submitters need to be many kilometres of new pylons, marching across the pastoral landscape of South Gippsland, far beyond the range at which the wind farm itself would be perceived as a minor impact. There was immense concern that such a result could eventuate, with apparently no willingness on the part of the proponent or desire on the part of government to subject the alignment to any public test.

However, this in itself was a misconception. It was a misconception because few except the very largest of wind farms require to be attached to the electricity transmission system. One of the virtues of wind farms in electricity system terms is that they can often be located within and feed into the local distribution system. With output at typically no more than 66kV, most wind farm grid connection needs can be accommodated on normal roadside power poles. In short, there would be no pylons. Further to this position, a planning permit application for the grid connection was not required as a matter of law, for most local distribution system assets fall within the planning scheme definition of a *Minor utility installation* which, because of their ubiquity and in principle low impact, do not require a planning permit in any relevant zone.

The very fact that such a misconception arose and became widely disseminated in the local community provides no resounding endorsement of the EES public communications and

consultation framework. It is a textbook example of a major public issue that became so, not because of any substantive concern, but simply due to the failure of the proponent to effectively communicate the real (and modest) requirements of the project.

The Panel appointed to hear the EES noted that issue had become a major concern. Notwithstanding that a planning permit was not required, it noted that there was an argument that the alignment should be considered as part of the EES process, on the view that if it gave rise to environmental effects, principally through the removal of native vegetation, these should be assessed. By taking such a view, it also sought to provide the community with the necessary information by which to make an informed judgement on its seriousness, or benignity.

It was on this basis that the evidence of Mr Ross Ipenburg was called by the proponent to set out how the alignment siting and design process might proceed and what its visual and vegetation effects might be.

The evidence identified a range of potential routes (largely as existing power easements and road reserves) and assessed a possible alignment corridor. The corridor was not definitive. However, in the Panel's mind, the evidence demonstrated that there was no reasonable prospect that the wind farm might be permitted, but left without a practical or environmentally acceptable means of connecting to the grid. The range of options available and their nature suggested that several could provide viable routes and in doing so occasion no more environmental harm than that caused by installing a typical distribution line in rural land – an action that of itself would not merit an EES.

The Panel's perspective is that, where there are choices between possible routes of broadly equivalent length and cost, the route entailing the least loss of native vegetation should normally be selected. Undoubtedly, some native vegetation would need to be removed on the chosen alignment. A separate planning permit would be required for this under clause 52.17 of the planning scheme at the appropriate time, for whilst existing distribution alignments have a permit exemption from vegetation works, new alignments do not. The specific issues raised could be properly assessed through that process.

As matters eventuated, there was limited public interest in Mr Ipenburg's evidence, and, other than some questions from the public gallery, few submissions then went on to raise concerns about the grid connection issue. Mr David Debenham was concerned about stock electrocution. Mr Tuck was concerned about construction contractors means of obtaining access to private land. However, the Panel considers that the proposed connection raises no special issues in these regards and so requires no formal assessment.

19.2 AVIATION

Aviation issues were not widely raised in submissions. The project site is not near an existing airport. It should be noted that the design of the proposed wind farm meets CASA criteria, without any necessity for night lighting of nacelles or blade tips. In that such lighting can be visually intrusive in a rural setting, the Panel prefers it not to be used and considers that design to avoid its necessity offers visual and landscape benefits and should be maintained.

19.3 ELECTRO MAGNETIC EFFECTS

Few submissions raised issues of electro-magnetic effects. However, the capacity for wind farms to impact on television and radio reception is noted. The proponent has proposed a condition that would trigger a survey of existing reception quality, followed by a complaints mechanism to enable reception to be remedied. However, the proponent did not then turn its mind to the extent of the area to which such a survey should apply. The Panel notes that there are relatively few dwellings surrounding the site. It considers that, on a precautionary basis, it would not be unreasonable to apply such a survey and remediation requirement to the defined 3km radius shown in the map to document WPPL151B.

Further to the Panel's consideration of the evidence of Mr Ross Ipenburg above, it should also be noted that this addressed the question of electro magnetic radiation to be expected from 66kv distribution lines, including that proposed to run within the wind farm site. The Panel is clear from this evidence that there would be no unacceptable human exposure or adverse health effect due to such a line.

19.4 MILITARY USE

Submissions raised concerns that the Bald Hills had been used during World War II as a location where artillery practice had taken place. Mr Matthew Townsend of Counsel for Tarwin Valley Coast Guardians called evidence from Mr Bob Dearing, a local resident who had observed 25lb howitzer shells being fired from the Box property towards the Bald Hills Ridge.

The Panel notes that such activities affected many properties and places in the exigencies of wartime, but do not normally present a constraint to contemporary proposals for use and development. For example, Japanese bombardment of Darwin and the possible existence of unexploded devices is not now seen as posing any valid constraint to use and development in that city. The central business districts of many European cities were similarly bombed or shelled and yet remain used and developed at great intensity. It is of interest that a historic military use has been authenticated through evidence and the Panel thanks Mr Dearing for his efforts. However, the Panel does not consider this issue to be relevant to an assessment of environmental effects or to a determination of the planning permit application per se. It is sufficient to know that the activity occurred, enabling existing landowners and/or developers to take appropriate precautions when excavating, against the remote possibility that unexploded rounds may still be present.

19.5 HAZARDOUS SUBSTANCES

In comparison with most energy related land uses, wind farms are not major sources or accumulators of hazardous substances. They are considered at very low risk in terms of giving rise to soil or water pollution. The construction period provides the highest risk. Some fuels, solvents and lubricants will require storage. A proposed permit condition provides adequately for this.

19.6 DECOMMISSIONING

Submissions raised concerns that a wind energy facility would somehow be exempt from normal requirements for extractive, energy or industrial land uses to decommission redundant plant and make good the land on the cessation of their activities. These concerns were fuelled to some extent by US experience, which has included poor practice in decommissioning, with redundant technology left unremoved. They were also fuelled by proponent evidence to the extent that decommissioning would be assisted by the significant scrap or re-use value in redundant turbines. Submitters were concerned that whilst this may be the case, the wind farm operator should remain liable for decommissioning and safe removal of all redundant equipment. Substantial liabilities should not be left to fall on the landowner.

The Panel is clear that the only justification for the considerable visual amenity and landscape effects of wind turbines is that they are productive – making electricity. If this should cease then the Panel considers that the turbines should be removed. Further, there appears no reason why the wind farm operator should not be charged with the obligation of removal and making good in an environmentally responsible manner. However, as long as this can be provided for, the issue of decommissioning alone presents no other reasonable impediment to the proposed use and development, as there are no significant contamination, health or safety issues that emerge from wind energy use. It is established practice for planning permit conditions to be used to regulate decommissioning in a range of industries. The Panel defers its detailed consideration of this issue to the chapter on permit conditions below.

20. PERFORMANCE EVALUATION

The purpose of this section is to draw together the Panel's evaluation of individual environmental issues against relevant objectives using criteria that it has developed to reflect those objectives. It aims to synthesise an overview of the environmental effects of the Project, leading the Panel towards its recommendations. Section 7 above explains the basis of the Panel's selection of an 'evaluation matrix' method to achieve this synthesis.

This section therefore:

- uses an objective based evaluation matrix to present the Panel's findings; and
- applies necessary qualitative adjustments to the matrix ranking of options leading to proposed outcomes.

20.1 THE EVALUATION MATRICES

The evaluation matrix in this section sets out the outcomes of the Panel's evaluation of the matters that it has identified as necessary to perform its tasks as described in Sections 8 to 19 of this report above.

