

Yass Valley *Wind Farm*

Preferred Project & Submissions Report

May 2014



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Preferred Project & Submissions Report | May 2014

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Rev 3

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1 Introduction

1.1 Background

The Yass Valley Wind Farm proposal is for the development of a wind farm in the Southern Tablelands region of NSW, approximately 30 km west of Yass and around 300 km west of Sydney. An application for the proposal was lodged with the NSW Planning & Infrastructure in December 2008. The Director General's Requirements were issued to the proponent to guide the work required in assessing the proposed wind farm. Detailed assessment of the proposal have been completed between 2008 and 2014 to demonstrate compliance with these requirements.

The final revision of the Environmental Assessment (EA) for the Yass Valley Wind Farm, which addressed the issues raised in the Director General's Requirements, was lodged in November of 2009 and placed on exhibition by NSW Planning & Infrastructure. Twenty two submissions were received in response to the exhibition of the Environmental Assessment of the wind farm.

A Preferred Project Report (PPR) was lodged on 30 November 2012 and publically exhibited for a statutory period. Seventeen submissions were received in response to the exhibition of the PPR.

1.2 Purpose of this Report

This revised Preferred Project & Submissions Report (PP&SR) provides the preferred wind farm infrastructure layout and responds to each of the submissions to the exhibited Preferred Project Report.

At the request of NSW Planning and Infrastructure, the format, and in some cases the content, of responses to the submissions to the EA have been updated and are included in Attachment 22.

1.3 Project Development to Date

The Yass Valley Wind Farm began development in 2008. Originally including three precincts – Coppabella, Marilba and Carrolls Ridge, the Department of Environment and Heritage raised concerned about the potential for impacts to threatened species at the Carrolls Ridge precinct. As a result the Carrolls Ridge precinct was uncoupled and the Yass Valley Wind Farm has proceeded through planning with two precincts. The project went on public exhibition in November 2009.

In December 2009 the project was acquired by Origin Energy and in July 2012 Epuron acquired it back from Origin Energy and continued to progress the project through planning. Some changes to the project were made including the addition of a 330kV transmission connection and changes to turbine locations. In November 2012 the Preferred Project Report, which responded to submissions made to the Environmental Assessment and assessed the effects of the project changes, was lodged. It went on public exhibition from December 2012 to March 2013. Since then NSW Planning & Infrastructure have sought agency comment on a number of queries all of which are addressed in this Preferred Project and Submissions Report.

A full chronology of the project development steps to date is listed in Table 1-1.

Table 1-1 Timeline of the Yass Valley Wind Farm project Development

| Date | Action |
|----------------|--|
| October 2008 | Planning Focus Meeting for agencies to visit the proposed site |
| October 2008 | Yass Valley Wind Farm confirmed as Major Project |
| December 2008 | Project Application lodged with Department of Planning and Infrastructure (DPI) for 3 precinct wind farm – Coppabella, Marilba and Carroll's Ridge |
| January 2009 | Director General's Requirements issued to guide the preparation of the Environmental Assessment |
| May 2009 | Environmental Assessment lodged with DPI but potential for impacts to endangered bats at Carroll's Ridge deemed not acceptable so this precinct was removed from the current application |
| November 2009 | Environmental Assessment (Coppabella and Marilba precincts) lodged with DPI |
| Nov - Dec 2009 | Exhibition of Environmental Assessment |
| November 2009 | Newsletter to community advising of exhibition and Open House consultation event |

| <i>Date</i> | <i>Action</i> |
|----------------------|---|
| December 2009 | 15 public and 7 agency submissions received in response to exhibition of the EA |
| December 2009 | Origin Energy acquired the project from Epuron |
| July 2012 | Epuron acquired the project back from Origin Energy |
| August 2012 | Newsletter to community advising that Epuron is again progressing the wind farm and setting up the Community Consultation Committee |
| August 2012 | DPI advise sunset date of 30 November 2012 for lodgement of EA for part 3A projects |
| November 2012 | Preferred Project Report lodged with NSW Planning & Infrastructure |
| Dec 2012 to Mar 2013 | Exhibition of Preferred Project & Submissions Report (PP&SR) |
| Dec 2012 | Newsletter to community advising of exhibition of Preferred Project & Submissions Report |
| May 2013 | 8 public and 9 agency submissions received in response to exhibition of the PP&SR |
| July 2013 | Revised PP&SR which responded to submissions to the PP&SR received in May 2013. Further agency comments provided to Epuron for response |
| December 2013 | Preferred Project and Submissions Report lodged with NSW Planning & Infrastructure |
| January 2014 | Additional copies of PP&SR requested to send to agencies, provided by Epuron |
| March 2014 | NSW Planning & Infrastructure request further information |
| May 2014 | Final PP&SR lodged with NSW Planning & Infrastructure |

The project parameters have changed since the exhibition of the EA (2009) up until this report as shown in Table 1-2.

Table 1-2 Changes to the project during development

| <i>Detail</i> | <i>Exhibited Environmental Assessment November 2009</i> | <i>Exhibited Preferred Project Report November 2012</i> | <i>Current Preferred Project & Submissions Report May 2014</i> |
|---|---|---|--|
| Number of wind turbines | 152 | 148 | 144 |
| Length of high voltage overhead powerline | >75 km | 25 km (up to 330kV) or 22 km (132kV) | 25 km (up to 330kV) or 22 km (132kV) |
| Number of site substations | 6 | Up to 2 | Up to 2 |
| Maximum tip height | 150 | 150 | 150 |

1.4 Structure of this Report

This revised PP&SR supplements the EA and includes the following sections:

- ▶ Section 2 Description of Preferred Project for which the proponent is seeking approval
- ▶ Section 3 Response to submissions on the PP&SR exhibited in 2013
- ▶ Section 4 Updated project benefits
- ▶ Section 5 Updated planning context
- ▶ Section 6 Updated community consultation details
- ▶ Section 7 Updated environmental assessments
- ▶ Section 8 Details of previous changes to the project layout
- ▶ Section 9 Revised Statement of Commitments

2 Preferred Project

2.1 Preferred Project Description

The proposed wind farm includes:

Wind turbines

- ▶ Up to 144 wind turbines located within the Coppabella and Marilba precincts, potentially constructed in stages. Each wind turbine consists of three blades, a rotor hub and nacelle mounted on a tubular steel tower together with the associated turbine foundation, turbine transformer and crane hardstand area.

Grid Connection

The preferred 330kV grid connection option for the wind farm will consist of:

- ▶ A 330kV switchyard enabling the connection of the wind farm to TransGrid's existing Yass to Lower Tumut 330kV transmission line located to the south. The switchyard will incorporate an auxiliary services building and a nearby microwave tower to provide communications to TransGrid's operational control centre (seen Attachment 19 for indicative layout).
- ▶ A high voltage (up to 330kV) pole mounted transmission line approximately 25km long to connect the switchyard to the substations on the wind farm site. The easement would be 45m wide.
- ▶ Two substations on the wind farm site, one for the Coppabella precinct and one for the Marilba precinct. An option of a single substation located between the Coppabella and Marilba precincts is also being considered.

The alternative 132kV grid connection option for the wind farm will consist of:

- ▶ A 132kV switchyard enabling the connection of the wind farm to TransGrid's existing Murrumburrah to Yass 132kV transmission line. The switchyard will incorporate an auxiliary services building and a nearby microwave tower to provide communications to TransGrid's operational control centre. Four possible locations for the switchyard have been identified.
- ▶ A high voltage (up to 132kV) pole mounted transmission line to connect sections of the wind farm to the switchyard.
- ▶ Up to two substations on the wind farm site.

Ancillary Works

- ▶ A medium voltage electrical reticulation network of above ground and underground cabling to connect the individual wind turbines to the site substations
- ▶ Internal site access tracks and minor upgrades to existing public roads to allow the delivery of the wind turbine components and other equipment
- ▶ A permanent operation and maintenance facility including offices, facilities, car parking and equipment storage
- ▶ Up to five permanent wind monitoring masts. Refer to Attachment 17 for indicative locations and coordinates.

Temporary Construction Works

- ▶ Temporary construction facilities including offices, facilities, car parking, equipment laydown area and a concrete batching plant. Refer to Attachment 19 for indicative layouts of substation and ancillary works.

The map on the following page shows the preferred project infrastructure layout. An A1 size version of the map is included in Attachment 24.

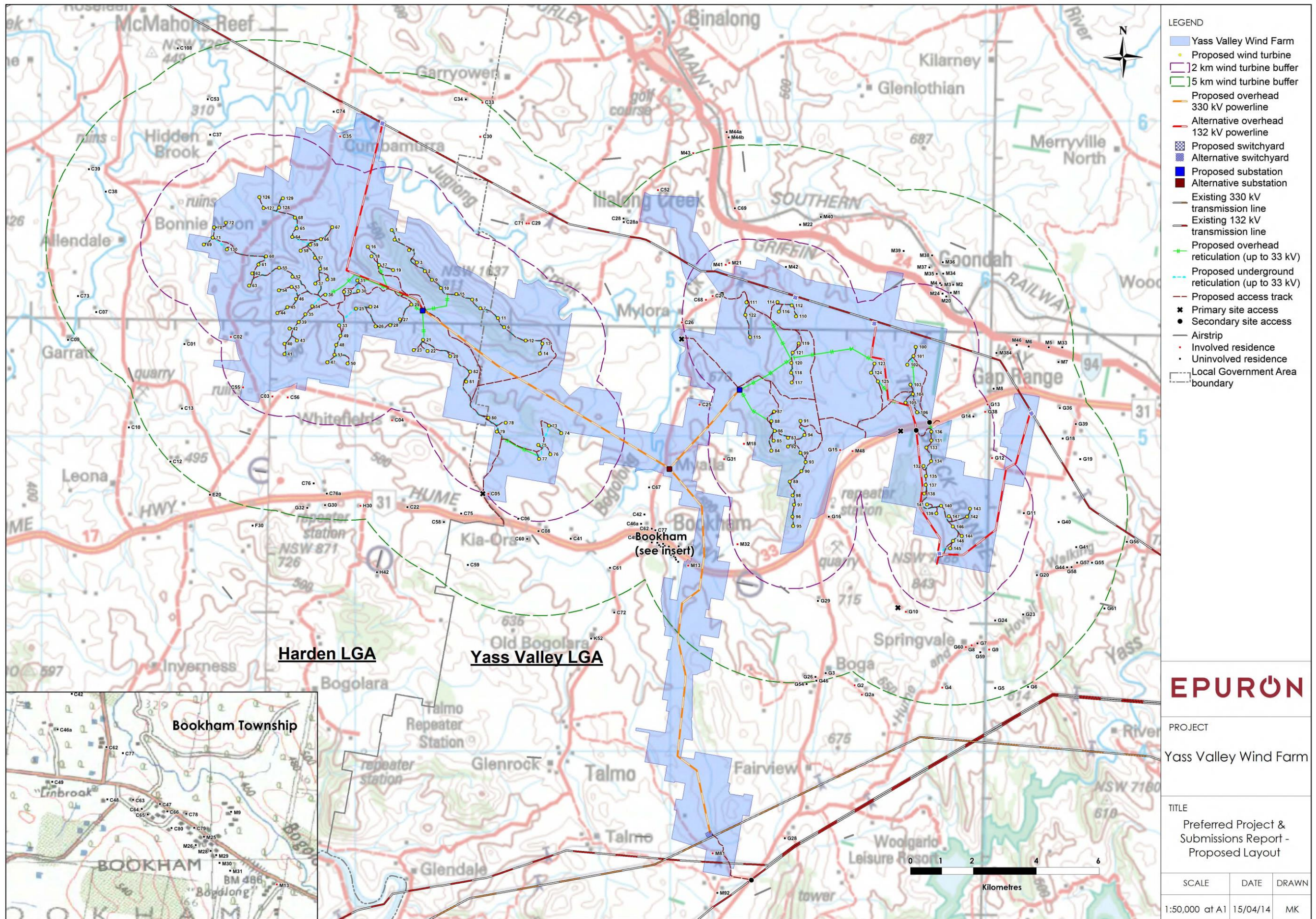


Figure 2-1 Preferred project & submissions report layout (see Attachment 24 for A1 size map)

2.2 Changes to Infrastructure Layout since November 2012

A number of minor changes to the infrastructure layout have been made since the exhibition of the Preferred Project Report (dated Nov 2012). These changes have been made in response to submissions and comments on the project and minimise both the overall and localised environmental impacts of the project. Table 2-1 lists the changes.

Table 2-1 Changes that minimise the environmental impact

| | <i>Change</i> | <i>Impact of change</i> | <i>Environmental impacts minimised</i> |
|----|---|--|--|
| 1. | Deletion of wind turbine 113 and associated access track and cabling at the northern end of the Marilba precinct | Reduced visual impact and reduced noise impact on new residence M42 | Yes |
| 2. | Deletion of wind turbines 107, 108 & 109 and associated access tracks and cabling on the western side of the Marilba precinct | Reduced visual impact and reduced noise impact on residence C25 | Yes |
| 3. | Micro-siting of wind turbines 9, 15, 144, 80, 83, 89 & 110 to avoid potential blade overhang over Crown roads (unformed paper roads). Refer response to NSW Trade & Investment Crown Lands submission for further details | Avoidance of blade overhang over Crown roads | Yes |
| 4. | 330kV transmission line moved approximately 230 m east at Hume Highway crossing. | Reduced visual impact for residence M13 and other Bookham residences and reduced biodiversity impact (Box Gum Woodland) on northern side of Hume Highway | Yes |
| 5. | 330kV switchyard moved approximately 520 m west at grid connection point | Reduced biodiversity impact (Box Gum Woodland derived grassland) | Yes |

The exhibited PPR (Nov 2012) included changes to the project infrastructure layout compared to the EA exhibited earlier. A summary of these earlier changes and how the overall project environmental impacts were minimised can be found in section 8 of this Preferred Project & Submissions Report.

2.3 Wind Turbine Selection

The turbine supplier and specific turbine model for the project has not been selected at this stage in the project development. The maximum blade tip height proposed is 150 m above ground level and any turbine selected would meet this maximum tip height limit, although the hub height and rotor diameter could vary within this maximum limit. Each wind turbine would have a rated capacity of between 1.5 and 3.6 MW.

For the noise assessment, two turbine models have been considered. The Vestas V90 3MW with an 80m hub height has been used to provide a worst-case noise impact and the REpower MM92 2.05MW with an 80m hub height has been used to provide a representative noise impact.

For the visual impact assessment and photomontages a turbine with 100m diameter rotor on a 100 hub height has been used to provide a representation of the maximum 150m tip height.

Table 2-2 Proposed wind turbine parameters

| <i>Wind turbine parameter</i> | |
|-------------------------------|--------------|
| Maximum tip height | 150m |
| Typical rotor diameter | 80 – 112m |
| Typical hub height | 78 – 100m |
| Typical rated capacity | 1.5 – 3.6 MW |
| Maximum wind farm capacity | 518.4 MW |

3 Exhibition of the Preferred Project Report

3.1 Public Exhibition

The Yass Valley Wind Farm Preferred Project Report was submitted to NSW Planning & Infrastructure on 30 November 2012. The report addressed the submissions received during the earlier exhibition of the Environmental Assessment and highlighted the changes made to the project infrastructure layout as a result of those submissions. NSW Planning & Infrastructure placed the Preferred Project Report on public exhibition from 14 December 2012 to 1 March 2013 at the following locations:

- ▶ NSW Department of Planning, 23-33 Bridge St, Sydney;
- ▶ Nature Conservation Council, 301 Kent St, Sydney;
- ▶ Yass Valley Council office, Yass;
- ▶ Harden Shire Council office, Harden;
- ▶ Binalong Post Office, Binalong; and
- ▶ On the NSW Planning & Infrastructure website.

3.2 Submissions Received

Seventeen submissions were received in response to the exhibition of the Preferred Project Report, eight from individuals and nine from government agencies.

Note that submissions received from the 2009 exhibition of the EA and updated responses to those submissions based on the current project status can be found in Attachment 22.

3.3 Summary of Issues Raised by Submissions

The issues raised in each submission have been summarised and tabulated in the table on the following page to identify the most frequently and infrequently raised issues.

All of these submissions have been considered and addressed in section 3.4 and 3.5 of this updated Preferred Project & Submissions Report.

Table 3-1 Summary of Submissions to the Preferred Project Report

| Submission Number | Visual Impacts | Operational Noise | Biodiversity Impacts | Heritage Impacts | Consultation/ community | Property Value Impact | Health Impacts | Fire Hazards | Aviation Impacts | Traffic Impacts | Soil Erosion | Decommissioning |
|--------------------------------------|----------------|-------------------|----------------------|------------------|-------------------------|-----------------------|----------------|--------------|------------------|-----------------|--------------|-----------------|
| Submissions from public | | | | | | | | | | | | |
| 1 | ■ | | ■ | | ■ | ■ | ■ | ■ | ■ | | | |
| 2 | ■ | | | | | ■ | ■ | | | | | |
| 3 | ■ | ■ | ■ | | | ■ | ■ | | ■ | | | |
| 4 | | | ■ | | ■ | | ■ | | | | | |
| 5 | ■ | | ■ | | ■ | | | | | | | |
| 6 | ■ | | | | | | ■ | ■ | ■ | | | |
| 7 | ■ | | | | ■ | ■ | ■ | | | | | |
| 8 | ■ | | | | ■ | ■ | | | | | ■ | ■ |
| Submissions from government agencies | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | ■ | | | |
| 11 | | ■ | | | | | | | | | | |
| 12 | | | | | | | | | | ■ | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | | | ■ | ■ | | | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | | | ■ | | |

3.4 Response to Public Submissions

3.4.1 Mark Glover, Bogolará (5.9 km from nearest turbine)

| Submission Issue/Comment | Proponents Response |
|--|---|
| Supplementary LVIA Section 6.1.4 Views from residential dwellings - The visual impact will be high and very significant. | Section 6 of the supplementary LVIA addresses the cumulative visual impact of the proposed Yass Valley Wind Farm together with other proposed, approved and existing wind farms in the vicinity. The assessment identifies simultaneous views of the proposed Yass Valley Wind Farm and the approved Conroy's Gap Wind Farm, particularly for residential properties located to the east and west of the Conroy's Gap Wind Farm. The assessment concludes that the additional visual impact from the Yass Valley Wind Farm will be relatively low in comparison to the level of impact from the approved Conroy's Gap wind farm. No Conroy's Gap wind turbines will be visible from the Glover residence. |
| Section 6.2 Overall cumulative impact is clearly incorrect and should be discounted | Cumulative impact assesses locations from which multiple wind farms can be seen. Conroy's Gap wind farm cannot be seen from Talbaragar so there is visual impact from Yass Valley Wind Farm but not cumulative impact from multiple wind farms from this residence. |
| Section 7.2 is also incorrect as approval ratings are falling not increasing as stated | The assessment <i>Community Attitudes to Wind Farms in NSW</i> (DECCW 2010) showed strong and increasing support for wind farms. |
| Section 7.3 This statement is also incorrect. 148 turbines must have a high cumulative impact | The wind farm comprising of 144 turbines is a large development, however it is located at a sufficient distance away from other wind farm projects that there won't be any cumulative visual impact other than with the adjacent Conroy's Gap Wind Farm. The assessment of visual impact considers more than just the number of wind turbines that may be visible. Refer to section 1.4 of the supplementary LVIA for further details on the methodology. |
| Section 8. The statement that 'the proposed Yass Valley Wind Farm will have a generally low visual impact on it surrounds, and that the site is a suitable landscape for the construction of a wind farm is clearly ludicrous and plainly wrong. | The conclusion of the LVIA is supported by the assessment which was carried out by qualified landscape architects with significant experience in assessing the visual impact of wind farms. The assessment was carried out in accordance with the Director Generals Requirements and associated guidelines and in accordance with best industry practice. The area has a low density of residential dwellings and current land use is predominantly for agricultural production. |
| The area is already in a high bush fire risk zone, these wind farms will only increase that risk. | The wind farm will not change the risk of bush fires in the area. Consultation with the RFS has confirmed that the proposed wind farm access tracks will significantly improve the access for the RFS and help with the management of any bush fire. |
| Furthermore property values will decline. | <p>The main finding in a report prepared for the NSW Valuer General in August 2009 was that "wind farms do not appear to have negatively affected property values in most cases."</p> <p>The value of a property is made up of a myriad of considerations and not only includes proximity to wind turbines but also to other infrastructure, the potential use of the property and any improvements.</p> <p>It is possible to find real estate agents who consider there is an impact and those who consider there is not an impact. However, it is objective studies that provide the basis for sound consideration of this matter and numerous studies conclude that wind farms do not have any discernible impact on property values.</p> <p>Studies include those by Hinman – 3,851 sales over 9 years, Carter – 1,298 sales over 13 years and the 2013 study by Lawrence Berkeley National Laboratory which examined 51,276 sales of homes within 10 miles of 67 different wind farms. This study concluded "we find no statistical evidence that home values near turbines were affected in the post-construction or post-announcement/pre-construction periods".</p> <p>It is important to remember that the issue of impacts to property values was considered in the 2007 Land and Environment Court ruling in the Taralga Landscape Guardians challenge to the approval of the Taralga Wind Farm. This decision states:</p> |

| Submission Issue/Comment | Proponents Response |
|---|---|
| | <p><i>“If the concepts of blight and compensation, as pressed by the Guardians, were to be applied to this private project (a proposition which I reject) than any otherwise compliant private project which had some impact in lowering the amenity of another property (although not so great as to warrant refusal on general planning grounds ...) would be exposed to such a claim.</i></p> <p><i>Creating such a right to compensation (for creating such a right it would be) would not merely strike at the basis of the conventional framework of land use planning but would also be contrary to the relevant objective of the Act, in s 5(a)(ii), for “the promotion and co-ordination of the orderly and economic use and development of land”.</i></p> |
| <p>Farming will be impacted as aerial operations are reduced.</p> | <p>The aeronautical assessment (Attachment 11) concluded that the location of individual wind turbines will not impact aerial agricultural operations. The EA for the nearby Collector Wind Farm noted “that crop spraying has been ongoing within 1km of the Cullerin Range Wind Farm with few impacts to operations.”</p> |
| <p>The local community is clearly against this development.</p> | <p>The proponent acknowledges that there are some individuals in the community who do not support the wind farm, but there are also significant numbers of people in the community who do recognise the benefits of the project and do support the project.</p> |
| <p>EA Section 6.2 Community Consultation</p> <p>This section is totally wrong as Epuron did not consult widely with the community, newsletters were primarily delivered to potential hosts. Face to face meetings with neighbouring landholders did not take place.</p> | <p>Newsletters were delivered to both the involved and non-involved residents around the wind farm. Refer to section 6.3 of this report for more details of meetings and correspondence with the owners of all residences within 5km of the wind farm.</p> |
| <p>EA Section 7.4 Flora and Fauna</p> <p>This section completely fails to address the adverse impact on the raptor population and also fails to address the impact on the local bent wing bat population.</p> | <p>The assessment of the potential impacts on bird and bat species recorded on the site can be found in section 6.2.2 (pages 96 -98) and 6.3 (pages 100 – 102) of the Coppabella Biodiversity Assessment and in section 6.2.2 (pages 57 – 60) and 6.2.3 (pages 60 – 62) of the Marilba Biodiversity Assessment (pages 57 – 62). In addition Appendix 3.3 to the EA has a more detailed assessment of wind farm risks to birds and microbats.</p> |
| <p>EA Section 7.7 Aircraft Hazard Impacts</p> <p>A comment is made that “Due to the current land use of the proposed wind farm site, potential impacts to Ariel spraying of agricultural areas are considered negligible” this statement is absolute nonsense, on the map in this section there are 3 landing strips marked, these are not for private jets but for agricultural aircraft movement primarily for fertilizer application as well as for herbicide use.</p> | <p>The aeronautical impact assessment (Attachment 11) included consultation with the operator (Ted McIntosh of Yass Air) utilising the air strip on Bogolara. The assessment concluded that the location of the wind farm and its individual turbines will not impact on the safety of aerial agricultural operations. See also section 7.9 of this report which confirms that the wind farm will not have any impact on the operation of any of the identified airstrips in the vicinity of the wind farm.</p> |
| <p>EA Section 7.11 Fire and Bushfire Impacts</p> <p>There is no mention in this section that aerial fire fighting will not be able to occur. Aircraft will not operate within 1km of a turbine and up to 10km downwind. Aircraft were a huge help to the recent Cobbler Rd fire, however there help will in future be absent once these turbines are</p> | <p>Epuron wrote to the NSW Rural Fire Service to ask how they viewed the presence of wind farms when fighting fires on the ground or from the air. The August 1, 2013 response from the Assistant Commissioner noted:</p> <p>On the ground...</p> <p><i>“...fire moving across the area of a wind farm is generally managed in the same way as any other bush fire. Fire fighting strategies by ground-based resources would continue and be subject to prevailing weather and topographic conditions. “</i></p> <p>And from the air...</p> <p><i>“...aircraft would avoid wind turbines in the same manner as they avoid other</i></p> |

| Submission Issue/Comment | Proponents Response |
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| built. | <i>obstructions, such as power lines."</i> |
| <p>EA Section 8.4 Land Value Impacts</p> <p>Recent research shows that land values fall by on average 30% for properties close to wind turbines. In both the UK and Victoria councils have had to reduce their rates due to falling land values. The research papers Epuron has sited in this section are all dated and not relevant to the Yass valley proposal.</p> | <p>The main finding in a report prepared for the NSW Valuer General in August 2009 was that <i>"wind farms do not appear to have negatively affected property values in most cases."</i></p> <p>The value of a property is made up of a myriad of considerations and not only includes proximity to wind turbines but also to other infrastructure, the potential use of the property and any improvements.</p> <p>It is possible to find real estate agents who consider there is an impact and those who consider there is not an impact. However, it is objective studies that provide the basis for sound consideration of this matter and numerous studies conclude that wind farms do not have any discernible impact on property values.</p> <p>Studies include those by Hinman – 3,851 sales over 9 years, Carter – 1,298 sales over 13 years and the 2013 study by Lawrence Berkeley National Laboratory which examined 51,276 sales of homes within 10 miles of 67 different wind farms. This study concluded <i>"we find no statistical evidence that home values near turbines were affected in the post-construction or post-announcement/pre-construction periods"</i>.</p> <p>It is important to remember that the issue of impacts to property values was considered in the 2007 Land and Environment Court ruling in the Taralga Landscape Guardians challenge to the approval of the Taralga Wind Farm. This decision states:</p> <p><i>"If the concepts of blight and compensation, as pressed by the Guardians, were to be applied to this private project (a proposition which I reject) than any otherwise compliant private project which had some impact in lowering the amenity of another property (although not so great as to warrant refusal on general planning grounds ...) would be exposed to such a claim.</i></p> <p><i>Creating such a right to compensation (for creating such a right it would be) would not merely strike at the basis of the conventional framework of land use planning but would also be contrary to the relevant objective of the Act, in s 5(a)(ii), for "the promotion and co-ordination of the orderly and economic use and development of land"</i>.</p> |
| <p>EA Section 8.10 Health and Safety</p> <p>There is widespread and growing anecdotal evidence of severe health effects occurring in people living up to 10kms from wind turbines. There is no mention of this in this section, this section needs to be completely rewritten taking into account the most recent research and observations.</p> | <p>The National Health and Medical Research Council (NHMRC), the peak national body for research in Australia, issued a <i>Public Statement: Wind Turbines and Health - July 2010</i> stating that there was no published scientific evidence to positively link wind turbines to adverse health effects. This is the most relevant document to reference as it is impartial, expert and considered. It is understood this document is likely to be updated as more independent reports are published.</p> <p>The application of stringent noise criteria as demanded by the <i>Draft NSW Planning Guidelines: Wind Farms</i> provides a precautionary approach to health issues suggested to result from wind farm noise.</p> <p>A very small number of people in Australia have anecdotally reported that they believe that wind turbines are making them ill. The list of symptoms described is long and all are present in the broader community including in areas not near a wind farm and there is no evidence to link the symptom, however real, to wind turbines. Simon Chapman, Professor of Health at UNSW, offers one explanation for ill health suffered by people living near a wind farm who believe the wind farm is causing their ill health is – that some of these cases could be as a result of the "nocebo" effect which has proven that some people who believe that something is making them ill can actually make themselves ill. They suffer a real illness even though there is no physical cause.</p> <p>Consistent with the NHMRC and Professor Chapman, the September 2013 Planning Assessment Commission Determination Report for Bodangora Wind Farm near Wellington notes that "NSW Health also made it clear that noise levels at distances of more than one km from the turbines would not cause health impacts and the 2 km buffer provided in this instance is highly precautionary". The Victorian Department of Health has issued fact sheets on noise and health (http://www.health.vic.gov.au/environment/windfarms.htm) (Vic Health, 2013).</p> |

| Submission Issue/Comment | Proponents Response |
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| | <p>The Australian Medical Association released a statement in 2014 that “The available Australian and international evidence does not support the view that the infrasound or low frequency sound generated by wind farms, as they are currently regulated in Australia, causes adverse health effects on populations residing in their vicinity. The infrasound and low frequency sound generated by modern wind farms in Australia is well below the level where known health effects occur, and there is no accepted physiological mechanism where sub-audible infrasound could cause health effects” (AMA, 2014)</p> |
| Aerial Issues | <p>The Aerial Agriculture Association of Australia has recommended that its members do not fly in areas with wind turbines.</p> <p>The AAAA policy (March 2011) includes the following statements:</p> <ul style="list-style-type: none"> • AAAA opposes all wind farm developments in areas of agricultural production or elevated bushfire risk. • While it is not AAAA policy to provide specific comments on particular development proposals due to resource limitations, AAAA notes that wind farms can have far-reaching footprints that can remove significant amounts of land from treatment for a considerable distance from the wind farm boundary. <p>The AAAA does not specifically recommend that its members do not fly in areas with wind turbines and no attempt has been made to quantify the reference to “a considerable distance.”</p> <p>The aerial risk is not solely with aircraft coming in direct contact with the wind towers but with the turbulence created by large arrays of these turbines. This effect on the air can extend over 20 km downwind of turbines.</p> <p>Studies indicate that levels of turbulence that are capable of posing a hazard to aviation will not be present at more than a few rotor diameters downwind of a turbine, were turbulence is found to reduce to ambient levels (Smedman et al, 2003). The EA for the nearby Collector Wind Farm noted “that crop spraying has been ongoing within 1km of the Cullerin Range Wind Farm with few impacts to operations” and that “The operator indicated that the main cause of turbulence in the locality was topography rather than the wind farm.”</p> <p>The chief pilot of Yass Air, Ted McIntosh, has stated that if the Yass Valley wind farm is constructed then he would be unable to spread super phosphate at Talbragar due to wind turbulence.</p> <p>Despite meeting with Mr McIntosh, Epuron has not been able to establish the details of why he believes this is the case.</p> <p>The dangers to aircraft operating near wind turbines are significant with a number of accidents and fatalities being recorded overseas.</p> <p>There are no known fatalities as a result of aircraft operating near wind turbines either in Australia or overseas.</p> <p>Should the proposal be approved then the NSW Department of Planning must address the issue of compensation to affected farmers</p> <p>The SSD draft standard conditions: wind farms, item C14 states that “Should increases to the costs of aerial agricultural spraying on any non-associated property surrounding the site be attributable to the operation of the Development, the Applicant shall fully fund to the affected landowner, the cost difference between current aerial agricultural spraying and the increased cost.”</p> <p>It is expected that this will be a condition of approval for the Yass Valley Wind Farm.</p> |

3.4.2 Dr Mary Ann Robinson, Bookham (3.3km from nearest turbine)

| Issue/Comment | Response |
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| The Company Epuron in relation to any developments has never contacted me; I have recently made efforts of my own to make contact | The project proponent (Origin Energy at the time) held meetings with Dr Robinson on 25 March 2010 and on 19 May 2010. Epuron has also more recently visited the Robinsons’ and provided written responses to address the specific queries raised. |

| <i>Issue/Comment</i> | <i>Response</i> |
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| and have received vague answers to the date of construction etc. | |
| I submit that the company assessment is patently incorrect and deliberately confusing in its language and the assessment regarding the visual and overall cumulative visual impact on the residents. | Cumulative impact assesses locations from which multiple wind farms can be seen. Conroy's Gap wind farm cannot be seen from the Robinson residence. There is visual impact from Yass Valley Wind Farm but not cumulative impact from multiple wind farms at this residence. |
| Therefore I write on behalf of myself and my husband from ground zero of the proposed wind farm to object in the strongest terms to its construction on the grounds that it will have a severe and detrimental effect on our lives via its high visual impact, the destruction of the night sky with aircraft lighting, the reduction in the valuation of our property, the as yet unknown and untested health risks of these turbines, and the lack of clear and professional assessment of the environment if it is based on the above document which I have read in its entirety. | <p>The overall visual impact at this residence has been assessed as medium from the living areas and high from the garden. See section 5.5.4 (page 45) of the supplementary LVIA (Attachment 5) for more details.</p> <p>The installation of obstacle lighting is not currently proposed for the wind farm. The CASA Advisory Circular AC 139-18 in relation to Obstacle Marking and Lighting of Wind Farms has been withdrawn and wind farms that have previously operated red flashing obstacle lighting have now turned these off permanently.</p> |

3.4.3 Tony & Barbara Folkard, Bowning (approximately 8km away)

| <i>Issue/Comment</i> | <i>Response</i> |
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| <p>Landscape and Visual Impact Assessment</p> <p>Our concern that your assessment does not appear to recognise the widespread visual impact from 148 massive towers 150m high, over productive farming land and you appear more concerned with the impact the Yass Valley Wind Farm will have on tourism and traveller amenity.</p> <p>We also disagree with the statement that the "likely cumulative visual impact is probably low from residential dwellings where towers will have a dominant effect on the landscape". Everyone but the host farmers are horrified at your insensitive and arrogant assessment.</p> | <p>The installation of the wind farm only requires a small part of the productive farming land and will not prevent the landowner from continuing to farm the land.</p> <p>The supplementary landscape and visual impact assessment has considered the visual impact of the proposed wind turbines from publically accessible viewpoints, sequential viewpoints (highways) as well as from individual residences in the vicinity of the wind farm.</p> <p>There are a limited number of residential locations that will be able to see turbines from both the Conroy's Gap and Yass Valley Wind Farms. Many of these dwellings are well screened by existing vegetation, thus the cumulative impact from both wind farms is low.</p> <p>The most effected residential properties will be those that are located immediately to the east and west of the Conroy's Gap Wind Farm where residents may be able to see Conroy's Gap wind turbines while viewing in one direction and then the Yass Valley wind turbines when viewing in another. This potential panorama would be greater for residents to the west of Conroy's Gap Wind Farm. Residents, especially to the west of Conroy's Gap Wind Farm, may have a larger panorama of wind turbines than would be the case if only one wind farm was visible. Therefore there could be a cumulative visual impact. The previous assessment has shown that houses are well screened by existing vegetation. Therefore the probability of residential properties being able to see this enlarged panorama of wind turbines is low. The combination of few effected residential properties and this existing vegetation would lead to the conclusion that the likely cumulative visual impact caused by this increased panorama from residential properties immediately to the east and west of Conroy's Gap Wind Farm is low. If there are residential properties without existing screening vegetation that are within 3km of Conroy's Gap Wind Farm and are also within 3km of Yass Wind farm, then these properties could be offered landscape to mitigate the additional cumulative visual impact.</p> |
| Other aspects including noise, effect on native fauna, health concerns and lowering of land values are of equal | Each of these particular aspects has been addressed in the EA and this Preferred Project and Submissions Report. |

| Issue/Comment | Response |
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| importance must also be considered. | |
| A great many people in any population these days have compromised immune systems for various reasons, and they especially are very likely to be afflicted with health problems, apart from others who also become vulnerable to the insidious effects of the wind farms. | <p>The National Health and Medical Research Council (NHMRC), the peak national body for research in Australia, issued a <i>Public Statement: Wind Turbines and Health - July 2010</i> stating that there was no published scientific evidence to positively link wind turbines to adverse health effects. This is the most relevant document to reference as it is impartial, expert and considered. It is understood this document is likely to be updated as more independent reports are published.</p> <p>The application of stringent noise criteria as demanded by the <i>Draft NSW Planning Guidelines: Wind Farms</i> provides a precautionary approach to health issues suggested to result from wind farm noise.</p> <p>A very small number of people in Australia have anecdotally reported that they believe that wind turbines are making them ill. The list of symptoms described is long and all are present in the broader community including in areas not near a wind farm and there is no evidence to link the symptom, however real, to wind turbines. Simon Chapman, Professor of Health at UNSW, offers one explanation for ill health suffered by people living near a wind farm who believe the wind farm is causing their ill health is – that some of these cases could be as a result of the “nocebo” effect which has proven that some people who believe that something is making them ill can actually make themselves ill. They suffer a real illness even though there is no physical cause.</p> <p>Consistent with the NHMRC and Professor Chapman, the September 2013 Planning Assessment Commission Determination Report for Bodangora Wind Farm near Wellington notes that “NSW Health also made it clear that noise levels at distances of more than one km from the turbines would not cause health impacts and the 2 km buffer provided in this instance is highly precautionary”. The Victorian Department of Health has issued fact sheets on noise and health (http://www.health.vic.gov.au/environment/windfarms.htm) (Vic Health, 2013).</p> <p>The Australian Medical Association released a statement in 2014 that “The available Australian and international evidence does not support the view that the infrasound or low frequency sound generated by wind farms, as they are currently regulated in Australia, causes adverse health effects on populations residing in their vicinity. The infrasound and low frequency sound generated by modern wind farms in Australia is well below the level where known health effects occur, and there is no accepted physiological mechanism where sub-audible infrasound could cause health effects” (AMA, 2014).</p> |
| A major concern has recently manifest itself in the local community is the ban imposed on aircraft operating within one kilometre of towers. | The Aerial Agriculture Association of Australia does not have a policy restricting aircraft operation within one kilometre of a wind turbine. Neither does the NSW Rural fire service have any procedures restricting aircraft operation within one kilometre of a wind turbine. |
| Your assessment of the cumulative visual impact of the Yass Valley Wind Farm has concluded that there would be minimal cumulative visual impact and that the changes to people’s perception of the surrounding area would not be significantly by the presence of multiple wind farms in the locality. A number of public meetings have indicated otherwise. | The wind turbines will be evident in the landscape but will not obscure views of the existing landscape features. The assessment of the cumulative visual impact was carried out by qualified landscape architects with significant experience in assessing the impact of wind farms. |

