# PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

## 1. Information on proponent and person making Referral

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| **Name of Proponent:** | Synergy Wind Pty Ltd |
| **Authorised person for proponent:**<br><br>**Position:**<br>**Postal address:**<br>**Email address:**<br><br>**Phone number:**<br>**Facsimile number:** | Coralie Spitzner<br><br>Project Manager<br>PO Box 327, Balaclava VIC 3183<br>coralie.spitzner@synergy-wind.com<br><br>03 8506 0371<br>03 9537 1963 |
| **Person who prepared Referral:**<br>**Position:**<br>**Organisation:**<br>**Postal address:**<br>**Email address:**<br><br>**Phone number:**<br>**Facsimile number:** | Bernard Stewart<br>Senior Planner<br>Beveridge Williams & Co Pty Ltd<br>PO Box 61, Malvern VIC 3144<br>stewartb@bevwill.com.au<br><br>03 9524 8888<br>- |
| **Available industry & environmental expertise:** (areas of 'in-house' expertise & consultancy firms engaged for project) | Synergy Wind is a project development company which identifies and develops viable renewable energy sites throughout Australia. Synergy Wind is funded by private investors who have experienced the renewable energy industry from many perspectives - as hosts of wind turbines and solar panels, as developers of wind farms and as owners and users of biomass plants.<br><br>Synergy Wind has engaged suitably qualified consultants to undertake a range of specialist investigations with regard to the suitability and planning of the proposed Alberton Wind Energy Facility (AWEF).<br><br>Beveridge Williams has prepared this EES referral including the environmental assessment and the proposed management regime, as well as providing town planning services including the preparation of the Planning Permit Application. Beveridge Williams is a consultancy offering comprehensive services in surveying, urban design, town planning, water resources, civil engineering, project management, landscape architecture, environmental consulting and contamination assessment.<br><br>Specialist investigations undertaken include:<br><br>- *Alberton Wind Farm Feasibility Study*, Jacobs (6 October 2015) |

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| | - *Alberton Wind Farm, Flora and Fauna Assessment*, Brett Lane & Associates (December 2016)<br>- *Alberton Wind Farm, Bird and Bat Surveys*, Brett Lane & Associates (August 2016)<br>- *Alberton Wind Farm, Shorebird Data Analysis*, Brett Lane & Associates (December 2016)<br>- *Alberton Wind Farm, Targeted Flora Survey*, Brett Lane & Associates (November 2016)<br>- *Alberton Wind Farm, Additional information on Matters of National Environmental Significance*, Brett Lane & Associates (July 2017)<br>- *Landscape and Visual Impact Assessment*, Green Bean Design Pty Ltd<br>- *Aviation Impact Assessment, Alberton Wind Farm*, SGS Hart Aviation (16 December 2015)<br>- *Alberton Vic Wind Farm – Investigation of Possible Impacts on Broadcasting and Radiocommunication* Services, Lawrence Derrick & Associates (4 July 2016)<br>- *Cultural Heritage Assessment,* Biosis (14 September 2017)<br>- *Preliminary Geotechnical Investigation,* Golder Associates (17 January 2017)<br>- *Alberton Wind Farm, Noise Assessment,* Marshall Day Acoustics (14 September 2017)<br>- *Alberton Wind Farm, Predicted noise levels – Alternative Turbine Types,* Marshall Day Acoustics (24 July 2017)<br>- *Alberton Wind Farm, Shadow Flicker and Blade Glint Assessment*, DNVGL (15 September 2017)<br>- *Preliminary Transport Management Plan - Cardno, 13 October 2016* |

## 2. Project – brief outline

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| **Project title:** Proposed Alberton Wind Energy Facility |
| **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)<br><br>The proposed AWEF site is located 216 kilometres east of Melbourne in South Gippsland, within the municipality of the Wellington Shire. The site is located along the South Gippsland Highway, west of the township of Alberton, and 6 kilometres south of the Yarram township.<br><br>The proposed AWEF will be established across various private properties held by 14 landowners with some supporting infrastructure crossing public infrastructure reserves. The facility will have an overall area of around 3,200 hectares (herein referred to as the 'Study Area'). The proposed indicative development footprint comprises approximately 59.39 hectares (**Attachment 2**), being approximately 1.8% of the wider Study Area. The proposed AWEF area is current as at 7 June 2017 and is referred to in some supporting documents as the 'Post-Optimised Layout', 'Development Footprint', or 'proposed layout'. |

**Appendix 1** provides the co-ordinates of the bounding points around the proposed AWEF Study Area.

**Short project description** (few sentences)**:**

The proposed Alberton Wind Energy Facility comprises the construction of a Wind Energy Facility around the township of Alberton West in South Gippsland, Victoria. The proposed AWEF will involve the construction of 34 wind turbines (each with an adjacent hardstand required for construction), and associated temporary and permanent infrastructure including access tracks, underground cabling and anemometer masts, with potential requirements for overhead powerlines, up to four work compounds, and a substation depending upon the electrical specification of the specific turbine used.

## 3. Project description

**Aim/objectives of the project** (what is its purpose / intended to achieve?):

The objective of the proposed AWEF is to identify and develop a viable wind energy facility as a source of renewable energy for export to the transmission network to supplement Victorian and National energy needs.

It is estimated that the proposed AWEF would provide clean energy for over 45,000 Victorian households and reduce the emissions of greenhouse gas by over 390,000 tonnes annually. The proposed AWEF would contribute to the Victorian objective to deliver 1500 MW of new large-scale renewable energy capacity by 2020.

The proposed AWEF would offer the following key benefits:

- Increased investment and employment opportunities in the region during the construction phase
- Increased economic activity in the south Gippsland area
- Ongoing economic and employment benefits throughout the life of the proposed AWEF
- Contribute to the growth of the Renewable Energy Industry in the area
- Reduce reliance on non-renewable energy sources for power generation

**Background/rationale of project** (describe the context / basis for the proposal, eg. for siting):

Synergy Wind is a developer of wind energy projects in the Australian energy market to contribute to the national and State based renewable energy requirements and to provide a clean energy source for the electricity generation sector across the board.

The Study Area was identified in 2008 via an approach from a landowner.

The Study Area is particularly well suited to the establishment of a wind energy facility. The Study Area is sparsely populated with residential and/or farming properties, many of which are owned by land owners involved with the proposed AWEF. The Study Area is cleared land and the predominant land use is broad acre cropping and grazing.

Based on the findings of the preliminary investigations undertaken to date, the proposed AWEF can be developed, constructed and operated to avoid significant adverse impacts on the community, ecology, heritage, landscape and amenity. The Proposed AWEF can be developed to minimise the impact on the agricultural capacity of the land. Further, there is flexibility in the Study Area to position the Wind Energy Facility turbines and associated infrastructure in locations that avoid impacts on sensitive local features and which can further minimise impacts through micro-siting and implementation of Management Plans.

The Study Area has a strong wind characteristics, with wind speeds in the range of 7.0 to 7.5 m/s at a height of 65 metres. In January 2015, an anemometer was installed on an 80 metres high aluminium mast to measure the wind resource at the Study Area over a period of 14 months. Data from nearby weather stations has also been obtained. This data, including the prevailing wind direction, has informed the layout of the turbines and been used to predict the overall output of the Proposed AWEF.

An existing South Gippsland 66kV transmission line bisects the Study Area from northeast to southwest. It is proposed to connect to this existing line in the section of Morwell West Terminal Station (MWTS) to Foster (FTR).

The Study Area has good transport access and is sufficiently separated from public use areas and population centres. The South Gippsland Highway is a key transport route which bisects the Proposed Wind Energy Facility Area. The Study Area is also accessible by sea whereby turbine components could be shipped into either Port Anthony or Port of Hastings.

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

The following is a summary of the permanent and temporary infrastructure required for the proposed AWEF. Refer to ***Attachment 3***.

The facility will consist of up to 34 wind turbines, and underground and overhead electrical lines to connect the wind farm to a substation (NB: potential location to be confirmed following signing of connection agreement with AusNet) and then to the grid. There will also be access tracks for construction and maintenance.

The Proposed Wind Energy Facility Area as described within this Referral comprises the outer limits of the works boundaries described below (i.e. a maximum development footprint approach has been undertaken to enable maximum potential impact assessment to be carried out.).

Wind Turbines and Towers

Each of the wind turbine structures has a tower and nacelle (containing the turbine). The blades will be approximately 70 metres long giving a rotational diameter at the tip of the blade of approximately 140 metres. The structures will have an overall tip height of a maximum 200 metres and a minimum ground to blade tip clearance of 40 metres. The towers will be mounted onto a large concrete pad footing (set largely below ground) and there will also be an adjacent hardstand construction pad beside each wind turbine. The hardstand area next to each turbine will be approximately 25 metres x 45 metres. Underground cabling and associated trenching would be established within a 3 metre easement.

The final height and configuration of the turbines to be installed will be determined following a commercial tendering process that will occur after a Planning Permit is granted. The turbines selected through the commercial tendering process will be generally consistent with the aforementioned dimensions.

The turbines are spread across approximately 8.5 kilometres north-south, and 10 kilometres east-west however the structures occupy a very small footprint within this area (less than 0.05% of the land area). The turbines are to be located in four groups: a large 'vee' shaped central group of 18 turbines to the west-south-west of Alberton; two groups of 4 and 6 turbines each, further to the west, adjacent to the South Gippsland Highway; and a group of 5 turbines to the north, west-south-west of Yarram. The layout plan for these components, comprising the Proposed Wind Energy Facility Area is shown in ***Attachment 3***.

Access Tracks

It is proposed to build approximately 23 km of new access tracks to provide construction and maintenance access to the individual wind structures from existing roads. It is proposed that these tracks will be 6 metres wide gravel during the construction period and will be reduced to 2.5 metres wide after construction. The arrangement of tracks has been designed to minimise the number and extent of tracks required.

Turbine Electricity Connection, Sub-Station and External Connection

An existing 66kV line runs across the Study Area at three points, and the Proposed AWEF will connect to the main power grid at one of these locations, therefore avoiding the requirement to build external overhead powerlines. This represents a significant benefit and reduction of potential impact.

The wind turbines will be connected to the substation by underground and overhead 22kV electricity lines. There will be approximately 15km of overhead electricity lines with an easement of up to 16m width. These will consist of runs of single stem poles and conductors, similar to other similar transmission lines.

Underground cabling and associated trenching will be contained within a 3 metre wide corridor, and align with existing and new tracks where possible to minimise impacts.

A substation may not be required depending upon the type of turbine used. If required, a substation will be located near the intersection of Coal Mine Road and the former South Gippsland rail line. The substation would be connected to the adjacent existing overhead 66kV transmission line that travels though the Study Area. The substation site may include one large and two small substations.

It should be noted, at this stage, the electrical plan is conceptual and can only be confirmed following the selection of a final turbine model and the signing of a connection agreement with AusNet.

Temporary infrastructure (construction)

Up to four works compounds of approximately 0.575 hectares to 2.773 hectares will be established during construction.

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

The proposed AWEF will utilise and connect to existing road and other infrastructure and upgrades to any ancillary infrastructure is not anticipated. Some local roads will be required to be upgraded to enable the delivery of turbine towers and blades. Access tracks will also be provided to all turbines. However, the principle access through the site will be via the South Gippsland Highway which will not required to be upgraded.

**Key construction activities:**

Key construction activities are outlined below including a description of the activity:

- *Site preparation*: creation of entrances from public roads, land clearance for compounds and laydown areas, and establishment of construction compounds.
- *Site tracks*: land clearance and removal and stockpiling for future use and re-topsoiling, excavation, filling, laying bedding materials and track surface materials.
- *Crane pads*: land clearance and topsoil removal, stockpiling at pad locations, excavation, filling and laying bedding and surface materials.
- *Foundations*: land clearance and removal and stockpiling of topsoil at foundation locations. Installation of steel reinforcement and pouring of concrete to form turbine gravity base. Curing of concrete and then backfilling and replacing topsoil to ground level.
- *Electrical works*: trenching of cable routes, laying bedding materials, cables and engineered backfill, replacement of top soil to ground level. Clearance of overhead wire routes and installation of poles and wires and construction of collector stations.
- *Terminal substation*: if a substation is required, this would involve clearance of land, removal and storage of topsoil, excavation and pouring of building foundations and concrete pads at switch yard and transformer locations. Installation of electrical equipment and landscaping.
- *Turbines*: delivery of turbine components to the Proposed Wind Energy Facility Area, installation of turbines at each location involving placement of tower sections on foundations followed by the nacelle, hub and blade assembly.
- *Commissioning*: testing of all electrical and mechanical systems from each turbine through the reticulation system to the substation to the metering and connection point. Connecting to the existing 66kV transmission line.
- *Finishing*: removal of temporary structures, plant and equipment. Site clean-up, re-topsoiling and revegetation (where required).
- *Transportation*: the construction activities described above would involve transport to the Proposed Wind Energy Facility Area, including for materials, turbine components and plant and equipment. It is expected that site personnel would also commute to and from the Proposed Wind Energy Facility Area.

**Key operational activities:**

The operational activities operation of the proposed AWEF will generally be limited to monitoring, maintenance and repairs. Operation and maintenance is likely to include activities such as routine inspections, service and repair of turbines, regrading of access tracks and the maintenance of the electrical reticulation system and buildings and plant, including control systems.

An Operational Management Plan will be in place for the life of the Project.

The HV connection to the 66kV transmission line would be maintained by SP AusNet Services. Day to day monitoring and maintenance of the systems and proposed AWEF would be carried out by staff located on site with some monitoring being carried out remotely.

**Key decommissioning activities** (if applicable):

The operational life of the proposed AWEF is expected to be around 20-30 years after which time the facility may be decommissioned and removed, or repowered with new turbines (subject to a further planning application if required).

Key decommissioning activities would be carried out in accordance with the Planning Permit conditions, and may include:

- Removal of all above ground infrastructure i.e. turbines, construction pads, substations and powerlines (except where parts of the electrical system may require retention by statutory authorities.
- Rehabilitation of civil works i.e. access tracks.

All subsurface infrastructure would remain buried below plough depth (approximately 1 metre).

Decommissioning work will be undertaken in consultation with the land owners to ensure that the land can be returned to agricultural use (i.e. some access tracks may be retained at the request of the land owner).

**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):

Synergy Wind identifies wind farm sites across Australia. Potential sites are identified through an assessment of wind resources, proximity to the State electricity grid, the extent and nature of environmental constraints, landowner support, complementary land uses, transport access and community impacts and benefits.

No alternative locations for the proposed AWEF were considered or are proposed.

The specific process that resulted in the proposed Wind Energy Facility Area being identified as suitable and feasible for the proposed AWEF involved:

- Consideration of the wind energy resource at the site
- Environmental and social factors
- Availability of land
- Proximity to grid connection and transport networks
- Feasibility of construction

However, within the Study Area, the specific location, design and layout of the turbines and associated infrastructure were selected through a process of eliminating alternatives based on site specific constraints as outlined below.

Early Proposed AWEF layouts developed in March 2015 indicated a possible layout of 40 turbines (***Figure 1***).

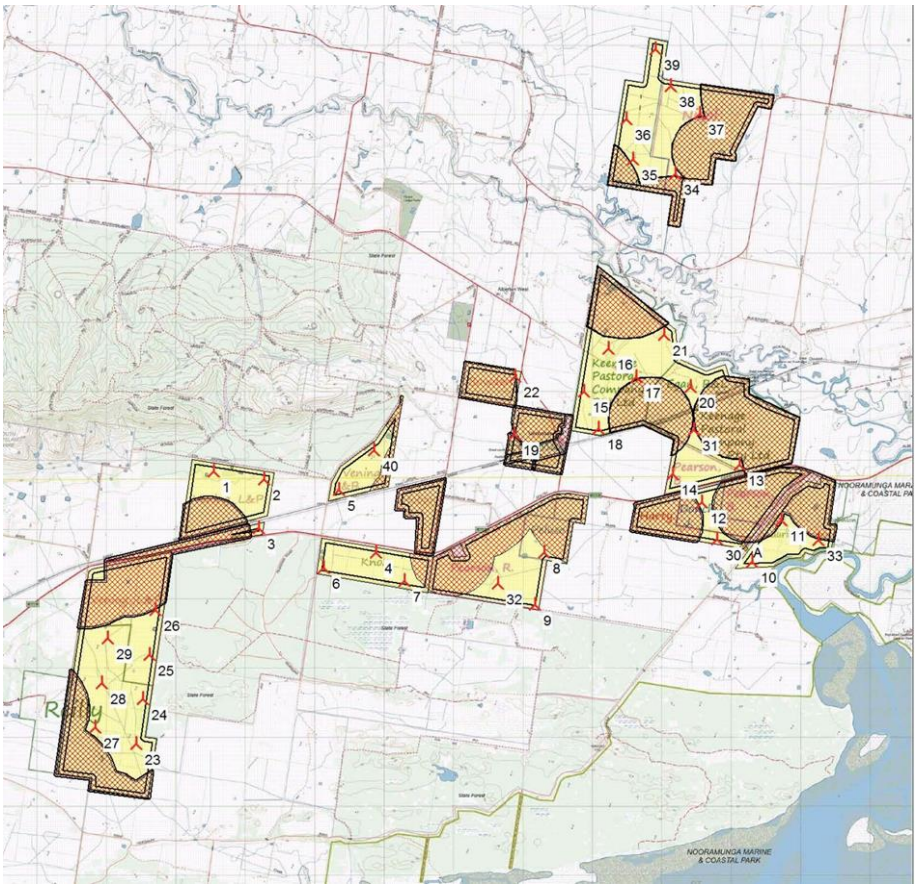


***Figure 1: Preliminary Proposed AWEF Layout, March 2015***

After the initial layout was designed, in conjunction with consultation with landowners, numerous surveys, assessments and studies were undertaken to refine the layout to minimise potential impacts and maintain project feasibility (listed in section 1).

Design layouts have been refined in the planning process for the proposed AWEF. Alterations made to the design layout have included:

- Turbines T04, T05, T06 and T07 were moved approximately 150 metres west to avoid impacts upon large, scattered trees and to reduce risks to avifauna moving in and about the state forest to the east.
- An access track was moved out of Birds Road (a narrow road lined on either side with diverse sedgy, shrubby and grassy vegetation as well as overhanging trees) and into the cleared private land to the east.
- Works compounds and electrical substations have been sited within cleared farm paddocks.
- A previously proposed turbine located within a narrow band of cleared vegetation just north of the South Gippsland Highway, between Alberton West State Forest (to the north) and the aforementioned state forest (to the south) was removed as it was considered to pose a high risk to avifauna moving between the two forests.
- A previously proposed turbine to the north-east of the intersection between Lanes Road and the South Gippsland Highway was removed as it posed unacceptable impacts to native vegetation.
- Turbines T08, T10, T11, T13, T16 and T19 were moved approximately 100 metres north to reduce risks to avifauna moving in and about the state forest to the south.
- Access tracks to Turbines T08, T10, T11, T13, T16 and T19 were rerouted to cleared land to avoid overhanging trees and tree lines supporting native canopy and/or understorey vegetation.

- An access track was rerouted into cleared land to avoid impacts upon native vegetation and habitat zones.
- The access tracks to Turbine T29 were rerouted out of the well-vegetated rail trail (to the north-west) into adjacent cleared farmland.
- Turbine T34 was moved further away from native vegetation and into weed pasture, and associated access tracks were rerouted to reduce the impacts on native vegetation.
- Turbine T24 and associated access tracks were moved to avoid impacts upon native vegetation.
- The access point to turbines T20, T21, T23 or T30 and T28 were relocated to avoid impacts upon the Jack River and native vegetation within.
- An access track was relocated from Old Alberton Road (a narrow road lined on either side with shrubby vegetation) and into the cleared private land.
- Cabling and access tracks between T04 and T05, and between T28 and T30 were moved to avoid Aboriginal Cultural Heritage Sensitive Areas.

The above changes resulted in considerable reductions in potential native vegetation removal and other potential environmental impacts.

Once taking all constraints identified by the above surveys, assessments and studies, the proposed 34 turbine layout was arrived at (***Figure 2***).