It sets out the Panel's evaluation of exhibited project components against criteria relevant to the 14 heads of evaluation. The criteria used in the matrix are drawn forward from Sections 8 to 19 above, where they have been generated by the Panel to respond to its Terms of Reference and the issues and relevant objectives identified by it. The evaluation scores summarise the discussion and findings on each issue. They are assessed on a scale of 1 to 5.

- A score of 1 represents an assessment that the Project performs poorly against the relevant criterion.
- A score of 5 represents an assessment that the Project performs optimally against the relevant criterion.
- A score of 2, 3 or 4 represents an assessment that the Project performs in a position on the scale between 1 (poor performance) and 5 (optimal performance).
- Equal performance has been noted with an equal score.
- Score assessments have been carried out on an objective rather than relative basis. For example, if no aspect of the Project performs poorly, the score of 1 is not assigned. If no aspect performs optimally, the score of 5 is not assigned.

The matrix provides readers with an overview of the result of the Panel's evaluations.

In commenting on the matrix, it should be noted that its design is relatively simple. Unlike the Portland project, the Panel did not consider that it was necessary to break the proposal down into its component parts for evaluation purposes. It tested such an evaluation, but came to the conclusion that it would yield no benefit, as the performance of any one project component was not significantly different to that of the project as a whole.

Matrix 1: Summary Performance Evaluation Scores

	<i>Project Total</i>
Section 8: sustainable development	3
Section 9: landscape	4
Section 10: natural environment	2 ⁷⁵
Section 11: cultural environment	3
Section 12: physical environment	4
Section 13: acoustic amenity	3 ⁷⁶
Section 14: visual amenity	3
Section 15: roads and access	4
Section 16: economic effects	3
Section 17: social effects	2
Section 18: land use effects	3
Section 19: other effects	3

Additionally, it should be noted that the Panel in this case has not used a second matrix to set out explicit numerical weightings for its assessment of performance against individual heads of evaluation. In Portland, the policy context was limited and incomplete: PPG – WEF, with its guidance as to weighting of issues was not available. There were significant possibilities of outcome change due to changes in weighting between heads of evaluation. In these circumstances, the Panel considered that its own approach as to weight needed to be made explicit.

However, in this case, the Panel has much clearer direction from policy. Further, the Panel also observes that it considers its findings and recommendations in this case not to be greatly amenable to change due to weighting differences. For these reasons, it has set out all necessary qualifications to its matrix analysis in the following text.

⁷⁵ This assessment is qualified further below.

⁷⁶ This assessment is qualified further below.

20.2 QUALITATIVE RESPONSE

20.2.1 BALANCE OF PERFORMANCE AND WEIGHTINGS

It can be seen from the matrix above, that the Panel considers the project to offer a good to moderate performance across a wide range of measures. Further, in no area does the Panel consider on principle that the site choice exhibits a fatal flaw or a significant shortfall in performance. Such an assessment is generally supportive of the view proffered by a number of witnesses for the proponent, namely that the site is, across a wide range of measures, a good location in which to locate a wind farm.

- It enjoys a good wind resource, with an orientation to the coast, topographic setting and lack of large scale vegetation that enable this to be accessed well.
- For a coastal location it enjoys a relatively low density of land use and occupation. The surrounding population is relatively limited.
- In landscape terms, it has been drawn back from the coast. Whilst it will clearly be seen from the coast and foreshore in a number of locations, this will not in itself cause significant harm to coastal settings or enjoyment of much of the coast.
- In terms of landscape values more generally, it is well located. It is at the centre of a landscape region of pleasant but unexceptional character and quality. This region is in turn enclosed by topographical divisions that will limit the extent to which there will be views to the project from adjacent landscape regions with higher landscape values.
- The settings of Wilsons Promontory as a key landscape asset has been safeguarded.
- The setting of local townships will not be unduly affected.
- Considerable harm will be done to the local landscape setting of the Bald Hills Ridge, particularly as seen from the Buffalo – Waratah Road, the Bald Hills Wetland Reserve, Kings Flat Flora Reserve and less accessible portions of Cape Liptrap Coastal Park, but in terms of the weightings in current policy, this is not weighted highly.
- In terms of amenity impacts, these will be significant for some local residents, but untoward for none.
- Relevant standards in relation to shadow flicker can be met.
- Normal site monitoring and consent regimes can address possible issues in relation to Aboriginal cultural heritage values.
- Native vegetation effects can easily be reduced to a point of being limited and controllable.
- Ground fauna effects are limited and controllable.
- Normal environmental and construction management principles and procedures can be used to address a range of access and construction effects.
- The site design is a good response to the landform and to site constraints. It provides sufficient scope for turbine micro-siting and relocation, should this prove necessary beyond the immediate recommendations of this Panel.

In reaching this position, the Panel must observe that it has, as indicated by PPG – WEF, placed high weight on government support for wind energy development and for non-greenhouse emitting forms of generation. It has placed moderate to high weight on the need

to ensure the amenity of the surrounding area is protected in non-aesthetic terms, including attention to issues such as noise, blade glint, shadow flicker and electro magnetic interference. It has placed moderate weight on issues such as highway safety, aircraft safety, construction management and the like, noting that these are all capable of being handled without undue risk using normal procedures and techniques. It has placed low weight on questions of landscape impact (where these were demonstrated as not relating to assessed high tier values) and visual amenity impact (where these were demonstrated as not being extreme to the extent that living quality was compromised). However, it must observe that even if landscape and visual amenity considerations had not been constrained as to weight by policy, on balance it would still have judged that the site was broadly appropriate for a wind farm in these terms.

Readers will note in the context of an EES and SEES process that the Panel has not touched on one key analysis area in its discussion of performance, balance and weight above: natural environment considerations. Such considerations are clearly of great weight in this case. However, in relation to impacts on both birds and bats and the means by which these were evaluated before the Panel, they clearly require some more detailed analysis and provision of direction before the Panel can reach its primary recommendation. The nature of noise evidence and the issues arising from it was also such that it requires some additional analysis. The Panel also wishes to address some final remarks on questions of EES process and quality, which although not outcome critical, are worthy of note. Drawing these evaluations together with its consideration of the balance of performance, it then makes its primary recommendation.

20.2.2 QUALITATIVE EVALUATION: NATURAL ENVIRONMENT

In relation to natural environment impacts, the Panel must identify that its performance assessment is a qualified one in relation to both birds and bats.

In relation to birds, the Panel must re-emphasise its view that the proponent has demonstrated as far as is required that there is very little likelihood of site utilisation by the Orange-bellied Parrot and therefore, in the Panel's mind, no direct justification for off site mitigation works in relation to this species.

Turning to the bird evaluations more generally, the Panel considers that it is likely that the site experiences low bird utilisation, and in particular low bird utilisation by listed species including migratory birds. However, it has not been convinced that Mr Brett Lane's surveys, as presented and explained before it, have sufficiently discharged the obligation to indicate that this is so to an appropriate level of caution. A large part of this problem has emerged from Mr Lane's failure to clearly explain the statistical basis for his work. His presentation did not reassure the Panel that the lack of early morning and late afternoon survey hours from his investigations led to a situation in which findings on bird utilisation and species presence were sound. He did not introduce statistical analysis of comparative utilisations such that it could clearly be demonstrated that if (say) an early morning or late afternoon survey period were added to the survey and these (say) doubled the observed bird utilisation, that this finding would not materially change the outcome of the study.

The Panel has a concern that, notwithstanding that Mr Lane said in un-crossexamined closing submissions that some level of targeted examination of the adjacent Bald Hills Wetland has informed his survey design, this was in no way apparent in his exhibited work, disclosed

witness statements or evidence. Again, given the potential argued by submitters for the utilisation of this site by listed and particularly migratory species, the Panel considers that Mr Lane needs to demonstrate that such utilisation was excluded by an early targeted examination. Reference to original site notes and conclusions may achieve this end. In short, it appears that this work may have been done, but the quality of Mr Lane's documentation is such that this conclusion cannot safely be drawn.

