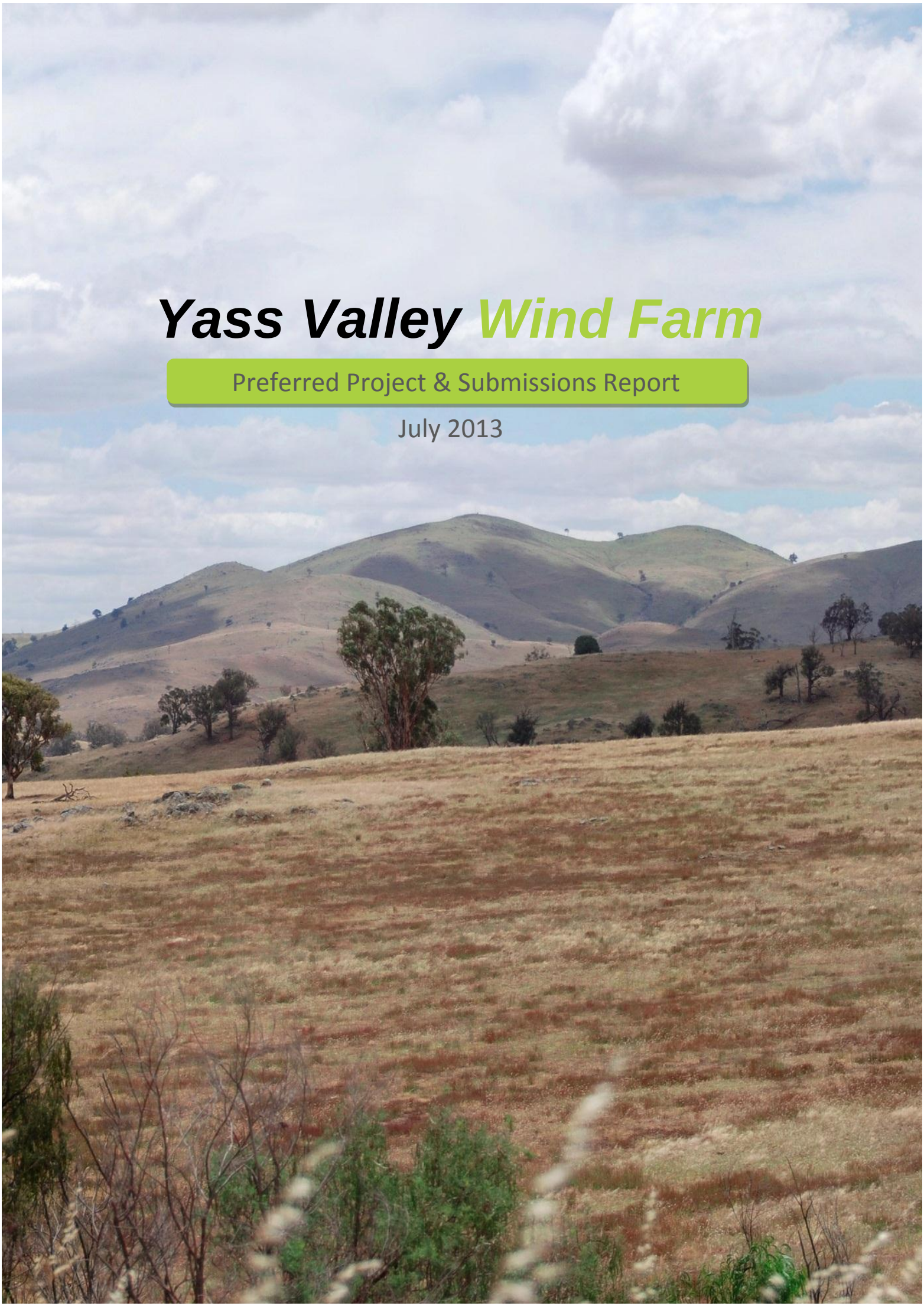

Yass Valley Wind Farm

Preferred Project & Submissions Report

July 2013

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1 Introduction

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 Department of Planning on 2 December 2008 and Director General's Requirements were issued to the proponent on 12 January 2009 to guide the work required in assessing the proposed wind farm. The final revision of the Environmental Assessment 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 the department from 13 November 2009 to 14 December 2009. Twenty two submissions were received in response to the exhibition of the Environmental Assessment of the wind farm, seven of which were from government agencies.

Epuron lodged a Preferred Project Report with the NSW Department of Planning & Infrastructure on 30 November 2012. This report considered and responded to the issues raised in the submissions on the Yass Valley Wind Farm Environmental Assessment. The Preferred Project Report was placed on public exhibition by the department from 14 December 2012 to 1 March 2013.

Fifteen submissions were received in response to the exhibition of the Preferred Project Report, seven from individuals and eight from government agencies. A further four additional submissions were received after the exhibition period had closed on 1 March 2013.

1.1 Purpose of this Report

This Preferred Project & Submissions Report provides an update to the Preferred Project Report submitted in November 2012 and includes responses to each of the submissions to the Preferred Project Report. Submissions to the EA are addressed in section 2 and submissions to the Preferred Project Report are addressed in section 3.

The report also identifies changes to the proposed wind farm infrastructure that have been made as a result of the submissions received and identifies the preferred project that Epuron is seeking approval for.

1.2 Summary of the Proposal

As presented in this Preferred Project and Submissions Report, the Yass Valley Wind Farm proposal would involve the construction and operation of a wind farm. The proposal includes:

- Up to 144 wind turbines located within the Coppabella and Marilba precincts. 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.
- A 330kV switchyard enabling the connection of the wind farm to TransGrid's existing Yass to Lower Tumut 330kV transmission line. The switchyard will incorporate an auxiliary services building and a nearby microwave tower to provide communications to TransGrid's operational control centre.
- A high voltage (up to 330kV) pole mounted transmission line approximately 25km long to connect the switchyard to the two substations on the wind farm site.
- Up to two substations on the wind farm site. Each substation will include transformers to provide connection to the medium voltage electrical reticulation network.
- 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.
- A number of permanent wind monitoring masts.

- Temporary construction facilities including offices, facilities, car parking, equipment laydown areas and concrete batching plants.

Table 1-1 Changes to the project during development

Detail	Environmental Assessment November 2009	Preferred Project Report November 2012	Preferred Project & Submissions Report July 2013
Number of wind turbines	152	148	144
Length of high voltage overhead powerline	>75 km	25 km	25 km
Number of site substations	6	Up to 2	Up to 2
Maximum tip height	150	150	150

1.3 Project Benefits

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 improve the security of electricity supply through diversification of generation locations.
- It would reduce greenhouse gas emissions by approximately 1,098,000 tonnes of carbon dioxide equivalent (CO_2e) per annum
- It would contribute to the State and Federal Governments' target of providing 20% of consumed energy from renewable sources by 2020.
- It would contribute to the NSW Government's target of reducing greenhouse gas emissions by 60% by the year 2050.
- It would create local employment opportunities (up to 167 jobs during construction and 34 operations and maintenance jobs) and inject funds of up to $334 million into the Australian economy and $75 million into the local economy.

In addition to these primary benefits there are also secondary benefits and opportunities for improvement in infrastructure, tourism and ecology.

2 Exhibition of Environmental Assessment

2.1 Public Exhibition

The Yass Valley Wind Farm Environmental Assessment (EA) is comprised of three volumes and included:

- The Environmental Assessment;
- Attachments: Involved land parcels, turbine grid co-ordinates, Part 3A declaration, DGRs, planning focus meeting minutes and community consultation plan & materials;
- Appendix 1 – Landscape & Visual Impact Assessment;
- Appendix 2 – Noise Assessment;
- Appendix 3 – Biodiversity Assessment;
- Appendix 4 – Archaeology Assessment;
- Appendix 5 – Communications and Aviation Assessment;
- Appendix 6 – Traffic & Transport Assessment; and
- Appendix 7 – Shadow Flicker Assessment

The Yass Valley Wind Farm Environmental Assessment was on public exhibition from 13 November 2009 to 14 December 2009 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 Department of Planning website

Local residents were notified of the exhibition period through advertisements placed in the local newspapers by the Department of Planning and a newsletter was sent to residents in the vicinity of the project site by the proponent.

2.2 Submissions Received

The Department of Planning received a total of 22 submissions. Of the 22 submissions, 7 were from government agencies and the remaining 15 submissions were from individuals or private organisations. One of the individual submissions was in support of the wind farm and the other 14 submissions were opposed to the project.

In accordance with section 75H of the Environmental Planning and Assessment Act 1979, this Preferred Project & Submissions Report provides considered responses to the issues raised in submissions received in relation to the EA for the proposed Yass Valley Wind Farm.

The individual submissions have been grouped and listed by the issue raised as there were many issues that were common across all the individual submissions. The government agency submissions have been addressed individually for each submission as they reflect specific issues related to each agency.

2.3 Assessment of Submissions

The issues raised in each submission have been summarised and tabulated in Table 2-1 on the following page to identify the most frequently and infrequently raised issues.

Table 2-1 Summary of submissions received

Submission Number	Visual Impacts	Operational Noise	Biodiversity Impacts	Heritage Impacts	Consultation/ community	Property Value Impact	Health Impacts	Safety Impacts	Fire Hazards	Aviation Impacts	Communications Impacts	Traffic Impacts	Resource Impacts	Soil Erosion	Tourism Impacts	Decommissioning
1	■	■	■		■	■	■									■
2	■	■														
3	■				■									■		
4	■														■	
5				■									■			
6	■	■	■			■	■									
7	■		■								■					■
8																
9	■	■	■		■	■	■									
10	■	■	■			■	■		■							
11	■				■	■			■							■
12	■															
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15	■		■		■							■			■	
16													■			
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18				■									■	■		
19			■	■												
20												■				
21					■							■				
22		■					■									

Indicates government agency submission

2.4 Response to Community Submissions

2.4.1 Visual Impact Issues

The visual impact issues were addressed in section 7.2 of the EA and supported by a specialist report: Appendix 1 – Landscape and Visual Impact Assessment. The assessment concluded 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."*

A supplementary Landscape and Visual Impact Assessment has been completed and included as Attachment 3 to this Submissions & Preferred 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.

Issue	*Response*
Obstacle lighting	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.
Photomontage methodology	The methodology used in the visual assessment was based on the *Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria (May 2003).* This methodology has been widely used for wind farms in NSW. Further details on the methodology used for the preparation of photomontages can be found in section 1.2 and Annexure B of the Landscape and Visual Impact Assessment report that formed part of the EA. It is recognised within the EA Application that *"the small images used within the report are only for referencing comments made within the text. While technically correct, they do not accurately portray a perceptually accurate image to assess the visual impact. For this reason larger (A3) images are appended to this report (Annexure D) however while these are better, a proper assessment of the visual impact can be made when the images are produced at A0 sizes and held at arm's length."* (EA Application, LVIA page 3)

2.4.2 Operational Noise Issues

Operational noise issues were addressed in section 7.3 of the EA and supported by a specialist report: Appendix 2 – Noise Assessment. The results of the assessment demonstrated full compliance of the proposed turbine layout to the nominated criteria (Wind Farms Environmental Noise Guidelines, South Australian Environmental Protection Agency, 2003 (SA EPA Guidelines)).

An updated noise assessment (see Attachment 4) has been completed to accommodate the changes to the wind layout and new residences built in the vicinity of the wind farm since the original assessment was completed. The updated assessment also considers the requirements of the draft *NSW Planning Guidelines: Wind Farms* particularly in relation to low frequency noise. The assessment confirms that the predicted noise levels from the wind farm comply with the relevant noise criteria for all relevant receivers.

Issue	Response
Low frequency noise and atmospheric stability	The Noise Impact Assessment (section 6.8 on page 26) explores low frequency noise and meteorological conditions including atmospheric stability and wind profile, the Van Den Berg effect and temperature inversions. A healthy young adult's range of hearing is often quoted as extending from 20Hz to 20,000Hz although the sensitivity of the ear varies significantly with frequency and is most sensitive to sounds with frequencies between around 500Hz and 4000Hz. The majority of information in speech signals is contained in this smaller range and above and below this, the ear becomes decreasingly sensitive and is very in-sensitive at very low frequencies. 'Low frequency noise' is the term used to describe sound energy in the region below about 200Hz. The rumble of thunder and the throb of a diesel engine are both examples of sounds with most of their energy in this low frequency range and they both have very high sound levels for such sounds to be perceived. Wind turbines are not a significant source of low frequency noise.

Issue	Response
	The relevance of atmospheric stability to wind farms is that a change in the stability of the atmosphere leads to a change in wind profile and therefore a change in the relationship between background noise level at receiver locations and wind speeds measured at the site of the wind farm. The noise assessment takes into account the wind profile of the area and wind speed measurements during long-term background noise monitoring cover all stability conditions.

2.4.3 Flora and Fauna Impacts

Flora and fauna issues were addressed in section 7.4 of the EA and supported by a specialist report: Appendix 3 – Biodiversity Assessment. Please also refer to section 3.5 and Attachment 1 – Supplementary Ecology Report of this Preferred Project & Submissions Report for the response to specific flora and fauna issues raised by NSW OEH.

The Supplementary Ecology Report confirms that the area impacted by the revised infrastructure layout has been adequately surveyed and assessed and that appropriate commitments have been made to ensure that impacts are:

- Avoided where required;
- Minimised and managed where appropriate; and
- Offset in accordance with the relevant NSW guidelines.

With the implementation of the revised project Statement of Commitments, flora and fauna impacts are assessed to be acceptable and unlikely to pose a significant impact for any NSW or Commonwealth listed species, population or community.

2.4.4 Heritage Impacts

Heritage issues were addressed in section 7.4 of the EA and supported by a specialist report: Appendix 4 – Archaeology Assessment. Please also refer to section 3.5 and Attachment 2 of this report for the response to specific heritage issues raised by NSW OEH.

The original heritage assessment and the field work for the addendum identified a number of Aboriginal object sites; however none of these sites pose a constraint to the proposal.

2.4.5 Estimate of Greenhouse Gas Savings

The estimates in the EA of annual wind farm energy output and emissions avoided were calculated using the CO_2 intensity per unit of energy generated from Greenhouse Benchmark Rule website www.greenhousegas.nsw.gov.au For comparison, Table 2-1 below shows a similar result using the more recent NSW government online tool (OEH, 2013).

Figure 2-1 Energy output and greenhouse gas emissions avoided

	Epuron estimate in Environmental Assessment 2009	*NSW Wind Farm Greenhouse Gas Savings Tool*
Number of Turbines	152	144
Turbine Capacity (MW)	2.5	2.5
Wind Farm Capacity (MW)	380	360
Capacity Factor	0.36	0.36
Wind Farm Energy Output (MWh)	1,198,368	1,135,296
Emissions avoided per annum (t CO_2-e)	1,143,243	1,097,831
Equivalent average number of households	142,905	141,912

2.4.6 Community Consultation

Issue	*Response*
Inadequate community consultation	Epuron has contacted and continues to consult with the neighbouring landowners as noted in section 6.2 and set out in the consultation plan in Attachment 6 to 9 of the EA. The consultation program includes: • Telephone contact • Individual meetings with landowners • Newsletters – distributed to landowners, neighbours and the broader community • Open House information day held on 10 December 2008 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. Since Epuron re-acquired the project from Origin Energy in July 2012 it has: • Issued three project newsletters • Established a project website • Establish a Community Consultation Committee • Contacted most neighbours with a residence within 5 km of a turbine

2.4.7 Property Value Impacts

Issue	*Response*
Decrease in value in neighbouring properties	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. 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. Forty (40) of the 45 sales investigated did not show any reductions in value. Five (5) properties were found to have lower than expected sale prices (based on statistical analysis). While these small number of price reductions correlate with the construction of a wind farm further work is needed to confirm the extent to which these were due to the wind farm or if other factors may have been involved." The Study's results also suggest that "*…no reductions in sale price were evident for rural properties or residential properties located in nearby townships with views of the wind farm*."

2.4.8 Health Impacts

Issue	Response
Human health impacts	The impact of electromagnetic fields from wind farm infrastructure (powerlines, substation and turbines) was considered in section 10.3 of the EA. The assessment concluded that the wind farm would not impose any threat to the public, workers or property owners. Shadow flicker from turbine blades was assessed in section 10.4 of the EA and was found not to represent a risk to local residents in relation to flicker vertigo or photosensitive epilepsy. An updated shadow flicker assessment is included in this report. There are tens of thousands of wind turbines installed worldwide and no independent study has demonstrated any harm to people living in close proximity to wind farms despite a number of attempts to find evidence of such harm. The recent Australian report by the National Health and Medical Research Council (NHMRC) concluded that "there is currently no published scientific evidence to positively link wind

Issue	Response
	turbines with adverse health effects" (NHMRC, 2010). A further study - 'Wind Turbine Sound and Health Effects, an Expert Panel Review' (Colby et al., 2009), concludes "There is no reason to believe, based on the levels and frequencies of the sounds and the panel's experience with sound exposures in occupational settings, that the sounds from wind turbines could plausibly have direct adverse health consequences." This report astutely notes that: "*the large volume of media coverage devoted to alleged adverse health effects of wind turbines understandably creates an anticipatory fear in some that they will experience adverse effects from wind turbines. Every person is suggestible to some degree*".

2.4.9 Safety Impacts

Issue	Response
Turbine blade failure and blade throw	The design and construction of modern wind turbines is tightly controlled to International Electrotechnical Commission (IEC) standards. Although there have been very limited instances where turbine blades have failed in the past, the likelihood of a blade failure is very low and the overall risk is low. 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, usually 25 m/s (90 km/h). While there is a possibility of failure occurring, the likelihood of a person being near a turbine during storms or freezing conditions is considered low; however, land owners will be advised to avoid turbines during these conditions.

2.4.10 Fire Hazards

Issue	*Response*
Bush fire risks	The bush fire risks associated with the construction and operation of the wind farm have been addressed in section 10.5 of the EA. The assessment concluded that although there would be an increased risk of bush fire from the wind farm, the cleared nature of the land and the improvements to access across the site would mitigate the risks of bush fire. Other recommended mitigation measures which will be implemented include: • Providing asset protection zones consistent with RFS guidelines • Preparing a Bushfire Management Plan as part of the Construction Environment Management Plan • Holding appropriate fire fighting equipment on site during the construction phase when the fire danger is very high

2.4.11 Communications Impacts

Issue	Response
Impact on television reception	Epuron has committed (Statement of Commitment 30) to undertake a monitoring program of houses within 5 km of the wind farm and if any television reception interference is caused by the wind farm to rectify this.

2.4.12 Traffic Impacts

Issue	Response
Traffic safety on Hume Highway and Burley Griffin Way	As noted in section 2.1, obstacle lighting is not proposed for the wind farm will not be a potential hazard for traffic on roads adjacent to the wind farm site. The Traffic Impact Study (EA Appendix 6) adequately addressed the potential traffic impacts of the proposal as well as identifying a number of safeguards to mitigate the potential traffic impacts from the proposal. This includes preparing a detailed traffic management plan in consultation with RMS and the councils prior to construction.

