

REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

It will generally be useful for a proponent to discuss the preparation of a Referral with the Department of Planning and Community Development (DPCD) before submitting the Referral.

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once DPCD is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
 - a brief description of potential changes or risks to environmental assets resulting from the project;
 - available information on the likelihood and significance of such changes;
 - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A CD or DVD copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 2MB.**

- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address

**Minister for Planning
PO Box 500
EAST MELBOURNE VIC 3002**

Couriers

**Minister for Planning
Level 17, 8 Nicholson Street
EAST MELBOURNE VIC 3002**

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to ees.referrals@dpcd.vic.gov.au is encouraged. This will assist the timely processing of a referral.

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	ACCIONA Energy Oceania Pty Ltd (ACCIONA Energy)
Authorised person for proponent:	Kate Sutherland
Position:	Manager, Environment
Postal address:	Level 1, 95 Coventry Street, South Melbourne 3205
Email address:	Ksutherland@accionaenergy.com.au
Phone number:	03 9863 9922
Facsimile number:	03 9686 6120
Person who prepared Referral:	As above
Position:	
Organisation:	
Postal address:	
Email address:	
Phone number:	
Facsimile number:	
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	<p>ACCIONA Energy</p> <ul style="list-style-type: none"> - Shadow Flicker and Blade Glint Report - Community Consultation Report <p>Environmental Resources Management Pty Ltd</p> <ul style="list-style-type: none"> - Landscape and Visual Assessment - Cultural Heritage Management Plan - Historical Archaeological Report - Report on Community Perceptions towards Wind Farms in the Mortlake Region (with Reark Pty Ltd) - Planning Assessment <p>Sinclair Knight Merz Pty Ltd</p> <ul style="list-style-type: none"> - Traffic and Transport Assessment - Socio Economic and Tourism Effects Assessment - Geotechnical, Hydrology and Surface Water Assessment - Hazards and Risk Assessment - Meteorology, Air Quality and Greenhouse Gas Assessment <p>Brett Lane & Associates Pty Ltd</p> <ul style="list-style-type: none"> - Flora and Fauna Assessment - Brolga Breeding Season Study <p>Ecology Partners</p> <ul style="list-style-type: none"> - Brolga Migration Season Impact Assessment - Brolga Flocking Season Impact Assessment <p>Biosis</p> <ul style="list-style-type: none"> - Brolga Collision Risk Modelling <p>Melbourne University</p> <ul style="list-style-type: none"> - Population Viability Assessment <p>Garrard Hassan</p> <ul style="list-style-type: none"> - Assessment of Electromagnetic Interference Issues

	Marshall Day - Noise Assessment
--	---

2. Project – brief outline

Project title: Mortlake Wind Farm		
Project location: (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context) The proposed Mortlake Wind Farm site is located in southwest Victoria as shown in Figure 1. The proposed wind farm has two distinct sites, namely the Mortlake East site and Mortlake South site. The Mortlake South site is located approximately 5 kilometres (km) south of Mortlake and is situated adjacent to the Terang – Mortlake Road. The Mortlake East site is located approximately 9.5 km east of Mortlake and is dissected by the Darlington – Terang Road The two sites are located approximately 5 km from each other with the community of Kolora situated between the two sites.		
Coordinates (GDA94)	Mortlake South	Mortlake East
Top left corner	659121, 5780017	676461, 5791375
Bottom right corner	662849, 5772879	675652, 5780393
Short project description (few sentences): ACCIONA Energy proposes to develop a wind farm, comprising 96 turbines and associated on-site infrastructure near Mortlake in southwest Victoria. As stated above, the wind farm will be developed as two distinct sites. Fifty turbines are proposed for the Mortlake South site and 46 turbines are proposed for the Mortlake East site.		

3. Project description

Aim/objectives of the project (what is its purpose / intended to achieve?): The aim of this project is to develop a wind farm capable of producing up to 288 MW of green electricity which contributes to both the Commonwealth and Victorian Renewable Energy Targets. The wind farm will supplement Victorian and national energy needs, while reducing greenhouse gas emissions.
Background/rationale of project (describe the context / basis for the proposal, eg. for siting): ACCIONA Energy investigated over 30 sites in southwest Victoria for a potential wind farm development. Consideration was given to housing density, perceived environmental issues, grid connection, competitors and wind resource estimates. Six potential sites were short listed and reviewed by consultants such as Brett Lane & Associates for their environmental risk. ACCIONA Energy then discussed the six potential sites with the Shire of Moyne and the Victorian Department of Sustainability and Environment (DSE). Based on the findings of the initial assessment work and discussions with Government authorities, the Mortlake South and Mortlake East sites were selected to progress into the development phase. The proposed Mortlake Wind Farm meets the following criteria: <ul style="list-style-type: none"> ▪ Suitable wind resource. ▪ Supportive landholders and local community. ▪ Low population density. ▪ Distance from nearby dwellings (non-stakeholders). ▪ Distance from sensitive ecological, cultural heritage, historical and visual locations. ▪ Proximity to network connection.

- Suitable land in terms of:
 - Terrain and geology.
 - Land area.
 - Compatible land uses.
 - Zoning and overlays.
 - Existing ecological conditions.
 - Access to the site.

Main components of the project (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):

The proposed Mortlake Wind Farm contains 96 turbines with a height of up to 141 m (at the blade tip), comprising up to 100 m towers and 41 m blades. The turbines proposed will have a capacity of 1.5 – 3 MW each, resulting in an installed maximum capacity of 288 MW.

The other main components of the proposed Mortlake Wind Farm are:

- Internal approximately 6 m wide access tracks.
- Six permanent wind monitoring masts (three on each site) with a height of 80 m.
- Up to five substations (up to three on the Mortlake South site and two on the Mortlake East site) and associated control and maintenance facilities.
- Underground electrical and fibre optical cabling connecting the wind turbines and meteorological masts to the on-site substations and operations and maintenance buildings.
- Overhead cabling (where required).
- Two temporary construction compounds (one on each site).
- Two temporary concrete batching plants (one on each site).
- Up to two operations and maintenance facilities.

Figure 2 provides an overview of the footprint of the proposed Mortlake Wind Farm. The proposed turbine layout of the proposed Mortlake Wind Farm is shown in Figures 3 and 4. The final location for each wind turbine could vary by up to 100 m from the locations shown in Figure 3 and 4 due to micrositing during the detailed design phase.

Ancillary components of the project (eg. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):

The Hamilton Highway, Hopkins Highway and Princess Highway are the three main highway access routes to the Mortlake region. Access routes to the Mortlake South and Mortlake East sites will include Terang – Mortlake Road and Darlington – Terang Road respectively. No significant issues or road works are anticipated on these roads.

The most likely connection point to the existing electricity network is the Terang Terminal Station, which is approximately 10 km southeast of the Mortlake South site. An initial assessment of transmission line route options has been undertaken by ACCIONA Energy. The preferred plan is to build a single circuit 66 kV transmission line between the Mortlake East site and Mortlake South site following cleared roadsides where possible. From the Mortlake South site the transmission line is likely to again follow cleared roadsies with one short section going cross-country to the Terang Terminal Station. This route will minimise the length of transmission lines required for the wind farm connection and avoid the more densely populated area on the outskirts of Terang.

Preliminary discussions with Powercor, the incumbent distribution business, have indicated that they are happy to consider arrangements which will minimise the easements and impact of the transmission lines. ACCIONA Energy and Powercor are holding discussions with the aim of achieving a connection agreement that will see Powercor provide the transmission service to ACCIONA Energy subsequent to the approval of the project.

Overhead power lines are known to be a potential collision risk for Brolgas. Detailed investigations of the distribution and occurrence of the Brolga in the Mortlake region have been undertaken for the impact assessment for this project. These investigations have found that most Brolga records (including in both the breeding and flocking seasons) occur in the immediate

vicinity of the proposed wind farm (see later), or, to the north of the project areas. The number of Brolga movements south of the wind farm sites is likely to be more limited than to the north. Therefore, power line collision risk would be lower in the general direction proposed for the grid connection. As part of any powerline route planning, an assessment will be made of Brolga collision sensitivities and a route chosen that minimises, where possible, potential collision risk.

