Department of Planning, Housing and Infrastructure

Valley of the Winds Wind Farm

State Significant Development Assessment Report (SSD-10461)

March 2025

Acknowledgement of Country

The Department of Planning, Housing and Infrastructure acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and show our respect for Elders past and present through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Published by NSW Department of Planning, Housing and Infrastructure

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Valley of the Winds Wind Farm (SSD-10461) Assessment Report

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Preface

This assessment report provides a record of the Department of Planning Housing and Infrastructure's (the Department) assessment and evaluation of the State significant development (SSD) application for the Valley of the Winds Wind Farm located approximately 94 kilometres (km) north-east of Dubbo, near the townships of Coolah and Leadville, lodged by ACEN Australia Pty Ltd. The report includes:

- an explanation of why the project is considered SSD and who the consent authority is;
- an assessment of the project against government policy and statutory requirements, including mandatory considerations;
- a demonstration of how matters raised by the community and other stakeholders have been considered;
- an explanation of any changes made to the project during the assessment process;
- an assessment of the likely environmental, social and economic impacts of the project;
- an evaluation which weighs up the likely impacts and benefits of the project, having regard to the proposed mitigations, offsets, community views and expert advice; and provides a view on whether the impacts are on balance, acceptable; and
- an opinion on whether the project is approvable or not, along with the reasons, to assist the Independent Planning Commission in making an informed decision about whether development consent for the project can be granted and any conditions that should be imposed.

Executive Summary

This report details the Department's assessment of the State significant development application SSD-10461 for the Valley of the Winds Wind Farm and will be provided to the Independent Planning Commission for their consideration when deciding whether to grant consent to the SSD.

ACEN Australia Pty Ltd (ACEN) proposes to develop a 943 megawatt (MW) wind farm, located approximately 94 kilometres (km) north-east of Dubbo in the Central West Orana Renewable Energy Zone (CWO REZ). The project is within the Warrumbungle Shire local government area. The proposed project involves the development of up to 131 turbines with a maximum tip height of 250 metres (m) high, a 320 MW / 640 MWh battery energy storage facility, connection to the proposed CWO REZ transmission line and other ancillary infrastructure. The project has a capital investment value of approximately $1.68 billion and is expected to generate 400 construction jobs and 50 operational jobs. If approved, construction of the project would take 42 months.

Over the next decade, three of the four remaining coal fired generators in NSW are scheduled to retire, removing around 8.3 gigawatts of dispatchable electricity generation from the system. The NSW Government's *Electricity Infrastructure Roadmap* (the Roadmap) provides a plan to coordinate investment in new generation and supports the delivery of 12 gigawatts of new renewable electricity generation and 2 gigawatts of long-duration storage in NSW by 2030. EnergyCo has identified the project as one of several major renewable energy generation projects with planned connections to the CWO REZ transmission network – known as candidate foundation generators (CFGs).

The project is classified as State significant development (SSD) under section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Independent Planning Commission is the consent authority for the project as the project has received more than 50 unique public submissions by way of objection and Warrumbungle Shire Council objects to the project.

The Department publicly exhibited the Environmental Impact Statement (EIS) for the project from 23 May 2022 until 20 June 2022 and received 105 unique submissions, (94 objections, six in support and five comments on the project). Key reasons for objections from community include impacts to amenity, biodiversity, transport and cumulative impacts.

The Department received advice from 15 government agencies and the host council, Warrumbungle Shire Council. Warrumbungle Shire Council objected to the project and comments were also received from Mid-Western Regional Council.

The Department engaged with local councils and relevant government agencies on key issues and they each recommended the implementation of appropriate mitigation and management measures. The Department visited the site on two occasions.

The key assessment considerations are energy transition, biodiversity, transport and visual impacts. The Department has also undertaken a comprehensive assessment of the full range of other potential impacts and recommended a range of detailed conditions, developed in conjunction with agencies and councils, to ensure all potential impacts are effectively minimised, managed or offset.

The project would have the capacity to generate 943 MW of renewable energy, sufficient to power around 519,000 homes per year. The project would save up to 1,990,000 tonnes of greenhouse gas emissions per year and would make a material contribution towards the State meeting its net zero targets and the renewable energy objectives of the Roadmap.

The project is within the Central-West Orana Renewable Energy Zone (CWO REZ), which has good wind resource potential, and would connect directly to the approved CWO REZ Transmission line. The project is also located on land where wind development is permissible with consent.

The project has been designed and refined to avoid and minimise biodiversity impacts to better quality vegetation. The disturbance footprint includes 649.92 ha of native vegetation, of which approximately 140.72 ha is woodland (in moderate to good condition), and 509.20 ha is derived native grassland (approximately 78%). The Department considers that the vegetation clearing impacts of the project would not be significant, subject to a range of mitigation and adaptive management measures and by offsetting the residual biodiversity impacts.

The project has the potential to result in impacts to bats and avifauna. The Department has recommended a condition requiring adaptive management in a Bird and Bat Adaptive Management Plan (BBAMP) including detailed monitoring and a trigger action response plan to minimise potential impacts of the project; and the implementation of measures to reduce the mortality of those species or populations.

ACEN reduced the number of proposed turbines from the early conceptual layout as part of the iterative project design process and further reduced these numbers in the EIS and in the Amendment Report. There are 87 non-associated receivers located within 4.95 km of the nearest proposed turbine i.e. the distance within which turbines of this size may potentially have visual magnitude impacts under the Wind Energy Guideline's Visual Assessment Bulletin (Visual Bulletin). Most dwellings benefit from distance, intervening topography and screening from existing mature vegetation between viewpoints and the project. The visual performance objectives set out in Visual Bulletin are achieved at all receivers. The Department is satisfied that the project would not fundamentally change the broader landscape characteristics of the area or result in any significant visual impacts on the surrounding non-associated residences.

The Department considers the project would not result in unacceptable impacts on the capacity, efficiency or safety of the road network. Potential impacts would be largely restricted to the 42 month construction period and would be suitably managed through road upgrades, restricting vehicles to approved routes, road maintenance and the implementation of a Traffic Management Plan.

The Department considers the project would not result in any significant impacts on the local community or the environment, is located on a suitable site for a wind farm development, and any residual impacts can be managed through the implementation of the recommended conditions.

The project would result in benefits to the State of NSW and is therefore in the public interest and is approvable.

Contents

1 Introduction

1. ACEN Australia Pty Ltd (ACEN) proposes to develop a State significant development (SSD) wind farm in the Central-West Orana Renewable Energy Zone (CWO REZ), approximately 94 kilometres (km) north-east of Dubbo, between Coolah, Leadville and Uarbry in the Warrumbungle local government area (LGA) (see **Figure 1**).

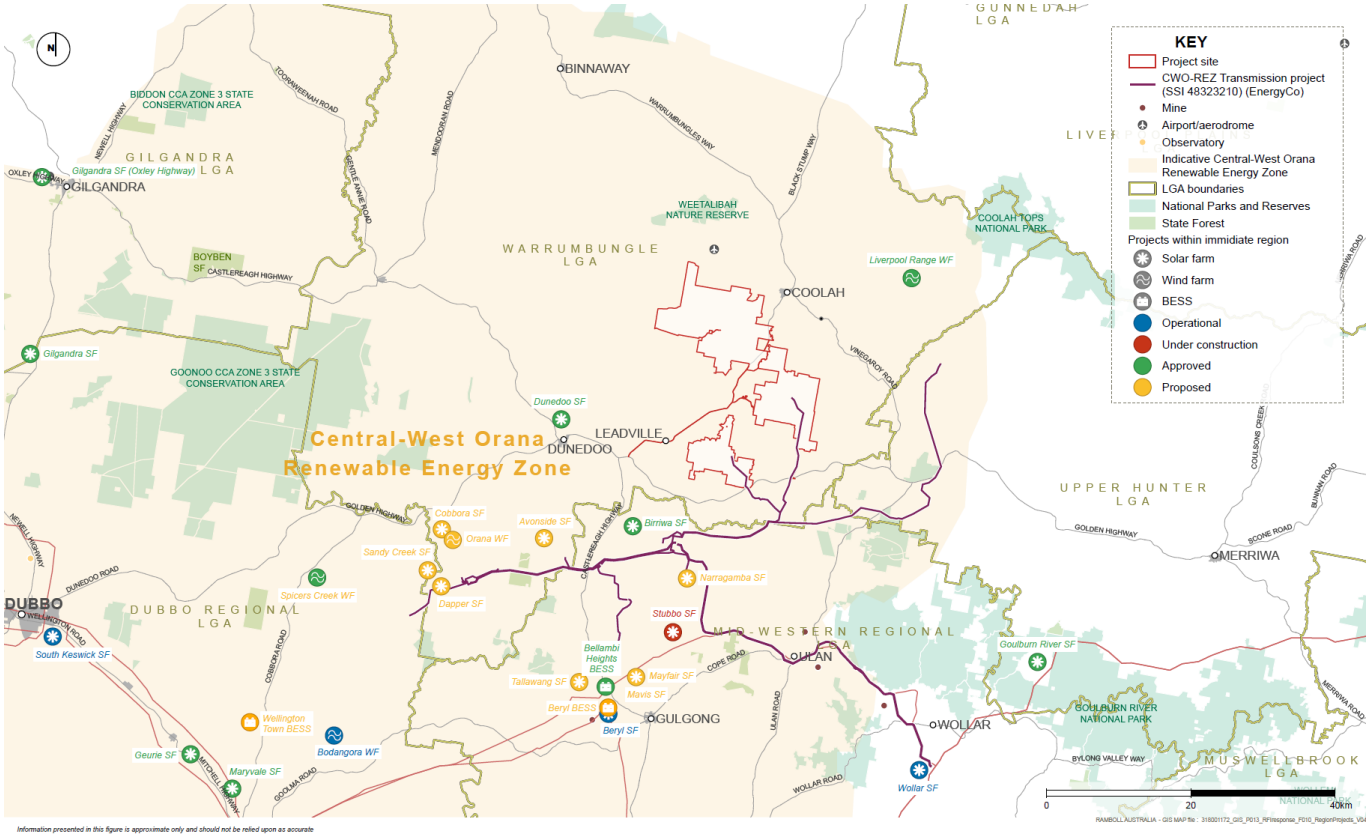


Figure 1 | Regional context map

2 Project

2.1 Project overview

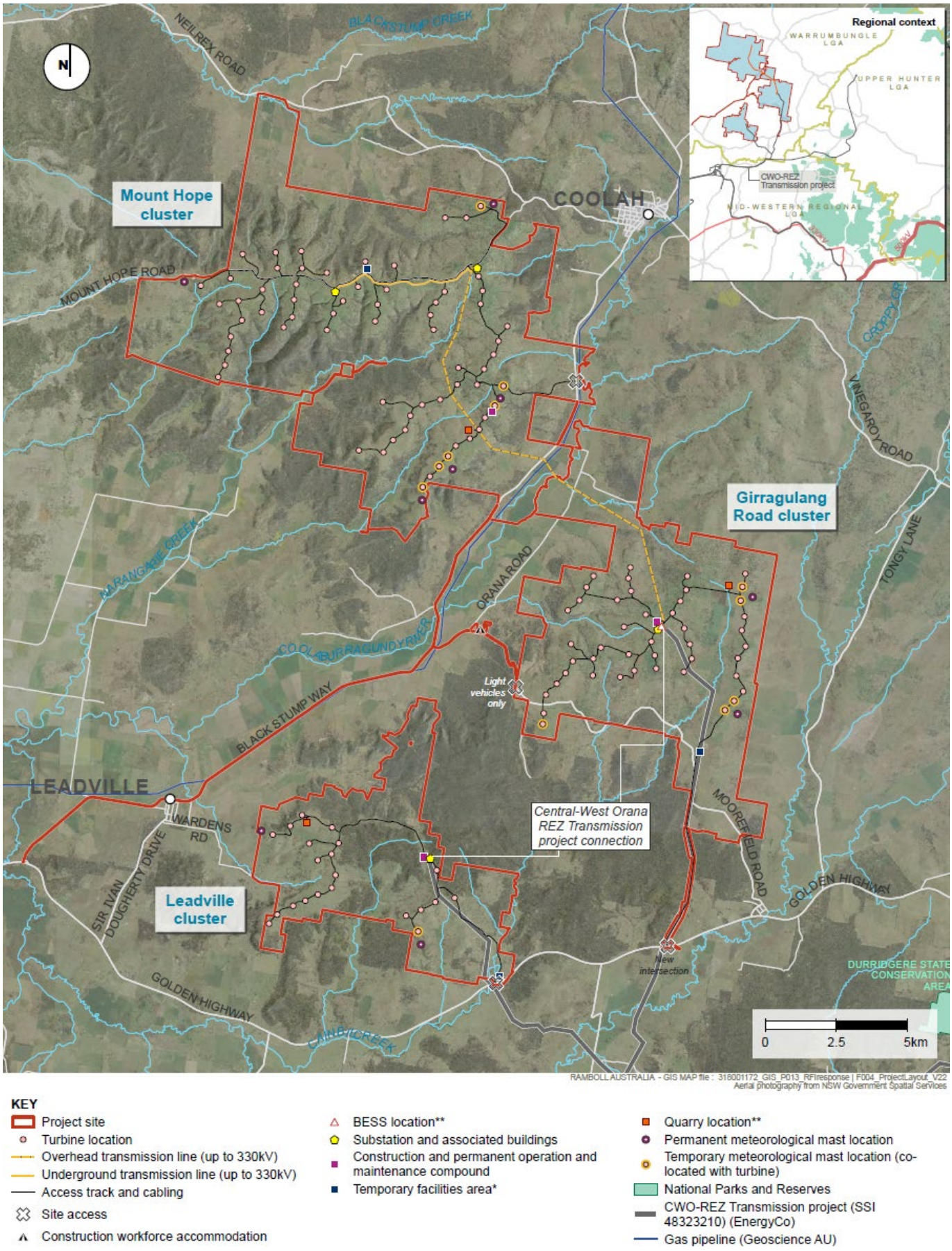
2. ACEN is proposing to develop a wind farm with up to 131 turbines across three clusters (Mount Hope, Girragulang and Leadville), with a maximum tip height of 250 metres (m). The project would have a nameplate capacity of around 943 megawatts (MW), generating up to 2.93 million megawatt hours (MWh) of electricity annually.

3. The project also includes a battery energy storage system (BESS) with a capacity of up to 320 MW / 640 MWh and four substations. The wind farm would connect to the Energy Corporation of NSW's (EnergyCo) approved CWO REZ transmission line via direct connection to two onsite substations, one within the Girragulang Road cluster and one within the Leadville cluster.

4. The key components of the project as amended are summarised in **Table 1**, shown in **Figure 2**, and described in the Environmental Impact Statement (EIS) (see **Appendix A**), Submissions Report (see **Appendix C**), Amendment Report (see **Appendix D**), and additional information provided during the Department's assessment of the project (see **Appendix E**).