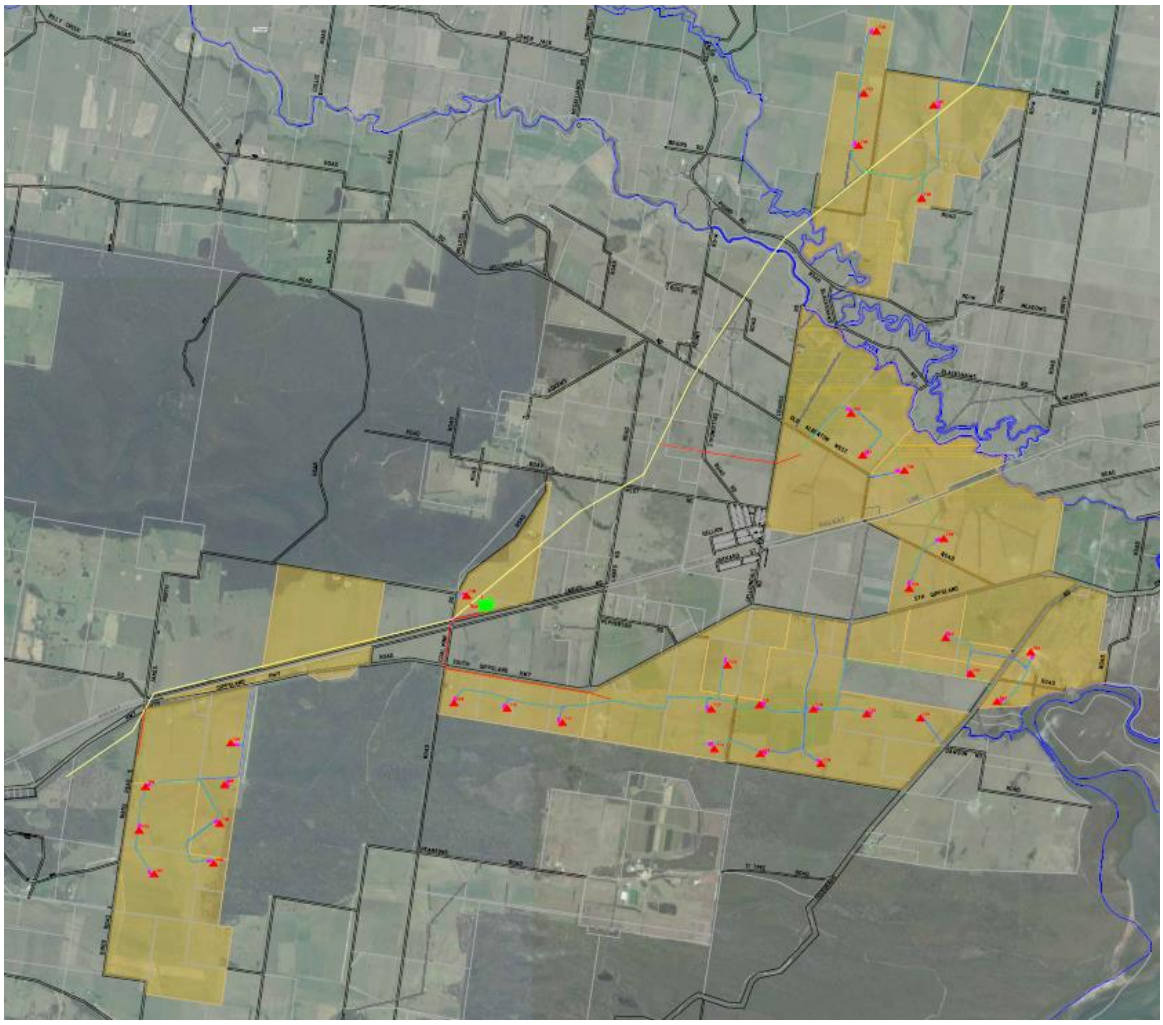

***Figure 2: Proposed AWEF, Proposed Layout, 07 June 2017 (Refer also Attachment 3)***

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

As a result of the extensive study and analysis of the site, and in response to statutory obligations, modifications to the proposed layout and number of turbines is not anticipated beyond

a 100 metre micro-siting allowance to be sought as a condition of the Planning Permit (as per the Model Planning Conditions). As such, there are no key alternatives to be further investigated.

The benefits of the 100 metre micro-siting allowance are that it allows for:

- Where feasible, a further reduction of potential impacts to native vegetation and heritage can be achieved;
- Avoidance of any additional sites of Aboriginal cultural heritage significance that are identified during the preparation of the Cultural Heritage Management Plan (CHMP);
- Response to detailed pre-construction studies;
- Response to any conditions imposed on the Planning Permit;
- Address any detailed requirements of SP AusNet for the proposed transmission connection network regarding the connection works and the associated land requirements; and/or
- Response to the final turbine model (resulting from commercial tender of the Proposed AWEF) within the envelope of a maximum rotor diameter of 140 metres and maximum tip heights 200 metres.

The Proponent considers that minor micro-siting changes that may result from the above or other factors can be accommodated within the identified site boundaries and general project configuration as submitted in this referral without an adverse environmental or social impact.

## 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:**

SP AusNet have advised that it is unlikely that the existing 66KV overhead powerline will require augmentation to meet the capacity for the proposed AWEF. If further augmentation or upgrade of the powerlines is required, then this will be the subject of a separate planning permit and approvals process, as required for the transmission infrastructure and electrical utility works.

No other ancillary activities, or further project stages, have been excluded from the scope of the proposed AWEF for assessment.

## 6. Project implementation

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

Synergy Wind Pty Ltd

**Implementation timeframe:**

Planning and associated approvals are expected to take approximately 6 months. The timing of construction would commence between 8-12 months post development approval, depending upon the season (civil works are not likely to be undertaken during winter) and the lead time for turbine delivery. A construction period of 18-24 months is expected.

The anticipated implementation of the proposed AWEF has an overall expected timeframe of 32-42 months as outlined above.

**Proposed staging** (if applicable):

No staging is proposed.

## 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 AWEF will be located across 14 private properties.

A summary overview of the proposed AWEF Area and Study Area, is provided below. **Figure 3** to **Figure 11** inclusive illustrate the Study Area.

The Study Area primarily comprises land within private property, with the proposed works being located within cleared paddocks used for grazing stock. The land is generally flat. These areas are dominated by introduced pasture grasses, though the proposed powerlines and access tracks impact small patches of vegetation in some locations.

***Figure 3 (left): Typical example of farmland within the Study Area; Figure 4 (right): Typical lower order road located between farms within the Study Area***

*Figure 5 (left): Rail trail; Figure 6 (right): Existing power line (right)*

*Figure 7: Looking south towards locations of T05 and T06 (left); Figure 8: Looking south towards locations of T10 and T11 from South Gippsland Highway and Coal Mine Road intersection (right)*

*Figure 9: Looking west towards location of T18 abd T22 from northern boundary of Gelliondale State Forest and Ti Tree Road (left); Figure 10: Looking northeast towards location of T25 from gate of Old Alberton Drive (right)*

*Figure 11: Looking north towards location of T20, T21 and T23 from private access road*

In a number of locations, the proposed powerline cabling will cross local roads, including Pound Road West, Gelliondale Road, Old Alberton West Road, Lanes Road, Wests Road, Coalmine Road, Ti Tree Road, and several unmade roads. The overhead powerline will also cross the South Gippsland Highway and the Great Southern Rail Trail in two locations (near Birds road South, and near Coalmine Road). In locations where powerlines cross roads and the Rail Trail, some native vegetation is present.

There are no watercourses within the proposed AWEF Area, though it is noted that both Albert River and Jack River traverse the wider Study Area. The existing overhead 66kV powerline to which the proposed AWEF will connect crosses both Albert and Jack Rivers.

The potential substation site is located near turbine T09 adjacent to Coalmine Road and the Great Southern Rail Trail.

The proposed AWEF Area would not impact on any built structures, other than in some locations where agricultural boundary fencing may be impacted, and would be replaced.

There are no known sites of European or Aboriginal cultural heritage located within the proposed AWEF Area, though it is noted that there is one historical site within the wider Study Area, and several Aboriginal Heritage sites are located within the wider Study Area.

**Site area** (if known): …59.39…(hectares)

The proposed AWEF will be located within the Study Area of around 3,200 hectares.

Within this Study Area, the proposed AWEF Area would be approximately 59.39 hectares. The proposed Wind Energy Facility Area assumes the following maximum extents of infrastructure:

- Access tracks – six (6) metres wide (during construction, and to be reduced to 2.5 metres post-construction);
- Underground cabling and associated trenching – three (3) metres wide;
- Overhead transmission lines – 16 metres wide;
- 34 wind turbines – footings of approximately 15 metre radius;
- One hardstand beside each wind turbine – 25 x 45 metres;
- Two small electrical substations – contained within the above impact areas;
- One larger electrical substation; and
- Four works compounds – between 0.575 to 2.773 hectares (not all of these compounds will be used but impacts for all compounds have been assumed for this investigation).

**Route length** (for linear infrastructure) …… (km) **and width** …….. (m)

**Current land use and development:**

The Study Area is mainly cleared agricultural land with dispersed patches of remnant vegetation. A number of farm dwellings are scattered through the area. These uses would be able to continue during the construction and operation phases of the Proposed AWEF.

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

The proposed AWEF will be located around the township of Alberton West in South Gippsland, Victoria (***Attachment 1***). Alberton is situated on the Albert River, about 30 kilometres east of Corner Inlet at Wilson's Promontory. It is located along the South Gippsland Highway, 6 kilometres south of Yarram and 216 kilometres east of Melbourne. The closest township to the Proposed AWEF is, Yarram, to the South-East.

Land Use and Built Form

The majority of the Study Area and its surrounds has been cleared of native vegetation and is currently being used for grazing stock, primarily dairy farms. Wide scale deforestation has occurred to allow for pastoral activities. These paddocks are dominated by introduced pasture grasses.

Built form across the Study Area is minimal, and limited to intermittent homesteads, farm infrastructure and roads. There are 17 dwellings that are located within 1 kilometre of turbines,

noting that all of these landowners have signed up to a consent agreement for the proposed AWEF, and that three (3) of these dwellings are not used as permanent residences and will be unoccupied following the construction of the proposed AWEF. Roads are a mixture of sealed and unsealed local roads. The South Gippsland Highway bisects the study area.

A former rail reserve which also bisects the study area is now used as part of the South Gippsland Rail Trail – a 74km gravel cycle track which extends from Leongatha to Port Welshpool. The section which extends through the Study Area has not yet been developed and is not accessible to the public.

Topography, Landform and Soils

The Study Area is generally flat coastal plains, with dispersed creek margins, gentle slopes, isolated hills and swamps. The minimum altitude is 6 metres above sea level (ASL) and the maximum is 25 metres (ASL).

The central north-western part of the Study Area comprises lower slopes of the foothills of the Strzelecki Ranges. The southern part of the broader study area supported a gently undulating coast barrier dune complex with light-loamy to sandy soils. Land between the coastal dune complex and higher, hilly country further inland comprises relatively flat swampy ground with loamy to clayey soils.

The soil type in the Study Area is primarily sandy soils. Different soil types that are indicated in the Study Area include yellow duplex soils, duplex soils, pale sands and sands.

Heritage Places

There is one place of historical significance located within the Study Area, along Coal Pit Road and the South Gippsland Highway, Gelliondale, being the Gelliondale Briquette Plant. This site is listed on the Victorian Heritage Inventory, Victorian Heritage Register and has a heritage overlay.

Indigenous Cultural Heritage Values

A total of 54 previously recorded Aboriginal places are present within the wider geographic region.

Whilst no archaeological surveys had previously been completed in the Study Area, and no previously recorded sites were located in the Study Area, it exhibits a number of sensitive landforms that are likely to contain Aboriginal cultural heritage. During the surveys undertaken for the proposed AWEF, two new Aboriginal artefact places were identified as well as three additional landforms of sensitivity for undetected cultural heritage. The proposed Wind Energy Facility Area will avoid each of these landforms.

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

The Wellington Planning Scheme applies to the Study Area.

The Study Area is predominately located within the Farming Zone (FZ) apart from one turbine which is located within an Industrial 1 Zone (INZ1). Other zones within the vicinity of the Proposed AWEF include Public Conservation and Resource Zone (PCRZ) and Road Zone – Category 1 & 2 (RDZ1 (South Gippsland Highway) and RDZ2 (Gelliondale Road)). No turbines are proposed to be located within the RDZ1 or RDZ2 however underground cables and new access points are proposed.

The Study Area is also partially affected by the following Planning Scheme Overlays:

- Bushfire Management Overlay (BMO/WMO)
- State Resource Overlay – Schedule 1 (Gippsland Brown Coalfields) (SRO1)
- Environmental Significance Overlay – Schedule 2 (Wetlands) (ESO2)
- Design and Development Overlay – Schedule 1 (Industrial Areas) (DDO1)
- Heritage Overlay – Schedule 81 (Gelliondale Briquette Plant – VHR Number H1058) (HO81)
- Floodway Overlay (FO)
- Land Subject to Inundation Overlay (LSIO)

Relevant strategic policy includes:

- Clause 19.01-1 'Provision of Renewable Energy' – sets out the objectives, strategies and policy guidelines for the provision of renewable energy including the development of wind energy facilities. References the updated Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria (Guidelines) 2015.
- Clause 52.32 'Wind Energy Facility' – Sets out particular planning provisions and requirements for planning permit applications. The use and development of land for the purpose of a wind energy facility requires a planning permit under Clause 52.32-2. The allowable distance of a turbine to a dwelling is 1km (consent is required from the owner of a dwelling to locate a turbine closer than one kilometre to the dwelling) and clarify the application of the 1km rule to applications for minor amendments to existing permits.
- Clause 61.01-1 'Minister is the Responsible Authority' – the Minister for Planning is the responsible authority for all new planning permit applications for the use and development of land for the purpose of a Wind energy facility. This includes transmission infrastructure associated with a wind energy facility and any removal of native vegetation associated with this infrastructure.

There are also State and local policies in the Wellington Planning Scheme that relate to agriculture, environment, landscape values, biodiversity, and traffic considerations. These matters are addressed in this referral, to some degree, and would be expanded upon in the Planning Assessment Report to accompany the Planning Permit application to be submitted to the Minister for Planning in due course.

**Local government area(s):**

Wellington Shire (noting that the Study Area adjoins South Gippsland Shire to the west).

## 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)**:**

The Study Area, although highly modified, supports habitat for a range of common plants and animals that are well adapted to agricultural landscapes.

Native vegetation has been mostly removed from the landscape within the Study Area, and is now limited to road reserves, scattered paddock trees and small remnant patches, typically within road reserves or the Rail Trail. The Rail Trail provides the only narrow, densely vegetated east to west wildlife corridor through the otherwise cleared landscape. The Project Area includes 2.321 hectares of native vegetation, comprising 1.195 hectares of remnant patch native vegetation and removal of sixteen (16) scattered trees. The scattered trees comprise four (4) Coast Manna-gums (3 large and 1 medium) and 12 Swamp Paperbarks (small).

The surrounding region includes the Alberton West State Forest (immediately north-west), Strzelecki Ranges (less than 10 kilometres to the north-west), Nooramunga Marine and Coastal Parks (approximately 3.5 kilometres south of the Study Area), Corner Inlet National Park (approximately 7 kilometres southwest of the broader study area), and Wilsons Promontory National Park (approximately 15 kilometres south-west).

Preliminary studies also identified that a number of bird species could utilise the Study Area, including the Powerful Owl, Fork-tailed Swift, and White-throated Needletail.

Accordingly, the key environmental assets and sensitivities within the site and surrounds include:

- The patches of native vegetation and the ecological communities that utilise the Proposed Wind Energy Facility Area and surrounds, including fauna such as the Powerful Owl; Fork-tailed Swift; and White-throated Needletail.
- Aboriginal cultural heritage assets and potential for assets near to the Proposed Wind Energy Facility Area.
- The visual sensitivity of the landscape.

Flora and Fauna and Native Vegetation

The majority of the environment in the surrounding region is agricultural and bush blocks. Most of that land is dominated by introduced flora species. There are two water courses running though the Study Area. Although 267 plant species were recorded during the Flora and Fauna Assessments, of these 178 (67%) were indigenous and 89 (33%) were introduced or non-indigenous native in origin. A total of 120 fauna species were recorded. This included 101 bird (10 introduced), 10 mammal (5 introduced), six reptile, three frog and an array of invertebrate species (BL&A 2016).

The Study Area comprised three distinct vegetation characteristics. The central north-western part comprised lower slopes of the foothills of the Strzelecki Ranges. Much of this land had been cleared. However, some notable blocks of remnant Yellow Stringybark forest had been retained within areas abutting the more extensive forests of the Strzelecki Ranges.

The southern part of the Study Area supported a gently undulating coast barrier dune complex with light-loamy to sandy soils. This area would have once supported a complex of heathy vegetation types with Sedgy Wetland and Swamp Scrub in larger wet depressions and along drainage lines. Almost all this area (except for mainly roadside vegetation and scattered paddock trees) has been cleared of native vegetation and is being used for stock grazing. Adjacent state forests (to the south) supported extensive expanses of Heathy Woodland, Swamp Scrub, Sedge Swamp and Damp Heathland.

Land between the coastal dune complex and higher, hilly country further inland comprised relatively flat swampy ground with loamy to clayey soils. This land would have once supported Swamp Scrub and grassland vegetation but has been extensively cleared, drained and converted to intensively managed dairy farms. Groundwater had also been significantly drained due to past practices. The existing extant of the woody vegetation in this area comprises planted shelterbelts of non-indigenous trees.

Hydrology

There are two water courses running though the Study Area – the Albert River and the Jack River.

The Albert River is the largest watercourse crossing the Study Area. Its reaches in the northern sections meanders through the landscape and although the river banks and channel are vegetated the surrounding land is mostly cleared dairy farms. Closer to the mouth of the river, water becomes brackish, shallower and slower-flowing. These areas, including a number of tributaries support mostly degraded brackish wetland vegetation (e.g. Sea Rush and Australian Salt-grass). These areas are being used to graze dairy cattle. The tidal reaches of the river are wider and are lined with Mangrove Shrubland, with Saltmarsh and associated vegetation types further from the river.

The Jack River is a permanent waterway that crosses the north-eastern part of the Study Area. This river runs almost parallel to the Albert River, within a kilometre or so of the latter, and joins with the Albert River at a number of locations. This creek dissects the far north-eastern corner of the Study Area.

Brett Lane & Associates determined that although there are farm dams and small watercourses located in the Study Area, it was determined that these do not contain suitable habitat for the Growling Grass Frog and given that the species had not been detected in AWF Area and immediate surrounds previously, no further surveys were deemed necessary.

Other key environmental features of the wider region

- Alberton West State Forest: This area comprised an extensive forest remnant on the foothills of the Strzelecki Ranges, immediately north-west.
- Strzelecki Ranges: The main expanse of remaining remnant native forest covering the Strzelecki Ranges occurred less than 10 kilometres to the north-west.
- Unnamed State Forest: This area supported extensive heathy woodlands and other near-coastal vegetation types. It extended southwards from the southern edge of the broader study area.
- Nooramunga Marine and Coastal Parks (Ramsar listed Important Wetland): This area supported extensive coastal banksia woodlands, saltmarshes and other coastal vegetation types, as well as areas of intertidal sand and mud flats and shallow marine

waters. It extended southwards from the southern edge of the abovementioned unnamed state forest, to Corner Inlet. Nooramunga Marine Coastal Park generally occurs approximately 3.5 kilometres south of the broader study area whereby the closest Indicative Turbine (T33) is at 962 metres from its closest point from the Ramsar site boundary.

- Corner Inlet (Ramsar listed Important Wetland): This area extended westward from the southern end of Nooramunga Marine Coastal Park. Corner Inlet lies approximately 7 kilometres southwest of the broader study area.

## 9. Land availability and control

**Is the proposal on, or partly on, Crown land?**

☒ No ☒ Yes If yes, please provide details.

**Current land tenure** (provide plan, if practicable):

The proposed AWEF will be located on privately owned land, whereby there are a total of 14 separate landowners in the Study Area. In some locations, associated powerlines cross public road reserves and the South Gippsland Rail Trail reserve.

**Intended land tenure** (tenure over or access to project land):

The land tenure would remain with the existing landowners. The proponent has entered into lease agreements with the private owners.

**Other interests in affected land** (eg. easements, native title claims):

SP Aus Net operate an existing 66kV line that runs across the Study Area at three points. This powerline is located within an existing electricity easement 14.4m wide.

The proposed AWEF infrastructure is designed to minimise the impact on existing easements for utilities on the various land parcels included in the Study Area, which may include electricity distribution, water, and communications. Easements have been located on the relevant subject titles and will inform the detailed design. The most significate easement across the site is the 14m wide electricity easement which contains the existing 66kv power line. There are no current Native Title applications or determinations which affect the Study Area. The Schedule of Native Title Determination Applications, the Registered applications for native title, the current Native Title Determinations, the Native Title Determination Outcomes and the Indigenous Land Use Agreements have been reviewed. This reflects the freehold status of the Study Area (ie farmland under previous exclusive possession). Much of the public land which lies to the south is covered by a completed Native Title determination, including the Gelliondale State Forest and the adjacent waterbodies. This was granted in 2010 and is held by the Gunaikurnai Land and Waters Aboriginal Corporation Registered Native Title Bodies Corporate.

## 10. Required approvals

**State and Commonwealth approvals required for project components** (if known):

Approvals processes exist in Victoria to address the approval matters relevant to the Proposed AWEF, in particular:

- Approval from the Minister for Planning under the *Planning and Environment Act 1987*in relation to the relevant aspects of the Wellington Planning Scheme
- Approval from the Department of the Environment and Energy (Cth) under the *Environment Protection and Biodiversity Conservation Act 1999* .