The Panel has a concern that the philosophy of the bird analysis was insufficiently responsive to the precautionary principle. In relation to flora, or ground fauna, or bats, there are a number of circumstances where a relevant species could not be demonstrated to be present on or use the site. Nevertheless, an assumption of presence was made for planning purposes, where it was prudent to do so. Targeted surveys pre-approval surveys were undertaken and in some cases pre-construction surveys were specified to inform micro siting decisions. In contrast, the bird work appears simply to be based on the view that if a particular species was not observed, in general terms it does not use the site and no impact could result.

The Panel also has a concern that apparently useful guidelines have do not appear to have been followed. AusWEA as the wind energy industry peak body commissioned Mr Lane to provide some apparently thorough guidelines on ecological survey considerations for would be wind energy proponents. These guidelines take a precautionary approach and, for example, suggest the use of a wide range of possible data sources to indicate species utilisation and volume. However, Mr Lane has not used a number of his recommended sources and to this extent stands as not having followed his own apparently sound advice.

In terms of the next steps, the Panel does not consider that this situation merits refusal of the permit as applied for. The Panel notes that much of the doubt has arisen from poor and confused presentation and the lack of a systematic approach to the recording of assumptions and evaluations. The Panel considers that the proponent should be invited to re-present Mr Lane's work to Department of Sustainability and Environment Flora and Fauna officers as a single, complete and systematic evaluation. From this exercise, should there then prove to be any remaining data or methodological gaps that cannot be explained with reference to verifiable sources such as original field notes, Department Officers can then specify such additional work as is required to fill the gaps. The Panel considers at this stage that it may prove possible that there are no gaps remaining to be filled.

If this work demonstrates that there are gaps, then further surveys or statistical evaluations may need to be undertaken. The Panel notes that there will be a fine line here between work that may properly be done by the proponent's consultant, to the satisfaction of the Minister, advised by relevant Departmental Officers, and circumstances that indicate a requirement for significant additional evaluations, which in turn might change the formal conclusions of this Panel and the Minister's assessment. Should the latter prove to be the case, it would clearly be appropriate that any new material underwent formal EES evaluation.

Turning to bats, the Panel notes a different circumstance and concern. In relation to the Southern Bent-wing Bat, the proponent has undertaken targeted evaluations and these have proved inconclusive as to utilisation. Nevertheless, it has not been suggested that utilisation can be excluded, so impact remains possible. Noting the relatively small Bent-wing Bat population at the known Arch Rock colony, the Panel considers that the levels of bat impact are not likely to be significant in overall population terms. However, a post construction and operation monitoring programme is clearly merited and would have the considerable benefit of providing hard data for future coastal wind farm approval processes in Victoria.

20.2.3 QUALITATIVE EVALUATION: ACOUSTIC AMENITY

The Panel also considers that some remark is necessary in relation to acoustic amenity issues in terms of overall performance.

The proponent's acoustic evidence provided a good response to the circumstances of the site and modes on analysing potential noise impact, as these stood before the emergence of research by Mr Frits van den Berg of the University of Groningen. The Panel notes that Mr van den Berg's research suggests the possibility of a significantly greater than typically modelled and predicted noise output and impact from windfarms in circumstances of stable air conditions, which tend to occur at night, when these effects tend to disturb sleep. He also suggests that some special audible characteristics may be experienced at greater volume and distance from a wind farm site than is typically predicted.

These effects have not yet been demonstrated to result from the mechanism postulated by Mr van den Berg, through repetition on his research site, or research on other sites. Nor has it been demonstrated that the Bald Hills site clearly will give rise to them. There are a significant number of variables that require to be controlled before hard conclusions can be drawn. It is on this basis that the Panel observes that it is not proven that the van den Berg effect is in any way likely to specifically affect the Bald Hills development.

That being said, proponent analysis of meteorological conditions prepared by Mr White of Garrad Hassan suggest that there may be a significant occurrence of stable air conditions at Bald Hills. In turn, it appears that much of this air condition may indeed occur at night over Bald Hills.

These are circumstances that in the view of the Panel merit caution and this is why the Panel has indicated only moderate performance for noise. That being said, the Panel considers that appropriately drafted conditions can provide for circumstances where if adverse impacts at night of the types suggested as possible by Mr van den Berg begin to eventuate, effective and staged controlling action can be taken. With these changes, the Panel considers that the NZS6808 noise control regime is still sufficiently robust and performance based to ensure that an acceptable noise regime will result.

Also in relation to noise, the Panel observes that the proponent has proposed an open, transparent and independent mechanism of noise monitoring and review, which the Panel has recommended only minor changes to. In the Panel's view, this model represents a great step forward in accountability from the approaches taken in previous wind energy facility approvals and is to be broadly welcomed.

20.2.4 QUALITATIVE EVALUATION: EES PROCESS

At this closing stage of the report, the Panel must also refer once more to some themes raised in submissions: that the EES was a poor quality document; that the proponent's engagement with the community and consultation had been poor; that channels of communication were limited and sporadic; that little was done to integrate local opinion into the design or assessment process and that conflicts had been unduly exacerbated.

The Panel has considered these submissions to the degree that they relate to a view held by some that the process had caused such deep social division and harm that that alone would justify that the project not proceed. It has found that such harm as has been done is of a limited and temporary nature and will not cause a long term detriment, adversely affecting the project's balance of performance.

However, that being said, the Panel collectively has many years of experience of major development projects documentation and approvals process. It has to observe that the Bald Hills EES (as opposed to SEES) process does not stand out as a best practice model to which others should be directed. Its remarks in relation to natural environment assessment set out above are one field of concern and have been well explained. It must also observe that, until the Minister made her determination that a change in turbine numbers required to be the subject of an exhibited supplementary assessment, many consultation and communication aspects of the process were also handled poorly.

The proponent has paid a price for this. It has encountered the wrath of a local community which in turn generated a very large number of submissions, leading to a Panel process that was lengthy and involved. High levels of community concern have in turn translated into a rigour and attention to detail in the Panel process that the proponent may well have found frustrating.

The proponent could have paid a further price. In some EES processes, community consultation identifies issues and considerations that turn out to be key. By failing to fully engage in the earlier stages, the proponent ran a greater than normal risk that such an issue might emerge through the Panel hearing process, not having been identified or assessed at an earlier stage. In the Panel's view, it was to some extent a matter of luck in site selection that this did not occur.

The Panel would be the last body to suggest that a good consultation and communication strategy can make substantive environmental concerns go away: it is axiomatic that they cannot. However, the converse is true. A poor consultation and communications strategy can take moderate scale and resolvable issues and magnify them to the extent that they appear insoluble to some.

Further, whilst few communities are made up of people who universally embrace change, it is the Panel's experience that proposals for major change can have a much better start in most communities, if the proponent has engaged positively and is seen as coming in good will, with an open mind from the outset. This in turn tends to manifest in a greater focus on the issues of genuine doubt and dispute, and a less emotionally charged process, when the time for formal assessment arrives.

The Panel understands that many in the South Gippsland community will be deeply frustrated that what they perceive as an inadequate process has nevertheless resulted in circumstances where the project is likely to proceed. In this regard however, the Panel can only reiterate that planning permits and environment assessments are not merit awards. They are considered on questions of fact and effect alone. Once the threshold of information adequacy is passed, a decision maker is entitled to decide, and in doing so should not take into account the quality of the process, as opposed to the outcome, beyond ensuring that necessary statutory requirements, procedural fairness and the rules of natural justice are complied with.

20.2.5 PRIMARY RECOMMENDATION

It therefore follows that the Panel's primary recommendation is as follows:

Subject to the Panel's detailed recommendations below, the Bald Hills Wind Farm Project should be assessed as being appropriate to proceed in environmental terms. The planning permits applied for should be granted subject to conditions as discussed in Chapter 21 of this Report.