Key construction activities:

Construction activities will be undertaken in the following phases:

- Site establishment.
- Access track and footing construction.
- Hard stand construction.
- Underground power and control cable installation.
- Overhead power cable installation.
- Substation construction.
- Construction of the operations and maintenance facilities buildings.
- Turbine delivery and erection.
- Commissioning of the wind farm.
- Restoration of the site.

Key operational activities:

Operational and maintenance activities associated with the Mortlake Wind Farm include:

- Wind turbine generator operation and maintenance - The turbines will operate 24 hours a day via remote control from the ACCIONA Energy Control Room in Melbourne. Wind turbines will be subject to a routine preventative maintenance regime. Approximately every six months, turbines will be shut down to enable this routine maintenance to be performed.
- Maintenance of electrical infrastructure - The electrical infrastructure operates 24 hours a day via remote control from the ACCIONA Energy Control Room in Melbourne. Routine maintenance of the substation will involve the inspection, testing and maintenance of the substation plant. Inspections are usually monthly.
- Maintenance of civil infrastructure - Maintenance of the civil infrastructure involves inspections and routine grading of access tracks. Corrective maintenance will involve repairs as required to the civil infrastructure, typically in response to erosion.

Key decommissioning activities (if applicable):

At the end of its life, the wind turbine equipment will be either replaced with comparable new equipment or the wind farm will be decommissioned. Decommissioning will involve dismantling of the turbines and other infrastructure and removing them from site. The site will be restored to its prior form.

Is the project an element or stage in a larger project?

No Yes If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages).

Is the project related to any other past, current or mooted proposals in the region?

No Yes If yes, please identify related proposals.

4. Project alternatives

Brief description of key alternatives considered to date (eg. locational, scale or design alternatives. If relevant, attach A4/A3 plans):

Site alternatives

As detailed in section 3 above, over 30 sites in western Victoria were investigated by ACCIONA Energy for a potential wind farm development. An initial assessment of these sites (based on housing density, environmental risk, grid connection options and wind resource) indicated that the Mortlake South and Mortlake East sites were selected to progress into the development stage.

Site layout alternatives: Mortlake East

During the development of the proposed wind farm several turbine layouts have been considered. The initial turbine layout on the Mortlake East site included 50 turbines (Figure 5). Based on the results of detailed impact assessment studies, this layout was revised to avoid areas of environmental sensitivity (Figure 6). The main factors that influenced the site layout were:

- Landholder, community and other stakeholder consultation.
- Ecological studies in particular detailed Brolga investigations and the need to place turbines at least 800m from known Brolga nesting sites and high quality wetlands.
- Cultural heritage studies.

To avoid constraints on the site, seven turbines were removed, nine turbines were relocated and three additional turbines were added to the initial layout. The final proposed layout on the Mortlake East site (refer Figure 5) contains 46 turbines.

Site layout alternatives: Mortlake South

Fewer constraints were identified on the Mortlake South site from the detailed studies (Figure 7). The final proposed layout on the Mortlake South site contains 50 turbines.

Brief description of key alternatives to be further investigated (if known):

No further alternatives are to be investigated.

5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:

There are no proposed exclusions as part of this assessment.

6. Project implementation

Implementing organisation (ultimately responsible for project, ie. not contractor):

ACCIONA Energy

Implementation timeframe:

It is anticipated that the proposed Mortlake Wind Farm will be operational by 2013 with a construction program covering 18 months. This timeframe is dependent on the receipt of a planning permit by early 2010 and commercial negotiations relating to the supply of wind turbines, grid connection and transaction of output generation and environmental products.

Proposed staging (if applicable):

This is not a staged project.

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

No Yes If no, please describe area for investigation.

If yes, please describe the preferred site in the next items (if practicable).

General description of preferred site, (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint):

The proposed Mortlake Wind Farm is located within the Victorian Volcanic Plain bioregion

dominated by Cainozoic volcanic deposits, forming an extensive flat to undulating basaltic plain with stony rises, old lava flows, numerous volcanic rises and old eruption points, dotted with shallow lakes both salt and freshwater. As a result of this volcanic activity Mount Noorat, Mount Shadwell, Mount Meningerot and Mount Elephant are all within the vicinity of the site.

The Mortlake East site is located approximately 15 km east of Mortlake, south of the Hamilton Highway between Darlington – Terang Road and Mount Emu Creek.

The site is located within the Mount Emu Creek catchment which is part of sub catchment 'H6' Hopkins River Catchment in the Hopkins River Basin. Mount Emu Creek is the major waterway in this subcatchment which discharges to the Hopkins River near Warrnambool. Mt Emu Creek is located on the eastern boundary of the site. The site includes the low-lying flood plain along the creek, together with raised areas formed by former basalt flows.

The site is used almost entirely for agricultural purposes. The majority has been cultivated for grazing pasture and cropping, including most low-lying drainage lines and flood plains. It is therefore highly modified from its pre-European state. Four small patches of intact native vegetation were found within agricultural land during the survey and a linear patch of intact native grassland was recorded on the eastern side of the road reserve of the Darlington – Terang Road.

The Mount Emu Creek is characterised by scattered, large River Red Gums in the waterway. The riparian zone alongside this waterway has been cleared of native vegetation and used for grazing and cropping to the creek's banks. Access by domestic stock has degraded the creek and many habitat qualities are absent.

Some wetland areas in the north of the site have been fenced off and enhanced by the planting of native trees and shrubs. Scattered River Red Gums were recorded in the southern part of the site.

The Mortlake South site is located south of the Terang – Mortlake Road approximately 5 km south of Mortlake.

The site is located within the Glenelg Hopkins Catchment Management Authority sub catchment 'H2' in the Hopkins River Basin. The majority of the flows from the proposed site discharge to Stony Creek which transects the site and in turn discharges to the Hopkins River below the town of Ellerslie.

The site lies on flat land which has been cleared of its original vegetation for agricultural development. It is supported by improved pastures that are used for grazing as well as areas of cropping. Throughout the site the vegetation is highly modified from its pre-European state and no intact native vegetation was found on the site. Scattered River Red Gums occur in some sections of the site and many exotic trees have been planted around homesteads and along fence lines as windbreaks. The site lacks intact wetlands. A small number of farm dams occur on the site and a degraded channel, named Stony Creek, runs across the northern section of the site. Intact native fauna habitat was limited in extent on the site.

Planted native trees occur in sections of a disused rail reserve running from the northwest to the southeast of the site; the ground cover in these areas is dominated by introduced pasture grasses, with some areas supporting native grassland and wetland flora species at low cover values. The majority of the rail reserve was utilised for stock grazing.

Further information and ground level photographs of the wind farm sites are contained in Attachment 1 – Flora and Fauna Assessment and Attachment 9 – Geology, Hydrology and Surface Water Assessment.

Site area (if known): 6, 181 hectares

Less than 2% of this area will be occupied with permanent wind farm infrastructure.

Route length (for linear infrastructure) ...n/a..... (km) **and width** (m)

Current land use and development:

The proposed Mortlake Wind Farm site and surrounds are primarily used for agriculture (cropping and grazing).

Description of local setting (eg. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):

The primary land use within the surrounding area is agriculture (grazing of sheep and cattle) with the landscape comprising predominately open paddocks with some remnant red gums and manna gums with more recent plantations of introduced tree species. Other land uses within the

area include a quarry operation and various agricultural related enterprises.

Townships within the area include Mortlake, Darlington, Noorat, Kolora and Terang.

The major roads accessing the area include the Hamilton Highway, Hopkins Highway, Mortlake – Ararat Road and Terang – Mortlake Road.

Planning context (eg. strategic planning, zoning & overlays, management plans):

The proposed wind farm, defined as a 'wind energy facility' in the Moyne Planning Scheme, is located within the Farming Zone. Under the Farming Zone a 'wind energy facility' is a Section 2 use and therefore requires a permit for the use and development. A permit is also required for building and works and earthworks associated with this development.

There are no overlays affecting the proposed sites.

Local government area(s):

Moyne Shire Council

8. Existing environment

Overview of key environmental assets/sensitivities in project area and vicinity

(cf. general description of project site/study area under section 7):

Mortlake East Site

As described in section 7 above, the Mortlake East site is dominated by introduced pasture. A small number of restricted and isolated intact patches of native vegetation remain on the site. These areas have been avoided and will not be impacted on by the proposed wind farm with the exception of a small area (<0.1 ha) of plains grassland along the Darlington – Terang Road which may be affected in order to gain access to the site.