3.4.4 David Burraston, Cootamundra (approximately 60km away)

| Issue/Comment | Response |
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| Poor community consultation by Epuron | Epuron has contacted and continues to consult with the neighbouring landowners as noted in section 6 and set out in the consultation plan in Attachment 6 to 9 of |

| Issue/Comment | Response |
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| <p>The proponent contacted me 3 weeks after I was contacted by the Department.</p> | <p>the EA. The consultation program includes:</p> <ul style="list-style-type: none"> ▶ Ongoing telephone contact ▶ Ongoing individual meetings with landowners ▶ Newsletters – distributed to landowners, neighbours and the broader community ▶ An Open House information day held on 10 December 2008 <p>During the early stage of the project representatives from Epuron made telephone calls to neighbours in the vicinity of the project and this was followed in most cases with a face to face meeting to provide any further information required and answer individual questions.</p> <p>Since Epuron re-acquired the project from Origin Energy in July 2012 it has:</p> <ul style="list-style-type: none"> ▶ Issued four project newsletters ▶ Established a project website ▶ Establish a Community Consultation Committee (CCC) ▶ Held seven CCC meetings ▶ Contacted or attempted to contact all neighbours with a residence within 5 km of a turbine and in some cases beyond 5 km. |
| <p>Environmental issues – Box Gum Grassy Woodlands</p> <p>BGGW habitat has been identified as endangered and vulnerable on NSW state and national registers. With many overseas research studies documenting the negative impacts wind turbines have on fauna and natural habitats it is clear that the establishment of wind farm in and around GGGW areas will further fragment this habitat, hinder biodiversity and have a detrimental impact on many of its endangered species, many of which are migratory. There is no peer-reviewed scientific research on mitigation strategies to offset the impact of industrial scale wind turbines on BGGW habitat.</p> | <p>The majority of the wind farm site comprises low diversity native pasture derived from Box-Gum Woodland and is dominated by exotic weeds which is typical of the unimproved grazing land in the district. The wind farm infrastructure will have a direct impact on < 2% of the area of the wind farm site.</p> <p>Nevertheless, the biodiversity assessments have considered the potential impacts on the Box-Gum Woodland Endangered Ecological community. Following the supplementary ecology assessment the wind farm infrastructure layout has been further revised to minimise the impact on Box-Gum Woodland. The CEMP will also include measures to mitigate impacts on sensitive native vegetation. Residual impacts that can't be avoided will be offset in order to achieve a positive net environmental outcome for the proposal. Refer to Attachment 1 for further details.</p> |
| <p>Noise and health</p> <p>Important developments in wind turbine noise and health are being studied by the federal department Health Canada (13 February 2013) and these are not addressed in the PPR.</p> | <p>The Health Canada studies haven't been completed yet, however the potential health impacts from wind farms have been extensively investigated in Australia. The National Health and Medical Research Council (NHMRC), the peak national body for research in Australia, issued a <i>Public Statement: Wind Turbines and Health - July 2010</i> stating that there was no published scientific evidence to positively link wind turbines to adverse health effects. This is the most relevant document to reference as it is impartial, expert and considered. It is understood this document is likely to be updated as more independent reports are published.</p> <p>The Australian Medical Association released a statement in 2014 that "The available Australian and international evidence does not support the view that the infrasound or low frequency sound generated by wind farms, as they are currently regulated in Australia, causes adverse health effects on populations residing in their vicinity. The infrasound and low frequency sound generated by modern wind farms in Australia is well below the level where known health effects occur, and there is no accepted physiological mechanism where sub-audible infrasound could cause health effects" (AMA, 2014).</p> |
| <p>Local climate impacts</p> <p>The is continued scientific research</p> | <p>Much of the referenced research can be considered fledgling research into this topic - peppered with words such as "could", "possibly" and "might". Effects</p> |

| Issue/Comment | Response |
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| showing significant local meteorological effects from large scale wind installations that are not addressed in the PPR. | observed related to near-surface temperature effects such as very localised mixing of the cooler higher air with slightly warmer air above the ground rather than the much wider phenomenon of climate change. For example the studied effects are not likely to have any impact on the area of the troposphere where clouds are formed or on rainfall. |

3.4.5 Stephen Firth, Bogalara (approximately 10km away)

| Issue/Comment | Response |
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| Community consultation There has been a singular lack of appropriate community consultation regarding the proposed development of a wind farm in our district. | <p>Epuron has contacted and continues to consult with the neighbouring landowners as noted in section 6.3 and set out in the consultation plan in Attachment 6 to 9 of the EA. The consultation program includes:</p> <ul style="list-style-type: none"> ▶ Ongoing telephone contact ▶ Ongoing individual meetings with landowners ▶ Newsletters – distributed to landowners, neighbours and the broader community ▶ An Open House information day held on 10 December 2008 <p>During the early stage of the project representatives from Epuron made telephone calls to neighbours in the vicinity of the project and this was followed in most cases with a face to face meeting to provide any further information required and answer individual questions.</p> <p>Since Epuron re-acquired the project from Origin Energy in July 2012 it has:</p> <ul style="list-style-type: none"> ▶ Issued four project newsletters ▶ Established a project website ▶ Establish a Community Consultation Committee (CCC) ▶ Held seven CCC meetings ▶ Contacted or attempted to contact all neighbours with a residence within 5 km of a turbine and in some cases beyond 5 km. |
| Visual impact of the development The assessment of visual impact as in Section 6.1.4 is erroneous and misleading, diminishing the value to residents of the pastoral landscape. There has been no adequate consultation with local residents, and there appears no adequate government assessment of the community value of wind farms which can only survive because of government subsidies. | <p>This section of the supplementary landscape and visual impact assessment relates to the cumulative visual impact from residential dwellings of the Conroy's Gap and Yass Valley wind farms together. It is not clear what aspect of the assessment was considered erroneous or misleading.</p> <p>Wind farms in Australia do not receive any government subsidies and compete with other forms of electricity generation. The demand for energy from renewable sources, such as wind farms, is driven by the governments Renewable Energy Target.</p> |
| Distraction of the pastoral landscape associated with white and yellow box woodland. The wildlife assessment is lacking in convincing research that might support an approval. | The biodiversity assessment was carried out in accordance with the requirements and guidelines nominated in the Director Generals Requirements for the project and reviewed by the NSW Office of Environment & Heritage. |
| There appears no adequate government assessment of the community value of wind farms, which can only survive because of government subsidies. | <p>The benefits of the proposed wind farm are outlined in section 4 of this report which includes details of the community fund.</p> <p>Wind farms in Australia do not receive any direct government subsidies. Like any other form of renewable energy generation, wind farms are able to generate renewable energy certificates for every unit of electrical energy generated.</p> |
| There is international resistance to wind farms on ecological, health and environmental grounds | Numerous studies globally and in Australia show strong support for wind farms, including <i>Community Attitudes to Wind Farms in NSW</i> prepared by the NSW Department of Environment Climate Change & Water in 2010. The most recent forecasts from the Global Wind Energy Council show wind energy capacity |

| Issue/Comment | Response |
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| | continuing to grow at greater than 12% per year. |

3.4.6 Brian & Beverley Joseph, Address Withheld

| Issue/Comment | Response |
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| <p>Visual impact</p> <p>Our concern that your assessment does not appear to recognise the widespread visual impact from 148 massive towers 150m high, over productive farming land and you appear more concerned with the impact the Yass Valley Wind Farm will have on tourism and traveller amenity.</p> <p>We also disagree with the statement that the “likely cumulative visual impact is probably low from residential dwellings where towers will have a dominant effect on the landscape”. Everyone but the host farmers are horrified at your insensitive and arrogant assessment.</p> | <p>The installation of the wind farm only requires a small part of the productive farming land and will not prevent the landowner from continuing to farm the land. The supplementary landscape and visual impact assessment has considered the visual impact of the proposed wind turbines from publically accessible viewpoints, sequential viewpoints (highways) as well as from individual residences in the vicinity of the wind farm.</p> <p>There are a limited number of residential locations that will be able to see turbines from both the Conroy’s Gap and Yass Valley Wind Farms. Many of these dwellings are well screened by existing vegetation, thus the cumulative impact from both wind farms is low.</p> <p>See 5.8.3 below for detail from the expert assessor on cumulative visual impact</p> |
| <p>Other aspects including noise, effect on native fauna, health concerns and lowering of land values are of equal importance must also be considered.</p> | <p>Each of these particular aspects has been addressed in the EA and this Preferred Project and Submissions Report.</p> |
| <p>A great many people in any population these days have compromised immune systems for various reasons, and they especially are very likely to be afflicted with health problems, apart from others who also become vulnerable to the insidious effects of the wind farms.</p> | <p>The National Health and Medical Research Council (NHMRC), the peak national body for research in Australia, issued a <i>Public Statement: Wind Turbines and Health - July 2010</i> stating that there was no published scientific evidence to positively link wind turbines to adverse health effects. This is the most relevant document to reference as it is impartial, expert and considered. It is understood this document is likely to be updated as more independent reports are published.</p> <p>The application of stringent noise criteria as demanded by the <i>Draft NSW Planning Guidelines: Wind Farms</i> provides a precautionary approach to health issues suggested to result from wind farm noise.</p> <p>A very small number of people in Australia have anecdotally reported that they believe that wind turbines are making them ill. The list of symptoms described is long and all are present in the broader community including in areas not near a wind farm and there is no evidence to link the symptom, however real, to wind turbines. Simon Chapman, Professor of Health at UNSW, offers one explanation for ill health suffered by people living near a wind farm who believe the wind farm is causing their ill health is – that some of these cases could be as a result of the “nocebo” effect which has proven that some people who believe that something is making them ill can actually make themselves ill. They suffer a real illness even though there is no physical cause.</p> <p>Consistent with the NHMRC and Professor Chapman, the September 2013 Planning Assessment Commission Determination Report for Bodangora Wind Farm near Wellington notes that “NSW Health also made it clear that noise levels at distances of more than one km from the turbines would not cause health impacts and the 2 km buffer provided in this instance is highly precautionary”. The Victorian Department of Health has issued fact sheets on noise and health (http://www.health.vic.gov.au/environment/windfarms.htm) (Vic Health, 2013).</p> <p>The Australian Medical Association released a statement in 2014 that “The available Australian and international evidence does not support the view that the infrasound or low frequency sound generated by wind farms, as they are currently regulated in Australia, causes adverse health effects on populations residing in their vicinity. The infrasound and low frequency sound generated by modern wind</p> |

| Issue/Comment | Response |
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| | farms in Australia is well below the level where known health effects occur, and there is no accepted physiological mechanism where sub-audible infrasound could cause health effects” (AMA, 2014). |
| A major concern has recently manifest itself in the local community is the ban imposed on aircraft operating within one kilometre of towers. | The Aerial Agriculture Association of Australia does not have a policy restricting aircraft operation within one kilometre of a wind turbine. Neither does the NSW Rural fire service have any procedures restricting aircraft operation within one kilometre of a wind turbine. |
| Your assessment of the cumulative visual impact of the Yass Valley Wind Farm has concluded that there would be minimal cumulative visual impact and that the changes to people’s perception of the surrounding area would not be significantly by the presence of multiple wind farms in the locality. A number of public meetings have indicated otherwise. | <p>The assessment of the cumulative visual impact was carried out by qualified landscape architects with significant experience in assessing the impact of wind farms.</p> <p>The wind turbines will be evident in the landscape but will not obscure views of the existing landscape features. For people with an understanding of the importance of renewable energy in Australia’s future energy supply mix the wind farm can be a positive association with a sustainable energy future.</p> |

3.4.7 Craig Turnbull, Berremangra (4.2km from nearest turbine)

| Issue/Comment | Response |
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| They (Origin) promised me a photomontage from my residences and this has not been produced. | A photomontage from the residences has been produced and provided to the landowner by Epuron. |
| My original letter raised the objection of loss of visual amenity. This development will replace the natural beauty with an industrial forest of twirling machines. | It is acknowledged that the perception of visual amenity is subjective and that some people find the visual impact from wind turbines acceptable and that others do not. As noted in the supplementary landscape and visual impact assessment, the visual impact of wind turbines diminishes significantly as the distance away from the turbines increases. The Shepstone Park residences are located 4.2 km from the nearest turbine. The visual impact from this location has been assessed as low. The landscape is also a modified landscape largely cleared and with fences, sheds, residences, roads etc. Very little of the remnant native vegetation will be impacted. |
| This project will take away the peaceful natural amenity. Therefore this project makes Shepstone Park less attractive for me or any other potential buyer. Therefore it must decrease the value of my property. No compensation for this loss has ever been offered by either developer. Why couldn’t every resident within sight of the development be offered free electricity as compensation for their losses. | Epuron has proposed a community fund – see SoC in section 9.1.14 of this report for further details. It is proposed that around 50% of this fund is available specifically to neighbours within 5km of the wind farm to assist them to reduce their electricity bill by installing solar and energy efficiency options to their homes. |
| I believe that the way Epuron has managed community relations is very divisive and dangerous. My understanding is that the developer has paid the people that will have turbines on their land not to talk to other residents. This has created mistrust and suspicion. | Epuron has not paid the people who will have turbines on their land not to talk to other residents. Epuron has established a Community Consultation Committee that includes several representatives of non-involved landowners to keep all stakeholders informed about the project and to secure feedback from the community on the project throughout the life of the project (not just on- way communication). |
| One issue that has not been addressed in the application is health | The National Health and Medical Research Council (NHMRC), the peak national body for research in Australia, issued a <i>Public Statement: Wind Turbines and</i> |

| Issue/Comment | Response |
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| <p>problems associated with wind farms. We have heard stories of sub-sonic sound waves and depression problems.</p> | <p><i>Health - July 2010</i> stating that there was no published scientific evidence to positively link wind turbines to adverse health effects. This is the most relevant document to reference as it is impartial, expert and considered. It is understood this document is likely to be updated as more independent reports are published.</p> <p>The application of stringent noise criteria as demanded by the <i>Draft NSW Planning Guidelines: Wind Farms</i> provides a precautionary approach to health issues suggested to result from wind farm noise.</p> <p>A very small number of people in Australia have anecdotally reported that they believe that wind turbines are making them ill. The list of symptoms described is long and all are present in the broader community including in areas not near a wind farm and there is no evidence to link the symptom, however real, to wind turbines. Simon Chapman, Professor of Health at UNSW, offers one explanation for ill health suffered by people living near a wind farm who believe the wind farm is causing their ill health is – that some of these cases could be as a result of the “nocebo” effect which has proven that some people who believe that something is making them ill can actually make themselves ill. They suffer a real illness even though there is no physical cause.</p> <p>Consistent with the NHMRC and Professor Chapman, the September 2013 Planning Assessment Commission Determination Report for Bodangora Wind Farm near Wellington notes that “NSW Health also made it clear that noise levels at distances of more than one km from the turbines would not cause health impacts and the 2 km buffer provided in this instance is highly precautionary”. The Victorian Department of Health has issued fact sheets on noise and health (http://www.health.vic.gov.au/environment/windfarms.htm) (Vic Health, 2013).</p> <p>The Australian Medical Association released a statement in 2014 that “The available Australian and international evidence does not support the view that the infrasound or low frequency sound generated by wind farms, as they are currently regulated in Australia, causes adverse health effects on populations residing in their vicinity. The infrasound and low frequency sound generated by modern wind farms in Australia is well below the level where known health effects occur, and there is no accepted physiological mechanism where sub-audible infrasound could cause health effects” (AMA, 2014).</p> |

3.4.8 Renee Grogan, Binalong (1.2km from nearest turbine)

| Issue/Comment | Response |
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| <p>Impacted Residences</p> <p>Amend the PPR to accurately reflect the residences in the area, and amend the impact assessment to include these residences.</p> <p>Update the stakeholder engagement to include a targeted assessment of all impacted residences.</p> | <p>Epuron appreciates having this residence pointed out to us. Occasionally new dwellings do not appear on the mapping and on-ground and Google Earth searches do not have recent enough imagery to identify buildings and dwellings. We have reviewed the layout of the turbines and confirmed compliance at this new residence.</p> <p>Assessment of all impacted residences has now been completed.</p> |
| <p>Community Consultation</p> <p>Engage all non-involved and involved landowners in a systematic and inclusive manner, particularly those whose residences are within 2km of the proposed wind turbine locations.</p> | <p>Epuron has written to all neighbours within 5km of the wind farm and met with all neighbours who have requested a visit. Epuron has established a Community Consultation Committee that includes several representatives of non-involved landowners to keep all stakeholders informed about the project and receive input from the community (not just one-way communication). Representatives continue to meet with member of the community to consult on the project.</p> |
| <p>Meeting held on 28 February 2013 (published minutes indicate the meeting was held on 1 March 2013 but this is an error) was not an open meeting. Concerned non-involved landowners and community members were not permitted entry to the</p> | <p>There is often confusion about what is happening in the community. In fact there is no error in our minutes. The NSW Government’s Precinct Co-ordinator independently assisted in hosting a meeting of The Wind Farm Host Landholders Network with “involved landowners” in Yass on 28 February. Neither Epuron nor any other developer was invited or attended. Epuron understands it was not an open meeting but was for ‘host’ landholders and their representatives only. Epuron understands that the landowners who picketed outside the meeting were aware that it was a meeting</p> |

| Issue/Comment | Response |
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| <p>meeting, and as a result conducted a picketing exercise outside the Yass Soldier's Club Hall in protest.</p> | <p>convened by this group and the Precinct Coordinator and that Epuron was not invited and did not attend.</p> <p>The published minutes dated 1 March are from our Community Consultation Committee which was indeed held on 1 March 2013. This was not an open meeting as it followed the Director General's requirements for CCC meetings. This meeting was not picketed. It was attended by neighbouring landholders who are on the committee.</p> |
| <p>A number of statements in the original 2009 Environmental Assessment are disengaging, unsupported, and inflammatory, including the statement that <i>"targeted social research on perception clearly demonstrated that there is a very high level of support for wind farms amongst local residents, with 71% supporting wind farms within 1km of their residence"</i>. This social research is not specific to the Yass Valley area and is therefore misleading in its representation of the specific project area.</p> | <p>While the perception study cited was originally commissioned for the Gullen Range Wind Farm it is clearly documented in the Environmental Assessment that this was the case. As there were respondents from the Yass Valley it was considered relevant.</p> <p>There are always opponents to any development in a community and we understand it is our task to find out what the particular concerns are and address them where possible.</p> <p>Epuron consider that 71% support for a wind farm within 1km of a residence is strong support. This level of support is consistently found in impartial professional surveys, even in other countries. Epuron do understand that there are some members of the community who vigorously oppose the construction of wind turbines. Where these concerns are related to unreasonable impacts and can be mitigated them this will be done.</p> |
| <p>Non-involved landowners, i.e. landowners whose properties are not proposed for wind turbine locations, but who are likely to be impacted by visual impacts or noise impacts, are concerned that they are not being engaged with, or that compensation discussion have not included them. In the words of a landowner within 2km of proposed wind turbine locations, <i>"No one has come to talk to us"</i>.</p> <p>Further, to define landowners adjacent to the proposed project area as "non-involved" is misleading, given these stakeholders are likely to be exposed to negative impacts of the project, and while not at present involved in compensation discussions, are likely to be significantly affected by the project.</p> | <p>In line with the planning process we have designed a wind farm which will comply with the requirements of the planning system. If we discover that we have a non-compliance issue we will ensure it is swiftly addressed.</p> <p>Epuron does not consider that payment is a suitable way forward for those whose land does not host infrastructure. We are unaware of other developments, roads, cattle feedlots, mining etc. where neighbours with no on-ground impacts are compensated.</p> <p>The concept of the community fund is that the wider community whose view is altered or who experience traffic delays during construction etc. might benefit through community initiatives such as solar PV, landcare funding or contributions to the local rural fire service</p> <p>The Land & Environment Court's decision in 2010 for the Gullen Range Wind Farm provides a succinct and authoritative response. Relevant excerpts from the decision are:</p> <p><i>"150 The Guardians [who oppose wind farms] advance the proposition that a consequence of approval of the wind farm will be that a number of properties which are in the vicinity will suffer from "blight" for which there should be payment of compensation if the project were to be approved...</i></p> <p><i>154 Such a proposition faces a number of insurmountable hurdles.</i></p> <p><i>155 The first is that the wind farm, as earlier noted, is a permissible use on all of the parcels of land upon which it is proposed....</i></p> <p><i>159 If the concepts of blight and compensation, as presented by the Guardians, were to be applied to this private project (a proposition which I reject) than any otherwise compliant private project which had some impact in lowering the amenity of another property...would be exposed to such a claim.</i></p> <p><i>160 Creating such a right to compensation (for creating such a right it would be) would not merely strike at the basis of the conventional framework of land use planning but would also be contrary to the relevant objective of the Act, in s 5(a)(ii) for "the promotion and co-ordination of the orderly economic use and development of the land...As a consequence, we decline to consider any issues relating to claims for compensation."</i></p> <p>Accordingly, compensation to neighbouring properties of wind farms is not warranted, since this would set a precedent for any private project in which amenity is affected, and would be in contravention to land use planning which seeks to achieve the orderly and economic use of the land.</p> |
| <p>Section 10.1 outlines the process for implementation of environmental mitigation measures, including the implementation of the Construction</p> | <p>Sample plans have been provided to members of the CCC for distribution to all interested parties.</p> <p>NSW Planning & Infrastructure has prepared a guideline for preparation of</p> |

| Issue/Comment | Response |
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| <p>Environmental Management Plan and the Project Environmental Management Plan. These plans are not well understood among stakeholders, and a number of stakeholders have expressed concern regarding how controls will be implemented for the project.</p> | <p>Environmental Management Plans. The CEMP and OEMP will both require approval by the Director-General NSW Planning & Infrastructure. An independent Environmental Representative is also appointed to ensure compliance including compliance with the environmental plans and sub-plans.</p> |
| <p>Section 10.2 of the 2009 Environmental Assessment lists 93 proposed proponent commitments in order to manage the potential impacts of the project. These are not well understood among stakeholders, and community stakeholders have not been engaged with during the development of these commitments.</p> | <p>Epuron hope that the Preferred Project Report further explained those aspects that concerned residents who made a submission. Epuron would be happy to discuss any aspect with any landowner who would like to know more about any of the commitments.</p> |
| <p>A number of non-involved community members have expressed their concern over visual impacts, with emotive comments such as <i>“Our pristine landscape shouldn’t be polluted with steel structures that have questionable environmental value”</i>, and <i>“I don’t want to look at them and I don’t see why I should have to when there are viable alternatives such as solar. We wouldn’t mind having solar panels on our properties, as the visual landscape would not be so dramatically changed”</i>.</p> <p>These comments, while emotive, indicate both that there is not a common understanding of the real (net present as well as future) benefit of wind turbines, or why the area has been selected for wind turbines over windier (but potentially more built up) areas, or why solar has not been considered. These may all be issues that can be addressed by Epuron, but have not been effectively communicated with stakeholders to date.</p> | <p>Epuron does encounter such comments and does understand that it is confronting to have the surrounding environment changed.</p> <p>Railways, roads, mines, quarries are all met with such remarks and in more densely populated areas there is often concern about the location of hospitals and community facilities but that is why there is a planning department – to find a least harm but most effective location for infrastructure which is required by the wider community.</p> <p>The precinct coordinators have been out and about in each of the renewable energy precincts explaining why each precinct has been determined. In the case of most precincts, and certainly the Yass area, it is because of the excellent wind resource and connection opportunities.</p> <p>Solar, while reducing in cost dramatically remains twice as expensive as wind energy and covers significantly more land to provide the same electricity. It is without doubt an excellent power source on homes with north facing roofs and is increasingly promising for larger 1MW + developments.</p> |
| <p>The PPR indicates that an erosion and sediment control plan will be implemented, utilising <i>“standard erosion and sediment control measures”</i>.</p> <p>A number of community members have continued to express concern over the potential erosion and sediment impacts due predominantly to the construction of access roads in steep areas and areas of poor quality. In addition, members of the community have expressed concern regarding the construction infrastructure and any impacts these</p> | <p>The assessment of the impacts is a matter for NSW Planning and Infrastructure but if we can assist landholders to understand such control plans better we will endeavour to do so. A sample erosion and sediment control plan has been provided to members of the CCC.</p> <p>It is not in the proponent’s interest to have poorly constructed roads, unstable slopes, scouring of drains or exposed earth. The proponent is well aware that poor management of these aspects have significant cost implications.</p> |

| Issue/Comment | Response |
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| <p>may have on the impacted land, as well as land downstream or in other parts of the regional catchment.</p> | |
| <p>The PPR indicates that “<i>infrastructure will be located on the ridges which are predominantly on basalt rock and less prone to erosion risks</i>”. Table 8-6 of the 2009 Environmental Assessment describes seven soil types, six of which are listed as having a high or extreme erosion potential. This contradicts the statement in the PPR, and it remains unclear how Epuron will manage this risk. Potential downstream impacts of erosion have also not been addressed in detail.</p> | <p>At this pre-approval stage in the development it is important to know what has to be addressed more than the precise detail of how it will be addressed. As noted in the EA we are aware of the very high erosion potential of most of the area. This is often the case in wind farm locations.</p> <p>The width of the ridges is minimal in places and in those areas we would tend to include the access track itself as part of the hardstand. The hardstand can be adapted to be long and thin rather than a square if this is required.</p> <p>The current designs are the exhibited infrastructure layout upon which we undertake a constructability assessment for our own risk assessment purposes. We don’t believe there is a discrepancy between our documents.</p> <p>The risks raised here are managed through the CEMP and the detailed design stage which must be signed off by the Director-General before construction can commence.</p> |
| <p>Noise</p> <p>The Epuron website refers to a report by the Victorian EPA, which indicates that wind farms are not a significant contributor to low frequency noise, “<i>at houses located approximately 1.5km away from wind farm sites</i>”. However, the Yass Valley proposal includes a number of residences (including non-involved landowner residences) that are located within 1.5km of the wind farm sites. As such, these residences are likely to be impacted (as indeed the 2009 Environmental Assessment indicates) by noise from the wind farms.</p> <p>The Director General’s Requirements (dated 2009) requires the proponent to clearly outline the noise mitigation, management and monitoring measures. This has not been completed.</p> | <p>There are three houses owned by non-involved landowners that are located within 1.5km of a proposed wind turbine: G16, M42 and G14. The noise assessment addendum (Attachment 9) has confirmed full compliance with the noise criteria for these three residences and all the other residences located in the vicinity of the wind farm.</p> |
| <p>The 2009 Environmental Assessment did not include all potentially impacted residences in the noise survey, or modelling exercise, as required by the Director General’s Requirements.</p> | <p>The noise assessment addendum(Attachment 9) has confirmed full compliance with the noise criteria for all the residences located in the vicinity of the wind farm.</p> |
| <p>Land Values</p> <p>The PPR indicates that “<i>A number of studies in Australia and overseas have shown that wind farms do not generally have any negative impact on the value of surrounding land...</i>” and more specifically, refers to the findings of the NSW Valuer General in 2009, stating that “<i>wind farms do not appear to have negatively affected property values in most cases</i>”.</p> <p>These are general comments that do not include an assessment of land values in the Southern Tablelands that</p> | <p>Land values are not considered to be a planning matter but more a consultation matter to explain how the planning system works in relation to land values. The matter is best left to the experts see the Land and Environment Court ruling in relation to the Gullen Range Wind Farm – the issue is addressed in paragraphs 107 to the paragraph after 160 in the decision of King & Anor v Minister for Planning found at http://www.lawlink.nsw.gov.au</p> <p>(King & Anor v Minister for Planning; Parkesbourne-Mummel Landscape Guardians Inc. v Minister for Planning; Gullen Range Wind Farm Pty Limited v Minister for Planning [2010] NSWLEC 1102 (7 May 2012))</p> <p>In terms of consultation we accept that a wide range of matters may cause individuals to have concerns about the value of their land. However, we know only of instances where people have considered that there may be an impact but not of any actual impacts to land value resulting from wind farms in close proximity.</p> |

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| <p>have been impacted by wind farms. The statements are not conducive to a detailed property evaluation report.</p> | <p>It is possible to find real estate agents who consider there is an impact and those who consider there is not an impact. However, it is objective studies that provide the basis for sound consideration of this matter and numerous studies conclude that wind farms do not have any discernible impact on property values.</p> <p>The issue of impacts to property values was also considered in the 2007 Land and Environment Court ruling in the Taralga Landscape Guardians challenge to the approval of the Taralga Wind Farm. This decision states:</p> <p><i>“If the concepts of blight and compensation, as pressed by the Guardians, were to be applied to this private project (a proposition which I reject) than any otherwise compliant private project which had some impact in lowering the amenity of another property (although not so great as to warrant refusal on general planning grounds ...) would be exposed to such a claim.</i></p> <p><i>Creating such a right to compensation (for creating such a right it would be) would not merely strike at the basis of the conventional framework of land use planning but would also be contrary to the relevant objective of the Act, in s 5(a)(ii), for “the promotion and co-ordination of the orderly and economic use and development of land”.</i></p> |
| <p>Visual amenity</p> <p>Figure 5-7 (Residential Viewpoints) in Attachment 3 to the PPR does not appear to consider a number of residences in close proximity (i.e. less than 2 km of the proposed turbine locations, including the residence of my parents-in-law and my brother-in-law).</p> <p>The Director General’s Requirements (DGRs) dated 2009 require a description of community and stakeholder values of the local and regional amenity, including <i>“perceptions of the project based on surveys and consultation”</i>. This has not been adequately documented.</p> <p>It is not clear what the definition of low, medium and high impact is, and how this has been quantified.</p> | <p>Figure 5-7 does not, and was not intended to, show all residential viewpoints towards the wind farm. This figure considers only those locations selected as representative viewpoints from a range of locations around the proposed site. This approach complied with the DGRs when the EA was exhibited.</p> <p>However, we note that it would be more useful for individuals to have an assessment of the potential visual impact to all properties within 2km of a turbine. This fits with the guidance provided in the draft NSW Planning guidelines for Wind Farms which are not a requirement for this project.</p> <p>Photomontages and visual impact assessment have now been carried out for all non-involved dwellings within 2km.</p> |
| <p>Cumulative Impact</p> <p>The methodology of the cumulative impact assessment does not appear to have been calibrated by the perception of cumulative impacts by potentially impacted stakeholders. Statements from the PPR relating to residents along minor roads do not adequately reflect the potential cumulative impacts to those stakeholders, including the statement that <i>“It is considered that the visual impact will be minor from these locations predominantly because the viewer numbers are low”</i>. This is somewhat akin to saying that the cumulative impact of a small car accident in which two people are killed is low, because only two people are impacted. It is an inappropriate assessment of cumulative impacts.</p> | <p>Section 8.14 of the EA deals with cumulative impacts in relation to visual impacts, noise impacts, biodiversity impacts, air hazard impacts, traffic impacts, economic and resource impacts, social impacts and climate and air quality impacts.</p> <p>This approach, undertaken over 2 years before the Draft NSW Wind Farm Guidelines were issued, is consistent with the Guidelines.</p> <p>Guidelines for mining and other projects may have limited relevance. We are aware of the EU Commission’s document you reference but must be guided by the planning requirements of the jurisdiction in which we operate.</p> |

| Issue/Comment | Response |
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| <p>Management Plans</p> <p>A number of commitments proposed are covered by the statement that a plan (such as a Construction Environmental Management Plan, a Decommissioning Plan, a Biodiversity Management Plan, etc.) will be developed. Given the sensitivity (both from a community stakeholder and biodiversity perspective) of the project, there may be value in providing conceptual details of these plans, in order that stakeholders can understand the measurable objectives of these plans.</p> | <p>Epuron will make the draft Construction Environmental Management Plan and draft Biodiversity Management Plan available to the CCC and any other interested stakeholders for comment prior to implementation. These plans are developed in conjunction with the construction contractor and require the approval of the Director-General.</p> <p>A draft Decommissioning Plan has been included in this report. (Attachment 20).</p> |
| <p>Decommissioning & Rehabilitation</p> <p>Non-involved stakeholders have expressed concerns over how decommissioning and rehabilitation will occur, particularly given the long life of the turbines, and the potential that Epuron may not be the owner of the infrastructure at the end of the project life. One landowner indicated <i>"We are hearing stories of wind turbines being left to fall down, having been sold to offshore owners. How do we know this will not happen in our district?"</i> In addition, stakeholders indicated there does not appear to be a precedent for the successful decommissioning of wind turbines globally, and therefore there was little confidence that this would be carried out effectively in the Yass Valley area.</p> | <p>Epuron will comply with the requirements of the NSW Government's draft Wind Farm guidelines which state:</p> <ul style="list-style-type: none"> ▶ If a DA for a wind farm classed as State significant development is approved, decommissioning requirements will be included in the Conditions of Consent issued by the consent authority. Conditions of Consent will generally require that: ▶ The wind farm owner is responsible for decommissioning (not the landowner) and that the applicant/wind farm owner must provide evidence to demonstrate this prior to construction commencement. ▶ The Decommissioning and Rehabilitation Plan must be updated every 5 years and made public on the applicant's website as well as providing a copy to the relevant consent authority. ▶ The turbines and associated facilities must be decommissioned within 18 months of cessation of the operation of the project. ▶ Any individual turbine that cease operating for more than 12 months must be dismantled within 18 months <p>The wind farm owner must keep independently verified annual records of each wind turbine electricity generation production. Copies of these records should be made available to the consent authority on request.</p> <p>See Draft Decommissioning plan at Attachment 20.</p> |

3.5 Response to Government Agency Submissions

3.5.1 NSW Trade & Investment Crown Lands

| <i>Issue</i> | <i>Response</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|------------|--------------------|----------|--------------------|---|---------|-----------|-----|----|---------|-----------|------|-----|---------|-----------|------|----|---------|-----------|------|----|---------|-----------|------|----|---------|-----------|-------|-----|---------|-----------|------|
| Turbines located on or very close to Crown roads | <p>Seven turbine locations have been micro-sited to ensure that no turbines are located on or overhang Crown roads. Please refer to the current wind turbine co-ordinates in Attachment 8.</p> <table border="1"> <thead> <tr> <th>Turbine ID</th> <th>Easting</th> <th>Northing</th> <th>Distance moved (m)</th> </tr> </thead> <tbody> <tr> <td>9</td> <td>642,410</td> <td>6,155,033</td> <td>9.2</td> </tr> <tr> <td>15</td> <td>643,186</td> <td>6,154,579</td> <td>24.8</td> </tr> <tr> <td>144</td> <td>659,241</td> <td>6,146,899</td> <td>46.9</td> </tr> <tr> <td>80</td> <td>644,203</td> <td>6,150,649</td> <td>59.3</td> </tr> <tr> <td>83</td> <td>653,720</td> <td>6,150,014</td> <td>38.7</td> </tr> <tr> <td>89</td> <td>653,780</td> <td>6,148,628</td> <td>100.0</td> </tr> <tr> <td>110</td> <td>653,972</td> <td>6,153,875</td> <td>62.3</td> </tr> </tbody> </table> <p>Note the distance moved listed above reflects to movement to avoid the Crown road, rather than any change from original turbine location in the EA.</p> | Turbine ID | Easting | Northing | Distance moved (m) | 9 | 642,410 | 6,155,033 | 9.2 | 15 | 643,186 | 6,154,579 | 24.8 | 144 | 659,241 | 6,146,899 | 46.9 | 80 | 644,203 | 6,150,649 | 59.3 | 83 | 653,720 | 6,150,014 | 38.7 | 89 | 653,780 | 6,148,628 | 100.0 | 110 | 653,972 | 6,153,875 | 62.3 |
| Turbine ID | Easting | Northing | Distance moved (m) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | 642,410 | 6,155,033 | 9.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | 643,186 | 6,154,579 | 24.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 144 | 659,241 | 6,146,899 | 46.9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 644,203 | 6,150,649 | 59.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 83 | 653,720 | 6,150,014 | 38.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 | 653,780 | 6,148,628 | 100.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 110 | 653,972 | 6,153,875 | 62.3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Substation sites located on or very close to Crown roads | The substation sites have been micro-sited to ensure that they are not located on any Crown roads. The proposed 330kV switchyard location is located on a Crown road. Epuron is currently in the process of adjoining and closing the affected section of Crown road as outlined in the Crown Lands submission. If this is not possible, then the switchyard will be micro-sited to avoid the Crown road. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Powerline route crossing Crown Roads | Prior to the commencement of construction the proponent will obtain the necessary agreement from Crown Lands for the powerline crossing in accordance with the Crown Lands Act 1989. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

3.5.2 Civil Aviation Safety Authority

| <i>Comment</i> | <i>Response</i> |
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| Risk to aircraft navigation and obstacle lighting | An Aeronautical Impact Assessment, Obstacle Lighting Review and Qualitative Risk Assessment for the wind farm has been carried out by the Ambidji Group. The assessment recommended that aviation obstacle lighting for the wind farm is not required. |
| Providing heights and co-ordinates to Airservices and Department of Defence prior to commencement of construction | The proponent has committed to providing heights and co-ordinates of wind turbines to Airservices and Department of Defence prior to commencement of construction. |
| Consultation with Airservices Australia | Consultation with Airservices Australia is ongoing. Following initial discussion with Airservices Australia a detailed assessment of the potential impact on air traffic control radar has been completed. Further work on identifying appropriate mitigation measures is now underway. |
| Consultation with Aerial Agricultural Association of Australia | The AAAA was consulted as part of the aeronautical assessment in 2010. The assessed level of risk to aerial agricultural operations in the vicinity of the proposed wind farm was assessed as Low/Medium. It was noted that the location of the wind farm and its individual turbines will not impact on the safety of aerial applications provided pilots conduct proper pre-planning of operations. |
| Consultation with operators of non-regulated aerodromes | The owners and operators of fourteen non-regulated aerodromes, airfields and airstrips within 100km of the wind farm were contacted. The aeronautical assessment noted that the wind farm and any of its individual turbines will not impact on the approach, circuit work or take-off of aircraft from any of the identified aerodromes airfields or airstrips in the region. |
| Consultation with Royal Flying Doctor | The RFDS was consulted as part of the aeronautical assessment. No concerns with |

| <i>Comment</i> | <i>Response</i> |
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| Service | the proposed wind farm were raised. |

3.5.3 NSW Environmental Protection Agency

| <i>Comment</i> | <i>Response</i> |
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| The EPA has now reviewed the PPR and believes that it adequately addresses the issues raised in the public submissions. | Noted |
| Noise modelling to be updated once the actual wind turbine to be constructed has been confirmed and on-ground compliance assessed once operation has commenced. | It is expected that these will be included in any conditions of approval for the project. |
| It is unclear whether the deletion, micro-siting and/or relocation of the wind turbine layout will change the noise impacts to the receivers to the extent that the criterion is no longer complied with. | An updated noise impact assessment has been carried out – please refer to Attachment 9 for more details. The updated assessment confirms that the current wind turbine layout complies with the relevant criterion. Compliance monitoring will be undertaken to verify compliance. |

3.5.4 NSW Roads & Maritime Services

| <i>Comment</i> | <i>Response</i> |
|---|---|
| RMS considers that the proposed changes to the development would not represent any further concerns to those raised in the response from the RTA (now RMS) in 2009. | Noted The proposed conditions of approval in the 2009 submission have been directly referenced in the revised Statement of Commitment 37. |
| The preparation of a detailed Traffic Management Plan and a road dilapidation report may appropriately address the traffic related issues outlined in the previous correspondence from the RTA. | Epuron has committed to a road dilapidation report and preparation of a detailed Traffic Management Plan in consultation with RMS and the councils prior to the commencement of construction. |