21. PERMITS, CONDITIONS AND ENVIRONMENTAL MANAGEMENT

Having reached the position that the proposed development has an appropriate environmental impact and should proceed broadly as applied for, the Panel has then turned its mind to the conditions and environment management requirements under which this may occur.

The Panel directed the proponent to place draft permit conditions on the table. This in turn enabled consideration of the draft by parties and a round table examination of permit conditions. This document is attached as Appendix D.

This chapter briefly summarises the issues raised in those submissions and indicates the degree to which changes are considered to be necessary.

The Panels recommended conditions are found in Appendix E.

Permits for the proposed use and development should be granted subject to the relevant conditions outlined in Appendix E to this report.

21.1 ISSUES RAISED

21.1.1 FORM OF THE PERMIT(S)

Because of concerns over the degree to which the schedule to Clauses 61.01 to 61.04 (inclusive) to the planning scheme enabled the Minister to act as the first responsible authority for the exercise of discretion in relation to native vegetation under Clause 52.17, two separate permit applications were made. That for native vegetation works was made to the South Gippsland Shire Council. However, it has subsequently been called in by the Minister who is now clearly the responsible authority for it.

On this basis that this had occurred, the Panel sought views from parties as to whether there should remain to be two separate sets of permit conditions. Parties seemed little concerned on this point. The proponent having assembled a single set of conditions was content with this approach, indicating only that if technical advice suggested otherwise, a separation of conditions could take place.

The Panel has proceeded on this basis, addressing the substance of the issues raised in draft submissions. It has no particular concern that these eventuate as one permit or two permits.

21.1.2 RESPONSIBILITY FOR ADMINISTRATION AND ENFORCEMENT

There were general concerns raised that a wind energy facility permit requires skills and resources for effective monitoring or possible enforcement that are not to hand in a rural municipality. South Gippsland Shire Council preferred not to be the responsible authority for satisfaction, compliance and enforcement purposes. The proponent in turn took the view that where matters were specified as being to the satisfaction of the Minister, the Minister would remain the responsible authority for the relevant issue, and attended to its drafting on that basis.

Section 97 H of the Planning and Environment Act provides that the first responsible authority becomes the responsible authority for administration and enforcement. As the Minister is the first responsible authority for the bulk of the subject matter of the permit conditions, relating to the wind energy facility, the Minister appears the logical person to act in this capacity. However, against the possibility that there may be doubt as to whether the Minister was the first responsible authority in relation to conditions that bear on native vegetation issues, the Panel has for safety taken the view that the role of the Minister as being responsible for any action, approval or satisfaction should be specified for the purposes of section 97H (a). This step should ensure that all conditions refer to the Minister as the single responsible authority.

21.1.3 COMMUNITY TRUST

A number of submitters were of the view that if the development went ahead, community responses to it would be improved if the developer were seen as a good corporate citizen. It was suggested that it should be required to establish a 'community trust' under which payments would be made to a range of social and environmental causes in the neighbourhood. The possible of community equity in the wind farm was discussed, as was the role of Stanwell Corporation at Toora as a sponsor of local community associations and events.

The Panel considers that in terms of rebuilding links with the local community, there would be considerable benefit in the proponent investigating the ways in which it could assist. There will undoubtedly be a range of opportunities for sponsorships and the like, although sensitivity will be required to ensure that offers are not made in a manner that causes conflict within bodies that are still split over the merits of the wind farm proposal. Local equity in the wind farm could be examined. Overseas experience suggests that local equity schemes do increase the local acceptance of such facilities.

However, in general terms, such issues are ones of corporate citizenship, as opposed to planning. They are not strictly necessary to make the proposed use or development acceptable in planning terms, and on this basis need not be provided for in conditions. The Panel here follows the approach of the Portland Panel, which found against a range of conditions proposed by the proponent there, on the basis that the represented 'largesse', as opposed to actions strictly necessary to ensure the ongoing acceptability of the proposed use and development. The proponent here has not indulged in such 'largesse' to date. It will be a matter for its consideration with the local community in future as to whether it does so on a voluntary basis.

That being said, the Panel does consider that some actions that were discussed in the 'community trust' concept should be separately provided for in conditions. These relate to

proposals for visual amenity and landscape mitigation works, that are provided for by condition in Appendix E.

21.1.4 AGRICULTURAL EFFECTS

There were submissions that the proponent should design and fund a study into the effects of wind energy on livestock health and behaviour. As the Panel was not persuaded by Dr Malmo's reportage of Mr Ditta's cattle concerns and there is no other basis to predict an adverse effect, the Panel declined to recommend such a condition.

Many third party submitters were concerned that they might find their land burdened by a planning control of some nature preventing lambing in the interests of controlling the attraction of raptors. The Panel has found above that such a condition was used in the Woolnorth facility in Tasmania, but only on land in the control of the proponent. There is no basis in law or practical requirement for such a condition over third party land in this case.

21.1.5 VISUAL AND LANDSCAPE EFFECTS

Submissions proposed that the colour of turbines should be adjusted to minimise contrast when seen from the most sensitive viewpoint. The Panel cannot accept this proposal. Wind turbines are massive structures. They are seen from an incalculably large number of points in the surrounding landscape and there are many differing judgements about precisely which ones of these are the most sensitive. They are also seen under infinitely variable light and weather conditions. In such circumstances, attempting to differentially colour each turbine to respond to views from a particular defined 'sensitive' location can cause their visual impact to be exacerbated from other locations.

If for example at Toora, one were to accept that the most sensitive possible viewing location was from Wilsons Promontory, one would note that the turbines are seen from many viewpoints there against a backdrop of forested hills. There would be a justification for painting them mid-green. However, when viewed from locations closer to the windfarm, the turbines are seen against cleared pasture land and sky. A mid-green colour would unduly emphasise their scale and dominance. On balance, the Panel considers that a standard off white colour scheme as adopted in most European projects over the past decade represents established best practice in terms of minimising visual impact over the widest range of viewing locations, light and climatic conditions.

The Panel also notes the proponent's view that turbine tower bases could be painted green. The Panel indicates that this should only be done where it would be clear that the great majority of viewpoints from public land would have views to that part of the turbine against land, not sky.

21.1.6 COASTAL EFFECTS

Some submitters argued that a condition should require a comparative coastal landscape evaluation. The Panel views this as a piece of in principle strategic assessment. To be of value to the approvals process it would have to have occurred before the EES. As the Panel has concluded that it has sufficient information to hand to make findings on coastal landscape, an additional study serves no useful purpose.

21.1.7 VEGETATION

There were submissions to the extent that conditions should provide for the avoidance of native vegetation by turbines and tracks. To the extent that the Panel considers this view to have merit, it has made recommendations along these lines and provided for the non utilisation of turbine 10 and alternative turbine A2.

Further a response to questions by Mr John Cleary, some submitters were concerned that revegetation and landscape schemes might include exotic and pest species, on the justification of quick growth.

The Panel considers that all revegetation and most landscape schemes should use native vegetation of local provenance. However, it is reluctant to be too prescriptive in relation to the settings of dwellings, where landscape mitigation might respond to the existing presence of exotic trees, by augmenting these further with related plantings. There should not be a blanket prohibition on exotic species for amenity planting purposes.

There was a view that landscape screen planting along roads should not reduce open areas by more than 10%. the Panel views this figure as essentially arbitrary and not necessarily responding to the specific issues of road users and local residents. At the end of the day, the proponent will have to prepare a scheme and the Minister will need to endorse it. However, the Panel considers that it is reasonable to provide for local consultation before that occurs, as opposed to applying percentile performance standards.