2.4.13 Resources Impacts

Issue	Response
Depletion of surface and subsurface water for construction purposes	The EA (section 8.1 on page 193) identified the water requirements for the construction of the wind farm as well as potential sources of water to meet these requirements. Epuron has committed to liaise with the relevant authorities as part of finalising the supply of water for construction purposes.

2.4.14 Soil Erosion Impacts

Issue	Response
Soil erosion from construction of wind farm infrastructure	Areas disturbed during construction will be protected by the installation and maintenance of appropriate erosion and sediment control measures to avoid contributing to any soil and landform degradation. An Erosion and Sediment Control Plan will be prepared as part of the Construction and Environment Management Plan that will be submitted to the Director-General of the NSW Department of Planning & Infrastructure for approval prior to the commencement of construction.

2.4.15 Tourism Impacts

Issue	Response
Potential impact on tourist attractions near Yass from shadow flicker and obstacle lighting	The potential impact of shadow flicker was addressed in section 8.10.3 (page 242) of the EA. The shadow flicker effect cannot be noticed beyond 500 – 1,000m from a wind turbine and will not have an impact on any tourist attractions around Yass. An updated shadow flicker assessment is included in this report. As noted in section 2.1, obstacle lighting is not planned to be installed on the wind farm.
Potential to reduce tourism to the Yass Shire	Potential impacts to tourism from the wind farm construction and operation were assessed in section 8.8 (page 235) of the EA. The wind farm is not expected to reduce tourism to the area and mitigation measures have been proposed to minimise any disruption during the construction phase.
Potential impact on proposed Crisp Galleries tourism village	The Crisp Galleries tourism village is a proposed eco-tourism development and will require the adoption of a new LEP to be permissible. Epuron has had correspondence and a number of meetings with Crisp Galleries and have noted the request through the 2009 submission

Issue	Response
	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.

2.4.16 Decommissioning

Issue	Response
Decommissioning and rehabilitation at the end of wind farm life	Decommissioning of the wind farm at the end of its economic life will involve the dismantling and removal of the wind turbines and all other above ground infrastructure. Underground footings and cables would remain in place with the ground surface restored and rehabilitated as required. Please refer to Attachment 11 for the draft Decommissioning & Rehabilitation Plan.
Responsibility for decommissioning and rehabilitation	Decommissioning the wind farm at the end of its commercial life is the proponent's obligation and cost. This is expected to be a condition of any project approval.

2.4.17 Ecologically Sustainable Development

Issue	Response
The wind farm is non an Ecologically Sustainable Development	Epuron believes that the proposed wind farm is consistent with the definition of Ecologically Sustainable Development found in the *Protection of the Environment Administration Act 1991*. The environmental assessment of the proposal is based on a conservative and rigorous assessment of the likely impacts and includes statement of commitments and other mitigation measures to ensure that adequate measures are put in place to prevent threats of serous or irreversible environmental damage. The development has a relatively small footprint with the wind farm infrastructure expected to take up less than 2% of the land. The project has social and environmental benefits (Refer section 9 on page 266 of the EA).

2.5 Response to Government Agency Submissions

2.5.1 Industry & Investment NSW

Industry & Investment provided a coordinated response from the Minerals Resources, Agriculture and Fisheries divisions of the former Department of Primary Industries. No particular issues were raised, but the following recommendations were provided:

Issue	Recommendation
Fisheries mitigation measures	The proposed safeguards and mitigation measures in relation to surface water and ground water should be included in any project approval. The design and construction of any waterway crossings to be carried out in accordance with Industry & Investment guidelines.
Agriculture mitigation measures	A qualified geotechnical engineer should be engaged if any groundwater is required for use on site. A weed management plan should be developed and implemented for all areas that will be subject to surface disturbance.
Minerals mitigation measures	Continue liaison with the holders of Exploration Licences on the wind farm site.

2.5.2 Harden Shire Council

Issue	Response
Potential impact of wind farm water use during construction on availability of water for agricultural and potable water supplies	The water usage over a two year construction period has been estimated to be around 16.2 ML (EA section 8.1.2 on page 197). A number of potential water sources have been identified including Jugiong Creek, Lake Burrinjuck, Goldenfields Water County Council pipeline, Yass Dam and a number of ground water bores. None of these potential water sources would be used for the wind farm to the extent that they placed any restrictions on existing agricultural and potable water usage. The final selection of the water sources will be made just prior to construction depending on commercial considerations, availability and limiting impacts on the water source itself at that time.
Planning conditions to ensure that adequate decommissioning of wind turbines & rehabilitation of land	Section 3.5.4 (page 76) of the EA describes the proposed wind turbine decommissioning activities including the commitment that all above ground infrastructure would be removed and that the scrap value of the turbines and other equipment is expected to be sufficient to cover the majority of the costs of their site dismantling and site restoration. In addition, the agreements with the landowners include an obligation to establish a decommissioning fund 5 years prior to the end of the operation of the wind farm to fund the difference (if any) between the expected decommissioning costs and the scrap value of the wind farm equipment. Refer to the draft Decommissioning & Rehabilitation Plan in Attachment 11 for more details.
Lack of details on community fund	As part of the ongoing consultation with all stakeholders in the vicinity of the planned wind farm we welcome any suggestions for possible community projects to be funded by the wind farm. 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. 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. 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. The CCC is to be constituted in line with Appendix C of t*he Draft NSW Planning Guidelines: Wind Farms* 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. Epuron have noted the suggestions for the use of the community fund provided by the Harden Council and others such as the Binalong Landcare and expect that the CCC will take a lead role in the appropriate allocation of the community fund. Please refer to the revised Statement of Commitment 73B.
	Epuron met with the Director of Environmental Services of the Harden Shire Council on 9th

Issue	Response
	April 2013. No additional concerns regarding the wind farm were raised.

2.5.3 NSW Office of Water

Issue	Response
Potential options for water supply	Access to surface water from existing dams and creeks or sourcing groundwater from bores may require additional permits or licences. The water usage over a two year construction period has been estimated to be around 16.2 ML (EA section 8.1.2 on page 197). A number of potential water sources have been identified including Jugiong Creek, Lake Burrinjuck, Goldenfields Water County Council pipeline, Yass Dam and a number of ground water bores. None of these potential water sources would be used for the wind farm to the extent that they placed any restrictions on existing agricultural and potable water usage. The final selection of the water sources will be made just prior to construction depending on commercial considerations, availability and limiting impacts on the water source itself at that time.
Watercourse crossings	Any watercourse crossings will be designed in accordance with NOW guidelines
Potential impacts from blasting	If blasting is required an assessment of the potential impact on groundwater resource and existing users should be carried out.

2.5.4 Australian Department of Defence

The Department of Defence has no concerns regarding the proposed wind farm.

Comment	Response
Tall structures and potential flight safety hazard	Supply final design documentation before construction commences

2.5.5 Department of Environment & Conservation (Now NSW OEH)

Issue	Response
Aboriginal Cultural Heritage for transmission line easements needs to be assessed	Please refer to the supplementary Archaeological and Heritage Assessment in Attachment 2 of this report. An archaeological field survey and assessment was carried out on the proposed powerline route which connects the Coppabella and Marilba precincts to the existing TransGrid 330kV transmission line to the south of the site. The field survey results are in keeping with the patterns of site distribution identified during the earlier 2008 assessment. The recorded sites do not pose a constraint to the proposal, however a number of management and mitigation measures are proposed.
Turbines and associated infrastructure be reduced and/or realigned to decrease impact on Box Gum Woodland EEC	Turbines and associated infrastructure have been deleted and relocated to decrease the impact on Box Gum Woodland EEC. Please refer to the SER (Attachment 1) for further details.
Calculation of impact areas and offsets	Please refer to Appendix B in the Supplementary Ecology Report (Attachment 1 to this report) for the revised impact area calculations. Epuron accepts that where overhead powerline easements pass through forested areas that clearance of trees will be required to achieve technical and safety clearance requirements. The clearance will not need to be for the full easement width. For example, the maximum conductor clearance for an overhead 132kV powerline is 7.5m. The impact of overhead

Issue	Response
	powerlines in areas of pasture is limited to the footings for the power poles which are spaced between 200 and 250m apart and have a foot print of less than 1m x 1m. The revised impact area calculations now include these provisions. An Offset Strategy for the project has been developed to provide more certainty on how offset areas will be identified, secured and managed. Please refer to Appendix H in the Supplementary Ecology Report in Attachment 1 for further details. The Offset Strategy sets out a methodology to calculate, manage and secure an offset site to offset the impacts of the construction of the wind farm. There is ample land of suitable type within the project boundaries to demonstrate that offsets are achievable. The plan provides clear incentives, in the form of pre-set ratios that relate to existing mapping, for the proponent to further minimise impacts and thereby reduce the offset requirement for the proposal.
Additional survey and commitment to survey	Some of the additional surveys including for Hollow Bearing Trees, Bush Stone Curlew, Squirrel Glider, Barking Owl and Burrinjuck Orchid have now been completed and included in the Supplementary Ecology Assessment. To assist with micrositing of infrastructure and offsetting of unavoidable impacts the Statement of Commitments have been revised to include additional surveys required including for Hollow Bearing Trees, Bush Stone Curlew, Squirrel Glider, Barking Owl and Eastern Bentwing Bat. The ecology Statement of Commitments have been revised to include all measures required to manage the biodiversity impacts of the project to an acceptable level. Please refer to section 5 of this report.
Biodiversity assessment of powerline easements	A biodiversity assessment of the powerline easements has been included in the Supplementary Ecology Assessment in Attachment 1.

2.5.6 NSW Roads and Maritime Services (formerly RTA)

Issue/Comments	Recommendations
Based on compliance with the submitted documentation the RTA would raise no objection to the development.	Noted
Proposed conditions to be included in any approval	The proposed mitigation measures have been noted and will be incorporated into the detailed Traffic Management Plan to be prepared by the transport contractor in consultation with RMS and councils prior to the commencement of construction of the project. Refer to SoC 37.

2.5.7 Yass Valley Council

Issue/Comment	Response
There is a high likelihood that the condition of the subject roads and road safety will be compromised as a result	A detailed Traffic Management Plan will be completed in consultation with the Council prior to construction, including preparation of a road dilapidation report. Appropriate improvement works and maintenance over the duration of the construction works will ensure that the condition of the roads and safety of the users will be maintained.
Concern over the road network's ability to withstand the heavy vehicle loadings associated with the proposed development	Appropriate improvement works will be carried out where required to ensure that the ability of the roads to with the heavy vehicle loadings
Safety is a major concern on the unsealed roads such as Whitefield Road, Waterview Road and Garry Owen Road.	Safety considerations were assessed in section 4.8 of the Traffic Impact Study. Waterview Road and Garry Owen Road will now not be used for access to the wind farm site.

Issue/Comment	*Response*
Council would require these roads to be upgraded	A limited section (approximately 1.2km) of Whitefields Road is planned to be used to provide the primary access to the Coppabella precinct. This section of road will be upgraded to ensure it is adequate for the construction traffic and to ensure safety for all road users. Note that Whitefields Road now forms part of the Harden Shire Council LGA rather than the Yass Valley Council LGA.
A structural assessment of the bridges on Illalong Road should be undertaken prior to heavy vehicles using the roads	A structural assessment of the bridges on Illalong Road will be undertaken to ensure they are adequate for the proposed heavy vehicles.
The Traffic Impact Study does not adequately address the location and standard of the proposed access points off the road network.	The Traffic Impact Study has considered the impacts, safeguards and upgrades required at the access points off the Hume Highway (sections 5.1 & 5.2 & Appendix C). Any upgrades at the proposed access points will be carried out in accordance with the RMS Design Guidelines and the AUSROADS Pavement Design Guides.
There are a number of mitigation measures detailed in section 5.2 of the Traffic Impact Study which are not explicitly stated in the Statement of Commitments in the Environmental Assessment	The Traffic Impact Study is part of the Environmental Assessment and any mitigation measures specified in the study are considered to be commitments by the Proponent. For clarity, these mitigation measures have been referenced in the updated Statement of Commitments.
Lack of community enhancement fund	As part of the ongoing consultation with all stakeholders in the vicinity of the planned wind farm we welcome any suggestions for possible community projects to be funded by the wind farm. From commencement of operation the proponent will contribute $2,500 per wind turbine built per annum to a Community Enhancement Program. 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. 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. The CCC is to be constituted in line with Appendix C of t*he Draft NSW Planning Guidelines: Wind Farms* 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.
Community and Council communication	Epuron has established a Community Consultation Committee for the project. The Council has a representative who attends the CCC meetings to stay informed about the project.
	Epuron met with the Director of Planning & Environmental Services and the Strategic Planner of the Yass Valley Council on 2nd May 2013 to discuss the above issues and our response. No additional concerns were raised.

3 Exhibition of the Preferred Project Report

3.1 Public Exhibition

The Yass Valley Wind Farm Preferred Project Report was submitted to the NSW Department of 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. The department 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 Department of Planning website

3.2 Submissions Received

Fifteen submissions were received in response to the exhibition of the Preferred Project Report, seven from individuals and eight from government agencies. A further five additional submissions, three from individuals and two from government agencies, were received after the exhibition period had closed on 1 March 2013. Two of these additional submissions were from one of the seven individuals who had provided a submission during the exhibition period. In the summary below, the three submissions have been considered together.

3.3 Assessment of Submissions

The issues raised in each submission have been summarised and tabulated in Table 3-1 below to identify the most frequently and infrequently raised issues.

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*
1	■		■		■	■	■	■	■			
2	■					■	■					
3	■	■	■			■	■		■			
4			■		■		■					
5	■		■		■							
6	■						■	■	■			
7	■				■	■	■					

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
8	■				■	■					■	■
9												
10									■			
11		■										
12										■		
13												
14												
15			■	■								
16												
17										■		

Indicates a government agency submission

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

3.4 Response to Public Submissions

3.4.1 Visual

Issue	Response
Supplementary LVIA Section 6.1.4 Views from residential dwellings - The visual impact (from Talbragar) will be high and very significant. Section 6.2 Overall cumulative impact is clearly incorrect and should be discounted	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. 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. Community resistance to wind farms is rising across the globe.	Community acceptance of renewable energy and wind in particular is strong as demonstrated by a number of independent surveys. Most recently a survey held over 13-16 June 2013 by Essential Research found 76% of the people surveyed supported the building of wind farms in Australia. Only 11% opposed them with rest responding 'don't know'. This is similar to other surveys that examine Australia's preferences surrounding energy sources, such as the long-running survey conducted by the Climate Institute (Essential

Issue	Response
	Vision, 2013).
Section 7.3 This statement is also incorrect. 148 wind turbines must have a high cumulative impact.	The statement relates to the cumulative impact of the Yass Valley Wind Farm and nearby wind farms such as the approved Conroy's Gap Wind Farm. It is an assessment by a qualified landscape impact assessor.
Section 8 The statement that 'the proposed Yass Valley Wind Farm will have a generally low visual impact on its surrounds and that the site is a suitable landscape for the construction of a wind farm' is clearly ludicrous and plainly wrong.	The LVIA was completed by Allan Wyatt, a qualified landscape architect with Environmental Resources Management (ERM) with significant experience in assessing the visual impact of wind farms. Visual impact assessments consider viewer numbers, whether the landscape is unique or whether there are similar landforms to those on which the wind turbines will be located, distances from viewer locations relative to numbers etc. Suitability also includes whether a location has a scenic designation or other status or is rural zoning. While it may appear wrong to an individual subjectively, the assessment is an impartial, professional judgment.
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.	The LVIA was completed by Allan Wyatt, a qualified landscape architect with Environmental Resources Management (ERM) with significant experience in assessing the visual impact of wind farms. Epuron has met with the submitter to better understand their concerns.
… severe and detrimental effect on our lives via its high visual impact, destruction of the night sky with aircraft lighting,	As noted in the Preferred Project Report, no aircraft warning lights are proposed for the Yass Valley Wind Farm.
The statement that Wind Farms have overall community support does not agree with the CSIRO publication Exploring community acceptance of rural wind farms in Australia: a snapshot by Nina Hall, Peta Ashworth and Hylton Shaw CSIRO Science into Society Group 2012	One of the key findings of the referenced report is that "There is strong community support for the development of wind farms." The document also discusses ways of increasing community support and Epuron is proactively working to do this (Hall et al., 2012).
Our concern that your assessment does not appear to recognise the widespread visual impact from 148 massive towers 150 metres 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.	The methodology adopted for the assessment of the visual impact assessment is described in section 1.4 of the Supplementary LVIA and is consistent with the methodology used for the assessment of other wind farms in NSW, Australia and overseas. The visual impact is an assessment which considers numbers of viewers as well as views. The view of an individual working on productive farming land does not have greater weight than that of someone living and working in an adjacent community and travelling past the wind farm or viewing it from a township. Planning instruments have no facility for ownership of views.
There is significant community disquiet regarding the visual impact of the development.	Epuron has listened to concerns regarding the visual impact of the proposal and as part of the updated LVIA has provided additional photomontages to be able to better understand the visual impact of the proposal and the particular concerns of neighbours.
Loss of visual amenity. This development will replace the natural beauty with an industrial forest of twirling machines.	This development will change the views of and towards the productive farming landscape. It is hoped that as Australia transitions to a more sustainable power sector those who live in the vicinity of renewable energy projects will benefit from local investment and community funding and their acceptance over time of the changed landscape will be acknowledged and appreciated by those further afield who benefit from that transition but do not have a changed visual amenity.
Identification of all residences within 2 km of a proposed wind turbine.	Epuron has identified all residences within 2 km of a proposed turbine, including one new residence (M42) that was constructed in 2012 and another residence (C74) that has been constructed since 2009.
Clarification is required on the definition of visual amenity impacts. Attachment 3 to the PPR should be amended to include all dwellings within the vicinity (for reasonableness, at least within 2km) of any proposed wind turbines.	The visual impact assessment has been updated to include an assessment from all non-involved residences located within 2 km of a wind turbine. This is in line with the draft *NSW Planning Guidelines: Wind Farms* even though this is not a requirement for this project. All residents within 2 km of a wind turbine have been consulted or have been offered a consultation visit at a time that suits them. Epuron has contacted all

Issue	Response
Community consultation regarding perceptions of the project should be expanded to include 100% of neighbouring properties. It is not acceptable to have a survey pool of respondents that does not at least include all neighbouring and near-neighbouring landowners.	landowners within 5km of a turbine although a number of landowners are absentee and contact details for tenants are difficult to acquire.

3.4.2 Noise

Issue	Response
Identification of all residences within 2 km of a proposed wind turbine	The updated noise assessment (refer Attachment 4 of this report) considers all residences within 2 km of a proposed wind turbine including the new residence (M42) that was built in 2012. As a result of that assessment the turbine closest to the new residence has been deleted to ensure compliance.
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, "*at houses located approximately 1.5 km away from wind farm sites*".	The updated noise assessment includes assessment of the potential impacts of low frequency noise and confirms that this is not an issue at any of the residences.