Aquatic habitats at the site include the Mount Emu Creek, floodplains, wetlands and farm dams.

Mount Emu Creek is in a degraded condition and aquatic vegetation is limited. Remnant River Red Gums along the watercourse provide some habitat for birds and arboreal mammals. The creek and other small dams on the site provide habitat for commonly occurring waterbirds. In the central section of the site, there is a wetland that has been fenced off and rehabilitated. This wetland provides habitat for small numbers of threatened ducks, in particular the Australasian Shoveler, Blue-billed Duck, Hardhead and Musk Duck, which occasionally use it, as well as the more common species more regularly. There are a number of floodplain habitats that inundate after high creek flows following rainfall. These areas are considered to be moderate to high quality habitats for waterbirds and moderate quality habitat for non-avian fauna.

The following threatened species were identified on the site during flora and fauna surveys:

- Southern Bent-wing Bat (likely identification from Anabat surveys).
- Nesting pairs of Brolga.
- Australasian Shoveler, Blue-billed Duck, Hardhead and Musk Duck.

Brolgas were subject to a separate investigation, referred to later. The Southern Bent-wing Bat was confirmed calling on the site on two occasions with possible calls recorded on a further twelve occasions (average 0.5 calls per survey night).

Mortlake South Site

As described in section 7, above the Mortlake South site is dominated by introduced pasture.

Scattered River Red Gums and a number of farm dams occur in some sections of the site. Intact native vegetation and fauna habitat is limited in extent on the site.

The Southern Bent-wing Bat was identified on the site during flora and fauna surveys. It was recorded five times (average 0.25 calls per survey night). No threatened species of birds were recorded at the site and none are expected to occur due to a lack of suitable habitat. The nearest record of breeding Brolgas is approximately six kilometres to the north and no flocking sites occur near this site.

Regional Environmental Sensitivities

Surveys and a review of existing information on the occurrence of the Brolga in the Mortlake region revealed that there are 13 Brolga flocking sites within 40 km of the proposed Mortlake

Wind Farm. The closest known flocking site to the proposed wind farm is Lake Bernie Bolac, which is located 5 km north of the Mortlake East site. A Brolga breeding season study identified 17 pairs of Brolga within 20 km of the Mortlake East site.

The Western District Lake Ramsar site, located approximately 10 km east of the Mortlake East site, provides habitat for a range of migratory bird species.

Directly north of the Mortlake East site, there are a number of wetlands that are considered to provide moderate to high quality habitat for waterbirds.

9. Land availability and control

<p>Is the proposal on, or partly on, Crown land? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please provide details.</p>
<p>Current land tenure (provide plan, if practicable): Private land</p>
<p>Intended land tenure (tenure over or access to project land): Private land with commercial lease</p>
<p>Other interests in affected land (eg. easements, native title claims): The Mortlake South site has a disused rail reserve running diagonally northwest through the site. Underground cabling may cross this rail reserve in a number of locations. Both sites contain licensed and unlicensed unused government roads.</p>

10. Required approvals

<p>State and Commonwealth approvals required for project components (if known): In Victoria, most wind farm developments do not necessitate an Environment Effects Statement (EES) and are assessed under the <i>Planning and Environment Act 1987</i> as a permit application. An earlier layout of the proposed Mortlake Wind Farm was previously referred under the <i>Environmental Effects Act 1978</i> and found not to require an EES. Since that decision, changes to the project layout at Mortlake East have involved the removal of turbines from areas close to Brolga nesting sites and the addition of turbines further north than originally proposed, closer to the Hamilton Highway. At Mortlake South, minor changes have been made to the project boundary with the addition of three more properties. The proposed Mortlake Wind Farm will be assessed via Preliminary Documentation by the Commonwealth Department of Environment, Heritage, Water and Arts (DEWHA) under the <i>Environment Protection & Biodiversity Conservation Act 1999</i>. While no permit is required pursuant to the <i>Flora and Fauna Guarantee Act 1988</i> for works contemplated within the site, a permit may be required under the Act if there is to be any removal of native vegetation on public land. Specifically, this may involve the removal of a very small area of Plains Grassland from a public road reserve at the Mortlake East site to facilitate site access. Should this be required, a license under this Act will be obtained from the DSE. A cultural heritage management plan for the proposed Mortlake Wind Farm, prepared in accordance with the provisions of the <i>Aboriginal Heritage Act 2006</i>, was approved by the Aboriginal Affairs Victoria (acting under authority of Department of Planning and Community Development) on 14 October 2008.</p> <p>Have any applications for approval been lodged? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please provide details. A planning application was lodged in November 2008.</p> <p>Approval agency consultation (agencies with whom the proposal has been discussed): Department of Planning and Community Development Department of Sustainability and Environment, Aboriginal Affairs Victoria Framlingham Aboriginal Trust</p>
--

VicRoads

Other agencies consulted:

Moyne Shire Council

Moyne Shire Council

PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

11. Potentially significant environmental effects

Overview of potentially significant environmental effects (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):

The proposed Mortlake Wind Farm sites are dominated by introduced pasture and support limited native vegetation and habitat for threatened species. The findings of the flora and fauna studies undertaken for the project have concluded that the wind farm has a low potential to impact on any listed threatened species or ecological communities.

A summary of the flora and fauna studies undertaken and the study findings are provided below.

FLORA AND FAUNA

The flora and fauna assessments undertaken for the proposed Mortlake Wind Farm include:

- Flora and Fauna Assessment – Brett Lane and Associates (Attachment 1).
 - Mapping the nature and extent of native vegetation on both sites (July 2007, August 2008 & April 2009).
 - Surveying in early spring (September 2007) for threatened flora species in areas of remnant native vegetation identified in the previous task.
 - A 'Level One' bird risk assessment (August – September 2007) in accordance with the interim risk assessment standards of AusWEA (2005).
 - An analysis of use of the proposed wind farm site by bats, using Anabat® ultrasonic detection equipment (October - December 2007).
- "Level Two" bird risk assessments. Targeted investigations on the potential of the proposed wind farm to impact upon various parts of the Brolga's life cycle.
 - Brolga breeding season study – Brett Lane and Associates (Attachment 2).
 - Brolga migration season study – Ecology Partners (Attachment 3).
 - Brolga flocking season study – Ecology Partners (Attachment 4).
 - Historical data analysis for Brolga migration and flocking season collision risk modelling – Ecology Partners (Attachment 5).
 - Brolga Collision Risk Modelling – Biosis Research (Attachment 6).
- 'Level Three' Brolga risk assessments:
 - Population Viability Assessment – Melbourne University (Attachment 7).
- A report summarising the results of all the Brolga studies (Attachment 8).

Timing and extent of flora and fauna surveys

The flora and fauna assessment and threatened flora survey undertaken in July and September 2007 respectively, covered a smaller project extent than what is currently proposed. During 2008 the project extent, on both sites, was expanded to allow for the appropriate siting of turbines away from environmentally sensitive areas, hence this Referral.

Flora and fauna surveys of the additional project areas on the Mortlake East and Mortlake South sites were undertaken in August 2008 and April 2009 respectively. No native vegetation or potential habitat for threatened flora species was identified in these additional areas, therefore a targeted threatened flora survey (or spring survey) was not considered to be necessary for these additional areas.

Targeted Brolga surveys have been timed to coincide with their breeding (September/October), migrating (December) and flocking seasons (March/April). All assessments have considered the currently proposed wind farm area.

Flora and Fauna Assessment

The results of the assessment are summarised below. A copy of the report is provided in Attachment 1.