3.5.5 NSW Catchment Management Authority Murrumbidgee

| <i>Comment</i> | <i>Response</i> |
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| The Murrumbidgee CMA concurs with the PPR that the revised Environmental Assessment will reduce residual impacts of the development on the existing environment. | Noted |

3.5.6 Department of Defence

| <i>Comment</i> | <i>Response</i> |
|---|-----------------|
| Defence is pleased that its comments have been acknowledged in the PPR submission, and overall, the Department of Defence has no concerns with the proposal at this time. | Noted |

3.5.7 NSW Office of Environment & Heritage

| Issue | Response |
|---|---|
| OEH notes that the proponent has addressed many of the issues raised in our submission of 2010, including: recalculation of BGW EEC, mapping of the proposed transmission easement and provision of greater detail on hollow-bearing trees in the areas not mapped in the EA. | Noted |
| Turbine placement & numbering | A large scale A1 size map (Attachment 24) with consistent turbine numbering has been included in this report together with a list of current turbine coordinates (Attachment 16). This enables a direct comparison with the original turbine placement and numbering shown in the Environmental Assessment. (Figure 3-10 to Figure 3-12 on pages 47 to 50 of the EA) |
| Offset assessment methodology and offset ratios | <p>The proposed methodology is to use data from the existing field surveys as well as from additional survey data that will be collected prior to construction to determine offset ratios with reference to:</p> <ul style="list-style-type: none"> ▶ The conservation status of the vegetation; ▶ The condition of the vegetation; and ▶ Whether the habitat provides actual (not potential) threatened species habitat. <p>The additional pre-construction surveys will inform whether the habitat is used by threatened species and whether the proposed offset ratio needs to be increased or not.</p> <p>A large amount of biodiversity survey work has already been undertaken on site providing a substantial baseline from which to propose offsets. Preconstruction surveys would supplement the baseline studies. Using the Biometric Assessment Methodology would be unnecessary and a duplication of these survey efforts. See Attachment 2.</p> |
| Clarification of terms: native pasture, BGW pasture, native grassland, BGW (native pasture), BGW (grassland), native dominated grassland and secondary grassland | <p>These terms refer to the same community. The community is derived from intact Box Gum Woodland but now is in different condition classes depending on land use practices such as tree clearing, conversion to exotic pasture and grazing intensity.</p> <p>In different areas the community has a varying proportion of native understorey (from entirely exotic to entirely native) and tree cover (from treeless to within benchmark cover for this community).</p> <p>‘Secondary grassland’ refers to the many areas where the community has now been cleared of overstorey but still retains a proportion of native understorey. It identifies the community was not originally a grassland; this is a secondary state after removal of the overstorey.</p> |
| Clarification of loss of Hollow Bearing Trees as moderate constraint | <p>In the Marilba and Coppabella Biodiversity Assessments, hollow bearing trees were considered a high constraint. Reasoning for this included risks associated with hollow bearing trees near turbines, the location of mature woodland fragments (particularly along roadsides) and the potential to impact breeding for species such as the Superb Parrot.</p> <p>The field assessments conducted for the additional areas primarily focussed on transmission line infrastructure and turbines on the periphery of the site. Generally speaking, micro-siting poles to avoid hollow-bearing trees is easier to achieve in these areas and the greater abundance of hollows in these areas suggested that minimisation rather than strict avoidance was warranted as a management strategy, to avoid significant impacts. Preclearance surveys have been recommended to address risks to resident fauna. Offsetting would be undertaken to replace the resource.</p> |
| Request that Biodiversity | Noted |

| <i>Issue</i> | <i>Response</i> |
|--|--|
| Management Plan be developed in consultation with OEH and approved by the Director General. | |
| Recommended conditions of approval | Noted |
| Procedures for any additional heritage surveys to be documented in a Cultural Heritage Management Plan | Prior to the commencement of construction a Construction Environmental Management Plan will be prepared and submitted to the Director General for approval. The CEMP will include an Aboriginal and non-Aboriginal heritage management plan which will document the procedures to be followed for additional archaeological assessments in any areas which are proposed for impacts that have not been surveyed during the assessments to date. Refer to Statement of Commitments 28 and 29. |
| Copy of the Heritage Assessment addendum report to be forwarded to other registered Aboriginal stakeholders for their information and comments | <p>A copy of the Heritage Assessment Addendum report has been circulated to all three the registered Aboriginal stakeholders for review:</p> <ul style="list-style-type: none"> ▶ Buru Ngunawal Aboriginal Corporation, ▶ Ngunawal Heritage Aboriginal Corporation and ▶ Onerwal Local Aboriginal Land Council. <p>An endorsement from the Buru Ngunawal Aboriginal Corporation has been included in Attachment 3.</p> |

3.5.8 NSW Department of Primary Industries

| <i>Comment</i> | <i>Response</i> |
|--|--|
| Agriculture NSW advises no issues in respect to agriculture matters. | Noted |
| Fisheries NSW advise no issues in respect to fisheries matters. | Noted |
| NSW Office of Water noted that key changes to water legislation related to this project since 2009 include the commencement of Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources and the commencement of the Water Sharing Plan for the Murrumbidgee Unregulated and Alluvial Water Sources | The proponent will adhere to the provisions of these plans where groundwater or surface water is being taken or intercepted. Water extracted from Harvestable Rights Dams will be used on the property that the dam is located on. |
| The proponent shall prepare a CEMP and Operational Water Management Plan prior to the commencement of activities. | The proponent has committed to preparing a CEMP prior to construction and will include an Operational Water Management Plan. |
| The design of waterway crossings for access roads and cable installations is to be in accordance with the departments guidelines and included in the CEMP | Noted |
| If rock anchoring is selected for wind tower foundations, a groundwater assessment is to be undertaken and endorsed prior to construction. | Noted |

3.5.9 Yass Valley Council

| <i>Issue</i> | <i>Response</i> |
|---|---|
| <p>Complete a more detailed Traffic Impact Study in consultation with the relevant authorities, including Yass Valley Council, prior to commencement of construction including:</p> <ul style="list-style-type: none"> ▶ Ensure the condition and road user safety is not compromised ▶ Identify hazards along length of each road ▶ A structural assessment of the existing pavements ▶ Review the standard of unsealed roads planned to be used ▶ A structural assessment of all bridges and major drainage structures ▶ Address the location and standard of the proposed access points off the road network ▶ Review the controls for safety and asset protection impacts. | <p>A supplementary Traffic Impact Study (refer Attachment 14) has been completed to take into account changes in the wind farm layout since the preparation of the EA in 2009.</p> <p>The proponent is committed to developing a more detailed traffic management plan in consultation with the relevant authorities (RMS & Councils) and the appointed transport contractor prior to the commencement of construction. Refer to the revised Statement of Commitments .</p> |

3.6 Additional Comments from Government Agencies 2013

A revised Preferred Project & Submissions Report was submitted to NSW Planning & Infrastructure on 30 July 2013. The report addressed the submissions received during the exhibition of the Preferred Project Report from 14 December 2012 to 1 March 2013, as well as the late submissions that were received up to May 2013.

Copies of the revised Preferred Project & Submissions Report were provided to a number of government agencies who provided additional comments on the report. These additional comments are addressed below.

3.6.1 Office of Environment & Heritage

| <i>Comment</i> | <i>Response</i> |
|---|---|
| <p>Surveys have not yet been completed to fully identify and map constraints (e.g. Hollow Bearing Trees, Fauna habitat). If the proponent is to comply with their commitment to avoid impacts in all high constraint areas then all constraints must be accurately identified before the project design is finalised.</p> | <p>Detailed protocols would be developed in consultation with OEH as part of the Biodiversity Management Plan. Specifically this would address:</p> <ul style="list-style-type: none"> ▶ Threatened reptile finds – preclearance in mapped rocky habitats ▶ Hollow-bearing trees – preclearing surveys ▶ Golden Sun Moth habitat – based on summer surveys completed in 2013/14 <p>See Attachment 2.</p> |
| <p>The EA (2009) and subsequent documents have repeatedly defined high constraint areas as being Box Gum Woodland EEC in good condition according to the Commonwealth EPBC Act listing. However, semi cleared areas with trees and areas of native groundcover are included in the NSW listing of Box Gum Woodland EEC and therefore of High Conservation Value and</p> | <p>Vegetation types and condition have now been updated to reclassify 'exotic' and 'pasture' as Box Gum Woodland in 'moderate - good condition'. Discussions with OEH in October 2013 clarified that not all areas of EEC, regardless of condition, need to be avoided. Refer Attachment 2 for further details.</p> |

| <i>Comment</i> | <i>Response</i> |
|---|--|
| impacts should also be avoided in these areas. | |
| Further information regarding how vegetation of conservation significance is defined, the calculation of area of impact, and the finalisation of an offset is required. | See the further information provided following the OEH site visit with ngh Environmental at Attachment 2. |
| Turbines and infrastructure are still located within areas of high conservation significance which will have potential impacts both vegetation and fauna | See the further information provided following the OEH site visit with ngh Environmental at Attachment 2 |
| OEH is concerned that there is an ever increasing cumulative impact on Aboriginal cultural heritage values that is not being addressed. | The changes made to the wind farm layout do not result in an ever increasing cumulative impact on Aboriginal heritage. Refer Attachment 4 for further details. |
| OEH requests confirmation that Aboriginal Site Recording Forms have been submitted for all new sites recorded since the original 2008 survey. | Site cards have been submitted to OEH and AHIMS numbers issues. |

3.6.2 Roads & Maritime Authority

| <i>Comment</i> | <i>Response</i> |
|---|---|
| RMS notes the indicative alignment of the proposed transmission lines across road reserves, particularly the Hume Highway, however given the scale of the wind farm proposal, specific design details for the transmission lines have not been provided such as detailed alignment plans, pole placement, clearance of transmission lines above roads etc. In this regards RMS refers to the need for further detailed information and the requirement for approval for works within the road under section 138 of the Roads Act, 1993. | The requirement for more detailed information and approval under the Roads Act is noted. Key planning criteria for design will be sought from RMS at the beginning of the design process. Details will be supplied to RMS and the required approval obtained as part of the detailed design of the transmission line. |
| Approval for the upgrade of an existing access driveway or construction of a new driveway to the public road network will need to be undertaken in accordance with RMS design guidelines. | This has been previously noted in the Preferred Project & Submissions Report. |

3.6.3 NSW Environmental Protection Agency

| <i>Comment</i> | <i>Response</i> |
|--|-----------------|
| The EPA has reviewed the revised PPR and believes that it adequately addresses the issues raised in our previous submission on the original PPR to the Department of Planning and Infrastructure dated 25 February 2013. | Noted. |
| The EPA would like to reiterate its previous comments regarding the need to remodel the predicted noise impacts of the project once a wind turbine generator make and | Noted. |

| Comment | Response |
|--|----------|
| model has been confirmed, and to conduct an on-ground compliance assessment once the project is constructed. | |

3.7 Additional Comments from OEH 2014

A revised Preferred Project and Submissions Report was lodged with the NSW Planning and Infrastructure on 19 December 2013. Further comments were also received from NSW Office of Environment & Heritage as noted in the table below.

| Comment | Response |
|--|--|
| Uncertainty about preferred transmission line options and associated potential impacts | There is no uncertainty and no inconsistency in the mapping of the preferred 330kV transmission line route or the alternate 132kV transmission line route. The preferred option and alternate option for connecting the wind farm to the grid is described in section 5.2.3 (page 65 & 66) of the Preferred Project & Submissions Report (Dec 2013). Figure 5-7 (page 68) also provides a comparison of the current transmission line options to those proposed in the EA (page 54 & 55) in 2009. |
| The proposed high constraints mapping | As detailed in previous responses, the level of constraint is not only based on whether an area is an EEC or provides threatened species habitat, but on whether the type of impact expected could generate a significant impact to a listed entity or an impact that cannot be withstood without local population consequences. |
| Accuracy of Endangered Ecological Community mapping | The earlier field surveys in 2008/9 did not accurately map areas of pasture that were considered to be poor condition and poor to moderate condition. These areas are highly disturbed and dominated by exotic grasses. Following discussion during the site visit in November 2013 it was agreed with OEH to take a conservative approach in assuming that these areas could be derived native grasslands and that the impact areas and associated offsets required would be finalised during the pre-construction surveys. |
| Inappropriate Yass Daisy Buffers | The draft response provided to OEH in October 2013 proposed an increase in the buffer from 2m to 5m. OEH have now recommended a further increase to 20m. Although 20m appears to be a very excessive buffer, Epuron have accepted this higher buffer. |
| Hollow bearing tree assessment methods, abundance and proposed loss | The accuracy of the HBT estimates does not change the commitment to minimise the impact on HBTs and offset any residual impact that cannot be avoided. The actual impact and offset required will be accurately mapped as part of the pre-construction surveys. |
| Offset Strategy | As previously noted, and accepted by NSW Planning and Infrastructure, the detailed offset plan will be developed prior to construction after finalisation of infrastructure micro-siting and preconstruction surveys. The strategy outlined to date has adequately demonstrated the methodologies to be used and the availability of suitable offset areas in the vicinity of the site. |

3.8 Additional Comments from NSW Planning & Infrastructure

Additional comments were received from NSW Planning and Infrastructure in March 2014 and these have been addressed in this report as noted in the following table.

| NSW Planning & Infrastructure Comment | Where addressed in this report |
|---|--------------------------------|
| Further details on the potential impact of turbines on non-associated receivers, particularly for the north west part of the site | Section 8.4 |
| Further details on the potential impact of the revised transmission line on non- | Section 8.2 |

| <i>NSW Planning & Infrastructure Comment</i> | <i>Where addressed in this report</i> |
|--|--|
| associated receivers | |
| Further details on estimated electromagnetic fields from revised transmission line | Section 7.5 |
| Further details on the cumulative visual impact with Conroys Gap Wind Farm | Section 7.1.3 & Attachment 5 |
| Details of the visual impact assessment of the revised transmission line on residential viewpoints | Section 7.1 |
| Further details on construction noise assessment | Section 0 & Attachment 9 |
| Further details on low frequency noise assessment | Section 7.2.5.2 & Attachment 9 |
| Further details on traffic impact assessment | Section 7.6 & Attachment 14 |
| Further details on potential impacts on water resources | Section 7.8 |
| Further details on the potential impact on air traffic control radars | Section 7.10 |
| Further details on the potential impact on aerial agricultural operations and private airstrips | Section 7.9 |
| Updated status of EPBC referrals | Section 5.6 |
| Indicative plans for switchyards, substations, concrete batch plants and wind monitoring masts | Attachment 19 |

4 Project benefits

The energy context and benefits of the project were outlined in section 4 (page 79) of the EA. This section provides an update based on the current policy and regulatory environment.

4.1 Summary of Benefits

Based on 144 wind turbines using a 2.5MW average sized wind turbine working at a typical 36% capacity factor the Yass Valley Wind Farm would provide the following primary benefits:

- ▶ In full operation, it would generate more than 1,135,000 MWh of electricity per year – sufficient for the average consumption of around 142,000 homes.
- ▶ It would provide greenhouse gas emissions savings by approximately 1,098,000 tonnes of carbon dioxide equivalent (CO_{2e}) per annum relative to the emissions intensity of the current electricity generation profile¹.
- ▶ With an offered community contribution up to \$360,000 per annum that includes contribution for solar energy systems, there would be significant domestic renewable solutions installed on neighbouring residences and opportunities for notable community and environment programs.
- ▶ Around 25% of residences within 5km of a turbine are owned by host landowners. These farmers and landowner will receive approximately \$2 million in payments each year, much of which is expected to be spent or invested locally or regionally.
- ▶ Based on a local personal expenditure of \$25,000 per person per annum for a construction worker, with around 150 construction workers this would scale up to \$3.7million in accommodation, food and other services spent regionally per construction year (SKM, 2012b). This would result in increased services locally.

4.2 Policy Benefits

The Yass Valley Wind Farm would contribute to government policy objectives at both State and Federal level.

Responding to the *NSW 2021 State Plan* the wind Farm would address the following goals:

Table 4-1 Goals addressed from the NSW 2021 State Plan

| Goals Addressed | Benefit from the Yass Valley Wind Farm |
|--|---|
| Goal 1 – improve the performance of the NSW economy | The wind farm would bring jobs and investment of over \$356 million to the state as a direct impact of construction |
| Goal 3 – Drive economic growth in regional NSW | The wind farm would bring jobs and investment to the Yass region. |
| Goal 4 – increase the competitiveness of doing business in NSW | The Yass Valley Wind Farm would send a signal that NSW is open for business, attracting a number of key manufacturers and constructions companies to tender for this large infrastructure project |
| Goal 5 – place downward pressure on the cost of living | As can be seen from AEMO reports from South Australia, the more renewable energy there is going into the grid the greater the downward pressure on electricity prices (AEMO, 2012). The project commits significant funding to neighbours to install solar energy options on their homes reducing individual power prices around the wind farm. |
| Goal 6 – Strengthen the NSW skill base | This multi-million dollar infrastructure investment project will train personnel in the ongoing operation and maintenance of a wind farm. Such jobs are high value in regional NSW |
| Goal 11 – keep people healthy and out of hospital | Physical health - The more wind farm projects go up in the state the greater the reduction in air pollution by offsetting coal generation. Mental health - The more farmers benefit from diversified farm income the more likely they are to be resilient through drought. |
| Goal 19 – Invest in critical | Investing in new clean generation in NSW brings jobs and lower power prices and |

| Goals Addressed | Benefit from the Yass Valley Wind Farm |
|---|---|
| infrastructure | investment to NSW and the region. |
| Goal 22 – Protect our natural environment | Through minimising the environmental impacts of the wind farm itself, the wind farm helps to reduce coal fired emissions and transition NSW towards a cleaner greener future. |
| Goal 23 – increase opportunities for people to look after their own neighbourhoods and environments | With a significant community enhancement fund which can be spent on renewable energy solutions for individual homes around the wind farm and community plans such as land care projects, the wind farm will assist significantly with goal 23 at the regional and local level |

Responding to the NSW government’s *Renewable Energy Action Plan*, the wind farm would demonstrate the key statement of the Plan that NSW is open for business in renewable energy.

The wind farm would attract significant renewable energy investment. Most of the investment in wind farms in the National Electricity Market on the east coast of Australia has to date been in South Australia and Victoria. This large scale project provides an opportunity for investment in clean generation in the most populous state, and consequently assists in driving down electricity prices in NSW, as has occurred in South Australia which now has over 20% renewables powering that State.

4.3 Energy Context of the Proposal

Electricity consumption continues to grow, albeit at a slower rate than in previous years, and the additional demand must be met by either increased fossil fuel generation or an increase in generation from renewable sources such as wind power.

AEMO’s Annual Electricity Statement of Opportunities (ESOO 2013) predicts that over the next 10 years energy use in NSW is expected to increase at an average of 0.6% per year (current total of 68,834 GWh for 2012/13). This forecast is down from the 1.1% forecast in the 2012 National Electricity Forecasting Report (NEFR) (see Figure 4-1). The Large-scale Renewable Energy Target (LRET) continues to drive the entry of renewable generation capacity. However, demand-driven investment signals for new plant remain muted.

Meeting the predicted demand will require our existing electricity generators to increase their annual output, however at some point additional power generators will be also be required.

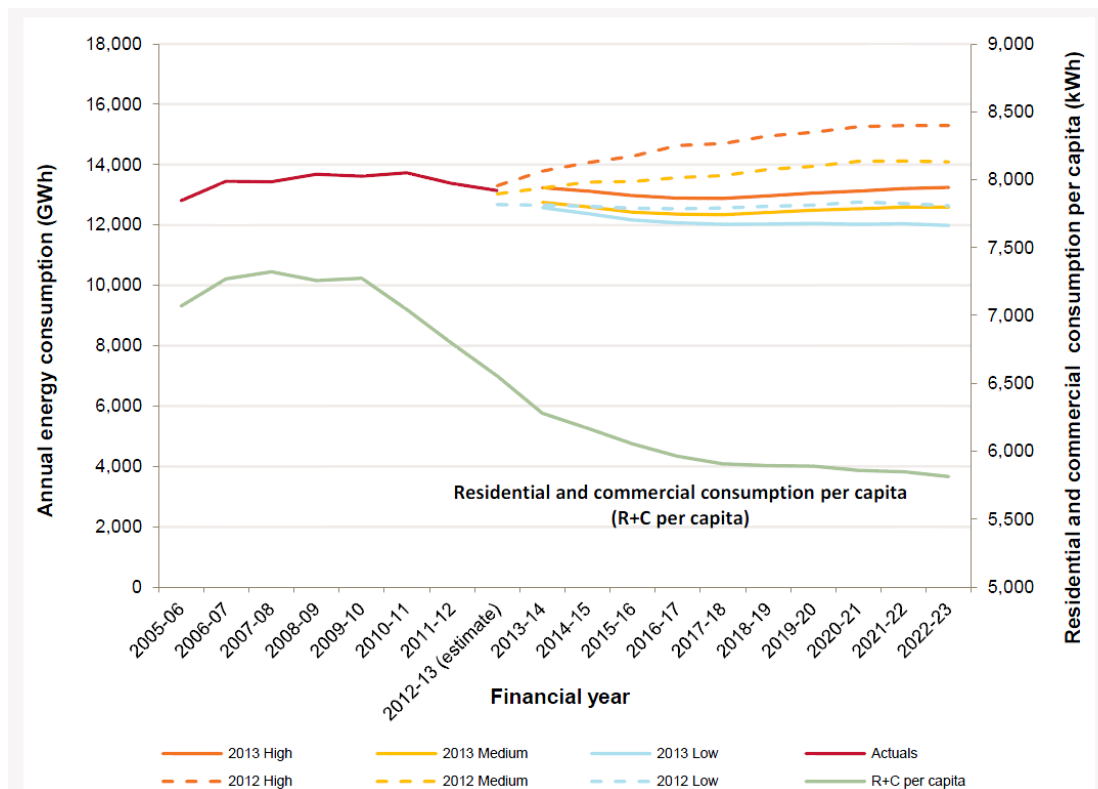


Figure 4-1 Predicted annual energy consumption 2013-2023

4.4 The Role of Renewable Energy

The Commonwealth Renewable Energy Target aims to deliver over 20% of Australian's generation by 2020. The Mandatory Renewable Energy Target was introduced in 2001 as a 2% target and was expanded as the Renewable Energy Target to a target of at least 20% of renewable energy by 2020. From January 2011 the target was split into two parts, the Large-scale renewable energy target (LRET), and the Small-scale renewable energy target (SRES). The LRET provides an obligation on retailers to source a percentage of their generation from large scale renewable energy sources. All retailers charge their customers for this.

In NSW the LRET costs around \$40 per customer per year according to IPART (1 July 2013). As all consumers in Australia pay for the LRET, it is important that NSW, the most populous state, and therefore the state contributing most to the cost of the LRET, benefits from it.

The Federal Government's stated long-term target is to reduce greenhouse gas emissions to 80% below 2000 levels by 2050. The Renewable Energy Target Scheme (RET) supports this target as does NSW 2021: A Plan to Make NSW Number One and the NSW Renewable Energy Action Plan.

The Clean Energy Act 2011 introduced a carbon pricing mechanism which commenced on 1 July 2012 and is scheduled to transition to flexible pricing from 1 July 2015 if it remains enacted.

Transitioning to renewable energy and how much new electricity is required, looking to the future, are interconnected but also respond to different drivers.

Supply–demand modelling in the Electricity Statement of Opportunities for the National Electricity Market 2013 (2013 ESOO) by AEMO (the Australian Energy Market Operator) assesses the adequacy of existing and committed electricity supply to meet demand in the NEM by identifying Low Reserve Condition (LRC) points. LRC points indicate when additional investment in generation or demand-side response may be required to maintain electricity supply reliability within the NEM Reliability Standard. 2013 Analysis shows that in the high economic growth scenario for NSW, a Low Reserve Condition point occurs in 2021–22, which is at least a year earlier compared to the 2012 ESOO despite lower projected demand. The change in LRC reflects the larger range of network limitations considered for the 2013 ESOO modelling compared to 2012.

However, additional Renewable Energy Certificates or Large Scale Generation Certificates are expected to be required from 2016 in order to meet the additional Large-scale Renewable Energy Target and the demand for GreenPower.

There is uncertainty surrounding the assumptions used and the predictions made by the Australian Energy Market Operator. Noting that the 2013 ESOO has revised the maximum demand predictions downwards compared with the 2012 ESOO due to:

- ▶ Continued increases in domestic rooftop PV installations incentivised through feed-in tariffs and reduced system installation prices.
- ▶ Lower-than-expected growth in most industrial sectors.
- ▶ Higher estimated impact from energy efficiency measures through capture of changes in building standards and regulations.
- ▶ Higher estimate of customer response to extreme price events based on analysis of historical demand-side participation behaviour.

In 2012–13, it is estimated that 774 MW of rooftop PV generation capacity was installed in the NEM. Rooftop PV generation is treated as a demand offset for the ESOO's supply adequacy assessment, contributing to the reduction in forecast demand.

The changing regulatory, policy and market setting for electricity generation in NSW and more broadly across the National Electricity Market has the potential to affect future modelling predictions. It is wise, accordingly, to take a cautious view of predictions made about additional capacity likely to be required in the future due to factors such as increased demand or the retirement of emissions intensive electricity generators in response to government policy or water shortages or natural disasters. There are a number of uncertainties inherent in the assumptions around matters such as future market conditions, domestic and global economics, demand management and energy efficiency uptake.

Another driver expected to become increasingly relevant is the downward pressure on electricity prices which results when wind farm penetration rises in a local (e.g. NSW) market as has been the case in South Australia. See economic benefits below.

To date the greater part of the investment and jobs from wind farms built under the RET have been in South Australia which has seen documented, attributed price reductions as a result. Victoria is hot on the heels of South Australia in moving towards its potential of installed capacity of wind generation.

With its excellent wind resource and grid connection options, identified across a number of government driven renewable energy precincts, NSW now has the opportunity to be a key beneficiary of the regional investment and lower electricity prices which accompanies the construction of multiple wind farms. New South Wales, which has announced it is open for business in renewable energy, has the opportunity to progress billions of dollars of new generation and associated jobs, community funding and flow-through regional economic benefits.

While a number of projects are available through the planning process it is likely that with the RET in place, even with a longer horizon to achieve the target, a good number of these wind farms will be required to meet that target.

4.5 Environmental Benefits

The Preferred Project & Submissions Report documents how the Yass Valley Wind Farm would

- ▶ generate more than 1,135,000 MWh of electricity per year from a renewable, sustainable resource - sufficient for the average consumption of around 142,000 homes;
- ▶ reduce greenhouse gas emissions by approximately 1,098,000 tonnes of carbon dioxide equivalent (CO₂e) per annum;
- ▶ contribute to the NSW Government's target of reducing greenhouse gas emissions by 60% by the year 2050;
- ▶ save up to 1,290 ML of water compared to producing the same amount of electricity from a coal-fired power station;
- ▶ remove the equivalent emissions that 300,000 cars produce annually; and
- ▶ provide opportunities for local environmental projects through the community enhancement fund – such as the solar hot water and rooftop PV opportunities for neighbours to the wind farm, landcare projects and similar initiatives.

4.6 Social Benefits

The offer of \$2,500 per wind turbine built per annum will result in up to \$360,000 going in to a community fund. Through a statement of commitment this is proposed to go directly to the Community Consultation Committee for distribution through to both the wider community and specifically to neighbours living with 5km of the wind farm. It is proposed that around 50% of this fund is available to neighbours to assist them to reduce their electricity bill by installing solar and energy efficiency options to their homes. This leaves a significant amount for distribution to environmental and community schemes as the community, which includes the two councils, sees fit.

The benefiting landowners own 32 of the 125 residences within 5km of the wind farm. This means the owners of over 26% of residences within 5km of a wind turbine will benefit financially from land agreements with the wind farm.

Contributions to local regional economies from wind farms have been shown to significantly improve the living environment in those regions. Services are improved and made more sustainable. Population decline can be arrested or reversed. Improved job opportunities allow young people to stay in the regions or return. Schools can see increases in pupils and remain viable.

4.7 Economic Benefits

Local Benefits

Wind farms bring investment to regional NSW. To build a \$400m wind farm requires a workforce working on site for up to 24 months. The workforce must live and eat locally to be able to work on site. This provides income to local members of the workforce and revenue to accommodation and services providers for those who must stay locally but live elsewhere. Local businesses benefitting are quarries, local construction firms, machine hire, vehicle hire, plumbers, electricians, labourers; accommodation providers – hotels, motels, B&Bs, house rentals, and restaurants, cafes; office services, communications providers and many more. A community enhancement fund is usually set up to provide funding for whatever purpose the local community sees fit. Roads are often upgraded in locations where they would be unlikely to receive such attention otherwise.

There is considerable confusion about the Renewable Energy Target that supports wind farms and other renewable generation. While a number of individuals are reported to have stated that renewable energy forms around 40% of electricity costs as can be seen below, an inquiry by the Public Accounts Committee of the NSW government’s Legislative Assembly, citing the NSW Auditor General, notes that all green schemes in operation form around 7% of an indicative annual electricity bill. The RET is understood to make up an even smaller portion, with the remainder of cost due to NSW support for the installation of solar panels.

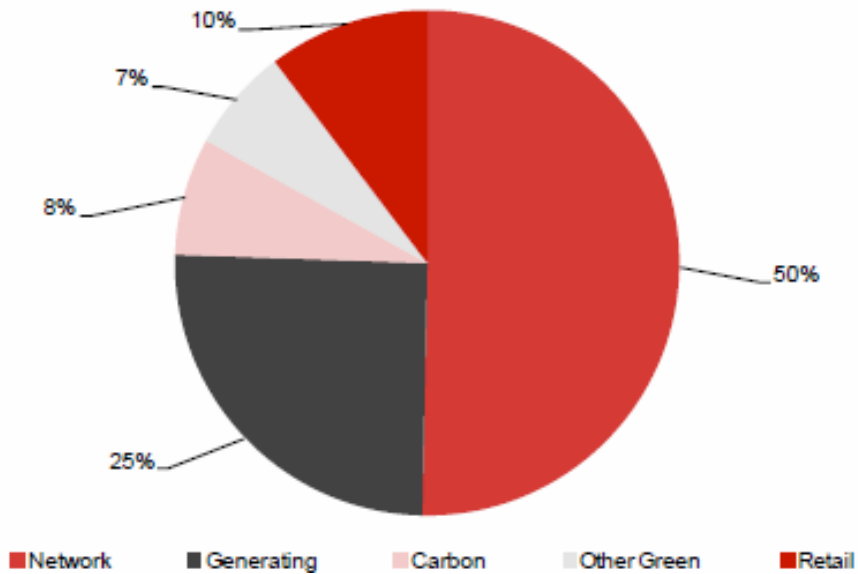


Figure 4-2 Composition of an indicative annual bill for customers in all NSW supply areas
 From: Legislative Assembly of NSW, Public Accounts Committee Report on The Economics of Electricity Generation published Nov 2012

Wind Farms Bring Electricity Prices Down

In South Australia it is clearly documented by independent sources that the greater the penetration of wind energy into the State’s electricity market the greater the downward pressure on wholesale prices – such price reductions being passed on to consumers.

The 2012 ESOO (AEMO, 2012) states that the average spot market prices for electricity in South Australia in 2010-11 and 2011-12 has been lower than expected and similar to the average spot price levels recorded for the years 2001-02 to 2005-06. The reduction in average spot market prices was attributed to certain factors including:

- ▶ mild summer temperatures in both years, with fewer and shorter high-price periods;
- ▶ reduced annual energy and increasing energy contributions from rooftop photovoltaics; and
- ▶ the increasing capacity of connected wind farms which, due to their lower operating costs,
- ▶ put downwards pressure on spot prices.

AEMO stated in its 2012 report that South Australian pool prices were the lowest since the start of the NEM (AEMO, 2012). AEMO data showed the wholesale prices were half of the average during periods of wind and the average wholesale price was 0.5c per kWh cheaper due to wind. The Essential Services Commission of

South Australia stated that the cost of wind power added just 0.366c per kWh to an electricity bill or \$18 a year per household.

This year’s reports from AEMO show this story continuing with consistent price reduction in wholesale electricity prices resulting from wind generation. SAEMET (2013) notes that “The total South Australian market generation volume-weighted average prices will be lower than the corresponding fossil-fuelled prices, as the total is effectively reduced by the lower renewable generation prices.”

A study this year (SKM 2013) shows that customers in Australia are on average likely to have an electricity price reduction over the period to 2020 as a result of the LRET. By way of example, a typical Victorian household using 7,000 kWh per annum is saving approximately \$35 per annum under the LRET over the period 2011-2025 (in real mid-2012 dollars) compared to a scenario in which the LRET did not exist.

The price reduction is due to the wholesale price effect of the LRET, which - at approximately \$12/MWh over the period 2011-2025 (in real mid-2012 dollars) – more than outweighs the impact of increased liabilities for certificates as the target grows.

The economic benefits of wind farms in Australia have been calculated (SKM, 2012a) and, for every 50MW in capacity a wind farm delivered the following benefits:

- ▶ Direct employment of up to 48 construction workers, with each worker spending approximately \$25,000 in the local area in shops, restaurants, hotels and other services (totalling up to \$1.2 million)
- ▶ Direct employment of around five staff – a total annual input of \$125,000 spent in the local economy
- ▶ Indirect employment during the construction phase of approximately 160 people locally, 504 state jobs and 795 nationwide jobs
- ▶ Up to \$250,000 per year for farmers in land rental income and \$80,000 on community projects each year.

Table 4-2 Economic benefits of the project

| <i>Economic benefit</i> | <i>SKM study for 50MW</i> | <i>Extrapolated for Yass 360 MW</i> |
|---|---------------------------|-------------------------------------|
| Construction workers | 48 | 345 |
| Permanent direct employment for life of the project | 5 | 36 |
| Indirect Employment | | |
| ▶ Locally | 160 | 1,152 |
| ▶ State | 504 | 3,628 |
| ▶ Nationwide | 795 | 5,724 |
| Land rental income | \$250,000 | \$1,800,000 |

AGL advised a Senate Enquiry in 2011 that its wind farms at Hallett in South Australia had employed an average of 98 construction workers at any one time from 2005 to 2010. AGL’s estimate of jobs associated with the construction of the Macarthur Wind Farm in Victoria, commissioned early this year, is 875 from the region, 2,490 from Victoria and 2,782 from Australia. 18 local residents make up the majority of the permanent site operation and maintenance team at this wind farm and these jobs will remain for at least 20 years.

5 Planning Context

5.1 Transition from Part 3A to State Significant Development

Yass Valley Wind Farm was a transitional Part 3A project, being a critical infrastructure project, assessable under the provisions of former Part 3A. As summarised by the Parliamentary Counsel's note to former section 75C, 'section 75R excludes with respect to [a critical infrastructure project] all environmental planning instruments (other than SEPPs that specifically relate to the project)'. However section 75J(3) provides that 'In deciding whether or not to approve the carrying out of a project, the Minister may (but is not required to) take into account the provisions of any environmental planning instrument that would not (because of section 75R) apply to the project if approved...'

On 19th March 2014 NSW Planning & Infrastructure wrote to Epuron advising that the project had been transitioned to the government's new State Significant Development (SSD) assessment system. The actions taken under the Part 3A process to date, including exhibition of the Environmental Assessment and the exhibition of the PPR have been accredited under the SSD process and are taken to have been completed.

5.2 Requirements of the Planning Assessment Process

Previously section 75H of the EP&A Act set out the process for public exhibition of the EA, written submissions to the EA, response to the submissions by the proponent and where necessary, a preferred project report which outlines any proposed changes to the project to minimise its environmental impact.

NSW Planning & Infrastructure did not consider that all changes to the exhibited EA, as documented in the Preferred Project Report lodged on 30 November 2012, minimised its environmental impact. However the public has had an opportunity to submit comment on the changes as in line with item (7) of the EP&A Act process detailed below, the Preferred Project & Submissions Report was put on public exhibition from 14 December 2012 to 1 March 2013.

75H Environmental assessment and public consultation

- (1) *The proponent is to submit to the Director-General the environmental assessment required under this Division for approval to carry out the project.*
- (2) *If the Director-General considers that the environmental assessment does not adequately address the environmental assessment requirements, the Director-General may require the proponent to submit a revised environmental assessment to address the matters notified to the proponent.*
- (3) *After the environmental assessment has been accepted by the Director-General, the Director-General must, in accordance with any guidelines published by the Minister in the Gazette, make the environmental assessment publicly available for at least 30 days.*
- (4) *During that period, any person (including a public authority) may make a written submission to the Director-General concerning the matter.*
- (5) *The Director-General is to provide copies of submissions received by the Director-General or a report of the issues raised in those submissions to:*
 - (a) *the proponent, and*
 - (b) *if the project will require an environment protection licence under Chapter 3 of the Protection of the Environment Operations Act 1997—the Department of Environment, Climate Change and Water, and*
 - (c) *any other public authority the Director-General considers appropriate.*
- (6) *The Director-General may require the proponent to submit to the Director-General:*
 - (a) *a response to the issues raised in those submissions, and*
 - (b) *a preferred project report that outlines any proposed changes to the project to minimise its environmental impact, and*
 - (c) *any revised statement of commitments.*
- (7) *If the Director-General considers that significant changes are proposed to the nature of the project, the Director-General may require the proponent to make the preferred project report available to the public.*

5.3 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (SEPP (Infrastructure)) prevails over inconsistencies with local environmental plans (clause 8). Clause 33 and 34 apply to electricity generating works. Clause 33 includes Zone RU1 Primary Production in the definition of ‘prescribed rural zone’. Clause 34(1) provides that ‘Development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone.’

As there is no SEPP that specifically relates to the project, the provisions of LEPs and SEPPs do not apply to Yass Valley Wind Farm (former section 75R). The Minister may, however, take into account that under the environmental planning instruments, the project would be permissible with consent (the prohibitions in the applicable LEPs being overridden by SEPP (Infrastructure) 2007).

5.4 Yass Valley Local Environmental Plans

Yass Valley Council was created by council amalgamation in 2004, and as a result three LEPs (Gunning, Yarrowlumla and Yass) applied in different parts of the local government area. The project is located on land which was subject to Yass LEP 1987, zoned No 1(a) Rural Agriculture. Wind farms were permissible with consent in Zone 1(a) Rural Agriculture.

Since the wind farm project entered the planning process Yass LEP 1987 has been replaced with Yass Valley Local Environmental Plan 2013. The project site is now zoned RU1 (Primary Production).

Wind farms would be prohibited in zone RU1 (Primary Production), however SEPP (Infrastructure) would override the prohibition (clauses 8,33 and 34), resulting in development for the purpose of electricity generating works, such as the proposed wind farm, being permissible with consent.

The Yass Valley Council have submitted their comments on the project – refer section 3.5.9 and Attachment 21.