Table 1 | Key components of the project

Aspect	Description
Project summary	• Up to 131 turbines and associated infrastructure (around 943 MW capacity) • Centralised BESS with a capacity of up to 320 MW / 640 MWh
Project area	• Project site: 24,120 ha • Development corridor: 2,802 ha • Development footprint: 734.96 ha
Wind turbine dimensions	• Maximum tip height of 250 m • Turbine hub height of 160 m • Maximum blade length of 90 m
Ancillary infrastructure	• Connection to the approved CWO REZ transmission line within the site • One central substation (Girragulang Road cluster) and three collector substations (one in Leadville cluster, two in Mount Hope cluster) • 17.5 km of overhead and 110.5 km of underground transmission line and underground reticulation connecting all turbines to the central substation, operation and maintenance facility, utility services and signage • Temporary facilities including three construction compounds, three concrete batching plants, up to three materials storage and laydown areas and one 400-bed construction workforce accommodation camp • Up to 116 km of new internal access tracks and four site access points • Up to nine permanent and 12 temporary meteorological masts up to 160 m in height
Quarries	• Three on-site quarries located in each cluster are proposed for the extraction of construction material for access tracks and hardstands. A total of up to 548,000 tonnes of material would be extracted.
Off-site road works	• Upgrades to intersections, local road network and waterway crossings
Construction	• Construction would last for approximately 42 months, with a 12-16 month peak • Hours to be limited to Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm
Operation	• Approximately 30 years. However, the project may involve infrastructure upgrades that could extend its operation
Access route	• Heavy vehicles requiring escort**:** Port of Newcastle via Selwyn Street, George Street, Industrial Drive, Pacific Highway (Maitland Road), New England Highway, John Renshaw Drive, Hunter Expressway, New England Highway, Golden Highway and Black Stump Way • A high-load bypass route around Denman, which travels along Denman Road (north-east of Denman), Bengalla Road, Wybong Road before re-joining the Golden Highway • Three new primary site access points: two off the Golden Highway and one off Black Stump Way and one light vehicle only access point on Moorefield Road (west).
Decommissioning and rehabilitation	• The project includes decommissioning at the end of the project life, which would involve removing all above ground infrastructure
Employment	• Up to 400 construction jobs and 50 operation jobs
CIV	• $1.68 billion
Voluntary Planning Agreement (VPA)	• Up to $24.8 million (adjusted to CPI and based on 131 turbine layout)



KEY

- Project site
- Turbine location
- Overhead transmission line (up to 330kV)
- Underground transmission line (up to 330kV)
- Access track and cabling
- Site access
- Construction workforce accommodation
- BESS location**
- Substation and associated buildings
- Construction and permanent operation and maintenance compound
- Temporary facilities area*
- Quarry location**
- Permanent meteorological mast location
- Temporary meteorological mast location (co-located with turbine)
- National Parks and Reserves
- CWO-REZ Transmission project (SSI 48323210) (EnergyCo)
- Gas pipeline (Geoscience AU)

Figure 2 | Site layout

3 Strategic context

3.1 Site and surrounds

5. The project is located in the Central West region of NSW within the CWO REZ, an area identified as strategically advantageous with strong renewable energy resource potential, proximity to the existing and future electricity network, and consideration of potential interactions with existing land uses, including agricultural lands and biodiversity conservation.

6. Key industries in the region are agriculture, mining and manufacturing. The site and surrounding land is predominantly a rural landscape, interspersed with rural residences and farm buildings and extensive land clearing has occurred within the landscape for agricultural purposes, especially dryland cropping and modified grazing pastures.

7. The project is located near the localities of Coolah, Leadville and Uarbry. Dwellings are mainly concentrated around the township of Coolah and the village of Leadville, which have populations of around 1,262 people and 140 people respectively[1]. The closest larger population centres are Dubbo located approximately 94 km south west and Gulgong located 35 km south.

8. Across the three turbine clusters, there are 27 non-associated residences located within 3.35 km (the black line) of a proposed turbine location. The closest non-associated residence to the accommodation facility development footprint is approximately 1.74 km away. Potential amenity impacts on these residences are discussed in **Section 6.4**.

9. The topography is defined by ridgelines ranging between an elevation of 626 m and 757 m Australian Height Datum (AHD). The highest point is located at Mount Hope, south west of Coolah.

10. The site is 24,120 ha with a 735 ha development footprint. Land use within the site is predominantly dedicated to agricultural purposes, specifically cattle and sheep grazing (70.3%), with some dryland cropping (7.9%). The site is zoned RU1 – Primary Production.

11. The site includes approximately 1,290 ha of mapped Biophysical Strategic Agricultural Land (BSAL). Of this, 23.9 ha (3%) would be located within the development footprint.

12. The site is located within the Macquarie-Castlereagh catchment, part of the Murray-Darling Basin. Several small tributaries traverse the project site, comprising 1st, 2nd, 3rd and 4th order Strahler streams and ephemeral creeks. The site is not prone to flooding.

13. There are 8 State significant renewable energy, storage and transmission projects within approximately 20 km of the site, consistent with the location of the project within a REZ, as described in **Table 2** and shown on **Figure 1.**

[1] Australian Bureau of Statistics, 2021

Table 2 | Nearby renewable energy projects

Project	Capacity	Status	Distance from the project
CWO REZ Transmission Project		Approved	South
Liverpool Range Wind	960 MW	Construction	8 km north east
Birriwa Solar	600 MW	Approved	9 km south west
Orana Wind	600 MW	Proposed	14 km west
Narragamba Solar	320 MW	Proposed	16 km south
Dunedoo Solar	55 MW	Approved	17 km west
Stubbo Solar	400 MW	Construction	19 km south
Avonside Solar	180 MW	Proposed	20 km south west

3.2 Renewable Energy Context

14. In 2023, NSW derived approximately 36% of its electricity generation from renewable sources. The rest was derived from fossil fuels, including approximately 61% from coal and 3% from gas. NSW is one of the nation's leaders in large-scale wind, with 16 major operational projects and five under construction.

15. The project is located in the declared CWO REZ and would connect directly into the approved CWO REZ transmission line via the onsite substations in the Girragulang Road cluster and Leadville cluster providing access to the electrical grid at a location with available network capacity.

16. The Commonwealth and State energy context is described in **Table 3**.

Table 3 | Energy Context

Policy/Year	Summary
Australia's Long Term Emissions Reduction Plan (2021) and Nationally Determined Contribution (2022)	Sets a pathway to net zero emissions by 2050 and affirms Australia's commitment to meeting its revised 2030 target (43% below 2005 levels).
Climate Change (Net Zero Future) Act 2023	Legislates a whole-of-government climate action to deliver net zero by 2050.
Australian Energy Market Operator's 2024 Integrated System Plan (ISP)	Notes that: • without coal, investment is needed to meet significantly increased electricity demand requiring a nine-fold increase in large-scale variable renewable energy generation (wind and solar); and • a mix of solar and wind is needed, and they offer complementary daily and seasonal profiles.
NSW: *Climate Change Policy Framework (2016);* *Transmission Infrastructure Strategy (2018);* *Electricity Strategy (2019);* *Electricity Infrastructure Roadmap (2020);* *Net Zero Plan Stage 1: 2020 – 2030 (2020) and Implementation update (2022);* *Central West and Orana Regional Plan 2041 (2022).*	Relevant aspects of these policy documents include: • aim to achieve net zero emissions in NSW by 2050 and reduce emissions by 70% below 2005 levels by 2030; • note that all coal fired power plants in NSW are scheduled for closure within the next twenty years; • identifies Renewable Energy Zones (REZ) across NSW, including in the CWO REZ, aimed at encouraging investment in electricity infrastructure and unlocking additional generation capacity in order to ensure secure and reliable energy in NSW • notes the need to expand transmission infrastructure into REZs to open new parts of the grid for renewable energy projects; and • unlock regional investment and new energy generation infrastructure.

17. The project's alignment with existing Commonwealth and State policies and strategies are considered in **Section 6.2**.

3.3 NSW Wind Energy Framework

18. In December 2016, the Department released the NSW Wind Energy Framework (the Framework). The Framework seeks to provide greater clarity, consistency and transparency for industry and the community regarding assessment and decision-making on wind energy projects.

19. The Framework provides a merit-based approach to the assessment of wind energy projects, which is focused on the issues unique to wind energy, particularly visual and noise impacts. The key documents comprising the Framework include, *Wind Energy Guideline; Visual Assessment Bulletin*; and *Noise Assessment Bulletin*.

20. The Department's assessment of the project against the requirements of the Framework are detailed in **Section 6.**

21. The Department is implementing a new Energy Policy Framework to help achieve the transition to renewable energy, reduce emissions and secure an affordable supply of electricity for the people of NSW. The new Energy Policy Framework includes a new Wind Energy Guideline, which includes updates to the existing *Wind Energy Guideline*. Although the new Energy Policy Framework was finalised in November 2024, it does not apply to the assessment of this project.

22. While the new Energy Policy Framework does not strictly apply to this project, the Department has considered the approach prescribed in the *Wind Energy Visual Technical Supplement (2024)* in regard to visual magnitude in its assessment of the project against the visual performance objectives set out in the existing *Wind Energy: Visual Assessment Bulletin* from the 2016 Guideline.

4 Statutory context

4.1 State significant development

23. The project is classified as State significant development under section 4.36 of the EP&A Act. This is because it triggers the criteria in section 20 of Schedule 1 of *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP), as it is development for the purpose of electricity generating works with a capital investment value of more than $30 million.

24. Under section 4.5(a) of the EP&A Act and section 2.7 of the Planning Systems SEPP, the Independent Planning Commission (the Commission) is the consent authority for the development as the project has received more than 50 unique public submissions by way of objection, and Warrumbungle Shire Council objects to the project.

4.2 Amended Application

25. In accordance with section 37 of the EP&A Regulation, a development application can be amended at any time before the application is determined. ACEN sought to amend its application on three occasions, the details of which are summarised in **Section 5.4** of this report.

26. An application can be amended with the agreement of the consent authority (i.e. the Commission for this development), however, under the delegation dated 11 May 2022 and 14 June 2022, the Director, Energy Assessments can agree to amendments to an application.

27. The Department considers that it can accept ACEN's amendments to the application for the following reasons:

- the amended applications directly respond to the key issues raised in submissions received by the Department during the exhibition of the original application;
- the project amendments have reduced the impacts of the project as a whole;
- ACEN assessed the impacts of the amended project (see **Appendix D**); and
- the Department made the additional information available online and sent it to the relevant agencies for comment.

4.3 Permissibility

28. The site is located within land zoned RU1: Primary Production under the *Warrumbungle Local Environment Plan 2013* (Warrumbungle LEP).

29. The RU1 zone includes various land uses that are permitted with and without consent. Under the Warrumbungle LEP, electricity generating works are not expressly listed as permitted with or without consent, and is therefore a prohibited land use.

30. However, electricity generating works are permissible with consent on any land in a prescribed non-residential zone, including land zoned RU1, under clause 2.36 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP). Consequently, the project is permissible with development consent.

4.4 Integrated and other approvals

31. Under section 4.41 of the EP&A Act, several other approvals are integrated into the SSD approval process, and consequently are not required to be separately obtained for the proposal.

32. Under section 4.42 of the EP&A Act, a number of further approvals are required, but must be substantially consistent with any development consent for the proposal (e.g. approvals for any works under the *Roads Act 1993*).

33. As the project traverses Crown land, authority to use Crown land is required separately under the *Crown Land Management Act 2016* prior to its use. The site also contains land subject to an undetermined native title claim. The claimant is a Registered Aboriginal Party for the Project and ACEN has committed to continuing to consult with them as the project progresses.

34. The Department has consulted with the relevant government agencies responsible for these integrated approvals in its assessment of the project (see **Section 5**), considered their advice in its assessment of the merits of the project and included suitable conditions in the recommended conditions of consent to address these matters (see **Appendix F**).

4.5 Mandatory matters for consideration

35. Section 4.15 of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters are summarised as:

- the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements and the EP&A Regulations;
- the environmental, social and economic impacts of the development;
- the suitability of the site;
- public submissions and advice from government agencies; and
- the public interest, including the objects in the EP&A Act and the encouragement of ecologically sustainable development (ESD).

36. In addition, under section 92 of the EP&A Regulation, a consent authority must also consider the *Dark Sky Planning Guideline 2023* for SSD projects less than 200 km from the Siding Spring Observatory.

37. The Department has considered these matters in its assessment of the project, as well as the Applicant's consideration of environmental planning instruments in its EIS. Detailed consideration of the relevant provisions of the environmental planning instruments is provided in **Appendix I**, and the Department concluded the project is consistent with the relevant provisions.

4.6 Biodiversity development assessment report

38. Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all SSD applications to be accompanied by a biodiversity development assessment report (BDAR) unless it is determined that the project is not likely to have any significant impact on biodiversity values (as identified in the BC Act and in the *Biodiversity Conservation Regulation 2017*). The BDAR (see **Appendix A** and **Appendix D**) and overall impact of the project on biodiversity values is assessed in **Section 6.3**.

4.7 Commonwealth Matters

39. On 13 July 2020, a delegate of the Commonwealth Minister for the then Department of Agriculture, Water and the Environment (DAWE) (now the Australian Government Department of Climate Change, Energy, the Environment and Water (AG DCCEEW)) determined the project (EPBC 2020/8668) to be a 'controlled action' in accordance with section 75 the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to the likely significant impacts to listed threatened species and communities (sections 18 and 18A) and listed migratory species (sections 20 and 20A).

40. The Department's assessment of the potential impacts of the project on controlling provisions under the EPBC Act relating to biodiversity is provided in S**ection 6.3.8**. Further information on the matter that the Commonwealth Minister must consider under the EPBC Act is provided in **Appendix K.**

41. The Department consulted with the AG DCCEEW in accordance with the bilateral agreement and provided draft copies of this assessment report and the recommended conditions of approval to AG DCCEEW for comment.

5 Engagement

42. The Department publicly exhibited the EIS from 23 May 2022 until 20 June 2022 (29 days) on the NSW Planning Portal.

43. The exhibition was advertised in the *Coonabarabran Times*, *Coolah District Diary*, *Dunedoo District Diary* and *The Australian,* and the Department wrote directly to landowners up to 5 km from the project site, notifying them of the proposal and exhibition dates. The Department visited the site and surrounds on 2 to 3 May 2023 and 9 August 2023 and met with non-associated landowners.

44. The Department also consulted with Council, government agencies and members of the community during its detailed assessment of the project. This included meeting with landholders near the project, as well as the Uarbry Tongy Lane Alliance (UTLA) community group. The Department notified and sought comment from EnergyCo and Transport for New South Wales (TfNSW) in accordance with the Transport and Infrastructure SEPP, as discussed further in **Section 5.3**.

5.1 Summary of public submissions

45. During the public exhibition, the Department received 106 public submissions of which 105 were unique[2] (94 objecting to the project, six in support and five comments). A summary of the proximity of public submissions is provided in **Table 4** below and a link to all submissions in full is provided in **Appendix B**.

Table 4 | Summary of submitter distances

Submitter	Object	Support	Comment	Total
<5 km	41	5	3	49
5–15 km	14	0	0	14
15-50 km	3	0	0	3
> 50 km**	36	1	2*	39
Total	**94**	**6**	**5**	**105**

* Location of submitter was not provided
** Includes interstate submissions

5.1.1 Submissions in objection

46. The most common matters raised in submissions objecting to the project included:

- visual impacts on the surrounding landscape and residences, including impacts to the landscape character of the surrounding area and obstacle lighting;
- socio-economic factors including property devaluation, division in the community resulting from the project, adverse impacts on health and wellbeing of neighbouring residents, decreased availability and access to public services, reduced housing affordability and the lack of community benefit;

[2] Each petition or submission that contains the same or substantially the same text is counted as one submission in accordance with section 2.7(6) of the Planning System SEPP.

- hazards / bushfire risk, including concerns that the project could increase the risk of bushfires in the area and impede aerial firefighting efforts and impacts to adjacent airstrips;
- loss of agricultural land and negative impacts to agricultural practices;
- biodiversity impacts, particularly vegetation clearing and bird and bat strike;
- construction and operational noise, including construction traffic noise, and low frequency operational noise, particularly in the context of low background noise of the existing environment;
- construction traffic and transport impacts, particularly regarding increased traffic numbers and the proposed transport route through Uarbry and associated road upgrade / widening; and
- cumulative impacts of the project with other SSD projects in the vicinity, including the Liverpool Range Wind Farm and the Central-West Orana Transmission Line.