3.4.3 Fauna and Flora Impacts

Issue	Response
Section 7.4 of the EA fails to address the adverse impact on the raptor population and also fails to address the impact on the local bent winged bat population	Section 7.4 of the EA provides a summary of the potential impact on fauna and flora from the wind farm including threatened species of birds and bats. Further details of the impacts on birds and bats are included in the biodiversity assessments in Appendix 3 to the EA. A specific section on Wind Farm Risks to Birds and Bats is included in Appendix F to the biodiversity assessment.
It is clear that the establishment of wind farms in and around Box Gum Grassy Woodland 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.	The proposed wind farm infrastructure will have a permanent impact on some Box Gum Woodland EEC, but this has been minimised by avoiding the EEC where practical. Following the submission from OEH, the wind farm infrastructure layout was modified, including the deletion of some turbines and tracks to further reduce the impact. The proposed mitigation and offset strategies have been documented in the Supplementary Ecology Report (Attachment 1 to this report).
The distraction [destruction?] of the pastoral landscape associated with white and yellow box woodland	
The wildlife impact assessment is lacking in convincing research that might support an approval.	The biodiversity assessment, including the fauna assessment, was carried out by qualified ecologists with experience in similar wind farm site assessments. Please refer to section 11 of the biodiversity assessment for details of the assessment personnel. The survey and assessment methodologies were consistent with the *Draft Guidelines for Threatened Species Assessment (DEC 2005)*

3.4.4 Community Consultation

Issue	Response
Epuron did not consult widely with the community	Since Epuron re-acquired the project from Origin Energy in July 2012 it

Issue	*Response*
	has: ▸ Distributed three project newsletters; ▸ Established a project website; ▸ Established a Community Consultation Committee and held four CCC meetings; ▸ Contributed to numerous news articles in local newspapers and interviews on local radio stations; and ▸ Contacted most neighbours with a residence within 5 km of a turbine
Newsletters were primarily delivered to hosts	Newsletters have been delivered to involved landowners, all residents within 5km as well as other stakeholders and individuals who registered their interest in the project
Face to face meetings with neighbouring landholders did not take place	Face to face meetings with neighbouring landowners has taken place. See Attachment 7 for more details.
The company Epuron in relation to any developments has never contacted me; I have recently made efforts of my own to make contact and have received vague answers to date of construction etc.	The residents (of C67) were contacted by phone on 25 March 2010 by the proponents of the project (not Epuron at the time). Epuron have since met with the residents on two occasions and responded to the queries raised. Unfortunately it is not possible at this stage to provide firm answers to questions such as construction commencement date.
Poor community consultation by Epuron (individual resides approximately 50km from the wind farm site)	The focus of the consultation is on the neighbours within 5 km that will be potentially more affected by the wind farm. Epuron carries out title searches to contact neighbours to the wind farm site. Harden Shire and Yass Valley councils have assisted in contacting owners who own properties in company names and live a distance away. Epuron has responded to queries from anyone contacting the company and has added the details of interested parties to the newsletter database. However, the focus is on residents within the vicinity of the wind farm.
There has been a singular lack of appropriate community consultation regarding the proposed development of a wind farm in our district (individual resides > 10km from the wind farm)	
I am not against wind farm developments but I do not like the way that the developer has gone about things regarding this project. 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 landowners not to talk to other residents. Epuron will lease land from the involved landowners to allow the wind farm to be built and operated. Epuron has established a Community Consultation Committee which has held four meetings to date. One of the roles of the committee is to keep neighbours of the wind farm informed of progress and to answer any queries. A number of neighbouring landowners are representatives on the committee. Epuron has attempted to contact all neighbours within 5 km to understand their concerns.
Engage in 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.	Epuron has attempted to contact all landowners whose residences are located within 5km of a proposed wind turbine.
Conduct community meetings in an open and transparent manner, allowing engagement with all affected stakeholders.	The community consultation committee is an established committee made up of individuals who nominated for inclusion and who represent neighbours to the wind farm. The minutes of the committee are published on council and Epuron websites. The CCC meetings are not open meetings; they are conducted in accordance with the requirements for CCC meetings in the draft *NSW Planning Guidelines: Wind Farms.*
A number of statements in the original 2009 Environmental Assessment are disengaging, unsupported, and inflammatory, including the statement that "*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*	We note that in general communities in urban, rural and regional NSW support wind farms, and recognise the negative impacts that fossil fuel consumption has on current and future generations. This has been confirmed through consistent responses from a number of independently and professionally managed surveys over a period of many years. For example:

Issue	*Response*
within 1km of their residence". This social research is not specific to the Yass Valley area and is therefore misleading in its representation of the specific project area	A report on *Community Perceptions of Wind Farms in the Southern Tablelands, NSW* (October 2007) incorporating the areas around the proposed Yass Valley Wind Farm was commissioned by Epuron and undertaken by ERM in conjunction with REARK Pty Ltd. The outcomes of this study included that: 89% of respondents were in favour of wind farm projects to be developed in the southern tablelands with 5% opposed. Of the 89%, 83% stated "I would be happy to see a wind farm built on farm land near where I live" 87% of respondents supported the development of a wind farm within 25km of their house, with 71% supporting a wind farm within 1km of their house. The NSW government commissioned the report *"Community Attitudes to Wind Farms in NSW"* in 2010 seeking resident's attitudes towards the target of 20% renewable energy consumption by 2020. The survey was conducted by telephone with 2022 residents and 300 businesses across the six Renewable Energy Precincts, including the Southern Tablelands and a control area in regional NSW. The outcomes of this study included that 85% of the population across the precincts support wind farms in NSW, with 80% supporting them within their local precinct, 82% support for a wind farm 10km from their residence and 60% support a wind farm within 1 – 2 km of their residence. Most recently a survey held over 13-16 June 2013 by Essential Research found 76% of the people surveyed supported the building of wind farms in Australia. Only 11% opposed them with rest responding 'don't know'. This is similar to other surveys that examine Australia's preferences surrounding energy sources, such as the long-running survey conducted by the Climate Institute (Essential Vision, 2013).
The process for implementation of environmental mitigation measures including a CEMP and other statement of commitments is not well understood among stakeholders	The CEMP will be developed prior to any construction activities commencing and will be available for comment by all stakeholders via the project website and the CCC. The CCC will also be used to better explain the process for implementation of these mitigation measures.
Include stakeholder engagement that adequately summarises the actual proposed benefits of the project, why Yass Valley has been proposed, and allowing stakeholders to pose questions in relation to the efficiency of the proposed turbines and their overall impact on green energy.	The precinct coordinators have been out and about in each of the renewable energy precincts explaining why each precinct is particularly attractive for the development of wind farms. In the case of most precincts, and certainly the Yass area, it is because of the excellent wind resource and nearby grid connection options. The benefits of the project were identified in section 9.1 and 9.2 of the EA and summarised in section 1.5.

3.4.5 Property Values

Issue	Response
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 that Epuron has sited in this section are all dated and not relevant to the Yass valley proposal.	None of the research in Australia or overseas has demonstrated any significant impact on property values as a result of nearby wind farms. 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.
The reduction in valuation of our property	
The issue of loss of value. Therefore this project makes Shepstone Park less attractive for me or any other potential buyer. No compensation for this loss has ever been offered by either developer.	
Amend the PPR to include an assessment of land values in the Southern Tablelands in areas that have been affected by wind farms. Discussions with potentially impacted landowners (both involved and non-involved) must address this issue, including the potential process to address land value impacts with an appropriate compensation package.	Land value is not considered to be a planning matter but rather a consultation matter to explain how the planning system works in relation to land values. Part of the Land and Environment Court ruling in relation to the Gullen Range Wind Farm addresses the issue – refer to paragraphs 107 to the paragraph after 160 in the following link:http://www.austlii.edu.au/cgi-bin/sinodisp/au/cases/nsw/NSWLEC/2010/1102.html?stem=0&synonyms=0&query=title%28gullen%20range%20wind%20farm%20%29 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.

3.4.6 Health Impacts

Issue	Response
There is widespread and growing anecdotal evidence of severe health effects occurring in people living up to 10kms from wind turbines	There are tens of thousands of wind turbines installed worldwide and no independent study has demonstrated any harm to people living in close proximity to wind farms despite a number of attempts to find evidence of such harm. The recent Australian report by the National Health and Medical Research Council (NHMRC) concluded that "there is currently no published scientific evidence to positively link wind turbines with adverse health effects" (NHMRC, 2010).
The as yet unknown and untested potential health risks of these turbines	
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 wind farms.	
One issue that has not been addressed in the application is health problems associated with wind farms. We have heard stories of sub-sonic sound waves and depression problems.	
Important developments in wind turbine noise and health are being studied by the federal department Health Canada (10 February 2013) and these are not addressed in the PPR	The Health Canada study has not been completed but has not identified any issues that have already been covered by numerous other assessments.

3.4.7 Fire hazards

Issue	Response
There is no mention in this section that aerial fire fighting will not be able to occur aircraft will not operate within 1 km of a turbine and up to 10 km downwind	Epuron has consulted with the NSW RFS and can confirm that there are no procedures that restrict the operation of an aircraft within the vicinity of a wind turbine. The RFS Aviation Section deals with a large number of obstacles in the landscape when fighting fires and they treat wind turbines like any other obstacles in the terrain and work around them to fight fires. The new access roads created as part of the wind farm act as a natural fire break and create quicker and easier access to help in controlling fires.

3.4.8 Soil Erosion

Issue	Response
The PPR indicates that an erosion and sediment control plan will be implemented, utilising "*standard erosion and sediment control measures*". 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 may have on the impacted land, as well as land downstream or in other parts of the regional catchment.	The detailed design of the wind farm infrastructure will only be finalised once the turbine model for the site has been selected. For example, the actual size and configuration of the hardstand area at each turbine location will depend on the characteristics of the actual wind turbine model selected together with the details of installation crane to be used on the project. As noted in the EA we are aware of the very high erosion potential in a number of areas across the project site and there is acknowledgement that as part of the detailed design of the infrastructure appropriate drainage structures and erosion control measures will need to be incorporated. We don't believe there is a discrepancy between the information provided in the EA and in the PPR. A number of independent constructability studies confirmed the feasibility and practicality of constructing the proposed infrastructure on the steep ridges which are a feature of the site. The soil erosion risks will be managed through the CEMP which must be approved by the Director General before construction can commence.

3.4.9 Decommissioning & Rehabilitation

Issue	Response
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	Epuron will comply with the decommissioning requirements of the draft *NSW Planning Guidelines: Wind Farms* which state: "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. A draft Decommissioning & Rehabilitation Plan is included in Attachment 11 in this report.

3.4.10 Aviation Impacts

Issue	*Response*
A comment is made that "Due to the current land use of the proposed wind farm site, potential impacts to aerial spraying of agricultural areas are considered negligible" this statement is absolute nonsense.	An Aeronautical Impact Assessment by the Ambidji Group (Refer Attachment 6) confirmed that "the location of 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." "Advice from consultations with the operator was that the wind farm would present no operational issues for the agricultural operation." It is expected that a condition of approval of the wind farm will be that should increases to the costs of aerial agricultural spraying on any non-associated property surrounding the site be attributable to the wind farm, that the cost difference between current aerial agricultural spraying and the increased cost be funded by the wind farm operator.
The report (the EA) also fails completely to address the impacts on agriculture.	
Epuron has completely failed to address the issue of aerial agricultural activities in the Yass Valley. The economic impacts are real, substantial, and supported by ongoing research by the NSW Department of Primary Industries. In most cases there is no alternative method of spreading super phosphate other than by air	
The AAAA has recommended that its members do not fly in areas with wind turbines.	The AAAA policy does not restricting flying in areas with wind turbines.
The report (the EA) however does not cover the hazards encountered by aircraft whilst flying in air turbulence.	The draft *National Airports Safeguarding Framework - Managing the risks to aviation safety of wind turbine installations/wind monitoring towers* notes that wind farm operators should be aware that wind turbines may create turbulence which is noticeable up to 16 rotor diameters (1.6 - 2 km) from the turbine. However, in its response to the draft framework, the Clean Energy Council challenged the definition and extent of the turbine wake effect and noted that the levels of turbulence that are capable of posing a hazard to aviation will not be present at more than a few rotor diameters (200 – 300 m) downwind of a turbine, where turbulence is found to reduce to ambient levels (CEC, 2012). Epuron has committed to notifying CASA and other stakeholders such as aerial agricultural operators regarding the final locations and elevations of all turbines and wind monitoring masts.
The aerial risk is not solely with aircraft coming into direct contact with the wind towers but with the turbulence created by large arrays of these turbines. This effect can extend over 20 km downwind of turbines. The issue of air turbulence needs to be urgently addressed by the NSW Department of planning when assessing this proposal	
A major concern that has recently manifested itself in the local community is the ban imposed on aircraft operating within one kilometre of towers.	Epuron has consulted with the NSW RFS and can confirm that there are no procedures that restrict the operation of an aircraft within the vicinity of a wind turbine. The RFS Aviation section deals with a large number of obstacles in the landscape when fighting fires and they treat wind turbines like any other obstacles in the terrain and work around them to fight fires.

3.4.11 Near ground meteorological effects

Issue	*Response*
There is continued scientific research showing significant local meteorological effects from large scale wind installations that are not addressed in the PPR.	Much of the referenced research can be considered fledgling research into this topic - peppered with words such as "could", "possibly" and "might". The effects observed related to near-surface temperature effects 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.

3.4.12 Cumulative Impacts

Issue	*Response*
The methodology of the cumulative impact assessment does not appear to have been calibrated by the perception of cumulative impacts by potentially impacted stakeholders.	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. This approach, undertaken over two years before the draft *NSW Planning Guidelines: Wind Farms* were issued, is consistent with the guidelines.

3.5 Response to Government Authority Submissions

3.5.1 NSW Trade & Investment Crown Lands

Issue	*Response*
Turbines located on or very close to Crown roads	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. 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 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.
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 investigating the feasibility 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 microsited to avoid the Crown road.
Powerline route crossing Crown Roads	Prior to the commencement of construction the proponent will obtain the necessary licence from Crown Lands for the powerline crossing in accordance with the Crown Lands Act 1989.

3.5.2 Civil Aviation Authority

Comment	*Response*
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	The proponent has committed to providing heights and co-ordinates of wind turbines to Airservices and Department of Defence prior to

Comment	Response
commencement of construction	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 Service	The RFDS was consulted as part of the aeronautical assessment. No concerns with the proposed wind farm were raised.

3.5.3 NSW Environmental Protection Agency

Comment	Response
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 4 for more details. The updated assessment confirms that the current wind turbine layout complies with the relevant criterion.

3.5.4 NSW Roads & Maritime Services

Comment	Response
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

Comment	*Response*
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

Comment	*Response*
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 13) with consistent turbine numbering has been included in this report together with a list of current turbine coordinates (Attachment 8). 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	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: • The conservation status of the vegetation; • The condition of the vegetation; and • Whether the habitat provides actual (not potential) threatened species habitat. 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. 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.
Clarification of terms: native pasture, BGW pasture, native grassland, BGW (native pasture), BGW (grassland), native dominated grassland and secondary grassland	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. In different areas the community has a varying proportion of native understorey (from entirely exotic to entirely native) and tree cover

Issue	Response
	(from treeless to within benchmark cover for this community). '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.
Clarification of loss of Hollow Bearing Trees as moderate constraint	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. The field assessments conducted for the additional areas primarily focussed on transmission line infrastructure and turbines on the periphery of the site. Generally speaking, micrositing 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.
Request that Biodiversity Management Plan be developed in consultation with OEH and approved by the Director General.	Noted
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 plant 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	A copy of the Heritage Assessment Addendum report has been circulated to all three the registered Aboriginal stakeholders for review: • Buru Ngunawal Aboriginal Corporation, • Ngunawal Heritage Aboriginal Corporation and • Onerwal Local Aboriginal Land Council. An endorsement from the Buru Ngunawal Aboriginal Corporation has been included in Attachment 2.

3.5.8 NSW Department of Primary Industries

Comment	Response
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 Bain 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.

Comment	*Response*
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

Issue	*Response*
Complete a more detailed Traffic Impact Study in consultation with the relevant authorities, including Yass Valley Council, prior to commencement of construction including: ▸ 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.	The proponent is committed to completing a more detailed traffic impact study in consultation with the relevant authorities (RMS & councils) prior to the commencement of construction. Refer to the revised Statement of Commitments 37.

3.5.10 Airservices Australia

Issue	*Response*
Effect of the planned wind farm on the Mt Bobbara SSR (secondary) and Mt Majura PSR/SSR (primary & secondary) air traffic control radars	A detailed technical study on the potential impact of the wind farm on the operation of the radars was completed by IDS in November 2011 and concluded that for: Mt Bobbara SSR – The radar shadowing effect due to the wind farm will be negligible. Mt Majura SSR – On the basis of the preliminary analysis the wind farm will not impact the radar performance. Mt Majura PSR – Some false targets and localised shadowing will be present. These may be mitigated by specific radar processing techniques. Epuron and IDS met with Airservices Australia to review the study and identified some areas of the assessment that require clarification and further work. Some aspects of the work can only be completed after selection of the turbine model and micrositing have been completed. Epuron have now commenced an assessment which will identify and

Issue	*Response*
	assess several mitigation technologies that that have been successfully implemented in the UK to minimise the impact of wind farms on air traffic control radars. Consultation with Airservices Australia is ongoing.

4 Preferred Project

4.1 Preferred Project Description

4.1.1 General Description

The proposed wind farm includes:

- Up to 144 wind turbines located within the Coppabella and Marilba precincts. 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
- A 330kV switchyard enabling the connection of the wind farm to TransGrid's existing Yass to Lower Tumut 330kV 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 alternative 132kV switchyard locations have been identified in the event that the 330kV connection option is not feasible.
- A high voltage (up to 330kV) pole mounted transmission line approximately 25km long to connect the switchyard to the two substations on the wind farm site. Three alternative 132kV overhead transmission line routes have been identified in the event that the up to 330kV overhead transmission line is not viable.
- Up to two substations on the wind farm site. Each substation will include transformers to provide connection to the medium voltage electrical reticulation network. If a single site substation is used it will be at a location between the Coppabella and Marilba precincts.
- 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
- A number of permanent wind monitoring masts
- Temporary construction facilities including offices, facilities, car parking, equipment laydown area and a concrete batching plant.