5.5 Harden Local Environmental Plan

The project is located on land which was subject to Harden Interim Development Order No. 1 (dated 4 June, 1976). Since the wind farm project entered the planning process that planning instrument has been replaced with Harden Local Environmental Plan 2011. The project site is now zoned RU1 (Primary Production). As for Yass, the Harden LEP prohibits wind farms in this zone, however SEPP (Infrastructure) 2007 would override the prohibition (clauses 8, 33 and 34).

The Harden Shire Council have submitted their comments on the project – refer Attachment 21.

5.6 Commonwealth EPBC Referral

Referrals for the project under the EPBC Act have been submitted in two parts as shown on the map in Figure 5-1 on the following page. Details of the referrals are available on the Department of Environment’s website www.environment.gov.au

5.6.1 EPBC Referral 2013/7002 Yass Valley Wind Farm

It was determined that the proposed action is a controlled action and would have, or is likely to have, a significant impact on two matters of national environmental significance that are protected under Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and will be assessed on Preliminary Documentation. The controlling provisions are:

- ▶ listed threatened species and communities (section 18 and 18A); and
- ▶ Listed migratory species (sections 20 and 20A).

Epuron is in the process of preparing the required Preliminary Documentation to enable the department to complete its assessment.

5.6.2 EPBC Referral 2013/6989 Conroys Gap Wind Farm Stage 2

It was determined that the proposed action is a controlled action and would have, or is likely to have, a significant impact on a matter of national environmental significance that is protected under Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* and will be assessed on Preliminary

Documentation. The controlling provision is listed threatened species and communities (section 18 and 18A). Epuron is in the process of preparing the required Preliminary Documentation to enable the department to complete its assessment.

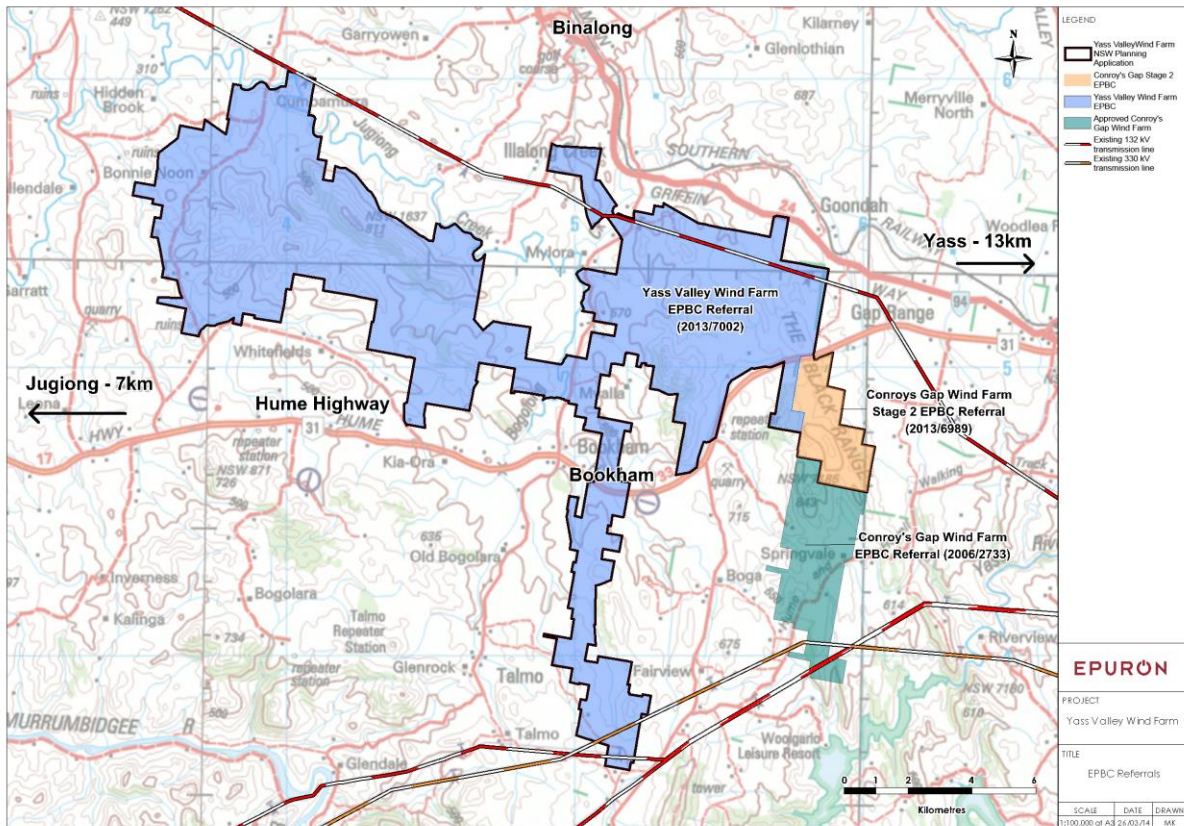


Figure 5-1 EPBC referrals and adjoining actions

6 Community Consultation

6.1 Local Community

The nearest turbine of the proposed Yass Valley Wind Farm would be located approximately 16 km west of Yass. The wind farm would be located on hills to the north and south of the Hume Highway, extending 24 km west to east and 12 km north to south. The properties on which it would be located are mainly used for sheep grazing.

6.2 Distribution of Neighbouring Residences

There are 23 neighbouring residences within 2 km of a proposed wind turbine, 17 of which belong to involved landholders and 6 of which are not involved in the wind farm. Within 3 km of a proposed wind turbine there are 23 involved landowners and 29 not-involved landowners. Widening out that distance to 5 km includes 124 residences. Of these 124 residences, 91 are not-involved and 33 are involved. See Table 6-1 below.

Table 6-1 Residences within 5km of the proposal

| Landowners | Involved | Not Involved | Total |
|---------------------------------------|-----------------|---------------------|--------------|
| Within 2 km | 17 | 6 | 23 |
| Total Within 3 km (includes 2km) | 23 | 30 | 53 |
| Total within 5 km | 33 | 91 | 124 |
| % ownership of residences within 5 km | 26% | 74% | 100 |

During the course of the development of the project the requirements for consultation have evolved and Epuron has increased its level of consultation accordingly.

Epuron personnel have visited all residences within 2 km on at least one occasion. At the time of this report, in total the project team had visited 36 non-involved landowners at their property or residence. During phone calls to residences within 5 km eight residents said they did not want or need to be visited. Epuron have visited 9 residences beyond 5 km, most of whom live in the area which will have some proximity to both Yass Valley Wind Farm and Conroy's Gap. Epuron has met with three landowners in Sydney.

Further meetings are planned with residents within 5km and phone contact is continuing.

Details of the consultation can be found in the consultation spreadsheet (section 6.4) which has properties identified but not names. This spreadsheet should be read in conjunction with the site map in Figure 2-1 or the A1 map in Attachment 24.

6.3 Details of Consultation

6.3.1 Newsletters

All residences within 5km have been sent newsletters. Since Epuron took the project back from Origin Energy in 2012 there have been three newsletters sent out to the community, in August 2012, December 2012 and June 2013. The mailing list for the newsletters started with 130 addresses and has grown to contain 174 addresses. Newsletters have been sent to everyone within 5km and Harden Shire and Yass Valley Councils have assisted with addresses for residences owned by companies or trusts. Ten newsletters were returned to sender from the August 2012 mail out of 130 addresses and the address list has been refined and expanded. From the May 2013 mail out to 174 addresses five newsletters were returned to sender and these have been re-addressed and resent. The newsletter is also sent out to agencies and community representatives and anyone else who has registered an interest in the project.

6.3.2 Residences within 2 km

There are six uninvolved residences within 2 km. Epuron has had face to face meetings with 5 of these.

The sixth, residence G16, is owned by the owners of Bogo quarry. Epuron is in touch with the owners who live off site and it is anticipated that the quarry would provide materials for the construction of the wind farm.

Residence number M42 is a new house (completed late 2012) whose presence was unknown to Epuron until contacted by the owner. Background noise data has been gathered for this house and this has resulted in the removal of the closest turbine which was proposed in the exhibited Preferred Project and Submissions Report. Discussion is on-going with the owners of G11 and G14 to determine preferred mitigation options for visual impact. G14 has stated an interested in screen planting and a large shed which will assist in focussing views towards more distant turbines.

6.3.3 Residences between 2 – 3 km

There are 24 non-involved residences between two and three kilometres of a wind turbine. All of the 24 residences have been sent newsletters. Origin Energy visited six, Epuron has visited a further nine, and beyond these 15 residents Epuron has made phone contact with a further landowner and sent letters to eight.

There has been limited contact with 2 landowners, M38 and G20, other than newsletters. The reason for this is that one, M38, is in a company name and Epuron has made numerous attempts to find the correct address but has had newsletters returned to sender and has resent them to other addresses listed for the same name. There has been no contact back from the last post out so it is hoped that the current address to which the newsletter has been sent is correct. G20 has been sent each of the newsletters but there has been no one in when passing and there is no phone number publicly listed.

The owners of property M8, Crisp Galleries, have shown Epuron personnel the general area of a proposed eco-tourism development which will require the adoption of a new LEP for the development to be permissible.

Epuron has had correspondence and a number of meetings with Crisp Galleries and have noted the request through the 2009 submission not to build a number of the proposed wind turbines. The original concerns of the Crisps were night lighting and shadow flicker. No night lighting is proposed for the wind farm and due to the distance between the general location of the tourism village and the wind farm there will be no shadow flicker experienced. For the 2009 Environmental Assessment ERM visited the location of the proposed eco-tourism village and prepared a photomontage. However plans of the layout of the village were not available in 2009 and have not been made available since being requested in April 2013. Epuron considers that as the wind turbines, at over 2.5 km away, would be compliant for noise and shadow flicker in the vicinity of the eco-tourism village, should the wind farm proceed to construction it would provide visual certainty. The proponent would provide any screen plantings requested to screen both the existing overhead transmission lines in the foreground view of the eco-tourism village as well as the wind turbines in the distance. At this stage it is not clear that the proposed eco-tourism village will go ahead and as there are no compliance issues Epuron is seeking approval for all wind turbine locations. Discussions will remain open between the Proponent and Crisp Galleries to maximise the benefits of the co-existence of the two projects.

Photomontages have been produced for all non-involved residences within 2km of any wind turbine and at typical viewpoints, as shown in the visual assessment (Attachment 5).

6.3.4 Residences between 3 – 5 km

There are 34 non-involved residences between 3 and 4 km from a turbine location. All have been sent newsletters. Epuron has met with nine residents, had phone contact with eleven, and written separately to eight residents.

There are 27 non-involved residences between 4 and 5 km from a turbine location. All of these residents have been sent newsletters. Origin met with eight residents and had phone contact with two. Epuron has met with six of the residents (five of who also met with Origin), had phone contact with nine and written separately to three.

In addition to photomontages for residences within 2km and viewpoints in the Landscape and visual impact assessment, Epuron has offered photomontages to other residents that live beyond 2km from turbines on request. Photomontages have been provided to four residents between 3 and 5km.

6.3.5 Residences between 5 – 6 km

Thirteen residents between five and six kilometres from a wind turbine are registered on the database. Some of these have made contact directly and some are neighbours to Conroy's Gap Wind Farm and in proximity to the five kilometre buffer with Yass Valley Wind Farm turbines. Epuron has sent newsletters to all of these residents, met with three and had phone contact with the same three and one further resident.

6.3.6 Total Contact ~5 km

- ▶ Newsletters to all residents
- ▶ Face to face meetings with 28 residents, three in Sydney
- ▶ Phone contact with 50 residents
- ▶ Separate letters to 22 residents

6.3.7 Community Consultation Committee

Epuron has established a Community Consultation Committee (CCC) for both the Yass Valley Wind Farm and the adjacent approved Conroy's Gap Wind Farm which has had met seven times since its inception early in 2013. The Minutes of the CCC are available at <http://www.epuron.com.au/project/yass-valley/>

The CCC consists of: an independent chair, an involved landowner, a representative of the Bookham Agricultural Bureau, two neighbours living within 5 km of Conroy's Gap Wind Farm, two neighbours (living beyond 5km) of Yass Valley Wind Farm, representatives of Harden Shire and Yass Valley Councils, two representatives of Epuron and an observer from the State government's renewable energy precincts program. The CCC also includes a number of members of the wind farm opposing Landscape Guardians group. Epuron is trying to expand the representation to include landowners within 2 km of the Yass Valley Wind Farm turbines. Epuron appreciates the on-going time commitment of the current members of the CCC.

The CCC has requested that Epuron contact everyone within 5 km of the Yass Valley and Conroy's Gap Wind Farms. To date Epuron has ensured that all resident in this 5 km zone have received information about the project and has focused on those individuals who through topography or proximity are considered most likely to have amenity impacts. Epuron continues to attempt to personally contact all residents in this proximity.

During on-going consultation residents living within 2km and 5km of a turbine have mentioned to Epuron that they would like to have been involved in the CCC but claim they did not receive the August newsletter advising of the formation of the CCC. Therefore they did not have the opportunity to declare an interest in becoming a member of the CCC. The current members of the Community Consultation Committee responded to the August newsletter which included a nomination form for the CCC.

The current membership of the CCC includes one neighbour living within 5km of the Yass Valley Wind Farm, who is also a neighbour to the Conroy's Gap Wind Farm. All other community members live beyond 5kms. The Draft NSW Planning guidelines: Wind Farms directs that at least 2 of the community representatives be neighbours within 2km of a wind turbine.

Should the project receive planning approval there is a statement of commitment which is intended to both remedy the current 'non-compliance' with the existing committee and provide an opportunity for new nominees (and existing members) and to put forward for selection on the new CCC which would be for Yass Valley Wind Farm only.

6.3.8 Issues Raised Through Consultation

A number of issues were raised in face to face meetings with the community. They are summarised below.

Table 6-2 Summary of issues raised through consultation

| <i>Issue</i> | <i>Detail</i> | <i>Response</i> |
|-------------------|---|--|
| Consultation | A number of people said they had not been adequately consulted | Continue to phone and visit neighbours and keep updating mailing list. |
| Community Benefit | A number of people said the community fund should go to the neighbours who bear the impacts. Most were interested in free electricity. Several said the community did not need halls or sporting facilities. Common theme that the fund not be given to the councils for roads. | Create a Statement of Commitment that allocates at least 50% of the Community Enhancement Fund to clean energy options for neighbours. Have the CCC, with council representation, in charge of the allocation of the funds.* |
| Property Values | Concern about the impact of the wind farm on property values. | Provide Valuer General's advice and information on the benefits of the project to the local community. |

| <i>Issue</i> | <i>Detail</i> | <i>Response</i> |
|------------------------------------|--|---|
| Visual Impact | Two aspects to visual impact – one was the impact on views and the other was the visual impact impacting upon property values. | Screening planting offered to mitigate both |
| Traffic and site access | Some queries about where the construction traffic would enter the site. | Detail provided |
| Do they work?/ Power prices | Some noted that they 'wouldn't mind wind farms if they worked' and if they didn't cost so much in subsidies | Provided information re SA and lower prices and AEMO reports Provided 'my bill has gone up' information sheet |
| Follow through on commitments | Some queries about how neighbours can trust that any new owner will follow through on promises we make | Explanation of statements of commitment and how any future company would be bound. |
| Screening planting | Requested by a number of residents | SoC to offer screening planting to residences within 5km |
| Aerial fire fighting & agriculture | Number of questions about ability to fight fires aerially. Questions about aerial super spraying | RFS information provided about turbines being treated like any other obstacle. Any additional costs to be met by the proponent. |
| Health impacts | A few queries about health | Provided Victorian Department of Health April 2013 information re health impacts |
| Agricultural Landing Areas (ALA) | Potential impacts from the wind farm on agricultural airstrips | Provided the CASA guidelines for ALAs and conducted an assessment of ALAs within the vicinity of the wind farm. No active airstrips within 2km of a proposed wind turbine See Attachment 12 for ALA map and details |

* Through consultation with neighbours to the wind farm several have mentioned that they consider the model of 50% of the community enhancement fund being allocated to clean energy options for neighbours within 5km to be a suitable arrangement for the equitable distribution of benefits to the impacted community. Some residents have noted that it would be productive to have individuals who are supporters of the wind farm on the CCC. It is proposed that the management of the community enhancement fund be through a newly established CCC to be elected when the project moves to construction – see SoC 73B.

6.4 Assessment of Neighbouring Residences

Consultation with neighbouring residences within approximately 5km of the proposed wind turbines and preliminary assessment of environmental effects has resulted in the targeting of particular residences for more detailed study in accordance with Table 6-3. See section 7 for the updated environmental assessments.

Table 6-3 Assessment of neighbouring residences in order of proximity to turbines

| <i>Residence ID Code</i> | <i>Landowner</i> | <i>Consultation – See Notes 1&2</i> | <i>Distance to nearest Yass turbine (km)</i> | <i>Nearest Yass turbine ID number</i> | <i>Relevant noise receiver (identified in accordance with SA EPA Guidelines 2003) – See Note 3</i> | <i>Residential viewpoint assessed in LVIA</i> |
|--------------------------|------------------|---|--|---------------------------------------|--|---|
| M18 | Involved | Visit | 0.9 | 84 | Yes | |
| G16 | Non-involved | Telephone | 1.1 | 96 | Yes | Yes |
| C27 | Involved | Visit | 1.1 | 111 | Yes | |
| G15 | Involved | Visit | 1.2 | 93 | Yes | |
| M42 | Non-involved | Visit | 1.2 | 114 | Yes | Yes |

| <i>Residence ID Code</i> | <i>Landowner</i> | <i>Consultation – See Notes 1&2</i> | <i>Distance to nearest Yass turbine (km)</i> | <i>Nearest Yass turbine ID number</i> | <i>Relevant noise receiver (identified in accordance with SA EPA Guidelines 2003) – See Note 3</i> | <i>Residential viewpoint assessed in LVIA</i> |
|--------------------------|------------------|---|--|---------------------------------------|--|---|
| C68 | Involved | Visit | 1.3 | 111 | Yes | |
| M21 | Involved | Visit | 1.4 | 111 | Yes | |
| M41 | Involved | Visit | 1.4 | 111 | Yes | |
| C56 | Involved | Visit | 1.4 | 41 | Yes | |
| C03 | Involved | Visit | 1.4 | 41 | Yes | |
| G14 | Non-involved | Visit | 1.4 | 136 | Yes | Yes |
| G31 | Involved | Visit | 1.5 | 84 | Yes | |
| M48 | Involved | Visit | 1.5 | 93 | Yes | |
| C02 | Involved | Visit | 1.7 | 44 | Yes | |
| C55 | Involved | Visit | 1.7 | 41 | Yes | |
| G11 | Non-involved | Visit | 1.7 | 143 | Yes | Yes |
| G12 | Involved | Visit | 1.8 | 143 | Yes | |
| G38 | Involved | Visit | 1.8 | 136 | Yes | |
| M32 | Involved | Visit | 1.9 | 95 | Yes | |
| M20 | Non-involved | Visit | 1.9 | 100 | Yes | Yes |
| M24 | Non-involved | Visit | 1.9 | 100 | | Yes |
| C05 | Involved | Visit | 2.0 | 77 | | |
| G13 | Involved | Visit | 2.0 | 136 | Yes | |
| C06 | Non-involved | Visit | 2.1 | 77 | | |
| C26 | Involved | Visit | 2.1 | 122 | Yes | |
| M1 | Non-involved | Visit | 2.1 | 100 | | |
| M3 | Non-involved | Telephone | 2.1 | 100 | | |
| M4 | Non-involved | Visit | 2.2 | 100 | | Yes |
| C04 | Involved | Visit | 2.3 | 50 | Yes | |
| C08 | Non-involved | Visit | 2.3 | 77 | | |
| M2 | Non-involved | Newsletter | 2.3 | 100 | | |
| C25 | Involved | Visit | 2.3 | 88 | Yes | |
| M35 | Non-involved | Visit | 2.4 | 100 | | |
| M8 | Non-involved | Visit | 2.4 | 136 | Yes | Yes |
| G10 | Involved | Visit | 2.5 | 145 | | |
| C37 | Non-involved | Visit | 2.5 | 126 | | Yes |
| G29 | Non-involved | Visit | 2.5 | 95 | | Yes |
| M34 | Non-involved | Newsletter | 2.5 | 100 | | |
| C60 | Non-involved | Visit | 2.6 | 77 | | |
| M22 | Non-involved | Visit | 2.6 | 114 | | Yes |
| M37 | Non-involved | Visit | 2.6 | 126 | | |

| <i>Residence ID Code</i> | <i>Landowner</i> | <i>Consultation – See Notes 1&2</i> | <i>Distance to nearest Yass turbine (km)</i> | <i>Nearest Yass turbine ID number</i> | <i>Relevant noise receiver (identified in accordance with SA EPA Guidelines 2003) – See Note 3</i> | <i>Residential viewpoint assessed in LVIA</i> |
|--------------------------|------------------|---|--|---------------------------------------|--|---|
| C35 | Involved | Visit | 2.7 | 129 | | |
| C41 | Non-involved | Visit | 2.7 | 77 | | Yes |
| G20 | Non-involved | Newsletter | 2.7 | 144 | | |
| G24 | Non-involved | Visit | 2.7 | 145 | | |
| C01 | Non-involved | Visit | 2.8 | 63 | | Yes |
| C75 | Non-involved | Newsletter | 2.8 | 79 | | |
| G40 | Non-involved | Visit | 2.8 | 143 | | |
| M36 | Non-involved | Newsletter | 2.8 | 100 | | |
| C71 | Involved | Visit | 3.0 | 8 | | |
| M38 | Non-involved | Newsletter | 3.0 | 100 | | |
| M40 | Non-involved | Newsletter | 3.0 | 112 | | |
| C69 | Non-involved | Visit | 3.0 | 111 | | |
| C29 | Involved | Visit | 3.1 | 8 | | |
| G23 | Non-involved | Newsletter | 3.1 | 145 | | |
| G7 | Non-involved | Visit | 3.1 | 145 | | |
| M39 | Non-involved | Visit | 3.1 | 100 | | |
| G8 | Involved | Visit | 3.2 | 145 | | |
| G60 | Involved | Visit | 3.2 | 145 | | |
| C74 | Non-involved | Telephone | 3.2 | 129 | Yes | |
| M46 | Non-involved | Newsletter | 3.2 | 100 | | |
| C58 | Non-involved | Visit | 3.3 | 79 | | |
| C67 | Non-involved | Visit | 3.3 | 74 | | Yes |
| G59 | Non-involved | Newsletter | 3.4 | 145 | | |
| G9 | Involved | Visit | 3.4 | 145 | | |
| C38 | Non-involved | Newsletter | 3.5 | 69 | | |
| C42 | Non-involved | Telephone | 3.5 | 76 | | Yes |
| C53 | Non-involved | Newsletter | 3.5 | 126 | | |
| G44 | Non-involved | Newsletter | 3.5 | 144 | | |
| M13 | Involved | Visit | 3.6 | 95 | | |
| C46a | Non-involved | Visit | 3.6 | 76 | | |
| G41 | Non-involved | Newsletter | 3.6 | 143 | | |
| G58 | Non-involved | Newsletter | 3.6 | 144 | | |
| M6 | Non-involved | Newsletter | 3.6 | 100 | | |
| C13 | Non-involved | Visit | 3.7 | 41 | | |
| C22 | Non-involved | Newsletter | 3.7 | 79 | | |
| G18 | Non-involved | Visit | 3.7 | 143 | | |

| <i>Residence ID Code</i> | <i>Landowner</i> | <i>Consultation – See Notes 1&2</i> | <i>Distance to nearest Yass turbine (km)</i> | <i>Nearest Yass turbine ID number</i> | <i>Relevant noise receiver (identified in accordance with SA EPA Guidelines 2003) – See Note 3</i> | <i>Residential viewpoint assessed in LVIA</i> |
|--------------------------|------------------|---|--|---------------------------------------|--|---|
| G57 | Non-involved | Visit | 3.7 | 144 | | |
| M9 | Non-involved | Newsletter | 3.7 | 95 | | |
| G19 | Non-involved | Newsletter | 3.8 | 143 | | |
| M31 | Non-involved | Newsletter | 3.8 | 95 | | |
| C49 | Non-involved | Newsletter | 3.9 | 76 | | |
| G23 | Non-involved | Newsletter | 3.9 | 145 | | |
| M25 | Non-involved | Newsletter | 3.9 | 95 | | |
| M28 | Non-involved | Newsletter | 3.9 | 95 | | |
| M29 | Non-involved | Newsletter | 3.9 | 95 | | |
| M30 | Non-involved | Newsletter | 3.9 | 95 | | |
| C07 | Non-involved | Newsletter | 4.0 | 69 | | |
| C62 | Non-involved | Newsletter | 4.0 | 76 | | |
| C78 | Non-involved | Newsletter | 4.0 | 95 | | |
| C79 | Non-involved | Newsletter | 4.0 | 95 | | |
| M26 | Non-involved | Newsletter | 4.0 | 95 | | |
| C30 | Involved | Visit | 4.1 | 1 | | |
| C59 | Non-involved | Visit | 4.1 | 77 | | |
| C61 | Non-involved | Visit | 4.1 | 76 | | |
| C66 | Non-involved | Visit | 4.1 | 95 | | |
| C77 | Non-involved | Newsletter | 4.1 | 76 | | |
| C80 | Non-involved | Newsletter | 4.1 | 95 | | |
| G36 | Non-involved | Newsletter | 4.1 | 136 | | |
| C47 | Non-involved | Newsletter | 4.2 | 95 | | |
| C76a | Non-involved | Visit | 4.2 | 47 | | |
| G55 | Non-involved | Visit | 4.2 | 144 | | |
| M5 | Non-involved | Newsletter | 4.2 | 100 | | |
| C73 | Non-involved | Newsletter | 4.3 | 69 | | |
| C48 | Non-involved | Newsletter | 4.3 | 76 | | |
| C63 | Non-involved | Newsletter | 4.3 | 95 | | |
| C64 | Non-involved | Newsletter | 4.3 | 95 | | |
| C65 | Non-involved | Newsletter | 4.3 | 95 | | |
| G39 | Non-involved | Newsletter | 4.3 | 143 | | |
| C39 | Non-involved | Newsletter | 4.4 | 69 | | Yes |
| G4 | Involved | Visit | 4.4 | 145 | | |
| G30 | Non-involved | Visit | 4.5 | 47 | | |
| M7 | Non-involved | Telephone | 4.5 | 100 | | |

| <i>Residence ID Code</i> | <i>Landowner</i> | <i>Consultation – See Notes 1&2</i> | <i>Distance to nearest Yass turbine (km)</i> | <i>Nearest Yass turbine ID number</i> | <i>Relevant noise receiver (identified in accordance with SA EPA Guidelines 2003) – See Note 3</i> | <i>Residential viewpoint assessed in LVIA</i> |
|--------------------------|------------------|---|--|---------------------------------------|--|---|
| H30 | Involved | Visit | 4.5 | 50 | | |
| C52 | Involved | Visit | 4.6 | 111 | | |
| M33 | Non-involved | Newsletter | 4.6 | 100 | | |
| C28 | Non-involved | Newsletter | 4.7 | 13 | | |
| C28a | Non-involved | Newsletter | 4.7 | 13 | | |
| G32 | Non-involved | Newsletter | 4.7 | 47 | | |
| G5 | Non-involved | Newsletter | 4.7 | 145 | | |
| C34 | Non-involved | Visit | 4.8 | 1 | | |
| G26 | Non-involved | Newsletter | 4.8 | 95 | | |
| G3 | Non-involved | Telephone | 4.8 | 95 | | |
| C33 | Involved | Visit | 5.0 | 1 | | |

Notes:

- 1."Visit" indicates there has also been telephone contact & newsletters sent
- 2."Telephone" indicates newsletters also sent
- 3.A relevant receiver for noise assessment is a residence that has an initial prediction of higher than 35 dB(A)

6.5 Residences to the North West of Coppabella

Following the exhibition of the Preferred Project Report (Nov 2012) NSW P&I requested further information about localised impacts to residences in proximity to the 12 wind turbines relocated to the north west of the Coppabella precinct. Further studies had been undertaken and consultation has been ongoing up to the time of lodgement of this PP&SR (May 2014). Details of the latest consultation are outlined in Table 6-4. Further details on changes to noise and visual amenity are included in section 8.4

Table 6-4 Changed impacts to individuals in north-west of the wind farm

| <i>Receiver ID</i> | <i>Distance to nearest turbine (km)</i> | <i>Most recent consultation</i> | <i>Comments</i> |
|--------------------|---|---------------------------------|---|
| G16 | 1.1 | Telephone Nov 2013 | Supportive, owner runs quarry and is in on-going discussion regarding supply for construction |
| C37 | 2.5 | Telephone 21 Apr 2014 | Residence in valley with no views of turbines. Queried effects on livestock. Issue discussed. No other concerns raised. |
| C01 | 2.8 | Telephone 22 Mar 2014 | No issues, previously involved. No concerns raised. |
| C74 | 3.2 | Telephone 16 Apr 2014 | Noise logging and photomontages undertaken. Not a supporter but no issues raised. |
| C53 | 3.5 | Telephone 11 Apr 2014 | Noise concerns addressed (Nov 2013). Photomontage sent Jan 2014. Uncertain about what will hear but no other concerns raised. |
| C38 | 3.5 | Telephone 11 Apr 2014 | Reduced impact. Pleased about relocation of western-most turbines. Supports wind energy |

| <i>Receiver ID</i> | <i>Distance to nearest turbine (km)</i> | <i>Most recent consultation</i> | <i>Comments</i> |
|--------------------|---|---------------------------------|---|
| C07 | 4.0 | Telephone 14 Apr 2014 | Formally involved. Reduced impact. No concerns. |
| C73 | 4.3 | Telephone 14 Apr 2014 | Reduced impact No issues raised. Supports renewable energy where doesn't impact others. Decommissioning queries addressed. |
| C39 | 4.4 | Telephone 11 Apr 2014 | Concerns (night lighting & erosion) raised through EA submission (see section 2.4.3) have been addressed. Visual impact is the only concern but owner considers has been improved by the relocation of turbines to the west of COP. |
| C09 | 5.3 | Telephone 17 Apr 2014 | Reduced noise and visual impacts. Concerned about level of consultation. Copies of newsletters resent (mail and email). Visual impact of concern. |

7 Updated Environmental Assessments

The assessment of the key environmental issues addressed in the Environmental Assessment were updated as part of the PPR (November 2012) and updated again as part of this Preferred Project & Submissions Report to incorporate:

- ▶ the changes in infrastructure layout for the preferred project;
- ▶ matters arising from the submissions that required further assessment;
- ▶ matters arising from community consultation; and
- ▶ comments received from NSW Planning & Infrastructure.

7.1 Visual Impact Assessment

A supplementary Landscape and Visual Impact Assessment has been completed by Environmental Resources Management (ERM) and included as Attachment 5 to this report to accommodate the changes made to the wind turbine layout as a result of the submissions received. The supplementary report supports the original conclusion that the proposed Yass Valley Wind Farm will have a generally low visual impact on its surrounds, and the site is a suitable landscape for the construction of a wind farm. The supplementary assessment confirms that the revised transmission line and associated substations will have low to negligible visual impact for most locations within the viewshed.

An additional site visit was undertaken on 25 and 26 March 2013 to assess the following:

- ▶ Visual impact from all non-involved residences located within 2km of a proposed wind turbine;
- ▶ Visual impact of the revised transmission line route; and
- ▶ The cumulative visual impact of the proposed Yass Valley Wind Farm and the approved Conroy's Gap Wind Farm.

7.1.1 Non-involved Residential Viewpoints

Additional assessment was undertaken for all six non-involved residences located within 2km of a proposed wind turbine. One of these (M42) is a new residence that was built in 2012. Further residential viewpoints were to the north, east and south of the project to provide a comprehensive assessment of the visual impact of the project. Revised photomontages have been prepared for each of these locations. The visual impact from residential viewpoints is summarised in Table 7-1 below.

Table 7-1 Summary of visual impacts from residential viewpoints

| House ID (EA VP#) | Distance and direction to nearest wind turbine - EA | Overall visual impact - EA | Distance and direction to nearest wind turbine - Current Proposal | Overall visual impact - Current Proposal |
|--------------------------|--|--|--|---|
| G14 (R1) | 1.3 km - S (MRL 53) | Low – without screening Existing screening | 1.4 km - SW (136) | Low – without screening Existing screening |
| M04 (R2) | 2.1 km - S (MRL 43) | Low – without landscape mitigation Screening may not be appropriate | 2.1 km - SW (100) | Low – without landscape mitigation Screening may not be appropriate |
| M22 (R3) | 2.2 km - S (MRL 05) | Low – without landscape mitigation Screening may not be appropriate | 2.5 km - S (114) | Low – without landscape mitigation Screening may not be appropriate |
| C83 (R4) | 10 km - S (COP01) | Negligible – without landscape mitigation Extensive existing | 9.9 km - SW (129) | Negligible – without landscape mitigation Extensive existing screening |

| <i>House ID (EA VP#)</i> | <i>Distance and direction to nearest wind turbine - EA</i> | <i>Overall visual impact - EA</i> | <i>Distance and direction to nearest wind turbine - Current Proposal</i> | <i>Overall visual impact - Current Proposal</i> |
|---|--|---|--|---|
| | | screening | | |
| C39 (R5) | 4.5 km - SE (COP74) | Medium - without landscape mitigation | 4.3 km - SE (69) | Medium - without landscape mitigation |
| G27 (R6) | 2.4 km to the South (CAR 01) 8.1 km to the North (MRL 39) | Low – without screening Existing screening | No turbines to the south. 7.7 km - N (95) | Not applicable Existing screening |
| M8 (R7) | 2.3 km - S (MRL 53) | Negligible – Existing vegetation around gallery Medium – Bamboo garden without mitigation Low – Proposed eco village site | 2.3 km – SW (136) | Negligible – Existing vegetation around gallery Medium – Bamboo garden without mitigation Low – Proposed eco village site |
| C41 (R8) | 2.7 km - N (COP 68) | Low - without landscape mitigation | 2.7 km – NW (77) | Low - without landscape mitigation |
| C42 (R9) | 3.8 km - NW (COP 71) | Medium - without landscape mitigation | 3.5 km – NW (76) | Medium - without landscape mitigation |
| Additional residential viewpoints assessed (not previously assessed in EA) | | | | |
| G11 | | | 1.7 km-W (143) | Low – Existing vegetation and orientation of residence |
| G16 | | | 1.1 km-W (96) | Nil - from living areas Medium to Low - from driveway with landscape mitigation |
| M20 | | | 1.8 km-SW (100) | High - from living areas Medium to Low - with landscape mitigation |
| M24 | | | 1.9 km-SW (100) | Low - from living areas Low - with landscape mitigation |
| M42 | | | 1.1 km-S (114) | Nil - from living areas Low - from driveway with landscape mitigation |
| C01 | | | 2.7 km-NE (63) | Nil - from living areas Low - from driveway |
| C37 | | | 2.5 km-SE (126) | Nil |
| C67 | | | 3.3 km-NW (74) | Medium - from living areas High - from garden without landscape mitigation |
| G29 | | | 2.5 km-N (95) | Medium - from living areas Medium to Low - with landscape mitigation |
| Goondah | | | 2.3 km-S (100) | Low to Negligible |
| Bookham | | | 3.8 km-NE (95) | Low to Negligible |

In response to a request from NSW Planning and Infrastructure, the location of all residences located within 8.5 km of a wind turbine has now been identified – see Table 7-2 below summarising the number of residences located within each distance band from the nearest turbine. The location of these residences have been identified on an updated A1 size ZVI map (see Attachment 8) which provides an indication of the possible

number of turbines that will be visible from each location. An assessment of the potential visual impact from each residence has been carried out based on the distance to the nearest turbine, the number of wind turbine hubs potentially visible and the screening from existing vegetation. The results of this assessment are included in tables in Attachment 7.

Table 7-2 Number of residences within 8.5km of the Yass Valley Wind Farm

| <i>Distance to nearest turbine</i> | <i>Total number of residences</i> | <i>Involved residences</i> | <i>Non-involved residences</i> | <i>Residential viewpoints assessed</i> | <i>Number of photomontages</i> |
|------------------------------------|-----------------------------------|----------------------------|--------------------------------|--|--------------------------------|
| 0 - 1 km | 1 | 1 | 0 | 0 | 1 |
| 1 - 2 km | 22 | 16 | 6 | 6 | 5* |
| 2 - 3 km | 29 | 6 | 23 | 4 | 5 |
| 3 - 4 km | 35 | 5 | 30 | 2 | 7 |
| 4 - 5 km | 37 | 5 | 36 | 3 | 2 |
| 5 - 6 km | 25 | 3 | 18 | 1 | 1 |
| 6 - 7 km | 32 | 0 | 32 | 0 | 0 |
| 7 - 8.5 km | 200 | 0 | 200 | 1 | 1 |
| >8.5 km | - | - | - | 1 | 4 |
| Total | 377 | 36 | 345 | 18 | 26 |

*Note that one resident did not provide permission for a photomontage to be used for further assessment

7.1.2 Revised Transmission Line

The visual impact assessment of the transmission line follows the same methodology used for the assessment of the wind turbines including defining the viewshed, establishing a zone of visual influence and visual impact assessment from publically accessible locations.

The viewshed of the transmission line is defined by the poles (up to 45m high) and will extend up to a distance of 5km, but the transmission line will be visible from very few locations on the surrounding road network. The overall visual impact of the proposed transmission line will be negligible with the associated substations having a negligible to low visual impact.

The visual impact assessment has also been updated to include an assessment of revised transmission line from the nearest residential viewpoints.



Figure 7-1 Typical overhead transmission line configurations - 330kV double circuit steel poles (left) 132kV single circuit concrete poles (right)

7.1.3 Cumulative Impact with Conroys Gap Wind Farm

The supplementary LVIA has been updated to include consideration of the cumulative impact of the Yass Valley Wind Farm together with the adjacent Conroys Gap Wind Farm, including for each of the individual residential viewpoints as shown in Table 7-3.