21.1.8 OTHER BUFFERS

Some submissions were made to the extent that the wind farm could be permitted but subject to the requirement that all necessary amenity standards (noise, blade shadow etc.) should be met at the boundary of land controlled by proponent stakeholders.

Issues about buffers were considered at length in the Portland process and considered by Government. PPG – WEF has been issued in a form that clearly contemplates that a wind farm will not control all of its required buffers. The Panel has found accordingly and does not propose to add a condition to this effect as it would not be supported by policy.

Other submissions suggested that conditions should provide for a greater buffer setback to the Bald Hills Wetland. This is a matter that falls within the scope of the Panel's recommendations on bird issues and requires additional evaluation.

21.1.9 CONDITIONAL SHUTDOWNS

A number of submissions raised the possibility that turbines could be required by condition to be shut down, if certain circumstances were met.

It was suggested that all turbines should be shut down at night to control noise effects. The Panel cannot endorse this proposal, as to do so would significantly undermine the capacity of the facility to operate. The facility has to be judged as generally appropriate within the limits of amenity standards. However, that being said, the Panel has noted the widespread concerns of submitters, together with evidence about the possibility of adverse noise effects at night. It has noted the capacity of the wind farm operator to optimise turbine settings to reduce noise.

A requirement for this optimisation can be triggered by condition. It has also noted the willingness of the proponent to conditionally shut down individual turbines demonstrate to be a source of noise concerns in particular climatic conditions. This again has been provided for.

Submissions raised the possibility of shutdown to deal with particular patterns of bird activity, including high use of wetlands. This is an issue that requires further evaluation.

Submissions raised the possible need for turbine shutdown in cases of exposure of dwellings to shadow flicker over 30 hours per year. The evidence of the proponent has been to the effect that this will not occur on third party properties. Nevertheless, this is a clear amenity requirement of PPG – WEF and should be provided for in conditions.

21.1.10 ROADS, ACCESS AND INFRASTRUCTURE

There were concerns that Stewarts and Dunlops Road and/or Buffalo Waratah Road should not be used for construction traffic. The Panel notes the necessity for a traffic management plan that will provide for issues of road utilisation in detail. However, in principle, the access arrangements shown on the submitted plans avoid the need for the use of these minor and unsealed roads. The Panel considers that the approved plan should maintain this approach, unless very clear arguments are advanced for change.

There were concerns that road and access works both within and off the site should be conducted to ensure the erosion, dust and water quality impacts were controlled. The draft permit conditions refer to EPA publications 'Construction Techniques for Sediment Pollution Control' No 275, May 1991. The Panel considers that this point is addressed in principle, although for certainty, it has also cross referred to the publication in conditions dealing specifically with roads and access as opposed to generic environmental management.

South Gippsland Shire Council considered there should be a bond against possible damage and rehabilitation costs to roads. On principle, the Panel considers that a bond is not necessary, as conditions can (and are recommended to) deal with the issue. Further, the provisions of Section 207F of the Local Government Act 1989 (Right of Council to recover for damage to road from person responsible) are intended to address damage caused to roads by such as wind farm construction traffic. To avoid the evidential issues that might arise in pursuing an action under this section, the Panel has recommended a prior condition and necessary works survey be undertaken. The Panel is aware of concerns that the proponent might cease to trade, but points out that any road rehabilitation liability will arise during and/or very shortly after the construction period. If the proponent is financially secure to the extent that it can undertake a multi-million dollar civil works project, the Panel would consider that it is also likely to be secure to pay necessary road remediation costs.

21.1.11 DECOMMISSIONING

A number of parties expressed the view that there should be a decommissioning bond requirement, under which a sum of money would be set aside to cover the cost of site rehabilitation, should the proponent or a subsequent wind farm operator cease trading.

The proponent was not in principle opposed to such a concept, although it did request that if it were to be required, some forbearance should be provided such that capital did not have to be advanced during the construction period. Possibilities of staged payments over years were considered.

The Panel has given this concept careful thought. In principle the concept is attractive. It supports the 'polluter pays' principle and could assist in setting a new industry off on a truly sustainable footing, with no doubts as to whether the public would assume significant environmental liabilities. Decommissioning or restoration bonds have been used in extractive industry and mining.

On balance at this time, the Panel has concluded against such a scheme. Its reasoning is twofold. Firstly, the Panel notes that this wind farm follows the typical arrangement of having a proponent and prospective operator, together with a range of stakeholder landowners, who propose to lease land to the proponent for the purposes of constructing and operating a wind farm. It is a basic and rarely breached principle of planning that a planning permit is not a personal thing. Certainly, this permit is not proposed to be. Further, a planning permit runs with the land to which it relates. In these circumstances, unlike a typical minerals operation where an operator is also the landowner, there are two lines of defence when plant falls to be removed from the site. Should a responsible authority seek to take action against a wind farm operator, only to find that it has ceased to trade, action can also be taken against the landowner. The Panel has redrafted relevant conditions to clearly provide for this. As part of the private law relationship between the operator and the landowner, consideration will then have to be given to the appropriate allocation of the risks of decommissioning liability.

Secondly, the Panel notes that a wind farm, unlike most forms of industry or minerals undertakings, does not give rise to extensive or potentially harmful effects such as soil or water contamination that require remediation, or excavations that requiring filling or stabilising. The liabilities are not of a potentially untoward scale.

Finally, the Panel would observe that there is a question of industry policy here. Decommissioning bonds have not been used in wind energy facilities in Victoria to date. For this reason, a decommissioning bond should not be placed on this project alone by simple fiat of the Panel, unless the Panel is convinced that it give rise to very particular circumstances, different from other projects, meaning that such an approach could be individually justified. The Panel does not see that to be the case. However, the Panel does consider that the Department of Sustainability and Environment should when next reviewing PPG – WEF give consideration to the principle and examine whether this is an industry that should be brought within a bond regime as a whole.

The Panel does not recommend a decommissioning bond in this case. However, when PPG – WEF is next reviewed, DSE should consider as a matter of general principle whether the wind energy industry is to which the decommissioning bond approach might be generally applied.

22. CONCLUSIONS & RECOMMENDATIONS

22.1 CONCLUSIONS

The Panel has considered all the submissions referred to it and all the material presented at the hearings and has reached the following conclusions.

Sustainable Development

The Panel finds that the greenhouse effect does exist, and should be considered relevant, significant and weighty. It does not accept submissions that the greenhouse effect is driven by mechanisms other than anthropogenic carbon emissions or is significantly smaller in effect than assumed for the purposes of global analysis in IPCC documentation.

The Panel is persuaded that significant greenhouse benefits that will flow from the project before it. These accord with government policy and are a persuasive and weighty consideration in support of the project.

The precise quantum of these benefits is not made out in this case. However, greenhouse information in policy and assessment processes should be presented in a way that does not simply state benefits as an 'absolute', but also draws public attention to the need for action in terms of diversifying the energy generation portfolio and the long term maximisation of emissions reduction benefits.

It is not necessary to an assessment of environmental effects or to a planning assessment to understand precisely how and to what extent various of our energy industries enjoy some level of subsidy or the price at which they deliver electricity to the market.

Landscape

There is no reasonable prospect of a strategic landscape assessment process for wind energy emerging or gaining government support, within a timeframe that could be relevant to this decision. On that basis, there seems no tenable argument that the proposal is premature or that decision should be delayed. However, even if a strategic landscape assessment were to be undertaken, the Panel does not consider that this site would be found to have the high tier landscape values necessary to warrant site avoidance in terms of the weighting on landscape issues provided in PPG – WEF. On balance, the site appears to be soundly selected in strategic terms.