4.1.2 Wind Turbine Selection

At this stage the turbine supplier and turbine model for the project has not been selected. The maximum blade tip height proposed is 150m above ground level and any turbine selected would meet this maximum tip height 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 4-1 Proposed wind turbine parameters

Wind turbine parameter	
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

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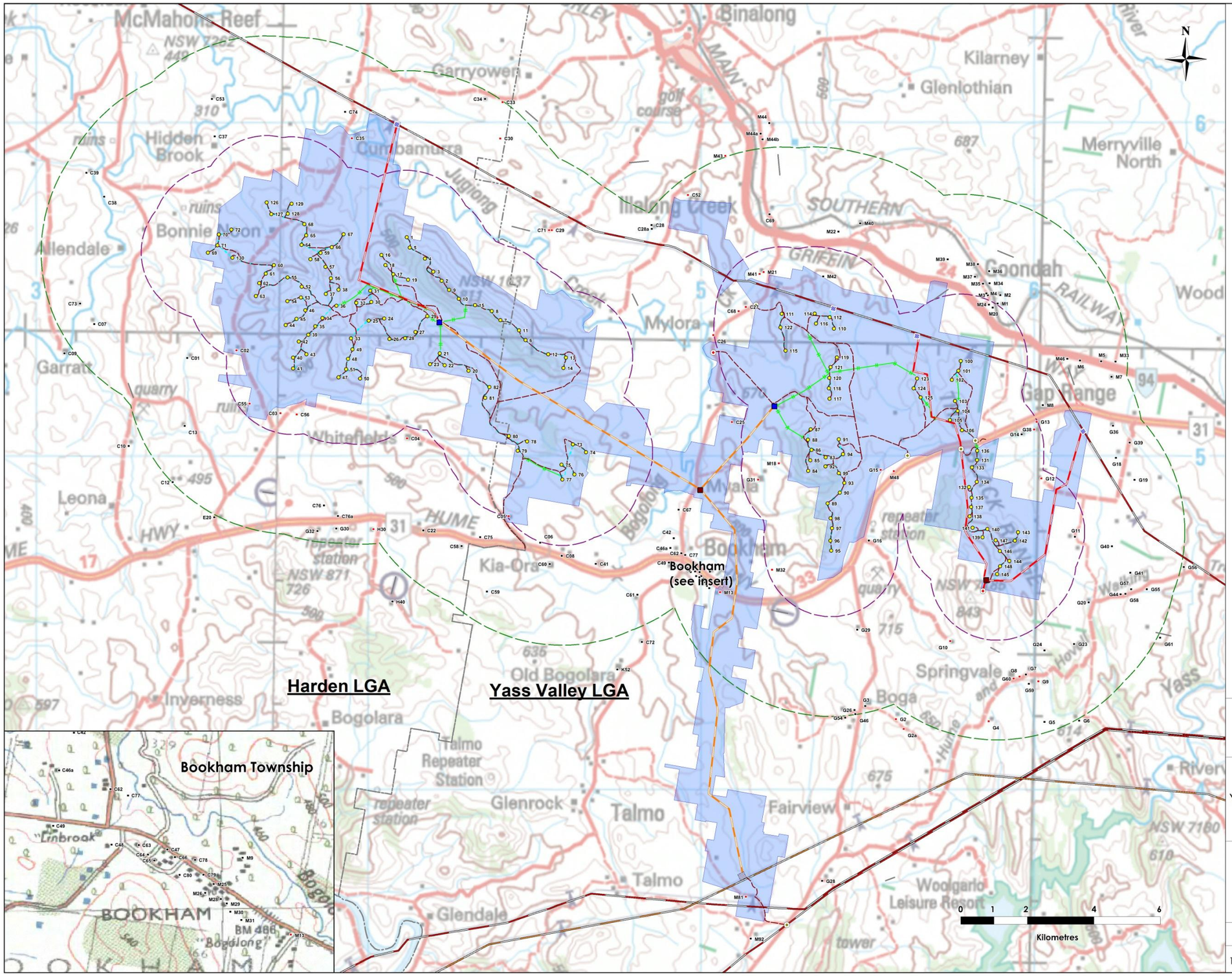

EPURON

PROJECT

Yass Valley Wind Farm

TITLE

Preferred Project & Submissions Report - Proposed Layout

SCALE	DATE	DRAWN
1:50,000 at A1	22/07/13	MK

Figure 4-1 Preferred project & submissions report layout (see Attachment 13 for A1 size map)

4.1.3 Grid Connection Options

One of the concerns noted in the OEH submission to the EA was the extent of the overhead powerlines proposed on the site. Epuron reviewed the proposed grid connection concept for the project and identified an alternative connection to the 330kV network approximately 13km to the south of the wind farm site rather than the 132kV network to the north of the wind farm site. This preferred option would reduce the extent of overhead transmission lines from >75km to approximately 25km.

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.
- 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.

The preferred transmission line route to the TransGrid 330kV line was identified following an iterative process used to ensure that the environmental impact of the new route was minimised. Aerial mapping was used to ensure that native vegetation and nearby residences were avoided and natural terrain features used to minimise the visual impact. The supplementary assessments for ecology, archaeology, visual impact and noise included an assessment of the preferred 25km transmission line route, switchyard and substation locations.

Electromagnetic Fields

An assessment of the potential impacts from electromagnetic fields (EMFs) from the wind farm was provided in section 7.9 (page 174) of the EA. EMFs were considered as part of developing the preferred grid connection option and associated transmission line.

The maximum levels of magnetic field directly under a 330kV powerline are in the order of 300 mG. The magnetic field falls away rapidly as the distance increases. This figure is significantly less than the 1,000 mG limit recommended for 24 hour exposure.

As the nearest residence is approximately 400m away from the proposed transmission line, there will be no impact from electromagnetic fields.

4.2 Changes to the Proposed Wind Farm Infrastructure

Changes have been made to the proposed wind turbine locations and associated infrastructure compared to the infrastructure layout proposed in the EA (2009). The changes have been made for a number of reasons including:

- Reducing the overall environmental impact of the wind farm, including reducing impact on flora and impact on fauna habitat, accommodating operational noise and visual impact constraints;
- In response to submissions made to the EA and Preferred Project Report;
- At the request of the involved landowners;
- To avoid Crown roads;
- To avoid constructability constraints; and
- To optimise the turbine layout to accommodate changes made for the reasons listed above and maximise the energy output of the wind farm.

The revised infrastructure layout has 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 the submission from OEH. Please refer to the Supplementary Ecology Report (Attachment 1) for further details.

In the case where the changes resulted in infrastructure being relocated, additional assessments were carried out to ensure that the impacts did not increase 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*

There is an overall reduction of 8 turbines from the 152 from the EA (November 2009) to the 144 in this Preferred Project & Submissions Report. The details of the changes are provided in Table 4-2 below and in Figure 4-3 & Figure 4-4 on the following pages.

Note that 3 turbine locations (MRL 16, MRL 17 & MRL 18) were deleted at the landowner's request after the completion of the additional ecology, visual impact and noise assessments. These three assessments were based on 147 wind turbine locations although the current proposal now has 144 wind turbines. This change is not material and does not impact on the conclusions reached in each of these assessments.

Table 4-2 Changes to proposed wind turbines

Current turbine ID	*Original EA turbine ID*	*Change*	*Distance moved*	*Reason for change*
1	COP_1	Moved	46 m	Turbine layout optimisation
2	COP_5	Moved	125 m	Turbine layout optimisation
3	COP_4	Moved	143 m	Turbine layout optimisation
4	COP_3	Moved	7 m	Turbine layout optimisation
5	COP_2	Moved	125 m	Turbine layout optimisation
6	COP_12	Moved	17 m	Turbine layout optimisation
7	COP_10	Moved	177 m	Turbine layout optimisation

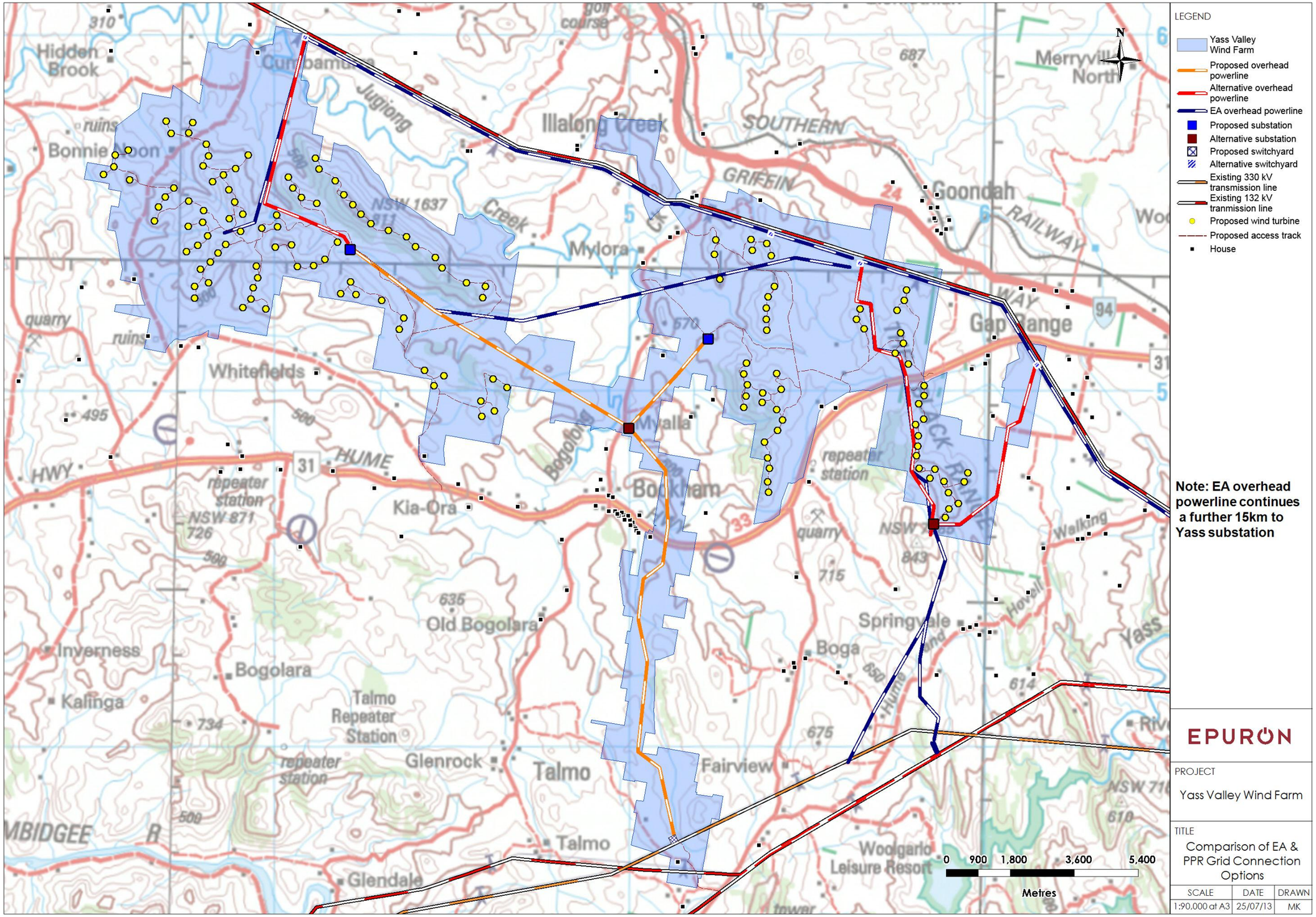

Figure 4-2 Comparison of EA and PPR grid connection options

Current turbine ID	*Original EA turbine ID*	*Change*	*Distance moved*	*Reason for change*
8	COP_9	Moved	92 m	Turbine layout optimisation
9	COP_6	Moved	69 m	Moved to avoid Crown road
10	COP_7	Moved	36 m	Turbine layout optimisation
11	COP_11	Moved	24 m	Turbine layout optimisation
12	COP_14	Moved	203 m	Vegetation constraint
13	COP_15	Moved	83 m	Vegetation constraint
14	COP_16	Moved	76 m	Turbine layout optimisation
15	COP_84	Moved	164 m	Moved to avoid Crown road
16	COP_17	Moved	7 m	Turbine layout optimisation
17	COP_19	Moved	138 m	Turbine layout optimisation
18	COP_18	Moved	99 m	Turbine layout optimisation
19	COP_20	Moved	5 m	Turbine layout optimisation
20	COP_62	None	-	
21	COP_57	Moved	12 m	Turbine layout optimisation
22	COP_61	Moved	72 m	Turbine layout optimisation
23	COP_58	Moved	14 m	Turbine layout optimisation
24	COP_50	None	-	
25	COP_44	Moved	132 m	Turbine layout optimisation
26	COP_53	Moved	88 m	Turbine layout optimisation
27	COP_55	None	-	
28	COP_54	Moved	51 m	Turbine layout optimisation
29	COP_52	Moved	30 m	Turbine layout optimisation
30	COP_42	Moved	32 m	Turbine layout optimisation
31	COP_41	Moved	33 m	Turbine layout optimisation
32	COP_43	Moved	475 m	Turbine layout optimisation
33	COP_45	Moved	5 m	Turbine layout optimisation
34	COP_29	Moved	100 m	Turbine layout optimisation
35	COP_30	Moved	15 m	Turbine layout optimisation
36	COP_27	None	-	
37	COP_26	Moved	186 m	Turbine layout optimisation
38	COP_25	Moved	39 m	Turbine layout optimisation
39	COP_31	Moved	45 m	Turbine layout optimisation
40	COP_34	Moved	68 m	Turbine layout optimisation
41	-	Relocated	-	Turbine layout optimisation
42	COP_32	Moved	119 m	Turbine layout optimisation
43	COP_33	Moved	198 m	Turbine layout optimisation
44	COP_40	Moved	17 m	Turbine layout optimisation

Current turbine ID	*Original EA turbine ID*	*Change*	*Distance moved*	*Reason for change*
45	COP_39	Moved	77 m	Turbine layout optimisation
46	COP_37	Moved	94 m	Turbine layout optimisation
47	-	Relocated	-	Turbine layout optimisation
48	COP_47	Moved	54 m	Turbine layout optimisation
49	COP_46	Moved	16 m	Turbine layout optimisation
50	COP_49	Moved	33 m	Turbine layout optimisation
51	COP_48	Moved	98 m	Turbine layout optimisation
52	COP_81	Moved	70 m	Turbine layout optimisation
53	COP_36	Moved	87 m	Turbine layout optimisation
54	COP_35	Moved	184 m	Turbine layout optimisation
55	-	Relocated	-	Turbine layout optimisation
56	COP_24	Moved	184 m	Turbine layout optimisation
57	COP_23	Moved	94 m	Turbine layout optimisation
58	COP_22	Moved	18 m	Turbine layout optimisation
59	COP_21	Moved	82 m	Turbine layout optimisation
60	-	Relocated	-	Turbine layout optimisation
61	COP_77	Moved	46 m	Turbine layout optimisation
62	COP_78	Moved	70 m	Turbine layout optimisation
63	COP_79	Moved	90 m	Turbine layout optimisation
64	-	Relocated	-	Optimisation and reduced impacts
65	-	Relocated	-	Optimisation and reduced impacts
66	COP_82	Moved	170 m	Vegetation constraint
67	-	Relocated	-	Optimisation and reduced impacts
68	-	Relocated	-	Optimisation and reduced impacts
69	-	Relocated	-	Optimisation and reduced impacts
70	-	Relocated	-	Optimisation and reduced impacts
71	-	Relocated	-	Optimisation and reduced impacts
72	-	Relocated	-	Optimisation and reduced impacts
73	COP_70	None	-	
74	COP_71	Moved	48 m	Vegetation constraint
75	COP_69	Moved	279 m	
76	COP_86	Moved	216 m	Turbine layout optimisation
77	COP_68	Moved	367 m	Turbine layout optimisation
78	COP_65	Moved	262 m	Vegetation constraint
79	COP_66	Moved	198 m	Vegetation constraint
80	COP_85	Moved	123 m	Moved to avoid Crown road
81	COP_63	Moved	56 m	Turbine layout optimisation

Current turbine ID	*Original EA turbine ID*	*Change*	*Distance moved*	*Reason for change*
82	COP_83	None	-	
83	MRL_26	Moved	55 m	Moved to avoid Crown road
84	MRL_25	Moved	16 m	Turbine layout optimisation
85	MRL_24	Moved	46 m	Turbine layout optimisation
86	MRL_23	Moved	147 m	Turbine layout optimisation
87	MRL_20	Moved	34 m	Turbine layout optimisation
88	MRL_21	Moved	89 m	Turbine layout optimisation
89	MRL_34	Moved	191 m	Moved to avoid Crown road
90	MRL_33	Moved	18 m	Turbine layout optimisation
91	MRL_28	Moved	52 m	Vegetation constraint
92	MRL_27	Moved	8 m	Turbine layout optimisation
93	MRL_32	Moved	73 m	Vegetation constraint
94	MRL_29	Moved	116 m	Vegetation constraint
95	-	Relocated	-	Turbine layout optimisation
96	MRL_39	Moved	120 m	Vegetation constraint
97	MRL_38	None	-	
98	MRL_36	None	-	
99	MRL_31	Moved	37 m	Turbine layout optimisation
100	MRL_43	Moved	49 m	Turbine layout optimisation
101	MRL_44	Moved	32 m	Turbine layout optimisation
102	MRL_45	Moved	54 m	Vegetation constraint
103	MRL_49	Moved	51 m	Turbine layout optimisation
104	MRL_50	Moved	54 m	Turbine layout optimisation
105	MRL_51	Moved	30 m	Turbine layout optimisation
106	MRL_52	Moved	39 m	Turbine layout optimisation
110	MRL_09	Moved	50 m	Moved to avoid Crown road
111	MRL_02	Moved	10 m	Turbine layout optimisation
112	MRL_08	Moved	63 m	Turbine layout optimisation
114	MRL_06	Moved	34 m	Turbine layout optimisation
115	-	Relocated	-	Optimisation and reduced impacts
116	MRL_07	Moved	26 m	Turbine layout optimisation
117	MRL_15	Moved	14 m	Turbine layout optimisation
118	MRL_14	Moved	28 m	Turbine layout optimisation
119	MRL_10	Moved	32 m	Turbine layout optimisation
120	MRL_13	Moved	50 m	Turbine layout optimisation
121	MRL_12	Moved	96 m	Turbine layout optimisation
122	MRL_03	Moved	73 m	Turbine layout optimisation

Current turbine ID	*Original EA turbine ID*	*Change*	*Distance moved*	*Reason for change*
123	MRL_46	Moved	61 m	Turbine layout optimisation
124	MRL_47	Moved	24 m	Turbine layout optimisation
125	MRL_48	Moved	35 m	Turbine layout optimisation
126	-	Relocated	-	Optimisation and reduced impacts
127	-	Relocated	-	Optimisation and reduced impacts
128	-	Relocated	-	Optimisation and reduced impacts
129	-	Relocated	-	Optimisation and reduced impacts
130	-	Relocated	-	Optimisation and reduced impacts
131	MRL_54	None	-	
132	MRL_57	None	-	
133	MRL_55	None	-	
134	MRL_56	None	-	
135	MRL_58	None	-	
136	MRL_53	None	-	
137	MRL_59	None	-	
138	MRL_60	None	-	
139	MRL_63	None	-	
140	MRL_62	None	-	
141	MRL_61	None	-	
142	MRL_66	None	-	
143	MRL_65	None	-	
144	MRL_68	Moved	47 m	Moved to avoid Crown road
145	MRL_70	None	-	
146	MRL_67	None	-	
147	MRL_64	None	-	
148	MRL_69	None	-	
	COP_8	Deleted	-	Turbine layout optimisation
	COP_13	Deleted	-	High vegetation constraint
	COP_28	Deleted	-	Turbine layout optimisation
	COP_38	Deleted	-	Turbine layout optimisation
	COP_51	Deleted	-	Turbine layout optimisation
	COP_56	Deleted	-	Turbine layout optimisation
	COP_59	Deleted	-	Difficult access
	COP_60	Deleted	-	Difficult access
	COP_64	Deleted	-	Turbine layout optimisation
	COP_67	Deleted		Constructability constraint
	COP_72	Deleted	-	At landowners request

Current turbine ID	*Original EA turbine ID*	*Change*	*Distance moved*	*Reason for change*
	COP_73	Deleted	-	At landowners request
	COP_74	Deleted	-	At landowners request
	COP_75	Deleted	-	At landowners request
	COP_76	Deleted	-	At landowners request
	COP_80	Deleted	-	Turbine layout optimisation
	MRL_01	Deleted	-	At landowners request
	MRL_04	Deleted	-	Turbine layout optimisation
	MRL_05	Deleted	-	At landowners request
	MRL_11	Deleted	-	Turbine layout optimisation
107	MRL_16	Deleted	-	At landowners request
108	MRL_17	Deleted	-	At landowners request
109	MRL_18	Deleted	-	At landowners request
	MRL_19	Deleted	-	Steep & difficult access
	MRL_22	Deleted	-	Turbine layout optimisation
	MRL_30	Deleted	-	High vegetation constraint for access track
	MRL_35	Deleted	-	High vegetation constraint for access track

4.2.1 Area of relocated wind turbines within the Coppabella precinct

Table 4-2 describes the reason for the turbine deletions and relocations. A number of turbines have been relocated to the north west of the Coppabella precinct. They are numbered 69, 70, 71, 71, 126, 127, 128, 129 and 130 and can be seen in Figure 4-5. While the relocation of turbines has the potential for an increase in environmental impact, our assessment has shown that there has not been an increased impact on each of the closest residences in this case. The relocations have resulted in a reduced net environmental impact for the wind farm and an optimisation of the wind resource.