Table 7-3 Cumulative visual impacts from public viewpoints

| Viewpoint | Distance to proposed wind turbines (YVWF) | Distance to approved wind turbines (CGWF) | Assessment of cumulative visual impact of approved CGWF and proposed YVWF |
|--------------------------|---|---|--|
| PUBLIC VIEWPOINTS | | | |
| VP01 | 16.7 km - NW (144) | 16.8 km - W (R14) | Negligible (Screened by vegetation and built form of Yass township) |
| VP02 | 16.4 km - NW (144) | 16.6 km - W (R14) | Nil (no views to wind turbines) |
| VP03 | 12.6 km - W (143) | 13.5 km - W (R5) | Negligible (The distance to nearest wind turbines) |
| VP04 | 4.7 km - SW (143) | 6.7 km - SW (R1) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP05 | 2.4 km - SW (136) | 5.3 km - SW (R1) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP06 | 0.3 km - SE (136) | 3.7 km - S (R1) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP07 | 1.2 km - NW (93) | 3.3 km - SE (R1) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP08 | 5.6 km - N (95) | 2.5 km - E (R12) | Medium (The CGWF will appear in the foreground) |
| VP09 | 9.6 km - N (145) | 2.4 km - S (S14) | Medium (The CGWF will appear in the foreground) |
| VP10 | 8.9 km - NE (145) | 3 km - NE (S14) | Medium (The CGWF will appear in the foreground) |
| VP11 | 10.8 km - N (95) | 6.3 km - NE (S14) | Low (The distance to nearest wind turbines) |

| <i>Viewpoint</i> | <i>Distance to proposed wind turbines (YVWF)</i> | <i>Distance to approved wind turbines (CGWF)</i> | <i>Assessment of cumulative visual impact of approved CGWF and proposed YVWF</i> |
|------------------------------|--|--|--|
| VP12 | 20.2 km - NE (95) | 15.4 km - NE (S14) | Nil (No views to wind turbines due to intervening topography and vegetation. Refer LVIA) |
| VP13 | 5.4 km - NE (145) | 0.9 km - NE (R12) | Low (Low viewer numbers) |
| VP14 | 4.1 km - NW (76) | 8.4 km - E (R2) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP15 | 11.7 km - NE (95) | 10.9 km - NE (R12) | Negligible (The distance to nearest wind turbines) |
| VP16 | 1.4 km - E (122) | 10.1 km - SE (R1) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP17 | 2.3 km - SW (112) | 9.6 km - SE (R1) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP18 | 1.8 km - SW (100) | 7.9 km - S (R1) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP19 | 23.6 km - NW (145) | 17.5 km - NW (S14) | Negligible (The distance to nearest wind turbines) |
| VP20 | 21.5 km - NW (145) | 15.5 km - NW (S14) | Negligible (The distance to nearest wind turbines) |
| VP21 | 18.7 km - NW (145) | 12.7 km - NW (S14) | Nil (No wind turbines visible – refer LVIA) |
| VP22 | 14.6 km - NW (145) | 9.3 km - NW (S14) | Nil (No wind turbines visible – refer LVIA) |
| VP23 | 12.2 km - NW (145) | 6.7 km - NW (S14) | Nil (No wind turbines visible – refer LVIA) |
| VP24 | 3.2 km - N (145) | 2 km - NW (R9) | Low (Low viewer numbers) |
| VP25 | 1.9 km - NE (95) | 5.1 km - E (R2) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP26 | 2.4 km - NE (77) | 13.1 km - E (R2) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP27 | 1.5 km - NE (79) | 14.8 km - E (R2) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP28 | 3.1 km - E (88) | 8.7 km - SE (R1) | Low (The distance to YVWF and the two farms would appear contiguous and indistinguishable) |
| VP29 | 8.4 km - SE (111) | 17.6 km - SE (R1) | Negligible (The distance to nearest CGWF wind turbines) |
| VP30 | 5.5 km - SW (1) | 19.3 km - SE (R1) | Negligible (The distance to nearest CGWF wind turbines) |
| VP31 | 4.9 km - SW (129) | 22.8 km - SE (R1) | Negligible (The distance to nearest CGWF wind turbines) |
| VP32 | 1.8 km - SW (129) | 22.2 km - SE (R1) | Negligible (The distance to nearest CGWF wind turbines) |
| VP33 | 3 km - SE (69) | 27.4 km - SE (R1) | Negligible (The distance to nearest CGWF wind turbines) |
| VP34 | 8.8 km - NE (41) | 25.9 km - E (R12) | Negligible (The distance to nearest CGWF wind turbines) |
| SEQUENTIAL VIEWPOINTS | | | |
| SVP-01 | 8.7 km - NE (41) | 25.9 km - E (R12) | Negligible |
| SVP-02 | 5.5 km - NE (41) | 22.2 km - E (R2) | Negligible |
| SVP-03&04 | 4.3 km - E (95) | 8.1 km - E (R2) | Low |
| SVP-05 | 9.4 km - NW (1) | 20 km - SE (R1) | Negligible |

| <i>Viewpoint</i> | <i>Distance to proposed wind turbines (YVWF)</i> | <i>Distance to approved wind turbines (CGWF)</i> | <i>Assessment of cumulative visual impact of approved CGWF and proposed YVWF</i> |
|-------------------------------|--|--|--|
| SVP-06 | 2.3 km - S (100) | 8.5 km - S (R1) | Low |
| SVP-07 | 6 km - SW (143) | 8 km - SW (R5) | Low |
| SVP-08 | 4.8 km - NW (143) | 5.6 km - W (R5) | Low |
| SVP-09 | 8.9 km - NE (145) | 2.1 km - NE (S14) | Medium |
| SVP-10 | 13.2 km - NE (95) | 8.9 km - NE (S14) | Negligible |
| SVP-11 | 6.2 km - SE (111) | 15.3 km - SE (R1) | Negligible |
| CUMULATIVE VIEWPOINTS | | | |
| CVP1 | 5.2 km - SW (143) | 7.3 km - SE (R5) | Low |
| CVP2 | 3.2 km - SW (136) | 5.9 km - SW (R1) | Low |
| CVP3 | 0.9 km - W (96) | 3.0 km - E (R1) | Low |
| CVP4 | 2.0 km - NE (95) | 5.2 km - E (R2) | Low |
| RESIDENTIAL VIEWPOINTS | | | |
| G14 (R1) | 1.4 km - SW (136) | 4.4 km - SW (R1) | Low |
| M04 (R2) | 2.1 km - SW (100) | 8.3 km - S (R1) | Low |
| M22 (R3) | 2.6 km - SW (114) | 10.7 km - SE (R1) | Negligible |
| C83 (R4) | 10 km - SW (129) | 25.6 km - SE (R1) | Negligible |
| C39 (R5) | 4.3 km - SE (69) | 28.8 km - SE (R1) | Nil (CGWF will not be visible) |
| G27 (R6) | 7.7 km - N (95) | 3.8 km - NE (R12) | Low (Wind farms contiguous and indistinguishable and screened by vegetation) |
| M8 (R7) | 2.3 km - SW (136) | 5.5 km - S (R1) | Low (Wind farms contiguous and indistinguishable and screened by vegetation) |
| C41 (R8) | 2.7 km - NW (77) | 10.9 km - E (R2) | Negligible (screened by intervening topography to east) |
| C42 (R9) | 3.6 km - NW (76) | 8.7 km - E (R2) | Negligible (CGWF screened by topography) |
| G11 | 1.7 km - W (143) | 3.3 km - SW (R5) | Low |
| G16 | 1.1 km - W (96) | 2.9 km - E (R1) | Low |
| M20 | 1.9 km - SW (100) | 7.9 km - S (R1) | Negligible |
| M24 | 1.9 km - SW (100) | 8.0 km - S (R1) | Negligible |
| M42 | 1.1 km - S (114) | 9.7 km - SE (R1) | Negligible |
| C01 | 2.7 km - NE (63) | 24.1 km - SE (R1) | Nil |
| C37 | 2.5 km - SE (126) | 25.9 km - SE (R1) | Nil |
| C67 | 3.3 km - NE (74) | 8.7 km - E (R1) | Nil |
| G29 | 2.5 km - NE (95) | 3.4 km - E (S3) | Medium |
| Goondah | 2.2 km - SW (100) | 8.3 km - S (R1) | Negligible |
| Bookham | 3.9 km - E (95) | 7.6 km - E (R2) | Negligible |

7.1.4 Conclusion

The supplementary visual impact assessment concluded that the proposed Yass Valley Wind Farm will have a generally low visual impact on its surrounds, and the site is suitable landscape for the construction of a wind farm.

7.2 Noise Impact Assessment

An updated Noise Impact Assessment (NIA) has been completed by Marshall Day Acoustics, see Attachment 4. The updated NIA is based on a layout consisting of 147 turbines, the PP&SR layout has 144 turbines. Three turbines were included in the noise impact assessment which have since been removed (Turbines 107, 108 and 109 as per the numbering of the NIA). The conclusion from the report is still valid as the removal of turbines will further reduce predicted noise levels at some impacted receivers, but for most receivers will not be significant. Due to the inclusion of the three turbines in the assessment, the predicted noise levels are considered conservative particularly for the closest receivers to the removed turbines i.e. receivers C25 and C26. The assessment updated the previous assessment included in the EA and includes:

- ▶ Operational noise predictions for the revised turbine layout for all identified receivers;
- ▶ Identifying any receivers where the noise criteria will be exceeded;
- ▶ Assessment of construction noise predictions for receivers in proximity to the revised transmission line route;
- ▶ A worst case noise contour map with all identified receivers; and
- ▶ A consideration of the draft *NSW Planning Guidelines: Wind Farms* including the assessment of low frequency noise.

7.2.1 Predicted Operational Noise

The worst case noise level predictions for the relevant receivers are summarised in Table 7-4. The results show compliance for all relevant receivers with the MM92 turbine (typical proposed turbine model) and the V90 turbine (worst case turbine model).

Table 7-4 Worst case operational noise level predictions from non-involved receivers

| | <i>MM92 Turbine (typical)</i> | <i>Criteria at 10m/s (hub height)[#]</i> | <i>Compliance at all wind speeds?</i> | <i>V90 Turbine (worst case)</i> | <i>Criteria at 15m/s (hub height)[~]</i> | <i>Compliance at all wind speeds?</i> |
|-----|-------------------------------|---|---------------------------------------|---------------------------------|---|---------------------------------------|
| C74 | <35 | 37.5 | ✓ | 35.2 | 44.5 | ✓ |
| G11 | <35 | 44 | ✓ | 37.2 | 47 | ✓ |
| G14 | 37.3 | 44 | ✓ | 39.3 | 47 | ✓ |
| G16 | 39.5 | 44 | ✓ | 41.7 | 47 | ✓ |
| M08 | <35 | 44 | ✓ | 36.2 | 47 | ✓ |
| M20 | <35 | 43.8 | ✓ | 35.2 | 50.8 | ✓ |
| M42 | 35.1 | 39.4 | ✓ | 36.3 | 43.8 | ✓ |

Table 7-5 Worst case operational noise level predictions for involved receivers

| | <i>MM92 Turbine (typical)</i> | <i>Criteria at 10m/s (hub height)[#]</i> | <i>Compliance at all wind speeds?</i> | <i>V90 Turbine (worst case)</i> | <i>Criteria at 15m/s (hub height)[~]</i> | <i>Compliance at all wind speeds?</i> |
|-----|-------------------------------|---|---------------------------------------|---------------------------------|---|---------------------------------------|
| C02 | 37.8 | 45 | ✓ | 39.7 | 45 | ✓ |
| C03 | 37.1 | 45 | ✓ | 39.3 | 45 | ✓ |
| C04 | 35.7 | 45 | ✓ | 37.9 | 45 | ✓ |
| C25 | 39.9 | 45 | ✓ | 42.2 | 45 | ✓ |
| C26 | 35.8 | 45 | ✓ | 38.2 | 45 | ✓ |
| C27 | 37.1 | 45 | ✓ | 39.3 | 45 | ✓ |

| | MM92 Turbine (typical) | Criteria at 10m/s (hub height)# | Compliance at all wind speeds? | V90 Turbine (worst case) | Criteria at 15m/s (hub height)~ | Compliance at all wind speeds? |
|-----|------------------------|---------------------------------|--------------------------------|--------------------------|---------------------------------|--------------------------------|
| C55 | 35.8 | 45 | ✓ | 38.1 | 45 | ✓ |
| C56 | 37.8 | 45 | ✓ | 40.1 | 45 | ✓ |
| C68 | 36.5 | 45 | ✓ | 39.1 | 45 | ✓ |
| G12 | 37.0 | 45 | ✓ | 38.9 | 45 | ✓ |
| G13 | 35.1 | 45 | ✓ | 37.4 | 45 | ✓ |
| G15 | 40.2 | 45 | ✓ | 42.3 | 45 | ✓ |
| G31 | 37.4 | 45 | ✓ | 39.6 | 45 | ✓ |
| G38 | 35.8 | 45 | ✓ | 38.1 | 45 | ✓ |
| M18 | 41.0 | 45 | ✓ | 43.1 | 45 | ✓ |
| M21 | 35.2 | 45 | ✓ | 37.1 | 45 | ✓ |
| M32 | <35 | 45 | ✓ | 36.0 | 45 | ✓ |
| M41 | <35 | 45 | ✓ | 37.5 | 45 | ✓ |
| M48 | 39.5 | 45 | ✓ | 41.3 | 45 | ✓ |

hub height wind speed at which MM92 turbine is at maximum sound power level (104.2dB) i.e. 10m/s

~ hub height wind speed at which V90 turbine is at maximum sound power level (107.1dB) i.e. 15m/s

7.2.2 Cumulative Noise

Cumulative noise impact calculations include the consented Conroy's Gap Wind Farm, which comprises of 18 REpower MM92 turbines. When including noise emissions from Conroy's Gap Wind Farm, the predicted noise has increased at 5 receivers (3 involved and 2 non-involved) when compared to Yass Valley Wind Farm predicted noise levels alone and where the cumulative noise level is greater than 35dB. The cumulative predicted noise level is less than the base line limit of 45dB for all 3 involved receivers as shown in Table 7-6. The predicted noise level shown in Table 7-6 is calculated for the wind speed that corresponds to the maximum sound power levels. The predicted noise level at all other wind speeds will be lower than that presented in Table 7-6, as such if compliance is achieved at the wind speed that corresponds to the maximum sound power level, compliance will be achieved at all other wind speeds as the base line limit doesn't change with wind speed and the predicted noise is lower at other wind speeds. The cumulative predicted noise level is less than the criteria at each wind speed as shown in Table 7-7 for the 2 non-involved receivers when using both the MM92 and V90 at Yass Valley Wind Farm. Table 7-7 is for non-involved receivers where the criteria is based on background noise levels and as such has been presented for every wind speed. This is different to Table 7-6 for involved receivers as only if the base line limit is exceeded that the criteria which is dependent upon background noise levels come into effect. As the predicted noise levels for involved receivers does not exceed the base line limit, background noise levels are not required.

Table 7-6 Cumulative predicted noise levels in dB for involved receivers

| Dwelling | Conroy's Gap noise level | Yass noise level | | Cumulative noise level (Yass + Conroy's Gap) | | Base line limit | Comply |
|----------|--------------------------|------------------|------|--|------|-----------------|--------|
| | | MM92# | V90~ | MM92# | V90^ | | |
| G12 | 24.2 | 37 | 38.9 | 37.2 | 39.1 | 45 | ✓ |
| G13 | 21.2 | 35.1 | 37.4 | 35.3 | 37.5 | 45 | ✓ |
| M32 | 23.0 | <35 | 36 | 34.2 | 36.2 | 45 | ✓ |

hub height wind speed at which MM92 turbine is at maximum sound power level (104.2dB) i.e. 10m/s

~ hub height wind speed at which V90 turbine is at maximum sound power level (107.1dB) i.e. 15m/s

^ predicted level using maximum sound power level for MM92 turbine (which occurs at hub height wind speed of 10m/s) and V90 turbine (which occurs at hub height wind speed of 15m/s)

Table 7-7 Cumulative predicted noise levels in dB for non-involved receivers

| Receiver | Yass turbine Wind Speed (m/s) | Cumulative noise level (Yass + Conroy's Gap) | | | | | | | | | | | |
|----------|----------------------------------|--|------|------|------|------|------|------|------|------|------|------|------|
| | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| G11 | MM92 | 33.5 | 33.5 | 33.5 | 33.5 | 33.5 | 34.6 | 35.2 | 35.2 | 34.8 | 34.1 | n/a | n/a |
| | V90 | 30.3 | 30.3 | 30.3 | 32.1 | 33.8 | 35.6 | 36.6 | 37.1 | 37 | 36.8 | 36.8 | 37.2 |
| | Background | 31.1 | 32 | 33 | 34.1 | 35.2 | 36.4 | 37.5 | 38.6 | 39.8 | 40.8 | 41.8 | 42.7 |
| | Criteria | 36.1 | 37 | 38 | 39.1 | 40.2 | 41.4 | 42.5 | 43.6 | 44.8 | 45.8 | 46.8 | 47.7 |
| | Compliance | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| G16 | MM92 | 38.1 | 38.1 | 38.1 | 38.1 | 38 | 39.1 | 39.7 | 39.7 | 39.3 | 38.6 | n/a | n/a |
| | V90 | 34.2 | 34.2 | 34.2 | 36.2 | 38 | 39.8 | 40.9 | 41.3 | 41.3 | 41.1 | 41.3 | 41.7 |
| | Background | 35.2 | 35.8 | 36.3 | 36.7 | 37.1 | 37.6 | 38.1 | 38.8 | 39.5 | 40.5 | 41.6 | 43 |
| | Criteria | 40.2 | 40.8 | 41.3 | 41.7 | 42.1 | 42.6 | 43.1 | 43.8 | 44.5 | 45.5 | 46.6 | 48 |
| | Compliance | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

7.2.3 Substation and Transformer Noise

Noise levels have been predicted for the receivers closest to each substation location based on a single (Option A) and double substation (Option B) configuration. Both configurations were found to comply with the NSW Industrial Noise Policy criteria as shown in Table 7-8.

Table 7-8 Noise level compliance at substations and transformers

| Dwelling | Distance to closest substation (km) | Option A Predicted noise level (dB L _{Aeq}) | Option B Predicted noise level (dB L _{Aeq}) | Night-time RBL | INP intrusiveness criteria (L _{A90} +5dB) | Comply? |
|----------|-------------------------------------|---|---|----------------|--|---------|
| C04 | 3.6 | <10 | <10 | 36 | 41 | ✓ |
| C25* | 1.4 | 19 | 18 | 30 | 35 | ✓ |
| C67 | 0.8 | <10 | 31 | 30 | 35 | ✓ |

Note: * Denotes involved residence

7.2.4 Construction Noise

7.2.4.1 Construction noise prediction

Site construction noise has been re-assessed including for the revised transmission line route and associated substations. No receivers are classified as 'highly noise affected' and hence don't trigger the recommended management measures required in the Interim Construction Noise Guidelines (ICNG). Some receivers are classified as 'noise affected' based on the minimum management level of 40dB which would require the management measures as per the ICNG. Table 7-9 shows the distance a receiver must be within to be considered 'noise affected' and also the 'noise affected' receivers.

Table 7-9 Estimate of distance when construction noise levels are above ICNG management levels

| Receiver status | Management level | Turbine construction | Batching plant | Transmission line construction |
|--------------------------|------------------|---|----------------|---|
| Noise affected | 40dB LAeq | Within 2km | Within 800m | Within 1.25km |
| Noise affected receivers | | C25, M18, C27, G16, M42, G15, C68, M21, M41, C56, C02, G14, C26, G31, M48, C02, C55, G11, G12, G38, M32, M20, | None | M13, M81, C25, M31, M9, C67, M30, M29, M28, M25, M32, G31, M26, C79, C78, M18, C80, C66 |

| Receiver status | Management level | Turbine construction | Batching plant | Transmission line construction |
|---------------------------------|------------------|----------------------|----------------|--------------------------------|
| | | M22, M24, C05,G13 | | |
| Highly noise affected receivers | | None | None | None |

Detailed noise levels at worst case receivers has been assessed. These receivers are nearest to the proposed turbine sites and the revised transmission line. The six closest receivers to turbine construction noise, transmission line and batching plant locations are shown in Table 7-10. A total of 9 receivers are shown as some receivers are close to multiple source of construction noise. No receivers would be considered as being 'highly noise affected' as defined by the guidelines. As the worst case receivers are not 'highly noise affected' all other receivers are not 'highly noise affected'. Table 7-10 shows that if all construction activities occurred simultaneously (cumulative level) than all receivers listed would be 'noise affected' however this is worst case and unlikely to occur in reality as construction activities occur in stages and are localised in certain areas for short periods of time. This is further detailed in Section 7.2.4.2.

Table 7-10 Predicted construction noise level (L_{Aeq}) at worst case receiver locations

| | Management level | Access road construction | Turbine foundation construction | Cable trench digging | WTG assembly | Batching plant | Transmission line construction | Cumulative level | Noise affected | Highly noise affected |
|------|------------------|--------------------------|---------------------------------|----------------------|--------------|----------------|--------------------------------|------------------|----------------|-----------------------|
| C25* | 40 | 45-50 | 45-50 | 40-45 | 30-35 | 30-35 | 45-50 | 50-55 | Yes | No |
| C27* | 40 | 40-45 | 40-45 | 35-40 | 25-30 | 15-20 | 25-30 | 40-45 | Yes | No |
| C67 | 40 | 25-30 | 25-30 | 20-25 | 15-20 | 15-20 | 40-45 | 40-45 | Yes | No |
| G15* | 44 | 40-45 | 40-45 | 35-40 | 30-35 | 15-20 | 25-30 | 45-50 | Yes | No |
| G16 | 44 | 40-45 | 40-45 | 40-45 | 30-35 | 10-15 | 25-30 | 45-50 | Yes | No |
| M13* | 44 | 25-30 | 25-30 | 25-30 | 15-20 | <10 | 45-50 | 45-50 | Yes | No |
| M18* | 40 | 35-40 | 35-40 | 30-35 | 20-25 | 25-30 | 40-45 | 45-50 | Yes | No |
| M42 | 40 | 35-40 | 35-40 | 35-40 | 25-30 | 10-15 | 20-25 | 40-45 | Yes | No |
| M48* | 40 | 40-45 | 40-45 | 35-40 | 25-30 | 15-20 | 25-30 | 40-45 | Yes | No |

7.2.4.2 Mitigation and management measures

The ICNG noise management level is used as a trigger for the construction site to implement all feasible and practicable work practices and measures. Once this is triggered i.e. noise management levels are exceeded at least one receiver, then all feasible work practices and measures need to be carried out. These feasible work practices and measures are usually carried out at the noise source at the construction activity. This differs from wind farm operational noise management measures which usually occur at either the noise receiver or noise source. One of the main differences is due to the fact that operational noise occurs for extended period of time over many years whereas construction noise is temporary and localised for short periods of time.

The ICNG emphasises implementing feasible and practical noise reduction measures. It does not provide mandatory standards or criteria. The ICNG stipulates a quantitative method where a target level is used as a trigger for the construction site to implement all feasible and practicable work practices and measures. There is also an upper limit of 75dB which should only be exceeded in exceptional circumstances and for short period of time, acknowledging that construction activity is intermittent and for some processes, the application of noise reduction measures may not be reasonable or feasible. The noise management level and recommended action is taken from the ICNG Section 4.1.1 page 12 and provided below.

Table 7-11 Noise management level and management measure from ICNG

| Time of day | Management level L_{Aeq} (15min) | How to apply |
|--|---------------------------------------|--|
| Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays | Noise affected RBL* +10 dB | The noise affected level represents the point above which there may be some community reaction to noise. <ul style="list-style-type: none"> ▶ Where the predicted or measured L_{Aeq} is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level ▶ The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details. |
| | Highly noise affected 75dB(A) | The highly noise affected level represents the point above which there may be strong community reaction to noise. <ul style="list-style-type: none"> ▶ Where noise is above this level, the relevant authority (consent, determining or regulator) may require respite periods by restricting the hours that the very noise activities can occur, taking into account: <ul style="list-style-type: none"> ▶ times identified by the community when they're less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences ▶ if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times. |

*Rating background level RBL which is determined based on the background noise levels measured at a noise sensitive receiver

The actual noise levels experienced at a receiver and the duration of noise level above the management level will be dependent on the distance between the source and receiver, the intervening terrain as well as how long different items of equipment will be operating. The exceedances in noise management level is similar for both wind farm and transmission line construction as similar equipment and construction methodology is applied. The period where the noise management level is exceeded (noise affected classification) is affected by:

- ▶ Construction activity – construction activities are staged and different times use different equipment and hence have different associated noise levels that could cause noise levels to exceed the management level. As can be seen from Table 7-10 each activity in the construction of the wind farm has a different predicted noise level e.g. wind turbine assembly is lower than turbine foundation construction. Each stage typically lasts for a few days and hence the period of noise management level exceedence would only occur for less than a few weeks in total. In addition within each stage there will be periods of varying noise levels e.g. in turbine foundation construction, excavation will produce higher noise levels than concrete pouring and hence while turbine foundation construction is noted to occur for a few days per turbine, the highest emission activities which result in noise levels above the minimum noise management level will only occur for a limited portion of this period.
- ▶ Construction location – construction activities (all stages) are transient and only last for a few weeks at each location at most. As the construction activities move to another part of the site the contribution to predicted noise levels will decrease. Hence the any noise management levels that are exceeded would be short term only.
- ▶ Construction timing – All noise management level exceedances would only occur during standard construction hours as it is being proposed to only construct in standard construction hours.

As per the ICNG recommendations, where receivers are noise affected then the proponent should apply all feasible and reasonable work practices to meet the noise affected management level and the proponent

should also inform all potentially impacted residents of the nature of the works to be carried out, the expected noise levels and duration, as well as contact details.

Monitoring will occur if a complaint is issued and if monitoring will assist in managing of future works to avoid any similar impact during subsequent works.

The construction activities and equipment considered in this study are representative of the types of work associated with construction of a wind farm. Actual noise levels in practice will depend on the specific working methods and equipment selected to construct the project. In light of the above findings with respect to the management levels, a construction noise management plan will be developed when a construction contractor has been engaged for the project, and working methods and equipment selections are sufficiently well defined. The purpose of the construction management plan would be to define the best practicable working methods to be adopted for the control of construction noise, and the types of matters to be addressed in the construction noise management plan include:

- ▶ Revised noise level predictions for key construction stages and key receptor locations and determine the extent of noise affected receivers.
- ▶ Proposed scheduling of construction activities to minimise the noise impact, including confirmation of regular working days and hours, the timing of any noisier activities
- ▶ Selection of equipment with lower overall sound power levels
- ▶ Installing broadband/white noise reversing alarms on relevant equipment
- ▶ Investigation of the use of local screens or positioning of equipment to utilise screening provided by intervening terrain
- ▶ Key noise considerations to be included as part of the induction of site workers
- ▶ Procedures for notifying residences of particular activities, such as an essential out of hours work (e.g. turbine erection or deliveries)
- ▶ Procedures on how to deal with noise complaints

7.2.5 Consideration of Draft NSW Planning Guidelines

7.2.5.1 Night-time noise criteria

In general, the night-time criteria for a given receiver are lower than the 24 hour or daytime criteria. To provide an indication of the potential affect the application of night-time noise criteria could have for the project, the predicted noise levels for the identified relevant receivers have been compared to the night-time criteria developed from the data collected for the 2009 assessment.

The analysis shows only one receiver, receiver M42, may be affected by the application of night-time criteria. Based on the 24hr criteria, the predicted noise levels achieve compliance at all integer wind speeds. When considering the night-time noise-criteria, the predicted noise levels for the V90 turbine exceed the criteria by up to 0.6dB between 10 and 13m/s and the predicted levels for the MM92 turbines exceed the criteria by up to 0.1dB between 10 and 11m/s.

Should it be demonstrated that non-compliance does occur during operation this can be ameliorated through turbine optimised de-rating.

7.2.5.2 Low Frequency Noise

Detailed guidance on proposed noise assessment methods is contained in Appendix B of the draft NSW Planning Guideline: Wind Farms and does not explicitly indicate a requirement to predict low-frequency noise levels. The proposed methodology does however nominate a method of identifying the presence of low frequency special audible characteristics which may result in the application of a 5dB penalty to predicted or measured noise levels.

The Site Compatibility Certificate application referred to in Section 1.3 of the Guidelines makes reference to the prediction of low-frequency noise levels at dwellings within 2km where consent has not been obtained. Whilst specific details of the low frequency noise predictions that are required are not specified in Section 1.3, we

anticipate that the intent of the Guidelines is that the prediction of C-weighted noise levels is required, in line with the advice provided in Appendix B of the Guidelines.

The C-weighting refers to the way in which the frequency content of the noise is adjusted to produce a total decibel value for the noise level. The most common form of assessment relies on the A-weighting which is intended to adjust noise frequencies in a way that results in a total noise level corresponding to general human perception of loudness. The A-weighting is however recognised as being less appropriate for noise levels characterised by significant or prominent low-frequency components (specifically, frequencies of noise lying below approximately 200Hz). The value of noise levels which are predicted or measured using the C-weighting are more sensitive to the influence of low-frequency noise, and are therefore often referred to as an indicative measure when evaluating low-frequency considerations. For a given noise source and character, the noise level measured using a C-weighting will be greater than measured using an A-weighting in most cases.

The low frequency noise criteria presented in the Guidelines are summarised as follows:

- ▶ Day: 65 L_{Ceq} dB
- ▶ Night: 60 L_{Ceq} dB

In the absence of an international standard engineering prediction method specifically developed for the prediction of C-weighted noise levels, the ISO 9613 methodology has also been used with a set of adjustments to low frequency noise level predictions at non-involved receivers within 2km of a proposed turbine location. Specifically, reference has been made to Danish Statutory Order No. 1284, dated 15 December 2011 (DSCO 1284), which provides a methodology for predicting low frequency noise between 10-160Hz. These predictions are provided to address the information requirements proposed in the draft NSW Guidelines. The prediction of low frequency noise levels are however subject to increased margins of uncertainty. This uncertainty relates to the use of sound power level data below the normal frequency range reported by turbine manufacturers, combined with the application of engineering prediction methods specifically intended for the calculation of A-weighted noise levels. Based on this the C-weighted noise levels can only be regarded as indicative predictions. The uncertainty associated with the C-weighted predicted noise levels is expected to be similar to, or greater than the uncertainty associated with the C-weighted sound power of the turbines.

For the MM92 turbine, the predicted C-weighted noise level is below both the daytime and night-time criteria for all non-involved receiver locations within 2km of a turbine. For the worst case V90 turbine, the predicted C-weighted noise levels are below the daytime criteria of 65dBC but exceed the night-time criteria 60dBC for four non-involved receiver locations within 2km of a turbine. Additional modelling has been carried out to determine all non-involved receivers which would have a predicted C-weighted noise level that exceeds the daytime or night-time criteria, including those outside of 2km. One non-involved receiver M8 outside of 2km has been identified that exceeds the threshold, note this exceedance is for the V90 only. The results are shown in Table 7-12. Prior to final turbine selection there will be an updated C-weighted noise level prediction.

Table 7-12 Maximum C-weighted predicted receiver noise levels

| Dwelling | Nearest turbine | Distance to nearest turbine (km) | Predicted noise level MM92, L_{Ceq} dB | Threshold exceeded? | | Predicted noise level V90, L_{Ceq} dB | Threshold exceeded? | |
|----------|-----------------|----------------------------------|--|---------------------|------------|---|---------------------|------------|
| | | | | Daytime | Night-time | | Daytime | Night-time |
| G11 | 143 | 1.71 | 56 | No | No | 61 | No | Yes |
| G14 | 136 | 1.42 | 58 | No | No | 63 | No | Yes |
| G16 | 95 | 1.15 | 60 | No | No | 64 | No | Yes |
| M20 | 100 | 1.87 | 55 | No | No | 60 | No | No |
| M24 | 100 | 1.90 | 55 | No | No | 60 | No | No |
| M42 | 114 | 1.15 | 58 | No | No | 63 | No | Yes |
| M8 | 136 | 2.40 | 56 | No | No | 61 | No | Yes |

In summary there is no requirement to predict Low Frequency Noise but it is in the best interests of the proponent and the community to attempt to do so. Regardless of the current limitations and inadequacies described above no exceedance is anticipated with the typical turbine of MM92.

Contingency strategies

Information is presented here regarding mitigation options available for the reduction of C-weighted noise levels. The primary mitigation or contingency strategy would be to enforce specifications of the total noise emission and permissible characteristics in the procurement contract and a noise reduction management strategy utilising the wind farm control systems.

Procurement contract: The procurement contract for the supply of turbines to the site will typically include specifications concerning the allowable total noise emissions from the turbine, and the permissible characteristics of the turbine and can include requirements extending into the low frequency region (for example, down to 20Hz). In the event that the turbine emissions are found to exceed the contracted values, the supplier can be required to implement measures to reduce the noise to the contracted value. This can include measures to rectify manufacturing defects or appropriate control settings.

Noise reduction management strategy: modern wind farms include control systems which enable the operation of the turbines to be varied according to environmental constraints. Specifically, variable pitch turbines as proposed for this site include control functions which enable the noise emissions of the turbines to be selectively controlled; by adjusted the pitch of blade, the noise emissions of the turbine can be reduced. In addition, where required, the turbines can be selectively shut down under relevant wind speeds and directions. These types of control measures can be used separately, or in combination, to achieve C-weighted noise reductions for predetermined wind speed ranges and directions.

The need for such measures would be dependent on the outcome of a future detailed design and procurement process, should the scheme be approved, and would be determined according to the emission characteristic of the final selected turbine. In particular, the adoption of control modes of operation for turbines would involve verification of frequency characteristics of the control modes.

7.2.6 Conclusion

The updated assessment has demonstrated full compliance with the operational noise guidelines for all relevant receivers and that none of the adjacent residences will be highly noise affected during construction activities.

7.3 Ecology Assessment

A supplementary ecology assessment (Refer Attachment 1) was carried out by ngh Environmental on the wind farm site in the areas not previously surveyed and assessed, including the revised transmission line route. The intent was to assess the relocated wind turbine locations, access tracks, transmission lines and substations. The supplementary assessment also addresses the ecology issues raised by OEH in their submissions including:

- ▶ Additional field surveys that were previously included in Statement of Commitments but have now been completed;
- ▶ The approach to further surveys that will be required prior to the commencement of construction;
- ▶ Providing details of an offset strategy for the project;
- ▶ Providing revised Statement of Commitments.

The supplementary ecology report concluded that the new and original areas proposed to be developed as part of the wind farm have been adequately surveyed and assessed and that appropriate commitments have been made to ensure that any impacts are:

- ▶ Avoided where required;
- ▶ Minimised and managed where appropriate; and
- ▶ Offset in accordance with NSW Guidelines.

For more details of the impact calculations by vegetation type see Table 2-11 (page 28) in Attachment 1, Supplementary Ecology Report for the PP&SR.

ngh Environmental have further responded to OEH in a letter dated 17 December 2013 which addresses the following:

- ▶ Incomplete surveys (response to survey outcomes)

- ▶ Impacts to Box Gum Woodland EEC
- ▶ Additional information on how vegetation of conservation significance is defined
- ▶ Calculation of areas of impact
- ▶ Finalisation of offsets locations of turbines and infrastructure in areas of high conservation significance

This further response addresses quantification of impacts and provides suitable protocols for addressing them. See Attachment 2.

7.4 Archaeology and Heritage Assessment

An additional archaeological field survey and assessment (Refer Attachment 3) was carried out by NSW Archaeology for the revised transmission line route and associated substations. The field work was carried out in conjunction with the Buru Ngunawal Aboriginal Corporation. Three previously recorded Aboriginal object sites have been relocated and a number of new Aboriginal object sites have been recorded. One European historic feature, a dead tree with a surveyor's mark, has been recorded. The tree will be avoided during construction.

The field survey results are in keeping with the patterns of site distribution identified in the original 2008 assessment. The recorded sites do not pose a constraint to the proposal. A number of management and mitigation measures have been recommended to conserve the identified sites.

The proposed new wind turbine locations on the north west of the site were considered in the assessment, but based on the original assessment of the adjacent areas it was not considered necessary to include these areas in the field survey. Any areas proposed to be impacted by the proposal not covered by the field surveys to date will be included in the pre-construction surveys in accordance with Statement of Commitment 28.

The consultation process for the archaeology and heritage assessment commenced in 2008 and was undertaken in accordance with the *NSW DECC Interim Guidelines for Aboriginal Community Consultation – Requirements for Applicants (DEC 2004 & 2005)* which forms part of the *Guidelines for Aboriginal Cultural Impact Assessment and Community Consultation (DEC 2005)*. For the additional assessment an advertisement was placed in the Yass Tribune on 6th February 2013. One of the original registered Aboriginal stakeholders responded to the advertisement. A copy of the draft report was distributed to all three registered Aboriginal stakeholders for comment in accordance with the requirements of the guidelines. An endorsement from the Buru Ngunawal Aboriginal Corporation was received which supported the report's recommendations.

7.5 Electromagnetic Fields

All electrical infrastructure is located at a sufficiently large distance to the nearest residence for the magnetic field and electrical field contribution from the wind farm infrastructure to be negligible as shown in Table 7-13.

Table 7-13 Prediction of electromagnetic fields at residences

| <i>Electrical Infrastructure</i> | <i>Distance to nearest residence (m)</i> | <i>Residence ID</i> | <i>Contribution to magnetic field strength at residence (mG)</i> | <i>Contribution to electric field strength at residence (kV/m)</i> |
|---------------------------------------|--|---------------------|--|--|
| 330kV Switchyard | 500 | M81 | <1 | <0.1 kV/m |
| Substation COP | 3,620 | C04 | <1 | <0.1 kV/m |
| Substation MRL | 1,370 | C25 | <1 | <0.1 kV/m |
| 330kV transmission line | 470 | M13 | <1 | <0.1 kV/m |
| Overhead 33kV powerlines | 1,030 | M18 | <1 | <0.01 kV/m |
| Underground 33kV powerlines | 811 | M18 | <1 | <0.01 kV/m |
| <u>Alternative substations:</u> | | | | |
| 330 kV Central alternative substation | 880 | C67 | <1 | <0.1 kV/m |
| 132 kV COP Alternative substation | 1,350 | C35 | <1 | <0.01 kV/m |

| <i>Electrical Infrastructure</i> | <i>Distance to nearest residence (m)</i> | <i>Residence ID</i> | <i>Contribution to magnetic field strength at residence (mG)</i> | <i>Contribution to electric field strength at residence (kV/m)</i> |
|---|--|---------------------|--|--|
| 132 kV MRL Alternative substation | 820 | G36 | <1 | <0.01 kV/m |
| <u>Alternative 132 kV transmission lines:</u> | | | | |
| COP Alternative 132 kV | 1,210 | C35 | <1 | <0.01 kV/m |
| MRL Alternative 132 kV | 570 | G12 | <1 | <0.01 kV/m |

7.6 Traffic & Transport

A Traffic Impact Study was prepared as part of the Environmental Assessment in December 2008. The assessment was prepared in accordance with the DGRs and the Guide to Traffic Generating Developments (RMS, formerly NSW RTA). The Traffic Impact Assessment has been reviewed in consideration of the changes in the wind farm infrastructure reflected in this Submissions & Preferred Project Report and submissions received from RMS and the Councils in relation to traffic and access issues. A Supplementary Traffic Impact Study (Refer Attachment 14) was prepared which addresses the additional issues raised.

7.6.1 Predicted Traffic and Transport Impacts

The current wind farm site access proposal has been developed in consideration of the traffic impact issues raised in the original traffic impact study with the result being a significantly reduced traffic impact at many locations. The number of site access points has been reduced and a number of local roads are no longer required to be used by the wind farm traffic.

The assessment demonstrates that the proposed transport routes to the wind farm site are feasible and has identified a number of safeguards that will minimise the traffic impacts and reduce community disruption and risk of traffic accidents to an acceptable level.