In addition, whilst not mandatory, the following will be prepared for the Proposed AWEF following approval of a planning permit application, and prior to construction (or any high impact activities):

- a voluntary Cultural Heritage Management Plan for approval under the *Aboriginal Heritage Act 2006*.

Other approvals required under Victorian legislation are:

- *Civil Aviation Act 1988 (Vic)*
- *Crown Land (Reserves) Act 1978 (Vic)*
- *Electricity Industry Act 2000 (Vic)*
- *Electricity Safety Act 1988 (Vic)*
- *Environment Protection Act 1970 (Vic)*
- *Flora and Fauna Guarantee Act 1988 (Vic)*
- *Heritage Act 1995 (Vic)*
- *Road Management Act 2004 (Vic)*
- *Water Act 1989 (Vic)*
- *Wildlife Act 1975 (Vic)*

**Have any applications for approval been lodged?**

☐ No ☒ Yes If yes, please provide details.

A referral under section 68 of the *Environment Protection and Biodiversity Conservation Act 1999* ('EPBC Act') was submitted to the Department of the Environment and Energy on 23 December 2016 by Brett Lane & Associates Pty Ltd ('BL&A') on behalf of the proponent. The proponent stated its belief that the proposed action is not a controlled action for the purposes of the EPBC Act. The decision of the Department of the Environment and Energy on 29 March 2017 was that the proposal to construct a 34 turbine Wind Energy Facility near the township of Alberton West is a controlled action (EPBC 2017/7854). This means that approval is now required under the Commonwealth EPBC Act.

A Notice of Intention to prepare a voluntary CHMP has been lodged with Aboriginal Victoria (CHMP Plan ID. 15167).

**Approval agency consultation** (agencies with whom the proposal has been discussed):

Consultation with agencies has been undertaken on a targeted level, as required, regarding particular issues / application requirements. Discussions have been held with agencies including the agencies responsible for the above approvals, as follows:

- Department of Environment, Land, Water and Planning (DELWP) (including Statutory Planning Approvals Gippsland)
- Department of the Environment and Energy (Commonwealth)
- Aboriginal Victoria

**Other agencies consulted:**

- Wellington Shire Council
- VicRoads
- Parks Victoria
- Department of Economic Development, Jobs, Transport and Resources (DEDJTR) / Regional Development Victoria
- Latrobe Valley Authority
- Civil Aviation Safety Authority (CASA)
- Air Services Australia
- Gunai Kurnai Land and Waters Aboriginal Corporation (GLaWAC)

## 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 AWEF is not anticipated to have a significant effect on the environment. An overview of the potentially significant environmental effects (or lack thereof) is as follows.

**Native Vegetation and Flora**

BL&A assessment states that the evidence on site, including floristic composition and soil characteristics, suggested that the Ecological Vegetation Classes (EVCs) listed below were present or potentially occurred within the study area (refer to Figure 2 to Figure 20 in Attachment 5).

- Damp Sands Herb-rich Woodland (EVC 3)
- Wet Heathland (EVC 8)
- Coastal Saltmarsh (EVC 9)
- Riparian Forest (EVC 18)
- Heathy Woodland (EVC 48)
- Swamp Scrub (EVC 53)
- Floodplain Riparian Woodland (EVC 56)
- Swampy Riparian Woodland (EVC 83)
- South Gippsland Plains Grassland (EVC 132_62)
- Sedge Wetland (EVC 136)
- Mangrove Shrubland (EVC 140)
- Plains Grassy Forest (EVC 151)
- Riparian Scrub (EVC 191)
- Aquatic Herbland (EVC 653)
- Brackish Wetland (EVC 656)
- Damp Heathland (EVC 710)
- Tall Marsh (EVC 821)
- Floodplain Reedbed (EVC 863)
- Estuarine Flats Grassland (EVC 914)
- Brackish Grassland (EVC 934)

Although there are a number of EVCs present or potentially occurring over the study area, only up to a total of 2.321 hectares of native vegetation is to be removed (including 1.195 hectares of remnant patches from a mix of the above EVCs) and sixteen (16) scattered trees would need to be removed for the development of the proposed AWEF. The scattered trees to be removed comprise four (4) Coast Manna-gums (3 large and 1 medium) and 12 Swamp Paperbarks (small). The native vegetation to be removed is shown on Figure 2 to Figure 20 in Attachment 5).

Based upon the above, offsets required to compensate for the proposed removal of native vegetation have been determined (equating to 0.386 General Biodiversity Equivalence Units) and will be secured prior to the removal of native vegetation. BLA advises that the offset target for the current proposal is likely to be achievable within the Study Area.

The existing landscape is highly fragmented due to the long history of dryland agriculture and broad scale clearing activities that have taken place. In addition, only a small amount of native vegetation is to be removed for the facility. For these reasons, it is considered that the facility is not likely to significantly increase the level of vegetation fragmentation, or impact upon fauna movements.

During the targeted surveys, no EPBC Act listed species/communities were recorded in any of the patches assessed.

The Maroon Leek-orchid has previously been recorded in the roadsides within the study area although not found during the recent BLA surveys. The other species listed under the FFG Act that has previously been recorded in the study area include Metallic Sun-orchid, River Swamp Wallaby-grass, Strzelecki Gum, Swamp Everlasting and Thick-lip Spider-orchid. None of these

species were found during BLA assessments.

During the assessments 267 plant species were recorded. Of these, 178 (67%) were indigenous and 89 (33%) were introduced or non-indigenous native in origin.

**Fauna**

The Southern Brown Bandicoot, Long-nosed Potoroo, Swamp Antechinus and White-footed Dunnart may also occur on and around the site, although these species prefer habitat with dense vegetation cover. The Australian Grayling and Dwarf Galaxias (both EPBC Act: vulnerable; FFG Act: Listed) may also occur in the Alberton River.

FFG Act listed bird species recorded in the study area by BLA are the Ballion's Crake, Eastern Great Egret (also a migratory bird under EPBC Act), Little Egret and those species that are likely or have the potential to occur on site because of suitable habitat include the Intermediate Egret, Powerful Owl, Swift Parrot, and White-bellied Sea-eagle. EPBC Act migratory species recorded in the study area by BLA are the Fork-tailed Swift and White-throated Needletail.

BLA conducted bird utilisation surveys in 2009 and 2015. Bird diversity was not significantly different and numbers of bird species similar between the two surveys. The most abundant bird species were Raven sp., Common Myna, Australian Magpie, Common starling, and House sparrow making up around 60% of all birds in 2015 and 44% in 2009.

Results from BLA analysis of birds at rotor swept area heights (RSA), which is between 35 – 140 metres, indicated that the majority of birds (97%) were found below RSA heights. The results of the RSA analysis show that the large majority of birds using or flying over the wind farm site would not be exposed to a risk of collision with operating turbines. The 3% of birds that were observed flying at RSA were the White-throated Needletail (10 birds or 0.4% of all birds observed); Common Starling (0.3%); Magpie lark (0.3%), Straw-necked Ibis (0.3%) and Yellow-tailed Black Cockatoo (0.2%). The White-throated Needletail is a migratory species listed under the EPBC Act.

In regards to bat surveys, BLA recorded eight common bat species over the site and none of these are classified as threatened under State or Commonwealth legislation. Numbers of bats using the wind farm site are considered low by BLA, resulting in a correspondingly low assessed collision risk.

However, the assessment undertaken by BLA indicate that the number of individuals that may be affected in a year does not represent an ecologically significant proportion of the population, and it is very unlikely that the facility will cause an unacceptable risk to the broader population.

The Powerful Owl generally confines itself to forested habitats, none of which will have turbines built in them and dispersal of juvenile owls after breeding is finished would be a rare event, most likely confined to the areas where treed habitats are closest. Where this occurs, either side of the South Gippsland Highway, no turbines are proposed to be constructed. The likelihood of an ongoing impact to this species is therefore very low.

The Swift Parrot could occur occasionally during dispersive movements, particularly when in transit between large forested areas. However the facility lies in an area where there are few Swift Parrot records and where regular migration is not likely to occur. Given the distribution, abundance and habitat preference of the Swift Parrot, and taking into consideration the lack of preferred mainland foraging tree species on and around the Proposed Wind Energy Facility Area, and the modelling results of Smales (2006), no significant impacts on the Swift Parrot population are expected from the Proposed AWEF. The Swift Parrot was not recorded at RSA height.

No listed frog species, including the Growling Grass Frog, have the potential to occur on the Proposed Wind Energy Facility Area. The Proponent commits to a suitable buffer of at least 50 metres from waterways, including farm dams and wetland habitat impacts on frog habitat are not expected.

The implementation of best practice methods for weed and pest animal control, documented in a pest plant and animal management plan within the CEMP for the Proposed AWEF will ensure that no invasive species harmful to the ecological character of the wetland will be established in the Ramsar site as a consequence of the Proposed AWEF. The CEMP would be implemented via the Planning Permit conditions.

Overall, the proposed AWEF will not result in the potential for long term loss of a significant proportion of known remaining habitat or population of a threatened fauna species within Victoria.

**Water Environments**

The coastal wetlands and shallow marine waters of the Corner Inlet and Nooramunga area, north and east of Wilson's Promontory are nominated under the Convention on Wetlands (the 'Ramsar' Convention) as a wetland of international importance. These wetlands are located to the south of the Proposed Wind Energy Facility Area, with the closest turbines located in the eastern part of the site approximately 962 metres from the Ramsar site boundary.

It is not anticipated that there will not be any impacts to aquatic, estuarine or marine ecosystems due to the distance separating the Proposed AWEF from the upper shores of these wetland areas.

Regional groundwater resources would not be affected due to the small turbine footprint and the ability to respond to any potential water issues during the micro-siting of the turbines. A sediment, erosion and water quality management plan would be prepared to be prepared as part of the required CEMP, implemented by Planning Permit conditions.

**Human Communities**

The Proposed AWEF will not result in extensive or major effects on landscape values of regional importance; extensive or major effects on land stability or highly erodible soils on the site or surrounding areas; extensive or major effects on the health, safety or well-being of a human community, due to emissions to air or water or chemical hazards or displacement of residences; extensive or major effects on social or economic well-being due to direct or indirect displacement of non-residential land use activities or displacement of residences or severance of residential access to community resources; significant effects on the amenity of a substantial number of residents, due to extensive or major, long-term changes in visual, noise and traffic conditions; or significant exposure to severe or chronic health or safety hazards to the surrounding community due to emissions to air, water or noise from construction activities or associated vehicle movements.

*Traffic*

Traffic volumes will increase during the construction of the Proposed AWEF, though volumes are not expected to be significant, and are short term for the duration of construction. The impact of construction traffic is not expected to warrant any major upgrades to infrastructure, although some measures will be necessary to accommodate the swept paths of specific vehicle types.

After completion of construction and commissioning works, the operational traffic volumes at the Proposed AWEF will be little different in nature to current vehicle movements around the area.

*Emissions (Dust or Odours)*

In addition to the construction of the turbines, the Proposed AWEF will result in the construction of access tracks, underground cabling and overhead powerlines. Potential impacts are likely to include some dust associated with these construction activities and are limited to the duration of construction. Environmentally sensitive construction measures will be employed to ensure that potential amenity impacts during construction is minimised. This will be managed through the implementation of a CEMP, which would be implemented via a condition of the Planning Permit.

*Visual*

The typical landscape character area is broadly identified as low lying and flat, covering a long stretch of varied coastline. Valued visual links to natural landscapes include extensive views toward Wilsons Promontory as well as occasional distant views toward mountains and ranges to the north. It includes low density development scattered throughout the landscape character area as well as small settlements on the coast and medium rural towns to the east.

The Nooramunga Marine and Coastal Park is a State Significant landscape area and valued by the community for panoramic 'out views' of Wilsons Promontory, particularly from Snake Island is generally located between 3 and 5 kilometres to the south of the Study Area. Wilsons Promontory

National Park is located around 15 kilometres south west of the wind farm site and is identified as a landscape at both State and National levels for visually significant characteristics. The wind farm site is located between areas of State Forest which extend to the north and south of South Gippsland Highway.

There would be no significant change to the extent or context of existing views.

The visual impact of the Alberton Wind Farm undertaken by Green Bean Design (attachment 10), is likely to be moderate low from the majority of publicly accessible locations:

- Low visual impact on the rural/coastal townships of Toora, Welshpool and Port Welshpool
- Low moderate visual impact on the rural/coastal townships of Port Albert, Alberton and Yarram
- Low to moderate low (albeit short term and transitory impacts) on views from the South Gippsland Highway
- Generally moderate impacts on views from the majority of local roads where fully or partially screened by roadside and/or field boundary tree planting
- No significant visual impact from scenic areas, public reserves and recreational areas, including any available long distant views between State Significant landscape areas such as the Nooramunga Marine and Coastal Park and Wilsons Promontory National Park.

The proposed AWEF would have potential to result in a range of visual impacts (between medium – high) on individual residential dwellings surrounding the wind farm site.

The proposed AWEF would be unlikely to result in any significant cumulative visual impacts arising from visibility between other existing and operational wind farms due the distance between them and the overall moderate number of wind turbines within each development.

Some localised mitigation measures are considered appropriate to minimise the visual effects for a number of ancillary structures associated with the Proposed AWEF, however, it is acknowledged that the degree to which the wind turbines may be visually mitigated is limited by their scale and position within the landscape relative to surrounding view locations.

*Noise*

The final turbine model and layout will be determined by a competitive tender following issue of the Planning Permit. Candidate turbine models were nominated to assess the viability of the Wind Energy Facility in achieving compliance with the applicable limits at surrounding receiver locations. The assessment demonstrates that the noise limits (which is 40dBA for 3rd Party Dwellings and 45dBA for Stakeholder dwellings) can be practically achieved, accounting for typical noise emission levels that are representative of the types of turbine options that may be considered for the site. A detailed noise assessment would be undertaken as required by Planning Permit conditions. Compliance with wind energy facility noise guidelines is compulsory and as a result, significant effects on amenity of residents are unlikely to occur. Noise associated with construction works, would be managed in accordance with a CEMP to be implemented via Planning Permit conditions.

*Shadow Flicker and Blade Glint*

Following issue of a Planning Permit, a Detailed Assessment will be undertaken that will take account of window orientations and local screening from trees or structures may further reduce the actual shadow flicker durations. This will be used to inform the Detailed Design.

There are 10 stakeholder dwellings which may experience a shadow flicker duration in excess of the recommended Victorian Guidelines (all shareholder dwellings) however local conditions at each of these dwellings has not been considered as part of the Preliminary Assessment, and window orientations or local screening from trees or structures are likely to further reduce the actual shadow flicker durations. In addition, some of these dwellings are not permanent residences and are used by farmers for occasional or temporary accommodation of staff or other visitors – these dwellings would be unoccupied during operation of the Proposed AWEF.

The combination of the low number of dwellings in the vicinity of the turbines that could theoretically be affected, along with the ease of mitigation, suggests the likelihood of significant environmental effects from shadow flicker is negligible.

*Land Displacement*

The Proposed AWEF is to be located on private land, the majority of which is used for farming/agricultural activities. During construction, most existing farming/agricultural activities will continue. The installation of Proposed AWEF infrastructure will remove some land from agricultural production, though the footprint is minimal. Landowners will be compensated for any impacts on existing farming infrastructure, as part of easement negotiations. The Proposed AWEF will support and enhance agricultural production, as its development allows agricultural use to continue around the proposed infrastructure within the Study area whilst providing financial benefits to host landowners.

There will be no displacement of residences or severance of residential access to community resources due to the construction or operation of the facility. Three (3) dwellings, are proposed to be unoccupied if turbines are constructed, however these dwellings are not permanent residences and are used by farmers for occasional or temporary accommodation of staff or other visitors.

**Greenhouse Gas Emissions**

The Proposed AWEF does not have the potential to result in greenhouse gas emissions exceeding 200,000 tonnes of carbon dioxide equivalent per annum. A non-material level of CO2 emissions may be generated during the construction and operation phase associated with the operation of machinery and vehicles. However, this generation is significantly offset by the ability to produce clean energy.

The Proposed AWEF will generate approximately 393 GWh of electricity per year (which will power approximately 45,383 average households and contributing to approximately 390,000 tonnes of CO2 savings per year.

**Cultural Heritage**

The proposed AWEF will not have a major effect on local Aboriginal cultural heritage values. Assessments have been undertaken and a voluntary Cultural Heritage Management Plan is currently being prepared.

No Aboriginal places have been recorded within the Study Area. Field survey has been undertaken and it is anticipated that the final CHMP will not result in considerably different conclusions as outlined in the *Preliminary Cultural Heritage Assessment*. However a voluntary CHMP (15167) is currently being prepared for risk mitigation.

One historic place, Gelliondale Briquette Plant (H8220-0008/ H1058/ HO81), is situated within the Study Area. This place will be avoided by the Proposed Wind Energy Facility Area.

While further micro-siting of turbines and infrastructure may be required, a set of protocols will ensure that no identified cultural heritage interests are impacted. These will include avoiding impacts to areas of designated and potential sensitivity; fencing off these areas where the footprint lies within 100 metres; and marking the designated and potential sensitivity areas on contractors' plans as no-go areas.

## 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.

**What investigation of native vegetation in the project area has been done?** (briefly describe)

BL&A undertook the *Alberton Wind Farm, Flora and Fauna Assessment* (December 2016) (**Attachment 5**).

An initial overview assessment of the Study Area was undertaken, which informed micro-siting options to minimise impacts on native vegetation and other biodiversity. This was then followed by a detailed assessment of the Proposed Wind Energy Facility Area, including detailed mapping and habitat hectare assessment of remnant native vegetation affected.

In addition, a further *Alberton Wind Farm, Targeted Flora Survey* (November 2016) (**Attachment 5**) was undertaken to confirm the potential for seven EPBC Act listed species to occur within the study area, whereby all areas of native vegetation within the Project Area were considered as suitable habitat for threatened species. The assessment did not locate any of the threatened species in the Project Area, and concluded that the Proposed AWEF would not have a significant impact of these species.

**What is the maximum area of native vegetation that may need to be cleared?**

☒ NYD Estimated area …2.321…….(hectares)

Careful siting of the Proposed Wind Energy Facility Area has enabled clearing of native vegetation to be largely avoided. Native vegetation removal is generally limited to small sections along roadsides, where access tracks are required to connect to local roads, or where powerlines are required to cross road reserves or the Rail Trail. Some small patches of native vegetation are located along the overhead powerline crossing of Albert and Jack Rivers, though this will be avoided by utilising the existing overheard powerline infrastructure within this easement. Underground infrastructure will generally run across open farm land, avoiding areas of ecological sensitivity to connect to the overhead collector system.

The final placement of underground cables will not result in any further native vegetation losses and the land above will be rehabilitated back to cropping land once the cabling is in place. The assessment has taken the conservative approach of assuming that all vegetation within the Proposed Wind Energy Facility Area would be removed.

Based on the Proposed Wind Energy Facility Area, the Proposed AWEF would result in the removal of 2.321 hectares of native vegetation, comprising 1.195 hectares of remnant patch native vegetation and removal of sixteen (16) scattered trees. The scattered trees to be removed comprise four (4) Coast Manna-gums (3 large and 1 medium) and 12 Swamp Paperbarks (small).

Following planning approval, micro-siting (within 100 metres) during the detailed design stage provides flexibility to adjust the location of infrastructure to further minimise potential impacts.

Detailed information on the flora and fauna of the Study Area can be found in the *Alberton Wind Farm, Flora and Fauna Assessment* (BL&A, December 2016) (***Attachment 4***).

**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.

There are a number of EVCs that occur within the study area listed under section 11 of the referral. The remnant native vegetation proposed to be removed belongs to the following EVCs:

- Damp Sands Herb-rich Woodland (EVC 3)
- Wet Heathland (EVC 8)
- Swamp Scrub (EVC 53)
- South Gippsland Plains Grassland (EVC 132_62)
- Plains Grassy Forest (EVC 151)
- Aquatic Herbland (EVC 653)
- Tall Marsh (EVC 821)

Refer to Figures 2 to Figure 20 in Attachment 5 that present the native vegetation to be removed.

This equates to 0.623 habitat hectares - a BIOR report is contained within ***Attachment 5***.

It is likely that impacts to these EVCs would be reduced as further detailed design work is done.

**Have potential vegetation offsets been identified as yet?**

☒ NYD ☒ Yes If yes, please briefly describe.

Offsets required to compensate for the proposed removal of native vegetation have been determined using DELWP's EnSym Tool. A summary of the required offsets is presented in ***Table 1***.

***Table 1: Offset Target***

| Offset Type | Clearing Site Biodiversity Equivalence Score | Risk Multiplier | Offset Requirements | |
|---|---|---|---|---|
| | | | Offset Amount (BEU) | Offset Attributes |
| General | 0.257 GBES | 1.5 | 0.386 general units | Offset must be within West Gippsland CMA or Wellington Shire Council<br>Offset must have a minimum strategic biodiversity score of 0.286 |

Under the Guidelines all offsets must be secured prior to the removal of native vegetation.