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 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. 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)

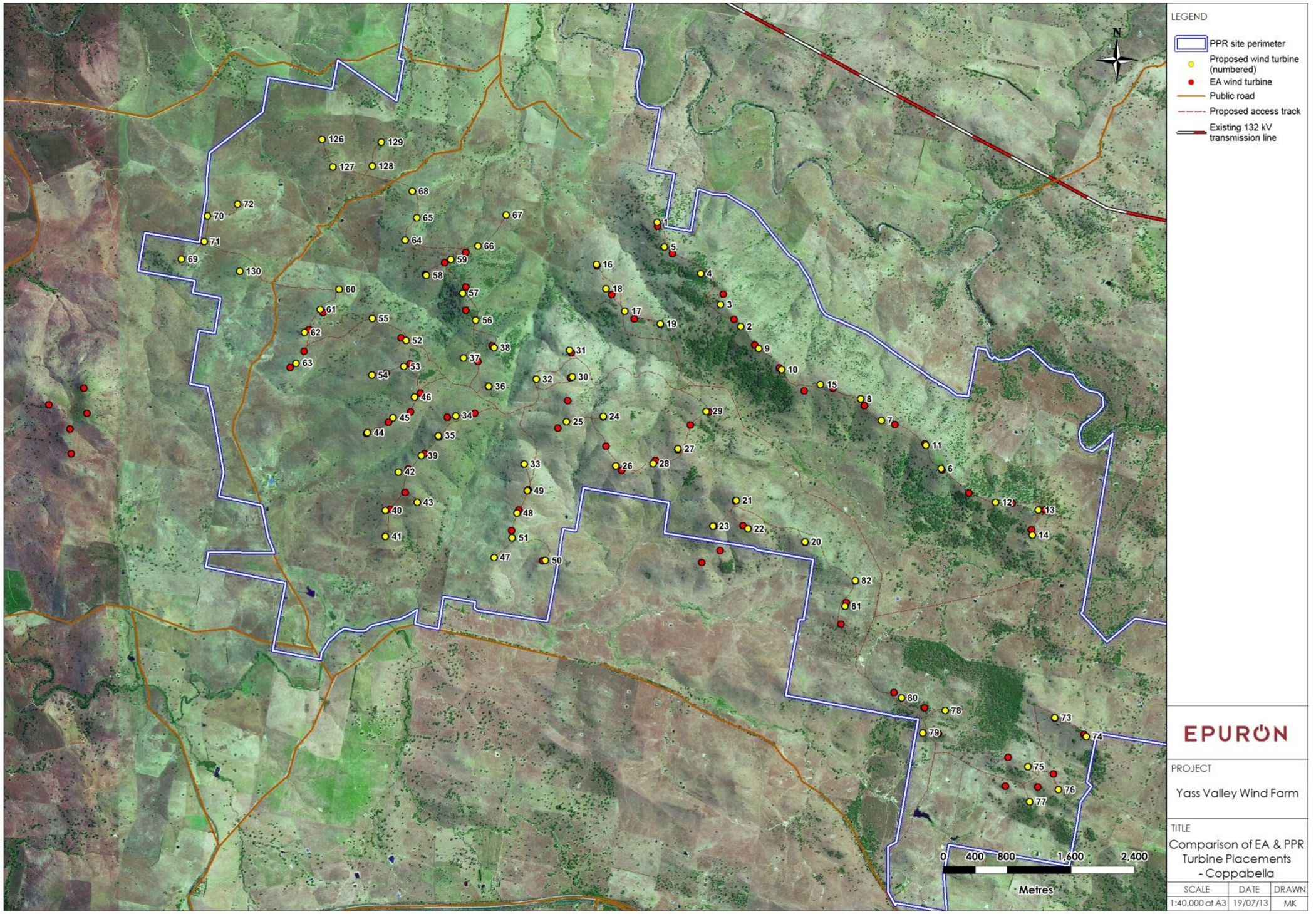

Figure 4-3 Wind turbine location changes Coppabella precinct

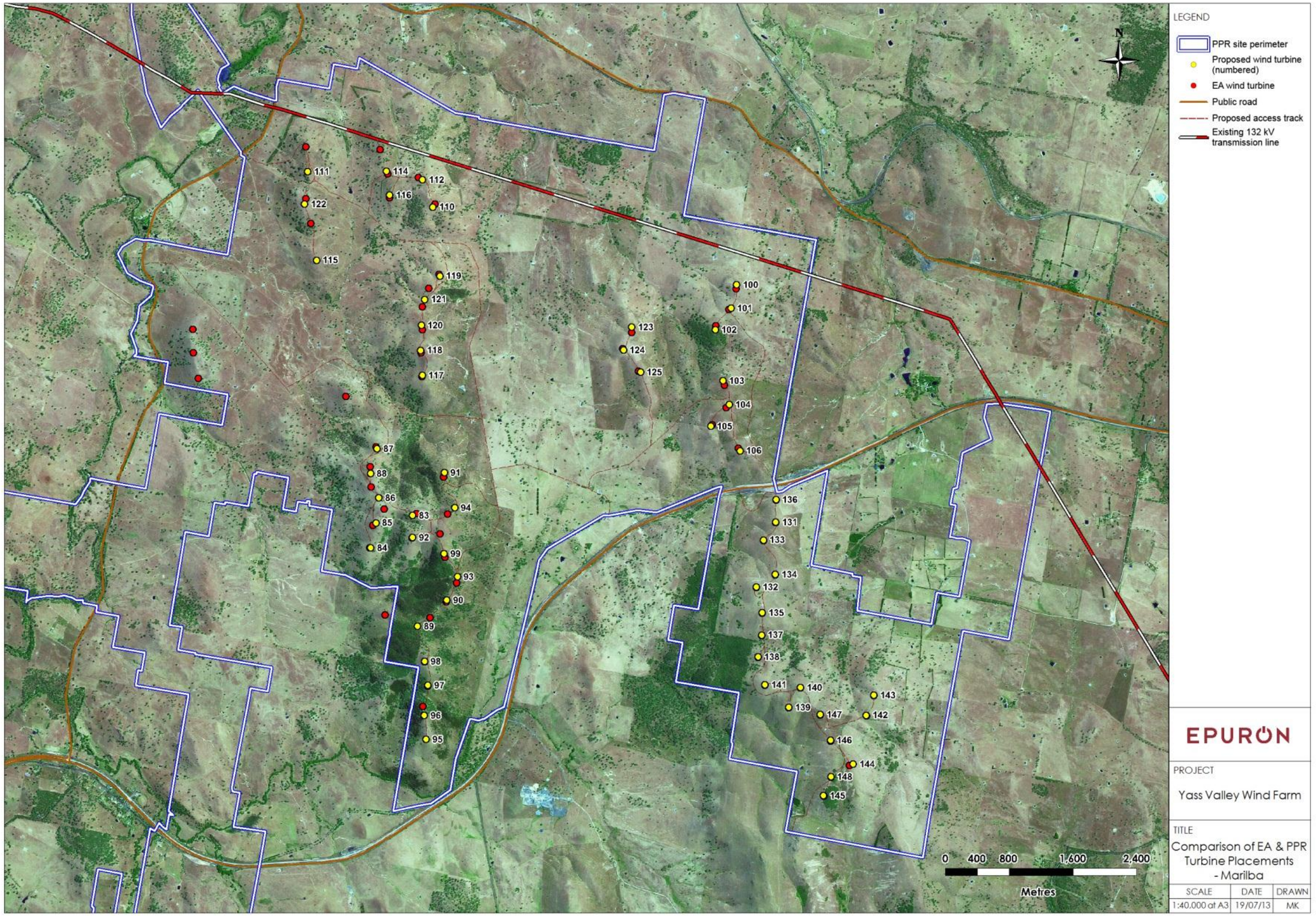

Figure 4-4 Wind turbine location changes Marilba precinct

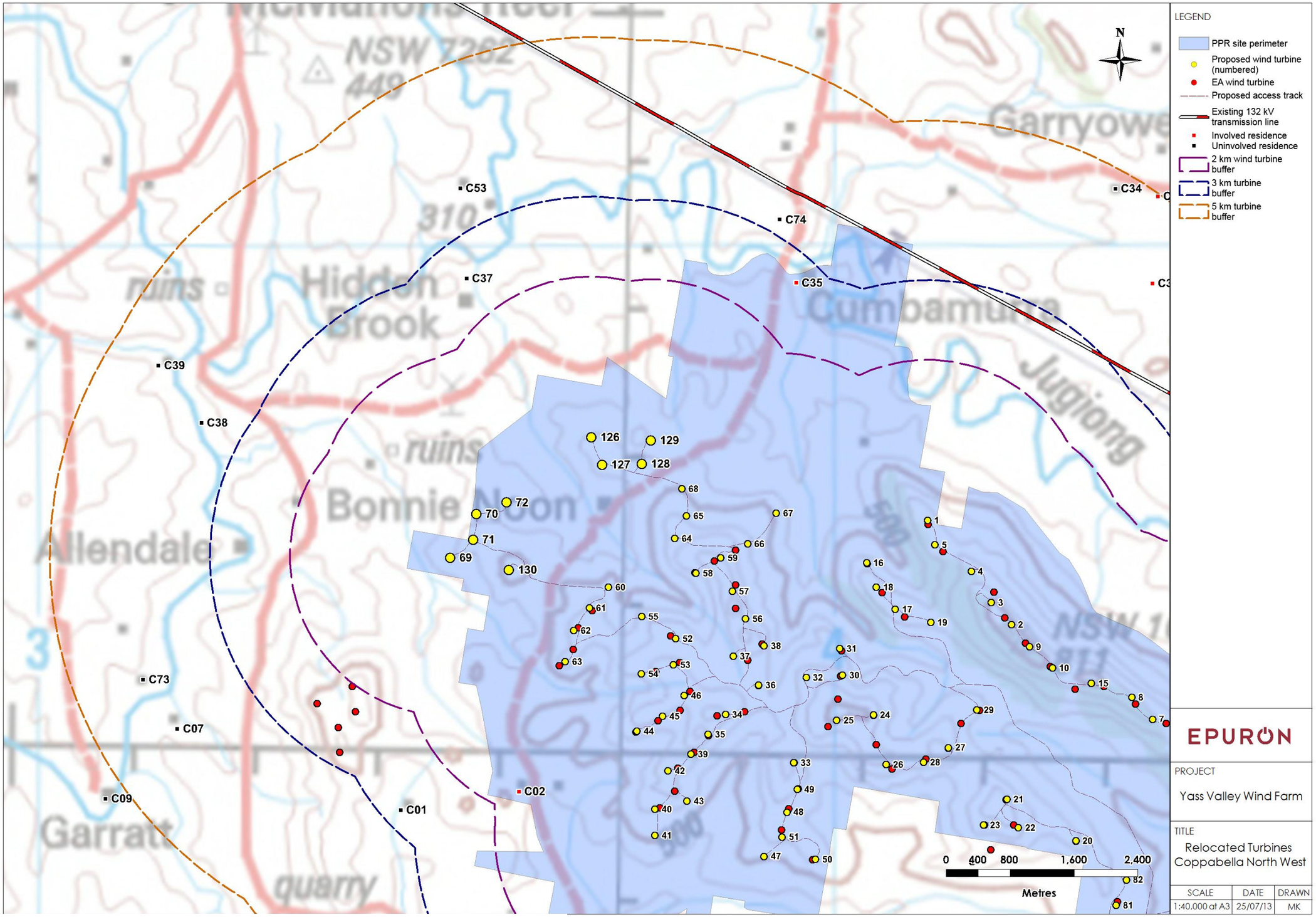

Figure 4-5 Relocated wind turbines in the northwest Coppabella region

4.3 Project Justification

4.3.1 Project 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 reduce greenhouse gas emissions by approximately 1,098,000 tonnes of carbon dioxide equivalent (CO_{2e}) per annum.
- With an offered community contribution up to $360,000 per annum 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 recieve approximately $1.4 million in payments, much of which would 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[1]. This would result in increased services locally.

4.3.2 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 4-3 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. 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

[1] Based on Sinclair Knight Mertz report *Wind farm investment, employment and carbon abatement in Australia Report* June 2012

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 *Draft 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 assist in driving down electricity prices in NSW, as has occurred in South Australia which now has over 20% renewables powering that State.

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 it 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.

To date the greater part of the investment and jobs have been in South Australia and Victoria. With its excellent wind resource and grid connection options NSW now has the opportunity to be a key beneficiary of the regional investment which accompanies the construction of 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.

4.3.3 Ecological benefits

The Preferred Project & Submissions Report documents how the environmental impacts of the Yass Valley Wind Farm have been minimised or mitigated from the project documented in the Environmental Assessment exhibited. In brief the benefits are:

- the length of the preferred overhead transmission line has been reduced from 75 km to 25km
- The number of substations preferred has been reduced from the original 6 to 2
- the number of wind turbines has been reduced from 152 to 144
- the overall permanent habitat loss has been reduced from 131 ha to 112 ha – a reduction of 15% (see details in Table 2-11 in Attachment 1)

4.3.4 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.

4.4 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.

The overall permanent habitat loss has been reduced from 131 ha to 112 ha, a reduction of 15% in habitat loss between the original EA and the current preferred infrastructure layout. This is in line with a key purpose of the Preferred Project Report of minimising the project's environmental impacts.

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

4.5 Archaeology and Heritage Assessment

An additional archaeological field survey and assessment (Refer Attachment 2) 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. It is recommended that the tree 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.

4.6 Visual Impact Assessment

A supplementary Landscape and Visual Impact Assessment has been completed by Environmental Resources Management (ERM) and included as Attachment 3 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.

4.6.1 Residential viewpoints

In total there are 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. Revised photomontages have been prepared for each of these locations. The visual impact from residential viewpoints is summarised in Table 4-4 below.

Table 4-4 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 screening	9.9 km - SW (129)	Negligible – without landscape mitigation Extensive existing 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	2.3 km – SW (136)	Negligible – Existing vegetation around gallery

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
		gallery Medium – Bamboo garden without mitigation Low – Proposed eco village site		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
G11	NA	Not assessed in EA	1.7 km-W (143)	Low – Existing vegetation and orientation of residence
G16	NA	Not assessed in EA	1.1 km-W (96)	Nil - from living areas Medium to Low - from driveway with landscape mitigation
M20	NA	Not assessed in EA	1.8 km-SW (100)	High - from living areas Medium to Low - with landscape mitigation
M24	NA	Not assessed in EA	1.9 km-SW (100)	Low - from living areas Low - with landscape mitigation
M42	NA	Not assessed in EA	1.1 km-S (114)	Nil - from living areas Low - from driveway with landscape mitigation
C01	NA	Not assessed in EA	2.7 km-NE (63)	Nil - from living areas Low - from driveway
C37	NA	Not assessed in EA	2.5 km-SE (126)	Nil
C67	NA	Not assessed in EA	3.3 km-NW (74)	Medium - from living areas High - from garden without landscape mitigation
G29	NA	Not assessed in EA	2.5 km-N (95)	Medium - from living areas Medium to Low - with landscape mitigation
Goondah	NA	Not assessed in EA	2.3 km-S (100)	Low to Negligible
Bookham	NA	Not assessed in EA	3.8 km-NE (95)	Low to Negligible

4.6.2 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.

Figure 4-6 Typical overhead transmission line configurations: 330kV double circuit steel poles (left) 132kV single circuit concrete (right)

4.6.3 Cumulative visual impact

The presence of multiple wind farms in an area can create a cumulative visual impact. Since the EA for the Yass Valley Wind Farm was lodged in 2009, several other wind farms have been proposed in the region. Operating wind farms including the Gunning, Cullerin Range and Capital Wind Farms lie between 50 km and 60 km to the east of the Yass Valley Wind Farm site.

The approved Conroy's Gap wind farm which is located immediately adjacent to the Yass Valley Wind Farm is the only other wind farm that will provide a cumulative visual impact with the Yass Valley Wind Farm. Cumulative visual impact can occur either by sequential and simultaneous views to wind turbines from publically accessible viewpoints or from private viewing locations, or from changes to communities or visitor's perceptions of a region due to the presence of multiple wind farms in an area.

The two wind farms will be visible simultaneously from a number of viewpoints, particularly along the Hume Highway. Additional photomontages have been prepared from these viewpoints to demonstrate the cumulative visual impact which has been assessed as low. The two wind farms will remain indistinct from each other and therefore will not cumulatively change the wind farm landscape character.

4.7 Noise Impact Assessment

An updated noise impact assessment (Attachment 4) has been completed by Marshall Day Acoustics. 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.

4.7.1 Predicted operational noise

The worst case noise level predictions for the relevant receivers are summarised in Table 4-5. The results show compliance for all relevant receivers with the MM92 turbine (typical proposed turbine model). For the V90 turbine (worst case turbine model) the predicted noise exceeds the criteria by 0.2 dB(A) at only one receiver location, C74. The only wind speed at which exceedence occurs is 15 metres per second (m/s). Location C74 where there is a predicted marginal exceedence is a new residence and the background noise data used for the prediction at this location is taken from the most conservative background noise data gathered around the site.