Mortlake South

- Surveys identified the potential for native vegetation and possibly rare flora species, to occur on a former rail reserve on the site. This rail reserve has been avoided and will not be impacted by the proposed wind farm.
- The rest of the site mainly consists of introduced pasture species.
- One significant non-avian fauna species was recorded on the site, the Southern Bent-wing Bat. Five possible calls of this species were obtained from the Anabat recording sessions (average of 0.25 records per survey night in spring). It is considered that the proposed wind farm is unlikely to have any adverse effects upon the regional population of the species, due to the low level of usage of habitats on the site where wind turbines will be located.
- A small pond within the north western portion of the site was identified as having a low potential for Growling Grass Frog, a nationally threatened species. The pond lies approximately 250 m from the nearest wind farm infrastructure and will not be impacted by the proposal.
- The lack of suitable habitat on or near the proposed Mortlake South wind farm site means that other nationally or state listed or threatened species of non-avian fauna are unlikely to occur on site.
- Birds on the site are largely common farmland birds of no conservation significance (no threatened species are likely to occur regularly or in significant numbers due to lack of habitat). One observation of the Cattle Egret, a listed migratory species involved small numbers and the risks to this species from the proposed wind farm are not considered to be significant.
- The closest Brolga sighting to the site was approximately 6 km from the northern edge of the Mortlake South site. Regular or annual movements across the sites are not expected and the development is not expected to pose a significant collision risk for the Brolga.

Mortlake East:

- The site is mostly introduced pasture that has been regularly sown and fertilised for at least 50 years. Remnant vegetation occurs on a very small proportion of the site (<30 ha) and it includes remnant grasslands and creekline tussock grassland. A small patch of floodplain treed vegetation occurs in the southern part of the site. A significant (5 km long) patch of remnant grassland occurs along the Terang – Darlington Road reserve. The wind farm layout avoids impacts on remnant vegetation with the possible exception of a requirement to remove a very small area of the remnant grassland along the Terang – Darlington Road reserve in order to gain access to the site.
- One significant non-avian fauna species was recorded on the site, the Southern Bent-wing Bat. Two calls of this species were confirmed from the Anabat recording sessions and a further 12 calls may have belonged to this species (average of 0.5 calls per survey night in spring). There is unlikely to be any adverse effects upon the regional population of the species, due low level of usage of habitats on the site where wind turbines will be located.
- The lack of suitable habitat for other native fauna on the site makes it unlikely that any other nationally or state listed or threatened species of non-avian fauna would occur on the site.

- Three wetlands on the Mortlake East site support several hundred waterbirds, including small numbers of four species of duck considered to be threatened in Victoria (Australian Shoveler, Hardhead, Blue-billed Duck and Musk Duck). The number of threatened ducks involved is not considered to be significant at a state level and they are likely to use the wetland less regularly than the more common species. An 800m buffer has been provided around each of the wetlands areas to reduce any potential impacts on these species. Studies by Brett Lane and Associates elsewhere in south western Victoria have shown that a 450m buffer around wetlands used regularly by waterbirds is adequate to avoid increased collision risk from wind turbines. At this distance, waterbird utilisation rates are the same as background levels for agricultural land.
- Nine pairs of Brolga were confirmed to be breeding within 20 km of the edge of the Mortlake East site. Two of these pairs were recorded breeding on the site. The potential impact on Brolgas is discussed in the following section.

Brolga Breeding Season Study

The results of the investigation are summarised below. A copy of the report is provided in Attachment 2. This study was undertaken in September/October at a time when Brolgas breed.

The study found that the Mortlake East site is likely to support up to four pairs of Brolga. Two pairs of Brolga were also recorded breeding immediately adjacent to the wind farm. Observations of Brolga movements during the breeding season found that over 72% of Brolga movements occurred within 800 m of the breeding sites. Movement greater than this distance was less frequent, representing fewer flights where collision might be possible. Brolga breeding sites coincided with high quality wetland areas therefore a recommendation was made to introduce an 800 m buffer between wind turbines and any known breeding site or high quality wetland.

The turbine layout was revised to ensure an 800m buffer around Brolga breeding sites and high quality wetland areas. A conservative estimate of the number of Brolga movements across the Mortlake East wind farm site was made and used to estimate the likely collision rate using a collision risk model (see later).

Migration season survey and historical data analysis

The results of the investigations are summarised below. Copies of the reports are provided in Attachment 3 and 5. This migration season study was undertaken in December, at a time when Brolgas were likely to be moving from their breeding sites to flocking sites.

The migration season study found that it was likely that the six pairs of Brolgas breeding on or adjacent to the Mortlake East site would fly over the site when undertaking seasonal movements between breeding and flocking sites.

A review of historical records showed a lack of breeding and flocking season records south of the Mortlake East wind farm. It is not known where Brolgas may fly from when arriving at Lake Barnie Bolac (which is the closest known flocking site 5km north of the site) however historical records suggest that they may come from the wind farm site itself, the Lake Corangamite complex in the east of from breeding sites in the west. Given the results from breeding and migration season studies, the lack of historical records and lack of suitable breeding and flocking wetlands south of the Mortlake East wind farm, frequent movements of Brolgas over the wind farm during migration seasons was considered very unlikely.

Flocking season survey

The results of the investigation are summarised below. A copy of the report is provided in Attachment 4. This study was undertaken in March-April 2008, at a time when Brolgas congregate at flocking sites.

During the flocking season survey, no flocking (site with more than 6 birds) was observed within 30km of the Mortlake East site. The closest flocking site observed was at the Lake Bolac/ Lake Turangmorohe/ Lake Yuangmania wetland complex, approximately 35 km north of the Mortlake East site. Flocking was also recorded at Pink Lake and Salt Lake wetlands, which are located ~25

km north of the Mortlake East site, in 2008 by the DSE. These wetland areas are important flocking sites as historical records show that they are used almost every year by large numbers of Brolgas.

The closest known flocking site to the Mortlake East site is Lake Bernie Bolac, which is 5 km north of the site. While no flocking was observed at this site during the flocking survey, historical database records show that Brolgas flock at Lake Bernie Bolac approximately every three years.

Observations of Brolga movements during the flocking season study found that 57% of movements were within 3 km and 71% of movements were within 5 km of flocking sites. Therefore a 5 km buffer distance around flocking sites was recommended to avoid potential impacts on Brolga feeding habitats during flocking. This buffer has been incorporated into the Mortlake East site design.

Collision risk modelling

The results of the collision risk modelling are summarised below. A copy of the report is provided in Attachment 6.

The data gathered during the breeding, migration and flocking season over 2007/08 was used to undertake collision risk modelling to provide information on the potential impact of the Mortlake East site on the Brolga. The estimated mean number of potential Brolga collisions at Mortlake East site for the entire annual cycle is the sum of modelled estimates for the annual breeding and non-breeding periods. These are:

- 95% avoidance rate: 0.108 potential collisions per year
- 98% avoidance rate: 0.053 potential collisions per year
- 99% avoidance rate: 0.035 potential collisions per year

It is considered likely that the avoidance rate of the Brolga is 95% or higher, therefore the annual average number of collisions with turbines is predicted to be 0.108 or fewer. This equates to an approximate average of less than one Brolga collision every ten years.

Population viability analysis

The results of the analysis are summarised below. A copy of the report is provided in Attachment 7.

Based on detailed Population Viability Analysis completed for the proposed wind farm, it was predicted that the only impacts of the Mortlake East site on the Brolga population would be an additional annual mortality of <0.018% caused by collisions with turbines.

Without the additional mortality from the wind farm, the probability of the Brolga population declining to a population size of 450 birds or fewer at some time within the next 20 years was 0.15. The additional mortality of 0.018% would increase the risk of decline, but the increase was not sufficiently large to be detectable within the constraints of precision imposed by stochastic simulation with 10,000 iterations. Consequently, the increase in the risk of decline to 450 birds or fewer was <0.01.

Summary of Brolga Impact Assessments

The results of the studies show that the Mortlake region is likely to support up to 140 Brolgas during the flocking season. This constitutes 23% of the known Victorian population. A small proportion of this local population is likely to be potentially at risk of collision. However it is considered unlikely that the presence of wind turbines on the Mortlake East site will pose a significant risk to the local or state wide Brolga population.

Migratory Species

- Migratory species such as Latham's snipe, Australian Pratincole, Greenshank, Sharp-tailed Sandpiper, Red-necked Stint have been confirmed as occurring on the property directly north of the Mortlake East site.
- Waterbirds generally restrict their activities to the wetlands they inhabit to a zone within 450 m of the edge of the wetland. Bird utilisation rates in agricultural settings indicate that beyond 450 m from the edge of wetlands, water birds utilisation rates are a background low levels.
- Migrating shorebirds when moving long distances over land fly at heights greater than the height of wind turbines. Furthermore, when departing or arriving on migration they ascend and descend steeply such that within the distance from the wetland to the nearest turbine, they would be above the height of any turbines in the proposed wind farm.
- For these reasons, the wind farm is unlikely to have a significant impact on any migratory shorebirds that may occur in wetlands elsewhere in the district.