Offsets may include indigenous revegetation (generally woody vegetation only) and/or the management of one or more areas of existing native vegetation to improve its condition.

All offsets must be protected using an appropriate security arrangement. All offsets must be managed for the first ten years of establishment to meet specific targets set out in an offset plan (which must meet DELWP guidelines) then managed in perpetuity to maintain those targets.

The offset target for the current proposal is likely to be achievable within the study area given the above requirements and the area of native vegetation to be retained. This has been confirmed by DELWP.

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

Refer to the *Alberton Wind Farm, Flora and Fauna Assessment* (Brett Lane & Associates, December 2016) for further details (***Attachment 4***).

The forthcoming planning permit application for the Proposed AWEF will meet all the requirements of the Biodiversity Guidelines.

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)

BL&A undertook an assessment of the potential flora and fauna in the Study Area, in particular potential impacts on flora and fauna matters listed under the state *Flora and Fauna Guarantee Act 1988* (FFG Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

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The following assessments have been undertaken to provide further detailed analysis of the potential for particular species to occur within the study area. (Attachments 5-9)

- *Alberton Wind Farm, Targeted Flora Survey*, Brett Lane & Associates (November 2016) (
- *Alberton Wind Farm, Bird and Bat Surveys*, Brett Lane & Associates (August 2016)
- *Alberton Wind Farm, Shorebird Data Analysis*, Brett Lane & Associates (December 2016)
- *Targeted Flora Survey (Brett Lane & Associates, November 2016)*
- *Alberton Wind Farm, Additional information on Matters of National Environmental Significance, Brett Lane & Associates (July 2017)*

**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.

***Flora and Fauna Species:***

Species listed under the EPBC Act and FFG Act that have been recorded in recent surveys or past observations, and their likelihood of occurrence in the Study Area of species is addressed in **Table 2**.

This analysis indicates that seven (7) EPBC listed flora species, eleven (11) birds (of which ten (10) are migratory species), two (2) mammals, and one (1) fish species are likely to occur or have the potential to occur in the Study Area.

It also indicates that five (5) FFG listed flora species, six (6) FFG listed birds, four (4) FFG listed mammals, and one (1) FFG listed fish are likely to occur or have the potential to occur in the Study Area. No flora species listed under the FFG Act were recorded during the field survey. Grey Mangrove, listed as rare on DELWP's Advisory List, was also recorded.

***Table 2: EPBC and FFG Act listed species***

| Species | EPBC | FFG | Number of records (Date of last record) | Likelihood of occurrence * |
|---|---|---|---|---|
| **Flora** | | | | |
| **Clover Glycine** ***Glycine latrobeana*** | VU | L | None (N/A) | Whilst habitat is present within remnant native plains grassland to woodland vegetation on drier fertile ground, no records of this species have been recorded. **Potential to occur** Targeted surveys for the Proposed AWEF have been undertaken and none of these species have been found within the Proposed Wind Energy Facility Area. |
| **Eastern Spider-orchid** ***Caladenia orientalis*** | EN | L | None (N/A) | Habitat present within heathland and heathy woodland patches with an intact ground layer. **Potential to occur** Targeted surveys for the Proposed AWEF have been undertaken and none of these species have been found within the Proposed Wind Energy Facility Area. |
| **Maroon Leek-orchid** ***Prasophyllum frenchii*** | EN | L | 2 (1/09/2003) | Habitat is present within roadsides supporting a fertile, damp grassy and herbaceous ground layer in plains country. There are two previous records within the local area. **Potential to occur** Targeted surveys for the Proposed AWEF have been undertaken and none of these species have been found within the Proposed Wind Energy Facility Area. |
| **Matted Flax-lily** ***Dianella amoena*** | EN | L | None (N/A) | Much degraded habitat present. **Unlikely to occur** |
| **Metallic Sun-orchid** ***Thelymitra epipactoides*** | EN | L | 1 (9/12/1978) | Habitat present within areas with a relatively intact and diverse grassy or heathy understory. **Potential to occur** Targeted surveys for the Proposed AWEF have been undertaken and none of these species have |

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| | | | | been found within the Proposed Wind Energy Facility Area. |
| **River Swamp Wallaby-grass** ***Amphibromus fluitans*** | VU | | 2 (18/04/2007) | Habitat present within drainage channels, vegetated dams and waterways. **Potential to occur** Targeted surveys for the Proposed AWEF have been undertaken and none of these species have been found within the Proposed Wind Energy Facility Area. |
| **Strzelecki Gum** ***Eucalyptus strzeleckii*** | VU | L | 2 (24/02/2012) | Habitat present within Plains Grassy Forest. **Potential to occur** Targeted surveys for the Proposed AWEF have been undertaken and none of these species have been found within the Proposed Wind Energy Facility Area. |
| **Swamp Everlasting** ***Xerochrysum palustre*** | VU | L | 8 (11/12/2007) | No habitat present. **Unlikely to occur** |
| **Thick-lip Spider-orchid** ***Caladenia tessellata*** | VU | | 2 (15/04/1992) | Habitat present within forest and heathy woodland with intact groundlayer. **Potential to occur** Targeted surveys for the Proposed AWEF have been undertaken and none of these species have been found within the Proposed Wind Energy Facility Area. |
| **Birds** | | | | |
| **Australasian Bittern** ***Botaurus poiciloptilus*** | EN | L | None (N/A) | Although there was some potential habitat in the Study Area this species is an uncommon visitor to the region. **Unlikely to occur** |
| **Australian Painted Snipe** ***Rostratula australis*** | EN M | L | None (N/A) | No records nearby. **Unlikely to occur** |
| **Ballion's Crake** ***Porzana pusilla palustris*** | | L | None (N/A) | **Recorded** in study area |
| **Bar-tailed Godwit** ***Limosa lapponica*** | CR M | | 1 (27/02/2015) | No suitable habitat. **Unlikely to occur** |
| **Black-faced Monarch** ***Monarcha melanopsis*** | M | | None (N/A) | Suitable forest and woodland habitat though lack of records. **Potential to occur** |
| **Black-tailed Godwit** ***Limosa limosa*** | M | | None (N/A) | No suitable habitat and lack of records. **Unlikely to occur** |
| **Caspian Tern** ***Hydroprogne caspia*** | M | L | 6 (21/12/2009) | No suitable habitat. **Unlikely to occur** |
| **Cattle Egret** ***Ardea ibis*** | M | | 4 (25/05/2001) | Suitable habitat exists and recent records in the Study Area. **Likely to occur** |
| **Common Greenshank** ***Tringa nebularia*** | M | | 4 (27/02/2015) | No suitable habitat. **Unlikely to occur.** |
| **Common Sandpiper** ***Actitis hypoleucos*** | M | | 2 (4/03/1977) | No suitable habitat. **Unlikely to occur.** |

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| **Common Tern** ***Sterna hirundo*** | M | | 1 (1/01/1977) | No suitable habitat. **Unlikely to occur.** |
| **Curlew Sandpiper** ***Calidris ferruginea*** | CR M | | 4 (3/03/1999) | No suitable habitat. **Unlikely to occur** |
| **Double-banded Plover** ***Calidris ferruginea*** | M | | 1 (1/01/1977) | No suitable habitat. **Unlikely to occur** |
| **Eastern Curlew** ***Numenius madagascariensis*** | CR M | | 7 (27/02/2015) | No suitable habitat. **Unlikely to occur** |
| **Eastern Great Egret** ***Ardea modesta*** | M | L | 14 (24/04/2004) | **Recorded** in Study Area |
| **Fairy Prion** ***Pachyptila turtur*** | VU | | None (N/A) | No suitable habitat and lack of records. **Unlikely to occur** |
| **Fairy Tern** ***Sternula nereis nereis*** | VU | L | None (N/A) | No suitable habitat and lack of records. **Unlikely to occur** |
| **Fork-tailed Swift** ***Apus pacificus*** | M | | None (N/A) | **Recorded** in Study Area |
| **Glossy Ibis** ***Plegadis falcinellus*** | M | | 1 (7/03/2001) | May occasionally pass through the Study Area. **Potential to occur** |
| **Great Knot** ***Calidris tenuirostris*** | M | L | None (N/A) | No suitable habitat and lack of records. **Unlikely to occur** |
| **Greater Sand Plover** ***Charadrius leschenaultii*** | M | | None (N/A) | No suitable habitat and lack of records. **Unlikely to occur** |
| **Grey Goshawk** ***Accipiter novaehollandiae novaehollandiae*** | | L | 1 (1/02/1922) | Suitable habitat exists, but there are no recent records of the species in this part of South Gippsland in the Atlas of Australian Birds or in the VBA since 1922. **Unlikely to occur** |
| **Grey Plover** ***Pluvialis squatarola*** | M | | 1 (1/01/1977) | No suitable habitat and lack of recent records. **Unlikely to occur** |
| **Grey-tailed Tattler** ***Tringa brevipes*** | M | L | 1 (1/01/1977) | No suitable habitat and lack of recent records. **Unlikely to occur** |
| **Gull-billed Tern** ***Gelochelidon nilotica macrotarsa*** | | L | 3 (1/01/1977) | No suitable habitat and lack of recent records. **Unlikely to occur** |
| **Hooded Plover** ***Thinornis rubricollis rubricollis*** | | L | None (N/A) | No suitable habitat and lack of records. **Unlikely to occur** |
| **Intermediate Egret** ***Ardea intermedia*** | | L | 2 (25/04/2004) | Suitable habitat exists and recent records in the study area. **Likely to occur** |
| **Latham's Snipe** ***Gallinago hardwickii*** | M | | 6 (20/12/2012) | **Recorded** in Study Area |
| **Lesser Sand Plover** ***Charadrius mongolus*** | M | | None (N/A) | No suitable habitat and lack of records. **Unlikely to occur** |
| **Little Egret** | | L | 3 | **Recorded** in Study Area |

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|---|---|---|---|---|
| ***Egretta garzetta nigripes*** | | | (25/05/2001) | |
| **Little Tern**<br>***Sternula albifrons sinensis*** | M | L | 1<br>(1/01/1977) | No suitable habitat and lack of recent records.<br>**Unlikely to occur** |
| **Marsh Sandpiper**<br>***Tringa stagnatilis*** | M | | None<br>(N/A) | No suitable habitat and lack of records.<br>**Unlikely to occur** |
| **Orange-bellied Parrot**<br>***Neophema chrysogaster*** | CE<br>M | L | None<br>(N/A) | There is limited suitable saltmarsh habitat within the broader study area and this species is an uncommon visitor to the region. The OBP is considered unlikely to occur or pass through the Proposed Wind Energy Facility Area during its migration. The species occurs infrequently east of Port Phillip Bay (3% of records and 1% of individuals) and even less frequently in Corner Inlet.<br>**Unlikely to occur** |
| **Osprey**<br>***Pandion cristatus*** | M | | None<br>(N/A) | No suitable habitat.<br>**Unlikely to occur** |
| **Pacific Golden Plover**<br>***Pluvialis fulva*** | M | | None<br>(N/A) | No suitable habitat and lack of records.<br>**Unlikely to occur** |
| **Painted Honeyeater**<br>***Grantiella picta*** | VU | L | None<br>(N/A) | No suitable habitat.<br>**Unlikely to occur** |
| **Pin-tailed Snipe**<br>***Gallinago stenura*** | M | | None<br>(N/A) | No suitable habitat.<br>**Unlikely to occur** |
| **Powerful Owl**<br>***Ninox strenua*** | | L | 5<br>(17/03/2008) | Suitable forest and woodland habitat exists and recent records near the Study Area.<br>**Likely to occur** |
| **Rainbow Bee-eater**<br>***Merops ornatus*** | M | | None<br>(N/A) | No recent records in South Gippsland.<br>**Unlikely to occur** |
| **Red Knot**<br>***Calidris canutus*** | M | | 2<br>(27/02/2015) | No suitable habitat.<br>**Unlikely to occur** |
| **Red-necked Stint**<br>***Calidris ruficollis*** | M | | 5<br>(27/02/2015) | May occasionally pass through/fly over the Study Area.<br>**Potential to occur** |
| **Regent Honeyeater**<br>***Anthochaera phrygia*** | CR<br>M | L | None<br>(N/A) | No suitable habitat.<br>**Unlikely to occur** |
| **Ruddy Turnstone**<br>***Arenaria interpres*** | M | | 1<br>(1/01/1977) | No suitable habitat.<br>**Unlikely to occur** |
| **Rufous Fantail**<br>***Rhipidura rufifrons*** | M | | 2<br>(29/01/1998) | Suitable forest and woodland habitat exists and some records in the nearby search region.<br>**Potential to occur** |
| **Sanderling**<br>***Calidris alba*** | M | | None<br>(N/A) | No suitable habitat.<br>**Unlikely to occur** |
| **Satin Flycatcher**<br>***Myiagra cyanoleuca*** | M | | 2<br>(29/01/1998) | May pass through the Study Area during migration.<br>**Potential to occur** |
| **Sharp-tailed Sandpiper** | M | | None<br>(N/A) | No suitable habitat.<br>**Unlikely to occur** |

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| ***Calidris acuminata*** | | | | |
| **Swift Parrot** ***Lathamus discolor*** | EN | L | 1 (11/04/1991) | Suitable woodland and forest habitat exists though lack of recent and regular records in the Study Area. **Potential to occur** |
| **Terek Sandpiper** ***Xenus cinereus*** | M | L | None (N/A) | No suitable habitat. **Unlikely to occur.** |
| **Whimbrel** ***Numenius phaeopusL*** | M | | 2 (1/10/1983) | No suitable habitat. **Unlikely to occur.** |
| **White-bellied Sea-Eagle** ***Haliaeetus leucogaster*** | | L | 4 (25/04/2004) | Suitable habitat exists and recent records in the Study Area. **Likely to occur.** |
| **White-throated Needletail** ***Hirundapus caudacutus*** | M | | 9 (29/02/2004) | **Recorded** flying over the Study Area |
| **Wood Sandpiper** ***Tringa glareola*** | M | | None (N/A) | Although there was some potential habitat in the Study Area this species is an uncommon visitor to the region. **Unlikely to occur** |
| **Mammals** | | | | |
| **Grey-headed Flying-fox** ***Pteropus poliocephalus*** | VU | L | None (N/A) | No recent records in South Gippsland and regular aggregations are a long way from the Proposed Wind Energy Facility Area. **Unlikely to occur** |
| **Long-nosed Potoroo** ***Potorous tridactylus*** | VU | L | None (N/A) | Suitable nearby habitat. **Potential to occur** |
| **Southern Brown Bandicoot** ***Isoodon obesulus obesulus*** | EN | L | None (N/A) | Suitable nearby habitat. **Potential to occur** |
| **Smoky Mouse** ***Pseudomys fumeus*** | EN | L | None (N/A) | Although potentially suitable habitat occurs, there are no nearby records. **Unlikely to occur** |
| **Swamp Antechinus** ***Antechinus minimus maritimus*** | | L | 1 (1/05/1981) | Suitable nearby habitat. **Potential to occur** |
| **White-footed Dunnart** ***Sminthopsis leucopus*** | | L | 1 (1/01/1976) | Suitable nearby habitat. **Potential to occur** |
| **Frogs** | | | | |
| **Growling Grass Frog** ***Litoria raniformis*** | VU | L | None (N/A) | Suitable habitat exists in the Study Area though lack of nearby records. **Unlikely to occur** |
| **Fish** | | | | |
| **Australian Grayling** ***Prototroctes maraena*** | VU | L | 4 (6/01/1982) | Suitable habitat exists in the Alberton River though lack of recent and regular records in the search region. **Potential to occur** |

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| **Dwarf Galaxias**<br>***Galaxiella pusilla*** | VU | L | None<br>(N/A) | Suitable habitat exists in the Study Area although lack of records.<br>**Unlikely to occur** |

** Species considered 'likely to occur' are those that have a very high chance of being in the Study Area based on numerous records in the search region and suitable habitat in the study area. Species considered to have the 'potential to occur' are those where suitable habitat exists, but recent records are scarce. Using the precautionary approach, species considered to have the 'potential to occur' (at least occasionally) are those where suitable habitat exists or is situated close to the wind energy facility boundaries, but recent records are scarce.*

*EPBC: CE = critically endangered listed threatened species; EN = endangered listed threatened species; VU = vulnerable listed threatened species; M = migratory status under the EPBC Act*
*FFG: L = listed as threatened species*

**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 following listed threatening processes affecting these species may be exacerbated by the Proposed AWEF without the implementation of mitigation measures:

- The loss of some individual birds from collision with turbines.
- Habitat fragmentation as a threatening process for fauna in Victoria.
- Invasion of native vegetation by "environmental weeds".
- The spread of Phytophthora cinnamomi from infected sites into parks and reserves, including roadsides, under the control of a state or local government authority.
- Use of Phytophthora-infected gravel in construction of roads, bridges and reservoirs.

The existing landscape of the Proposed AWEF is highly fragmented due to the long history of dryland agriculture and broad scale clearing activities that have taken place. In addition, only a small amount of native vegetation (up to 2.231ha) is to be removed for the Proposed AWEF. For these reasons, it is considered that the Proposed AWEF is not likely to significantly increase the level of fragmentation, or impact upon fauna movements.

Appropriate avoidance and mitigation measures will be included within the respective Environmental Management Plans / Construction Environmental Management Plans to ensure that no threatening processes are made worse by the Proposed AWEF, and implemented via Planning Permit conditions.

Additionally, 'Loss of terrestrial climatic habitat by anthropogenic emissions of greenhouse gases' has been listed as a key threatening process under the *Environmental Protection Biodiversity Conservation Act 1999* and the **Flora and Fauna Guarantee Act 1988**. The Proposed AWEF represents development of a renewable energy project that provides a low greenhouse gas emission form of electricity generation consistent with the Federal Government RET objectives.

**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.

The following table presents the migratory species that may be potentially affected by the project.

***Table 3: Potential effects on Migratory Species with potential to occur in the study area***

| Migratory Species | Susceptibility of migratory fauna species to impacts |
|---|---|
| **Fork-tailed Swift and White-throated Needletail** | Both species were recorded in the study area during BL&A Bird Utilisation Surveys. They are likely to occur over large areas of the proposed study area during the migratory dispersal period (mostly late spring and summer). They are aerial foragers, spending most of their time |

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| | flying in search of aerial insect prey (Higgins 1999). Both species could therefore be susceptible to collisions with turbines and other structures as the species fly mostly at and above RSA height. The loss of individuals from collision with turbines is likely to occur and is discussed below.<br><br>The White-throated Needletail has been found under turbines in several operating wind farms in south-eastern Australia (BL&A, unpubl. data) and it is likely the occasional individual will be affected by the proposed AWEF. The number of detected casualties at any wind farm varied from 1 to 3 birds annually. Correction factors are applied to carcass search results to allow for carcasses that are scavenged and those that are missed by searchers. For some wind farms, the number of needletail carcasses found in some years indicates that more than 10 individuals may be affected in a year. This is much less than an ecologically significant proportion of the population, defined as 0.1% of 10,000, or 100 birds (DoE 2015). With 33 turbines, the Proposed AWEF is smaller than many wind farms where estimates of impacts have been made (e.g. many more than 50 turbines), making it less likely that a significant impact will occur at the Proposed AWEF. The population of these species numbers 10,000 or more (Higgins 1999), so the loss of the occasional individual is expected to have negligible consequences for the species' populations. Mitigating impacts from wind turbines is unlikely to be possible given the aerial nature of the species and its intermittent and unpredictable presence at the Proposed Wind Energy Facility Area in response to varying weather conditions.<br><br>There has been at least one recorded instance of a Fork-tailed Swift colliding with a wind turbine (BL&A, unpubl. data). This is a much lower rate of recorded fatalities than for the previous swift species, probably reflecting the numerical dominance of that species over the Fork-tailed Swift in eastern Australia. The infrequency with which it occurs in the region suggests that it would interact with the proposed AWEF only occasionally, when passing through the area. Based on experience at other wind farms in south eastern Australia, impacts on this species from the Proposed AWEF are likely to be much less than for the White-throated Needletail. Based on an estimated population of 100,000 individuals (DoE 2015), impacts on an ecologically significant proportion of the population (i.e. 0.1%), would have to affect 1,000 birds per year, which will almost certainly not happen given the species' status in the region. Based on the foregoing information it is considered that the Proposed AWEF will not have an impact of conservation concern on the Fork-tailed Swift. |
| **Eastern Great Egret** | The Eastern Great Egret was recorded during the current fauna survey and is therefore known to utilise suitable habitats within the study area. It was recorded along Old Welshpool Road, east of proposed Turbine 27. This waterbird species is found in association with wetlands, creeks, rivers and farm dams.<br><br>There is potential for direct impacts from strikes, although the number and frequency of occurrence of these species on the Proposed Wind Energy Facility Area is low and the likelihood of turbine collision is considered very low. The low likelihood of collision with operating turbines makes a significant impact on these species from the Proposed AWEF very unlikely. To avoid the direct loss of habitat for these species, it is recommended that turbines and associated infrastructure avoid drainage lines, ponds, dams, marshes and the Albert River and its tributaries by a wide a margin possible and by at least 100 metres (assuming turbine blade length up to 75 metres). |
| **Latham's Snipe** | Latham's Snipe is a migratory species that visits south-eastern Australia from August to February. The species is a very agile and inconspicuous species and generally feeds in low light and throughout the night. Due to the presence of suitable aquatic habitat on the proposed Wind Energy Facility Area, including drainage lines and ephemeral wetlands, it is likely to occur occasionally in the study area. Most disturbances would occur to this habitat during the construction phase of the Proposed AWEF, during which it would be able to move to alternative suitable habitat. Therefore, impacts would be minor and would not substantially modify its available habitat. The Latham's Snipe occasionally flies at turbine height but there are no known records of it colliding with wind turbines in Australia (BL&A unpubl. data). It is unlikely therefore that the Proposed AWEF will represent a significant risk to the species' population. |
| **Cattle Egret** | This species is a summer visitor to southern Australia and feeds in pastoral land. Given the large extent of pasture in the region and the ability of the species to move to alternative areas, the impacts to this species during construction are considered negligible. Risks during operation arise from the potential for collision with operating wind turbines. This is likely to be an infrequent event. Although this is a listed migratory species, it is nonetheless not threatened and occurs in thousands throughout eastern Australia. Therefore, the impacts on the overall population of an occasional turbine collision are considered negligible. |
| **Glossy Ibis and Red-necked Stint** | These two species are likely to occur in small numbers in ephemeral wetlands on the Proposed Wind Energy Facility Area in spring when these hold water or after heavy rainfall events. The likely low incidence of occurrence however makes it unlikely that the Proposed AWEF will lead to a significant impact on their overall populations. |
| **Black-faced Monarch** | This species may occur in areas of remnant woodland during migratory dispersion. The proposed turbines are situated away from woodland and forest habitats to minimise risk to woodland bird species. The Black-faced Monarch usually confines to woodland habitats and is expected to fly below RSA. Therefore, this species is likely to experience minimal impact from the Proposed AWEF. |