47. Other issues raised in submissions included uncertainty about the project's connection to the grid, and criticism of the adequacy and accuracy of the EIS and the level of consultation undertaken by ACEN with some members of the community. The key issues raised in public submissions on the project are summarised in **Figure 3**.

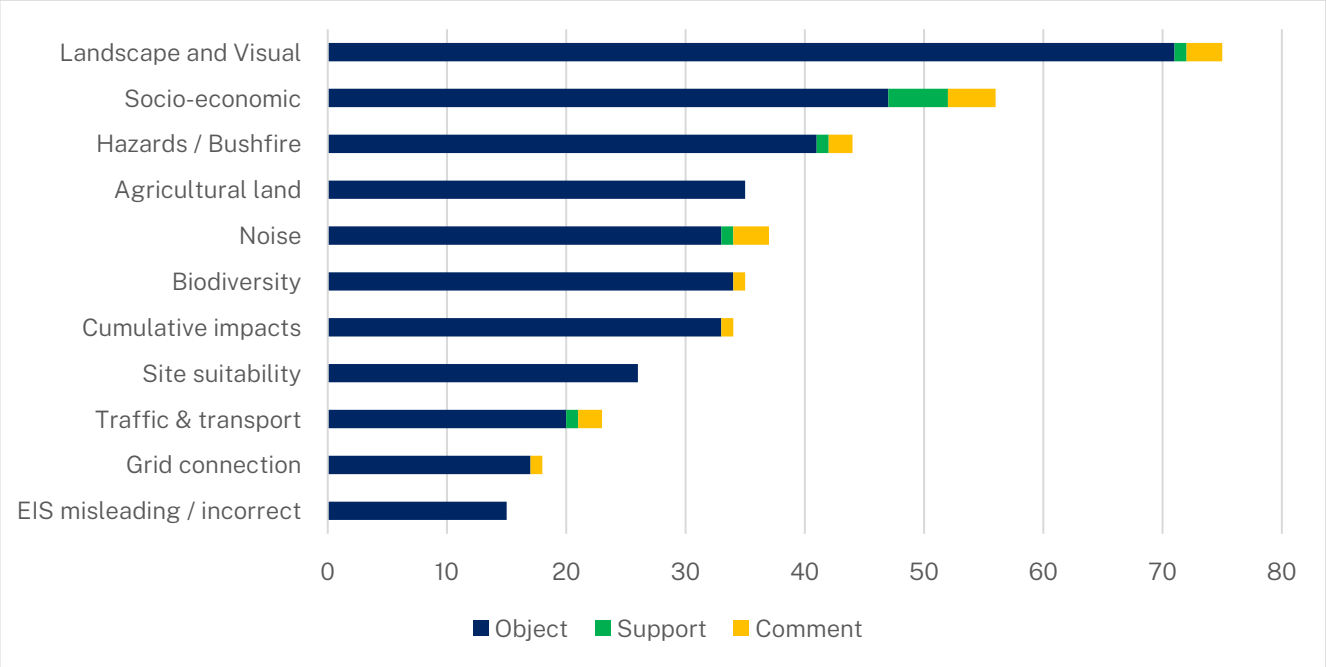


Figure 3 | Key issues raised in public submissions

5.1.2 Submissions in support and comments

48. Submissions in support of the project noted the social and economic benefits of the project, associated with a perceived increase in tourism, benefits to local businesses, the creation of jobs, and the benefits of renewable energy.

49. Submissions also identified that the project would contribute to the energy sustainability in NSW and assist in the transition away from fossil fuel powered energy to lower emissions generating technology.

50. Submissions commenting on the project raised queries regarding perceived landscape and visual impacts, social and economic impacts, bushfire risk and impacts to firefighting capabilities, traffic and transport,

cumulative impacts with other renewable energy projects within the CWO-REZ, and connection to the grid.

5.1.3 Special interest groups

51. Two submissions on the project were from special interest groups with matters raised in **Table 5**. The Department has carefully considered the submissions provided by the community, as described throughout **Section 6**.

Table 5 | Summary of matters raised in special interest group submissions

Position	Groups	Key Issues
Object (1)	The Ibbai Waggan-Wiradjuri People	Perceived issues with the NSW planning system, adequacy of consultation undertaken and impacts on Aboriginal Cultural Heritage values.
Comment (1)	The Coolah District Development Group	Raised concerns about cumulative impacts of the project with other renewable energy projects within the CWO-REZ.

5.2 Summary of council submissions

52. Warrumbungle Shire Council objected to the project and Mid-Western Regional provided comment. A summary of the issues raised by each council is provided in **Table 6** below and a link to the submissions in full is provided in **Appendix B**.

53. After the exhibition period the Department received feedback from Muswellbrook Shire Council, which has also been considered in the Department's assessment.

Table 6 | Summary of issues raised by councils

Council	Key issues raised
Warrumbungle Shire Council (host council)	Objects to the project on the basis of construction impacts, road and traffic impacts, VPA, waste management, water use, bushfire management, biodiversity and cumulative impacts.
Mid-Western Regional	Concerns regarding construction workforce accommodation, waste management and decommissioning.
Muswellbrook Shire*	Concerns raised regarding traffic and transport impacts on local roads within Muswellbrook Shire LGA, and the cumulative impacts on these roads with other renewable energy projects traveling from the Port of Newcastle to the region.

*Received after the exhibition period

5.3 Summary of agency advice

54. The Department received advice from 15 government agencies. A summary of the agency advice is provided in **Table 7**. A link to the full copy of the advice is provided in **Appendix C**.

55. Heritage Council of NSW, EnergyCo and Transgrid raised no concerns or provided no comment.

Table 7 | Summary of agency advice

Agency	Advice summary
Conservation Programs, Heritage & Regulation Group (CPHR) within the NSW Department of Climate Change, Energy, the Environment and Water	• Requested additional information regarding the Biodiversity Development Assessment Report (BDAR), including impacts to entities at risk of serious and irreversible impact (SAII), microbat surveys, identification of category 2 regulated land, targeted surveys for credit species and bird and bat utilisation surveys (BBUS).
Transport for NSW	• Requested further assessment of construction traffic impact, including intersection treatments, SIDRA analysis, background traffic volumes, route surveys, strategic design and cumulative assessment.
Environment Protection Authority (EPA)	• Recommendations regarding construction hours, construction noise and vibration, wind farm operational noise, water quality, air quality and waste. • Noted that an Environmental Protection Licence (EPL) would be required for the development.
Heritage NSW (HNSW)	• Generally supports recommendations in the Aboriginal Cultural Heritage Assessment report (ACHAR), and the preparation and implementation of an Heritage Management Plan (HMP).
Crown Lands	• The Project site contains Crown lands, including Crown lands subject to Aboriginal Land Claims; Crown Roads. and Travelling Stock Reserves. • Recommendations regarding authorisations required under the *Crown Land Management Act 2016.* ACEN committed to securing the necessary authorisations prior to commencement of construction.
NSW DCCEEW - Water Group	• Recommendations provided regarding works on waterfront land and the assessment of aquifer interference prior to commencing construction.
Department of Primary Industries and Regional Development (DPIRD) – Agriculture and Biosecurity	• Recommendation that soil testing is undertaken during construction to inform decommissioning and rehabilitation.
DPIRD – Fisheries	• Recommendation that development complies with *Guidelines for Fish Habitat Conservation and Management 2013.*
DPIRD – NSW Resources	• Requests to be consulted on the proposed location of any biodiversity offset areas or any supplementary biodiversity measures to ensure there is no reduction in access to land for mineral exploration, or impact on mineral or extractive resources.
Civil Aviation Safety Authority	• Risk to aviation safety, including aircraft collision, with turbines infringing navigable airspace. • Notes a number of small airstrips in close proximity to the project. • Recommendations regarding lighting of turbines to avoid aircraft collisions.
Airservices Australia (ASA)	• Identified that turbines MH13 and MH25 would impact overhead air-route W627 by exceeding the lowest safe altitude of 1005.8m/3300ft AHD. ASA advised that these turbines would either need to be relocated or removed, or ACEN would need to lodge an application to amend the air-route to accommodate the project. • MH13 was removed from the amended project and the Department has included a condition for the amendment to air route W627.
Australian Government Department of Defence	• The project would reduce useable airspace by Defence aircraft for low flying activity. • Recommendations for the provision of obstacle lighting and 'as constructed' details of tall structures to ASA.
NSW Rural Fire Service (RFS)	• Supports recommendations in the Bushfire Assessment Report.

Agency	Advice summary
Fire and Rescue NSW (FRNSW)	• Recommendations requiring the implementation of a Fire Safety Study and Emergency Response Plan.
APA Group	• Identified that the Central Ranges High Pressure Gas Transmission Pipeline traverses the project area and raised a safety concern associated with electrical transmission lines crossing overhead of the steel pipeline. • Recommended measures to ensure safe management of works in proximity to the pipeline.
Siding Spring Observatory	• Requests to be consulted for the installation of obstacle lighting, noting the project is located within the dark sky region surrounding the Siding Spring Observatory.

5.4 Response to submissions and amendment report

56. Following the public exhibition period, the Department asked ACEN to respond to the issues raised in submissions and the advice received from government agencies. ACEN provided a submissions report addressing the issues raised in agency advice and in submissions by the community and Council (see **Appendix C**).

57. ACEN also amended its development application on three occasions, which included:

- removal of 17 wind turbines and associated access tracks;
- removal of three, and relocation of seven, meteorological masts;
- an additional substation in the Mount Hope cluster;
- removal of overhead transmission line running south from the Girragulang Road and Leadville clusters (to now be delivered by EnergyCo as part of CWO REZ Transmission project);
- amendments to proposed access routes (removal of two light vehicle access routes and removal of the access route to the Girragulang Road cluster through the Uarbry village and replacement with an alternative access route via the Golden Highway and parallel to the proposed CWO REZ transmission line);
- revision of project boundary associated with the removal of unutilised areas and the inclusion of Moorefield Road (west); and
- additional upgrades to local roads (Black Stump Way and Moorefield Road (west)) to facilitate construction and operation of the project.

58. As the project amendments would not increase the impacts of the project as a whole, the Department did not exhibit any of the amendment reports. The Department published the submissions report and amendment reports on the NSW Planning Portal and provided it to government agencies and local councils for comment.

6 Assessment

6.1 Overview

59. The Department has undertaken a comprehensive assessment of the merits of the project. This report provides a detailed discussion of the key issues: energy transition, biodiversity, visual amenity, and traffic and transport (see **Section 6.2** to **Section 6.5**).

60. The Department acknowledges that the project has been sited and designed to minimise potential impacts, including locating turbines and associated infrastructure within areas of lower biodiversity values, and reducing the visual impacts to the landscape and for residences by reducing the number of proposed turbines and with the transmission line located within the site.

61. The Department also acknowledges that there have been delays in the assessment process due to further refinement of biodiversity impacts and management measures, alternative transport routes and negotiations with Warrumbungle Shire Council regarding the extent of local road upgrades.

62. Further, being located within the CWO REZ, the project is likely to contribute to some cumulative impacts in the region. The Department has considered cumulative impacts as well as the full range of potential impacts associated with the project and has included a summary of its assessment of these matters in **Section 6.6**.

6.2 Energy transition

63. The project aligns with a range of national and state policies, which identify the need to diversify the energy generation mix and reduce the carbon emissions intensity of the grid while providing energy security and reliability.

64. The Australian Energy Market Operator's 2024 Integrated System Plan for the National Electricity Market (NEM) notes that about 8.3 gigawatts (GW) of the current 21 GW of coal fired generation capacity is expected to be withdrawn from the NEM by 2030. With the closure of Munmorah Power Station in 2012, Wallerawang Power Station in 2014 and Liddell Power Station in April 2023, and a number of planned closures of coal-fired power stations in the State in the next decade (such as the Eraring, Vales Point and Bayswater power stations), additional utility-scale generation is required to replace the loss of coal-fired generation in the State.

65. The ISP also forecasts that there will be a demand for 83 GW of utility-scale wind and solar in the NEM by 2034-35, and 127 GW by 2049-50. It highlights the importance of the resource diversity that would be opened up by the State's REZ network, providing an even mix of wind and solar across the State and noting that wind and solar have complementary daily and seasonal profiles. The project would therefore contribute to replacing the loss of coal-fired generation in the State as well as providing diversification of the generation profile.

66. The project would have the capacity to generate around 943 MW of renewable energy, sufficient to power about 519,000 homes per year. The project would save approximately 1,990,000 tonnes of greenhouse gas emissions per year. This would assist NSW in achieving the targets established by the *Climate Change*

(Net Zero Future) Act 2023, is consistent with the NSW Climate Change Policy Framework objective of achieving net zero emissions by 2050 and the *Net Zero Plan Stage 1: 2020 – 2030.*

67. The inclusion of a BESS would enable the project to store energy for dispatch to the grid when the wind isn't blowing and/or during periods of peak demand, increasing grid stability and energy security.

68. The project is located in the Central West Orana REZ, a region which has strong renewable energy resources. EnergyCo has identified the project as a Candidate Foundational Generator (CFG) and would have direct access to the electrical grid via the approved CWO REZ transmission line, on land where wind development is permissible with consent under the Transport and Infrastructure SEPP.

69. In light of the above, the Department considers the project is in the public interest as it would play an important role in:

- increasing renewable energy generation and capacity;
- firming the grid by including 320 MW / 640 MWh of energy storage; and
- contributing to the transition to a cleaner energy system as coal fired generators retire.

6.3 Biodiversity

70. ACEN propose to clear 649.92 ha of native vegetation during construction, which would cause direct and indirect impacts to listed threatened flora and fauna species and vegetation communities. Other potential impacts during operation include impacts to flight paths of birds and bats, from changes in air pressure (barotrauma) or collision with turbines (bird and bat strike).

71. Approximately 33% of submissions objecting to the project expressed concerns about the potential impacts on biodiversity, including the clearing of native vegetation, the potential impacts on threatened species and the adequacy of the biodiversity assessment. Biodiversity impacts have been a key focus of the Department's assessment.

72. In NSW (and Australia), the best wind resources are usually associated with hills and ridges at higher elevations, which are often the areas with the least historical vegetation clearing. For that reason, most wind farm projects cannot be developed without a moderate level of vegetation clearing.

6.3.1 Biodiversity assessment process

73. ACEN commissioned EcoLogical Australia to prepare a BDAR as part of the EIS.

74. CPHR initially raised concerns on the application of the Biodiversity Assessment Methodology (BAM) in the preparation of the project's BDAR, in particular the land categorisation methodology, species polygon approach, assessment of potential serious and irreversible impacts (SAII), targeted surveys for threatened species and requirements for bird and bat utilisation surveys (BBUS).

75. ACEN revised its BDAR to address advice from CPHR and comments raised in public submissions, and to address the changes to the project identified in the amendment reports. ACEN also provided a range of additional information during the Department's assessment and provided a further revised BDAR.

76. The Department considers that the biodiversity assessment process has been comprehensive for this project. There was also engagement through the assessment process between the Department, ACEN and CPHR on a range of key biodiversity impacts and technical aspects of the BDAR, working collectively

to ensure there is sufficient information to make a reasonable decision on the project, and to impose suitable conditions, where necessary.

6.3.2 Avoidance and mitigation

77. ACEN reduced the number of proposed turbines from 175 to 148 throughout its design process prior to submitting the EIS and a further reduction to 131 turbines as part of an amendment to the application. The Department acknowledges that deletion of 44 turbines has avoided impacts on threatened ecological communities (TECs), threatened species and woodland areas of high conservation value.