The project will be seen from west coast areas of Wilsons Promontory National Park that are well-used by tourists. However, the capacity to view turbines does not equate to landscape harm. The remoteness of the site from the National Park and the intervention of the Mount Liptrap – Hoddle Ridge will prevent any tangible landscape impact on the Prom or harm to its wilderness qualities. The project is well located in terms of minimising impact on this highly significant landscape area.

The Panel finds that impacts on landscapes and key locations in the Waratah Bay landscape region will be limited and acceptable in terms of PPG – WEF.

- The landscapes and views of Walkerville North, Walkerville South and their settings are of high significance and quality. However, the project will not be viewed from them and will have no impact, other than for marine recreation a considerable distance off-shore.
- Sections of the Cape Liptrap Coastal Park located within the Waratah Bay landscape region will be unaffected.
- Cape Liptrap lighthouse and its immediate setting will be unaffected. Turbines may possibly be viewed from a nearby lookout but the Panel considers the landscape impact would be acceptable.
- The project will have insignificant or no impact on the environs of Sandy Point and Waratah Bay townships.
- The westward aspects of lookouts at Rock Hill and Prom Lookout will be significantly adversely affected, but the impact will relate to landscapes that are not of the levels of significance weighted for protection under PPG - WEF.

The Panel finds that impacts on landscapes and key locations in the Venus Bay landscape region will be limited and acceptable in terms of PPG – WEF.

- Close to the project site, landscape impacts in agricultural land will be high. However, the Panel agrees that the site and environs forms a pleasant but unexceptional and well represented landscape. The acceptability of high levels of local harm on such a landscape is made clear in current policy.
- There will be high landscape impact on land in Cape Liptrap Coastal Park on the landward side of the dune ridge, adjacent to the project site. However, the Panel observes that this land is, for all practical purposes, inaccessible and unvisited.
- To the seaward of the dune ridge, it the complexity of the terrain makes landscape impact on the Park foreshore difficult to assess. The Panel notes that the dunes will control and limit views to turbines but considers that these will not be completely excluded. Walkers on the Venus Bay to Cape Liptrap coastal trail are likely to experience repeated instances of blade movement across lower sections of dune horizon and this will impact adversely on their perception of landscape value and wilderness quality in the Park. The section of the trail from Arch Rock to the Cape will be the most significantly affected. Nevertheless, the acceptability of adverse impact on such a landscape is made clear in current policy.
- There will be high landscape impact from drained swampland to the north and east of the project site. This will offer limited capacity for mitigation through planting as this landscape does not host significant scale trees. Nevertheless, the acceptability of high levels of local harm on such a landscape is made clear in current policy.
- The landscape impact as perceived from the townships of Venus Bay and Tarwin Lower will be limited and acceptable.

The project will be widely seen from locations in the Inverloch and Bunurong Coast landscape region. However, the impact will be at a separation and scale that is sufficient to prevent harm and will be acceptable.

The natural landscape setting of Bald Hills Wetland Reserve will be harmed.

- The proximity of turbines to the reserve entrance will harm visitors' perceptions of the reserve and their view of the natural landscape experience to be obtained there.

- Opportunities exist to combine wind energy with natural environment and landscape interpretation at this site, to assist users to comprehend the nature and function of the landscape change and advise them that landscape values observed from accessible locations within the site remain little changed.
- Within the reserve, foreground vegetation and topography will largely control and limit any adverse landscape effects for viewers on the trail.
- Viewers' experience of nature at the bird hide will be adversely affected, but this impact is mitigable by changes to the track and bird hide orientation.

The natural landscape setting of Kings Flat Reserve will be compromised. However, the low significance of its landscape and the lack of strategic direction, access or interpretational facilities lead the Panel to the conclusion that no mitigation is reasonably required.

In relation to impacts on views from roads, the Panel finds that these are generally acceptable in the terms required to satisfy PPG – WEF.

- Significant sections of the Tarwin Lower – Waratah Road are currently screened from the project site by pine windbreaks that are likely to require removal in the near future. Action to coordinate replacement roadside and windbreak planting using native vegetation to maintain the current character of this tourist route is warranted.
- Views from Stewarts and Dunlops Road will experience character change due to the elevated situation of turbines and the open nature of the drained swamp land in which the road is situated.
- There will be harm to views in the section of the Buffalo – Waratah Road closest to the Bald Hills ridge. The proximity of the ridge and the elevation of the turbines above the road will make effective landscape mitigation difficult to achieve. However, existing roadside planting provides some screening. It should not be lost and may be augmented.

A wind farm proposal can obstruct and or harm views of the landscape as perceived by some viewers. However, the critical question in the Panel's mind is the degree to which the obstructed or harmed, how significant that harm is and how weighty it appears to be in terms of PPG – WEF policy. In this case, the Panel has not found any instances of harm to views that appear to merit design mitigating action or refusal of the permits applied for, other than as discussed above.

The Panel supports the approach to turbine numbers, layout, siting and design taken by the proponent in the SEES. It is landform responsive and mitigates landscape harm as far as possible. It provides a given power output with fewer larger machines. It offers micro-siting flexibility without harm to a 'grand design'.

The project will not give rise to trans-regional landscape dominance by virtue of its relationships with the Toora and Wonthaggi windfarms.

The project does not require to be cumulatively assessed with the Dollar or Welshpool proposals, although they as later comers should be assessed in the light of the impact of the project if it is approved.

The project cannot be sensibly be cumulatively assessed against other 'projects' that exist as speculation or rumour, or the existence of which has been denied by the alleged proponent.

The project will have no impact on the landscape values of registered places on the Register of the National Estate.

Natural Environment

Given the small area of proposed clearing and the potential for micro-siting or re-siting of wind turbines to avoid all listed threatened flora species that might be present, the Panel is satisfied that flora species listed under the EPBC Act and the FFG Act need not be impacted by the proposed development. However, if the proposed clearing is to proceed, the Panel notes that additional survey work will need to be carried out in spring and that this work will need to be directed to all the relevant statutorily listed flora species.

The Panel concludes that with respect to flora issues the proposal is satisfactory subject to appropriate permit conditions generally in accordance with conditions proposed on behalf of the proponent, subject to the following:

- Turbine 10 will on balance cause an avoidable need for vegetation removal and alternative locations are available.
- The relocation of Turbine 10 in turn significantly simplifies the application of native vegetation net gain policy by confining the offset requirement to the Delbridge land.
- Where Turbine 10 is relocated, fencing of remnant vegetation on the Marriott property and the northern boundary of the Kings Flat Flora Reserve adjacent to the Kilsby property are not strictly necessary in offset terms. They should not be subject to a permit condition or agreement.
- Some evaluation of possible flora impacts on roadside vegetation in relation to the movement of construction vehicles is required. Avoidance of the rare Eucalyptus Kitsoniana should be a primary consideration. Offsets may be necessary but are likely to be capable of accommodation in the Delbridge land.

The Panel is satisfied that the proposal will have minimal impact on ground fauna, assuming that site design and native vegetation offset mechanisms remain as discussed in this report.

The Panel notes the possibility that the project may have an adverse impact on the Southern Bent-wing Bat because of the known presence of a colony at Arch Rock. However due to the practical difficulties associated with accurately assessing the level of use of the site by Bent-wing Bats and the general lack of knowledge concerning this species, an extensive post approval bat monitoring program should be implemented.

The Panel considers it likely that the proposal will not impact on the conservation of biological diversity and ecological integrity of bird species within the project site and surrounding lands. However, it does not consider that the bird assessment as presented enables it to credibly endorse this conclusion.

Similarly, the Panel considers that there is insufficient information to allow a credible general conclusion that there will be no material impact on bird species listed under the EPBC Act or the FFG Act.

That being said, the Panel is satisfied that the project will not materially harm the Orange-bellied Parrot and does not consider that it will be necessary to provide any off-site habitat mitigation for this species.