7.6.2 Preliminary Swept Path Analysis

A preliminary swept path analysis has been completed for the five key intersections on the transport route. The results of the analysis supports the earlier conclusions reached that the proposed access routes are feasible and can be achieved without any significant constraints. Refer Attachment 15 for more details.

7.6.3 Structural Assessment of Bridges

Illalong Road is restricted by the Yass Valley Council to a 10 tonne limit in order to reduce the deterioration of the road pavement condition. The load limit is not related to any structural limit of the bridges on Illalong Road. An overmass and overdimensional permit will be required from the Yass Valley Council to allow use of the road during the construction phase for the delivery of the wind farm components. The permit application will require details of the loads as well as details of the transport vehicles to be used.

Following confirmation of the turbine overmass loads and transport equipment, a more detailed assessment may be applicable if any of the expected axle loads exceed the design capacity of the road or structure. In the event that any constraints are identified, mitigation measures such as bridge strengthening or alternate transport equipment with the capability of lower axle loads could be used.

As noted in the revised traffic impact assessment the old timber bridge at 3.32km on Illalong Road has been replaced and the new box culvert bridge has been assessed as capable of accommodating the overmass delivery vehicles which typically have an axle loading of up to 15 tonnes¹. A more detailed assessment will be completed as part of the Traffic Management Plan, once the wind turbine component loads and delivery vehicle details are known. The worst case scenario, when the details of the loads are known, is that the new box culvert bridge on Illalong road would be strengthened to accommodate the load. This is considered feasible should it be required.

¹ Vestas V90 Transport Manual

7.6.4 Structural Assessment of Existing Pavements

The proposed primary and secondary access routes have been assessed as being suitable for the typical transport loads associated with the delivery and construction of a wind farm with no significant impacts to the existing public roads. The current condition of the existing roads has been noted in the traffic impact studies e.g. the pavement condition of Burrinjuck Road is poor in some locations.

It was also noted that this damage should not be accelerated by the passage of construction vehicles. Nevertheless, Epuron has committed to a dilapidation survey of all public roads prior to the commencement of construction to ensure that the condition of the roads will be maintained to the same condition during the construction period and rehabilitated if required to at least that pre-existing condition on completion of the construction phase.

The dilapidation survey will be conducted by a qualified inspection service provider employing appropriate techniques to ensure adequate assessment on the condition of the existing pavements.

7.6.5 Traffic Volumes

The estimated traffic volumes have been reviewed based on the latest available RMS records and the observations made during the original assessment. There are no changes in the estimated traffic volumes which have been shown in the table on the following page. The accuracy of the adopted traffic counts on the minor roads is not significant in the assessment of traffic impacts, given the very low existing traffic volumes.

| <i>Road</i> | <i>AADT (vehicles per day)</i> | <i>Information source</i> |
|-------------------------------|--------------------------------|---|
| Hume Highway at Bowning | 7223 | Obtained from RMS records |
| Burley Griffin Way Stn 94.085 | 1661 | Obtained from RMS records |
| Burrinjuck Road | 114 | Obtained from RMS records |
| Paynes Road | Less than 200 | Adjusted from quarry production rates |
| Illalong Road | 70 | Adjusted from counts taken |
| Whitefields Road | Less than 30 | Adjusted from counts taken and discussions with land owners |

Observations on the minor roads revealed hourly counts approaching zero as the traffic on these roads is generated primarily by the occupied properties.

Level of service

The increase in traffic as a result of the construction of the wind farm will not change the level of service on the proposed access roads.

7.6.6 Revised Transmission Line and 330kV Grid Connection Point

The traffic generated during the construction of a transmission line is not significant relative to the impacts from the delivery of the major wind turbine components on the wind farm site. The revised transmission line route which runs between the wind farm site and the grid connection point approximately 12km to the south will require access along the route for the installation of the power poles and stringing of the conductor cables. The transmission line construction will not require any oversize or overmass vehicles and the construction vehicles will use existing farm tracks as well as access from the switchyard and substation locations.

A 330kV switchyard will be required at the revised 330kV grid connection point at TransGrid's existing 330kV transmission line. The switchyard doesn't include a main transformer so will not require overmass vehicle access. The proposed access route for construction of the switchyard and associated infrastructure is via Burrinjuck Road as shown in the next section.

Access for the construction of the transmission line will be via the site access points for the switchyard (Burrinjuck Rd) and the substations (Whitefields Rd & Illalong Rd) as shown in the traffic impact assessment.

The nature of the terrain (gently undulating) and vegetation (pasture) will allow access along the transmission line route for installation of power poles and stringing of conductors without the need to construct any additional permanent tracks.

7.6.7 Access Routes and Site Access Points

The access route to the wind farm will be via the Hume Highway. Three primary site access points are via:

- ▶ Whitefields Road for the Coppabella precinct;
- ▶ Illalong Road for the Marilba precinct; and
- ▶ Paynes Road for the section of the Marilba precinct located south of the Hume Highway.

Secondary access and egress points from the site have been identified from Burrinjuck Road, Illalong Road and off the Hume Highway. Please refer Figure 7-2 for further details.

The primary access point for the Marilba West and Marilba East precinct is via Illalong Road. Two secondary access (or potential egress) points to the Marilba East precinct are shown from the old Hume Highway and the Conroys Gap truck stop on the northern side of the highway.

No additional roads are planned to be used for construction traffic.

7.6.1 Additional Issues

No additional traffic and transport issues have been raised by the road authorities (RMS, Yass Valley Council and Harden Shire Council) in respect of the proposed changes to the infrastructure layout, including the revised transmission line route.

7.6.2 Mitigation Measures

The Traffic Impact Study (EA Appendix 6) recommended a number of safeguards and mitigation measures to be implemented to ensure the safety for all road users and asset protection. Epuron has committed to developing a detailed Traffic Management Plan in consultation with the road authorities to reduce the traffic and transport impact, particularly during the construction phase. The Traffic Management Plan and other mitigation measures will be implemented in accordance with the process outlined in the RTA (now RMS) submission dated 16 December 2009.

7.6.3 Conclusion

Subject to the implementation of the proposed mitigation and control measures, the potential traffic impacts are acceptable.

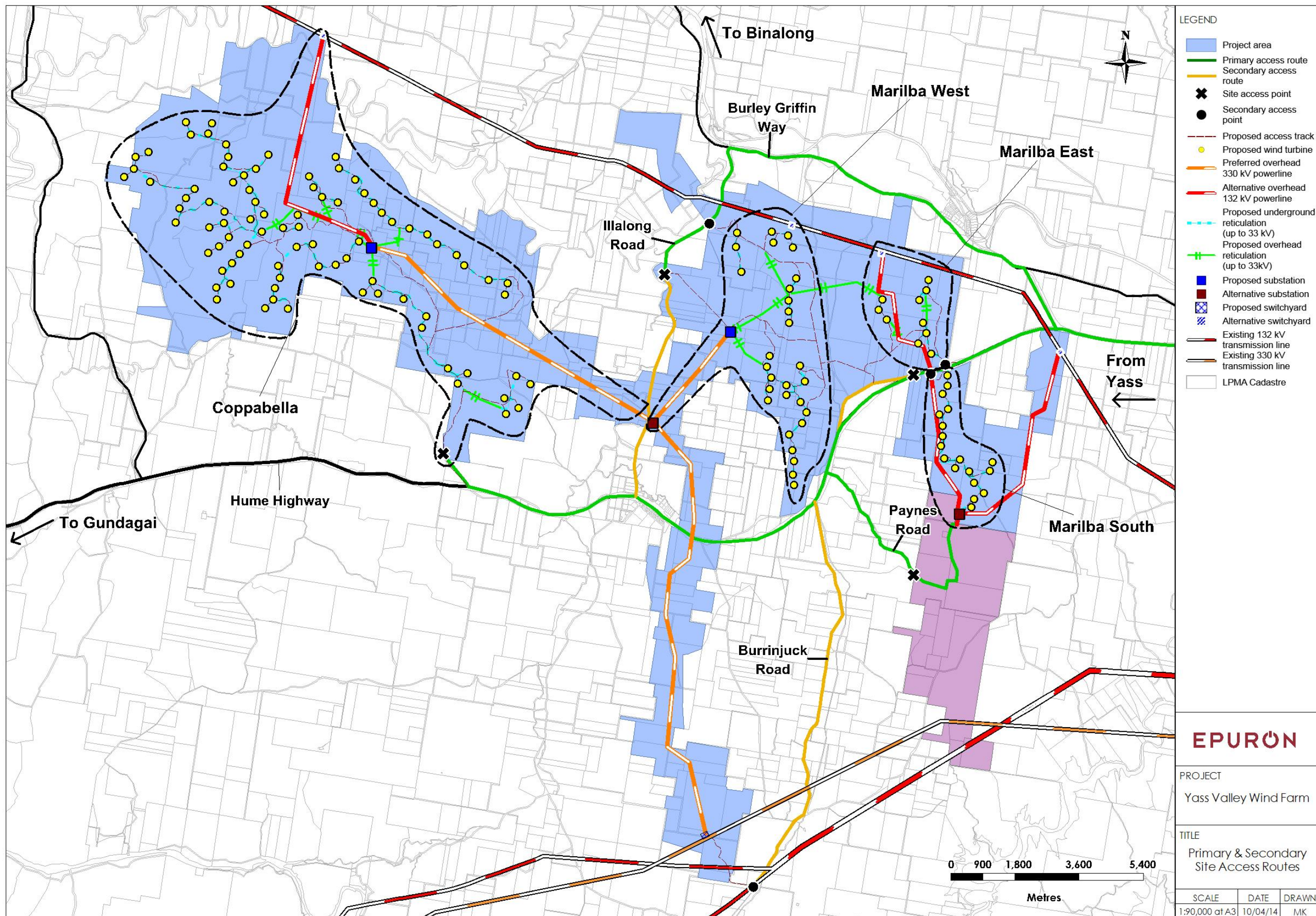


Figure 7-2 Wind farm access routes and site access points

7.7 Blade Throw

Blade throw refers to the event in which ice or a turbine blade itself becomes separated from the nacelle into the surrounding environment. On the occasions where part of the blade has become separated from the tower, the most common causes are lightning strikes, storms, material fatigue or poor operation and maintenance practices. Wind turbines manufacturers have been implementing new design features to reduce the risk of these events occurring even further. Some of these advances include increasing lightning protection along the blades to reduce the damage from strikes and developing greater control systems to monitor any decrease in structural integrity and implement an automatic shutdown. Furthermore, modern turbines have an automatic braking system when wind speeds exceed a set value.

Ice throw occurs when the surrounding environment drops below freezing temperature and ice develops on the turbine blade. The ice is then dislodged when the turbine blade begins to rotate or the surrounding temperature increases. Rye Park and the surrounding regions have been known to regularly have sub-zero nights throughout winter and therefore this must be considered as a low possibility for the winter months.

While there is a possibility of these events occurring, the likelihood of a landowner being near a turbine during storms or freezing conditions is considered low; however, land owners will be advised to avoid turbines during these conditions.

7.8 Water Resources

The amount of water required for the construction of the wind farm over a 24 month period has been estimated to be around 16.23 ML (refer EA section 8.1.2 page 199). This includes water for the construction of concrete foundations for the wind turbines, control buildings and substations as well as for dust suppression and fire fighting. This equates to 8.1ML per annum or an average daily usage of just over 31,000 litres.

The water could be sourced from any (or any combination) of potential sources assessed in Table 7-14.

Table 7-14 Water sources for the wind farm

| Water source & available capacity | Owner/Manager | Wind farm usage | Impact |
|---|---|---|---------------|
| Yass Dam Yass, Bowning and Binalong are all provided with water via a pipeline from the Yass water treatment plant which sources water from the river via the Yass Dam. The Yass Dam is a concrete arch dam 12 m high with a crest length of 98 metres located just upstream of the township with an effective storage capacity of 850ML. The dam wall was raised in 2012/3 to create additional storage capacity of 1,500ML. Annual potable water production and usage is 800 - 900 ML. The water treatment plant has a capacity of 13ML/day. | Yass Valley Council | 8.1/2,350 = 0.3% of storage capacity Annual usage = 8/800 = 1% of current usage Average daily usage 0.031/13 = 0.2% of water treatment plant capacity | Negligible |
| Murrumbidgee River Water is extracted from the Murrumbidgee River at Jugiong, treated and piped from Jugiong to Harden. The pipeline runs approximately 10 km west of the wind farm site. The water treatment plant has a capacity of 40ML/day. | Golden Fields County Council | Average daily usage 0.031/40 < 0.1% of existing daily capacity | Negligible |
| Lake Burrinjuck The off take from the Burrinjuck Dam provides 6,600 ML/day to the Main Canal. | NSW DPI Office of Water & Murrumbidgee Irrigation | 0.031/6,600 = negligible % of existing daily capacity | Negligible |
| Groundwater Various registered ground water bores located within the vicinity of the proposed wind farm as per Figure 8-1 (page 196 of the EA) | Existing water access and groundwater licence holders | Variable usage by wind farm depending on availability and requirements for other usage at the time (e.g. stock watering & irrigation). | Negligible |

7.9 Private Airstrips Used for Aerial Agriculture

7.9.1 Potential Impact of the Wind Farm on Private Airstrips

Private airstrips used for aerial agriculture are not required to be registered with CASA and do not always appear on maps or other publically available sources of information. At the time that the EA was prepared (November 2009) three private airstrips were identified within the vicinity of the wind farm (Figure 7-14 on page 164 of EA).

Private airstrips are classed as “Aeroplane Landing Areas” by CASA in accordance with Civil Aviation Safety Regulations Part 139. CASA guidelines for these landing strips are contained in their *Civil Aviation Advisory Publication 92-1 (1) - Guidelines for Aeroplane Landing Areas* (CASA, 1992). The Aerial Agricultural Association of Australia (AAAA) acknowledges this CASA guideline in relation to the potential impact on take-off and landing at private agricultural airstrips. The CASA guideline specifies the physical characteristics that define the ‘surfaces’ which should be clear from obstacles around the runway approaches. A zone extending 900 metres from the approach and take off area is required to be free from obstacles at an angle of 5% extending out from the end of the runway as shown below.

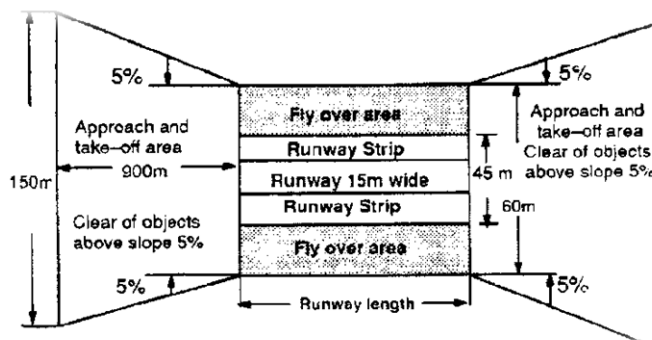


Figure 7-3 Agricultural Aeroplane Landing Area clearance surfaces

All of the identified airstrips were more than 2km from the nearest Yass Valley Wind Farm turbine, significantly greater than the minimum clearance zone specified in the CASA guideline. The initial assessment noted that it was “unlikely that the development would pose any additional hazard to the users of these airstrips.”

A qualitative risk assessment on the potential impact of the wind farm on private airstrips and aerial agriculture prepared by The Ambidji Group concluded that the wind farm and its individual turbines will not impact on the safety of aerial applications provided pilots conduct proper pre planning of operations. Aerial agricultural operations are known to regularly occur in Australia and overseas within a few hundred meters of wind turbines and powerlines. The EA for the nearby Collector Wind Farm (June 2012) noted that “crop spraying has been ongoing within 1km of the Cullerin Range Wind Farm with few impacts to operations. On the contrary, the wind farm – being highly visible – was found to be a good indicator of when wind conditions would be unsuitable for aerial spraying. The operator also indicated that the main cause of turbulence in the locality was topography rather than the wind farm.”

Based on all of the assessments completed to date and the separation distance of at least 2 km between the airstrips (including the most recently identified airstrips) and the nearest proposed turbine, the wind farm won’t have any impact on the operation of aircraft at any of the private airstrips located within the vicinity of the wind farm.

7.9.2 Consultation with Owners/Users of Private Airstrips

In 2010 as part of an aeronautical impact assessment consultation was carried out with the following aerial agricultural operators who operated at the private airstrips in the vicinity of the wind farm and service the area around the wind farm:

- ▶ Yass Air (Ted McIntosh)
- ▶ South West Helicopters (Terry McKenzie)

► Col & Scott Adams Ag Aerial Spraying (Col Adams)

No other aerial agricultural operators or users of the private airstrips are known to operate in the area.

7.9.3 Evidence of Consultation and How Concerns Have Been Addressed

Stakeholder consultation was documented in Appendix H of the Ambidji report, including the following notes from consultation with the aerial agricultural operators.

Table 7-15 Consultation history with aerial agricultural operators

| Aerial Agricultural Operator | Comments | Concern Addressed |
|---|--|--|
| Yass Air Jindalee, Yass | Wind farm will not impact on his operations. Meteorological monitoring masts are of great concern to him and other ag pilots. Wants to see them marked on guy wires. Would prefer to have lighting of wind farm but did not provide any safety arguments. | Epuron's existing wind monitoring masts in the region include orange marker balls to aid visibility. Any additional masts would also be specified with orange marker balls. |
| South West Helicopters Cootamundra | Ops apparently all over Australia Conducts aerial spraying in Yass region for weeds and pests around Spring time for approximately a month Rural fire fighting – chartered by RFS for spotting, air attack, bucketing, bombing, infrared, hot spots Wind farms not an issue | |
| Col & Scott Adams Ag Aerial Spraying Cootamundra | All operations are Visual Flight Rules Spraying and fertilising in Yass region during winter and summer. Masts are a major issue; they're not marked and extremely dangerous. Must be marked and informed when putting up or taking down. Operate out of Cootamundra. Use many paddock strips all over, west of site and around Cootamundra, Jugiong, Sandy Tates. No maps of strips – all in head. Wind farms not an issue as yet, but will affect business in area and farmers. He is concerned about wind turbulence what they have read from US. | Epuron's existing wind monitoring masts in the region include orange marker balls to aid visibility. Any additional masts would also be specified with orange marker balls. Epuron provides regular notification to the Department of Defence, CASA, Airservices Australia, AAAA and NSW RFS on the location and height of all wind monitoring masts to enable these authorities to provide updated information to all aviation stakeholders. |

7.9.4 Wind Speeds for Aerial Agriculture and Turbulence

Aerial agricultural operations are normally carried out at low wind speeds or when it is calm, to reduce uneven application of fertiliser or pesticide. Wind turbines only start operation when the wind has reached a minimum cut-in speed, typically in the range of 2.5 to 3.0 m/s, depending on the specific turbine model.

Studies indicate that turbulence that is capable of posing a hazard to aviation will not be present at more than a few rotor diameters downwind of a turbine, where turbulence is found to reduce to ambient levels (Smedman et al, 2003).

The EA for the nearby Collector Wind Farm (June 2012) noted that “crop spraying has been ongoing within 1km of the Cullerin Range Wind Farm with few impacts to operations” and that “The operator also indicated that the main cause of turbulence in the locality was topography rather than the wind farm.”

7.9.5 Identification of Private Airstrips

As noted above, identification of unregistered private airstrips is difficult as their location is not freely available on any maps or public databases. Aerial agricultural operators have confirmed the use of personal knowledge rather than any maps to locate these airstrips.

Through ongoing consultation with neighbouring landowners the location of additional airstrips has been identified and documented in an updated map (See Attachment 12). Not all of the airstrips were currently in use. None of the airstrips are located within 2 km of a turbine and use of these airstrips will not be affected by the wind farm.

7.10 Air Traffic Control Radars

Airservices Australia's particular area of interest is impacts to effective radar coverage. Buildings, structures or terrain that is higher than the radar coverage or radar clearance plane can hide aircraft behind the particular object, placing a radar 'shadow' and reducing the ability of Air Traffic Control (ATC) to effectively control aircraft within the area of the shadow. Investigations to date have resulted in the following understanding on this issue.

There are two key effects of wind turbines on aviation interests:

- ▶ Physical – turbines can present a physical obstruction at or close to an aerodrome. This has been addressed in the Ambidji report which concludes there is no effect on Tumut, Young or Cootamundra aerodromes
- ▶ Radar/Air Traffic Services – turbine clutter appearing on radar display can affect the safe provision of air traffic services as it can mask unidentified aircraft from air traffic control and/or prevent ATC from accurately identifying aircraft under ATC control. This is the subject of Airservices Australia's particular interest.

Secondary Surveillance Radars (SSR) are located at Mount Bobbara and at Mt Majura. The potential effects on secondary radars are:

- ▶ Physical *blanking and diffraction effects* – wind turbine effect can be caused due to the physical blanking and diffracting effects of the turbine towers depending on the size of the turbines and the wind farm, and that these effects are only a consideration when the turbines are located very close to the SSR i.e. less than 10 km.
- ▶ *Reflections causing false targets* – secondary radar energy may be reflected off the structures in both the uplink and downlink directions. This can result in aircraft, which are in a different direction to the way the radar is looking, replying through the reflector and tricking the radar into outputting a false target in the direction where the radar is pointing, or at the obstruction.
- ▶ Introducing *range and azimuth errors* – Monopulse secondary radar performance is also affected by the presence of wind turbines. The azimuth estimate obtained can be biased when the interrogated target emits its response when partially obscured by a large obstacle such as a wind turbine.

The Yass Valley wind farm is outside of the 10 km range attributed to blanking and diffraction effects. The Mt Bobbara radar is currently being upgraded to Mode S SSR which is even less susceptible to reflections than classic Mode A/C SSR.

7.10.1 Studies Commissioned

Under the direction of the previous proponent an aeronautical impact assessment was undertaken by Ambidji Group (November 2010). The key areas for assessment were impacts to the radar coverage of the two air traffic control radars which are located closest to the vicinity of the proposed Wind Farm – Mt Majura, approx. 33 NM (60 km) south east of the southern boundary of the wind farm and Mt Bobbara, a secondary surveillance radar, approx. 5 NM (10 km) north of the boundary of the Marilba precinct.

The report noted that the wind farm would not infringe any: PANS OPS surfaces, OLS, Air Route protection surfaces, Clearance Planes for Navigation Aids or the ATC radar clearance plane for the Mt Majura radar. However, some wind turbines would infringe upon the ATC radar clearance plane for the Mt Bobbara radar and consultation, including on mitigation options, should be undertaken with Airservices Australia.

A further study (November 2011) was then commissioned by the previous proponent and a European radar specialist carried out an evaluation of the effect of the wind farm on the Mt Bobbara secondary (SSR) ATC radar and Mt Majura primary (PSR) and secondary (SSR) ATC radar.

The report concluded:

- ▶ Mt Bobbara SSR ATC radar
 - false targets may occur up to 20 nm from the radar and will not occur at distances greater than 20nm.
 - The percentage of false target reports based on real data is equal to 0.113% - beneath the value of 0.2% which is the prescribed limit (under International Civil Aviation Organisation (ICAO) Annex 10 Aeronautical Telecommunications Volume IV Surveillance and Collision Avoidance Systems – ICAO3).
 - Extrapolating the real data out gives a false target report within the guideline limit (ICAO Doc 8071 Vol. III Testing of Surveillance Radar Systems – ICAO2)
 - Antenna pattern degradation will not be significant.
 - The radar shadowing effect will be negligible.
- ▶ Mt Majura SSR ATC radar
 - No impact, the wind farm is 30 nm away so falls into Zone 4 (criteria = further than 16 km or not in radar line of sight therefore no assessment required)
- ▶ Mt Majura PSR ATC radar
 - false targets will occur in the 310 deg to 330 deg sector up to 50 nm from the radar station and will not occur at distances greater than 50 nm.
 - The percentage of false target reports based on real data is equal to 0.024% - beneath the value of 0.2% which is the prescribed limit (under ICAO3).
 - Extrapolating the real data out gives a false target report is equal to 0.163% in class C and E and is negligible otherwise. In any case, turning of the Mt Majura PSR ATC radar using the STC map will mitigate the impact. The percentage of false target reports is always legible in class A airspace.
 - Antenna pattern degradation will not be significant.
 - The radar shadowing effect will be localised in the 310 deg to 330 deg angular sector from a distance of 30 nm to the designed radar coverage. Wind turbine echoes may be mitigated by specific radar processing techniques

On the basis of this report items 1 and 2 required no further assessment and item 3 required an exploration of mitigation options.

Epuron commissioned a UK wind farm and aviation specialist company to consider operational impacts and mitigation of them. Their report (August 2013) concurred with the earlier report's conclusions that the impact on the SSR systems at Mt Bobbara and Mt Majura would be negligible and no mitigation measures would be required.

In relation to the Mt Majura PSR system, the UK report confirmed that the turbines would be detectable and that false targets may appear on the ATC display system. The false targets on the PSR will appear on the ATC display system and have the potential to interfere with the provision of safe ATC services. The false targets are not expected to have an impact on published arrival and departure procedures at Canberra Airport, except possibly to impose some procedural restriction on RNAV (area navigation which permits aircraft operation on any desired flight path within the coverage of a network of ground based navigation aids rather than flying point to point between them) or GNSS (Global Navigation Satellite System) arrivals via the Yass Non Directional Beacon (NDB).

The remaining impact of the detectable turbines will be on ATC situational awareness when providing the Surveillance Information Service (SIS) to non-transponding general aviation users in the Class G and Class E

airspace above the turbines. It is the UK specialist's opinion based on current trends in the UK that mitigation may be required for this impact.

Mitigation of impacts to radar operation will involve strategies including:

- ▶ Filtering reflection and reducing the transmit power of the interrogator on a sector by sector basis.
- ▶ Reducing the receiver sensitivity

It is understood that processes would include:

- ▶ Base-lining – collecting and analysing the radar data for reflection sources and split track areas;
- ▶ repeating the collection and analysis post construction and over a period of time to compare against the baseline
- ▶ Optimising the radar through an iterative process to finalise changes, document and publish them.

7.10.2 UK specialist's Recommendations

The UK report concluded that it would be helpful to understand how Airservices has dealt with the existing wind developments located approximately 16 NM north east of Mount Majura PSR – Capital and Woodlawn Wind Farms. For example has procedural mitigation been sufficient for these two developments and if so, whether the same principles apply to the Yass Valley precincts.

Subject to the above, mitigation may be required for the impact on the Mount Majura PSR of the Coppabella turbines and for the 17 visible turbines at Marilba, if these are not tolerable. The need for mitigation will depend on the volume of traffic using RNAV/GSS navigation techniques or requesting SIS in proximity to the Wind Farm which is close the Canberra Control Zone and other controlled airspace in the region. This issue is one of situational awareness.

The report suggested mitigation could be provided by any of four high technology mitigation techniques which have taken part in recent Ministry of Defence sponsored technology demonstrations in the United Kingdom. If mitigation is required, following assessment of the final turbine locations, a range of options are available from baseline and optimisation to technologies such as the Watchman PSR manufactured by BAE Systems. This Watchman PST System is in use at all military and some civilian aerodromes in the UK and provides a 360° solution. The authors consider it is likely to be effective for both the Coppabella and Marilba precincts, subject to CASA approval.

7.10.3 Timing and Further Action

The UK report was provided to Airservices Australia. The proponent intends to undertake further resource intense studies to identify whether or not mitigation is required. Following discussions with Airservices Australia (Pers comm Joe Doherty December 2013) it was agreed that such work is required, but would need to be repeated if undertaken pre-approval. Airservices Australia would prefer to review and assess such work once the final turbine locations and turbine characteristics have been determined. This would be at the detailed design stage, post approval, once the turbine model and micro-siting details have been finalised.

The key factors to be address pre-approval are whether there are likely to be any significant impacts or risks and whether these can be avoided, mitigated or managed.

In line with *Guideline D of the National Airports Safeguarding Framework, Managing the risk to aviation safety of wind turbine installations (Wind Farms)/ Wind Monitoring towers, July 2012*, which states:

The guidelines rely on an approach of risk identification and management to ensure risks to aviation are minimised in the most effective and efficient manner possible. It is not the intention to adopt an overly restrictive approach to wind farm development, rather to ensure risks are identified early and mitigation measures are able to be planned and implemented at an early stage.

It is considered that the risks have been identified and impacts can be managed or mitigated. A range of costs for potential mitigation options have been advised to the proponent who considers them acceptable should the requirement for such mitigation eventuate.

8 Previous Changes to the Project Infrastructure Layout

8.1 Overview of Changes

Changes made to the proposed wind turbine locations and associated infrastructure compared to the infrastructure layout proposed in the EA (2009) included a reduction in the number of wind turbines, a relocation of a number of wind turbines and a new preferred transmission line route.

Table 8-1 Overview of changes to wind farm layout

| Detail | Environmental Assessment | Preferred Project Report |
|---|---------------------------------|-----------------------------------|
| | November 2009 | November 2012 |
| Number of wind turbines | 152 | 148 |
| Length of high voltage overhead powerline | >75 km | 25 km (330kV) or 22 km (132kV) |
| Number of site substations | 6 | Up to 2 |
| Maximum tip height | 150 | 150 |

Further details are documented in Table 8-2 below.

Table 8-2 Changes to the proposed wind farm infrastructure

| Item | Reason for Redesign |
|--|--|
| Deletion of 5 most westerly turbines (COP 72, 73, 74, 75 & 76) | Visual impact concerns from involved landowners |
| Additional 12 turbines in north west of (COP) | Additional viable wind turbine locations included COP 64, 65, 68, 69, 70, 71, 72, 126, 127, 128, 129, 130) |
| Deletion of turbine (COP 13) | High vegetation constraint |
| Deletion of turbine (COP 67) | Turbine layout optimisation |
| Relocation of access track (between COP 66 and 68) | High vegetation constraint |
| Deletion of turbines (MRL 01 & 05) | At the involved landowner's request |
| Deletion of turbine (MRL 30) | Turbine layout optimisation & vegetation constraint |
| Deletion of turbine (MRL 35) | High vegetation constraint for access track to turbine location |
| Revised overhead powerline route to TransGrid's existing 330kV transmission line | The revised overhead powerline route to connect the wind farm to the electricity grid runs south from the wind farm site for approximately 12km. Connection to the 330kV transmission line is expected to be slightly more expensive, but is expected to provide less constraint to the output of the wind farm when compared with the alternative connection to the 132kV transmission line to the north of the wind farm site. |

These changes were made for a number of reasons including:

- ▶ Reducing the overall environmental impact of the wind farm, including reducing impacts on flora and fauna habitat,
- ▶ Accommodating operational noise and visual impact constraints;
- ▶ In response to submissions made to the EA and to on-going community consultation;

- ▶ At the request of the involved landowners;
- ▶ To avoid constructability constraints; and
- ▶ When each of the above had been completed, to optimise the turbine layout to maximise the energy output of the wind farm.

The revised infrastructure layout significantly reduced the impact of the wind farm on the Box Gum Woodland Endangered Ecological Community (EEC) and reduced the preferred overhead transmission line from >75km to approximately 25km which were two particular issues raised in submission from OEH.

Where the changes resulted in infrastructure being relocated, additional assessments were carried out to ensure that the impacts continued to have the effect of minimising the overall environmental impact of the wind farm and complied with the relevant criteria. The additional assessments included:

- ▶ Ecology – additional field surveys and assessment;
- ▶ Archaeology & Heritage – additional field survey and assessment;
- ▶ Visual – additional photomontages and assessment;
- ▶ Noise – additional background noise monitoring and assessment;
- ▶ Consultation with neighbours within 2km and beyond; and
- ▶ Consideration of impacts in accordance with the draft NSW Planning Guidelines: Wind Farms

8.2 Changes to Transmission Lines & Grid Connection

The original 132kV grid connection involved more than 75km of high voltage overhead powerline and 40km of medium voltage overhead powerline (within the site). A large part of the 75km was due to a required upgrade of the existing 132kV line from the wind farm site back to the Yass substation. This connection was revisited and a new and preferred 330kV transmission line connection was proposed in the PPR (Nov 2012) which remains the preferred connection in this PPSR (Apr 2014). The preferred 330kV connection is not only significantly shorter than the 132kV transmission line routes presented in the EA (2009), but it also significantly reduces impacts to biodiversity.

See Figure 8-1 for a map comparing the original transmission line routes to the preferred and alternative transmission line routes presented in the PPR (2012). For clarity, the preferred and alternative transmission line routes are also shown in Figure 8-4 and 8-5.

There are a number of key reasons for the current preferred transmission line route:

- ▶ The existing TransGrid 132kV transmission line to the north of the site has less capacity available
- ▶ The new, preferred transmission line documented and exhibited in the PPR provides a more secure connection for the total output of the wind farm
- ▶ The preferred transmission line minimises the impacts to biodiversity – see Table 8-3 for comparison on the length of HV and MV powerlines within Box Gum Woodland:

The preferred connection enables the entire site to be connected to the 330kV transmission line to the south of the wind farm. An alternative option to connect sections of the wind farm to the 132 kV transmission line to the north of the site, but without requiring an upgrade back to Yass is also included. This allows for the potential for a staged project where an initial first stage cannot justify the full 330kV connection.

Table 8-3 Transmission line impacts to Box Gum Woodland EEC

| | Length of powerlines (km) | | | Length of powerline in BGW & BGW derived grassland in moderate, moderate-good & good condition (km) | | |
|--|---------------------------|------------------|--------------------|---|------------------|--------------------|
| | (EA 2009) | Preferred (2014) | Alternative (2014) | (EA 2009) | Preferred (2014) | Alternative (2014) |
| High voltage transmission (132/330kV) | 75 | 25 | 22 | 10.0 | 1.3 | 6.1 |
| Medium voltage overhead reticulation (33/66kV) | 40 | 17 | 17 | 18.4 | 3.5 | 3.5 |

For clarification of how the 75km length of the original powerline was calculated see Figure 3-14 and Figure 3-15 (pages 54 & 55) of the EA which showed the original high voltage transmission line routes including the length of each section. The lengths are shown in the table below.

Table 8-4 Lengths of proposed EA layout transmission line sections

| Transmission line | Length (km) | Cumulative length (km) |
|-------------------|-------------|------------------------|
| COP B to COP C | 6.3 | - |
| COP C to MRL A | 16.7 | 23.0 |
| COP A to MRL A | 14.7 | 37.7 |
| MRL A to CON B | 8.2 | 45.9 |
| CON B to CON A | 6.4 | 52.3 |
| MRL B to Yass | 22.5 | 74.8 |
| CON B to MRL B | 6.0 | 80.8 |

Only six residences lie within 1km of the preferred transmission line. Expert assessment has concluded that four of these will have negligible visual impact and two dwellings, M9 and C67, will have a medium level of visual impact.

Landscape mitigation of visual impact is achievable for these two dwellings through selective planting to the foreground of the residences if desired, which will reduce the visual impact to low.

Table 8-5 Transmission line impact assessment on residential viewpoints within 1km

| House ID | Location | Distance to transmission line (m) | Direction to transmission line | Overall Visual Impact |
|----------|-------------|-----------------------------------|--------------------------------|---|
| M28 | Bookham | 960 | East | Negligible |
| M29 | Bookham | 910 | East | Negligible |
| M30 | Bookham | 880 | East | Negligible |
| M31 | Bookham | 800 | East | Negligible |
| M9 | Bookham | 800 | East | Medium Low – if landscape mitigation is undertaken |
| C67 | Illalong Rd | 840 | North | Medium Low – if landscape mitigation is undertaken |

Figure 8-1 on the following page shows the location of these houses relative to the preferred transmission line.