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| **Rufous Fantail** | This species could occur in remnant areas of native vegetation in the broader study area. It is associated with rainforests and densely vegetated gullies. Similarly to Black-faced Monarch, it is expected to fly below RSA and generally confine its activities to wooded areas where no turbines are proposed to be built. Therefore, this species is likely to experience minimal impact from the Proposed AWEF. |
| **Satin Flycatcher** | This species breeds in the cool temperate forests and woodlands in southern and mountain districts of Victoria and Tasmania, migrating north to New Guinea for winter (Higgins et al. 2006). The population of Satin Flycatcher likely to use the study area is very small relative to that occupying the larger forested blocks in the eastern highlands, Otway Range and Grampians and elsewhere in Victoria (Emison et al. 1987). It is expected to fly below RSA and generally confine its activities to wooded areas where no turbines are proposed to be built. Therefore, this species is likely to experience minimal impact from the Proposed AWEF. |
| **Rainbow Bea-eater** | The Rainbow Bea-eater is a species that resides in woodland habitats. The proposed turbines are situated away from woodland habitats to minimise risk to woodland bird species. This species may fly over open habitats between woodlands at RSA heights however this species has not been recorded as a casualty under turbines in south eastern Australia (BL&A unpublished data). Therefore, this species is likely to experience minimal impact from the Proposed AWEF. |

The analysis of susceptibility of EPBC Act listed migratory fauna species to impacts presented above identified that the Fork-tailed Swift and the White-throated Needletail could be impacted by the Proposed AWEF the Study Area, as they fly at RSA height and are likely to forage over the Study Area.

### Other Birds

The analysis in **Table 4** identifies the susceptibility of the listed non-migratory birds under the EPBC Act and/or FFG Act which may utilise the study area to the potential impacts of the Proposed AWEF. This analysis includes consideration of the mobility of the species and the availability and extent of other suitable habitat in the region and the degree to which each species may rely on habitat in the study area.

***Table 4: Potential effects on Non-Migratory Birds with potential to occur in the study area***

| Migratory Species | Susceptibility of migratory fauna species to impacts |
|---|---|
| **Baillon's Crake, Eastern Great Egret, Intermediate Egret, and Little Egret** | These species (with the exception of Intermediate Egret) were recorded during the current fauna survey, and are therefore known to utilise suitable habitats within the study area. Baillon's Crake was recorded from a dam north of Pound Road West, and Eastern Great Egret was recorded along Old Welshpool Road, east of proposed Turbine 27. These waterbird species are listed on the FFG Act and found in association with wetlands, creeks, rivers and farm dams.<br><br>Whilst there is potential for direct impacts from strikes to Baillon's Crake, Eastern Great Egret, Intermediate Egret, and Little Egret, the number and frequency of occurrence of these species on the Proposed Wind Energy Facility Area is low and the likelihood of turbine collision is considered very low. The low likelihood of collision with operating turbines makes a significant impact on these species from the Proposed AWEF very unlikely. To avoid the direct loss of habitat for these species, it is recommended that turbines and associated infrastructure avoid drainage lines, ponds, dams, marshes and the Albert River and its tributaries by a wide a margin possible and by at least 100 metres (assuming turbine blade length up to 75 metres). |
| **White-bellied Sea-Eagle** | This species is restricted to coastal habitats, but may occasionally travel inland along the river systems, including possibly the Albert River, whilst foraging or moving about its territory. This species has been recorded south of the broader study area boundaries, in association with its preferred habitat of coastal and estuarine ecosystems.<br><br>White-bellied Sea-Eagle (FFG Act: Listed) are vulnerable to collision with operating turbines. No evidence was found for nesting near proposed turbine locations during site studies, however the species may occasionally fly across the site given its proximity to coastal habitats. This could put individuals at risk of occasionally colliding with operating wind turbines. The frequency of such collisions is likely to be very low so population consequences are not considered significant given the state population is estimated at 100 adult pairs plus sub-adults, with the Corner Inlet area in South Gippsland supporting approximately 25 of these pairs (DSE 2003). It will be important to monitor for the presence of this species as part of any impact monitoring and mitigation plan and have a plan involving investigation and a targeted mitigation response should repeated collision be detected. |
| **Powerful Owl** | This species (FFG Act: Listed) has been historically recorded within habitats associated with the Alberton West State Forest. Additionally, it has been seen within the northern section of the Study Area (local landholder pers. comm.). It is possible Powerful Owl may utilise some wooded areas of the study area and move occasionally into the southern forest at Hedley, where there are large hollow-bearing trees. The primary risk to this species is during nocturnal dispersive and foraging movements when they may potentially fly at RSA heights. |

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|---|---|
| | The Owl generally confines itself to forested habitats, none of which will have turbines built in them and dispersal of juvenile owls after breeding is finished would be a rare event, most likely confined to the areas where treed habitats are closest. Where this occurs, either side of the South Gippsland Highway, no turbines are proposed to be constructed. The likelihood of an ongoing impact to this species is therefore very low. |
| **Swift Parrot** | Swift Parrot (EPBC Act and FFG Act listed) has the potential to forage in indigenous and planted eucalypts in the study area. The Swift Parrot could occur occasionally during dispersive movements, particularly when in transit between large forested areas. However the proposed Proposed AWEF lies in an area where there are few Swift Parrot records and where regular migration is not likely to occur given:<br>- its location relative to Bass Strait Islands; and<br>- the lack of suitable habitat, in particular preferred eucalypt species.<br>Therefore it is expected that it would not occur regularly. The population of Swift Parrot likely to use the study area is very small relative to that using the larger forested blocks north of the Great Dividing Range or interstate. Therefore, this species is likely to experience minimal impact from the Proposed AWEF.<br>Coastal parts of Victoria further east and west have more records of the species due to the availability of suitable habitat and their location relative to the Bass Strait Islands and to habitats immediately north of the Great Dividing Range.<br>Smales (2006) modelled the collision risk of 39 wind farm proposals in south eastern Australia to determine their cumulative impact on threatened birds listed on the EPBC Act. This analysis pre-dates the Proposed AWEF proposal but includes a significant number of projects that have not proceeded. Based on scenario modelling and collision risk modelling for the number of wind turbines at each site, Smales predicted that in total, across all 39 projects, roughly one Swift Parrot every ten years would be killed through collision with a wind turbine. This indicated that the risk of wind farms to this species is low.<br>Based on the information presented herein about the distribution, abundance and habitat preference of the Swift Parrot, and taking into consideration the lack of preferred mainland foraging tree species on and around the Proposed Wind Energy Facility Area, and the modelling results of Smales (2006), no significant impacts on the Swift Parrot population are expected from the Proposed AWEF. |

### Mammals

Based on the assessment in Table 5, the following four listed ground-dwelling mammals have the potential to occur in suitable habitats within the study area and in adjacent remnant blocks of vegetation.

- Southern Brown Bandicoot (EPBC Act: endangered; FFG Act: Listed)
- Long-nosed Potoroo (EPBC Act: vulnerable; FFG Act: Listed)
- Swamp Antechinus (FFG Act: Listed)
- White-footed Dunnart (FFG Act: Listed)

These species prefer habitat with dense vegetation cover (Menkhorst 1995). There are records of Swamp Antechinus and White-footed Dunnarts 30 years ago in close proximity to the Study Area. These habitats provide a high level of constraint, and where possible, removal of vegetation in these areas should be avoided. Provided direct impacts on these habitats can be avoided no significant impacts are anticipated from the Proposed AWEF.

### Reptiles

No listed reptile species have the potential to occur in the study area.

### Frogs

No listed frog species, including the Growling Grass Frog, have the potential to occur on the Proposed Wind Energy Facility Area. Frog species are not considered at risk from proposed wind farm developments because they generally occur on lowlands or near water bodies. Provided a suitable buffer of at least 50 metres is provided from waterways and wetland habitat impacts on frog habitat are not expected.

There have been no records of the Growling Grass Frog in the Corner Inlet region since 1995. In fact, apart from a record on Snake Island in 1995, the most recent records are from 1977. It is likely that the species is extinct in this region. The species will therefore not be adversely affected by the Proposed AWEF.

**Fish**

Two listed fish species are considered to have the potential to occur in the Study Area, however not within the Proposed Wind Energy Facility Area.

Australian Grayling (EPBC Act: vulnerable; FFG Act: Listed) exists in large and small coastal streams and rivers with cool, clear waters with a gravel substrate and altering pools and riffles (Cadwallader and Backhouse 1983). Suitable habitat exists within the Study Area and there are historical records in the Albert River which bisects the Study Area the north-east. Provided there are no impacts on flows or water quality in the Albert River from construction and operation of the Proposed AWEF then impacts are not expected on this species. This can be assured by ensuring a minimum 30 metres separation between the Proposed Wind Energy Facility Area (i.e. turbines, access tracks and power cabling) and the Albert River and any significant tributaries on the site. The Proposed Wind Energy Facility Area is located sufficient distance in accordance with these recommendations.

Dwarf Galaxias (EPBC Act: vulnerable; FFG Act: Listed) occur amongst marginal vegetation in still or gently flowing water of roadside ditches, swamps, and backwaters of creeks (Allen et al. 2002). Suitable habitat exists within the Study Area, particularly with tributaries associated with the Albert and Jack Rivers in the north-east of the Study Area. Provided there are no impacts on flows or water quality in the Albert River from construction and operation of the Proposed Wind Energy Facility then impacts are not expected on this species. This can be assured by ensuring a minimum 30 metres separation between the Proposed Wind Energy Facility Area (i.e. turbines, access tracks and power cabling) and the Albert River and any significant tributaries in the Study Area. The Proposed Wind Energy Facility Area is located sufficient distance in accordance with these recommendations.

**Invertebrates**

No listed invertebrate species have recorded historically within the Study Area. There is potential for some listed invertebrate species to exist. During the fauna overview assessment for example, it was noted that many burrowing crayfish are present within wet habitats in the south-east of the Study Area, in association with the saltmarsh habitats linked with drainage lines. Provided these habitats can be avoided, noting that the Proposed Wind Energy Facility Area does avoid these areas with more than the recommended separation of 30 metres from major waterway and wetland habitats, significant impacts on such species, if present, are unlikely.

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

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Refer to specific measures identified above, these can be managed through the Planning Permit assessment process and implemented through its associated conditions.

Also, in accordance with the *Catchment and Land Protection Act 1994*, Regionally Controlled noxious weed species which were recorded in the study area, must be controlled. Precision control methods that minimise off-target kills (e.g. spot spraying) should be used in environmentally sensitive areas (e.g. within or near native vegetation, waterways, etc.).

Where feasible, rather than constructing new, parallel and adjacent transmission lines, existing overhead power lines will be utilised. During the detailed design stage for overhead transmission lines, power poles, anchor-points and works access points should be sited outside native vegetation wherever feasible to reduce impacts upon native vegetation, and potentially to listed threatened flora and ecological communities.

Implementation of a Bat and Avifauna Management Plan for the Proposed AWEF will ensure that procedures and strategies exist to respond to any unanticipated impacts on the White-bellied Sea-eagle and the Powerful Owl.

Best-practice development and construction recommendations are provided in the Flora and Fauna Assessment. Importantly, the Proposed AWEF will include a buffer of at least 50 metres from any watercourse. These mitigation measures are considered to ensure impacts are minimised to flora, fauna and/or native vegetation. These measures can be managed through the CEMP, which will be implemented for the Proposed AWEF and can be implemented via the Planning Permit conditions.

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

Refer to ecological reports:

- *Alberton Wind Farm, Flora and Fauna Assessment*, Brett Lane & Associates (December 2016)
- *Alberton Wind Farm, Bird and Bat Surveys*, Brett Lane & Associates (August 2016)
- *Alberton Wind Farm, Shorebird Data Analysis*, Brett Lane & Associates (December 2016)
- *Alberton Wind Farm, Targeted Flora Survey*, Brett Lane & Associates (November 2016)
- *Alberton Wind Farm, Additional information on Matters of National Environmental Significance* , Brett Lane & Associates (July 2017)

## 13. Water environments

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

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

It is expected that during the construction period there would be a requirement to access water for primarily for dust suppression and road construction. Overall, it is considered that operational water requirements are insignificant and much less than 1Gl/yr.

The necessary volumes of water required for the construction and operation of the Proposed AWEF can be obtained through on-site storage dams, rain water tanks, on-site bores (locations to be determined in detailed design) and/or potential off-site sourcing.

Any new water bores proposed to be constructed for use during construction and/or operations of the Proposed AWEF will be subject to view with the relevant Catchment Management Authority to assess any impacts on existing groundwater uses.

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

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

Environmentally sensitive construction measures will be employed including sediment and erosion controls to ensure that the Proposed AWEF does not discharge waste water and runoff to water environments. These measures will be detailed within the Construction Environmental Management Plan (CEMP), including a sediment, erosion, and water quality management plan, to be implemented via Planning Permit conditions.

**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.

Aquatic habitats scattered across the Study Area consist of the Albert River and its tributaries, drainage lines, ephemeral wetlands and farm dams. The majority of farm dams are accessible to stock and support little or no vegetation. Ephemeral drainage lines are common throughout the Study Area as a method of draining water from low-lying agricultural land. These are often in poor condition and are dominated by native and weed species such as sedges and rushes. Although in poor condition, they provide habitat for several frog species and also migratory species such as Latham's Snipe and Eastern Great Egret.

Where more permanent water-bodies are allowed to flow naturally and excluded from grazing pressure, low and high marshes occurred, particularly in the north-east of the Study Area in association with the Albert River. These marshes are dominated by reeds, rushes and sedges, providing good intact and connected vegetation cover. Consequently, they provide dispersal and foraging opportunities as well as critical refuges for a number of fauna species.

There are no impacts anticipated to Jack River or Albert River as the Proposed Wind Energy Facility Area has been designed to avoid these areas. The footprint of the Proposed Wind Energy Facility Area represents a very small proportion of the catchments to these Rivers. Additionally, the distance of the Proposed Wind Energy Facility Area to these rivers over grassed or cropped

land is sufficient to remove any sediment mobilised from the works area during a rainfall event. As noted above, environmentally sensitive construction measures will be employed including sediment and erosion controls to ensure that the Proposed AWEF does not discharge waste water and runoff to water environments, consistent with the Victorian EPA's *Environmental Guidelines for Major Construction Sites* (EPA Publication 480, 1996). These measures will be outlined within the CEMP, including a sediment, erosion, and water quality management plan, to be implemented via Planning Permit conditions.

Construction of the internal access track network will be formed by crushed rock and therefore permeable. In the context of the Study Area the additional run off will be negligible. Notwithstanding, in order to prevent any localised issues a detailed drainage management plan will be implemented prior to construction. It is expected that such a plan could be a requirement of Planning Permit conditions, and drafted after that date in consultation with the Catchment Management Authority.

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The Proposed Wind Energy Facility Area represents a very small proportion of the catchment to the Albert River which flows into the Ramsar Site. Furthermore, apart from the turbine footing (less than 15m diameter concrete pad), all infrastructure will be of permeable materials and designed not to significantly alter surface water flows. Appropriate pipes will be placed under access tracks where they cross low points where surface runoff could pass during higher rainfall events. This will ensure no substantial change to the volume, timing, duration and frequency of ground and surface water flows.

The implementation of best practice methods for weed and pest animal control, documented in a pest plant and animal management plan within the CEMP for the Proposed AWEF will ensure that no invasive species harmful to the ecological character of the wetland will be established in the Ramsar site as a consequence of the Proposed AWEF. The CEMP would be implemented via the Planning Permit conditions.

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

☐ NYD ☐ No ☒ Yes If yes, specify which water environments.

Refer to discussions above under the Flora and Fauna section of this referral, which detail the extent of the watercourses/wetland within the broader study area and potential threatened species that could occur within these watercourses/wetland areas.

**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.

The coastal wetlands and shallow marine waters of the Corner Inlet and Nooramunga area, north and east of Wilson's Promontory are nominated under the Convention on Wetlands (the 'Ramsar' Convention) as a wetland of international importance. The Proposed AWEF is sufficiently distant from the Ramsar site, of low enough intensity and will be executed in an environmentally sensitive manner, ensuring that there will be no significant impacts on the Corner Inlet Ramsar site.

None of the Study Area lies within the Ramsar site boundary and none of the wetland will be directly destroyed or modified by the Proposed AWEF. These are located to the south of the Proposed Wind Energy Facility Area, generally around 3.5km from the Study Area. The closest turbines and associated access tracks and underground power cabling are two in the east of the Proposed Wind Energy Facility Area. The closest is Turbine T33 at 962m at its closest point from the Ramsar site boundary. Land within this area is currently ploughed and cropped regularly. The distance to the edge of the wetland from the construction site is such that any runoff from the construction site will dissipate within the grassed and cropped land before it reaches an open waterway. This is ample distance for any entrained sediment and associated pollutants to settle before any runoff reaches an open waterway. Notwithstanding, sediment and erosion control measures will be in place to prevent runoff from entering sensitive environments, such as watercourses

**Could the project affect streamflows?**

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

The Proposed AWEF would not generate significant run off or affect streamflows.

The Proposed Wind Energy Facility Area represents a very small proportion of the catchment to the Albert River and Jack River. Furthermore, apart from the turbine footing (less than 15 m diameter concrete pad), all infrastructure will be of permeable materials and designed not to significantly alter surface water flows. Appropriate pipes will be placed under access tracks where they cross low points where surface runoff could pass during higher rainfall events. This will ensure no substantial change to the volume, timing, duration and frequency of ground and surface water flows.

A detailed drainage management plan will be implemented prior to construction. It is expected that such a plan could be a requirement of Planning Permit conditions, and drafted after that date in consultation with the Catchment Management Authority.

**Could regional groundwater resources be affected by the project?**

☐ NYD ☒ No ☐ Yes If yes, describe in what way.

The *Preliminary Geotechnical Investigation* (**Attachment 14**) shows the presence of a generally high groundwater table at some locations, particularly on the lower lying areas located south of the South Gippsland Highway.

A number of footing options are available. For most turbines, footings are likely to include a combination of pad footings and pile footings. Given the presence of lower strength soils at typical pad founding depths and the relatively shallow groundwater level, piles would be used to increase the stiffness of the profile below the pad footing and to increase the available bearing pressures (thereby reducing pad sizes).

It is anticipated that the foundations of the turbines and associated infrastructure will have minimal impact on underground water bodies, and/or groundwater. It is anticipated that the development of the Proposed AWEF will not impact on the groundwater environment due to the small turbine footprint and the ability to respond to any potential water issues during the micro-siting of the turbines.

A sediment, erosion and water quality management plan can be prepared to be prepared as part of the required CEMP, implemented by Planning Permit conditions.

**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.

It is not anticipated that there will be any impacts to aquatic, estuarine or marine ecosystems due to the distance separating the Proposed AWEF from the upper shores of these wetland areas.

**Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?**

☒ No ☐ Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

It is not anticipated that there will be any impacts to aquatic, estuarine or marine ecosystems including the Nooramunga and Corner Inlet Marine and Wildlife Reserves due to the distance separating the Proposed Wind Energy Facility Area from these areas.