LANDSCAPE AND VISUAL

A landscape and visual assessment was undertaken by Environmental Resources Management.

The results of the assessment are summarised below. A copy of the report is provided in Attachment 10.

The assessment concluded that the proposed Mortlake Wind Farm will have a low visual impact on its surrounds within south western Victoria, and the site is a suitable landscape for the construction of a wind farm. This conclusion is supported by:

- Perception studies, including social research for the proposed Mortlake Wind Farm, which show that the majority of viewers do not object to the construction of wind turbines on any but the most sensitive and localised landscapes.
- The proposed Mortlake Wind Farm is in a man-modified landscape. The landscape units in the viewshed are well represented across this area. Agricultural activity, associated structures and other signs of human intervention have also created a landscape that can absorb other changes.
- There is low visual impact on townships. There are limited locations from which long distance views are available from the townships of Mortlake and Darlington and the visual impact would be low. There is minimal visibility of the wind turbines from other settlements such as Terang and Noorat.
- The Hamilton Highway, which is one of the major roads within the region, runs to the north of the nearest wind turbine and although there will be views from this highway the overall impact is expected to be low due to the low landscape sensitivity rating.
- While there will be a visual impact on viewers using the minor roads within the locality, it is considered that the visual impact will be low from these locations partly as the viewer numbers are low, but also because this rural landscape can absorb further change.
- There are 74 non-participatory residences within 3 km of the proposed wind farm, the zone of greatest potential visual impact. However many of these existing residences have existing screening in the form of wind breaks. Landscape mitigation can be effective in lessening the visual impact on residential properties.
- If obstacle identification lighting is required by CASA, trials on night lighting in Victoria and South Australia have shown that the visual impact of the medium intensity LED lights to be used at Mortlake Wind Farm would represent an acceptable level of impact.

CULTURAL HERITAGE

A Cultural Heritage Management Plan (CHMP) was prepared for the proposed wind farm by Environmental Management Resources. Results of the assessment are summarised below. A copy of the report is provided in Attachment 11.

- No Aboriginal sites were identified within the Mortlake South or Mortlake East sites.
- Areas of high cultural heritage sensitivity were identified during the field survey and the wind farm layout was subsequently modified to avoid these areas.
- A Standard CHMP has been developed to identify and manage any issues relating to cultural heritage relevant to the proposed activity. This CHMP has been approved by Aboriginal Affairs Victoria.
- The results of the assessment indicate that the proposed wind farm will not impact on any known cultural heritage sites or areas of high cultural heritage sensitivity.

12. Native vegetation, flora and fauna

Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?
 NYD No Yes If yes, answer the following questions and attach details.

A linear strip of Plains Grassland occurs on the eastern side of the Darlington – Terang Road reserve. A small portion (less than 20m) of this strip may be affected at the access point to the Mortlake East site. The exact location and extent of vegetation to be removed will be determined during detailed design of the wind farm. A habitat hectare assessment of the vegetation to be removed will be undertaken and a net gain analysis and offset plan prepared.

What investigation of native vegetation in the project area has been done? (briefly describe)
 Flora and fauna assessment (as described in section 11 above)

What is the maximum area of native vegetation that may need to be cleared?
 NYD Estimated area ... <0.1 hectares

How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?
 N/A approx. percent (if applicable)

Which Ecological Vegetation Classes may be affected? (if not authorised as above)
 NYD Preliminary/detailed assessment completed. If assessed, please list.
 Plains Grassland (EVC 132_61)

Have potential vegetation offsets been identified as yet?
 NYD Yes If yes, please briefly describe.

Other information/comments? (eg. accuracy of information)

NYD = not yet determined

Flora and fauna

What investigations of flora and fauna in the project area have been done?
 (provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)
 Detailed in section 11.

Have any threatened or migratory species or listed communities been recorded from the local area?
 NYD No Yes If yes, please:
 • List species/communities recorded in recent surveys and/or past observations.

- Indicate which of these have been recorded from the project site or nearby.

The following threatened species were identified on the Mortlake East or South sites during flora and fauna surveys:

- Southern Bent-wing Bat (both sites).
- Brolga (Mortlake East site only).
- Australasian Shoveler, Blue-billed Duck, Hardhead and Musk Duck (Mortlake East site only).

The following listed migratory species have been recorded on a property directly north of the Mortlake East site:

- Latham Snipe.
- Glossy Ibis.
- Greenshank.
- Sharp-tailed Sandpiper.
- Red-necked Stint.
- Australian Pratincole.
- Whiskered Tern.
- Gull-billed Tern.

If known, what threatening processes affecting these species or communities may be exacerbated by the project? (eg. loss or fragmentation of habitats) Please describe briefly.

The threatening processes affecting the waterbird species (both the threatened and listed migratory species) relate to habitat degradation (removal, weed invasion, hydrological change or water quality threats) or to predation by introduced predators. The proposed wind farm will not exacerbate any of these potential threats in wetland habitats

Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?

NYD No Yes If yes, please:

- List these species/communities:
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

See section 11 for discussion on potential impacts of these species.

Is mitigation of potential effects on indigenous flora and fauna proposed?

NYD No Yes If yes, please briefly describe.

The following design response measures have been adopted to avoid or reduce impacts on native flora and fauna:

- The site layout has been refined to avoid patches of native vegetation where possible.
- The layout of turbines on the Mortlake East site (no Brolgas breed within 6 km of the Mortlake South site) has been revised to maintain an 800 m buffer around Brolga breeding sites to minimise any impacts on Brolga breeding, as recommended by Brett Lane and Associates (2008). Collision risk modelling and Population Viability Assessment shows that collision risk arising from the layout will not significantly affect the Brolga population.
- The turbine layout maintains a 5 km buffer from the closest known flocking site, Lake Bernie Bolac to minimise impact on Brolgas during the flocking season.
- The turbine layout has been revised to avoid rows of turbines at the Mortlake East site to reduce the potential to present a barrier to Brolga movement, as recommended by Ecology Partners (2008).
- An 800m buffer has been provided around high quality wetlands to minimise impacts on waterbirds and migratory species.

The following mitigation measures are proposed to avoid or reduce residual impacts on native flora and fauna:

- An Environmental Management Plan will be developed with procedures to minimise flora and fauna impacts during construction and operation of the proposed Mortlake Wind Farm.
- A Bat and Avifauna Management Plan will be developed, in consultation with DSE, to

monitor and establish measures to be taken in the event of bat and bird mortalities as a result of the proposed wind farm.

- Where possible, electrical cables will be located underground to minimise collision risk.
- On the Mortlake South site, areas of native vegetation in the former rail reserve will be avoided where possible during detailed design, construction and operation of the proposed wind farm. If disturbance is required, a targeted late spring – early summer flora survey around the vicinity of the former rail reserve will be undertaken prior to the commencement of any works.
- A Brolga Conservation Plan will be developed for the wind farm to ensure that any impacts on the Brolga are monitored and offset in a manner that results in a net benefit to the Victorian population of the Brolga. The plan is likely to focus on enhancement of wetlands, predator control (particularly foxes) and powerline marking to reduce collision risk, particularly in the vicinity of flocking sites.

Other information/comments? (eg. accuracy of information)

The Brolga breeding season survey was undertaken in spring 2007 when the region experienced average rainfall conditions. For this reason, the information gathered is considered to be representative of a normal year in terms of the availability of small, seasonal wetlands for breeding.

13. Water environments

Will the project require significant volumes of fresh water (eg. > 1 GI/yr)?

NYD No Yes If yes, indicate approximate volume and likely source.

Will the project discharge waste water or runoff to water environments?

NYD No Yes If yes, specify types of discharges and which environments.

Are any waterways, wetlands, estuaries or marine environments likely to be affected?

NYD No Yes If yes, specify which water environments, answer the following questions and attach any relevant details.