78. A number of measures were implemented during the design process to avoid and/or mitigate potential impacts, including:

- locating turbines and ancillary infrastructure in cleared areas (80% of the development site is paddock areas), and where this is not possible, locating turbines in areas that avoid TECs, threatened species and woodland areas of high conservation value, as far as practicable;
- reducing the number of turbines from 175 in early planning stages to 148 in the EIS, and further again to 131 in the amended application, including associated access tracks;
- removal of three meteorological masts and relocation of seven others to avoid areas of higher quality of native vegetation;
- reducing the development footprint from 1,318 ha at EIS exhibition to 734.96 ha (44% reduction with 32% reduction from design refinements and 12% from removing the connection to the CWO REZ Transmission project now assessed and accounted for in the approved CWO REZ Transmission project), this includes a reduction in total impacts to White Box-Yellow Box-Blakely's Red Gum Woodland (Box Gum Woodland) and Derived Native Grassland (DNG) Critically Endangered Ecological Community (CEEC) from 429 ha to 294.30 ha (31% reduction);
- avoiding areas of Box Gum Woodland CEEC and DNG and limiting fragmentation to connectivity values surrounding the site where possible;
- removing the proposed site access through Uarbry Village, which resulted in a reduction in 5.74 ha of Box Gum Woodland CEEC impacts;
- committing to undertake pre-clearance surveys and to micro-siting of turbines and ancillary infrastructure during the detailed design stage to further avoid impacts to ecologically sensitive areas, as far as practicable;
- committing to develop and implement a Biodiversity Management Plan (BMP) and Bird and Bat Adaptive Management Plan (BBAMP); and
- committing to providing an additional area of NSW Box Gum Woodland (above and beyond the requirements of the BAM) for impacts to NSW Box Gum Woodland in recognition of it being an entity at risk of SAII.

79. The Department has considered these avoidance and mitigation measures in addition to the findings of the revised BDAR, as well as advice from CPHR in its assessment.

6.3.3 Native vegetation

80. The project development footprint (including proposed road upgrades areas) would disturb around 734.96 ha, which includes approximately 649.92 ha of native vegetation, of which 78% (509.20 ha) is DNG and 22% (140.72 ha) is in woodland condition.

81. The project would impact Threatened Ecological Communities (TECs) listed under the BC Act and EPBC Act, including:

- 294.30 ha of Box Gum Woodland listed as CEEC under the BC Act and 36.01 ha listed as CEEC under the EPBC Act. This includes 120.63 ha of woodland condition and 173.67 ha of DNG. Impacts to Box Gum Woodland are discussed further in **Section 6.3.6**.
- 4.71 ha of Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions, listed as EEC under the BC Act and EPBC Act. This includes 0.67 ha of woodland condition and 4.04 ha of DNG.

82. ACEN has committed to minimise clearing of TECs where feasible via micro-siting at the detailed design stage, and to offset the residual biodiversity impacts of the project in accordance with the requirements of *NSW Biodiversity Offset Scheme* (BOS). Biodiversity impacts must be offset prior to ACEN carrying out any development that could directly or indirectly impact biodiversity values requiring offset in accordance with the requirements of BOS.

83. **Appendix H** provides a summary of the estimated impacts of the project on each vegetation type and the associated ecosystem credit liability under the under the BOS. The Department and CPHR consider that all communities including those listed under the EPBC Act, have been correctly identified and assessed.

84. The project has the potential to impact flora species listed under the BC Act and EPBC Act through direct loss from vegetation clearing, and from indirect impacts.

85. Twelve candidate threatened flora species were identified as potentially occurring on the site and were the subject of targeted surveys. Of the 12 candidate species, one threatened species listed as vulnerable under the BC Act was identified outside of the development footprint (bluegrass). As the species is not expected to be impacted by the project, there is no offset requirement for threatened flora species.

6.3.4 Threatened fauna

Ecosystem Credit Species

86. Vegetation clearing within the development footprint would result in the loss of habitat for 38 species identified or predicted to occur as ecosystem credit species.

87. Potential impacts on these species would be offset via the ecosystem credit requirements detailed in **Table 11**.

Species Credit Species

88. Sixteen threatened fauna species listed under the BC Act were recorded within or adjacent to the project site during targeted site surveys (eleven of which have been considered under ecosystem credit species), two of which are also listed under the EPBC Act.

89. Species credits are required for 14 species listed under the BC Act, six of which are also listed under the EPBC Act. Five of these species are known to experience direct impacts resulting from the construction area. ACEN has assumed presence for the remaining species. Potential impacts on these species would be offset via the credit offsets detailed in **Table 12.**

90. Two bats listed as entities at risk of SAII– large-eared pied bat and large bent-wing bat, were recorded on site (discussed further in **Section 6.3.6**). The project would impact on foraging habitat for the large-eared pied bat however no breeding habitat for either species would be impacted.

6.3.5 Prescribed impacts

91. The project has the potential to result in impacts to birds and bats due to changes in air pressure (barotrauma) or collisions with wind turbines (bird and bat strike).

92. The assessment of bird and bat strike is dealt with in a different way to other biodiversity impacts. It is considered a 'prescribed impact', as opposed to a 'direct impact' (like clearing and habitat loss) or an 'indirect impact' (such as impacts of predation, and weed invasion, edge effects in adjacent habitat).

93. Prescribed impacts are impacts on biodiversity values which are not related to, or are in addition to, native vegetation clearing and habitat loss. There is no policy on how to calculate or quantitatively assess prescribed impacts relating to bird and bat strike, and there is no requirement to provide biodiversity offset credits.

94. In that context, the approach that has been adopted for bird and bat strike for all wind farms in NSW is a combination of a risk assessment followed by post-determination adaptive management. This adaptive management approach involves stringent requirements for baseline monitoring, ongoing monitoring of any strike during operation, and triggers for adaptive management measures to avoid or minimise impacts.

95. Following exhibition of the EIS (and BDAR), CPHR requested further information relating to bird and bat strike. ACEN revised the BDAR, which included a revised assessment of potential impacts of bird and bat strike, and more information on proposed mitigation measures and monitoring. The assessment considered conservation status, flight character, distribution across the site and whether the species is migratory.

96. Of the 50 bird and bat species identified (including 11 threatened species), a moderate risk of blade strike is anticipated for two species, the Nankeen Kestrel (*Falco cenchroides*) (not threatened) and Wedge-tailed Eagle (*Aquila audax*) (not threatened). Neither species is listed under the BC or EPBC Act. The remaining bird and bat species are considered a low risk of experiencing blade strike.

97. CPHR raised some residual concerns about bat strike, particularly in relation to the extent and timing of at height monitoring data for the large-eared pied bat and the large bent-winged bat – which are both entities at risk of SAII. CPHR suggested that there is uncertainty around the potential for turbine strike impacts to these two species and therefore the potential for SAII is uncertain.

98. The Department maintains that given that the bats are listed as entities at risk of SAII on the basis of impacts to breeding habitat, and no breeding habitat will be impacted by the Project, any potential for strike impacts would not be a SAII and could be appropriately managed with the implementation of the bird and bat adaptive management plan (BBAMP) as per the Department's recommended conditions. SAII impacts are discussed further in **Section 6.3.6**.

99. In consultation with CPHR, the Department has recommended conditions requiring a comprehensive regime of adaptive management to address the risk of bird and bat strike, including:

- the collection of relevant baseline data on threatened and 'at risk' bird and bat species and populations in the locality that could be affected by the project;
- a detailed description of the measures that would be implemented on site for minimising bird and bat strike during operation of the project including a wind turbine curtailment strategy (if required);
- identifying trigger levels for further investigation of the potential impacts of the project on particular bird or bat species or populations;
- an adaptive management program that would be implemented if the development is having an adverse impact on a particular threatened or 'at risk' bird or bat species or population;
- a detailed program to monitor and report on the effectiveness of these measures and any bird and bat strikes on site; and
- submitting monitoring data to CPHR and the Planning Secretary.

100. The Department and CPHR are satisfied that implementation of the BBAMP and the recommended conditions would be effective in mitigating the risk of bird and bat strike.

6.3.6 Serious and Irreversible Impacts

101. Under clause 6.7 of the *Biodiversity Conservation Regulation 2017* (BC Regulation), an impact is to be regarded as serious and irreversible if it is "likely to contribute significantly to the risk of a threatened species or ecological community becoming extinct" on the basis of four principles.

102. In accordance with section 7.16(3) of the BC Act, if the Minister for Planning (or their delegate) is of the opinion that there is likely to be a serious and irreversible impact on biodiversity values, they are required to (1) take those impacts into consideration and (2) determine whether there are any additional and appropriate measures that would minimise those impacts if the activity is to be carried out or approved.

103. The Project has the potential to impact three entities which are at risk of SAII according to the BioNet Threatened Biodiversity Data Collection – Box Gum Woodland, Large-eared Pied Bat and Large Bent-winged Bat (cave dwelling microbats).

104. ACEN's accredited ecologist assessed the potential SAII risk in accordance with the nine assessment provisions set out in section 9.1.1 of BAM, including the *Guidance to assist a decision-maker to determine a serious and irreversible impact*.

105. CPHR has stated that the project is likely to result in SAII on Box Gum Woodland, and that there is the potential for SAII on cave-dwelling microbats but that this could be managed with recommended measures.

Box Gum Woodland

106. Box Gum Woodland is listed based on principles (1) and (2) which relate to an ecological community (1) in a rapid rate of decline and (2) with a very small population size.

107. ACEN has committed to avoid and minimise impacts on Box Gum Woodland where possible, however it is not possible to completely avoid impacts on Box Gum Woodland while maintaining a viable wind farm project.

108. CPHR acknowledged that ACEN has taken reasonable steps to avoid and minimise direct impacts to Box Gum Woodland CEEC in the amended design, however noted that the residual impact to 294.30 ha of the community could be considered a SAII.

109. As Box Gum Woodland is listed on the basis of 'population size' and 'rate of decline', it is particularly relevant to consider the project's potential impacts on Box Gum Woodland against the total area remaining in NSW. The total area remaining in NSW is difficult to quantify. In 2006 the Threatened Species Scientific Committee estimated that the extent of Box Gum Woodland was 250,729 ha. Other more recent estimates include advice provided by Dr Col Driscoll recently in relation to the Moolarben Coal Project, which is based on the recent State-wide Vegetation Type Map (SVTM) released in 2022. Dr Driscoll estimates that the "*there is approximately 1,788,703 ha of extant Box Gum Woodland CEEC within the SVTM in woodland form*" and also estimated that there is approximately 5,315,040 ha of derived native grassland form, which results in a total of 7,103,743 ha of Box Gum Woodland in NSW.

110. Based on these two estimates the 294.30 ha of clearing required for the project would represent between 0.004% and 0.11% of the total remaining area in NSW. The Department considers that it would be very difficult to conclude that an impact within this range is likely to contribute significantly to the extinction of Box Gum Woodland.

111. The Department recognises that there are a number of upcoming projects in the CWO region, including multiple wind farms, solar farms and coal mining projects, and is looking carefully at potential cumulative impacts on biodiversity, particularly in relation to Box Gum Woodland. Based on the next 10-12 projects at various stages of the planning process in the CWO region (including this project), the Department conservatively estimates that there could be a total area of impact of up to 2,000 ha of Box Gum Woodland. Using the recent estimates, this would represent between 0.03% and 0.15% of the total area of Box Gum Woodland, or up to 0.85% using the estimates based on the 2006 figure.

112. The Department considers that it would be reasonable to conclude that a cumulative impact of less than 1% using the most conservative assumptions is still unlikely to contribute significantly to extinction of Box Gum Woodland, and therefore unlikely to be SAII. However, the Department acknowledges that a precautionary approach may be appropriate and has been advising proponents to seek a 'nature positive' outcome that may help to further protect the Box Gum Woodland community.

113. In that regard, ACEN has offered to minimise the impacts on Box Gum Woodland, which involves securing and conserving additional land within conservation agreement at a 1:1 ratio (measured by area) for protection and enhancement within the locality. These measures are additional to the credit liability required to be offset under the NSW Biodiversity Offset Scheme (BOS).

114. The Amended BDAR identified and assessed the suitability of a potential conservation site referred to as 'Tomahawk', comprising 217 ha of Box Gum Woodland. ACEN is continuing to explore additional and alternative suitable sites.

115. CPHR advice on the Amendment Report identified 120 ha of Box Gum Woodland (woodland condition) and 162 ha of Box Gum Woodland (DNG)[3] would need to be conserved to be commensurate to the impacts of the project.

116. The Department has recommended a condition requiring ACEN to secure land comprising 282 ha of Box Gum Woodland for the purpose of protection and enhancement, in perpetuity.

117. To provide ACEN a sufficient opportunity to undertake additional surveys and secure land-based offsets sites, the Department has imposed conditions requiring that further details on securing additional land are finalised (including the specific land and relevant timeframes) prior to any impacts occurring.

118. The Department considers that this would result in the conservation of an additional area of 282 ha of Box Gum Woodland within a conservation agreement (over and above the relevant credit obligations) and would ensure that there is a net benefit for the Box Gum Woodland community from this project. Consequently, the Department is satisfied that the project's impacts would not contribute significantly to the risk of extinction and would not constitute SAII.

Cave dwelling microbats

119. Two threatened microbat species were recorded during site surveys, the large-eared pied bat and large bent-winged bat. Both species are listed entities at risk of SAII on the basis of Principle 4 - unlikely to respond to measures to improve its habitat and vegetation integrity.

120. As described in the 2021 BAM Guide for 'Species credit threatened bats and their habitats', any potential SAII for these two species is related to impacts to its breeding habitat. The features of suitable breeding habitat for the large bent-winged bat and large-eared pied bat include caves in scarps, cliffs and rock overhangs as well as disused mines. These features cannot be re-created and are considered irreplaceable.

121. CPHR concluded that the likelihood of SAII on both species is uncertain due to insufficient survey data.

122. In response to concerns raised by CPHR, ACEN undertook additional surveys for threatened microbat species near potential breeding habitat (cliff line areas). The surveys did not identify any breeding individuals for threatened microbat species, with one male large-eared pied bat and no large bent-winged bats recorded. Subsequently, the criteria for breeding habitat was not met for these species.

123. CPHR raised residual concerns around the extent and seasonality of ACEN's at-height data for these species, meaning that potential operational impacts of the project (i.e. turbine strike) remains uncertain. CPHR suggested that turbine strike has the potential to result in SAII to these species due to the potential for loss of breeding individuals.

[3] The Department notes that the works on Black Stump Way and Moorefield Road (west) (Amendment 3) would result in an additional 11.67 ha of impact to vegetation which has been conservatively classified as low condition Box Gum Woodland DNG due to timing restrictions on survey effort. Given its condition, this additional impact area would not generate additional offset requirements under the BAM 2020 and therefore considers the originally proposed minimisation measures for SAII remain sufficient.

124. In response to CPHR concerns, the Department has recommended that the BBAMP include additional at height monitoring as part of baseline data surveys and the option for a wind turbine curtailment strategy should this data indicate a significant risk of impact.

125. ACEN has designed the project to avoid cliff line and cave habitat and has committed to micro-site all turbines to be at least 200 m from these habitat features including turbines MH15 and LV22. Therefore, no breeding structures, which is the focus of the SAII Principle 4, would be directly impacted by the project. Consequently, the Department is satisfied that the project's impacts would not contribute significantly to the risk of extinction, and would not constitute SAII.

6.3.7 Significance of impacts on Commonwealth listed species and communities

126. ACEN identified and addressed all threatened species and communities included in the Commonwealth Referral Decisions (EPBC 2020/8668) (the Referral Decision).