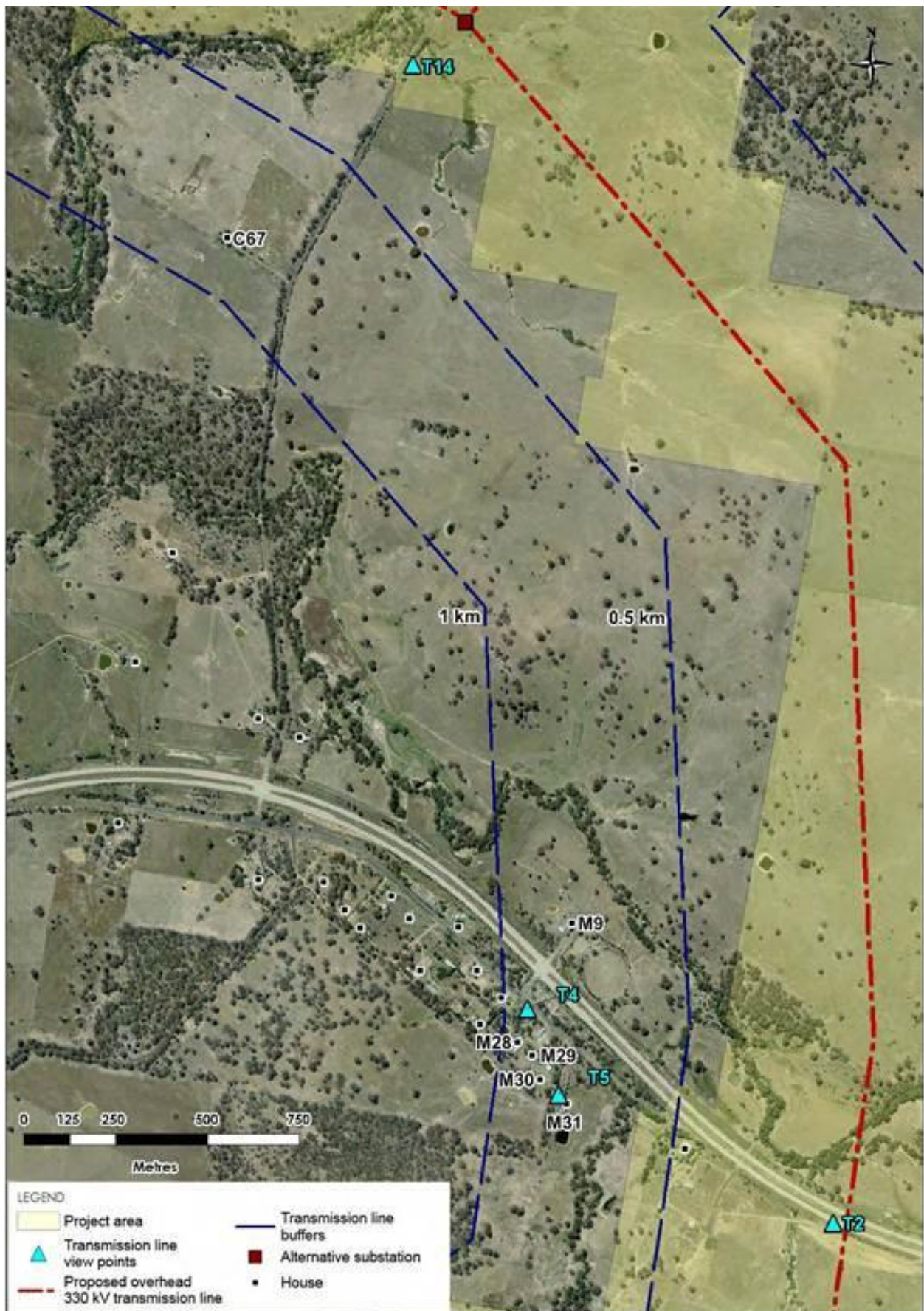


Figure 8-1 Residences within 1km of the preferred Transmission Line (see full assessment on Page 88 of the Landscape and Visual Impact Assessment April 2014)

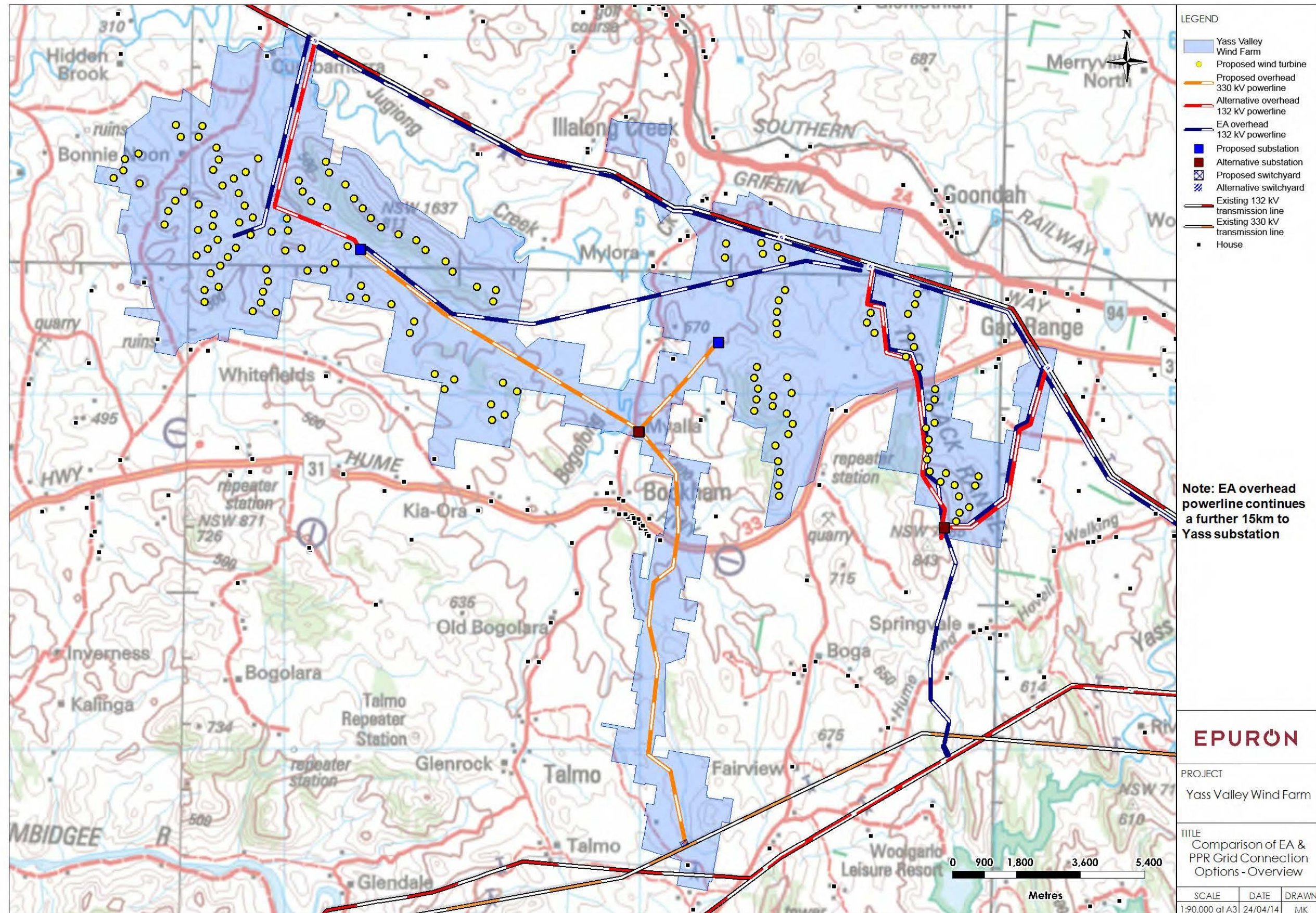


Figure 8-2 Comparison of EA & PPR grid connection options

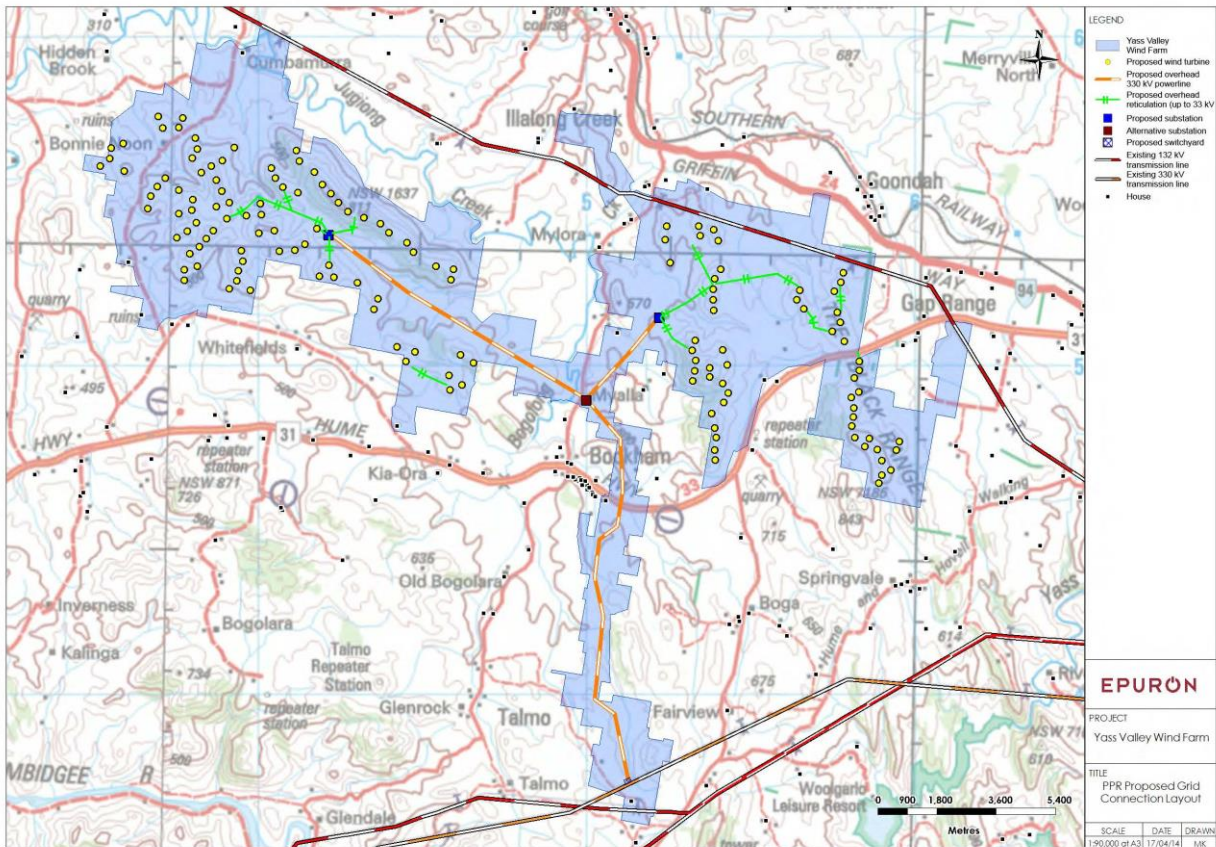


Figure 8-3 PPR Preferred 330kV transmission line route and MV reticulation

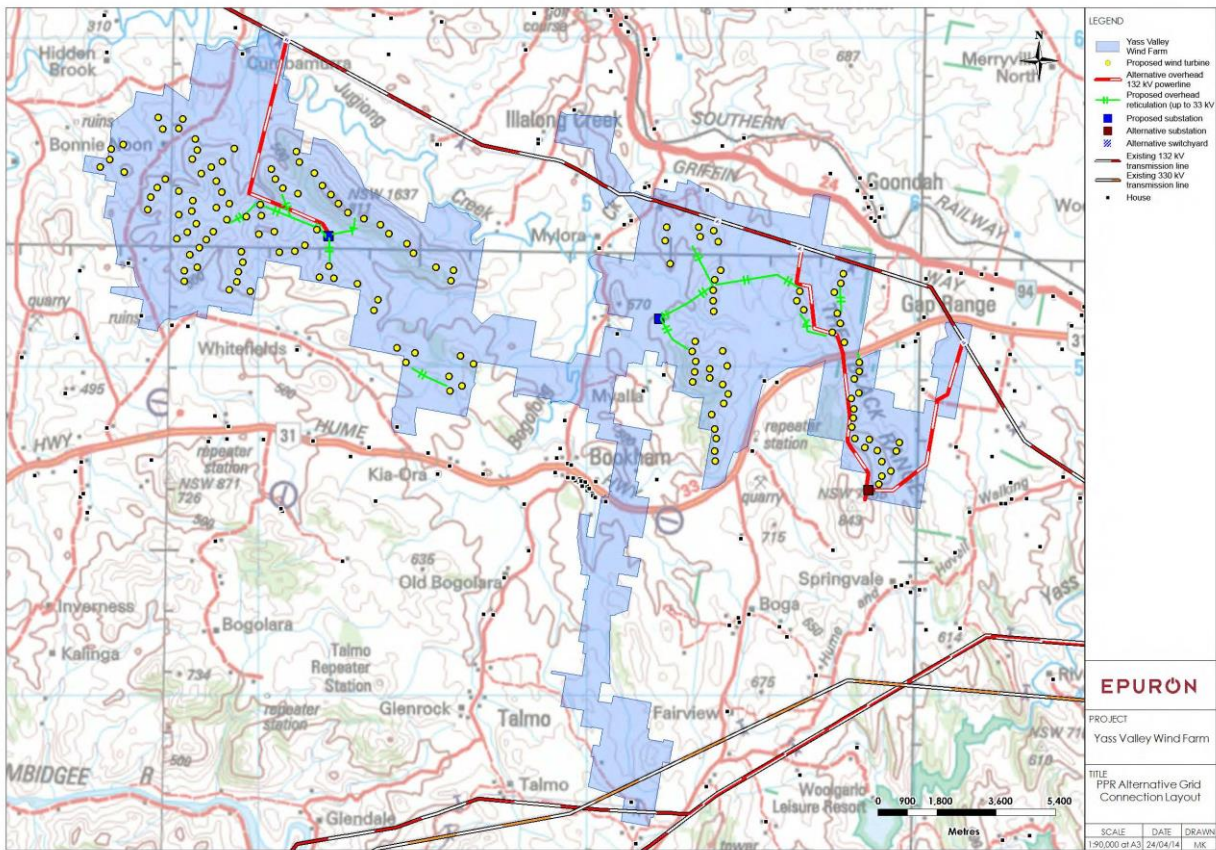


Figure 8-4 PPR Alternative 132kV transmission lines and MV reticulation

8.3 Wind Turbine Location Changes

As noted in section 8.1, the overall number of wind turbines was reduced from 152 to 148. The reason for the change in location for each individual turbine is listed in Attachment 23. The maps on the following pages highlight the changes in turbine locations for the Coppabella and Marilba precincts.

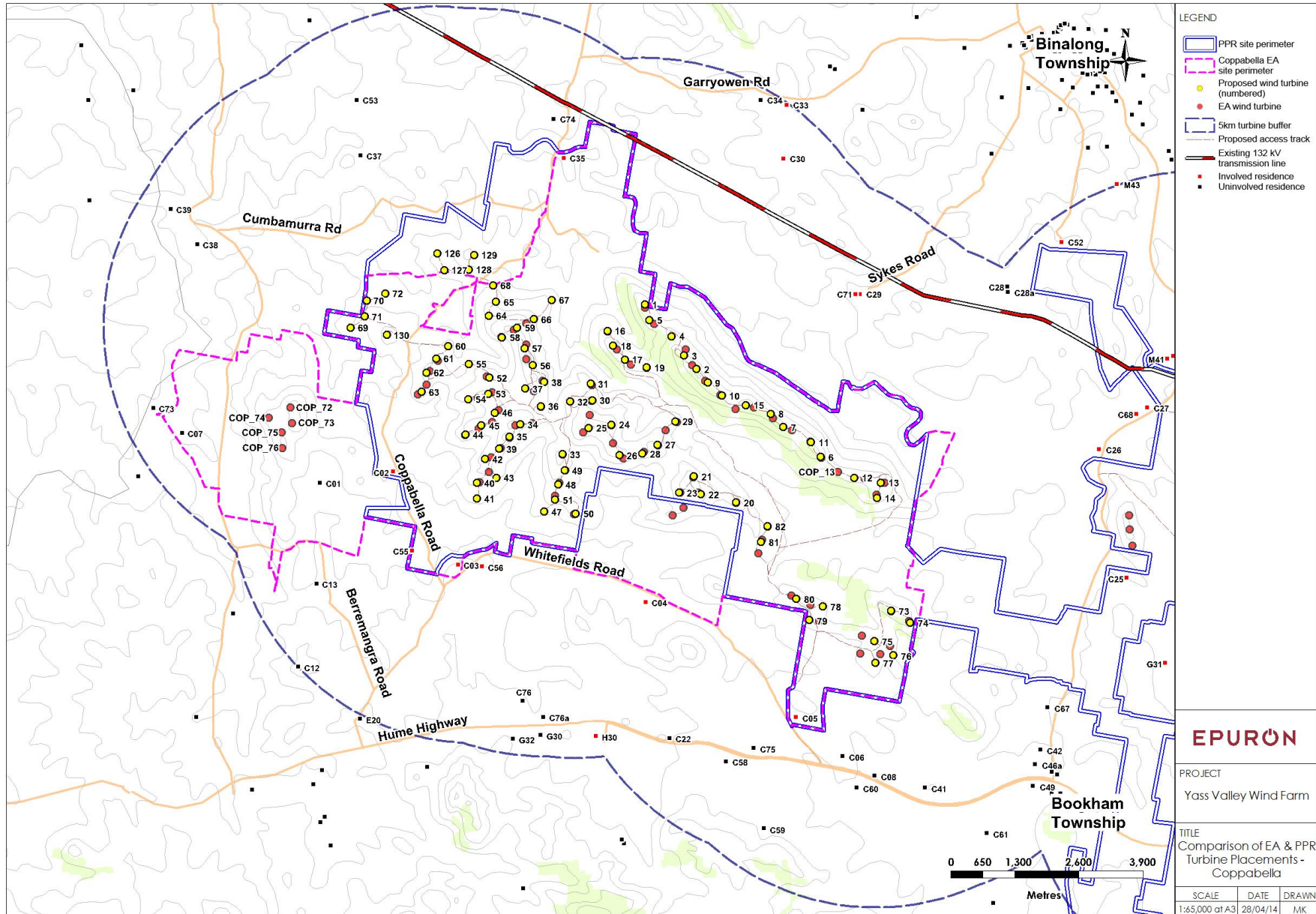


Figure 8-5 Wind turbine location changes - Coppabella precinct

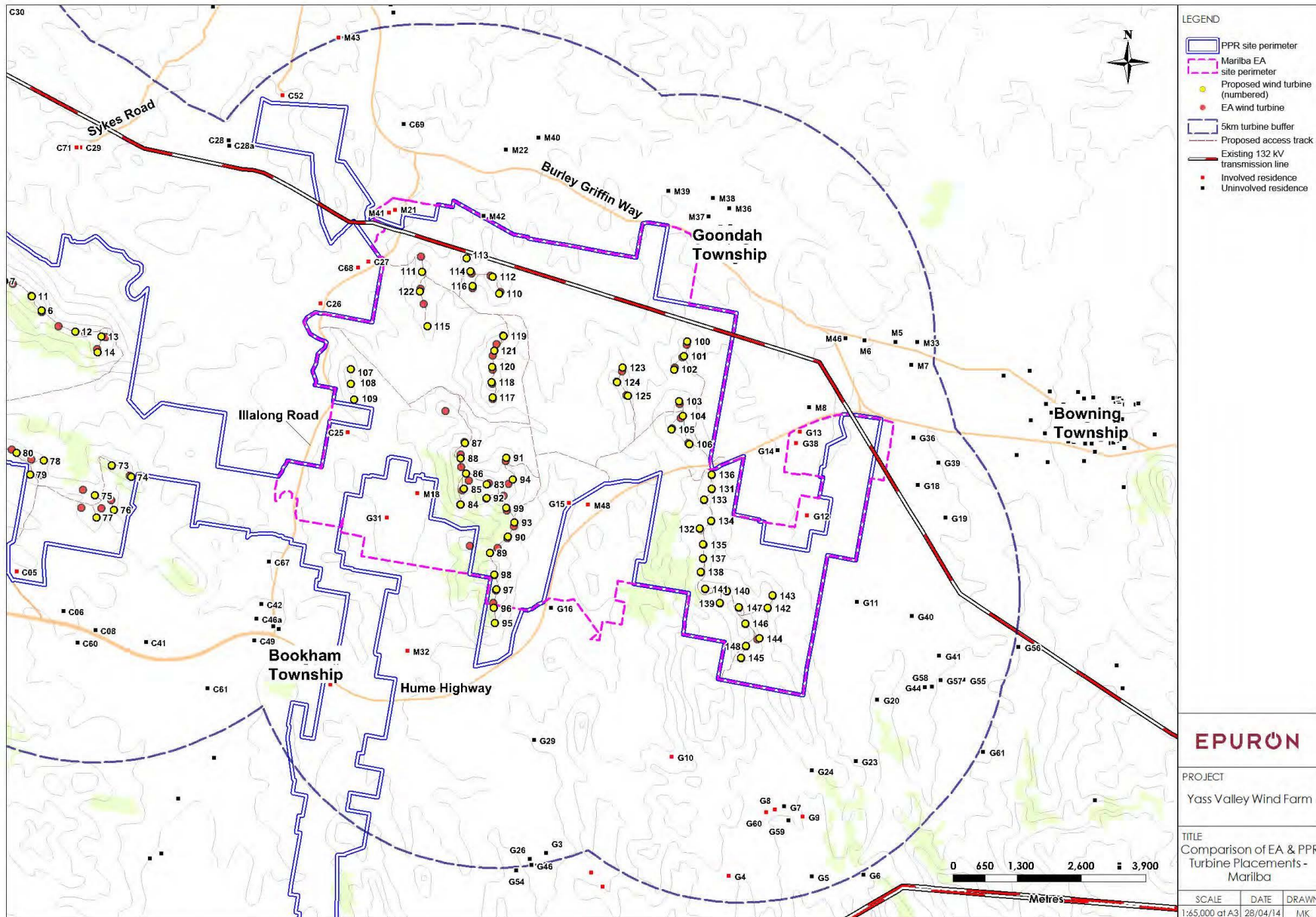


Figure 8-6 Wind turbine location changes - Marilba precinct

8.4 Changes to the North West of Coppabella

Following exhibition of the EA, a number of individual turbines were removed throughout the site along with a group of 5 turbines which were the most westerly wind turbines of the Coppabella precinct. Sixteen turbines in total were removed and of this number twelve were relocated to the north west of the site. Eight of these turbines were consolidated within the existing boundary of the site and four were positioned on land which extended the site boundary in the north west.

While the overall and cumulative impacts of the project as documented in the Preferred Project Report were minimised from the EA, NSW P&I considered that there were areas where local impacts had not been minimised but had potentially been increased. Because NSW P&I did not consider that all changes to the exhibited EA, as documented in the Preferred Project Report lodged on 30 November 2012, minimised its environmental impact, in line with the then current Section 75H (7) of the EP&A Act, the Preferred Project Report was put on public exhibition from 14 December 2012 to 1 March 2013.

While this relocation minimised the overall environmental footprint and consolidated the layout of the wind farm it did result in the potential for increased impact on the residences in proximity to the relocated turbines. See Figure 8-7 below.

The turbines relocated to the north west of the Coppabella precinct were numbered 64, 65, 67, 68, 69, 70, 71, 72, 126, 127, 128, 129 and 130 and these can be seen in Figure 2-1 and in the large scale map at Attachment 24. While the relocation of turbines has the potential for an increase in environmental or amenity impact, expert assessment, in conjunction with consultation, has shown that there has not been an increased impact on each of the closest residences in this case.

The relocated turbine locations are consistent with the requirements of the draft NSW Wind Farm Planning Guidelines. The key elements of proximity, consultation, visual impact and noise are considered below:

- ▶ Proximity - None of the relocated wind turbines are within 2 km of non-involved existing residences
- ▶ Community consultation –
 - There are two residents within 3 km, C37 and C01, both of whom have been visited and have no outstanding issues. C01 was previously an involved landowner.
 - There are seven further residences within 5 km – C74, C13, C53, C38, C39, C07, and C73. All of these residents have been sent newsletters and have been telephoned. Three of these residents have been visited and a photomontage has been prepared for one (C39) and background noise monitoring undertaken at another. There are no known outstanding concerns.
- ▶ Visual amenity – The landscape and visual impact assessor has assessed the two closest properties and a further property C39 which is orientated towards the wind farm across a valley. The assessments are:
 - C01 – 2.7 km – While the nearest wind turbine is located 2.7 km from this residence there are no views from the living areas towards the wind farm due to topography. There will be views from the driveway although the turbines will be partially or wholly screened so the overall visual impact is assessed as low.
 - C37 – 2.5 km - due to its location in a valley and having intervening vegetation there will be no views of the wind farm so the impact is assessed as nil.
 - C39 – 4.3 km – there are some clear views to the wind farm but due to the distance the visual impact has been assessed as medium.
- ▶ Noise – Full details of the noise assessment are in the noise section – see Attachment 4 and summary 4.7 below. The detailed predicted noise levels for the two closest non-involved properties, which show compliance with the noise criteria, are:
 - C01 - 33.1 dB(A)
 - C37 - 32.2 dB(A)

As Table 8-6 demonstrates, the amenity impacts to the residences located closest to the exhibited PPR relocated wind turbines are considered to be acceptable.

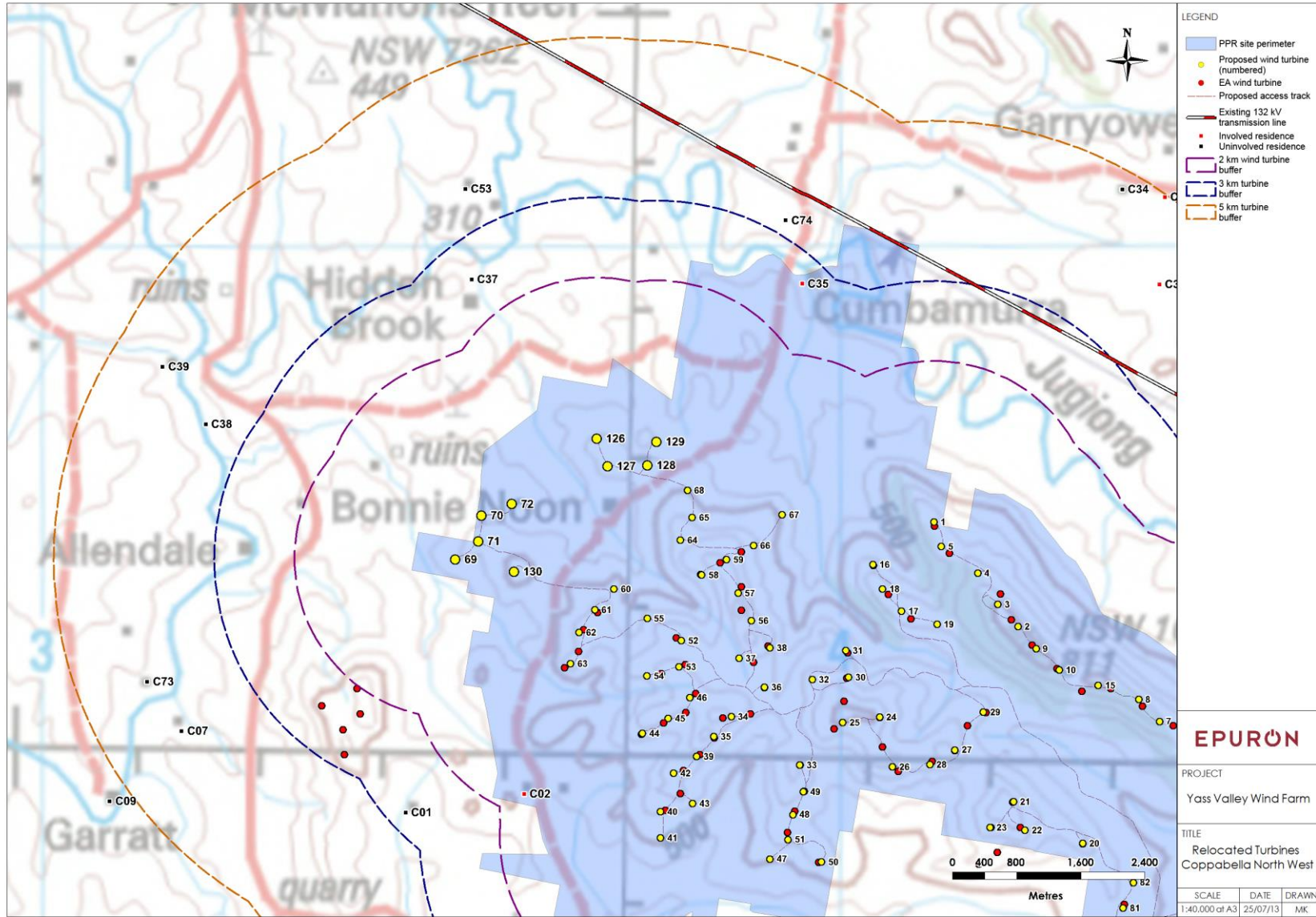


Figure 8-7 Relocated wind turbines north west Coppabella

Table 8-6 Changed impacts to individual residences

| Receiver ID | Involved | Distance to nearest turbine EA (km) | Current distance to nearest turbine (km) | Predicted noise level EA (dB(A)) | Current worse case noise level PPR (dB(A)) | Visual impact EA | Current visual impact | Comments |
|-------------|----------|-------------------------------------|--|--|---|--|---|---|
| G16 | No | 1.2 | 1.1 | 44.0 | 41.7 | Not assessed in EA ^b | Nil from living areas. Medium - low from driveway with landscape mitigation | Supportive, owner runs quarry and is in on-going discussion regarding supply for construction |
| C37 | No | 4.4 | 2.5 | 27.9 | 32.2 | Not assessed in EA ^b | Nil | Residence in valley with no views of turbines. Queried effects on livestock. Issue discussed. No other concerns raised. |
| C01 | No | 1.1 | 2.8 | 42.4 | 33.1 | Not assessed in EA ^b | Nil from living areas. Low from driveway(intervening hill) | No issues, previously involved. No concerns raised. |
| C74 | No | 4.2 | 3.2 | Not assessed in EA ^a (built since EA) | 35.2 (complies – see Table 6 March 14 Acoustics Addendum) | Not assessed in EA ^b (built since EA) | High (see photomontage) | Noise logging and photomontages undertaken. Not a supporter but no issues raised. |
| C53 | No | 5.6 | 3.5 | Not assessed in EA ^a | 33.4 | Not assessed in EA ^b | Medium | Noise concerns addressed (Nov 2013). Photomontage sent Jan 2014. Uncertain about what will hear but no other concerns raised. |
| C38 | No | 3.8 | 3.5 | 32.8 | 30.6 | Not assessed in EA ^b | Medium | Reduced impact. Pleased about relocation of western-most turbines. Supports wind energy |
| C07 | No | 1.8 | 4.0 | 37.1 | 25.7 | Not assessed in EA ^b | Low | Formally involved. Reduced impact. No concerns. |
| C73 | No | 2.2 | 4.3 | Not assessed in EA ^a | 26.4 | Not assessed in EA ^b | Low | Reduced impact No issues raised. Supports renewable energy where doesn't impact others. Decommissioning queries addressed. |

| Receiver ID | Involved | Distance to nearest turbine EA (km) | Current distance to nearest turbine (km) | Predicted noise level EA (dB(A)) | Current worse case noise level PPR (dB(A)) | Visual impact EA | Current visual impact | Comments |
|-------------|----------|-------------------------------------|--|----------------------------------|--|---|--|---|
| C39 | No | 4.5 | 4.4 | 29.4 | 27.8 | Medium without landscape mitigation Extensive existing screening | Medium without landscape mitigation. Extensive existing screening | Concerns (night lighting & erosion) raised through EA submission (see section 2.4.3) have been addressed. Visual impact is the only concern but owner considers has been improved by the relocation of turbines to the west of COP. |
| C09 | No | 2.9 | 5.3 | 32.8 | 24.7 | Not assessed in EA ^b | low | Reduced noise and visual impacts. Concerned about level of consultation. Copies of newsletters resent (mail and email). Visual impact of concern. |

^a At the time of the EA submission (see appendix 2 – Marshall Day noise assessment), these house locations did not fall within the noise contour boundary which would determine if they were relevant receivers for noise assessment as determined by the South Australian EPA's *Environmental Noise Guidelines: Wind Farms 2003*

^b At the time of the EA submission (See appendix 1 – ERM LVIA), House C39 (referred to as Residential viewpoint 5) was assessed as both representative and through community consultation having an owner interested in having the visual impact documented. For the EA, representative rather than all houses were considered. The above table includes all houses within 5 km of the relocated wind turbines to the west of Coppabella.

9 Revised Statement of Commitments

Note changes are highlighted in bold

9.1.1 Visual

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|---|------------------|--|-------------------|----------|
| 1 | Deterioration of visual amenity at surrounding residences | Mitigate impacts | The proponent would offer vegetative screening of any residence within 3-5 km of a wind turbine where an assessment shows that visual screening might improve visual amenity from residences . The proponent would write to the owner of each residence outlining the offer and process. A site visit would determine the extent and type of planting required. Species selection would be determined in consultation with landholders using specialist advice. This offer would remain in place for a period of 1 year after project construction, to allow people time to either adjust or to decide that landscape filtering or screening is warranted. Planting would be completed within 2 years of completion of project construction. | Post Construction | OEMP |
| 2 | Deterioration of visual amenity at surrounding residences | Mitigate impacts | The Proponent would make reasonable efforts to locate powerlines, substations and control buildings in areas which minimise the visual impact where practical. Vegetative screening would be provided around substations and control buildings where they are visible from neighbouring residences. | Planning | DoP |

9.1.2 Noise

9.1.2.1 Construction

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|--------------------|--------------|---|-----------------|----------|
| 3 | Construction noise | Minimisation | The Proponent will employ appropriate noise reduction strategies to ensure the recommendations of the NSW Environmental Noise Control Manual are met. Strategies may include the re-orientation of machinery, rescheduling of noisy activities, installation of temporary noise barriers, improved vehicle noise control and the use of 'quiet work practices' (such as reducing or relocating idling machinery). | Detailed design | CEMP |
| 4 | Construction noise | Minimisation | The Proponent would undertake construction activities associated with the project that would generate audible noise from site construction works at any residence during the hours: <ul style="list-style-type: none"> ▶ 7:00 am to 6:00 pm, Monday to Friday, ▶ 8:00 am to 1:00 pm Saturday; and | Detailed design | CEMP |

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|--------------------|--------------|--|-----------------|----------|
| | | | ▶ At no time on Sundays or public holidays | | |
| 5 | Construction noise | Minimisation | Meet ANZECC guidelines for control of blasting impact at residences. | Detailed design | CEMP |

9.1.2.2 Operation

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|-------------------|------------|---|-------------------|----------|
| 6 | Operational noise | compliance | The Proponent will ensure final turbine selection and layout complies with the SA EPA Noise Guidelines of 35 dB(A) or background plus 5 dB(A) (whichever is higher) for all non-involved residential receivers (SA EPA, 2003). (other than those which have entered into a noise agreement with the Proponent in accordance with the SA EPA Noise Guidelines) | Detailed design | OEMP |
| 7 | Operational noise | Compliance | The Proponent will ensure final turbine selection and layout complies with the World Health Organisation Guidelines for Community Noise requiring 45 dB(A) or background plus 5 dB(A) (whichever is higher) for all involved residential receivers and all non-involved residential receivers which have entered into noise agreement with the Proponent in accordance with the SA EPA Noise Guidelines | Detailed design | OEMP |
| 8 | Operational noise | Compliance | Prior to construction, the Proponent will prepare and submit to the Department of Planning a noise report providing final noise predictions based on any updated background data measured, the final turbine model and turbine layout selected, to demonstrate compliance with the relevant guidelines for all residences | Detailed design | OEMP |
| 9 | Operational noise | Mitigate | If operational monitoring identifies exceedances, the Proponent would give consideration to providing mechanical ventilation (to remove the requirement for open windows), building acoustic treatments (improving glazing) or using turbine control features to manage excessive noise under particular conditions. | Operations | OEMP |
| 10 | Operational noise | Compliance | Develop and implement an operational noise compliance testing program. The compliance program will commence 3 months before construction commencement and continue on a permanent basis for 2 years post commissioning. Permanent noise loggers will be installed at selected receivers for the duration of the compliance program, with noise data regularly downloaded and any potential exceedances noted for detailed analysis. The selected house locations will comprise of all houses within 2km of a turbine and selected representative houses within 2-5km. | Operations | OEMP |

9.1.3 Flora and Fauna

| SoC | Impact | Objective | Mitigation Tasks | Project Phase | Auditing ² |
|---------------|--|------------------------------------|--|---|-----------------------|
| 11 | Loss or modification of habitat | Avoid, minimise, offset | All infrastructure would be sited entirely within the development envelope assessed in the Biodiversity Assessments. Where this is not possible, additional assessment would be undertaken and the appropriate approval would be sought (i.e. variation to Conditions of Approval). | Detailed design of infrastructure layout | CEMP |
| 12 | Loss or modification of habitat | Avoid, minimise, offset | All infrastructure would be sited to avoid high constraint areas (including high constraint habitat features) and minimise impacts in moderate constraint areas. These areas are identified within Appendix 3.1 of the Coppabella Hills Precinct Biodiversity Assessment (Figure 7.1), and Appendix 3.2 of the Marilba Hills Precinct Biodiversity Assessment (Map set 4) and Appendix E of the SER. [Note: this now includes areas of moderate-good and good condition EEC/CEEC areas identified in the new assessment areas; site 11, site 25, site 31 and site 35]. The exception to this will be site 13 of the newly assessed areas where powerline infrastructure will be microsited with input from an ecologist to minimise impacts on CEEC. Associated access tracks in this area will be located to avoid the high constraint CEEC. | Detailed design of infrastructure layout | CEMP |
| 13 | Loss or modification of habitat | Avoid, minimise, offset | Where high constraint areas cannot be avoided, micrositing of infrastructure would be undertaken with input from an ecologist, to minimise impacts (includes road widening and transmission easement). This SoC has been deleted – all high constraint areas would be avoided in accordance with SoC12. | Detailed design of infrastructure layout | CEMP |
| 14 | Loss or modification of habitat | Avoid, minimise, offset | Where hollow-bearing trees cannot be avoided, nest boxes would be installed to replace this resource. This measure is considered supplementary to offsets that would also take into account the removal of hollows. Note this is now stipulated in the Offset Strategy | Detailed design of infrastructure layout | CEMP |
| 15 | Loss or modification of habitat | Avoid, minimise, offset | Works should be sited outside known Yass Daisy population areas and Commonwealth-listed CEEC areas identified in Appendix 3.1 Coppabella Hills Precinct Biodiversity Assessment (Figure 5.6), and Appendix 3.2 Marilba Hills Precinct Biodiversity Assessment (Map set 2) and the SER (Figure 2-32). [Note this includes the proposed cable route at site 35] The proposed cable route would be located to avoid direct or indirect impacts to all recorded plants and colonies, with a minimum 2 metre buffer. The Yass Daisy population would be identified and protected during the construction and operation phases. Special rehabilitation measures would be used for works in the vicinity of the population, including topsoil removal, | Detailed design of infrastructure layout | CEMP |

² The Construction and Operation Environmental Management Plans (CEMP and OEMP) are documents submitted to Dept. Planning & Infrastructure prior to construction and operation. Incorporation of these commitments within these management plans allows each commitment to be auditable.

| SoC | Impact | Objective | Mitigation Tasks | Project Phase | Auditing ² |
|-----|---------------------------------|-------------------------|--|--|-----------------------|
| | | | <p>storage and replacement, whole sod removal and replacement if practicable and effective weed control at all stages. Exposed areas along the trench line would be revegetated with local native grasses (<i>Microlaena stipoides</i> and/or <i>Themeda triandra</i>).</p> <p>If works are proposed outside of the targeted survey area within the area of occupancy for the Yass Daisy mapped in ngh Environmental (2009c), further survey or micro-siting by an ecologist would be undertaken to ensure that the works avoid Yass Daisy plants and colonies.</p> | | |
| 16 | Loss or modification of habitat | Avoid, minimise, offset | Where rocks and boulders cannot be avoided, they would be placed directly adjacent to the works area to preserve the availability of refuge. | Construction | CEMP |
| 17 | Loss or modification of habitat | Avoid, minimise, offset | Should dams be required to be removed during site development, alternative watering points would be established to compensate for their loss, where practical and with the agreement of the landowner. | Construction | CEMP |
| 18 | Loss or modification of habitat | Avoid, minimise, offset | <p>Additional targeted surveys would be undertaken, if the identified areas would be impacted by the proposal. These areas include:</p> <p>Coppabella Hills</p> <ul style="list-style-type: none"> ▶ Hollow-bearing trees targeted for removal. <p>Marilba Hills</p> <ul style="list-style-type: none"> ▶ Hollow-bearing trees targeted for removal. ▶ Burrinjuck Spider Orchid, undertaken in mid October, where the dry forest remnant in the far south of Cluster 7 would be impacted by the proposed works. ▶ Threatened grassy woodland species, undertaken in Spring, if the secondary grassland on the south-western side of Cluster 7 would be substantially impacted. <p>Refer Appendix G of the SER for details of these surveys that have been completed</p> | Detailed design of infrastructure layout | CEMP |
| 19 | Loss or modification of habitat | Avoid, minimise, offset | Contractors and staff would be made aware of the significance and sensitivity of the constraints identified in the Biodiversity Assessment constraint map set for each precinct during the site induction process. | Construction | CEMP |
| 20 | Loss or modification of habitat | Avoid, minimise, offset | A buffer twice the distance of the tree drip-line would be established in sensitive areas identified in the Biodiversity Assessment constraint map set for each precinct to ensure indirect impacts (such as compaction, noise and dust) are minimised where practical.. | Construction | CEMP |
| 21 | Loss or modification | Avoid, | The Proponent would commit to preparing and implementing an Offset Plan, to offset the quantum | Prior to construction | CEMP |

| SoC | Impact | Objective | Mitigation Tasks | Project Phase | Auditing ² |
|-----|---------------------------------|-------------------------|--|--|-----------------------|
| | of habitat | minimise, offset | and condition of native vegetation to be removed, in order to achieve a positive net environmental outcome for the proposal. Offset areas would reflect the actual footprint of the development (i.e. footing areas and new tracks) not the maximum impact areas. The Offset Plan would be prepared in consultation with OEH, prior to construction. The Offset Plan would be prepared in accordance with the offset strategy included as Appendix H of the SER. [Note the offset strategy sets out the method to calculate, manage and secure appropriate offsets]. | | |
| 22 | Loss or modification of habitat | Avoid, minimise, offset | An adaptive Bird and Bat Monitoring Program would be developed prior to construction and would include the collection of baseline (pre-operation) as well as operational monitoring data. | Prior to construction | CEMP, OEMP |
| 23 | Loss or modification of habitat | Avoid, minimise, offset | A Biodiversity Management Plan would be prepared within the CEMP to document the implementation of biodiversity measures, sourcing the Biodiversity Assessments prepared for each precinct for area specific measures. This would include construction and operational activities. The plan would include specific additional survey work which would be used to microsite infrastructure, where practical, and offset impacts, where they cannot be avoided. The target features / species include: <ul style="list-style-type: none"> ▶ Hollow bearing trees ▶ Bush Stone-curlew ▶ Barking Owl ▶ Squirrel Glider ▶ Striped Legless Lizard ▶ Eastern Bentwing Bat Survey approach would be developed in consultation with OEH. | Prior to construction | CEMP |
| 24 | Loss or modification of habitat | Avoid, minimise, offset | An EPBC referral would be submitted to determine whether the proposal constitutes a 'controlled action' under the meaning of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> . | Detailed design of infrastructure layout | CEMP |
| 25 | Loss or modification of habitat | Avoid, minimise, offset | A flora and fauna assessment would be undertaken prior to decommissioning to identify biodiversity constraints and develop specific impact mitigation measures. | Decommissioning | OEMP |