**Is mitigation of potential effects on water environments proposed?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

As noted above, a CEMP will be prepared post-planning permit to manage potential effects on water environments. This would be implemented via Planning Permit conditions which will help mitigate potential effects on water environments, and include the preparation of:

- *construction and site works management plan*
- *drainage management plan*
- *sediment, erosion, and water quality management plan*

No significant environmental effects on the water environment are expected from the construction activities, and the plan will focus on localised run-off issues that may occur from the construction activities.

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

A more detailed assessment of footing options will need to be undertaken once information regarding design loads is available and a detailed geotechnical investigation, including the drilling of deeper boreholes, has been completed.

Refer to *Preliminary Geotechnical Investigation* (**Attachment 14**).

## 14. Landscape and soils

### Landscape

**Has a preliminary landscape assessment been prepared?**

☐ No ☒ Yes If yes, please attach.

Refer to *Landscape and Visual Impact Assessment* (LVIA) (**Attachment 10**).

**Is the project to be located either within or near an area that is:**

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**

☐ NYD ☐ No ☒ Yes If yes, provide plan showing footprint relative to overlay.

The Study Area is not located within a Significant Landscape Overlay (SLO) or Environmental Significance Overlay (ESO), however is located near these areas.

Proposed turbines T01-T07 (inclusive) are located immediately to the east of SLO3 within the neighbouring South Gippsland Planning Scheme. This relates to the 'Corner Inlet Amphitheatre'. Mount Hoddle and the Welshpool Hills are prominent landforms that provide an amphitheatre setting for Corner Inlet and Wilsons Promontory, with the entire landscape unit being of regional significance. The area is also of high environmental significance. It is identified by the RAMSAR Convention as a bird habitat of international importance, and is listed on the Register of the National Estate for its plant life, which is of bio-geographic significance. Aboriginal middens are plentiful along the shores of Corner Inlet, adding cultural heritage to the landscape's layers of significance.

Areas of ESO2 are scattered throughout the surrounding region. These represent 'Wetlands' which are significant due to their ecological values. The overlay does not highlight any specific landscape values.

Turbines T33 and T34 are also located near the ESO1 being the 'Coastal and Gippsland Lakes Environs'. The Ninety Mile Beach (22km to the east) and Gippsland Lakes (78km to the northeast) and their environs are noted for their significant environmental, landscape, and recreational areas. ESO1 notes that there are significant environmental issues in this area, including water quality, landscape, protection of primary and secondary sand dunes, flooding, protection of vegetation habitat, impacts on neighbouring wetlands and coastal parks. Coastal and estuarine systems are vulnerable to human development.

- **Identified as of regional or State significance in a reputable study of landscape values?**

☐ NYD ☐ No ☒ Yes If yes, please specify.

The Study Area is not located within an area identified as of regional or State significance. The *Coastal Spaces Landscape Assessment Study* (2006) identifies the landscape surrounding the Proposed Wind Energy Facility Area as being part of the South Gippsland Coastal Plains regional landscape type, and is located within the Gippsland Region. The typical landscape character

area, within this landscape type, is broadly identified as low lying and flat, covering a long stretch of varied coastline. Valued visual links to natural landscapes include extensive views toward Wilsons Promontory as well as occasional distant views toward mountains and ranges to the north.

The *Coastal Spaces Landscape Assessment Study* notes low density development scattered throughout the landscape character area with small 'lifestyle' settlements on the coast (Port Welshpool and Port Albert). Medium sized rural towns (Yarram) are located in the east of the landscape character area. The Preliminary LVIA also notes a number of smaller towns located along the South Gippsland Highway within the landscape character area (Toora, Welshpool and Alberton).

The Study Area is located near a State significant landscape area. The *Coastal Spaces Landscape Assessment Study* identifies the Nooramunga Marine and Coastal Park as being a State Significant landscape area and valued by the community for panoramic 'out views' of Wilsons Promontory, particularly from Snake Island. The park is noted as being visually significant and is generally located between 3 and 5 kilometres from the Study Area. The park is characterised as a chain of small islands, barriers and spits of sand, mudflats and mangroves.

- **Within or adjoining land reserved under the *National Parks Act 1975*?**

  ☐ NYD ☒ No ☐ Yes If yes, please specify.

The Study Area and Proposed Wind Energy Facility Area is not within or adjoining land reserved under the *National Parks Act 1975*. However the Study Area is located near the Corner Inlet Marine National Park (approximately 3.5 kilometres southwest) and the Wilsons Promontory National Park (approximately 15 kilometres south-west).

- **Within or adjoining other public land used for conservation or recreational purposes?**

  ☐ NYD ☐ No ☒ Yes If yes, please specify.

The Study Area and Proposed Wind Energy Facility Area are not within other public land used for conservation or recreational purposes. However the Study Area is located between areas of State Forest which extend to the north and south of South Gippsland Highway. The forests occupy flat coastal land as well as gently undulating hills and are actively managed for timber production.

**Is any clearing vegetation or alteration of landforms likely to affect landscape values?**

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

The Preliminary LVIA has determined that the landscape within and immediately surrounding the Study Area, as well as portions of the landscape in the broader viewshed are generally robust and defined by visually strong forms and patterns. In general, the landscape is considered to exhibit attributes which tend to result in a low to moderate sensitivity to change.

Whilst the wider regional landscape displays characteristics which are highly valued and have a high degree of visual amenity, the localised landscape is represented by a largely modified landscape (predominantly agricultural in nature including dairy production and cropping) which is commonly found within the regional landscape.

It is unlikely that works involved with the construction of the Proposed AWEF, including removal of existing vegetation, would have any significant impact on existing landscape values within, or beyond the Proposed Wind Energy Facility Area. The removal of vegetation would be relatively minor and largely restricted to the construction of access tracks across existing farmland. There would be no significant change to the extent or context of existing views.

This Preliminary LVIA has determined that the visual impact of the Proposed AWEF is likely to be low from the majority of publicly accessible locations and that the Proposed AWEF would have:

- A low visual impact on the rural/coastal townships of Toora, Welshpool and Port Welshpool;
- A low to medium visual impact on the rural/coastal townships of Port Albert, Alberton and Yarram;
- A low to medium (albeit short term and transitory impacts) on views from the South Gippsland Highway;

- Generally low impacts on views from the majority of local roads where fully or partially screened by roadside and/or field boundary tree planting; and
- No significant visual impact from scenic areas, public reserves and recreational areas, including any available long distant views between State Significant landscape areas such as the Nooramunga Marine and Coastal Park and Wilsons Promontory National Park.

The Proposed AWEF may have potential to result in a range of visual impacts on individual residential dwellings surrounding the Study Area. The impacts would be dependent on a number of physical and environmental characteristics (e.g. landform and vegetation) surrounding residential dwellings which would determine overall visibility and prominence of wind turbines within specific views.

Refer to *Landscape and Visual Impact Assessment* (**Attachment 10**).

**Is there a potential for effects on landscape values of regional or State importance?**

☐ NYD ☒ No ☐ Yes Please briefly explain response.

As noted above, the Preliminary LVIA has determined that the visual impact of the Proposed AWEF is likely to be low from the majority of publicly accessible locations and specifically that the Proposed AWEF would have:

- A low visual impact on the rural/coastal townships of Toora, Welshpool and Port Welshpool;
- A low to medium visual impact on the rural/coastal townships of Port Albert, Alberton and Yarram;
- A low to medium (albeit short term and transitory impacts) on views from the South Gippsland Highway (**Figure 12**);
- Generally low impacts on views from the majority of local roads where fully or partially screened by roadside and/or field boundary tree planting; and
- No significant visual impact from scenic areas, public reserves and recreational areas, including any available long distant views between State Significant landscape areas such as the Nooramunga Marine and Coastal Park and Wilsons Promontory National Park.


**Viewpoint A17** - Existing view east north east to south from South Gippsland Hwy (west of Pearsons Road)


**Viewpoint A17** - Proposed view east north east to south from South Gippsland Hwy (west of Pearsons Road)

***Figure 12: Existing and Proposed View from South Gippsland Highway***

**Is mitigation of potential landscape effects proposed?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Some mitigation measures are considered appropriate to minimise the visual effects for a number of ancillary structures associated with the Proposed AWEF:

- Considered options for use of colour to reduce visual contrast between project structures and visible background;
- Selection of suitable component materials with low reflective properties;
- Wherever possible, locate grid connection away from direct views from roads and residential dwellings;
- Minimise cut and fill for site tracks and revegetate disturbed soils as soon as possible after construction;
- Consider options for planting screening vegetation in vicinity of nearby residences (offsite) to screen potential views of infrastructure;
- Undertake revegetation and off-set planting at areas around the Proposed Wind Energy Facility Area (onsite) where required in consultation and agreement with landholders; and
- Avoid flood or area lighting with directional and shielded lighting installations to be installed in accordance with the Australian Standard '*Control of the obtrusive effects of outdoor lighting*' (AS4282-1997).

Although these mitigation measures are considered appropriate to minimise the visual effects for a number of ancillary structures associated with the Proposed AWEF, it is acknowledged that the degree to which the wind turbines may be visually mitigated is limited by their scale and position within the landscape relative to surrounding view locations.

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

Refer to *Landscape and Visual Impact Assessment* (**Attachment 10**).

**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 existing 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.

It is not anticipated that the Proposed AWEF will have a significant impact on the soil environment.

The CASS Occurrence Plan provided on **Figure 13** shows the Study Area is not located within a CASS risk area whereby the Study Area has an extremely low or low probability of encountering CASS.

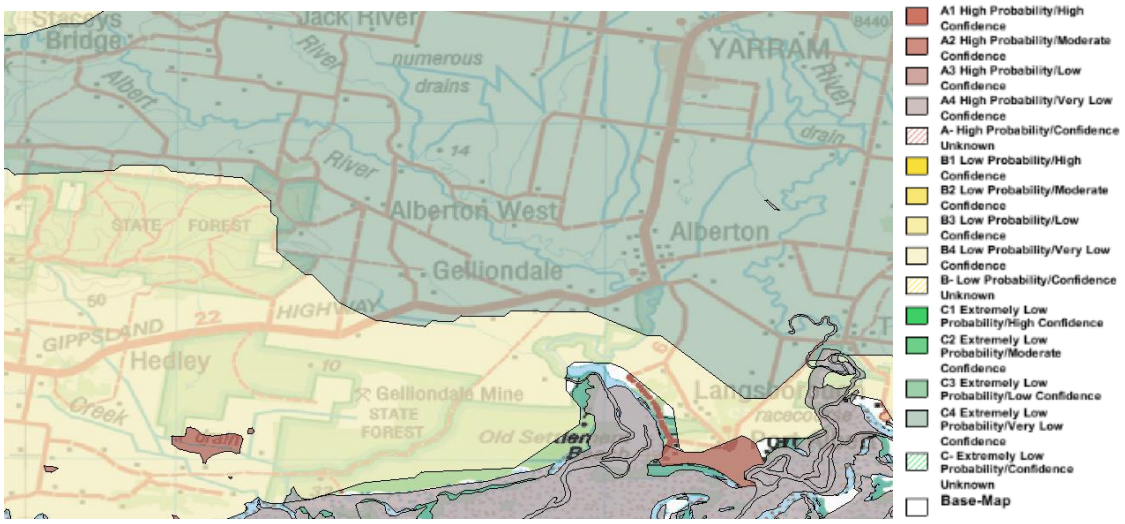


***Figure 13: CASS Risk (Source: Australian Soil Resource Information System)***

The Proposed Wind Energy Facility Area does not include any Salinity or Erosion Overlays within the Wellington Planning Scheme. The *Preliminary Geotechnical Investigation* (**Attachment 14**) noted that there was no evidence of slope instability within the Study Area.

The *Preliminary Geotechnical Investigation* noted that there are many poorly drained areas within the Study Area, with some areas subject to flooding. It is therefore proposed that wherever possible, construction of roads for the Proposed AWEF be planned for drier periods. Pavement construction procedures would be likely to consist of stripping the surface topsoil prior to placement of road pavement materials. The underlying subgrade will need to be proof rolled in order to identify any unstable areas requiring treatment prior to pavement construction.

Road surfaces may be prone to erosion in periods of heavy rainfall. This may be particularly pronounced in steeper sections of the roads. It will therefore be important that close attention is paid to drainage of the pavements. The pavements would be designed to shed water and to the extent possible runoff should not be allowed to form concentrated flows.

Subject to these recommendations, the Proposed AWEF activities are not expected to cause significant erosion and potential for erosion would be managed through the implementation of a CEMP.

A condition of the Planning Permit can require sediment, erosion and water quality to be managed appropriately as part of a CEMP required by condition.

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

☒ NYD ☐ No ☐ Yes If yes, please briefly describe.

There are no known geotechnical hazards that may affect, or be affected by, the Proposed AWEF. Refer to *Preliminary Geotechnical Investigation* (**Attachment 14**).

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

Further assessment will be undertaken in conjunction with detailed design and construction works.

## 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.

There is likely to be an average of approximately 14 trucks accessing the Proposed Wind Energy Facility Area per day in addition to construction staff traffic. Construction traffic is likely to include cars, utilities, four-wheel drive vehicles, large semi-trailers, B-double, concrete trucks and large

cranes. Post construction traffic is expected to be limited to light vehicles and an occasional maintenance vehicle.

The construction phase will be limited to a period of approximately 18 months. The Proponent considers that any amenity impacts arising can be addressed through standard construction management measures such as controlled working hours, selection of local traffic routes during various phases of construction, selection of access track construction materials and road watering. Furthermore, where possible, the proponent will seek to source materials from site and as close to Proposed Wind Energy Facility Area as possible to minimise the number and duration of vehicle movements.

A *Preliminary Transport Management Plan* (**Attachment 18**) has been prepared to identify the potential transport route of wind turbine components from the preferred port of entry (Port Anthony) to the Proposed Wind Energy Facility Area, with a particular focus on the turbine blades. The key route into the Proposed Wind Energy Facility Area is expected to be from the Port Anthony along the South Gippsland Highway (**Figure 14** and **Figure 15**). Local roads would be used to travel the remainder of the distance to the turbine sites. The assessment concluded that with a moderate amount of upgrades and modifications to some relevant stretches of the potential haulage route, loads could physically be delivered to all Wind Turbine locations proposed for the Proposed AWEF. The road is predominantly good quality highway with the exception of the more localised wind turbine access routes. No significant structures or trees were noted along this route, however a number of smaller underpasses were identified and should be assessed to confirm the axle loadings are acceptable.


***Figure 14: Road Transport Route – Port Anthony to South Gippsland Highway***


*Figure 15: Road Transport Route – South Gippsland Highway to sites within the Study Area*

After completion of construction and commissioning works, the operational traffic volumes at the Proposed AWEF will be little different in nature to current vehicle movements around the area.

It is expected that a condition of the Planning Permit will include the need for a Traffic Management Plan to be prepared (in consultation with Council and VicRoads) to the satisfaction of the Minister for Planning.

**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.

Effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions are not considered to be significant, and can be appropriately managed as outlined below.

**Emissions (Dust or Odours)**

In addition to the construction of the turbines, the Proposed AWEF will result in the construction of access tracks, underground cabling and overhead powerlines. Potential impacts are likely to include some dust associated with these construction activities and are limited to the duration of construction.

Environmentally sensitive construction measures will be employed to ensure that potential amenity impacts during construction is minimised. This will be managed through the implementation of a CEMP, which would be implemented via a condition of the Planning Permit.

There are no other potential sources of dust or odours related to the Proposed AWEF which could cause significant effects on the amenity of residents. It is not considered that there will be any significant amenity impacts from emissions, dust and odours during the operation of the Proposed AWEF and associated infrastructure.

**Visual**

As discussed in the previous section of this referral, a *Landscape and Visual Impact Assessment* (**Attachment 10**) has been prepared. It finds that the Proposed AWEF would have an acceptable landscape and visual impact.

As part of the Planning Permit application, a detailed Landscape and Visual Impact Assessment will be undertaken to further inform Planning Permit conditions.

**Noise**

Noise from the proposed turbines would be subject to a full impact assessment compliant with industry standard guidelines, specifically *New Zealand Standard NZS6808:2010, Acoustics – Wind Farm Noise*.

A *Preliminary Noise Assessment* and a further assessment of *Alternative Turbine Types* have been undertaken for the Proposed AWEF (**Attachment 15** and **Attachment 16**) and includes an assessment of the proposed wind farm by comparing predicted noise levels for several examples of turbine models against the noise limits of NZS6808:2010. A total of one hundred and two (102) residential properties have been included in the assessment, including nineteen (19) properties owned by fourteen (14) shareholders and eighty (80) non-stakeholder properties. The assessment indicates that one of the turbine models (Senvion 3.4 M140) achieves compliance with the NZS 6808:2010 noise limit at all wind speeds at all identified properties identified in the vicinity of the Proposed AWEF (**Figure 16**).

For the other models, the predicted noise levels from the Proposed AWEF comply with the base limits at all non-stakeholder properties, for each of the turbine types. Predicted noise levels from the Proposed AWEF marginally exceed the NZS6808:2010 noise limit for between one (1) and three (3) shareholder properties.

The noise assessment is based on the indicative layouts and turbine models based on the understanding that the final turbine model and layout will be determined by a competitive tender following issue of the Planning Permit. Accordingly, at this stage in the planning for the Proposed AWEF, the candidate turbine models referred to in the noise assessment primarily assess the viability of the Wind Energy Facility in achieving compliance with the applicable limits at surrounding receiver locations. The assessment demonstrates that the noise limits can be practically achieved, accounting for typical noise emission levels that are representative of the types of turbine options that may be considered for the site.

The detailed noise assessment would be undertaken as required by Planning Permit conditions. Compliance with wind energy facility noise guidelines is compulsory and as a result, significant effects on amenity of residents are unlikely to occur.

Noise associated with construction works, would be managed in accordance with a CEMP to be implemented via Planning Permit conditions. The CEMP would include measures to monitor and control environmental risks. In relation to noise it would address the *EPA Victoria Guidelines for Major Construction Sites* (1996) and the *EPA Victoria Noise Control Guidelines* (2008).

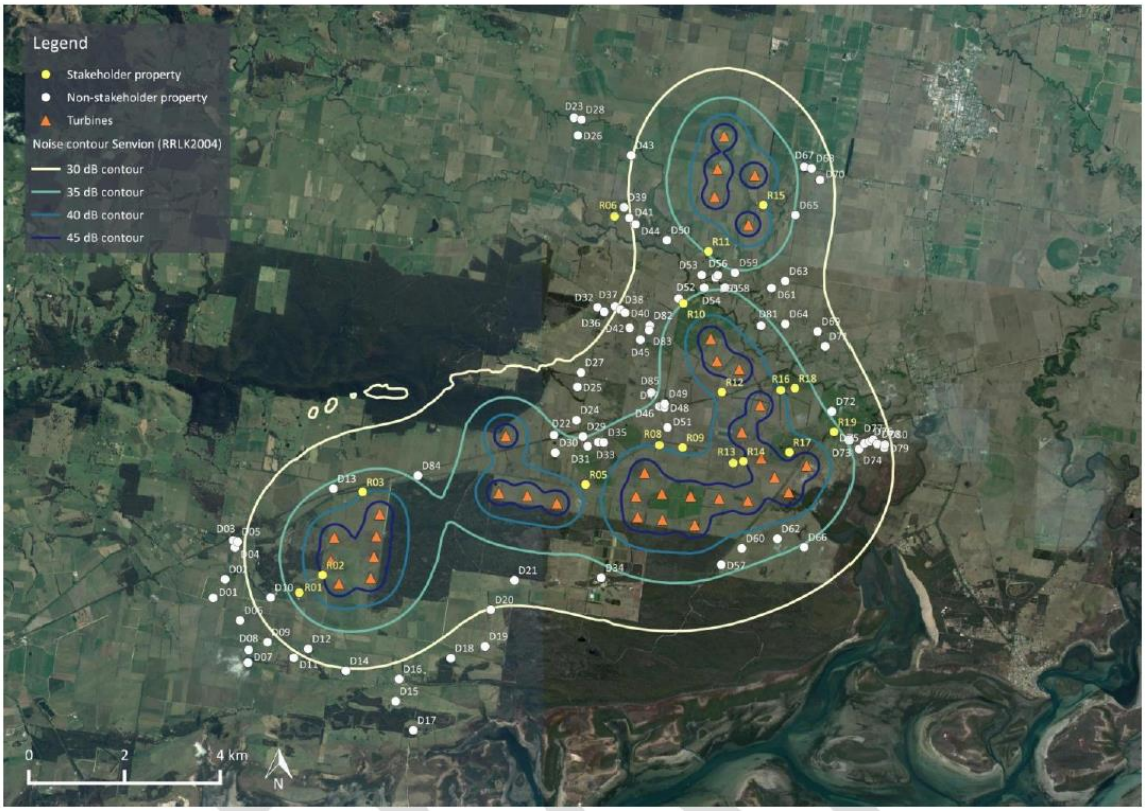

*Figure 16: Noise Contour Map for the Senvion 3.4 M140 turbine model*

**Traffic**

As noted previously, there will be an increase in traffic volume during the construction phase of the Proposed AWEF. Traffic movements will be distributed over the local road network in accordance with the source of materials and the location of individual works. The daily number of trips to individual land parcels will depend on the programming of works and is not known at this early stage. From a network and intersection capacity perspective, the impact of the proposed construction traffic is not expected to warrant any upgrades to infrastructure, although some measures will be necessary to accommodate the swept paths of specific vehicle types.