127. Assessments of Significance were undertaken for threatened species and communities known or likely to be impacted by the project, including two threatened ecological communities, nine threatened fauna species and one threatened flora species.

128. Assessments of significance concluded that the project is unlikely to result in significant impacts to MNES.

129. The Department considered Commonwealth matters in consultation with CPHR and AG DCCEEW, including consideration of ACEN's assessments of significance and the relevant approved conservation advice, recovery plans and threat abatement plans (TAPs). A summary of this assessment is provided in Appendix K.

6.3.8 Biodiversity offsets

130. The project would generate a credit liability of 6,307 ecosystem credits and 2,928 species credits requiring offset under the NSW Biodiversity Offset Scheme for the project.

131. Both the Department and CPHR are satisfied that the offset credit requirements have been correctly calculated. ACEN would offset the residual biodiversity impacts of the project in accordance with the NSW Biodiversity Offset Scheme, which includes the following options:

- acquiring or retiring 'biodiversity credits' within the meaning of the BC Act;
- creating Biodiversity Stewardship Agreements (BSAs) on local land;
- making payments into an offset fund that has been developed by the NSW Government; and/or
- funding a biodiversity conservation action that benefits the entity impacted and is listed in the ancillary rules of the offset scheme.

132. The Department notes that ACEN proposes to meet its offset liability through either the purchase and retirement of credits, payment to the Biodiversity Conservation Fund or by establishing conservation agreement. In accordance with the bilateral agreement, variation rules would not be applied to MNES entities and all credits would be retired on a like-for-like basis.

133. The Department has recommended conditions requiring the Applicant to retire the required biodiversity offset credits in accordance with the NSW Biodiversity Offsets Policy for Major Projects prior to carrying out any development that could directly or indirectly impact the biodiversity values requiring offset.

134. The Department notes that with further avoidance measures during detailed design the number and class of credits required to be offset could be reduced. The credits would be re-calculated when the final layout design of the project is known to confirm the final number and class of biodiversity credits required to be offset. This approach provides an incentive to ACEN to avoid and minimise impacts on biodiversity values through the detailed design process to limit the offset liability for the project.

135. Subject to the recommended conditions, the Department and CPHR are satisfied that the project could be undertaken in a manner that maintains the biodiversity values of the locality over the medium to long term.

6.3.9 Recommended conditions

136. The Department has recommended conditions requiring ACEN to:

- minimise the clearing of native vegetation and key fauna habitat, including hollow bearing trees, within the development footprint and protect native vegetation and key fauna habitat outside the approved disturbance area in accordance with limits in the recommended conditions;
- prepare and implement the Biodiversity Management Plan which includes a description of the measures to:
  - implement clearing and operational management protocols;
  - minimise the impacts of the development on threatened flora and fauna species within the disturbance footprint:
  - minimise the potential indirect impacts on threatened flora and fauna species, migratory species and 'at risk' species;
  - secure land comprising 282 ha of Box Gum Woodland and implement measures to enhance and protect, in perpetuity, this vegetation to condition state commensurate with Box Gum Woodland;
  - rehabilitate and revegetate temporary disturbance areas and maximise the salvage of resources within the approved disturbance area for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and revegetation of the site;
  - control weeds and feral pests;
  - provide a detailed program to monitor and report on the effectiveness of these measures.
- prepare and implement a Bird and Bat Adaptive Management Plan in consultation with CPHR and the AG DCCEEW;
- retire the applicable biodiversity offset credits in accordance with the NSW Offsets Policy prior to carrying out any development that would directly or indirectly impact biodiversity values requiring offset.

6.3.10 Conclusion

137. The Department considers that effort has been made to avoid and minimise biodiversity impacts as far as practicable through project design. This has been achieved through measures such as locating infrastructure within areas of non-native vegetation, adopting buffers for important habitat features and avoiding threatened species habitat, including areas of high-quality Box Gum Woodland. ACEN has committed to adopt further avoidance wherever practicable as part of the detailed design process.

138. The Department considers that the recommended condition for a Biodiversity Management Plan and Bird and Bat Adaptive Management Plan would further minimise the impacts on vegetation and fauna, including the collision risk to birds and bats.

139. Overall, the Department considers that the biodiversity impacts of the project are acceptable, subject to the implementation of the recommended conditions, offsetting the residual biodiversity impacts of the project, and the provision of minimisation measures to manage impacts to Box Gum Woodland CEEC.

6.4 Visual

140. Approximately 70% of public submissions objecting to the project raised concerns about visual impacts, particularly regarding the size and scale of the wind farm, impacts on the character of the landscape, and the cumulative impacts with other wind farms in the area.

141. ACEN commissioned a Landscape and Visual Impact Assessment (LVIA) as part of its EIS and updated its LVIA to address changes to the projects as detailed in the Amendment Report. During the Department's assessment, ACEN provided further assessment of receivers, including additional photomontages, and wireframes with representative vegetation cover and secured additional neighbour agreements.

142. The Department visited the site and several non-associated residences surrounding the project to assess visual impacts and to further understand residents' concerns.

6.4.1 Avoidance and mitigation

143. The Visual Bulletin lists different visual impact mitigation options for consideration, including physical turbine alterations (re-siting, re-sizing and re-colouring), landscaping alterations such as vegetation screening, and landowner agreements for significantly affected landowners.

144. The Department considers that re-siting or removing turbines is generally the most effective mitigation option, given that re-sizing specific turbines is not a viable option for commercial and maintenance reasons.

145. ACEN responded to submissions by amending the development application after the EIS exhibition, reducing the maximum number of proposed turbines from 148 to 131.

146. ACEN also responded to concerns raised by the Department during its assessment of the project by securing neighbour agreements with 22 additional landowners, bringing the total number of associated receivers from 22 to 59 (including four host landowners). The Department acknowledges that deletion of 17 turbines (post EIS lodgement) has reduced the visual impact on the landscape and at some non-associated residences, particularly in and around Coolah.

147. ACEN proposed to address the residual visual impacts by:

- providing vegetation screening and/or supplementary plantings, in consultation with the relevant landowners;
- using building materials and treatments for associated infrastructure which visually complement the existing landscape character and reduce glint; and
- avoiding unnecessary lighting, signage on fences and logos.

6.4.2 Impact assessment approach

148. The Department assessed the visual impacts of the project against the Bulletin's visual performance objectives. These depend on the visual influence zone (VIZ) of a receiver, which is a combination of viewer sensitivity, visibility, distance and scenic quality class, and comprises three zones: high (VIZ1), moderate (VIZ2) and low (VIZ3).

- **Visual magnitude** – black (3.35 km) and blue (4.95 km) distance thresholds based on 250 m high turbines indicate where turbines may significantly impact a receiver. In summary, the Bulletin recommends for residences in:
  - VIZ1 within the blue line: avoid turbines or provide detailed justification for turbines;
  - VIZ2 between the blue and black line: consider screening;
  - VIZ2 within the black line: manage impacts as far as practicable and justify residual impacts, describing mitigation measures for turbines; and
  - VIZ3 within the black line: consider screening.
- **Multiple Wind Turbine Effects –** considers the cumulative landscape and visual impacts. The performance objectives for each receiver is dependent on viewer sensitivity level (rather than VIZ). For level 1 (high sensitivity) receivers, turbines within 8 km should avoid being visible in more than one 60 degree sector, and for level 2 (moderate sensitivity) receivers, avoid more than two 60 degree sectors.
- **Landscape Scenic Integrity –** considers how the project would alter the current landscape character and scenic quality of the visual catchment. For VIZ1, turbines should be very small or faint, or of a colour contrast that would not compete with major elements in the existing visual catchment. For VIZ2, wind turbines may be visually apparent and could become a major element, but not dominate the landscape. For VIZ3, turbines may be visually apparent or significantly modify the visual catchment.
- **Key Feature Disruption** – describes how likely turbines are to disrupt the central line of sight and/or the central focal viewing fields surrounding identified key features of a landscape. For VIZ1, turbines should not remove, visually alter or disrupt an identified key landscape feature. For VIZ2, these impacts should be minimised. No objective applies to VIZ3.
- **Shadow Flicker and Blade Glint** – for each VIZ, shadow flicker to be limited to 30 hours per year and turbines finished with a low reflectivity surface treatment to minimise blade glint.
- **Aviation Hazard Lighting** – where required, aviation hazard lighting must meet the requirements of *Australian Standard AS 4282 - 1997* and any prescribed or notified CASA requirement. Shielding of all Aviation Hazard Lighting within 2 km of a residence and avoid strobe lighting.

6.4.3 Impact assessment

149. There are 87 non-associated residences located within 4.95 km (the blue line) of the nearest proposed turbine, of which 23 are within 3.35 km (the black line).

150. For ease of assessment, the Department has grouped these non-associated residences into four clusters (see **Figure 4**):

- **Northern**: residences to the north-west of the project in proximity to the township of Coolah.
- **Black Stump Way**: residences located along Black Stump Way, between Mount Hope and Girragulang cluster of turbines.
- **Leadville**: residences located in proximity to the township of Leadville.
- **South-eastern**: residences located to the south-east of the project, with most residences located along Tongy Lane.

151. The Department's assessment of predicted visual impacts on non-associated residences within the black line is discussed below.

152. As shown in **Table 8** the project would meet all the visual performance objectives in the Visual Bulletin for all residences within the black line, below. The Department is satisfied that the project is suitable for the site and would not cause any unacceptable visual impacts on the surrounding non-associated residences.

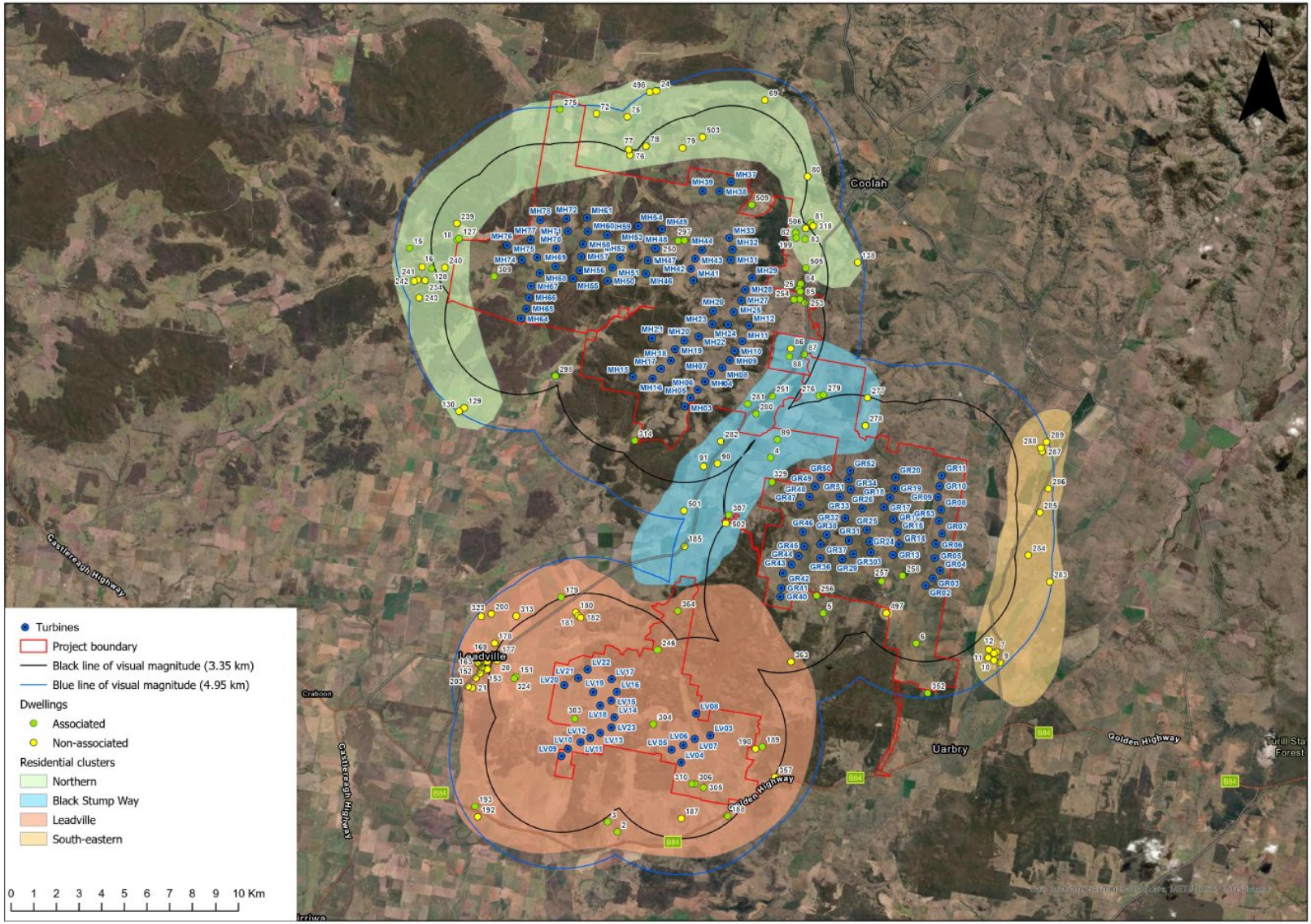


Figure 4 | Visual assessment clusters

Table 8 | Visual Impact Assessment – Non-associated residences below the black line (<3.35 km of the nearest turbine)

Residence	Turbine(s) and distance (km) within black line (<3.35 km)	VIZ	**Department assessment** - aligns with visual performance objective?			Recommended mitigation
			Visual Magnitude	**Multiple wind turbine**	**Landscape scenic integrity / Key feature disruption**	
Northern receivers cluster						
76	MH54 (3.15), MH61 (3.35)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
78	MH39 (3.15)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
79	MH39 (2.09), MH38 (2.50), MH37 (2.60)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
239	MH76 (2.42), MH74 (3.29), MH77 (3.33)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
240	MH76 (2.91)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
506	MH29 (3.22)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
503	MH37 (2.33), MH39 (2.38), MH38 (2.49)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
Black Stump Way receivers cluster						
86	MH12 (2.10), MH11 (2.16), MH10 (2.49), MH09 (2.74), MH24 (2.96), MH25 (2.99), MH27 (3.05), MH08 (3.13), MH28 (3.28)	VIZ2	Yes	Yes –turbines potentially visible in four sectors, however existing vegetation and topography would screen views of most turbines and reduce the number of sectors visible to one.	Yes	Vegetation screening on request
90	MH03 (2.90), MH05 (3.13)	VIZ2	Yes	Yes –turbines potentially visible in three sectors, however existing vegetation and topography would screen views of some turbines	Yes	Vegetation screening on request

Residence	Turbine(s) and distance (km) within black line (<3.35 km)	VIZ	**Department assessment** - aligns with visual performance objective?			Recommended mitigation
			Visual Magnitude	**Multiple wind turbine**	**Landscape scenic integrity / Key feature disruption**	
91	MH03 (2.77), MH05 (3.07)	VIZ2	Yes	Yes –turbines potentially visible in three sectors, however existing dense vegetation and topography would screen views of turbines.	Yes	Vegetation screening on request (ACEN have developed a planting plan)
277	GR52 (3.30)	VIZ2	Yes	Yes	Yes	Vegetation screening on request (ACEN have developed a planting plan)
278	GR52 (2.10), GR51 (2.48), GR20 (2.65), GR34 (2.88), GR50 (3.01), GR19 (3.06), GR33 (3.33), GR18 (3.35)	VIZ2	Yes	Yes – Although turbines have the potential to be visible in four sectors, existing vegetation and topography would screen views of most turbines	Yes	Vegetation screening on request
282	MH03 (2.22), MH05 (2.34) MH06 (2.49), MH04 (2.72), MH07 (3.03), MH08 (3.25)	VIZ2	Yes	Yes - Although turbines have the potential to be visible in four sectors, existing vegetation and topography would screen views towards most turbines	Yes	Vegetation screening on request
502 (potential dwelling)	GR42 (3.31)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
South-eastern cluster						
497	GR02 (2.11), GR03 (2.56), GR13 (2.58), GR23 (2.76), GR30 (2.98), GR04 (3.02), GR14 (3.08), GR29 (3.08), GR24 (3.22), GR05 (3.22)	VIZ2	Yes	Yes – although turbines have the potential to be visible in three sectors, existing vegetation and topography would screen views	Yes	Vegetation screening on request (ACEN have developed a planting plan)
Leadville receivers cluster						
20	LV20 (3.15)	VIZ2	Yes	Yes	Yes	Vegetation screening on request