Turbines and access tracks will be located on high ground and avoid low-lying areas that are subject to inundation, wherever possible. In addition, environmental management measures such as sediment fences and vegetated swale drains will be implemented during construction to minimise the potential of sediment-laden runoff entering waterways during construction.

Are any of these water environments likely to support threatened or migratory species?

NYD No Yes If yes, specify which water environments.

While there are some wetlands and low-lying areas that support Brolgas and migratory species on the Mortlake East site, these water environments are not likely to be impacted by the proposed wind farm.

Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?

NYD No Yes If yes, please specify.

Lake Bookaar and the associated Western District Lakes Ramsar wetlands, are approximately 10 km south east of the Mortlake East site.

Could the project affect streamflows?

NYD No Yes If yes, briefly describe implications for streamflows.

Could regional groundwater resources be affected by the project?

NYD No Yes If yes, describe in what way.

Could environmental values (beneficial uses) of water environments be affected?

NYD No Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

Could aquatic, estuarine or marine ecosystems be affected by the project?

NYD No Yes If yes, describe in what way.

<p>Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.</p>
<p>Is mitigation of potential effects on water environments proposed? <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please briefly describe.</p> <p>Best practice sedimentation management will be implemented to protect the modified surface waterways and areas subject to inundation on the site. These management measures will be formalised in the Construction Environment Management Plan to be developed and approved for the proposed wind farm.</p>
<p>Other information/comments? (eg. accuracy of information) Geology, Hydrology and Surface Water Assessment is provided in Attachment 9.</p>

14. Landscape and soils

Landscape

<p>Has a preliminary landscape assessment been prepared? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please attach. Mortlake Wind Farm Landscape and Visual Assessment (ERM, 2008) is provided in Attachment 10.</p>
<p>Is the project to be located either within or near an area that is:</p> <ul style="list-style-type: none"> • Subject to a Landscape Significance Overlay or Environmental Significance Overlay? <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, provide plan showing footprint relative to overlay. • Identified as of regional or State significance in a reputable study of landscape values? <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please specify. • Within or adjoining land reserved under the <i>National Parks Act 1975</i> ? <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please specify. • Within or adjoining other public land used for conservation or recreational purposes ? <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please specify.
<p>Is any clearing vegetation or alteration of landforms likely to affect landscape values? <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please briefly describe.</p>
<p>Is there a potential for effects on landscape values of regional or State importance? <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes Please briefly explain response.</p>
<p>Is mitigation of potential landscape effects proposed? <input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, please briefly describe.</p> <p>The visual impacts from publicly accessible viewpoints have been assessed as being appropriate for all selected viewpoints, therefore no mitigation measures are proposed.</p> <p>Landscaping is a mitigation option available for residential properties. This mitigation measure will be particularly useful for houses located to the north of both the Mortlake East and Mortlake South sites. Screening vegetation on southern boundaries will protect these properties from southerly winds and will not affect solar access. Many properties already have substantial wind break planting along their southern boundaries. The desirability of landscape mitigation measures for houses to the south is lower than for properties to the north. Such measures could affect the solar access to living areas or courtyards.</p> <p>Landscape mitigation measures details will be determined following construction on a case by case basis, in consultation with landholders.</p>
<p>Other information/comments? (eg. accuracy of information)</p>

Note: A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility. This should provide a description of:

- The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use;
- The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks;
- Views to the site and to the proposed location of wind turbines from key vantage points (including views showing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?

NYD No Yes If yes, please briefly describe.

Are there geotechnical hazards that may either affect the project or be affected by it?

NYD No Yes If yes, please briefly describe.

Other information/comments? (eg. accuracy of information)

[Geology, Hydrology and Surface Water Assessment is provided in Attachment 9.](#)

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation?

NYD No Yes If yes, provide estimate of traffic volume(s) if practicable.

The major transport activity associated with the proposed wind farm will occur during the construction and decommissioning phases. As wind turbines are designed to operate largely unmanned, transport impacts during the operational phase will be minimal.

Approximately 152,420 vehicle movements to and from the proposed wind farm sites will occur during construction (18 months). These truck and car movements will not all occur concurrently. Vehicle movements will generally fluctuate during the construction period, depending on the stage of development.

A traffic management plan will be prepared to minimise potential traffic and transport impacts.

Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?

NYD No Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

Traffic

Turbine components for the proposed wind farm will be transported from either Geelong or Portland. As it is preferred by VicRoads and it is a declared main road under the control of VicRoads, it is expected that Hamilton Highway will be used extensively to haul turbine components and raw materials from Geelong. The Hamilton Highway is mainly a sealed two lane highway with one lane in each direction with unsealed shoulders.

During construction it is anticipated that heavy vehicles including over-dimensional vehicles will travel through the towns of Darlington and Mortlake. Heavy vehicles will almost always use the main carriageway on the Hamilton Highway through Mortlake. It is considered that the current amenity of the area will be maintained during construction. The Hamilton Highway passes through Darlington with two traffic lanes in each direction and unsealed shoulders. Residents are unlikely to be inconvenienced by construction traffic in the area.

Other roads to be traversed by heavy vehicles during construction will be Terang – Mortlake Road to access the Mortlake South site and Darlington – Terang Road to access the Mortlake East site. Terang – Mortlake Road is currently in good condition with no vehicle clearance issues anticipated. A school bus route travels along this road so restrictions will need to be placed on the hours of construction vehicle operation in order to avoid the time and routes travelled by school buses.

The Darlington – Terang Road is a local 'collector' road under the joint responsibility of the Shires

of Moyne and Corangamite. Access is restricted to vehicles under 20 tonnes along the northern-most section between Castle Carey Road and the Hamilton Highway. It is a narrow sealed road with a rough pavement surface and unsealed shoulders. No vehicle clearance issues are anticipated.

The main access route from Portland to Mortlake is along the Princes Highway and the Hopkins Highway. The Hopkins Highway runs in a north west to south east direction and provides direct access to the Mortlake township from Warrnambool. The few residents on this road are sufficiently set back from the road not to warrant any safety concerns or interruptions to the local amenity.

Noise

The results for the noise assessment indicate that noise levels from the proposed Mortlake Wind Farm will comply with both the 24 hour and night time noise limits in the new Zealand Standard NZS6808:1998. Additional noise monitoring will be required during the operational phase to ensure compliance.

Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?

NYD No Yes If yes, briefly describe the hazards and possible implications.

Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?

NYD No Yes If yes, briefly describe potential effects.

Are non-residential land use activities likely to be displaced as a result of the project?

NYD No Yes If yes, briefly describe the likely effects.

Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?

NYD No Yes If yes, briefly describe the potential effects.

Leasing land for wind turbines provides the potential for a long term on-going income for farmers that are not subject to the vagaries of climate, global conditions or the other issues that impact on farm incomes. To this extent wind farms can assist in underwriting broad acre farming.

The proportion of land that will be unavailable for farming activity during the operation of the proposed wind farm is estimated to be less than 2% of the total wind farm site area. The proposed wind farm is likely to have negligible effect on existing farm operations.

The proposed Mortlake Wind Farm will add to regional farm income through lease payments made to participating farmers/ landowners while allowing normal farm activity to continue. On this basis the development has the potential to encourage improved farm practices and higher farm income for the landowners of the wind farm sites.

Is mitigation of potential social effects proposed?

NYD No Yes If yes, please briefly describe.

The proposed wind farm offers scope for positive economic impacts for both the region and Victoria. These include the generation of additional income and employment in Victoria and in the broader region around Mortlake and southwest Victoria. ACCIONA Energy has initiated a process with the Industry Capability Network to maximise the benefits to the region by identifying businesses that are interested in contracting to the proposed wind farm or supplying goods and services. The proposed implementation would include but not be limited to:

- Training programs to ensure potential suppliers have the right qualifications and processes including trades tickets, quality control, occupational health and safety and other required accreditations.
- Encouraging collaborative arrangements including prime contractor and sub contractor and joint ventures between potential suppliers to ensure the tendering entity has the resources to provide the required services.

Other information/comments? (eg. accuracy of information)

The Socio-economic and Tourism Effects Assessment is provided in Attachment 12.

Cultural heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?

- No If no, list any organisations that it is proposed to consult.
 Yes If yes, list the organisations so far consulted.

Framlingham Aboriginal Trust is the current RAP applicant for the proposed wind farm sites. Two representatives from the trust assisted in all aspects of the cultural heritage survey fieldwork.