Table 4-5 Worst case operational noise level predictions

	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?*
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	✓
C55*	35.8	45	✓	38.1	45	✓
C56*	37.8	45	✓	40.1	45	✓
C68*	36.5	45	✓	39.1	45	✓
C74	<35	35	✓	35.2	**35**	×
G11	<35	44	✓	37.2	47	✓
G12*	37.0	45	✓	38.9	45	✓
G13*	35.1	45	✓	37.4	45	✓
G14	37.3	44	✓	39.3	47	✓
G15*	40.2	45	✓	42.3	45	✓
G16	39.5	44	✓	41.7	47	✓
G31*	37.4	45	✓	39.6	45	✓
G38*	35.8	45	✓	38.1	45	✓
M08	<35	44	✓	36.2	47	✓
M18*	41.0	45	✓	43.1	45	✓
M20	<35	43.8	✓	35.2	50.8	✓
M21*	35.2	45	✓	37.1	45	✓
M32*	<35	45	✓	36.0	45	✓
M41*	<35	45	✓	37.5	45	✓
M42	35.1	39.4	✓	36.3	43.8	✓
M48*	39.5	45	✓	41.3	45	✓

* Involved receiver

wind speed at which MM92 turbine is at maximum sound power level (104.2dB)

~ wind speed at which V90 turbine is at maximum sound power level (107.1dB)

4.7.2 Substation and transformer noise

Noise levels have been predicted for the dwellings closest to the revised substation locations and were found to comply with the NSW Industrial Noise Policy criteria as shown in Table 4-6.

Table 4-6 Noise level compliance at substations and transformers

Dwelling	Distance to closest substation (km)	Predicted noise level (dB L_{Aeq})	Night-time RBL	INP intrusiveness criteria (L_{A90} +5dB)	Comply?
C04	3.6	<10	36	41	✓
C25	1.4	16	30	35	✓
C67	0.8	29	30	35	✓

4.7.3 Construction noise

Site construction noise has been re-assessed including for the revised transmission line route and associated substations. As in the earlier assessment in the EA, a number of receivers are deemed to be 'noise affected' as defined by the NSW Construction Noise Guidelines for some stages of the project. No receivers would be considered as being 'highly noise affected' as defined by the guidelines. The predictions indicate that noise levels will require the proponent to apply all feasible and reasonable work practices to mitigate the impacts of the construction noise. For example by providing notification of working times and durations to four involved and two non-involved receiver locations deemed to be 'noise affected'. All construction activity is expected to occur in standard working hours. Further details of construction noise mitigation measures will be included in the noise section of the Construction Environment Management Plan (CEMP).

4.7.4 Consideration of Draft NSW Planning Guidelines

4.7.4.1 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.

4.7.4.2 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 to produce low frequency noise level predictions at non-involved receivers within 2km of a proposed turbine location. 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 V90 turbine, the predicted C-weighted noise levels are below the daytime criteria of 65dBC but exceed the night-time criteria 60dBC for all non-involved receiver locations within 2km of a turbine. Prior to final turbine selection there will be an updated C-weighted noise level prediction to ensure compliance.

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 exceedence is anticipated.

4.8 Community Consultation

4.8.1 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 sheep grazing.

4.8.2 Consultation

There are 25 neighbouring residences within 2 km of a proposed wind turbine, 19 of which belong to involved landholders and 6 of which are not involved in the wind farm. Within 3 kms of a proposed wind turbine there are 25 involved landowners and 29 not-involved landowners. Widening out that distance to 5 km includes 126 residences. Of these 126 residences, 93 are not-involved and 33 are involved. See Table 4-7 below.

Table 4-7 Residences within 5km of the proposal

Landowners	Involved	Not Involved
Within 2 km	19	6
Within 3 km (includes 2km)	25	29
3-5km	8	64
Total within 5 km	**33**	**93**
% ownership of residences within 5 km	26%	74%

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 (Attachment 7) which has properties identified but not names. This spreadsheet should be read in conjunction with the A1 map in Attachment 13.

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.

4.8.3 Details of consultation

4.8.3.1 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 a landowner with an address in Cowra. Yass Valley Council assisted by providing the Cowra address for this landowner. Correspondence has been sent to the address provided along with a newsletter in an attempt to make contact. There is no phone number publicly listed for this name or address. Epuron staff have knocked on the door of the residence on a few occasions. The tenant has not been in and a newsletter and contact details have been left at the property.

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. G14 has stated an interested in screen planting and a large shed which will assist in focussing views towards more distant turbines.

4.8.3.2 Residences between 2-3 km

There are 23 residences between two and three kilometres of a wind turbine. All of the 23 residences have been sent newsletters. Origin Energy visited 6, Epuron has visited a further six, and beyond these 12 residents Epuron has made phone contact with a further five and sent letters to seven residents.

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.

4.8.3.3 Residences between 3-5 km

There are 34 residences between 3 and 4 km from a turbine location. All have been sent newsletters. Epuron has met with 13 residents, had phone contact with sixteen, and written separately to eight residents.

There are 30 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 five of the residents 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 prepared photomontages upon request for four residents between 3 and 5 km and one resident between 5 and 6 km.

4.8.3.4 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.

4.8.3.5 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

4.8.4 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 4 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 as they did not receive the August newsletter 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 5kms 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 2kms 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.

4.8.5 Issues raised through consultation

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

Table 4-8 Summary of issues raised through consultation

Issue	*Detail*	*Response*
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.
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

* 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 sub-committee of the CCC which is elected when the project moves to construction.

4.9 Updated Traffic Impact Assessment

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.

4.9.1 Predicted traffic and transport impacts

Although there has been a slight reduction in the proposed size of the wind farm project, the predicted traffic generation and associated impacts identified in the Traffic Impact Study are expected to be very similar. The area where the wind turbines and associated infrastructure is located on the wind farm site remains unchanged. The new wind turbine locations in the north western section of the Coppabella precinct will be accessed via internal access tracks from adjacent turbine locations, rather than additional access points from the road network.

4.9.2 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 generally make use of existing farm tracks.

A 330kVswitchyard 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.

4.9.3 Access routes and site access points

The possible access routes identified in the Traffic Impact Study have been reviewed and two primary site access points have been identified, one for the Coppabella precinct and one for the Marilba precinct. Please refer to Figure 4-7 on the following page for further details.

4.9.4 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.

4.9.5 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.

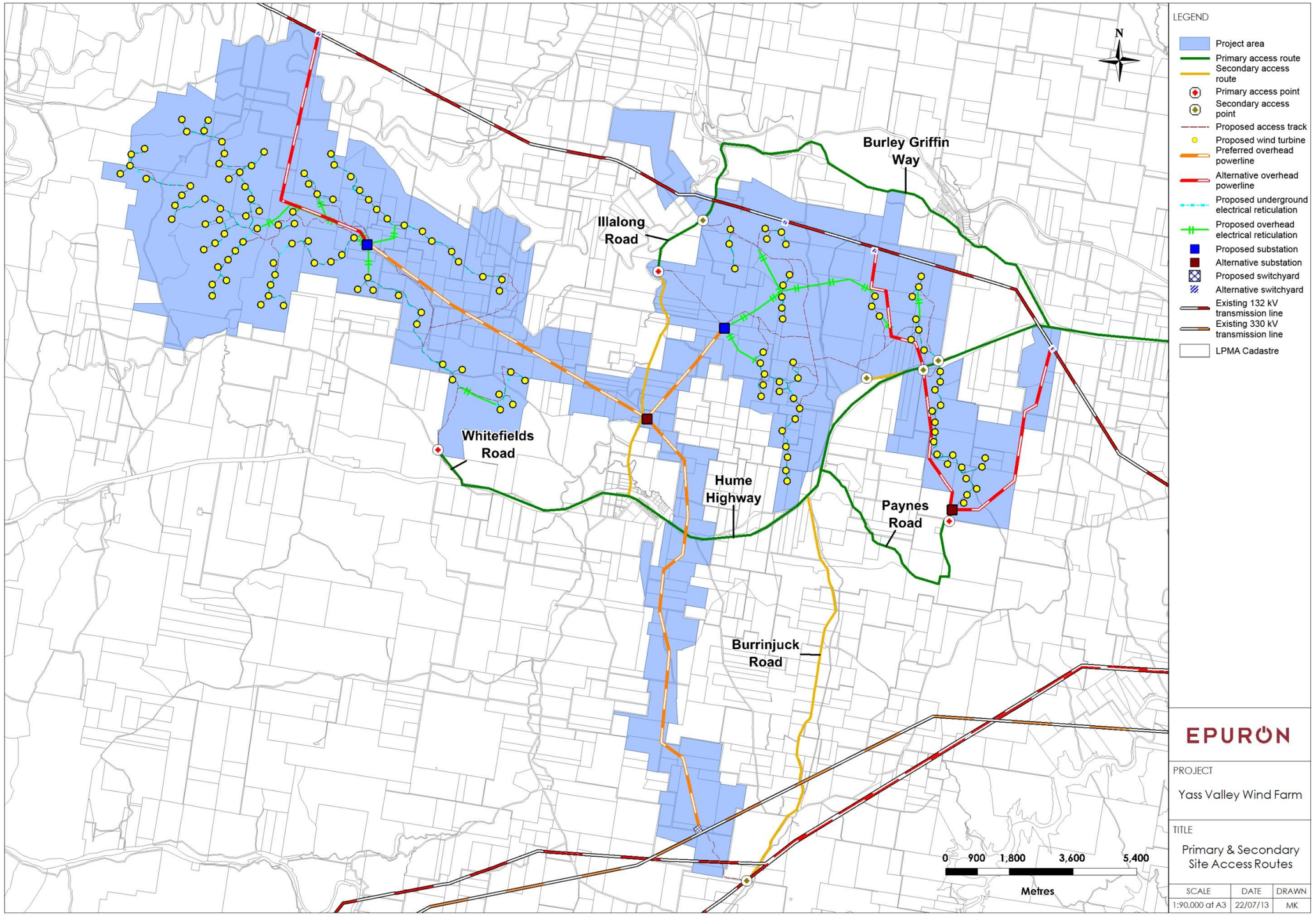

Figure 4-7 Wind farm access routes and site access points

5 Revised Statement of Commitments

Note changes are highlighted in bold

5.1.1 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. 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 were visible from neighbouring residences.	Planning	DoP

5.1.2 Noise

5.1.2.1 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 only undertake construction activities associated with the project that would generate audible noise at any residence during the hours: ▸ 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

5.1.2.2 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. (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.	Detailed design	OEMP
10	Operational noise	compliance	Develop and implement an operational noise compliance testing program.	Detailed design	OEMP

5.1.3 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]
			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 (*Microlaena stipoides* and/or *Themeda triandra*). **If works are proposed outside of the targeted survey area within the area of occupancy for the Yass Daisy mapped in nghenvironmental (2009c), further survey or micrositing by an ecologist would be undertaken to ensure that the works avoid Yass Daisy plants and colonies.**		
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	Additional targeted surveys would be undertaken, if the identified areas would be impacted by the proposal. These areas include: **Coppabella Hills** - Hollow-bearing trees targeted for removal. **Marilba Hills** - 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.~~ **Refer Appendix G of the SER for details of these surveys that have been completed**	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:** • **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 *Environment Protection and Biodiversity Conservation Act 1999*.~~	~~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

5.1.4 Aboriginal Archaeology

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
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

5.1.5 Aircraft Hazards

SoC	Impact	Objective	Mitigation Tasks	Project Phase	Auditing
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

SoC	Impact	Objective	Mitigation Tasks	Project Phase	Auditing
			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 Bobarra SSR and Mt Majura PSR/SSR air traffic control radars in conjunction with Airservices Australia and identify and implement mitigation measures to avoid .**	**Pre-construction**	**DoP**

5.1.6 Communication

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
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	Ensure adequate television reception is maintained for neighbouring residences as follows: ▸ 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. Specific mitigation measures may include: ▸ 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	Operation	

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
			▸ 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		

5.1.7 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

5.1.8 Traffic and Transport

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
37	Safety and asset protection	Minimise Risk	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: ▸ 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	Construction	CEMP

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
			conditions ▸ 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. **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.**		
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	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. 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.	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

5.1.9 Fire and Bushfire

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
41	Bushfire risk	Minimise risks	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: ▸ 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
			alarming and maintenance procedures would also be used to minimise risks ▸ Overhead transmission easements would be periodically inspected to monitor regrowth of encroaching vegetation		

5.1.10 Hydrology

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
42	Deterioration of water quality (Surface Water)	Minimise risk	Infrastructure placement, including turbines, tracks, 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	Detailed design	CEMP
43	Deterioration of water quality (Surface Water)	Achieve neutral or beneficial water quality impact	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: ▸ 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
45	Water supply	Minimise risk	Undertake liaison with representatives of Golden Fields County Council regarding the potential supply of construction water	Construction	CEMP

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
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: ▸ Site preparation ▸ Stabilisation ▸ Revegetation ▸ Monitoring	Construction Decommissioning	CEMP
52	Deterioration of water quality (Surface and Ground Water)	Minimise risk	A Spill Response Plan would be prepared as part of the CEMP and OEMP including: ▸ Identify persons responsible for implementing the plan if a spill of a dangerous or hazardous chemical/waste would occur ▸ Identify all chemicals required for the Proposal, including physio-chemical	Construction Operation Decommissioning	CEMP OEMP

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
			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		
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

5.1.11 Soils and Landforms

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
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	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 vehicle access and laying of materials particularly during saturated soil conditions, and remediate as necessary	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. All contractors would be advised to keep to established tracks.	Construction	CEMP

5.1.12 Mineral Exploration

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
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
66	Conflict with mineral exploration	Minimise conflict	The Proponent would provide a point of contact to the current mineral licence holder	Pre-construction	CEMP

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
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

5.1.13 Economic

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
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

5.1.14 Community Wellbeing

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
72	Community wellbeing	Provide accurate information	Dissemination of accessible and independent information on wind farm impacts	Pre-construction	CEMP
73	Community wellbeing	Provide accurate information	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
73B	**Community wellbeing**	**To provide a benefit to those residents that are most affected**	**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.** **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.** **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.** **The CCC is to be constituted in line with Appendix C of t*he Draft NSW Planning Guidelines: Wind Farms* 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.**	**Construction & Operation**	**OEMP**

5.1.15 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

5.1.16 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. The Plan would consider:	Construction and Decommissioning	CEMP

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
			▸ 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

5.1.17 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: ▸ 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 remedial measures to address concerns would be developed in consultation with the RTA and	Operation	OEMP

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
	or stock	risks	the Department of Planning		
85	Safety of persons	Minimise risk	Establish a turbine maintenance program in accordance with industry standards.	Operation	OEMP

5.1.18 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.	Construction and decommissioning	CEMP

5.1.19 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 for dust suppression, for inclusion in the CEMP.	Construction	CEMP
88	Air quality	Minimise risks	Dust levels at stockpile sites would be visually monitored. 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

5.1.20 Resource impacts

SoC	Impact	Objective	Mitigation tasks	Project phase	Auditing
93	Waste generation	Minimise waste and maximise recycling of materials	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: ▸ 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

6 Conclusion

Epuron believes that this Preferred Project and Submissions Report has adequately addressed all of the issues raised in the twenty two submissions to the exhibition of the Environmental Assessment and the fifteen submissions received in response to the exhibition of the Preferred Project Report to enable the Department of Planning & Infrastructure to complete its assessment and determination of the Proposal.

The net changes to the wind turbine and associated infrastructure layout as a result of the issues raised in the submissions have resulted in a reduced environmental impact for the project. The preferred project defined in section 4 of this report is the infrastructure layout that Epuron is seeking approval for.

The revised Statement of Commitments listed in section 5 of this report will ensure that the proposed Yass Valley Wind Farm can be constructed while minimising any residual impacts to the existing environment.

7 References

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8 Glossary and acronyms

Abbreviation	*Description*
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_2e	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)
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	This Environmental Assessment report
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
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
LVIA	Landscape and Visual Impact Assessment
m	metre

Abbreviation	*Description*
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
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 – Supplementary Archaeological & Heritage Assessment

Attachment 3 – Supplementary Landscape and Visual Impact Assessment

Attachment 4 – Noise Assessment Addendum

Attachment 5 – Shadow Flicker Addendum Report

Yass Valley Wind Farm – Shadow Flicker Addendum Report

Introduction

The original shadow flicker assessment was undertaken by Epuron for the Yass Valley Wind Farm (YVWF) Coppabella Hills and Marilba Hills Precincts in May 2009 as part of the Environmental Assessment. Since the completion of the original assessment, YVWF has revised the location of the wind turbine layout. This addendum report updates the results of the original assessment based on the current turbine layout of 144 turbines.

Guidelines

In NSW there are no guidelines on which to assess shadow flicker generated by wind turbines. To carry out the shadow flicker assessment we have drawn on the Victorian Planning Guidelines that limit the duration of shadow flicker to 30 hours a year (DCPD, 2012).

Consideration has also been made in this assessment to the Draft NSW Planning guidelines, which require that:

> *"The impact of 'shadow flicker' from wind turbines on neighbour's houses within 2km of a proposed wind turbine should be assessed. The shadow flicker experienced at any dwelling should not exceed 30 hours per year as a result of the operation of the wind farm. Specialist modelling software should be used to model shadow flicker impacts prior to finalisation of the turbine layout"*

Methodology

The methodology carried out is consistent with the original assessment. GL-GH Windfarmer software is used to conduct the modelling based on a wind turbine with a maximum tip height of 150m. This consists of a 100m diameter blade on a 100m tower.

The shadow flicker assessment for YVWF considers dwellings within 2km (as per consideration of Draft NSW Planning guidelines (DP&I, 2011)). The following dwellings are within 2km of a turbine: G11, G12, G13, G14, M20, M24, M32, M48, G15, G31, G16, M18, C27, C03, C02, C05, M21, C68, C56, C55, M41, G38 and M42. Table 1lists all dwellings and the distance to the nearest turbine.

Due to a revision in the turbine layout dwelling C25 which was assessed in the original assessment is no longer located within 2km from a turbine and thus has not been assessed in this report.

Table 1 Dwelling location and distance to nearest turbine

Dwelling ID	Easting	Northing	Distance to nearest turbine (km)	Nearest turbine
G11	661209	6147630	1.71	143
G12	660201	6149381	1.76	143
G13	660057	6151077	1.98	136
G14	659607	6150702	1.42	136
M20	658743	6154508	1.88	100
M24	658623	6154599	1.90	100
M32	652110	6146643	1.86	95
M48	655766	6149602	1.53	93
G15	655374	6149637	1.16	93
G31	651691	6149344	1.52	84
G16	655016	6147518	1.15	96
M18	652314	6149832	0.91	84
C27	651322	6154526	1.10	111
C03	637337	6151337	1.40	41

Dwelling ID	Easting	Northing	Distance to nearest turbine (km)	Nearest turbine
C02	636019	6153226	1.66	44
C05	644196	6148247	1.95	77
M21	651854	6155574	1.37	111
C68	651108	6154402	1.30	111
C56	637828	6151304	1.38	41
C55	636410	6151623	1.68	41
M41	651736	6155517	1.37	111
G38	659982	6150849	1.82	136
M42	653648	6155444	1.15	114

The South Australian Planning Bulletin suggests that shadow flicker is insignificant once a separation of 500m between the turbine and house is exceeded (Planning SA, 2002). The UK wind industry and UK government recommends 10 rotor diameters as the maximum shadow length from a wind turbine that will cause annoyance due to shadow flicker, this equates to 1000m for the proposed 100m blade diameter (ODPMUK, 2004). The EPHC Draft National Wind Farm Development Guidelines suggest a distance equivalent to 265 maximum blade chords as an appropriate limit which corresponds to 1060m for a 4m maximum blade chord (modern turbines typically have lengths of 3 to 4m) (EPHC, 2010). This issue is discussed in the EPHC Draft National Wind Farm Guidelines which states:

> *Shadow flicker can theoretically extend many kilometres from a wind turbine. However the intensity of the shadows decreases with distance. While acknowledging that different individuals have different levels of sensitivity and may be annoyed by different levels of shadow intensity, these guidelines limit assessment to moderate levels of intensity (i.e., well above the minimum theoretically detectable threshold) commensurate with the nature of the impact and the environment in which it is experienced.*

As a conservative measure a maximum shadow distance of 1060m is used as an input to the model.