The exhibited EES and SEES natural environment documentation and expert witness reports were disaggregated, poorly structured and difficult to use. In the Panel's mind, these factors added unduly to community concern about this key subject matter. They have also added unduly to the work required to analyse and respond to the information provided.

The project will have no impact on the natural environment values of registered places on the Register of the National Estate.

Cultural Heritage

Both Aboriginal and European cultural heritage studies were carried out appropriately.

The northern site is unlikely to give rise to issues of Aboriginal cultural significance, but normal supervision protocols will in any case apply.

There is considerable scope for the discovery of Aboriginal artefacts in the southern section of the site. However, this scope is sufficiently provided for by the combination of legislative protection and the regime of supervision proposed in draft permit conditions.

Given the general need to avoid harm to places of heritage significance, this site appears to be a good site for a wind farm in European heritage terms, where little harm can be caused.

Physical Environment

The Panel concludes that issues relating to the physical environment are satisfactorily addressed by proposed conditions.

Acoustic Amenity

There are no non-stakeholder dwellings located as at Toora, enclosed within the windfarm or cluster turbine perimeter, exposed to ongoing multi-directional acoustic impacts from turbines at close range.

The closest non-stakeholder dwelling is located 930 metres away from the nearest turbine. The great majority of non-stakeholder dwellings have a separation from the windfarm turbine perimeter of more than 1 km.

Logger failure issues have prevented the establishment of a local background at the Fox dwelling and have resulted in researcher changes to the data set for the Burfield property.

Compliance with NZS 6808 using long periods of averaged data that does not differentiate between day and night hours has the potential to expose sensitive receptors to significant levels of adverse noise impact. However, the standard explicitly contemplates the use of a defined night time or other exceedence period to ensure that emissions and effects are properly evaluated for the purposes of setting performance requirements.

It is possible that stable air conditions at night may result in significant increases in predicted noise emissions, as found in the work of Fritz van den Berg at Wind Park Rhede, located in Europe on the Germany – Netherlands border. This effect can manifest in an area significantly larger than predicted in normal acoustic modelling being subject to significant tonal variations, experienced as cyclic beats. However, little work has been done to demonstrate whether the van den Berg effect is specific to Rhede or is found in other locations with more or less severity. Whilst the adverse impact of such an effect on sensitive receptors could be significant, it has not been demonstrated as being likely to be experienced on and around the project site.

The 5dbA penalty provisions of NZS 6808 could apply if a van den Berg phenomenon of annoying tonal variations and cyclic beats was found to occur on the subject site. The Panel

additionally considers that a formal night time evaluation and averaging period would ensure that adverse night impacts, if they eventuate, do not become lost in daytime readings.

The proponent has established that it is technically feasible and considers that it is appropriate to noise optimise (ie reduce power yield) or even switch off individual or groups of turbines under particular wind or other climatic conditions, as a means of controlling adverse acoustic impacts in breach of a relevant approval condition or standard.

The absence of an independent entity charged with acoustic condition compliance monitoring adds considerably to difficulties in assessing operational performance in the face of noise complaints. Municipalities are not likely to possess the budgets or the expertise necessary to monitor or enforce wind farm acoustic conditions. The Department of Sustainability and Environment Planning and Building and/or Regional Services Divisions do not directly possess the expertise necessary to monitor or enforce wind farm acoustic conditions. The EPA possesses the theoretical expertise to carry out this task but lacks a formal role under the planning scheme or SEPP.

Four proponent stakeholder dwellings are located between 390 and 760 metres from the nearest turbine. The Panel doubts whether relevant acoustic standards can be met at these locations.

Visual Amenity

The project as assessed does not harm visual amenity.

No existing third party dwelling will experience over 30 hours blade shadow flicker per annum or undue blade glint.

Roads and Access

The Panel concludes that issues relating to road and track design construction and operation can be satisfactorily addressed by permit conditions.

The draft permit conditions include the preparation and implementation of a 'Traffic Management Plan'. The Panel considers that this is an appropriate method of addressing public road upgrading and maintenance issues.

Economic Effects

In so far as it may be a relevant consideration to the EES and SEES process, the Panel notes that some valuation effects may occur. These would not be untoward having regard to the purposes and decision guidelines in the Rural Zone. That being said, valuation considerations are not a relevant consideration for the purposes of a decision on a planning permit.

The construction phase will provide significant if temporary employment, equivalent in nature to that typical for major civil engineering projects. The project will have limited direct and ongoing employment benefits (in the region of 4 FTE jobs). It will have limited indirect employment benefits (in the region of 3-4 FTE jobs).

The project is likely to have some adverse impacts on one local tourism business. On a balance of a wide range of other considerations, these impacts cannot be mitigated by changes to the siting or design of the wind farm. Other local tourism businesses will not be significantly affected.

The project will not harm the wider tourism profile of the region and is considered to be acceptable in these terms.

A visitor centre is a valid component of a wind farm development, but is unlikely to have a material effect on tourism visitation to the region. However, the project does not rely on significant visitation to such a facility.

Social Effects

The EES process to has caused division within the local community and has exacerbated conflicts through the poorly founded consultation and communication. This however must be distinguished from the SEES process that was broadly well advised and conducted. That being said, the process as a whole has not been so poorly carried out as in the Panel's judgement to do long term social harm to the local community. The Panel does not consider that the social harm generated will be of a significantly adverse or enduring nature such that it requires to be considered in an assessment of environmental effects or a planning decision.

The Panel has not had regard to the view that the weight of community opinion against the project is of itself a reason for refusal of a planning permit or its location elsewhere.

The Panel considers the consultation design to have been flawed, but as a matter of luck, these flaws have not prevented the identification of relevant and weighty considerations to which the proponent has been unable to respond. As such, no substantive harm has been done to the project outcome by these failings. However, the Panel considers that the project cannot be held up as an example of good practice in public consultation as the approach adopted could well have prevented the identification of significant siting or design flaws in other circumstances.

Land Use Effects

There is no basis in evidence or the circumstances of the site for the view that a wind farm will reduce the normal capacity to use land within or adjacent to it for a full range of agricultural purposes.

The Panel concludes with respect to land use that it is not necessary to assess amenity impacts on proposed house sites on adjoining land, except where there may be an adjoining rural tenements over 40 ha without a current dwelling, where the owner may reasonably request assistance to determine where a dwelling can be located without adverse amenity impacts.

Balance of Performance

Subject to re-presentation and further evaluation of bird data and conclusions, the environmental impact of the project is acceptable and permits should issue.

22.2 RECOMMENDATIONS

Subject to the Panel's detailed recommendations below, the Bald Hills Wind Farm Project should be assessed as being appropriate to proceed in environmental terms. The planning permits applied for should be granted subject to conditions as discussed in Chapter 21 of this Report.