9.1.4 Aboriginal Archaeology

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|---|----------------------|---|----------------------------------|-----------------|
| 26 | Unavoidable disturbance to Aboriginal objects (stone artefacts) located in generally continuous albeit low density distribution across the proposal area. | Mitigate disturbance | A salvage program of archaeological excavation and analysis would be undertaken in a sample of impact areas prior to construction. The development of an appropriate research project would be undertaken in consultation with an archaeologist, the relevant Aboriginal communities and the NSW Department of Conservation and Climate Change. | Construction and decommissioning | CEMP |
| 27 | Disturbance to an Aboriginal object of low/moderate or moderate significance | Minimise disturbance | The Proponent would minimise the extent of impacts to areas assessed to be of low/moderate or moderate archaeological significance, where possible. A program of salvage subsurface excavation would be undertaken in impact areas at these locales prior to construction as a form of Impact Mitigation. The scope of this program is provided in Tables 19, 20 and 21 of Section 12 of the Archaeological Assessment, which identify the survey units that would be targeted in the program. | Construction and decommissioning | CEMP |
| 28 | Disturbance to an unidentified Aboriginal object | Minimise risk | The Proponent would conduct additional archaeological assessment in any areas which are proposed for impacts that have not been surveyed during the current assessment. | Construction and decommissioning | CEMP |
| 29 | Inadvertent impacts to Aboriginal objects | Minimise risk | The Proponent would develop a Cultural Heritage Management Protocol which documents the procedures to be followed for minimising risk and implementing mitigation strategies. This would be undertaken in consultation with an archaeologist, the relevant Aboriginal communities and the NSW Department of Conservation and Climate Change. | Construction and decommissioning | CEMP |

9.1.5 Aircraft Hazards

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation Tasks</i> | <i>Project Phase</i> | <i>Auditing</i> |
|------------|--------------------|------------------|--|----------------------|-----------------|
| 30 | Creation of Hazard | Minimise risk | Liaise with CASA and determine the appropriate number, location and type of aircraft warning beacons to be fitted on wind turbines prior to the commencement of construction. | Pre-construction | DoP |
| 31 | Creation of Hazard | Minimise risk | The Proponent would liaise with all relevant authorities (CASA, Airservices, and Department of Defence) and supply location and height details once the final locations of the wind turbines | Pre-construction | DoP |

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation Tasks</i> | <i>Project Phase</i> | <i>Auditing</i> |
|------------|---|---------------------------|---|----------------------|-----------------|
| | | | have been determined and before construction commences. | | |
| 31B | Potential impacts on air traffic control radars | Avoid operational impacts | Complete further detailed assessment following turbine model selection of the potential impacts on the operation of the Mt Bobbara SSR and Mt Majura PSR/SSR air traffic control radars in conjunction with Airservices Australia and identify and implement mitigation measures if required. | Pre-construction | DoP |

9.1.6 Communication

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|----------------------------------|-------------------------------------|---|--------------------------------|-----------------|
| 32 | Deterioration of signal strength | No deterioration of signal strength | The Proponent would locate wind turbines to avoid existing microwave link paths that cross each precinct, or liaise with the owners of such links to relocate services to avoid potential impacts from turbines. | Pre-construction | |
| 33 | Deterioration of signal strength | No deterioration of signal strength | The Proponent would undertake a detailed investigation to develop appropriate mitigation measures associated with potential impacts to navigational aids from the Coppabella Hills and Marilba Hills Precincts. The Proponent would liaise with Airservices Australia to ensure all mitigation measures are acceptable. | Pre-construction and operation | |
| 34 | Deterioration of signal strength | No deterioration of signal strength | <p>Ensure adequate television reception is maintained for neighbouring residences as follows:</p> <ul style="list-style-type: none"> ▶ Undertake a monitoring program of houses within 5km of the wind farm site to determine any loss in television signal strength if requested by the owners. ▶ In the event that after construction television interference (TVI) is experienced by existing receivers within 5km of the site, investigate the source and nature of the interference. ▶ Where investigations determine that the interference is cause by the wind farm, establish appropriate mitigation measures at each of the affected receivers in consultation and agreement with the landowners. <p>Specific mitigation measures may include:</p> <ul style="list-style-type: none"> ▶ Modification to, or replacement of receiving antenna ▶ Provision of a land line between the effected receiver and an antenna located in an area of favourable reception | Pre-construction and Operation | |

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|--------|-----------|---|---------------|----------|
| | | | <ul style="list-style-type: none"> ▶ Improvement of the existing antenna system ▶ Installation of a digital set top box or ▶ In the event that interference cannot be overcome by other means, negotiating an arrangement for the installation and maintenance of a satellite receiving antenna at the Proponents cost | | |

9.1.7 Electromagnetic Fields

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|------------------------------|-------------------|---|---------------|----------|
| 35 | Radiation exposure from EMFs | Minimise exposure | Adhere to standard industry approaches and policies with respect to EMF through maintenance of adequate easements around transmission lines. | Operation | OEMP |
| 36 | Radiation exposure from EMFs | Minimise exposure | The turbines, control building, substation and transmission lines would be located as far as practical from residences, farm sheds, and yards in order to reduce the potential for both chronic and acute exposure. | Operation | OEMP |

9.1.8 Traffic and Transport

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|-----------------------------|---------------|---|---------------|----------|
| 37 | Safety and asset protection | Minimise Risk | <p>The Proponent would develop and implement a Traffic Management Plan (TMP) in consultation with roads authorities to facilitate appropriate management of potential traffic impacts. The TMP would include provisions for:</p> <ul style="list-style-type: none"> ▶ Scheduling of deliveries and managing timing of transport ▶ Limiting the number of trips per day ▶ Undertaking community consultation before and during all haulage activities ▶ Designing and implementing temporary modifications to intersections, roadside furniture, stock grids and gates ▶ Managing the haulage process, including the erection of warning and/or advisory speed signage prior to isolated curves, crests, narrow bridges and change of road conditions | Construction | CEMP |

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|------------|------------------------------------|----------------------|--|---------------------|-------------|
| | | | <ul style="list-style-type: none"> ▶ Designation of a speed limit would be placed on all of the roads that would be used primarily by construction traffic ▶ Preparation of a Transport Code of Conduct to be made available to all contractors and staff ▶ Identification of a procedure to monitor the traffic impacts during construction and work methods modified (where required) to reduce the impacts ▶ Provide a contact phone number to enable any issues or concerns to be rapidly identified and addressed through appropriate procedures ▶ Reinstatement of pre-existing conditions after temporary modifications to the roads and pavement along the route. <p>The Traffic Management Plan and other mitigation measures will be implemented in accordance with the process outlined in the RTA (now RMS) submission dated 16 December 2009.</p> | | |
| 38 | Safety and Asset protection | Minimise Risk | The Proponent would use a licensed haulage contractor with experience in transporting similar loads, responsible for obtaining all required approvals and permits from the RTA and Councils and for complying with conditions specified in those approvals. | Construction | CEMP |
| 38A | Safety and Asset protection | Minimise Risk | In the case of any existing or proposed connection for access from the wind farm onto a Classified Road the proponent would obtain RMS and the council's concurrence under section 138 of the Roads Act (1993) prior to the commencement of any work as noted in the RTA (now RMS) submission dated December 2009. | Construction | CEMP |
| 39 | Safety and Asset protection | Minimise Risk | <p>The Proponent would prepare road dilapidation reports covering pavement and drainage structures in consultation with roads authorities for the route prior to the commencement of construction and after construction is complete.</p> <p>The Proponent would repair any damage resulting from the construction traffic (except that resulting from normal wear and tear) as required during and after completion of construction at the Proponent's cost or, alternately, negotiate an alternative for road damage with the relevant roads authority.</p> | Construction | CEMP |
| 40 | Safety and Asset protection | Minimise Risk | Route specific mitigation measures, as detailed Section 5.2 of the Traffic Impact Study, would be adopted where significant increases in use are anticipated as a consequence of the proposal. | Construction | CEMP |

9.1.9 Fire and Bushfire

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|---------------|------------------|--|--|-----------------|
| 41 | Bushfire risk | Minimise risks | <p>The Proponent would prepare a Bushfire Management Plan as part of the Construction Environmental Management Plan. The Rural Fire Service and NSW Fire Brigade would be consulted in regard to its adequacy to manage bushfire risks during construction, operation and decommissioning. The plan would as a minimum include:</p> <ul style="list-style-type: none"> ▶ Hot-work procedures, asset protection zones, safety, communication, site access and response protocols in the event of a fire originating in the wind farm infrastructure, or in the event of an external wildfire threatening the wind farm or nearby persons or property ▶ Flammable materials and ignition sources brought onto the site, such as hydrocarbons, would be handled and stored as per manufacturer's instructions. ▶ During the construction phase, appropriate fire fighting equipment would be held onsite when the fire danger is very high to extreme, and a minimum of one person on site would be trained in its use. The equipment and level of training would be determined in consultation with the local RFS ▶ Substations would be bunded with a capacity exceeding the volume of the transformer oil to contain the oil in the event of a major leak or fire. The facilities would be regularly inspected and maintained to ensure leaks do not present a fire hazard, and to ensure the bunded area is clear (including removing any rainwater) ▶ Substations would be surrounded by a gravel and concrete area free of vegetation to prevent the spread of fire from the substation and reduce the impact of bushfire on the structure. The substation area would also be surrounded by a security fence as a safety precaution to prevent trespassers and stock ingress ▶ Asset protection zones (APZs), based on the RFS Planning for Bushfire Protection, would be maintained around the control room, sub-station and in electricity transmission easements. Workplace health and safety protocols would be developed to minimise the risk of fire for workers during construction and during maintenance in the control room and amenities ▶ Fire extinguishers would be stored onsite in the control building and within the substation building ▶ Shut down of turbines would commence if components reach critical temperatures or if directed by the RFS in the case of a nearby wildfire being declared (an all hours contact point would be available to the RFS during the bushfire period). Remote | Construction Operation Decommissioning | CEMP and OEMP |

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|--------|-----------|---|---------------|----------|
| | | | <p>alarming and maintenance procedures would also be used to minimise risks</p> <ul style="list-style-type: none"> ▶ Overhead transmission easements would be periodically inspected to monitor regrowth of encroaching vegetation | | |

9.1.10 Hydrology

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|--|--|---|-----------------|----------|
| 42 | Deterioration of water quality (Surface Water) | Minimise risk | <p>Infrastructure placement, including turbines, substations, control buildings, stockpiles, and site compounds and turnaround areas, would not be sited within 40 metres of a major drainage line or water course.</p> <p>Where access track are required to cross water courses they will be designed in consultation with NSW Office of Water and DPI (Fisheries).</p> | Detailed design | CEMP |
| 43 | Deterioration of water quality (Surface Water) | Achieve neutral or beneficial water quality impact | <p>The Proponent would prepare a Sediment / Erosion Control Plan (SECP) as a sub plan of the Construction Environmental Management Plan. This plan would include the following provisions:</p> <ul style="list-style-type: none"> ▶ Sediment traps would be installed wherever there is potential for sediment to collect and enter waterways ▶ Stockpiles generated as a result of construction activities would be bunded with silt fencing, (mulch bunds or similar) to reduce the potential for runoff from these areas ▶ On the steeper slopes check banks would be installed across the trench line, as appropriate, following closure of the trench. These would discharge runoff to areas of stable vegetation ▶ Stabilisation and site remediation would be undertaken as soon as practicable throughout and post construction. ▶ Soil and water management practices would be developed as set out in Soils and Construction Vol. 1 (Landcom 2004) | Construction | CEMP |
| 44 | Deterioration of water quality (Surface Water) | Minimise risk | Design water crossings to minimise impact on existing banks, water flow and animal passage. | Construction | CEMP |

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|---|--|--|---------------------------------|--------------|
| 45 | Water supply | Minimise risk | Undertake liaison with representatives of Golden Fields County Council regarding the potential supply of construction water | Construction | CEMP |
| 46 | Deterioration of water quality (Surface Water) | Minimise risk | All vehicles onsite would follow established trails and minimise onsite movements | Construction Operation | CEMP OEMP |
| 47 | Deterioration of water quality (Surface and Ground Water) | Minimise risk | Machinery would be operated and maintained in a manner that minimises risk of hydrocarbon spills | Construction Operation | CEMP OEMP |
| 48 | Deterioration of water quality (Surface and Ground Water) | Minimise risk | Maintenance or re-fuelling of machinery would be carried out on hard-stand in accordance with industry standards for fuel transfer | Construction | CEMP |
| 49 | Deterioration of water quality (Surface and Ground Water) | Minimise risk | Design of concrete batch plants would ensure concrete wash would not be subjected to uncontrolled release. Areas of the batching would be bunded to contain peak rainfall events and remediated after the completion of the construction phase. Waste sludge would be recovered from the settling pond and used in the production of road base manufactured onsite. The waste material would be taken from the batching plant to be blended in the road base elsewhere onsite. | Construction | CEMP |
| 50 | Deterioration of water quality (Surface and Ground Water) | Minimise risk | Carry out dust suppression as required through either watering or chemical means (environmentally friendly polymer based additives to water). | Construction Decommissioning | CEMP |
| 51 | Deterioration of water quality (Surface Water) | Achieve neutral or beneficial water quality impact | A Site Restoration Plan (SRP) would be prepared as part of the Construction Environmental Management Plan. This would set out protocols for restoration works including: <ul style="list-style-type: none"> ▶ Site preparation ▶ Stabilisation ▶ Revegetation ▶ Monitoring | Construction Decommissioning | CEMP |
| 52 | Deterioration of water quality (Surface and | Minimise risk | A Spill Response Plan would be prepared as part of the CEMP and OEMP including: <ul style="list-style-type: none"> ▶ Identify persons responsible for implementing the plan if a spill of a dangerous or | Construction Operation | CEMP OEMP |

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|---|------------------|---|--|-----------------|
| | Ground Water) | | <p>hazardous chemical/waste would occur</p> <ul style="list-style-type: none"> ▶ Identify all chemicals required for the Proposal, including physio-chemical properties, risks posed to water quality objectives and appropriate methods of storage of these chemicals. ▶ Locate Material Safety Data Sheets (MSDS) for all chemical inventories at on site and readily available ▶ Comply with manufacturers recommendations in relation to application and disposal where chemicals are used ▶ Report any spill that occurs to the Construction Manager regardless of the size of the spill ▶ Establish clearly defined works and refuelling areas ▶ Spill protocols in this plan would dictate when the EPA would be notified ▶ Chemical / fuel storage areas would be identified, and be bunded to prevent loss of any pollutants ▶ Hydrocarbon spill kits would be stored at the site. A number of site staff are to be trained in the use of the spill kits | Decommissioning | |
| 53 | Deterioration of water quality (Surface and Ground Water) | Minimise Risk | The Proponent would notify the NSW DECC EPA in the event of any spill that had the potential to pollute waters. | Construction Operation | CEMP OEMP |
| 54 | Protection of ground water | Minimise risk | Undertake investigations, as part of the geotechnical investigation, to ensure that the project would have no material adverse effect on groundwater/aquifers as a result of blasting activities. | Pre-construction | CEMP |
| 55 | Deterioration of water quality (Surface and Ground Water) | Minimise risk | Monitor bunded infrastructure to ensure that volume of oil could be fully contained in the event of leak | Operation | OEMP |
| 56 | Deterioration of water quality (Surface and Ground Water) | Minimise risk | Maintain septic systems, if installed, to meet appropriate Australian standards | Construction Operation Decommissioning | CEMP OEMP |

9.1.11 Soils and Landforms

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|---|------------------|---|----------------------|-----------------|
| 57 | Landform stability | Minimise risk | The Proponent would undertake geotechnical investigations in the area of the proposed turbines to determine ground stability. | Pre - construction | DoP |
| 58 | Contamination | Minimise risks | Consult with involved property owners in relation to areas of land potentially contaminated by past land use and manage impacts in these areas to avoid affecting the any areas of contamination. | Pre - construction | CEMP |
| 59 | Soil quality | Minimise risks | Where soil is excavated subsoil would be separated from topsoil for rehabilitation purposes. Topsoil from the excavation sites would be stockpiled and replaced. On steep slopes, topsoil would be stabilised. Any excess subsoil would be removed from the site and disposed of at an appropriate fill storage site. | Construction | CEMP |
| 60 | Soil quality | Minimise impact | Avoid compaction of soil resulting from unnecessary vehicle access over ground not excavated during construction. Avoid laying of materials during wet saturated soil conditions. | Construction | CEMP |
| 61 | Soil quality | Minimise impact | The Proponent would prepare a protocol in the instance that suspected contamination is unexpectedly found. Should contamination or potential contamination be disturbed during excavation works, the area would be assessed by appropriately qualified consultants. The DECC would be notified if warranted. | Construction | CEMP |
| 62 | Soil loss or stability of landform loss | Minimise risks | Concrete wash would be deposited in an excavated area, below the level of the topsoil, or in an approved landfill site. Where possible, waste water and solids would be reused onsite. | Construction | CEMP |
| 63 | Soil loss or stability of landform loss | Minimise risks | Access routes and tracks would be confined to already disturbed areas, where possible within the constraints of construction requirements. All contractors would be advised to keep to established tracks. | Construction | CEMP |

9.1.12 Mineral Exploration

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|-----------------------------------|-------------------|---|---------------------------------|-----------------|
| 64 | Conflict with mineral exploration | Minimise conflict | The Proponent would liaise with the current mineral licence holder providing a final turbine and infrastructure layout, prior to the construction phase | Pre-construction | CEMP |
| 65 | Conflict with mineral exploration | Minimise conflict | The Proponent will continue to liaise with the holder of EL7984 which is the only mineral licence which overlaps with the wind farm site. | Pre-construction / Construction | CEMP |

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|-----------------------------------|-------------------|--|----------------------|-----------------|
| 66 | Conflict with mineral exploration | Minimise conflict | The Proponent would provide a point of contact to the current mineral licence holder | Pre-construction | CEMP |
| 67 | Conflict with mineral exploration | Minimise conflict | The Proponent would liaise with the involved land owners and current mineral lease holders prior to rehabilitation, to ensure that any project access roads that they may wish to retain are retained. Several of these access roads are likely to be of benefit both to routine agricultural activities as well as to exploration activities onsite | Construction | CEMP |

9.1.13 Economic

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|---------------------------|--------------------------------------|--|---------------------------|-----------------|
| 68 | Effect on local community | Maximise positive impact of Proposal | Liaise with local industry representatives to maximise the use of local contractors and manufacturing facilities in the construction and decommissioning phases of the project. | Construction | CEMP |
| 69 | Effect on local community | Maximise positive impact of Proposal | Liaise with the local visitor information centres to ensure that construction and decommissioning timing and haulage routes are known well in advance of works and to the extent practical coordinated with local events | Construction | CEMP |
| 70 | Effect on local community | Maximise positive impact of Proposal | Liaise with Yass Valley and Harden Shire Councils and the Department of State and Regional Development to provide information to assist in attracting people to the local area to facilitate meeting the expected demand for human resources for both construction and operation of the Proposal | Construction Operation | CEMP |
| 71 | Effect on local community | Maximise positive impact of Proposal | Make available employment opportunities and training for the ongoing operation of the wind farm to local residents where reasonable | Operation | OEMP |

9.1.14 Community Wellbeing

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|---------------------|------------------------------|--|----------------------|-----------------|
| 72 | Community wellbeing | Provide accurate information | Dissemination of accessible and independent information on wind farm impacts | Pre-construction | CEMP |
| 73 | Community wellbeing | Provide accurate | Biodiversity monitoring information collected during the operation of the wind farm would be made publicly available | Operation | OEMP |

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|---------------------|--|---|--------------------------|----------|
| | | information | | | |
| 73B | Community wellbeing | To provide a benefit to those residents that are most affected | <p>From commissioning the Proponent will contribute \$2,500 per wind turbine built per annum to a Community Enhancement Program. The Proponent will pay the annual contribution to the CCC for distribution.</p> <p>At least 50% of the funds may be allocated to residential clean energy improvements such as solar water heating or solar PV panels or similar benefit to non-involved properties within 5kms of a wind turbine.</p> <p>When the wind farm construction contracts are finalised a new CCC is to be elected to represent the neighbouring community through the construction and operation phase and manage the Community Enhancement Program.</p> <p>The CCC is to be constituted in line with Appendix C of the <i>Draft NSW Planning Guidelines: Wind Farms</i> or as updated. The allocation of funds will be determined by the elected CCC to ensure the community benefit is distributed in line with the community's own view of an equitable distribution of funds.</p> | Construction & Operation | OEMP |

9.1.15 Tourism

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|----------------------------|---------------------|--|------------------|----------|
| 74 | Effect on local activities | Minimise disruption | Co-ordinate construction activities with local tourist operators. The Proponent would liaise with the local visitor information centres to ensure that construction and decommissioning timing and haulage routes are known well in advance of works | Pre-construction | CEMP |
| 75 | Effect on local activities | Maximise benefits | The Proponent would work with the involved landowners, the community and both Yass Valley and Harden Shire Councils to allow for the development of the wind farm as a tourist attraction, if this option becomes desirable to these three parties. | Operation | OEMP |

9.1.16 Agricultural

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|----------------------------|---------------------|--|----------------------------------|----------|
| 76 | Impact on current land use | Minimise disruption | Stock would be restricted from works areas where there is a risk stock injury or where disturbed areas are being stabilised. | Construction | CEMP |
| 77 | Impact on current land use | Minimise impact | Develop, implement and monitor the effects of a Site Restoration Plan . The plan would aim to stabilise disturbed areas as rapidly as possible after practical completion of the project. The | Construction and Decommissioning | CEMP |

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|----------------------------|---------------------|---|---------------|----------|
| | | | Plan would consider: <ul style="list-style-type: none"> ▶ Appropriate stabilisation techniques across the precincts ▶ Suitable species for re-seeding (native species would be given preference due to their superior persistence and for conservation purposes) ▶ Monitoring for weed and erosion issues | | |
| 78 | Impact on current land use | Minimise disruption | Liaison would be undertaken with neighbouring landowners and landowners adjoining access roads, to provide information about the timing and routes to be used during construction and decommissioning. This could be in the form of advertising and provision of a contact point for further inquiries. The aim would be to reduce the risk of interference with agricultural activities on affected roads and road verges. | Construction | CEMP |
| 79 | Impact on current land use | Minimise impacts | Ensure that the switchyard and substation is appropriately fenced to eliminate stock ingress. | Operation | OEMP |

9.1.17 Health and Safety

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|---------------------------------------|----------------|---|----------------------------------|----------|
| 80 | Safety of persons or stock | Minimise risks | A detailed Health and Safety Plan (H&SP) would be prepared, as a sub plan of the Construction Environmental Management Plan , identifying hazards associated with construction works, the risks of the identified hazards occurring and appropriate safeguards would be prepared prior to the commencement of construction works. The Plan would include, but not be limited to: <ul style="list-style-type: none"> ▶ Inductions for all contractors requiring site access. ▶ Ensure all staff are appropriately qualified and trained for the roles they are undertaking | Construction | CEMP |
| 81 | Safety of persons or stock | Minimise risks | Site fencing would be installed where there is a risk to the safety of the general public (i.e. when the trench is left open for extended periods) | Construction and Decommissioning | CEMP |
| 82 | Safety and Asset protection | Minimise Risk | Establish procedures to ensure that soil is not carried onto the Hume Highway on the wheels of construction traffic | Construction | CEMP |
| 83 | Safety / nuisance to persons or stock | Minimise risks | If shadow flicker is found to be a nuisance to residents, conditions would be pre-programmed into the control system and individual wind turbines automatically shut down whenever these conditions are present | Operation | OEMP |
| 84 | Safety of persons | Minimise | Shadow flicker effects on motorists would be monitored following commissioning and any | Operation | OEMP |

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|-------------------|---------------|--|---------------|----------|
| | or stock | risks | remedial measures to address concerns would be developed in consultation with the RTA and the Department of Planning | | |
| 85 | Safety of persons | Minimise risk | Establish a turbine maintenance program in accordance with industry standards. | Operation | OEMP |

9.1.18 Historic Heritage

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|---|----------------------|---|----------------------------------|----------|
| 86 | Disturbance to a non-Indigenous potential heritage item | Minimise disturbance | The Proponent would limit the extent of impacts to the three identified heritage items identified to date as well as any other heritage items subsequently identified. | Construction and decommissioning | CEMP |

9.1.19 Climate and air quality

| SoC | Impact | Objective | Mitigation tasks | Project phase | Auditing |
|-----|-------------|----------------|---|---------------|----------|
| 87 | Air quality | Minimise risks | A cost benefit analysis would be completed on differing potential mitigation options Investigate and apply the best available methods for dust suppression, for inclusion in the CEMP. | Construction | CEMP |
| 88 | Air quality | Minimise risks | Dust levels at stockpile sites would be visually monitored as appropriate. Dust suppression would be implemented if required. Stockpiles would be protected from prevailing weather conditions | Construction | CEMP |
| 89 | Air quality | Minimise risks | Undertake ongoing visual dust monitoring and suppression (if required) during the construction phase. Monitoring would regularly assess the effectiveness of dust suppression activities. Monitoring would regularly assess the effectiveness of dust suppression activities. | Construction | CEMP |
| 90 | Air Quality | Minimise risks | Should a complaint relating to dust by a resident be received, monitoring at the boundary of the construction site would be undertaken using dust gauges. The Proponent would assess the dust gauges and identify additional mitigation measures, where required. | Construction | CEMP |
| 91 | Air quality | Minimise risks | Should blasting be required, it would be carried out in accordance with all relevant statutory requirements and residences within 1km of blasting activities would be informed prior to blasting | Construction | CEMP |
| 92 | Air quality | Minimise risks | Dust filters would be installed on silos, where required | Construction | CEMP |

9.1.20 Resource impacts

| <i>SoC</i> | <i>Impact</i> | <i>Objective</i> | <i>Mitigation tasks</i> | <i>Project phase</i> | <i>Auditing</i> |
|------------|------------------|--|---|---------------------------|-----------------|
| 93 | Waste generation | Minimise waste and maximise recycling of materials | <p>The Proponent would prepare a Waste Management Plan to be included within the Construction Environmental Management Plan. It would include but not be limited to the following:</p> <ul style="list-style-type: none"> ▶ The scope for reuse and recycling would be evaluated ▶ Provision for recycling would be made onsite ▶ Wastes would be disposed of at appropriate facilities ▶ Toilet facilities would be provided for onsite workers and sullage from contractor's pump out toilet facilities would be disposed at the local sewage treatment plants or other suitable facility agreed to by Council ▶ Excavated material would be used in road base construction and as aggregate for footings where possible. Surplus material would be disposed of in appropriate locations on site (on agreement with the landowner), finished with topsoil, and revegetated | Construction Operation | CEMP OEMP |

10 Conclusion

This Preferred Project and Submissions Report describes the preferred project that the proponent is seeking approval for and includes minor changes to the wind farm infrastructure layout since it was last on public exhibition in March 2013. These changes have reduced the impact to surrounding residences and generally improved the project and describes the preferred project that the proponent is seeking approval for.

Submissions on the project were received following the public exhibition of the Preferred Project Report from 14 December 2012 to 1 March 2013. Additional information and clarifications were also requested by NSW Planning & Infrastructure. This report provides detailed responses to all submissions and where appropriate modifications to the project have been made. Effects on stakeholders to the project have therefore been minimised as a result.

The Yass Valley Wind Farm will have considerable benefits when fully built including:

- ▶ more than 1,135,000 MWh of electricity generation per year – sufficient for the average consumption of around 142,000 homes.
- ▶ greenhouse gas emissions savings by approximately 1,098,000 tonnes of carbon dioxide equivalent (CO_{2e}) per annum relative to the emissions intensity of the current electricity generation profile.
- ▶ significant domestic renewable energy solutions installed on neighbouring residences and opportunities for notable community and environment programs resulting from a proposed \$360,000 per annum community contribution fund
- ▶ approximately \$2 million in payments to host landowners, much of which would be spent or invested locally or regionally.
- ▶ up to \$3.7million in accommodation, food and other services spent regionally per construction year. This would result in increased local services.

For more detail on the project benefits see section 4.

The proposal meets a number of state and federal policy objectives as detailed in section 4

The proposed wind farm is permissible and the assessment and determination will be completed under the NSW government's new State Significant Development (SSD) assessment system.

Environmental assessments for the preferred project infrastructure layout have been updated and demonstrate compliance with all relevant criteria and result in an acceptable environmental impact including for the key assessment requirements:

- ▶ Visual impacts
- ▶ Noise impacts
- ▶ Indigenous heritage
- ▶ Hazards and Risks (including potential impacts on aerial agriculture and radar interference)
- ▶ Traffic and transport

The revised Statement of Commitments listed in section 9 of this report will ensure that the proposed Yass Valley Wind Farm can be constructed while minimising any residual impacts to the existing environment and the surrounding community.

Approval for the Proposal is requested based on assessment of the contents of this report together with the Environmental Assessment (2009).

11 References

- AEMO (2012) "Electricity Statement of Opportunities." Australian Electricity Market Operator. Retrieved April 2014, from <http://www.aemo.com.au/Electricity/Planning/Archive-of-previous-Planning-reports/2012-Electricity-Statement-of-Opportunities>
- AMA (2014) "Position Statement: Wind Farms and Health." Australian Medical Association. Retrieved April 2014, from <https://ama.com.au/position-statement/wind-farms-and-health-2014>
- CASA (1992) "Civil Aviation Advisory Publication 92-1 (1) - Guidelines for Aeroplane Landing Areas." Civil Aviation Safety Authority. Retrieved April 2014, from http://www.casa.gov.au/wcmswr/assets/main/download/caaps/ops/92_1.pdf
- CEC (2012) "Clean Energy Council response to the National Airports Safeguarding Framework." Clean Energy Council. Retrieved July, 2013, from https://www.infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/files/Clean_Energy_Council.pdf
- CEC (2013) "Wind Energy." Clean Energy Council. Retrieved April 2014, from <http://www.cleanenergycouncil.org.au/technologies/wind-energy.html>
- Colby, W. D., et al. (2009) *Wind turbine sound and health effects: An expert panel review*, American Wind Energy Association.
- DCPD (2012) *Policy and Planning Guidelines for the Development of Wind Energy Facilities in Victoria*. Department of Planning and Community Development.
- DP&I (2011) *NSW Planning Guidelines: Wind Farms (Draft)*. NSW Department of Planning and Infrastructure.
- EPHC (2010) *Draft National Wind Farm Development Guidelines*. Environmental Protection and Heritage Council.
- Epuron (2009) Environmental Assessment Proposed Yass Valley Wind Farm
- Epuron (2012) Preferred Project Report Yass Valley Wind Farm
- Essential Vision (2013) "Wind farms." Essential Vision. Retrieved July, 2013, from <http://essentialvision.com.au/wind-farms>
- Hall, N., et al. (2012) *Exploring community acceptance of rural wind farms in Australia: A snapshot*. CSIRO Science into Society Group. Commonwealth Scientific and Industrial Research Organisation.
- NHMRC (2010) *Wind Turbines and Health*. National Health and Medical Research Council.
- OEH (2013) "NSW Wind Farm Greenhouse Gas Savings Tool." Office of Environment & Heritage. Retrieved July, 2013, from <http://www.environment.nsw.gov.au/climatechange/greenhousegassavingstool.htm>
- ODPMUK (2004) *Planning for Renewable Energy A Companion Guide to PPS22*. Office of the Deputy Prime Minister United Kingdom.
- Planning SA (2002) "Wind Farms, Draft for Consultation." South Australian Government.
- SA EPA 2003 Environmental Noise Guidelines, Wind Farms
- SAEMET (2013) South Australian Electricity Market Economic Trends report 2013.
- Smedman, L.J., et al (2003) "Wind turbine wake aerodynamics", *Progress in Aerospace Sciences*
- SKM (2012a) "Benefit of the Renewable Energy Target to Australia's Energy Markets and Economy", Report to the Clean Energy Council, August 2012
- SKM (2012b) "Wind farm investment, employment and carbon abatement in Australia Report" Sinclair Knight Mertz, June 2012
- SKM (2013) "Estimating the Impact of Renewable Energy Generation on Retail Prices" FINAL REPORT SH43457 | 20 June 2013
- VIC Health (2013) "Wind farms, sound and health – Community information." Department of Health Victoria. Retrieved April, 2013, from [http://docs.health.vic.gov.au/docs/doc/03C56A16FC34F658CA257B5E00164599/\\$FILE/1212016_wind_turbine_community_WEB.pdf](http://docs.health.vic.gov.au/docs/doc/03C56A16FC34F658CA257B5E00164599/$FILE/1212016_wind_turbine_community_WEB.pdf)

12 Glossary and acronyms

| <i>Abbreviation</i> | <i>Description</i> |
|---------------------|--|
| An | Annum |
| APZ | Asset Protection Zone (for bushfire compliance) |
| CASA | Civil Aviation Safety Authority |
| CEEC | Critically Endangered Ecological Community |
| CEMP | Construction Environmental Management Plan |
| CMA | Catchment Management Authority |
| CO ₂ | Carbon dioxide |
| CO ₂ e | Carbon dioxide equivalent |
| dB(A) | Decibels (A weighted) |
| DEC | NSW Department of Environment and Conservation (now OEH) |
| DECC | NSW Department of Environment and Climate Change (now OEH) |
| DECCCW | NSW Department of Environment, Climate Change and Water (now OEH) |
| | NSW Planning Guidelines: Wind Farms |
| DGRs | NSW Department of Planning and Infrastructure's Director General's Requirements. |
| DP&I | NSW Department of Planning and Infrastructure |
| DPI | Department of Primary Industries |
| EA | Environmental Assessment report (2009) |
| EEC | Endangered Ecological Community |
| EMF | Electromagnetic fields |
| EMP | Environmental Management Plan |
| EP&A Act | NSW Environmental Planning and Assessment Act 1979 |
| EPA | Environmental Protection Agency |
| EPBC Act | Federal Environmental Protection and Biodiversity Conservation Act 1999 |
| GHG | Greenhouse Gas |
| Guidelines | Draft NSW Planning Guidelines: Wind Farms |
| GWh | gigawatt-hour |
| ha | hectare (unit of area 100m x 100m) |
| HBT | Hollow-bearing tree |
| HF | High Frequency |
| kg | kilogram |
| kL | Kilolitres |
| km | kilometre |
| kV | kilovolt |
| LAeq | Equivalent Sound Power (A weighted) |
| LEP | Local Environmental Plan |
| LGA | Local Government Area |

| Abbreviation | Description |
|---------------------|---|
| LVIA | Landscape and Visual Impact Assessment |
| m | metre |
| m/s | meters per second |
| mG | milligauss |
| ML | Megalitres |
| MW | megawatt |
| MWh | megawatt-hour |
| ODPMUK | Office of the Deputy Prime Minister United Kingdom |
| OEH | Office of Environment and Heritage |
| OEM | Original Equipment Manufacturer |
| OEMP | Operational Environmental Management Plan |
| OLS | Obstacle Limitation Surface |
| PPR | Preferred Project Report (November 2012) |
| PP&SR | Preferred Project & Submissions Report (May 2014) |
| RET | Renewable Energy Target |
| RFS | Rural Fire Service |
| RMS | Roads and Maritime Service |
| SA EPA Guidelines | South Australian Environment Protection Authority Environmental Noise Guidelines: Wind Farms (2003) |
| SIS | Species Impact Statement |
| SoC | Statement of Commitments |
| TMP | Traffic Management Plan |
| TVI | Television Interference |
| V | volt |
| VHF | Very High Frequency |
| W | watt |
| WHO | World Health Organisation |
| WTG | Wind Turbine Generator |

Attachment 1 – Supplementary Ecology Report



Attachment 2 – Further Response to OEH



Attachment 3 – Supplementary Archaeological & Heritage Assessment



Attachment 4 – Response to Heritage Comments



Attachment 5 – Supplementary Landscape and Visual Impact Assessment



Attachment 6 – Response to Comments on Supplementary LVIA



Attachment 7 – Table of Residences to 8.5km & Visual Impact



Attachment 8 – ZVI Map (A1 size) with residences to 8.5km



Attachment 9 – Noise Assessment Addendum



Attachment 10 – Shadow Flicker Addendum Report



Attachment 11 – Aviation Impact Assessment



Attachment 12 – Map & Details of Agricultural Aircraft Landing Areas



Attachment 13 – Community Consultation Information



Attachment 14 – Supplementary Traffic Impact Study



Attachment 15 – Preliminary Transport Vehicle Swept Path Analysis



Attachment 16 – Turbine Coordinates



Attachment 17- Indicative Wind Monitoring Mast Locations



Attachment 18 – Land & Infrastructure Details



Attachment 19 – Indicative Layouts for Ancillary Infrastructure



Attachment 20 – Draft Decommissioning and Rehabilitation Plan



Attachment 21 – Consideration of draft NSW Planning Guidelines: Wind Farms



Attachment 22 – Response to EA submissions



Attachment 23 – Changes to Turbine Locations from the Exhibited EA



Attachment 24 – Site Map (A1 size)