As noted above, a *Preliminary Transport Management Plan* (**Attachment 18**) has been prepared for the Proposed AWEF and will be finalised and implemented through the Planning Permit conditions. This would include some day to day traffic management mitigation measures as required and selection of local traffic routes during various phases of construction.

It is recognised that the increase in heavy vehicle movements over an 18 month period may result in increased maintenance or damage to some local roads, and have noise and emissions impacts. As more details of the construction traffic is confirmed the need to "make good" damage will need to be reviewed and costs allocated appropriately at this time. This would be managed through Planning Permit conditions.

It is expected that other amenity impacts arising from the increase in traffic can be addressed through standard construction management measures such as controlled working hours, selection of access track construction materials and road watering. These will be identified within the CEMP prepared when construction logistics are finalised, and implemented via the Planning Permit conditions.

After completion of the construction phase and commissioning works, the operational traffic volumes at the Wind Energy Facility would be insignificant and similar in nature to the current vehicle movements around the area.

**Shadow Flicker and Blade Glint**

A *Shadow Flicker and Blade Glint Assessment* has been undertaken (**Attachment 17**) for the Proposed AWEF.

Shadow flicker involves the modulation of light levels resulting from the periodic passage of a rotating wind turbine blade between the sun and an observer. The duration of shadow flicker experienced at a specific location can be determined using a purely geometric analysis which takes into account the relative position of the sun throughout the year, the wind turbines at the site, local topography and the viewer. The *Shadow Flicker and Blade Glint Assessment* has also sought to quantify the likely reduction in shadow flicker duration due to turbine orientation and cloud cover. However it is noted that this assessment is preliminary only, and has not involved site inspection or consideration of local conditions at each of the dwellings. Following issue of a Planning Permit, a Detailed Assessment will be undertaken that will take account of window orientations and local screening from trees or structures may further reduce the actual shadow flicker durations. This will be used to inform the Detailed Design.

The locations of 102 dwellings were considered as part of the assessment. Some of the dwelling locations are in close proximity to turbine locations (the closest dwelling is approximately 355 metres from a turbine), which is likely to lead to high shadow flicker and other impacts.

The Victorian Planning Guidelines recommend a shadow flicker limit of 30 hours per year in the area immediately surrounding a dwelling. In addition, the *EPHC Draft National Wind Farm Development Guidelines* recommend a limit on the theoretical shadow flicker duration of 30 hours per year, and a limit on the actual shadow flicker duration of 10 hours per year.

The results indicate that, of the 102 dwellings identified, there are only ten (10) locations which are expected to experience a shadow flicker duration in excess of the recommended limit of 30 hours per year within 50 metres of the dwelling location, all of which are shareholder dwellings (**Figure 17**). The predicted shadow flicker durations at many of these dwellings are high, with the highest predicted actual duration at a shareholder dwelling being approximately 57 hours. However, as noted above it is highlighted that local conditions at each of the dwellings have not been considered as part of the Preliminary Assessment, and that window orientations or local screening from trees or structures may further reduce the actual shadow flicker durations.

The dwelling with the highest impact, R02, as well as dwellings R14 and R18 are to be unoccupied if turbines are constructed. These dwellings are not permanent residences and are used by farmers for occasional or temporary accommodation of staff or other visitors. Excluding these dwellings, the highest predicted actual shadow flicker duration is approximately 32 hours.

The effects of shadow flicker may be reduced through a number of mitigation measures such as the installation of screening structures or planting of trees to block shadows cast by the turbines, the use of turbine control strategies; which shut down turbines when shadow flicker is likely to occur, or relocation of turbines. The assessment recommended that shutdown or other mitigation strategies are implemented for the Proposed AWEF to reduce potential shadow flicker impacts at dwellings located in close proximity to the turbines. It also recommended that owners of dwellings where shadow flicker limits are exceeded are informed of, and have accepted, the expected shadow flicker impacts at their dwellings.

Accordingly, Synergy Wind intends to implement a shadow flicker protection system to reduce shadow flicker impacts at dwellings experiencing high shadow flicker durations. This can be implemented by condition of the Planning Permit.

Blade glint involves the reflection of light from a turbine blade, and can be seen by an observer as a periodic flash of light coming from the wind turbine. Blade glint is not generally a problem for modern turbines provided non-reflective coatings are used for the surface of the blades.

The combination of the low number of dwellings in the vicinity of the turbines that could theoretically be affected, along with the ease of mitigation, suggests the likelihood of significant environmental effects from shadow flicker is negligible.

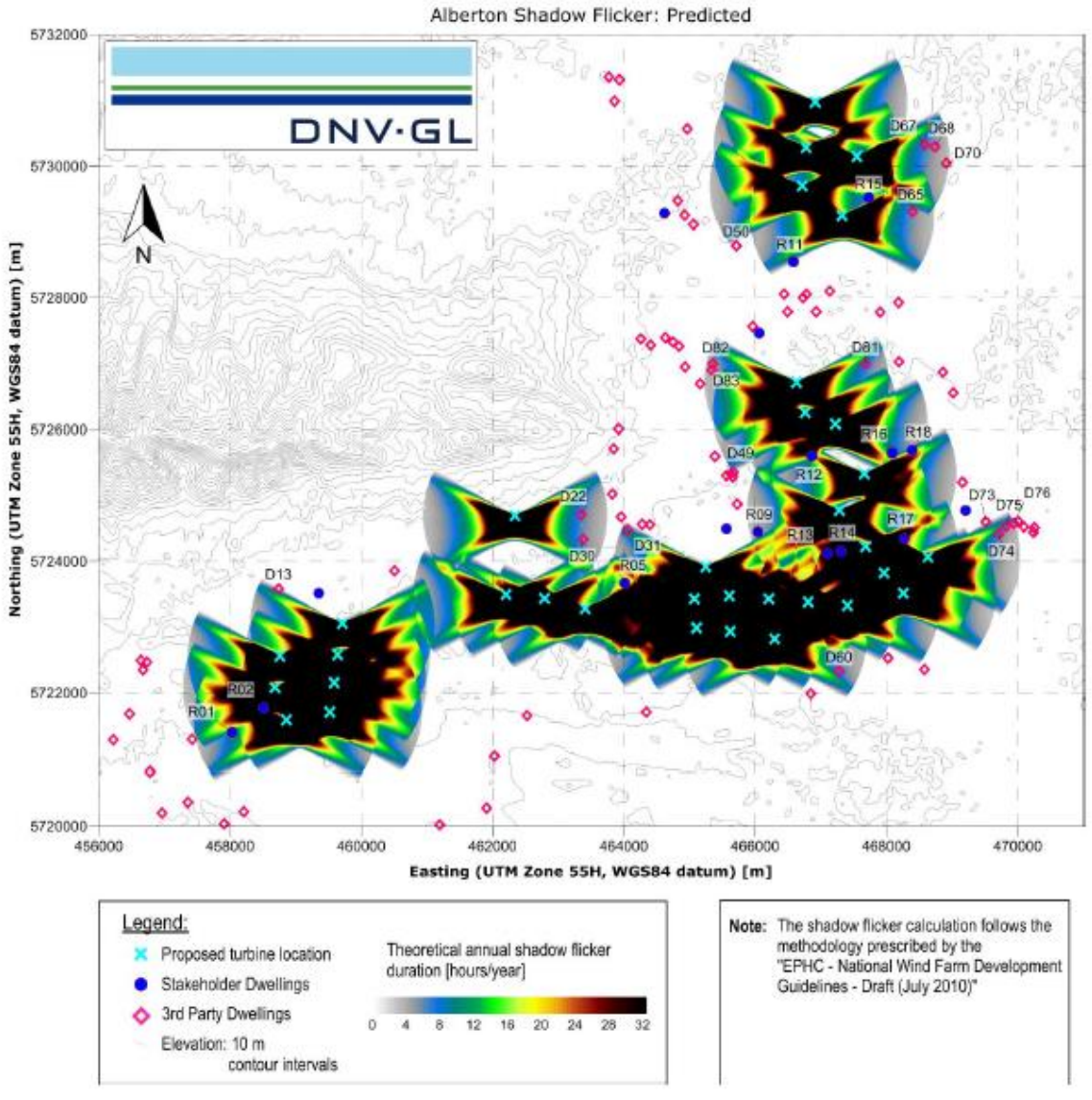

*Figure 17: Maximum predicted annual shadow flicker duration*

**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.

It is not considered that there will be any 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. Environmentally sensitive construction measures will be employed (described within the Construction Environmental Management Plan) to ensure the potential amenity impacts during construction is minimised.

**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.

There will be no displacement of residences or severance of residential access to community resources due to the construction or operation of the Proposed AWEF. However several dwellings, identified as R02, R14 and R18, are proposed to be unoccupied if turbines are constructed. These dwellings are not permanent residences and are used by farmers for occasional or temporary accommodation of staff or other visitors.

**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.

The Proposed AWEF is to be located on land, the majority of which is used for farming/agricultural activities. The installation of Proposed AWEF infrastructure will permanently remove some land from agricultural production, though the footprint is minimal.

During construction most existing farming/agricultural activities will continue, and be controlled only so as to ensure the safety of stock, landowners and those personnel involved in project construction, and to prevent interference with construction of the Proposed AWEF.

Post-construction of the Proposed AWEF, existing activities will recommence on land outside of the Proposed Wind Energy Facility Area, which constitutes the vast majority of the Study Area.

Where the underground and overhead powerlines will be located within private property, grazing activities can continue within the easements. Restrictions will exist within the final easement in regard to structures. Landowners will be compensated for any impacts on existing farming infrastructure, as part of easement negotiation.

The Proposed AWEF will support and enhance agricultural production, as its development allows agricultural use to continue around the proposed infrastructure within the Study area whilst providing financial benefits to host landowners.

**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.

There are no expected changes to non-residential land use activities.

**Is mitigation of potential social effects proposed?**

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

During construction, activities will include site preparation and civil works, foundation construction, infrastructure construction and equipment installation. These activities might require processes and equipment such as heavy vehicle movements, loaders, excavators, cranes and generators. Amenity impacts from these activities may be mitigated by limiting construction hours, particularly for activities with high traffic volumes and noise and/or dust emissions. These limits are usually imposed by conditions of a Planning Permit. Compliance with noise standards is compulsory under EPA construction requirements, and therefore no additional mitigation is required. Mitigation of potential construction traffic impacts will be subject to a detailed traffic management plan to be prepared post planning permit approval, should approval be given.

It is also proposed that a publicly accessible information shelter displaying information about the Wind Energy Facility could be constructed at a suitable public location.

Community notification would be undertaken for any proposed work outside standard construction hours, as required by conditions on the Planning Permit.

There are no other negative social effects likely to result from the Proposed AWEF, therefore no further mitigation measures are proposed.

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

Employment in the region during construction phase is anticipated to be around 115 construction workers plus additional employment generated by procuring local services. Indirect employment during the construction process is expected generate jobs for 270 people locally, 870 state jobs and 1360 nationwide jobs. Employment during the operations phase including maintenance and tourism is expected to be 12 staff.

The Proposed AWEF provides an opportunity to generate funds to contribute to local community projects, to provide ongoing, meaningful support to the host community during the life of the Proposed AWEF, and anticipated to be in the order of up to $80,000 per annum. In particular, it is noted that a former rail reserve in the Study Area is now used as part of the South Gippsland Rail Trail, a 74km gravel cycle track which extends from Leongatha to Port Welshpool. The section which extends through the Study Area has not yet been developed and is not accessible to the public. Funds generated by the Proposed AWEF could be used to complete the Rail Trail project. A Community Fund will be established by the Proposed AWEF once construction begins that will consist of a committee of local volunteers, active in the community, to evaluate annual submissions for funding for events, projects or groups within the community.

Other key social and community benefits include:

- Employment in the region during construction phase is anticipated to be around 115 construction workers plus additional employment generated by procuring local services including civil works, electrical works, receiving Port, stevedoring, storage, craneage, transportation, supply of materials and equipment, accommodation, security, traffic management. Indirect employment during the construction process is expected generate jobs for 270 people locally, 870 state jobs and 1360 nationwide jobs. Each worker is expected to spend approximately $25,000 in the local area in shops, restaurants, hotels and other services, ie $2.875M.
- Employment during the operations phase including maintenance and tourism is expected to be 12 staff – a total input of $300,000 spent in the local economy.
- Renewable, locally generated electricity added to the grid that will contribute to the reduction of carbon emissions associated with electricity generation.
- Direct benefits for participating landowners and residents via rental payments once construction begins. This is likely to comprise up to $600,000 per year in rental payments to participating landowners.

## 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.

- Aboriginal Victoria
- Gunai Kurnai Land and Waters Aboriginal Corporation (GLaWAC)

**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)

Biosis undertook a *Cultural Heritage Assessment* (September 2017) for the Proposed AWEF (**Attachment 13**).

An initial assessment, based on detailed background research and a targeted field inspection, was undertaken by Biosis Pty Ltd on behalf of Synergy Wind Pty Ltd in 2015, during the earlier design stages for the Proposed AWEF. The primary intent of the 2015 assessment was to inform on legislative obligations with respect to future development, the potential risk associated with varying degrees of archaeological potential of different landforms, and provide a predictive model for the Study Area with respect to potential cultural heritage values. The results of the 2015 assessment informed the design of the turbine locations, enabling the Proposed AWEF to avoid impact to all areas of designated cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007*. A Cultural Heritage Management Plan (CHMP) is therefore not required for the Proposed AWEF under r.6 of the Regulations because the Activity Area, being the Proposed Wind Energy Facility Area, will avoid all areas of designated cultural heritage sensitivity.

In 2016, following determination of the Proposed Wind Energy Facility Area (including intended locations of the turbines and the indicative electrical and access track layouts), the Proponent commissioned a cultural heritage field survey (Standard Assessment) to inspect each of the proposed turbine locations and the landforms crossed by the indicative electrical and access track layouts, and to assess these locations for potential cultural heritage impacts. The results of the field inspections of the proposed locations, combined with the evidence of the initial desk-based assessment and landform analysis, has been used to assess the potential impacts to cultural heritage of the proposed development. The resulting assessment has been used to provide further modification to the Proposed Wind Energy Facility Area where required, to avoid any potential impacts to cultural heritage caused by the indicative electrical and access track layouts.

The cultural heritage assessment undertaken during the preliminary design stages of the Proposed AWEF has been intended to ensure it will avoid impacts to all known and likely cultural heritage and historical archaeological places. The assessment provides due diligence for the proposed development under Sections 27 and 28 of the *Aboriginal Heritage Act 2006*.

A voluntary CHMP is currently being prepared, and will be finalised following issue of a Planning Permit, and in conjunction with preparation of the detailed Development Plans to inform micrositing. The detailed Development Plans require further approval by the Minister for Planning and will avoid impact to all additional areas which have been assessed as having moderate potential for undetected Aboriginal cultural heritage. This will reduce the risk of harming undetected cultural heritage under Sections 27 and 28 of the Act. Modelling of the Proposed AWEF requirements shows that the avoidance of areas of designated and potential sensitivity is both realistic and achievable.

**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

The Proposed AWEF has been designed to avoid impacts to Aboriginal cultural heritage, whereby the Proposed AWEF Area, including the proposed locations of the turbines and associated infrastructure, do not lie within areas of designated cultural heritage sensitivity.

The locations of each of the 34 proposed turbines have been examined and assessed during the cultural heritage surveys. The turbine positions have been specifically planned to avoid potential impacts to Aboriginal cultural heritage, based on the results of the initial assessment. From the results of the second survey, none of the proposed turbine locations were assessed as being of cultural heritage sensitivity. It is unlikely, therefore, that the construction of the turbines and crane pads at any of the locations assessed would impact on any undetected Aboriginal cultural heritage.

The initial designs for the associated infrastructure (including the access roads and electrical cable layout) were assessed as part of the cultural heritage survey. None of the proposed locations (based on the initial designs) lie within an area of designated cultural heritage sensitivity under the *Aboriginal Heritage Regulations 2007*.

Four landforms which are sensitive for Aboriginal cultural heritage have been identified during the survey and will be avoided by the Proposed AWEF are:

- *Sandy rise to the north of Turbine T04*. This is a crescent-shaped shallow dune formation containing surface artefacts and will be registered as an Aboriginal place. All works will be located more than 50 metres from the Aboriginal place and there will be no works that will affect this sensitive landform.
- *Area of surface artefacts adjacent to a farm access track west of Turbine T12*. This will be registered as a Low Density Artefact Distribution consisting of two surface artefacts, found in a disturbed context. No impacts will be caused by the proposed works to the location of the recorded place as all works will be located more than 50 metres from the Aboriginal place.
- *Sandy rise between T12 and 13.* No artefacts have been recorded on this rise but it is assessed as being sensitive for Aboriginal cultural heritage. The development will avoid impacts to this landform.
- *Alluvial rise to the north of T34*. No artefacts have been recorded on this landform but it is assessed as being sensitive for Aboriginal cultural heritage. No impacts will be caused by the proposed works to this landform.

Aboriginal Victoria have indicated that cultural heritage for this area is relatively unknown, and that whilst low risk, there is a chance of encountering undiscovered cultural heritage during construction. Accordingly, Synergy Wind have commenced preparation of a voluntary CHMP for the Proposed AWEF (CHMP Plan ID. 15167). The Standard Assessment has already been completed. Further consultation with the Registered Aboriginal Party (RAP) will be commenced shortly to inform the level of investigation that the RAP will be required for the Complex Assessment to approve the voluntary CHMP.

Following issue of a Planning Permit, Development Plans will be prepared in compliance with Planning Permit requirements. A voluntary CHMP will be completed at this time, when the proposed extent of the Activity Area is known, noting that the outcomes of the CHMP Complex Assessment and other specialist Detailed Assessments may result in further micro-siting of infrastructure to avoid potential impacts.

Accordingly, the Complex Assessment and finalisation of the voluntary CHMP will be completed following the issue of a Planning Permit for the Proposed AWEF, but prior to the approval of the Development Plans under Planning Permit conditions. The fieldwork will determine and/or confirm areas that may have cultural heritage sensitivity, which the Proposed AWEF will need to either manage or avoid through further micro-siting. These factors will inform the final design of the Proposed AWEF at detailed Development Plan stage, and therefore determine the extent of the Activity Area required for the voluntary CHMP.

**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.

One historic place, Gelliondale Briquette Plant, is situated near the Proposed Wind Energy Facility Area.

The recorded area of the historical site, which is recorded on the Heritage Register (H1058) and the Heritage Inventory (H8220-0008) lies 40 metres to the north of the proposed location for Turbine T08. The site is also listed in the Wellington Planning Scheme as being within the Heritage Overlay (H081). The proposed turbine, crane pad and associated infrastructure will not impact on the historical site.

The site is significant because of its demonstration of technical accomplishment and a rare surviving example of a briquette plant. It also represents early private enterprise into a brown coal mining enterprise. The site currently consists of a dam, mullock heap, trolley line, boiler mountings, coal bunker and various other associated infrastructure.

It is noted that the VHR statement of significance does not highlight this site to be of significance for any visual, architectural or landscape related values. Whilst the views/landscape around the site will certainly change with a new turbine located within its vicinity, this would not affect the reasons for which it is significant and therefore would not affect the significance of the site. The visual impact on this site is discussed within the Preliminary Visual Impact Assessment.

**Is mitigation of potential cultural heritage effects proposed?**

☒ NYD ☒ No ☒ Yes If yes, please briefly describe.

While further micrositing of turbines and infrastructure may be required, a set of protocols will ensure that no identified cultural heritage interests are impacted. These will include avoiding impacts to areas of designated and potential sensitivity; fencing off these areas where the footprint lies within 100 metres; and marking the designated and potential sensitivity areas on contractors' plans as no-go areas. Rather than choosing optimum locations and then following an approvals process to obtain consents to destroy the cultural heritage present, the Proposed AWEF has been planned to avoid impacts to cultural heritage from the outset.

A Heritage Permit would be required if the proposed works impact on the Gelliondale Briquette Plant historical site, and a Planning Permit may also be required if the land subject to the Heritage Overlay is to be impacted. However, the Proposed Wind Energy Facility Area will avoid impacts to these as outlined above.