Theoretical shadow flicker and actual shadow flicker has been calculated for the site. The actual shadow flicker at site is further considered by accounting for cloud cover as per the original assessment, using Bureau of Meteorology cloud cover data at Yass. The shadow flicker calculated overestimates the annual number of hours of shadow flicker experienced at a specific location as detailed in the original assessment. Additional features of actual site conditions will prevail that are not considered here such as: turbine orientation, screening and low wind speed which will further reduce shadow flicker. As such the predicted actual shadow flicker calculated in this assessment is thus considered conservative.

Results

The results of the shadow flicker assessment are shown in Figure 1 & Figure 2. The theoretical maximum and actual shadow flicker for each dwelling is shown in Table 2, only one dwelling M18 will receive theoretical shadow flicker greater than 30 hours per year and no receivers will have a predicted actual shadow flicker of greater than 30 hours per year.

The original assessment assessed compliance against the Victorian guidelines at the time which had additional compliance criteria of a maximum shadow flicker of 30 minutes per day. The current 2012 Victorian Planning Guidelines do not stipulate this criterion. For comparison this information has been included. All dwellings receive less than 30 minutes per day of shadow flicker.

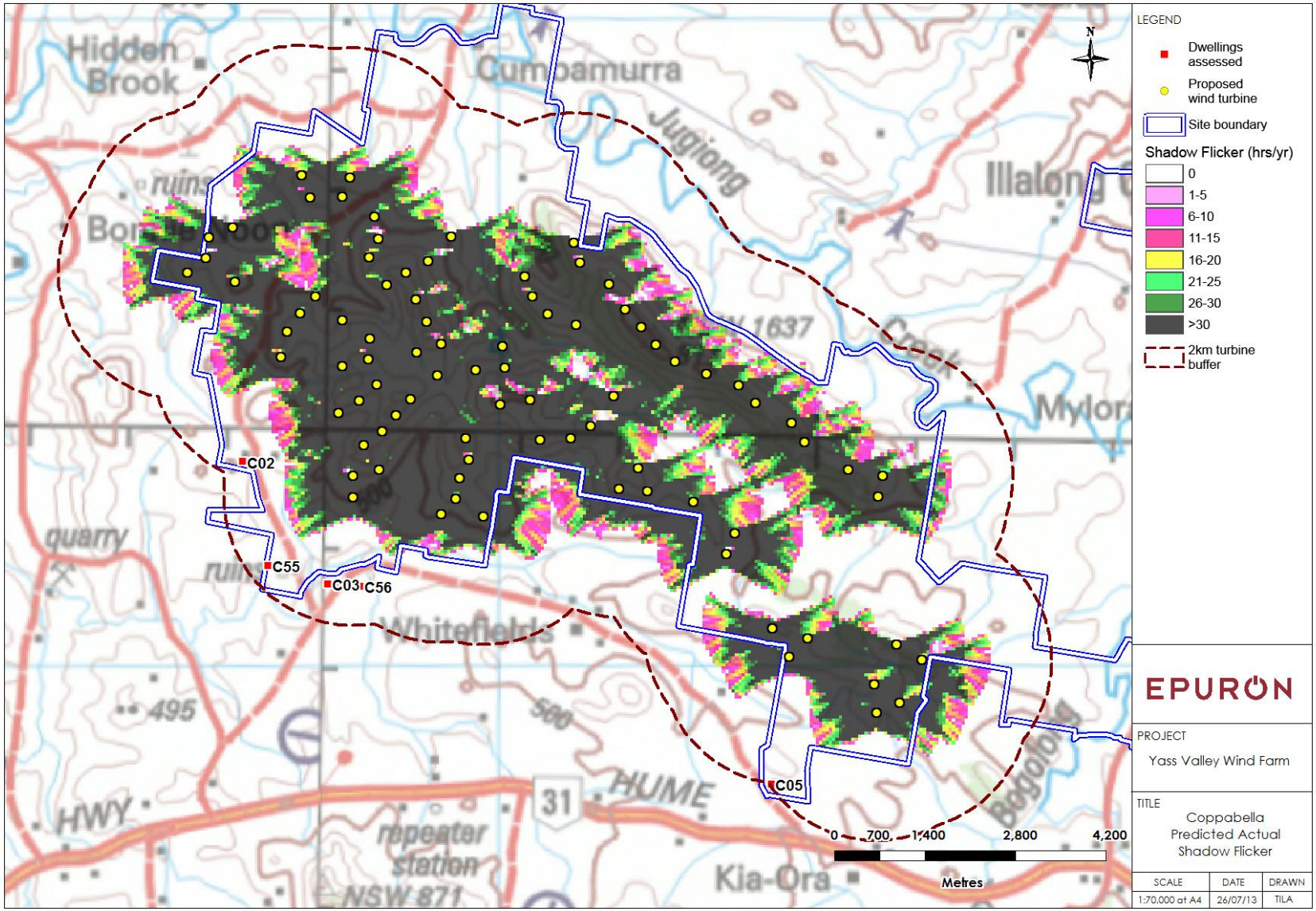

Figure 1 Results of shadow flicker assessment - Coppabella

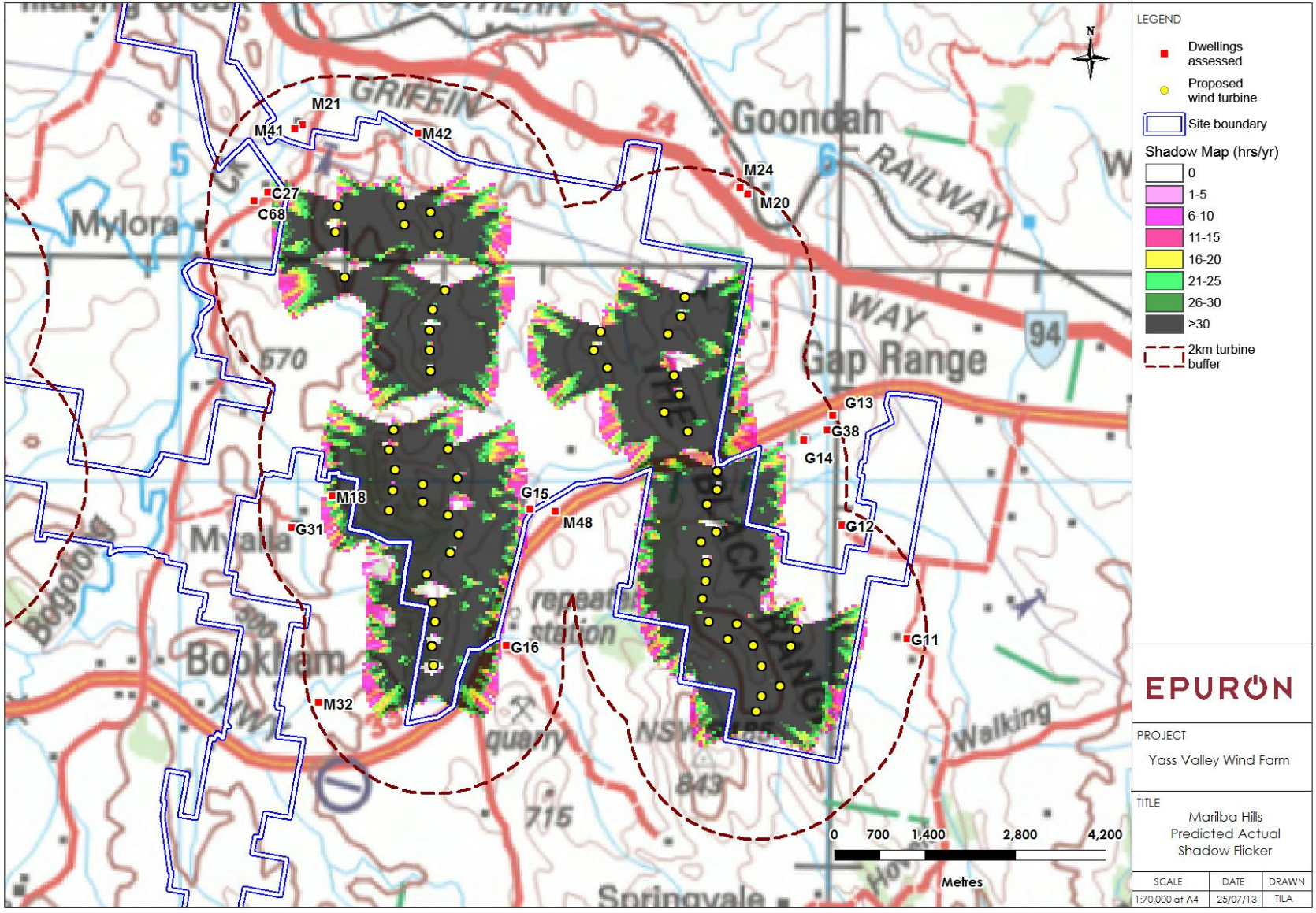

Figure 2 Results of shadow flicker assessment - Marilba

Table 2 Shadow flicker results

Dwelling ID	Theoretical maximum shadow flicker (hrs/yr)	Actual (reduced) shadow flicker (hrs/yr)	Maximum shadow flicker (mins/day)
G11	0	0	0
G12	0	0	0
G13	0	0	0
G14	0	0	0
M20	0	0	0
M24	0	0	0
M32	0	0	0
M48	0	0	0
G15	0	0	0
G31	0	0	0
G16	0	0	0
M18	32	23	29
C27	0	0	0
C03	0	0	0
C02	0	0	0
C05	0	0	0
M21	0	0	0
C68	0	0	0
C56	0	0	0
C55	0	0	0
M41	0	0	0
G38	0	0	0
M42	0	0	0

Conclusion

A detailed analysis of the potential for shadow flicker has been updated for Yass Valley Wind Farm. All residences receive less than 30 hours per annum of predicted actual shadow flicker. As such the project is compliant against the Victorian Planning Guidelines and the NSW Draft Planning Guidelines.

Attachment 6 – Aviation Impact Assessment

Attachment 7 – Community Consultation Information

Consultation Spreadsheet

Record of contact with non-involved landowners

ID Code	Distance to Turbine	Nearest Turbine	Pre 2012 contact	Newsletter Dec 12	Phoned 2013	Visited 2013	Letter 2013	Newsletter May 2013
G16	1,149	96				Y	Y	Y
M42	1,152	114			Y	Y		Y
G14	1,417	136	Y		Y	Y	Y	Y
G11	1,711	143	Y		Y	Y	Y	Y
M20	1,876	100			Y	Y		Y
M24	1,899	100		Y	Y	Y		Y
C06	2,011	77	Y	Y	Y			Y
M1	2,051	100			Y	Y		Y
M3	2,140	100					Y	Y
M4	2,176	100					Y	Y
C08	2,291	77	Y	Y	Y			Y
M2	2,313	100					Y	Y
M8	2,397	136		Y	Y	Y		Y
M35	2,422	100			Y		Y	Y
M34	2,494	100					Y	Y
G29	2,500	95		Y	Y			Y
C37	2,529	126		Y	Y	Y		Y
C60	2,570	77	Y	Y	Y			Y
M22	2,572	114			Y	Y		Y
M37	2,574	100		Y	Y	Y		Y
G20	2,681	144						Y
G24	2,694	145	Y	Y	Y		Y	Y
C41	2,724	77	Y	Y	Y			Y
C01	2,771	63		Y	Y	Y		Y
M36	2,833	100					Y	Y
C75	2,836	79	Y	Y	Y			Y
G40	2,843	143		Y	Y		Y	Y
M38	2,962	100						Y
M40	2,972	112		Y				Y
C69	3,020	111	Y	Y	Y	Y		Y
M39	3,086	100			Y	Y		Y
G23	3,121	145		Y	Y			Y
G7	3,137	145	Y	Y	Y		Y	Y
M46	3,198	100					Y	Y
C74	3,200	129		Y	Y	Y		Y

ID Code	Distance to Turbine	Nearest Turbine	Pre 2012 contact	Newsletter Dec 12	Phoned 2013	Visited 2013	Letter 2013	Newsletter May 2013
C67	3,268	74	Y		Y	Y	Y	Y
C58	3,328	79	Y		Y			Y
G59	3,432	145			Y			Y
G44	3,479	144		Y				Y
C53	3,527	126			Y			Y
C42	3,537	76			Y	Y		Y
C38	3,538	69			Y			Y
M6	3,575	100						Y
G41	3,583	143			Y		Y	Y
G58	3,613	144					Y	Y
C46a	3,625	76						Y
C13	3,680	41		Y	Y	2012		Y
M9	3,691	95						Y
G18	3,692	143		Y				Y
C22	3,711	79		Y				Y
G57	3,748	144			Y	Y	Y	Y
M31	3,822	95						Y
G19	3,832	143		Y				Y
M30	3,871	95	Y	Y			Y	Y
C76	3,873	47	Y		Y	Y		Y
M29	3,875	95						Y
C49	3,875	76			Y			church
M28	3,903	95						Y
M25	3,919	95	Y					Y
C79	3,968	95						Y
C62	3,985	76	Y		Y			Y
M26	3,990	95		Y			Y	Y
C78	3,999	95						Y
C07	4,030	69	Y	Y	Y			Y
C59	4,060	77	Y					Y
C61	4,077	76	Y	Y				Y
C77	4,107	76						Y
C80	4,121	95						Y
C66	4,125	95						Y
C73	4,131	69			Y		Y	Y
G36	4,138	136		Y				Y
C47	4,164	95		Y			Y	Y
C76a	4,172	47	Y		Y	Y		Y

ID Code	Distance to Turbine	Nearest Turbine	Pre 2012 contact	Newsletter Dec 12	Phoned 2013	Visited 2013	Letter 2013	Newsletter May 2013
G55	4,205	144						Y
M5	4,207	100						Y
C48	4,260	76		Y			Y	Y
C65	4,262	95						Y
C64	4,295	95		Y				Y
G39	4,300	143		Y				Y
C63	4,343	95						Y
C39	4,371	69	Y	Y	Y	Y		Y
M7	4,543	100						Y
G30	4,543	47	Y		Y	Y		Y
M33	4,641	100						Y
C28a	4,651	13						Y
G5	4,663	145		Y				Y
G32	4,665	47	Y		Y	Y		Y
C28	4,730	111						Y
C34	4,777	1		Y				Y
G3	4,781	95		Y	Y			Y
G26	4,840	95	Y	Y	Y	Y		Y
G46	4,968	95	Y		Y			Y
C12	4,977	41	Y	Y				Y
G54	5,038	95	Y		Y	Y		Y
G6	5,044	145						Y
E20	5,059	41						Y
G61	5,070	144			Y	Y		Y
G56	5,077	143		Y				Y
C09	5,261	69		Y				Y
M44b	5,284	111						Y
C72	5,424	76						Y
C10	5,458	41	Y	Y				Y
M44a	5,461	111						Y
M44	5,754	111						Y
H40	5,891	79			Y	Y		Y
K52	5,940	77						Y
G28	9,934	95		Y	Y			Y
M92	11,916	95		Y				Y

Media Articles

Yass Tribune

'Yass Turbines in Sight' – 31 July 2012, www.yasstribune.com.au/story/215926/yass-turbines-in-sight/

'Concerns of Wind Farms and Fires' – 13 March 2013, www.yasstribune.com.au/story/.../concern-over-wind-farms-and-fires/

'Hackers Target Trib Wind Poll' – 20 March 2013, www.yasstribune.com.au/story/1374196/hackers-target-trib-wind-poll/

'Reluctant Wind Protesters' – 10 April 2013, www.yasstribune.com.au/story/1419426/reluctant-wind-protestors/

'Fire in his Belly' – 29 March 2013, http://www.yasstribune.com.au/story/1396127/fire-in-his-belly/

'Wind: It's the Sound You Can Hear' – 10 May 2013, http://www.yasstribune.com.au/story/1490092/wind-its-the-sound-you-can-hear/?cs=1302

'Fire Fuels Wind Worries' – 10 May 2013, www.yasstribune.com.au/story/1490014/fire-fuels-wind-worries/?cs=1302

'Epuron Responds' – 10 May 2013, www.yasstribune.com.au/story/1490060/epuron-responds/?cs=12

'Wind Farms Risk Local Jobs' – 22 May 2013, http://www.yasstribune.com.au/story/1516721/wind-farms-risk-local-jobs/?cs=1050

Canberra Times

'Graziers Protest Yass Wind Farm' – 28 Feb 2013, http://www.canberratimes.com.au/act-news/graziers-protest-yass-wind-farm-20130228-2f7sa.html

'Protesters on the Outer at Wind Farm Meeting' – 1 March 2013, http://www.canberratimes.com.au/act-news/protesters-on-outer-at-wind-farm-meeting-20130228-2f9l1.html

'Fears for Property Values after Green Boom Busts' – 6 April 2013, http://www.canberratimes.com.au/environment/conservation/fears-for-property-prices-after-green-boom-busts-20130405-2hc4y.html

'Wind Farm Rally Blows into Town' – 18 June 2013, http://www.canberratimes.com.au/act-news/wind-farm-rallies-blow-into-town-20130617-2oeo5.html

Southern Weekly

'Jugiong Set for Wind Farm' – 21 June 2013, http://www.southernweekly.com.au/story/1588351/jugiong-set-for-wind-farm/

Cootamundra Herald

'Concerns over Wind Farm Plans' – 14 June 2013, http://www.cootamundraherald.com.au/story/1572698/concern-over-wind-farm-plans/

Attachment 8 – Turbine Coordinates

ID	Easting (m)	Northings (m)	Height of base (m)
1	641135	6156615	652
2	642183	6155309	790
3	641934	6155584	757
4	641683	6155973	670
5	641228	6156306	656
6	644704	6153528	701
7	643949	6154128	718
8	643690	6154400	695
9	642410	6155033	807
10	642697	6154767	761
11	644507	6153820	698
12	645386	6153102	620
13	645920	6153005	611
14	645844	6152689	613
15	643186	6154579	758
16	640374	6156085	590
17	640731	6155502	632
18	640494	6155780	632
19	641174	6155340	646
20	642992	6152607	630
21	642127	6153127	726
22	642273	6152772	722
23	641835	6152804	696
24	640458	6154180	770
25	639997	6154114	777
26	640620	6153560	725
27	641397	6153772	746
28	641085	6153590	681
29	641753	6154245	650
30	640070	6154676	669
31	640038	6155010	629
32	639618	6154648	664
33	639464	6153582	680
34	638607	6154188	708
35	638391	6153940	700
36	639022	6154556	659
37	638704	6154914	639
38	639088	6155044	696