What investigations of cultural heritage in the project area have been done?

(attach details of method and results of any surveys for the project & describe their accuracy)

Investigations into Aboriginal and non-Aboriginal (historic) cultural heritage values were undertaken through a two stage process: a desktop assessment of the sites followed by detailed field investigations.

Stage one involved a review of the environmental, historic and cultural heritage background to the two sites and their environs. Desktop research included reviews of Moyne Shire's Heritage Overlay, the Register of the National Estate, National Trust (Victoria) Register, Victorian Heritage Register, the Heritage Victoria Inventory, Aboriginal Affairs Victoria (AAV) Site Registry as well as previous cultural heritage studies conducted in the region.

Stage two involved a cultural heritage survey of the two wind farm sites. This was conducted over a 6 day period between 8 and 14 November 2007. The survey team included ERM Archaeologists/Cultural Heritage Advisors and a representative from the Framlingham Aboriginal Trust.

A follow up survey was conducted between 5 and 7 March 2008. This survey team included ERM Archaeologists/Cultural Heritage Advisors and a representative from the Framlingham Aboriginal Trust.

The archaeological inspection took the form of a pedestrian survey. The three surveyors walked 2 m apart at each turbine site and along the proposed access tracks. This follows the methodology set out in Burke and Smith (2004: 65) which states that a single person can effectively visually survey an area of two linear metres. A survey of each of the proposed turbine pads was conducted, by locating the turbine pad through the northing and easting with a GPS unit. As the access tracks link the turbine pads in relatively straight lines, the general environment was noted, but these were not driven or walked as this was not possible in most cases.

Evidence of sites and areas of cultural heritage sensitivity were noted. Areas of Aboriginal cultural heritage sensitivity (referred to as high sensitivity in the CHMP) included land within 200 m of waterways and swamps, areas of raised ground and areas close to any existing Aboriginal sites.

Is any Aboriginal cultural heritage known from the project area?

- NYD No Yes If yes, briefly describe:

- Any sites listed on the AAV Site Register
- Sites or areas of sensitivity recorded in recent surveys from the project site or nearby
- Sites or areas of sensitivity identified by representatives of Indigenous organisations

A search of the AAV Site Registry indicated that no known Aboriginal sites were listed within either of the two wind farm sites.

The AAV Site Registry listed two Aboriginal sites and one historical Aboriginal site within 5 km of the Mortlake South site. The pre-contact Aboriginal sites include an earth feature (or earth mound) and a stone artefact scatter. The Aboriginal historical site is Keilambete Protectorate Station.

The AAV Site Registry listed two Aboriginal sites within 5 km of the Mortlake East site. The pre-contact Aboriginal sites include an earth feature and a site consisting of a burial and earth feature. The Aboriginal historical site is the 'Puuroyuup' Gully Massacre.

Within 15 km of the two wind farm sites, 12 Aboriginal archaeological sites and 10 historical Aboriginal sites were identified. These include Aboriginal artefact scatters, scarred trees, burials, Aboriginal mounds and fish traps.

A field survey of the two wind farm sites also did not identify any Aboriginal sites. While no Aboriginal sites were identified within the Mortlake South or Mortlake East sites, areas of high

sensitivity were identified during the field survey. The wind farm layout on the Mortlake East site was subsequently modified to avoid these areas of sensitivity.

Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?

NYD No Yes If yes, please list.

Database searches revealed that two sites listed on the Register of National Estate known as Stoney Point Homestead (3803) and Wooriwyrite Homestead (3803) are located within the Mortlake East site.

Is mitigation of potential cultural heritage effects proposed?

NYD No Yes If yes, please briefly describe.

While no Aboriginal sites were identified within the Mortlake South or Mortlake East sites, areas of high sensitivity were identified during the field survey and the wind farm layout was subsequently modified to avoid these areas.

A Standard CHMP has been developed to identify and manage any issues relating to cultural heritage relevant to the proposed activity. A detailed contingency plan has also been developed as a part of the CHMP to manage Aboriginal cultural heritage issues that may affect the conduct of the activity. This includes contingency measures for the discovery of Aboriginal cultural heritage, removal, curation and custody of Aboriginal cultural heritage (artefacts), discovery of human remains and dispute resolution.

The wind farm layout has also been designed to avoid the non-Aboriginal cultural heritage sites identified being the two homesteads of Stoney Point and Wooriwyrite Homestead and the bluestone quarry.

Other information/comments? (eg. accuracy of information)

The Mortlake Wind Farm approved Cultural Heritage Management Plan is provided in Attachment 11.

16. Energy, wastes & greenhouse gas emissions

What are the main sources of energy that the project facility would consume/generate?

- Electricity network. If possible, estimate power requirement/output
 - Natural gas network. If possible, estimate gas requirement/output
 - Generated on-site. The proposed Mortlake Wind Farm will have an installed maximum capacity of 288 MW.
 - Other. Please describe.
- Please add any relevant additional information.

What are the main forms of waste that would be generated by the project facility?

- Wastewater. Describe briefly.
- Solid chemical wastes. Describe briefly.
- Excavated material. Subsoil from foundation construction.
- Other. Describe briefly.

Please provide relevant further information, including proposed management of wastes.

Most material excavated from foundations will be used in construction of the roads and tracks. An Environmental Management Plan will be prepared and implemented during construction activities.

What level of greenhouse gas emissions is expected to result directly from operation of the project facility?

- Less than 50,000 tonnes of CO₂ equivalent per annum
- Between 50,000 and 100,000 tonnes of CO₂ equivalent per annum
- Between 100,000 and 200,000 tonnes of CO₂ equivalent per annum
- More than 200,000 tonnes of CO₂ equivalent per annum

Please add any relevant additional information, including any identified mitigation options.

While the construction phase of the proposed wind farm will generate greenhouse gas emissions due to on-site machinery exhaust emissions, transportation and the production of concrete, these emissions will be very small compared to the greenhouse gas emissions abated during the operational phase.

The electricity generated by the proposed Mortlake Wind Farm is expected to supply approximately 86,000 average Victorian households. The wind farm would displace approximately 0.52 Mtpa of CO₂ emissions per annum, equivalent to removing approximately 119,000 cars from the road each year, or to planting approximately 769,000 trees each year.

The development of the proposed Mortlake Wind Farm is consistent with key government policies on greenhouse gas reduction, including the Federal Government's proposed Renewable Energy Target and the Victorian Government's Renewable Energy Target.

17. Other environmental issues

Are there any other environmental issues arising from the proposed project?

No Yes If yes, briefly describe.

18. Environmental management

What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above)

Siting: Please describe briefly

Design: Please describe briefly

ACCIONA Energy has incorporated the following design features in order to avoid adverse environmental effects:

- Turbines have been sighted a minimum of 1 km from residential dwellings to ensure compliance with the noise standard at all existing neighbouring landowner dwellings.
- Turbines, access tracks and cabling trenches have been sited to avoid areas of cultural heritage sensitivity i.e. a minimum of 200 m from waterways.
- The layout of turbines on the Mortlake East site has incorporated an 800 m buffer around Brolga breeding sites to minimise any potential impacts on Brolga breeding.
- The turbine layout maintains a 5 km buffer from the closest know flocking site, Lake Barnie Bolac to minimise potential impacts on Brolgas during the migration and flocking season.
- Where possible, internal electrical cables will be located underground to minimise collision risk.
- Where possible native vegetation has been avoided in the layout.

Environmental management: Please describe briefly.

A detailed Environmental Management Plan will be developed for the proposed wind farm detailing the:

- Environmental management measures proposed for the construction and operation phases of the wind farm.
- The monitoring and reporting arrangements.
- Environmental responsibilities of ACCIONA Energy and its workforce.

A Bat and Avifauna Management Plan will be developed in consultation with DSE to monitor and establish measures to be undertaken in the event of bat and bird mortalities as a result of the

proposed wind farm. This will include a Brolga Conservation Plan to ensure that any impacts that are detected on this species are appropriately offset.

A Traffic Management Plan will be developed in consultation with the relevant Councils and Vic Roads.

ACCIONA Energy also have committed to undertaking conservation activities related to the provision or enhancement of Brolga habitat to compensate for any potential impacts on Brolgas as a result of the proposed wind farm operations. Such measures would include wetland restoration, predator control and powerline marking.