Residence	Turbine(s) and distance (km) within black line (<3.35 km)	VIZ	**Department assessment** - aligns with visual performance objective?			Recommended mitigation
			Visual Magnitude	**Multiple wind turbine**	**Landscape scenic integrity / Key feature disruption**	
177	LV20 (3.20)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
180	LV22 (2.57), LV21 (2.90), LV20 (3.24), LV17 (3.34)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
181	LV22 (2.40), LV21 (2.75), LV20 (3.11), LV17 (3.16)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
182	LV22 (2.31), LV21 (2.67), LV17 (3.04), LV20 (3.06), LV19 (3.33)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
187	LV04 (2.47), LV05 (3.05), LV06 (3.23)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
190	LV03 (2.08), LV07 (2.72), LV08 (3.05), LV06 (3.19), LV04 (3.34)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
363	GR40 (2.91), GR41 (3.28)	VIZ2	Yes	Yes	Yes	Vegetation screening on request

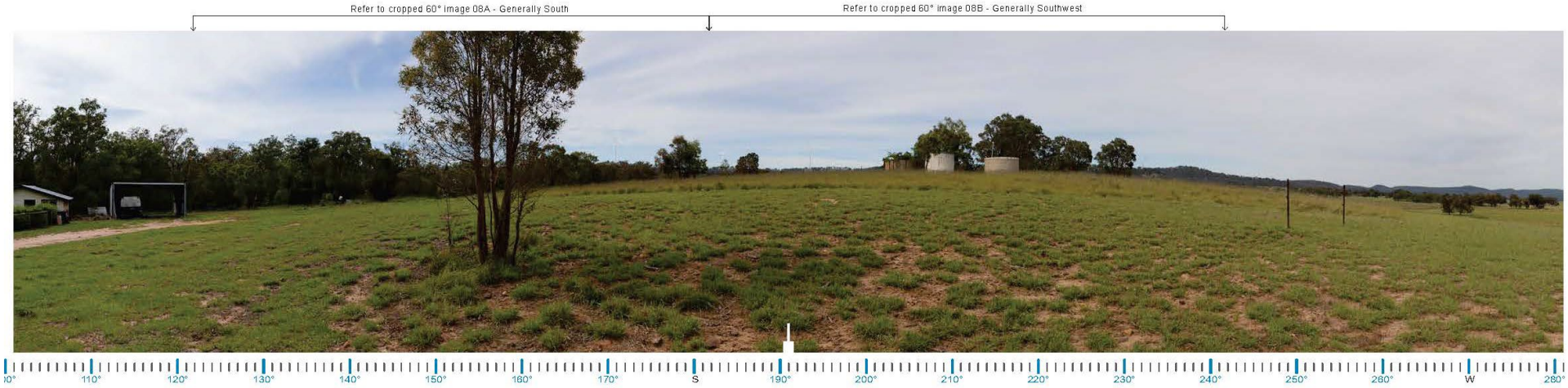
Northern cluster

153. The northern cluster is located to the north of the project site and west of the Coolah township, and includes non-associated residences situated on low density, rural lots. The landscapes within this cluster consist of flat to gently undulating terrain, with patches of scattered remnant vegetation. The land has largely been cleared and modified for agricultural uses, including dryland cropping and grazing. ACEN's LVIA identified that the scenic quality of this location varies between low to moderate. Residences within the Northern cluster are of level 2 visual sensitivity.

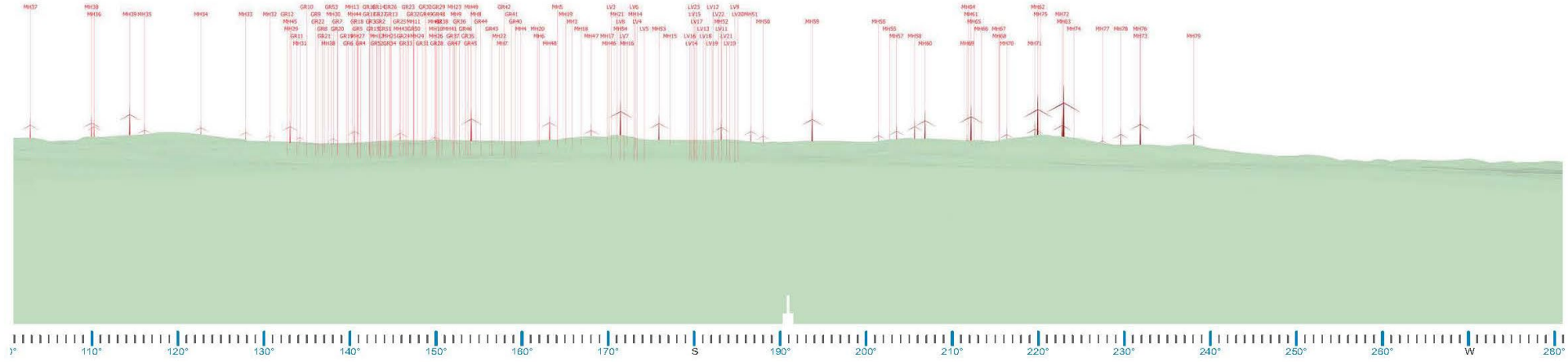
154. There are 23 non-associated residences within 4.95 km of a proposed turbine within the northern cluster. Receivers would primarily have views towards Mount Hope cluster of turbines, however views would be limited by intervening topography and existing vegetation.

155. The Department's assessment of non-associated residences in the cluster, including consideration of whether the proposed turbine layout aligns with the visual performance objectives is summarised in **Table 8** and **Appendix L**. Most dwellings within this cluster benefit from distance, intervening topography and screening from existing vegetation between viewpoints and the project. **Figure 5** provides an example wireframe and photomontage of representative views from receivers in this cluster (residence 76).

156. Due to distance, intervening topography and existing mature vegetation, there would be limited visual impacts to non-associated receivers in this cluster. The Department is satisfied that the project layout aligns with the Visual Bulletin and has recommended conditions requiring ACEN to provide vegetation screening for receivers within 4.95 km, if requested by the landowner.



Proposed View - 180 degree field of view



Proposed Wireframe View - 180 degree field of view

Figure 5 | Wireframe and photomontage for residence 76

Black Stump Way cluster

157. The Black Stump Way cluster traverses the centre of the project site, comprising low density rural residences located along Black Stump Way. The surrounding landscape consists of generally flat, cleared land used for grazing, with sparsely scattered remnant vegetation near residences. Views along Black Stump Way are open and expansive. ACEN's LVIA identified that the scenic quality of this locality is low to moderate. Residences within the Black Stump Way cluster are of level 2 visual sensitivity.

158. There are ten existing non-associated residences in this cluster located within 4.95 km of a proposed turbine. Residences would have views towards the Mount Hope turbines to the north-west and Girragulang Road turbines to the south-east.

159. The Department has considered the visual impacts to one residence (502) where a dwelling does not currently exist. It is understood that the former dwelling was destroyed in a bushfire, and the landowner may rebuild a dwelling in future.

160. The Department's assessment of non-associated dwellings in the cluster, including consideration of whether the proposed turbine layout aligns with the visual performance objectives is summarised in **Table 8** and **Appendix L**.

161. The Applicant conducted detailed dwelling assessments and provided photomontages or wireframes for residences with potential views of turbines in three or more 60 degree sectors (see **Figure 6**).

162. The LVIA identified several residences (86, 90, 278 and 282) with potential views of turbines in more than three 60 degrees sectors. The Department requested ACEN to provide photomontages or wireframes overlaid with representative vegetation from LIDAR data to demonstrate that existing vegetation and topographical features would screen views to turbines at these dwellings.

163. Given the extent of intervening vegetation and topographical features, the visual impacts on non-associated residences in this cluster would be limited. The Department has recommended conditions requiring ACEN to offer vegetation screening for receivers within 4.95 km, if requested by the landowner.

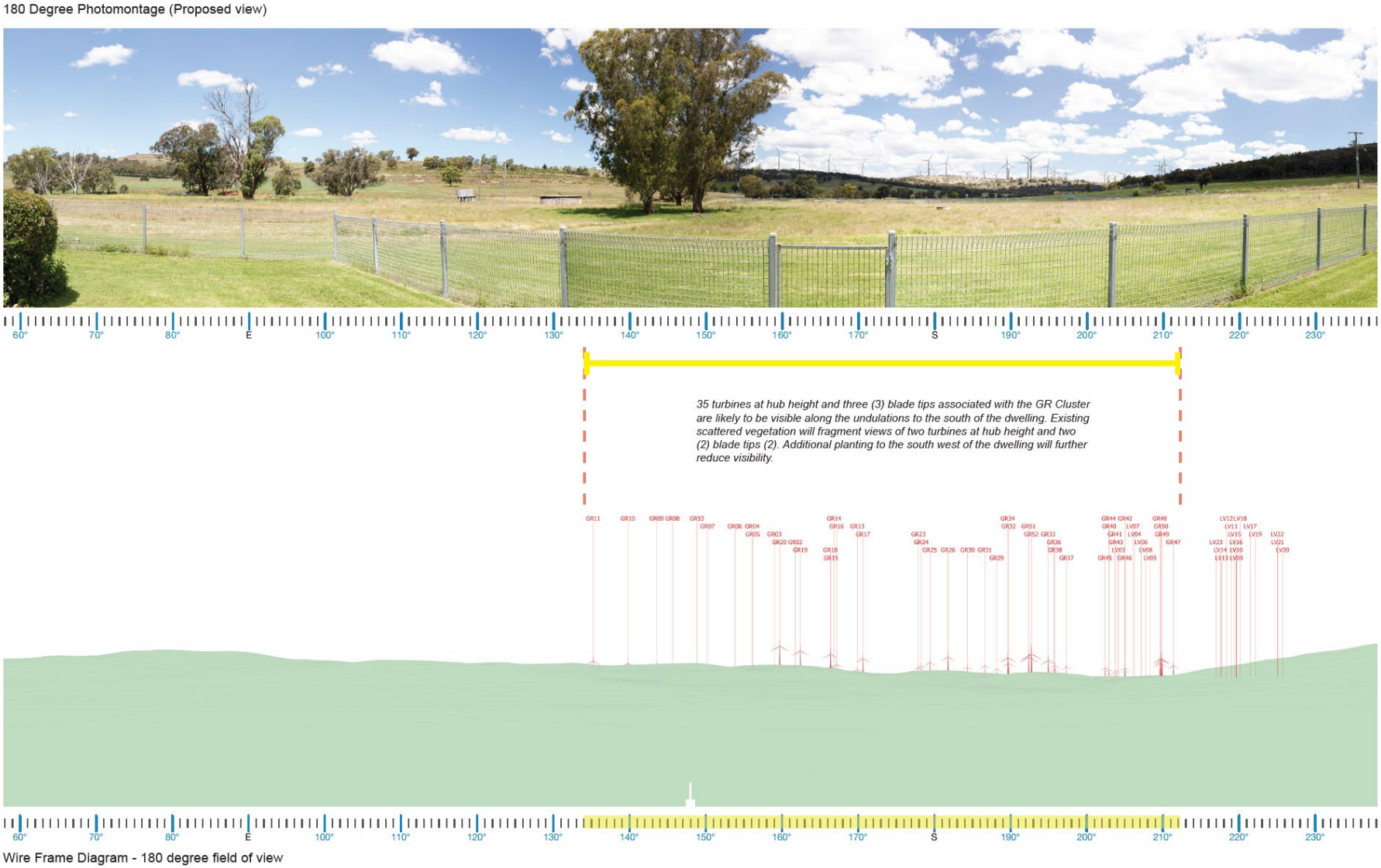


Figure 6 | Wireframe and photomontage for residence 277

South-eastern cluster

164. The south-eastern cluster is located to the east of the project, largely comprising low density rural residences situated along Tongy Lane. The landscape within the south-eastern cluster is generally flat, comprising vegetated road corridors with limited views of surroundings. ACEN's LVIA identified that the scenic quality of this locality is moderate. The residences within this cluster are of level 2 visual sensitivity.

165. One non-associated residence (497) is located within 3.45 km of a proposed turbine to the west of Tongy Lane. ACEN conducted a detailed dwelling assessment for this residence and provided wireframes overlaid with representative vegetation from LIDAR data which demonstrate that views towards the project would be screened by existing mature vegetation as shown in **Figure 7.**

166. A further 13 non-associated residences are between 3.45 km and 4.95 km of a proposed turbine. See **Appendix L** for the detailed assessment of potential visual impacts to these residences. These residences would primarily have views towards a string of up to ten turbines, however all benefit from distance, intervening topography and screening from existing mature vegetation between viewpoints and the project.

167. The landowner of residences 7, 8, 11 and 12 objected to the project, raising their intention to re-establish a dwelling on Lot 1 in DP750745 that they claim was lost in a fire. The Department reviewed aerial imagery dating back to 2011 and found no evidence of a dwelling or building at the location provided. This landowner also stated that there were other dwelling entitlements for Lot 2 in DP750745, however no dwelling currently exists at the time of writing this report. Warrumbungle Shire Council advised that the two lots are part of the property 'Tongy' which consists of 22 lots of land in total. If split from the 'Tongy' property, the two lots individually would not meet the minimum lot size requirements to allow future development of a dwelling. Council also confirmed that they had no evidence or records for any applications or plans for dwellings on either lot.

168. The Department is satisfied that the project layout aligns with the Visual Bulletin has recommended conditions requiring ACEN to offer visual impact mitigation measures, such as landscaping and/or vegetation screening, at these residences if requested by the landowner.

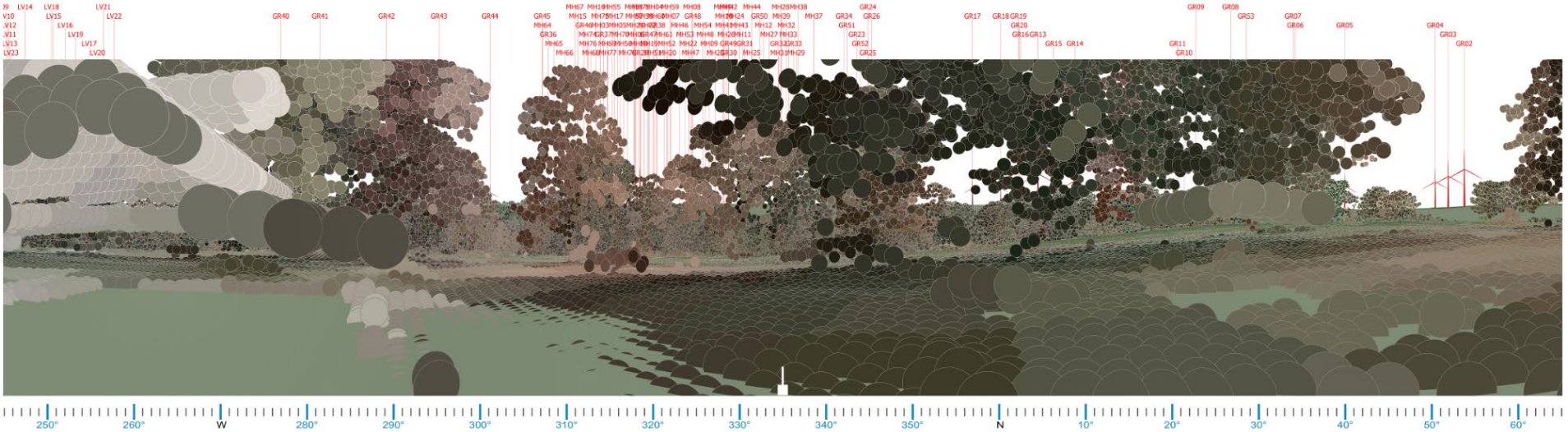


Figure 7 | Wireframe overlaid with representative vegetation from LIDAR data for residence 497 (facing north-west)

Leadville cluster

169. The Leadville cluster is located to the west of the project site, and mostly includes residences located within and surrounding the township of Leadville. The landscape within the Leadville cluster is largely cleared with scattered vegetation, dominated by low to medium density dwellings. ACEN's LVIA identified that that the scenic quality of this locality is low to moderate. Residences within the Leadville cluster are of level 2 visual sensitivity.