ID	Easting (m)	Northings (m)	Height of base (m)
39	638176	6153691	657
40	637724	6153002	590
41	637724	6152676	549
42	637890	6153483	631
43	638123	6153103	598
44	637501	6153978	662
45	637821	6154164	690
46	638091	6154423	670
47	639088	6152412	539
48	639374	6152965	607
49	639508	6153251	650
50	639733	6152377	576
51	639315	6152655	577
52	637982	6155133	628
53	637955	6154807	680
54	637553	6154697	644
55	637558	6155411	577
56	638860	6155385	645
57	638692	6155728	692
58	638239	6155953	659
59	638546	6156147	661
60	637143	6155777	522
61	636904	6155521	586
62	636707	6155235	604
63	636604	6154848	579
64	637973	6156390	589
65	638118	6156671	549
66	638884	6156320	594
67	639241	6156706	500
68	638060	6157008	506
69	635163	6156152	460
70	635491	6156697	451
71	635449	6156374	470
72	635867	6156842	450
73	646131	6150401	642
74	646521	6150162	653
75	645789	6149787	580
76	646174	6149496	589

ID	Easting (m)	Northings (m)	Height of base (m)
77	645814	6149346	575
78	644751	6150491	588
79	644471	6150212	564
80	644204	6150650	585
81	643496	6151799	556
82	643622	6152119	550
83	653720	6150014	716
84	653194	6149608	643
85	653260	6149921	729
86	653296	6150233	701
87	653274	6150848	650
88	653192	6150541	696
89	653780	6148628	638
90	654147	6148953	634
91	654115	6150552	658
92	653718	6149738	709
93	654280	6149247	630
94	654247	6150108	680
95	653887	6147211	678
96	653864	6147510	671
97	653912	6147888	660
98	653867	6148186	710
99	654114	6149534	702
100	657779	6152902	650
101	657711	6152609	660
102	657513	6152339	660
103	657608	6151700	690
104	657688	6151403	697
105	657457	6151129	717
106	657822	6150824	710
110	653972	6153876	614
111	652405	6154318	578
112	653843	6154217	610
114	653391	6154324	570
115	652514	6153210	549
116	653431	6154025	589
117	653839	6151769	639
118	653821	6152082	647

ID	Easting (m)	Northings (m)	Height of base (m)
119	654059	6153012	610
120	653830	6152394	640
121	653872	6152719	610
122	652364	6153913	570
123	656466	6152373	649
124	656362	6152085	670
125	656577	6151809	670
126	636929	6157657	462
127	637065	6157311	480
128	637560	6157324	453
129	637674	6157619	465
130	635896	6156000	544
131	658270	6149928	739
132	658027	6149117	759
133	658117	6149707	720
134	658264	6149275	737
135	658102	6148798	757
136	658275	6150211	701
137	658094	6148517	730
138	658049	6148242	729
139	658435	6147613	777
140	658581	6147858	780
141	658136	6147895	777
142	659406	6147513	730
143	659500	6147766	717
144	659241	6146899	784
145	658870	6146506	777
146	658957	6147198	784
147	658828	6147521	799
148	658963	6146742	776

Attachment 9 – Involved Land Parcels with Turbines

Turbine ID	Lot/DP
1	260/753602
2	235/753602
3	235/753602
4	235/753602
5	260/753602
6	1/593527
7	1/593527
8	1/593527
9	234/753602
10	200/753602
11	201/753626
12	181/753626
13	180/753626
14	183/753626
15	212/753602
16	260/753602
17	260/753602
18	260/753602
19	260/753602
20	210/753602
21	291/753602
22	291/753602
23	291/753602
24	291/753602
25	285/753602
26	291/753602
27	291/753602
28	291/753602
29	86/753602
30	285/753602
31	285/753602
32	285/753602
33	285/753602
34	284/753602
35	284/753602
36	284/753602
37	2/717646
38	2/717646

Turbine ID	Lot/DP
39	284/753602
40	284/753602
41	284/753602
42	284/753602
43	284/753602
44	284/753602
45	284/753602
46	284/753602
47	285/753602
48	285/753602
49	285/753602
50	285/753602
51	285/753602
52	293/721898
53	293/721898
54	293/721898
55	293/721898
56	2/717646
57	2/717646
58	293/721898
59	2/717646
60	293/721898
61	293/721898
62	293/721898
63	293/721898
64	2/717646
65	2/717646
66	2/717646
67	2/717646
68	1/717646
69	293/721898
70	Y/382611
71	Y/382611
72	Y/382611
73	307/753595
74	314/753595
75	344/753595
76	344/753595

Turbine ID	Lot/DP
77	344/753595
78	344/753595
79	344/753595
80	344/753595
81	138/753602
82	138/753602
83	109/753595
84	325/753595
85	325/753595
86	203/753626
87	203/753626
88	203/753626
89	238/753595
90	111/753595
91	112/665719
92	109/753595
93	110/753595
94	136/753595
95	296/753595
96	296/753595
97	210/753595
98	238/753595
99	112/753595
100	2/849324
101	2/849324
102	165/753626
103	34/1048395
104	172/1133448
105	34/1048395
106	172/1133448
110	4/1108872
111	4/1108872
112	4/1108872
114	4/1108872
115	129/753626
116	4/1108872
117	193/753626
118	193/753626

Turbine ID	Lot/DP
119	4/1108872
120	193/753626
121	193/753626
122	4/457026
123	165/753626
124	165/753626
125	207/753626
126	101/881434
127	101/881434
128	101/881434

Turbine ID	Lot/DP
129	101/881434
130	293/721898
131	212/878465
132	210/878465
133	210/878465
134	210/878465
135	292/753596
136	212/878465
137	186/753596
138	186/753596

Turbine ID	Lot/DP
139	207/753596
140	186/753596
141	186/753596
142	206/753596
143	299/753596
144	201/753596
145	205/753596
146	205/753596
147	205/753596
148	205/753596

Attachment 10 – Involved Land Parcels

Lot/DP
1/1088583
1/116565
1/201889
1/455031
1/593527
1/659797
1/717646
100/876302
101/753626
101/753629
101/876302
101/881434
105/753633
106/753626
107/753626
108/753595
109/753595
110/753595
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111/753626
111/876302
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114/753595
115/753595
116/753595
117/753595
119/753626
121/753595
122/753595
122/753626
123/753595
124/753595
125/753595
126/753595
129/753626

Lot/DP
133/753626
134/753626
135/753602
136/753595
136/753626
137/753602
137/753626
138/753602
138/753626
139/753595
146/753626
147/753626
148/753626
155/753626
159/1133708
16/753595
160/753595
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162/753595
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165/753626
167/753595
168/753595
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171/753595
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177/753596
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178/753626
180/753626
181/753626
182/753626
183/753626
184/753595

Lot/DP
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185/753595
186/753596
186/753626
193/753626
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210/753595

Lot/DP
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22/753629
222/753626
224/753626
23/251362
23/753629
230/753596
230/753602
233/753595
234/753602
235/753602
238/753595
24/251362
260/753602
268/753602
273/753596
278/753596
284/753602
285/753602
291/753596
291/753602
292/753596
293/721898
296/753595
299/753596
3/1108872

Lot/DP
3/1128483
3/455031
3/457026
306/753595
307/753595
309/753595
31/1048395
31/753602
31/753629
310/753595
314/753595
32/1048395
32/753629
325/753595
326/753595
33/1048395
33/753629
332/753595
337/753595

Lot/DP
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341/753595
342/753595
344/753595
4/1108872
4/228185
4/457026
41/753602
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Lot/DP
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78/753629

Lot/DP
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88/753602
89/753602
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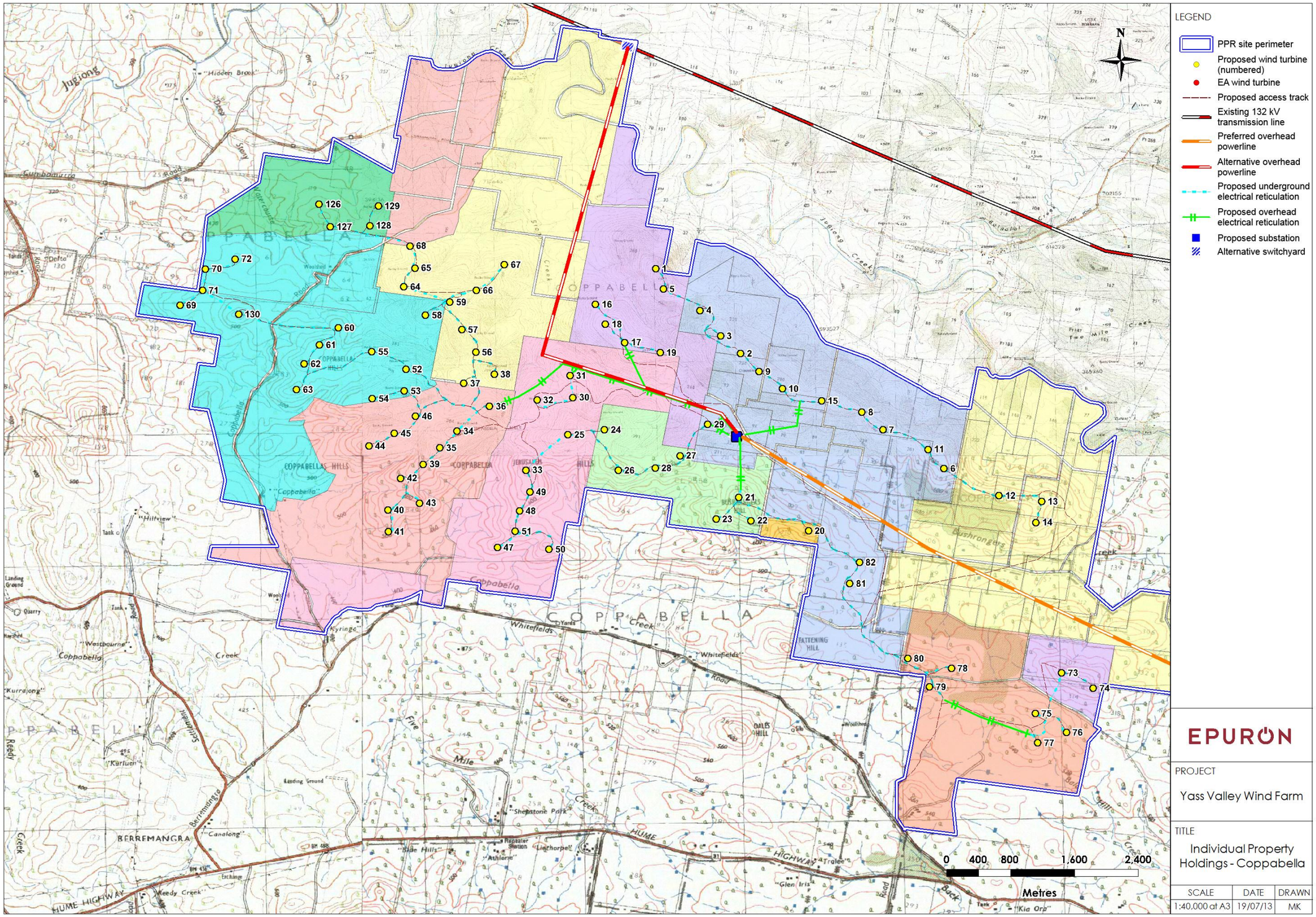
91/753602
91/753626
92/753602
99/753595
A/417412
B/415303
C/408402
D/408402
Y/382611

Note: There are 227 separate land parcels owned by 27 involved project landowners



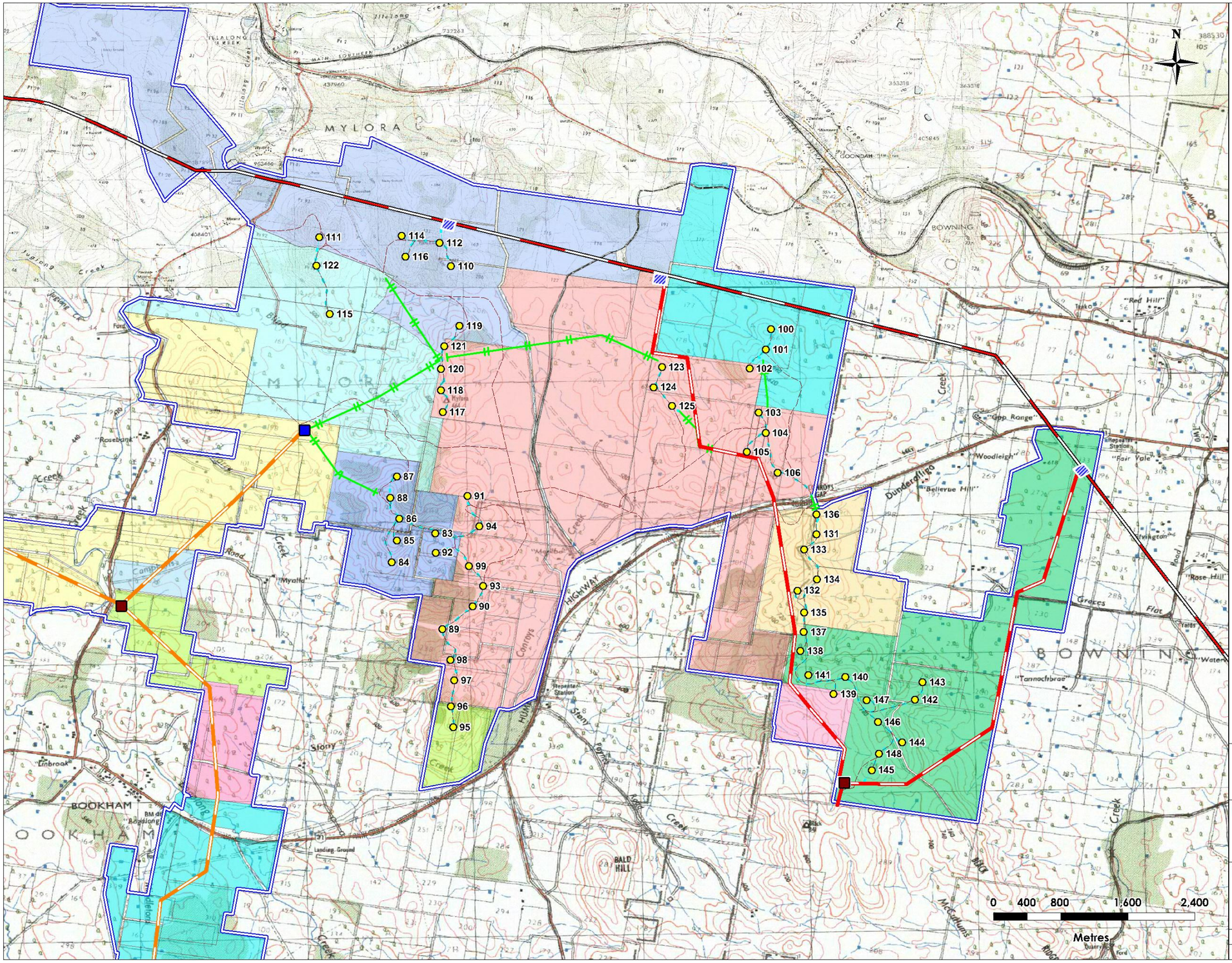
EPURON

PROJECT
Yass Valley Wind Farm

TITLE
Individual Property Holdings - Coppabella

SCALE	DATE	DRAWN
1:40,000 at A3	19/07/13	MK

EPURON



LEGEND

- PPR site perimeter
- Proposed wind turbine (numbered)
- EA wind turbine
- Proposed access track
- Existing 132 kV transmission line
- Preferred overhead powerline
- Alternative overhead powerline
- Proposed underground electrical reticulation
- Proposed overhead electrical reticulation
- Proposed substation
- Alternative substation
- Alternative switchyard

EPURON

PROJECT

Yass Valley Wind Farm

TITLE

Individual Property Holdings - Marilba

SCALE	DATE	DRAWN
1:40,000 at A3	19/07/13	MK

Attachment 11 – Draft Decommissioning and Rehabilitation Plan

Attachment 12 – Draft NSW Planning Guidelines: Wind Farms

The draft NSW Planning Guidelines: Wind Farms were issued for consultation by the NSW Department of Planning & Infrastructure for consultation in December 2011. The guidelines haven't currently been finalised. The table below shows where the relevant parts of the draft guidelines have been considered and addressed in the EA and this Preferred Project & Submissions Report.

Key considerations in the assessment of wind farm proposals	*Details*	*Addressed in the Preferred Project & Submissions Report*
Proximity of turbines to existing residential dwellings	If a wind farm proposal seeks to place turbines within 2km of existing residences an additional upfront assessment (Gateway Site Compatibility Certificate) applies.	No Not applicable until guidelines finalised and legislation amended.
Community consultation	Form a Community Consultation Committee	Yes See Attachment 7 for minutes of meetings held to date.
Visual amenity	Assess visual amenity impacts with a focus on visual impacts on neighbours close to turbines, including photomontages taken from potentially affected residences within 2km of a proposed turbine.	Yes Refer Supplementary Visual Impact Assessment
Noise	Provide greater clarity and rigour for noise assessment including: ▸ Low frequency noise ▸ Tonality ▸ Excessive amplitude modulation ▸ Auditing & compliance issues ▸ Separate daytime and night time criteria	Refer revised Noise Assessment Addendum Yes Yes Yes Yes Yes
Health	Explicitly consider health issues	Yes. Refer section 3.4.6 of this report.
Ecological Issues	Ecological assessment considering terrestrial and aquatic (where relevant) ecosystems consistent with DEC (2005) Guidelines for Threatened Species Assessment	Yes. Refer EA section 7.4 and the Supplementary Ecology Report
Aviation Safety	Assess potential impact on aviation safety	Yes. Refer EA section 7.1 and section 3.4.10 and 3.5.2 of this report
Bushfire Hazard	Assessment of bushfire hazards and risks	Yes. Refer EA section 7.11 and section 3.4.7 of this report
Blade Throw	The risk of blade throw should be considered	Yes. Refer section 2.4.9 of this report
Economic Issues	Consider potential impact on mining leases and exploration licences Potential impact on value of surrounding properties	Yes. Refer EA section 8.3 Yes. Refer EA section 8.4 and sections 2.4.7 and 3.4.5 of this report
Decommissioning	The proponent must retain responsibility for decommissioning and Include a Decommissioning and Rehabilitation Plan	Yes Refer plan provided in Attachment 11

Key considerations in the assessment of wind farm proposals	*Details*	*Addressed in the Preferred Project & Submissions Report*
Auditing and compliance	Particularly noise compliance	Yes. Refer SoC 10 for noise compliance monitoring
Council Planning Controls	Consider consistency with council Development Control Plans	Yes. Refer section 5.3 of the EA

Attachment 13 – Site Map (A1 Size)

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