Other: Please describe briefly

Add any relevant additional information.

19. Other activities

Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?

NYD No Yes If yes, briefly describe.

The nearest existing and proposed wind farms to the proposed Mortlake Wind Farm are the Darlington Wind Farm (three sites) 5 km to the east, the Drysdale Wind Farm located 15 km to the south west and the Naroghid Wind Farm 15 km to the south. Woolsthorpe and Hawkesdale are the next closest (approximately 20 km to the west) and lie so close together that they would read as a single wind farm in the landscape.

Sequential and Simultaneous Visual Impacts

Sequential and simultaneous visual impact is most likely from the main roads and highways. The main highways within the viewshed of the proposed Mortlake Wind Farm are the Princes Highway to the south and the Hamilton / Hopkins Highway to the north and west. Therefore the cumulative impact both sequentially and simultaneously would be on users of these roads.

For viewers travelling west along the Hamilton / Hopkins Highway, after passing the three sites of the Darlington Wind Farm, will then immediately pass the proposed Mortlake Wind Farm and in a further 12 km they will pass the Drysdale Wind Farm. For those travellers who dislike the appearance of wind farms, this would increase their exposure and given the proximity of these views, the visual impact would be medium to high. Therefore, the cumulative visual impact is expected to be greater than the visual impact of the proposed Mortlake Wind Farm by itself for this category of travellers.

Similarly travellers on the Princes Highway travelling west from Camperdown, will pass the Naroghid Wind Farm to the south and from some locations on the highway will also be able to see the proposed Mortlake Wind Farm to the north. Compared to the Hamilton / Hopkins Highway the cumulative visual impact for users of the Princes Highway would be far less and it is assessed as being a low visual impact.

There are limited locations from which multiple wind farms could be visible on the local road network, with relatively few users. The visual impact of sequential or simultaneous views from the local road network would be low to negligible because of the low user numbers and the infrequency of either simultaneous or sequential views.

Some individual dwellings or farms may be able to see more than one wind farm both sequentially or simultaneously. The cumulative impact on these residences may be higher, although this would obviously depend upon the viewer's perception of wind farms, and the extent to which vegetation could screen or filter views.

Community Perceptions

A community perception study was conducted in late November 2007 to ascertain the views of the community located within proximity of the proposed Mortlake Wind Farm towards wind farms and renewable energy. The study included an assessment of cumulative community impacts of further wind farm development in south west Victoria. The assessment concluded that, should a second wind farm of similar size to the proposed Mortlake Wind Farm be proposed for the local rural area, six in ten survey respondents felt the second site should be located either adjacent or nearby to the existing site. The balance felt the second wind farm should be located elsewhere and out of site of the existing wind farm.

A majority of respondents were in favour of up to three medium sized wind farms in their 'local rural area'. 71% supported one medium sized wind farm. 67% supported two medium sized wind farms. A majority was no longer in support for four medium sized wind farms in their 'local rural' area.

Brolga

The DSE has established an impact assessment framework for Brolgas and wind farms in western Victoria. This framework requires proponents to assess the effect of their individual project on the species, and DSE to determine the cumulative impact of each project as it is formally assessed. This requires a combination of detailed studies of Brolga impacts by proponents, together with collision risk modelling and population viability assessment (PVA) modelling of both impacts and proposed mitigation and offset measures.

ACCIONA Energy has gathered detailed data on the occurrence and behaviour of the Brolga around the Mortlake East site. No significant Brolga occurrences have been recorded around the Mortlake South site so this site has not been considered in detail. The Brolga breeding, migration and flocking season data collected at and near the Mortlake East site has enabled the numbers of Brolga movements across the site to be estimated as a basis for collision risk modelling. Further Population Viability Assessment modelling, has enabled DSE to estimate the cumulative impact of the proposed wind farm on this species.

ACCIONA Energy has committed to undertaking conservation activities related to the provision or enhancement of Brolga habitat to compensate for any potential impacts on Brolgas as a result of the proposed wind farm operations. Such measures will include wetland restoration, predator control and powerline marking.

Southern Bent-wing Bat

During Anabat® surveys of the proposed wind farm sites, bat activity was found to be generally very low. Very few Southern Bent-wing Bats were recorded during these surveys, due to the general lack of treed habitat suitable for bats across the sites. Southern Bent-wing Bat activity levels are comparatively low and the site is approximately 35 kilometres from the nearest maternity cave, at Starlight Cave east of Warrnambool. For these reasons, the cumulative impact of the proposed wind farm on this species is considered to be very low.

Flora

Botanical investigations indicated that very few areas within the proposed wind farm sites supported remnant native vegetation. Furthermore, it has been concluded that the sites had very limited potential to support threatened flora species. Areas of native vegetation have been avoided in the wind farm layout wherever possible. Therefore there is a very limited potential for significant cumulative impacts arising from development of the proposed Mortlake Wind Farm.

Potential Cumulative Tourism Impacts

The potential cumulative impact on tourism (both positive and negative) includes the possibility that tourists will be encouraged or discouraged from visiting the Mortlake area if more than one wind farm is simultaneously visible or if there are a number of wind farms along tourist routes to and from or within the Mortlake region.

If accepted and promoted by the regional community, wind farms can increase tourist expenditure

and encourage new businesses to establish. This includes additional tourism activities such as tours and hospitality and can lead to additional accommodation and other service requirements. However, it should be noted that as the number of wind farms in Australia increase they are likely to become an accepted part of the landscape rather than an innovation that attracts visitors.

Potential Cumulative Resourcing Impacts

Major regional projects offer significant potential benefits to a region in terms of the supply of goods and services, employment and skills development. Large regional projects, such as wind farms offer many potential benefits, including providing an economic boost to local communities. Specifically the proposed Mortlake Wind Farm is expected to generate the following resourcing benefits:

- For the construction of the proposed wind farm it is estimated that approximately \$95 million will be spent locally and in the region.
- The generation of 272 direct Full Time Equivalent (FTE; equivalent to approximately 38 hour working week) manufacturing and installation job years over a two-year construction period with a peak period of 180 FTE positions arising in 2010.
- The provision of long term employment opportunities, with the generation of 9 direct on-going FTE operations and maintenance jobs and over 26 total FTE jobs after completion of construction in 2011, many of which could be sourced from within the region.

These additional employment opportunities will not be to the detriment of the agricultural industry, with farming activities able to continue as normal.

20. Investigation program

Study program

Have any environmental studies not referred to above been conducted¹⁰⁰ for the project?

No Yes If yes, please list here and attach if relevant.

Has a program for future environmental studies been developed?

No Yes If yes, briefly describe.

Consultation program

Has a consultation program conducted to date for the project?

No Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

A comprehensive consultation process has been undertaken as part of the development and planning phase of the proposed Mortlake Wind Farm. The consultation report is provided in Attachment 13. Through a variety of consultation activities ACCIONA Energy advised the local community of the proposed wind farm, gathered community feedback, and responded to questions and concerns raised.

The key conclusions of the consultation process are as follows:

- Overall, neighbours to the proposed wind farm and the wider community are supportive of the proposed wind farm. People in the local area are generally concerned about climate change and believe that more electricity should be produced from renewable energy sources such as wind. Most people expressed the view that the proposed wind farm would benefit the regional economy.
- The consultation process helped local community members to better understand the proposed wind farm and its potential impacts and benefits, and offered opportunities for the community to provide constructive and informed feedback.
- The consultation process worked successfully to allay concerns about the proposed wind

farm and provided detailed information to ensure people were able to provide informed feedback to ACCIONA Energy.

Has a program for future consultation been developed?

NYD No Yes If yes, briefly describe.

The following consultation activities are proposed during the Public Exhibition Period:

- Community information bulletin.
- Community information day.
- Project email address and 1800 number.
- Planning application on display locally and available on request.
- Summary document of the planning application.
- Website.

ACCIONA Energy is committed to ongoing community consultation and building relationships with local stakeholders and community. The consultation process will continue if planning approval is granted, with a community relations program throughout construction and operation.

Authorised person for proponent and person who prepared this referral:

I, Kate Sutherland, Environmental Manager of ACCIONA Energy, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature



Date

6 May 2009