170. 41 existing non-associated dwellings in this cluster are located within 4.95 km of a proposed turbine. There are 22 non-associated residences located in the township of Leadville, all of which are zoned RU5 Village. Turbines from the Leadville township would be visible towards the east and partially filtered by vegetation and undulations in topography. There are 17 non-associated residences scattered across the outskirts of Leadville, all of which are zoned RU1 Primary Production.

171. The Department's assessment of non-associated residences in the cluster, including consideration on whether the proposed turbine layout aligns with the visual performance objectives is summarised in **Table 8** and **Appendix L**. **Figure 8** provides a representative view towards the project for residences in the Leadville village.

172. ACEN also provided a wireframe with representative vegetation for residence 181, which is situated further away from the Leadville village and closer towards the turbines. **Figure 9** demonstrates that views towards the project from residence 181 and the two neighbouring non-associated residences (180 and 182) would largely be screened by the surrounding topography and existing vegetation.

173. Views from public viewpoints within the town of Leadville towards the project have been represented by indicative viewpoints, VOW10, VOW11 and VOW25. The LVIA determined that although up to 20 turbines may be visible at some locations, these views would be fragmented and fleeting, partially screened by topography and existing vegetation.

174. The Department is satisfied that the project layout aligns with the Visual Bulletin has recommended conditions requiring ACEN to offer visual impact mitigation measures, such as landscaping and/or vegetation screening, at these residences if requested by the landowner.

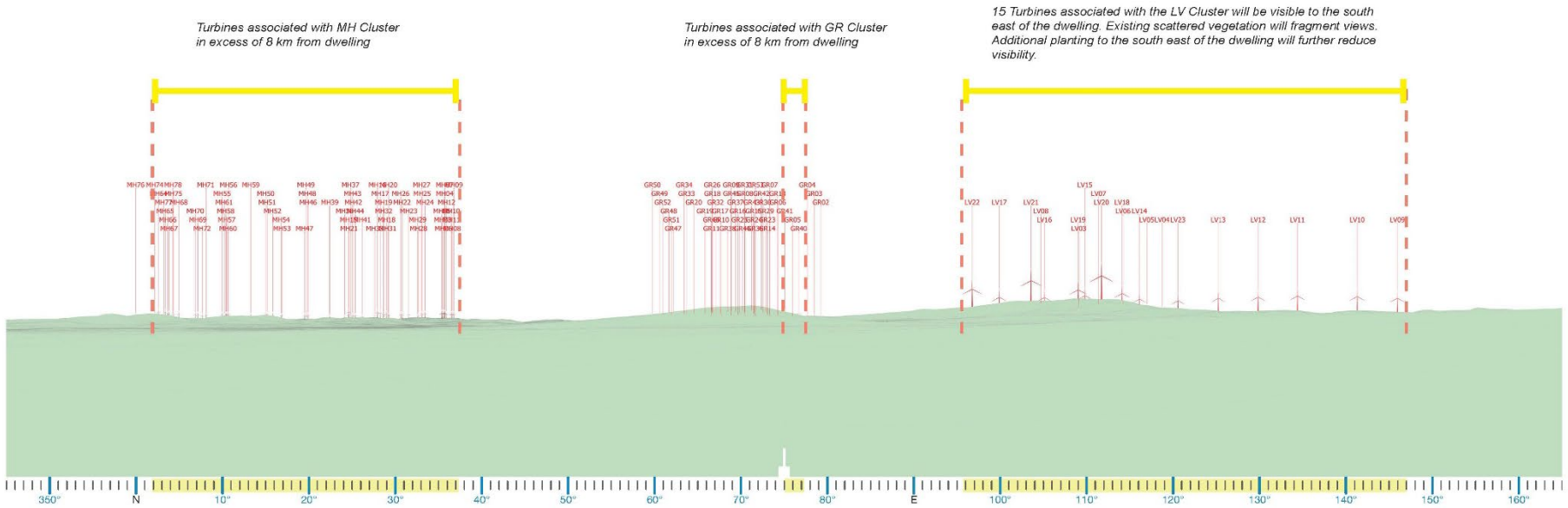


Figure 8 | Wireframe for residence 177 (representative of Leadville village)

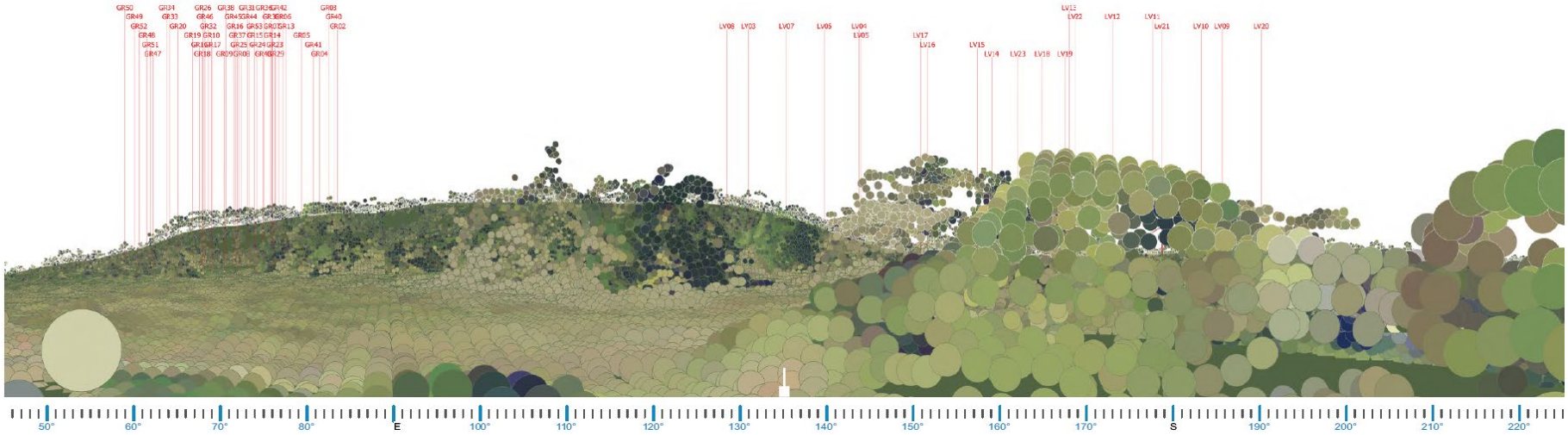


Figure 9 | Wireframe with LIDAR for residence 181 (south east direction)

Cumulative impacts

175. Liverpool Range Wind Farm (LRWF) is an approved development located approximately ten kilometres north-east of the project site.

176. 17 non-associated residences are located within eight kilometres of both LRWF turbines and the project. The LVIA addendum identified that five of these non-participating residences would have the potential to view turbines associated with the project in up to three 60 degree sectors (R144, R138, R93, R290, R249). Additional vegetation screening is available on request for residences R144 and R138 (see **Appendix L**). Views of both projects from residences R93, R290 and R249 would be distant and partially screened by existing vegetation.

177. The project would also connect to the approved CWO REZ Transmission line.

178. There are three non-associated receivers (R497, R190, R357) in proximity to both the project and the CWO REZ transmission line (less than 2 km from the transmission line). They are all more than 2km from the nearest turbine and are well screened by existing vegetation. Additional vegetation screening is available on request for all three residences and therefore the Department does not consider that the infrastructure for both projects would be dominant in the landscape.

Key public viewpoints

179. ACEN identified and assessed the visual impacts of the project from 41 public viewpoints surrounding the project in accordance with the visual performance objectives in the Visual Bulletin, including:

- No VIZ1 viewpoints;
- VIZ2 viewpoints (two locations) – along Mount Hope Road, Coolah and Wardens Road, Leadville; and
- VIZ3 viewpoints (39 locations) – including multiple local roads in Coolah, Leadville, and Uarbry.

180. The viewpoints assessed as VIZ2 are located along Mount Hope Road, Coolah and Wardens Road, Leadville, approximately 1.27 km and 1.91 km from the nearest proposed turbine, respectively. The LVIA found that the Project is likely to be partially visible in the landscape from both VIZ2 viewpoints. However, these roads are low use roads, and these viewpoints would benefit from undulating terrain, existing scattered vegetation, and short duration of impact, which would minimise views of the project.

181. Ten viewpoints assessed as VIZ3 are located within the black line, with an additional 14 being located between the black line and the blue line. The Department considers that at these locations, there would be limited numbers of traffic and views would be short duration and would not have a significant impact. While some wind turbines would be visible from most public viewpoints assessed, these views would benefit from distance, intervening topography, and existing mature vegetation. The Department recognises that the project benefits from undulating landforms which partially obstruct views of the turbines from the broader landscape and considers that the project would not dominate the existing visual catchment.

182. In summary, the Department considers that the visual performance objectives would be achieved at all public viewpoint locations.

Ancillary infrastructure

183. The project's ancillary infrastructure includes a 330 kV transmission line, on-site substations and battery energy storage system. ACEN has sited this infrastructure to minimise visibility from existing residences and publicly accessible viewpoints.

184. The Department also undertook an assessment of the visual impacts associated with the project's ancillary infrastructure, noting that the Applicant provided further information during its assessment.

185. The Department considers the project's ancillary infrastructure is unlikely to have a significant visual impact given there are existing transmission lines and agricultural infrastructure in the area, the limited size of the infrastructure, the location of the ancillary infrastructure away from non-associated residences, the intervening topography and vegetation, and ACENs proposed landscape treatments and selection of ancillary infrastructure components with low visual contrast.

186. Notwithstanding, the Department has recommended conditions requiring ACEN to ensure the visual appearance of all ancillary infrastructure (including paint colours, specifications and screening) blends in as far as possible with the surrounding landscape.

Shadow flicker and blade glint

187. The project has the potential for shadow flicker and blade glint. The Visual Assessment Bulletin's objective for shadow flicker is no more than 30 hours per year.

188. ACEN's LVIA included a Shadow Flicker Assessment, which concluded that the proposed layout would achieve the recommended limit of 30 hours per year at all non-associated receivers.

189. Notwithstanding, the Department has recommended conditions requiring ACEN to ensure that shadow flicker from turbines does not exceed 30 hours per annum at any non-associated receiver.

190. Blade glint is addressed through the Applicant's commitment to ensure turbines are finished with a low reflectivity surface treatment.

Aviation hazard lighting

191. Under the *National Airports Safeguarding Framework, Guideline D – Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms) / Wind Monitoring Towers, National Airports Safeguarding Advisory Group, 2012* (NASAG Guidelines) the Civil Aviation Safety Authority (CASA) must be notified if a proposed wind turbine or wind monitoring tower is higher than 150 m or infringes on the Obstacle Limitation Surfaces (OLS) of an aerodrome. CASA may determine, and subsequently advise an applicant and relevant planning authorities, whether it considers obstacle lighting is required for the project.

192. If such lighting is required, the NASF Guidelines recommend that to minimise visual impacts "obstacle lights may be partially shielded, provided it does not compromise their operational effectiveness. Where obstacle lighting is provided, lights should operate at night, and at times of reduced visibility. All obstacle lights on a wind farm should be turned on simultaneously and off simultaneously."

193. ACEN's Aviation Impact Assessment (AIA) concluded that no obstacle night lighting would be required for the project to maintain an acceptable level of safety to aircrafts. However, CASA advised that the project is required to be obstacle lit and that 200 candela lighting would be appropriate considering the location of the project. ACEN prepared a lighting plan to accompany the Submissions Report. The Department's assessment of aviation safety is provided in S**ection 6.6** below.

194. The Project is located approximately 80 km south-east of Siding Spring Observatory and therefore falls within the Dark Sky Region covered by the NSW Government's *Dark Sky Planning Guideline*. A consent authority must consider this guideline for State significant development that is likely to impact the night sky and is within 200 km of the Observatory. The Department consulted the Observatory throughout the assessment of the project. The Observatory requested that ACEN consult them for the installation of aviation lighting.

195. The Department notes that the visual impact assessment considered the worst-case views of the project during the day. The addition of lighting is unlikely to change the impact assessment rating.

196. The Department has recommended conditions requiring ACEN to install aviation hazard lighting in accordance with CASA requirements, in consultation with the Observatory, and in a manner that minimises any adverse visual impacts.

6.4.4 Conclusion

197. The Department acknowledges that developing a wind farm consisting of up to 131 turbines and associated ancillary infrastructure would be visually apparent. However, the Department is satisfied that the project is suitable for the site, would meet the visual performance objectives in the Visual Assessment Bulletin and would not fundamentally change the broader landscape characteristics of the area or result in any significant visual impacts on the surrounding non-associated dwellings.

198. To minimise and manage the residual visual and lighting impacts as far as practicable, the Department has recommended conditions requiring ACEN to:

- provide visual impact mitigation measures such as landscaping and/or vegetation screening to non-associated residences within 5 km of any approved turbine, upon receiving a written request from the owners of these residences;
- implement all reasonable and feasible measures to minimise the visual impacts of the development;
- paint turbines off-white/grey and finishing blades with a treatment that minimises potential for any glare or reflection;
- implement all reasonable and feasible measures to minimise the off-site lighting impacts of the development; and
- ensure that shadow flicker from turbines does not exceed 30 hours per annum at any non-associated dwelling.

6.5 Traffic and Transport

199. The construction of the project would involve the delivery of plant, equipment, and materials, including by heavy vehicles and high-risk heavy vehicles requiring escort (otherwise known as oversized and over-mass (OSOM) vehicles) which has the potential to impact on the local and regional road network.

200. ACEN prepared a Traffic Impact Assessment as part of its EIS and provided additional information to the Department throughout the assessment process, including details on proposed road upgrades.

201. ACEN's assessment assumed the maximum blade length was 90 m with a required vehicle length accessing the site of 95.7 m long to transport turbine blades; and the tallest component would be tower body sections of up to 6.36 m. The heaviest vehicles would weigh about 120 tonnes to transport the turbine nacelles.

202. Advice from TfNSW and submissions from Warrumbungle Shire Council and the public raised concerns regarding the significant increase in heavy vehicles travelling on the road network, the suitability of the proposed transport routes and the associated impacts to safety and amenity for residents.

6.5.1 Port to REZ transport route

203. EnergyCo as Infrastructure Planner for the REZs has identified sections of the state road network which would require upgrading to enable movement of OSOM components for multiple generation and transmission projects in the REZ. These upgrades are being carried out by EnergyCo and Transport for NSW as part of the Port to REZ Project and are subject to separate assessment and approval pathway in accordance with the EP&A Act.