Whilst a mandatory Cultural Heritage Management Plan (CHMP) is not required under the *Aboriginal Heritage Act 2006* and associated regulations, the Proponent is currently preparing a voluntary CHMP (CHMP Plan ID. 15167) to manage and mitigate potential impacts to potential undiscovered cultural heritage. The voluntary CHMP will include measures such as the use of fencing and signage to avoid nearby sites, and salvage and training for contractors. Additionally, a Contingency Plan will form part of the voluntary CHMP to manage potential issues including:

- Specific measures in the unlikely event that any Aboriginal cultural heritage is unexpectedly discovered during the activity;
- Any contingency plans required in relation to disputes, delays and other obstacles that may affect the conduct of the activity;
- Reviewing compliance with the cultural heritage management plan and mechanisms for remedying non-compliance;
- The notification of the discovery of Aboriginal cultural heritage during the carrying out of the activity; and
- Requirements relating to the custody and management of any Aboriginal cultural heritage found during the course of the activity.

This plan would be completed after the Proposed AWEF has obtained a Planning Permit as described previously.

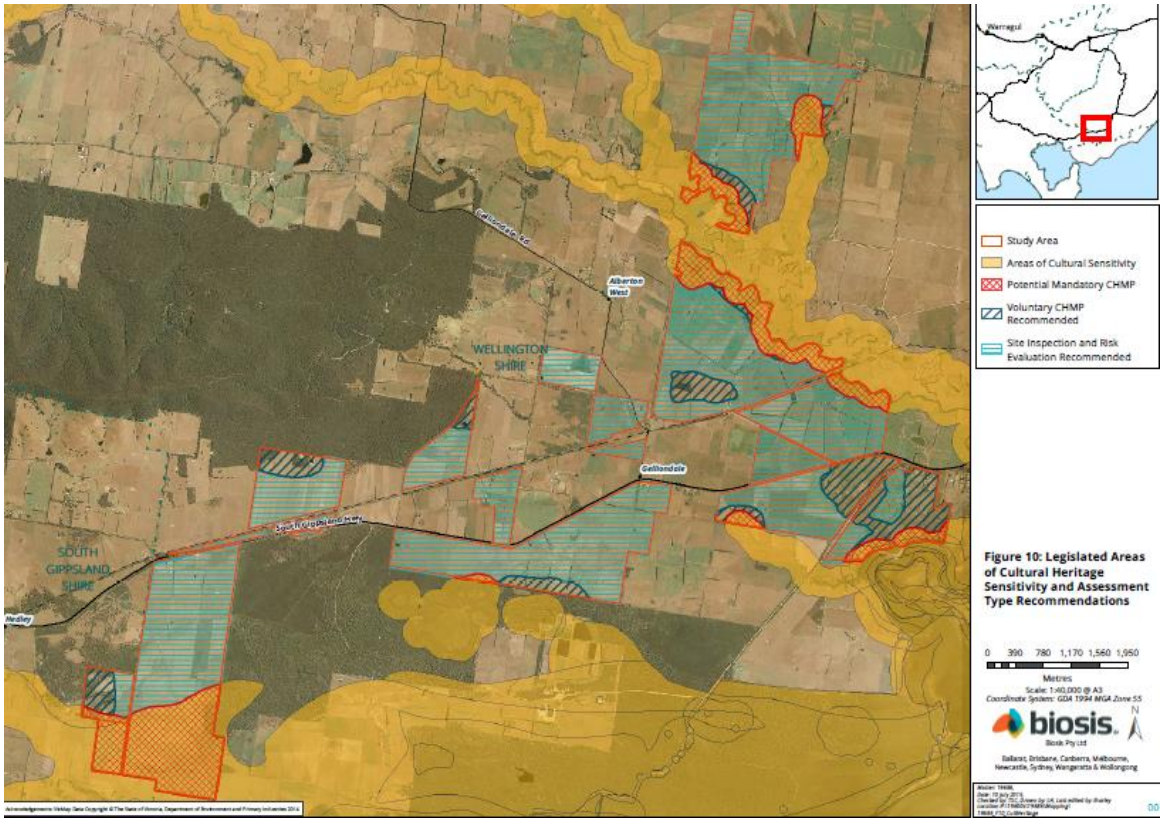


*Figure 18: CHMP Recommendations*

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

Refer to *Cultural Heritage Assessment* (Biosis, 14 September 2017).

## 16. Energy, wastes & greenhouse gas emissions

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

- [x] Electricity network. If possible, estimate power requirement/output …….
- [ ] Natural gas network. If possible, estimate gas requirement/output ……...
- [x] Generated on-site. If possible, estimate power capacity/output …….
- [ ] Other. Please describe.

Please add any relevant additional information.

The Proposed AWEF will generate approximately 393 GWh of electricity per year (which will power approximately 45,383 average households (based on Sustainability Victoria's '*A Guide to Calculating Greenhouse Benefits of Wind Energy Facility Proposals,*' April 2015). A small supply of electricity to the Proposed AWEF is required when the turbines are not operating. This would be supplied by connection to mains power.

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

- [x] Wastewater. Describe briefly.
- [ ] Solid chemical wastes. Describe briefly.
- [x] Excavated material. Describe briefly.
- [ ] Other. Describe briefly.

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

The majority of waste will be generated by the Proposed AWEF during the construction process. The material excavated from the construction of the Proposed AWEF will be re-used on site where possible (e.g. during the construction of the required access tracks). Un-used excavated material will be re-used on site for rehabilitation. There may, however, be small quantities of excavated material to be removed to a licensed landfill facility at the completion of the construction works. The construction areas will have pump out sewage facilities that will involve off-site disposal at an appropriate facility. General refuse generated will be managed as identified in the CEMP to be implemented via Planning Permit conditions. During operation, the Wind Energy Facility will not generate any significant volume of waste.

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

- [x] Less than 50,000 tonnes of $CO_2$ equivalent per annum
- [ ] Between 50,000 and 100,000 tonnes of $CO_2$ equivalent per annum
- [ ] Between 100,000 and 200,000 tonnes of $CO_2$ equivalent per annum
- [ ] More than 200,000 tonnes of $CO_2$ equivalent per annum

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

Non-material levels of CO2 emissions will occur during the construction and operation of the Proposed AWEF through the use of vehicles, plant and equipment.

This generation is significantly offset by the production of clean energy. The Proposed AWEF will result in approximately 390,000 tonnes of CO2 savings per year.

## 17. Other environmental issues

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

- [x] No
- [ ] Yes If yes, briefly describe.

**Aviation**

Aviation impacts from the proposed Wind Energy Facility have been considered in the attached *Aviation Impact Assessment, Alberton Wind Farm* (SGS, 16 December 2015) (**Attachment 11**). The assessment investigated local aircraft movements and locations of nearby airfields, to determine the potential impact on aviation operations of the Proposed AWEF and the need or otherwise for obstacle lighting.

The assessment concluded that the overall risk to aviation operations in the vicinity of the Proposed AWEF is sufficiently low such that the installation of obstacle lights is not necessary, even if the maximum height of the wind turbines were 200m (~656ft).

The report makes a number of recommendations to maintain aviation safety, principally requiring the notification of aviation stakeholders and identifying the wind Energy Facility on aeronautical maps. These recommendations will be followed at the appropriate time, and subject to Planning Permit approval.

**Electro-magnetic Interference**

Potential electro-magnetic interference has been fully considered in the attached *Investigation of Possible Impacts on Broadcasting and Radiocommunications Services* (Lawrence Derrick & Associates, 2016) (**Attachment 11**). The report concludes that for the current turbine layout, no adverse impacts on point to point or omnidirectional radio systems in the area are expected.

- Interference to MF and FM sound broadcasting is not expected as adequate separation is provided. There are no radio sites close enough to the proposed turbine locations to require buffer zones to be specified. The Telstra UHF Link from Yarram to Mt Oberon Lighthouse which appears to operate over-the-horizon may need further consideration for any impact on that links performance.
- Mobile radio and other radiocommunication services in the area are not expected to be impacted by the Proposed AWEF or its operation. Cellular mobile coverage at some

individual locations may be affected but the with the robust nature of the transmission system and with alternative base stations available, acceptable grade of service should be maintained

- TV reception at some dwellings could have some probability of noticeable effects at times. Mitigation methods are available to return reception to at least preconstruction conditions.
- During construction there is no impact on point to point radio links expected due to their remoteness from the Study Area.

The Proponent will notify PMP operators, Commercial Television Station operators in the area and Broadcast Australia for the ABC and SBS, of the Proposed AWEF to enable these organisations to confirm that there are no potential interference issues seen to be relevant to their operations.

It is also proposed to carry out a pre-construction TV reception survey for this project at selected dwellings within 5km to establish a reception baseline of the digital TV environment now existing in the region for comparison with any post construction reception complaints in the area. Mitigation methods are available to return reception to at least preconstruction conditions.

## 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

The Study Area has been chosen because it has excellent characteristics for a high performing wind energy facility but low adverse environmental impacts. The layout included with this EES Referral already incorporates turbine siting and layout design that avoid or minimise environmental impacts. Nevertheless, a micro-siting allowance of 100 metres radius will be sought in the Planning Permit application which will provide for minor adjustments to turbine and access track siting to mitigate any unforeseen effects, such as may result during the finalisation of the Complex Voluntary CHMP (which will be completed as part of the detailed design stage of the Proposed AWEF following the issue of a Planning Permit), to ensure compliance with shadow flicker and noise conditions as outlined on the Planning Permit conditions, or to further achieve improved project efficiencies and avoid / minimise impact on biodiversity (e.g. significant species or habitat).

☒ Design: Please describe briefly

The Proponent is committed to installing modern turbines at the site representing advanced, commercially available wind turbine technology in order to minimise potential noise impacts, whilst maximising the generation of renewable electricity.

The actual area of disturbance associated with the construction and operation of the Proposed AWEF will be optimised for minimal impact pending final major procurement decisions, detailed civil and electrical design and timing of project construction.

☒ Environmental management: Please describe briefly.

A CEMP will be implemented during the construction phase and an Operational Management Plan for the operations phase to monitor and control residual environmental issues associated with the Proposed AWEF. A site specific CEMP will be prepared post Planning Permit approval, incorporating any condition of that permit, as well as the measures as outlined within this referral.

Other environmental management plans (ie erosion control, water/drainage management, etc) may be required as conditions of Planning Permit as outlined throughout this Referral document.

☐ Other: Please describe briefly

## 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.

It is not considered that the proposal will contribute to a cumulative impact.

Whilst there are other wind farms in the region, including the Toora Wind Farm and the Bald Hills Wind Farm, around 15 kilometres and 50 kilometres to the west respectively, the distance between existing and proposed wind farms is considered to have a negligible potential for cumulative impact.

This has been specifically considered in the LVIA. The spatial relationship between the wind farms together with the overall moderate number of wind turbines within each development would also limit the potential for broader sequential visual impacts to occur for people travelling through landscape surrounding the wind farms.

There are no other known major projects in the region that are likely to contribute to any cumulative impacts.

## 20. Investigation program

### Study program

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

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

A complete list of studies for the Proposed AWEF is listed in Part 1 of this referral.

**Has a program for future environmental studies been developed?**

☒ No ☐ Yes If yes, briefly describe.

Environmental surveying is largely complete and the preparation of the voluntary CHMP has commenced. Following the issue of a Planning Permit and selection of a final turbine model, the voluntary CHMP will inform the preparation of detailed Development Plans and the micro-siting of infrastructure. The detailed, final layout identified in the Development Plans will be consistent with the Activity Area for the voluntary CHMP and allow its completion.

In addition to the studies provided in support of this Referral, the following future studies would be undertaken following the issue of a Planning Permit:

- Detailed Noise Assessment on the chosen model including background noise readings;
- Detailed Geotechnical Assessment.

Any additional studies will be confirmed, as necessary, by condition of the Planning Permit along with environmental management plans.

The Proponent is committed to reducing the impact to native vegetation and as a result, further work is proposed to be undertaken to reduce the specific impact to native vegetation removal. Once the design has been confirmed (layout freeze), all environmental reports would be updated to reflect the updated design, consistent with Planning Permit conditions.

### 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.

Consultation activities carried out to-date include:

- Synergy website containing a detailed overview of the proposal and general information about wind energy
- Meetings were held and many residents were contacted during the project definition phase. In June 2014 an information session was held for identified participants and interested neighbours to introduce Synergy Wind and provide information on the planning process required. Questions were answered and follow up contact was made with parties via phone and one on one meetings.
- Once the site area had been defined and planning constraints identified, possible neighbours within 1km of a turbine were contacted. Two group meetings were held in December 2015 and January 2016 where a possible layout was shown, consultant reports were displayed and possible impacts were illustrated and discussed.
- In March 2016 the proponents of Synergy Wind attended the site and met with all available participating landowners.
- On 18 August 2016, Beveridge Williams and Brett Lane & Associates had a pre-referral meeting with the Department of the Environment and Energy, regarding an EPBC Referral.
- Discussions were held with representatives of CASA in October 2016.
- In November 2016 a meeting was held in Traralgon to introduce the Proposed AWEF to various stakeholders, representatives from DELWP Planning, DELWP Environment, DELWP Energy, Environment and Climate Change Group, Regional Development Victoria, VicRoads, Parks Victoria, Wellington Shire Council were all invited.
- In December 2016 a site visit was held, attended by representatives from DELWP and Wellington Shire Council and selected landowners. The Proposed Wind Energy Facility Area and local area was visited.
- An EPBC Referral was lodged with the DoTE on 23 December 2016 a decision notice was received on 30 March 2017 that the proposal was considered a “controlled action”.
- On 2 June 2017 Synergy Wind presented the Proposed AWEF at the LaTrobe Valley New Energy Round table in Churchill. The event was attended by local, State and Federal government, the LaTrobe Valley Authority, local businesses and proponents of the wider new energy industry.

**Has a program for future consultation been developed?**

☐ NYD ☐ No ☒ Yes If yes, briefly describe.

**Pre-Planning Approval Phase - Community Engagement Program**

A Community Engagement Plan is being finalised, and a program of engagement activities will be carried out prior to lodgement of the Planning Permit at the end of August 2017. The engagement activities will include (but not limited to):

- Briefing key economic, social and environmental community stakeholders such as Wellington Shire Elected Members, Community Groups, Latrobe Valley Authority, Local Members of Parliament etc.
- All residents and other stakeholders within 3 kilometres of a proposed turbine will be invited to view information on display at the Yarram District Hub (a community meeting place at 156 Grant Street, Yarram) for two weeks, and attend a Community Information Day at the Hub attended by representatives from Synergy Wind and Beverage Williams Planners. This will take place through the first 3 weeks of August 2017. Feedback will be collected from the Community Information Day via the “Contact Us” form of the Synergy Wind website.

The outcomes of this consultation will be presented with and inform the Planning Permit Application.

**Planning Approval Phase - Public Exhibition of Planning Application**

All Planning Permit documentation will be on public exhibition during the Planning Permit process, available for public review and comment – physically and electronically – via the DELWP website,

and the Wellington Shire website (via a link). Public notices will be placed in the local newspapers and directly affected landholders notified.

**Operation Phase - Community Fund**

A Community Fund will be established by the Proposed AWEF once construction begins that will consist of a committee of local volunteers, active in the community, to evaluate annual submissions for funding for events, projects or groups within the community. The aim of the fund is to ensure the benefits of the Proposed AWEF are distributed across the local community rather than being concentrated with participating land owners.

**Authorised person for proponent:**

I, …Coralie Spitzner……(full name),

…Project Manager……(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature _____

Date

**Person who prepared this referral:**

I, … Bernard Stewart ……(full name),

… Senior Planner ……(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature _____

Date

**Attachment 1** **Proposed AWEF Bounding Points**

**Attachment 2** **Site Context Plan**

**Attachment 3** **Study Area and Proposed Wind Energy Facility Area**

**Attachment 4** **Planning Context Plans**

**Attachment 5** ***Alberton Wind Farm, Flora and Fauna Assessment*** **(Brett Lane & Associates, December 2016)**

**Attachment 6** ***Alberton Wind Farm, Targeted Flora Survey*** **(Brett Lane & Associates, November 2016)**

**Attachment 7** ***Alberton Wind Farm, Bird and Bat Surveys*** **(Brett Lane & Associates, August 2016)**

**Attachment 8** ***Alberton Wind Farm, Shorebird Data Analysis*** **(Brett Lane & Associates, December 2016)**

**Attachment 9** ***Alberton Wind Farm, Additional Information on Matters of National Environmental Significance*** **(Brett Lane & Associates, July 2017)**

**Attachment 10** ***Landscape and Visual Impact Assessment*** **(Green Bean Design Pty Ltd)**

**Attachment 11** ***Aviation Impact Assessment, Alberton Wind Farm (*****SGS Hart Aviation, 16 December 2015)**

**Attachment 12** ***Alberton Vic Wind Farm – Investigation of Possible Impacts on Broadcasting and Radiocommunication Services*** **(Lawrence Derrick & Associates,4 July 2016)**

**Attachment 13** ***Cultural Heritage Assessment*** **(Biosis, 14 September 2017)**

**Attachment 14** ***Preliminary Geotechnical Investigation*** **(Golder Associates, 17 January 2017)**

**Attachment 15** ***Alberton Wind Farm, Noise Assessment*** **(Marshall Day Acoustics, 14 September 2017)**

**Attachment 16** ***Alberton Wind Farm, Predicted noise levels – Alternative Turbine Types,*** **Marshall Day Acoustics (24 July 2017)**

**Attachment 17** ***Alberton Wind Farm, Shadow Flicker and Blade Glint Assessment*** **(DNVGL, 15 September 2017)**

**Attachment 18** ***Preliminary Transport Management Plan*** **(Cardno, 13 October 2016)**

## Attachment 1

## The location of bounding points around the Proposed AWEF

| Order | Longitude | | | | Latitude | | | |
|---|---|---|---|---|---|---|---|---|
| | Degrees | Minutes | Seconds | East/South | Degrees | Minutes | Seconds | East/South |
| 1 | 146º | 37' | 59.7'' | E | 38º | 35' | 2.04'' | S |
| 2 | 146º | 37' | 16.9'' | E | 38º | 35' | 45.6'' | S |
| 3 | 146º | 37' | 20.68'' | E | 38º | 36' | 9.58'' | S |
| 4 | 146º | 38' | 38'' | E | 38º | 36' | 59.36'' | S |
| 5 | 146º | 38' | 32.64'' | E | 38º | 37' | 24.35'' | S |
| 6 | 146º | 39' | 6.34'' | E | 38º | 37' | 33.53'' | S |
| 7 | 146º | 39' | 12.53'' | E | 38º | 37' | 48.04'' | S |
| 8 | 146º | 39' | 8.57'' | E | 38º | 38' | 5.71'' | S |
| 9 | 146º | 37' | 22.69'' | E | 38º | 38' | 42.76'' | S |
| 10 | 146º | 33' | 49.18'' | E | 38º | 38' | 14.71'' | S |
| 11 | 146º | 33' | 48.46'' | E | 38º | 37' | 57.97'' | S |
| 12 | 146º | 32' | 23.17'' | E | 38º | 38' | 4.27'' | S |
| 13 | 146º | 32' | 13.6'' | E | 38º | 39' | 31.61'' | S |
| 14 | 146º | 32' | 8.3'' | E | 38º | 39' | 59.76'' | S |
| 15 | 146º | 31' | 33.28'' | E | 38º | 39' | 55.44'' | S |
| 16 | 146º | 30' | 56.95'' | E | 38º | 39' | 46.15'' | S |
| 17 | 146º | 30' | 51.48'' | E | 38º | 39' | 21.96'' | S |
| 18 | 146º | 30' | 52.78'' | E | 38º | 39' | 12.85'' | S |
| 19 | 146º | 30' | 54.65'' | E | 38º | 38' | 59.46'' | S |
| 20 | 146º | 31' | 33.85'' | E | 38º | 38' | 8.92'' | S |
| 21 | 146º | 31' | 37.13'' | E | 38º | 38' | 5.71'' | S |
| 22 | 146º | 32' | 28.43'' | E | 38º | 37' | 55.85'' | S |
| 23 | 146º | 32' | 35.48'' | E | 38º | 37' | 20.86'' | S |
| 24 | 146º | 34' | 3.47'' | E | 38º | 37' | 24.53'' | S |
| 25 | 146º | 34' | 42.24'' | E | 38º | 36' | 48.42'' | S |
| 26 | 146º | 35' | 13.88'' | E | 38º | 36' | 52.6'' | S |
| 27 | 146º | 35' | 18.85'' | E | 38º | 36' | 36.07'' | S |
| 28 | 146º | 35' | 43.37'' | E | 38º | 36' | 8.32'' | S |
| 29 | 146º | 35' | 56.62'' | E | 38º | 35' | 20.33'' | S |
| 30 | 146º | 36' | 44.71'' | E | 38º | 35' | 1.18'' | S |
| 31 | 146º | 36' | 54.07'' | E | 38º | 34' | 23.59'' | S |
| 32 | 146º | 37' | 9.08'' | E | 38º | 34' | 4.08'' | S |
| 33 | 146º | 37' | 20.35'' | E | 38º | 34' | 5.66'' | S |
| 34 | 146º | 38' | 22.34'' | E | 38º | 34' | 31.58'' | S |
| 35 | 146º | 38' | 21.08'' | E | 38º | 34' | 37.31'' | S |