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- Recommendation 1 Parks Victoria should consult with users of the Bald Hills Wetland Reserve to determine options and costs for the relocation and reorientation of the walking track and bird hide in the reserve, to ensure that turbines cannot be viewed from the bird hide. Detailed design should take place following construction of the wind farm. The proponent should be required to enter into a legal agreement requiring it to cover the reasonable cost of this work.
- Recommendation 2 Parks Victoria, the Proponent and Stakeholder landowners should enter negotiations to determine the possible value, content and design of a combined wind energy and reserve interpretation facility located at or near to the current entrance to the Bald Hills Wetland Reserve.
- Recommendation 3 The proponent should fund and prepare a roadside landscape and windbreak management plan for the Tarwin Lower - Waratah Road and the Buffalo – Waratah Road in collaboration with the South Gippsland Shire Council and abutting landowners, largely to address the likely widespread loss of pine trees on these roads.
- Recommendation 4 Subject to consultation with and support of the South Gippsland Shire Council and abutting landowners, the proponent should fund and prepare a roadside landscape management plan for Stewarts and Dunlops Road
- Recommendation 5 The proponent should also be encouraged to contribute towards on-farm revegetation works that may render landscape benefits, through programmes such as Landcare.
- Recommendation 6 Before the commencement of construction, a spring survey should be undertaken for the following listed flora species (preferably following normal rains):
- *Caladenia fragrantissima* subsp. *Orientalis*,
 - *Prasophyllum frenchii*,
 - *Pterostylis cucullate*,
 - *Sowerbaea juncea*,
 - *Caladenia vulgaris*,
 - *Agrotis avenacea* var. *perennis* and
 - *Monotoca glauca*).
- Recommendation 7 Should any of the species be found to be present in areas proposed to be cleared for construction, consideration should then be given to micrositing and/or turbine relocation.
- Recommendation 8 Turbine 10 should be relocated to one of the assessed alternative turbine locations (A1 – A5). In selecting a location, A2 should be avoided as development there would also be likely to cause avoidable vegetation loss.
- Recommendation 9 The project Native Vegetation Management Plan should provide for an evaluation of the flora values of roadside vegetation in locations proposed for construction vehicle access, turn outs or corner clearance. Locations containing *Eucalyptus Kitsoniana* should in principle be avoided.

- Recommendation 10 The fauna monitoring program for the site should be modified to include:
- a thorough assessment of Southern Bent-wing Bat numbers over time at Arch Rock, to be used as a reference for impact analysis;
 - placing of Anabat recorders on the ground and on turbine towers at various heights to obtain relative bat utilisation data;
 - examination of bat utilisation trends (if any), including weather, diurnal and seasonal changes; and
 - extension of the count of bird kill monitoring to include bat kill, with an appropriate scavenging rate for small mammal carrion applied to this work.
- Recommendation 11 The bird assessment should be re-documented by Brett Lane and Associates in close consultation with DSE, using existing data, plus such additional data as in the reviewer's opinion is necessary to be provided. The re-documentation should provide the following in a single document.
- A simple and clear statement of the identified issues for birds.
 - A simple and clear statement of the results of preliminary discussions and investigations, including of contact with Commonwealth and State agencies, local field naturalists groups and use of relevant databases to scope which species are likely to be present. Where in the view of the department additional data sourcing is required, this should take place.
 - A simple and clear statement of the results of all preliminary or scoping surveys, including any work undertaken to determine the likelihood of relevant species presence or absence (including the absence of roosting use) in adjacent reserves, particularly Bald Hills Wetland Reserve. Individual species requiring specific attention should be itemised, together with an assessment of their conservation status. Where in the view of the department additional on site scoping is required, this should take place.
 - A simple and clear statement of the considerations which led to the design of the bird utilisation surveys, with an explanation how these have been adjusted to take account of the results of initial discussions and investigations and scoping surveys. The following issues should specifically be examined: the hours of survey, the possible need for replacement of any of the reference sites, and the possible need for targeted surveys offsite. Where in the view of the department additional or replacement survey or statistical work is required to address a potential for significant change to bird utilisation or species population risk, this should take place.
 - A simple and clear statement of predicted outcomes for bird species in the locality that utilise the wind farm site, explaining the predicted level of impact to those that are listed under the EPBC and FFG Acts, including migratory species. This should list species, their conservation status and where a population is under any level of threat should set out a justified mortality rate and conclude on the degree to which population effects might flow. The conclusions should allow for the alteration in wind turbine numbers including the

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- reduced number of turbines, larger individual swept area and reduced ground clearance provided for in the SEES.
- Recommendation 12 This review should be carried out to the satisfaction of the Minister for Planning. The issue of a permit should await its completion.
- Recommendation 13 Before the commencement of construction, new local noise backgrounds should be taken at the Fox and Burfield properties.
- Recommendation 14 Where the relevant acoustic performance standard for a dwelling cannot be met on a proponent stakeholder property, the property owner should enter into an agreement under section 173 of the Act , providing that the dwelling may only be occupied by a person who is a shareholder in or entitled to receipt of turbine rents from the project, and the family of such a person.
- Recommendation 15 A night compliance period should be defined for the purposes of NZS 6808. Of preference, this should be the night as defined in SEPP – N1. Within the defined night period, the wind energy facility should not exceed the standard more than 10% of the time. This approach should protect the interests of occupants in undisturbed sleep.
- Recommendation 16 In accordance with NZ 6808, a 5dBa penalty should apply to noise experienced at sensitive receptors that contains annoying tonal variations and cyclic beats.
- Recommendation 17 For the purpose of meeting any limit pursuant to NZS 6808, including a 5dBA penalty limit, the proponent is entitled to seek to demonstrate to the satisfaction of the responsible authority that time or climate responsive acoustic optimisation and/or temporary turbine shutdown regimes can be implemented, before enforcement is commenced seeking the permanent removal of a turbine or turbines.
- Recommendation 18 In this case, the Minister for Planning should retain the ongoing responsibility for monitoring and enforcing acoustic conditions. The proponent should underwrite the actual cost of a monitoring programme to the satisfaction of the Minister.
- Recommendation 19 In the medium term, consideration should be given to the establishment of a role for the EPA in monitoring and enforcing acoustic conditions.
- Recommendation 20 In the medium term, consideration should be given to the use of a SEPP or other relevant Victorian standard to define the specific application of NZS 6808 and or the forthcoming Australian Standard to wind energy facilities within Victoria.
- Recommendation 21 Specific off site landscape program works to address residential amenity impacts should take place at the following properties, subject to agreement with the landowners:
- Walker/Holz (14) (screening planting);
 - Fox (7) (assessment of existing planting and possible augmentation or replacement);
 - Price (5) (assessment of existing planting and possible augmentation or replacement);
 - Fairbrother (10) (screening planting);

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- Uren (26) (screening planting); and
 - Burfield (2) (screening planting and possible physical screening and minor dwelling works).
- Recommendation 22 Steps should be taken to ensure that proponent stakeholder dwellings where normal visual amenity standards may not be met do not form part of the general dwelling pool. Occupation should be restricted to those persons directly interested in ownership or management of a wind farm property.
- Recommendation 23 A pre-construction inspection of existing roads proposed to be used by construction traffic should be carried out by the proponent, DSE and Council. The inspection should determine and document the agreed condition of the roads and together with any works necessary to enable them to carry the anticipated traffic. This document is to be used as the basis for assessing the remedial work necessary as a result of the construction process.
- Recommendation 24 The proponent's Traffic Management Plan should be amended to make it clear that:
- The cost of all required road works and the costs of maintenance attributable to the development should be carried out at the developer's expense.
 - Regular inspections should be carried out to ensure that the required safety standards are provided.
- Recommendation 25 The proponent should enter discussions with the McDougall family and any similarly located owners of rural tenements over 40 ha close to the proposed wind farm which currently lack a farm dwelling. The purpose of these discussions should be to advise of areas within their land where a dwelling site can be selected to ensure that appropriate amenity standards, equivalent to those of existing dwellings, will apply.
- Recommendation 26 In relation to all other dwellings that post date the wind farm planning process, whether as of right or subject to permit, the following principle should apply: the onus of responsibility – for the cost of management of turbine noise and blade shadow amenity impacts – should fall upon the agent of change.
- Recommendation 27 Where a new dwelling is as of right, it should not be subject to the amenity protections otherwise provided in the wind farm development approval.
- Recommendation 28 Where a new dwelling is subject to permit, it will be normal to expect that the wind farm operator may object and request the application of a permit condition to ensure appropriate siting and or design measures to reasonably control amenity impacts.
- Recommendation 29 The Panel does not recommend a decommissioning bond in this case. However, when PPG – WEF is next reviewed, DSE should consider as a matter of general principle whether the wind energy industry is to which the decommissioning bond approach might be generally applied.