204. The current schedule of CWO Port to REZ upgrades are expected to be completed by late 2025.

205. EnergyCo determined the scope and design of the upgrades in consultation with Transport for NSW and based on inputs from CFGs including dimensions of equipment required for their developments. The key design parameters were originally determined to be up to 85 m long wind turbine blades and up to 5.5m diameter tower bodies with a maximum vehicle loaded height of 6.3 m.

6.5.2 Transport route

206. Between the Port of Newcastle and the site, ACEN is proposing to use a common route from the Port of Newcastle via Selwyn Street, George Street, Industrial Drive, Pacific Highway (Maitland Road), New England Highway, Hunter Expressway, New England Highway.

207. Beyond the common route, ACEN is proposing the following (shown on **Figure 10**):

- **Route 1 (standard route):** common route above then Golden Highway (for access to Girragulang Cluster and Leadville Cluster) or Black Stump Way (for access to Mount Hope Cluster).
- **Route 2 (high load route for vehicles between 5.6 m and 6.3 m**): common route above then Denham Road, Bengalla Road, Wybong Road then Golden Highway (for access to Girragulang Cluster and Leadville Cluster) or Black Stump Way (for access to Mount Hope Cluster).

208. The common route described above, up to and including the intersection of Golden Highway and Black Stump Way are covered by the Port to REZ Project. EnergyCo is finalising the design and planning

approvals for the works together with Transport for NSW, the relevant roads authority, for the road upgrades.

209. The Department's recommended conditions require all approvals (including the Port to REZ Project works) are completed prior to use by heavy vehicles requiring escort.

210. ACEN are proposing to adopt equipment with a 90.38m blade length and 6.36m diameter tower bodies and therefore some loads are slightly larger than the envelope of upgrades currently covered by the Port to REZ Project. The proposed longer blades would result in relatively minor additional impacts, mostly consisting of additional vegetation pruning or clearing and temporary movement of street furniture. Potential impacts from the proposed larger tower bodies are more complex and relate to insufficient bridge clearances and overhead power lines with pinch points at Tarro Bridge, Averys Lane Bridge and Bridge Street Bridge on the New England Highway.

211. Beyond these pinch points, the high load route for vehicles over 6.3 m would be continuing along the New England Highway, Golden Highway Denham Road, Bengalla Road, Wybong Road then Golden Highway (for access to Girragulang Cluster and Leadville Cluster) or Black Stump Way (for access to Mount Hope Cluster).

212. EnergyCo have advised that they have been working with TfNSW and ACEN to identify potential options for overcoming the height constraints specifically in relation to three bridges - Tarro Bridge, Averys Lane Bridge and Bridge Street Bridge. Options to address the vertical clearance issues include 3 potential bypass routes for Tarro Bridge and upgrading the central median reservation for Averys Lane Bridge and Bridge Street Bridge.

213. The Department understands that EnergyCo, TfNSW and ACEN will continue to work together on these solutions. The Department understands that the approval pathway for additional works will depend on the final solution identified by EnergyCo and TfNSW, and the entity ultimately responsible for undertaking these works. If EnergyCo is responsible and works are delivered by the Port to REZ contractor, the planning approval process will follow Division 5.1 of the EP&A Act (Review of Environmental Factors). TfNSW will act as the determining authority, and consultation with other relevant road authorities will be required. Alternative approval pathways are available if ACEN undertakes the works.

214. The Department has recommended a condition requiring ACEN to prepare a Transport Strategy which demonstrates that any high-risk heavy vehicles larger than 6.3 m in height or exceeding 5.8 m in width or blade lengths longer than 85 m, can be accommodated on the road network and have identified all the relevant approvals pathways and timing of the approvals and upgrades.

215. The Department has considered the impacts associated with the potential solutions that may be required for the pinch points in assessing the Project. Road upgrades are likely to result in minor impacts during construction including noise, traffic, erosion and sedimentation. The impacts could be appropriately managed by an alternate approvals pathway.

Daily construction route

216. ACEN has identified the daily construction routes to and from construction areas within the project, which would be used regularly by both light and heavy vehicles, as shown in **Figure 11**. These roads comprise the Golden Highway (State highway), Black Stump Way (regional road), and several local roads.

6.5.3 Site Access

217. During construction, light vehicles and heavy vehicles would access the site from the Golden Highway and Black Stump Way via different access points for each of the three turbine clusters. Following exhibition of the EIS and in response to community and Council feedback, ACEN amended their proposed access points to the following:

- **Mount Hope cluster:** light and heavy vehicles would access via a new access point constructed on Black Stump Way, south of Coolah.
- **Girragulang Road cluster:** heavy vehicles would access via a new access road to be constructed on the Golden Highway, west of Moorefield Road, parallel to the EnergyCo transmission line easement. Light vehicles would access either via this point or at the northern end of Moorefield Road West (via Black Stump Way).
- **Leadville cluster:** heavy and light vehicles would access via a new access point constructed on the Golden Highway, between Merotherie Road and Blue Springs Road.

218. These routes and access points are shown on **Figure 11**.

6.5.4 Traffic volumes

219. The project would generate up to 72 heavy vehicle movements per day during the peak construction period. Up to 128 light vehicle movements are expected per day under the assumption that most of the workforce would be travelling to and from the temporary workers accommodation camp via shuttle buses.

220. Between 1 and 5 high-risk heavy vehicles requiring escort are expected to access the site per day, with up to 393 deliveries in total for turbine blades. The Department has recommended conditions to schedule these deliveries outside of peak commuting hours.

221. Operational traffic is expected generate up to 100 light vehicle movements per day associated with 50 operational staff.

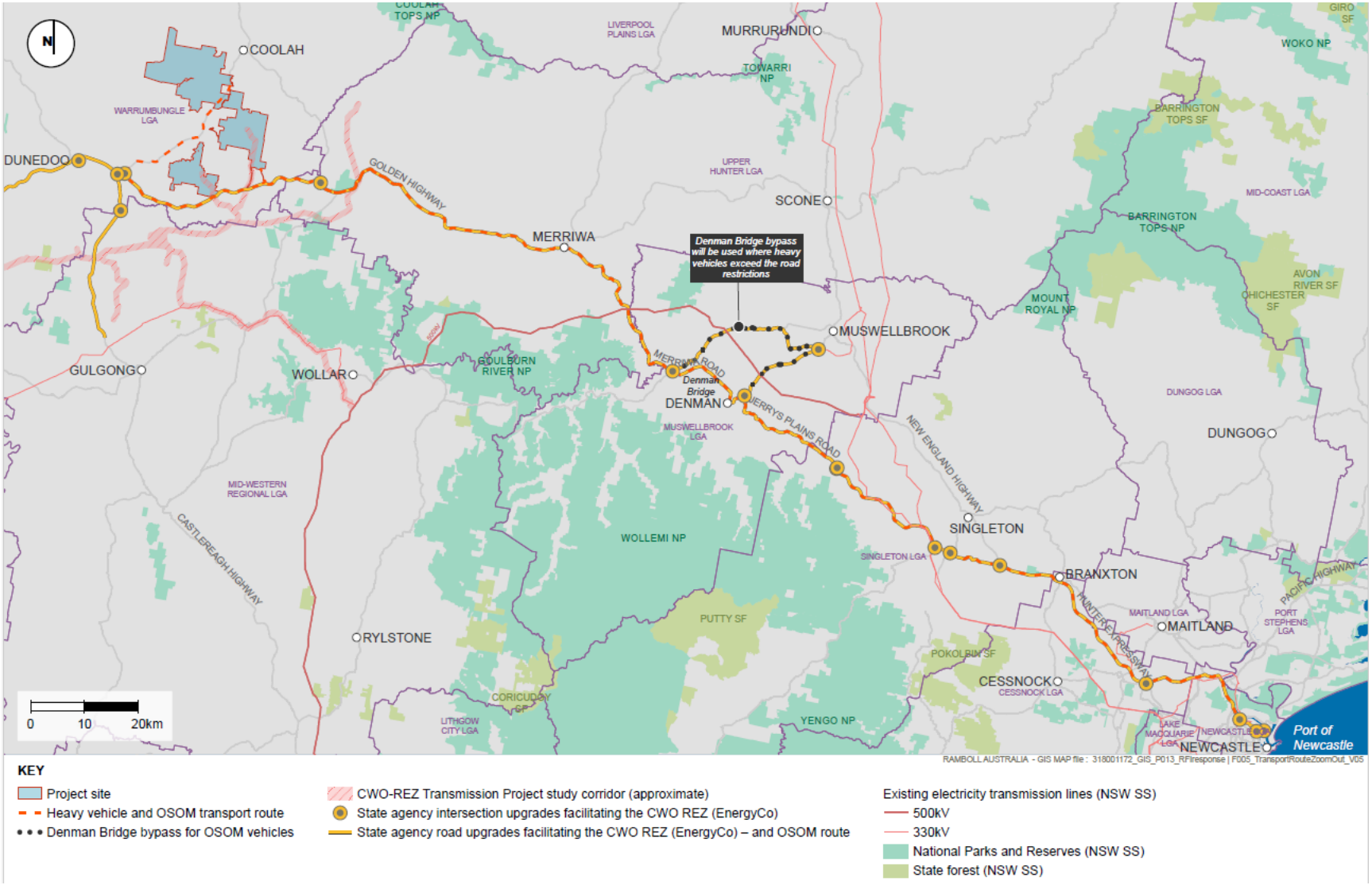


Figure 10 | Transport Route

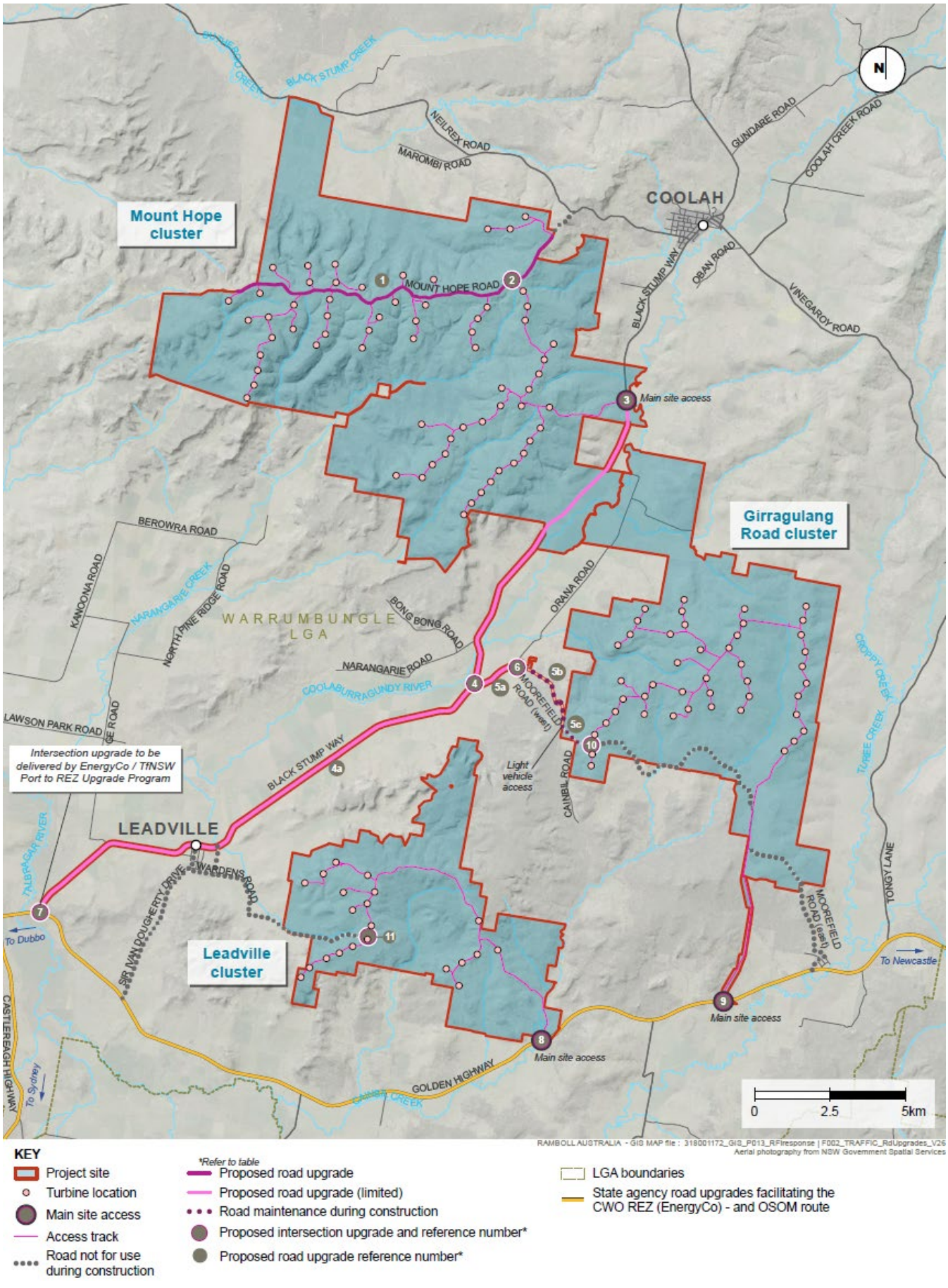


Figure 11 | Road and intersection upgrades

6.5.5 Road upgrades and maintenance

222. ACEN assessed the traffic impacts of the project in the traffic assessment prepared as part of the EIS. ACEN later provided an updated traffic assessment that accompanied the Amendment Report. ACEN assessed the impacts of the project on the intersections and levels of service of the proposed transport routes. The assessment concluded that the levels of service along the rural road network during the peak construction period would only be marginally reduced, with most roads in the rural road network having significant spare capacity and ability to absorb increased traffic numbers during construction.

223. ACEN proposes to undertake intersection upgrades and road upgrades to facilitate construction vehicle access to site, including:

- Black Sump Way / Moorefield Road (west) intersection - sealed full auxiliary left (AUL) and full channelised right (CHR) treatments,
- Site access point intersections:
  - Golden Highway / Leadville cluster site access point – basic right turn (BAR) and basic left turn (BAL)
- Golden Highway / Girragulang cluster site access point – BAR and BAL
  - Black Stump Way / Mount Hope cluster site access point - sealed short auxiliary left (AUL[S]) and short channelised right (CHR[S]) treatments
  - Temporary Workforce Accommodation Facility access point – AUL and CHR
- Upgrade intersections where wind farm access tracks intersect with local roads (Mount Hope Road, Moorefield Road (west) and Wardens Road West)
- Upgrades to sections of local roads including Mount Hope Road, Black Stump Way and Moorefield Road West

224. EnergyCo would undertake the upgrade works for the Golden Highway / Black Stump Way intersection as part of the TfNSW Port to REZ upgrade program.

225. The Department has recommended conditions requiring ACEN to implement necessary road upgrades in accordance with the relevant standard and timing requirements, to the satisfaction of Warrumbungle Council, and to regularly maintain all roads along the transport route and repair any damage to the road network caused by any project-related traffic.

226. The schedule of road upgrades that would be undertaken by ACEN are included in the recommended conditions of consent (Appendix F).

6.5.6 Cumulative traffic impacts

227. There are a number of approved or proposed energy projects in the region, given the project's location in the CWO REZ which have the potential to use the Golden Highway.

228. ACEN's traffic assessment included a cumulative impact assessment of adjacent approved developments using common traffic routes including Liverpool Range Wind Farm, Uungula Wind Farm, Wollar Solar Farm, Stubbo Solar Farm and Dunedoo Solar Farm.

229. Traffic modelling indicates the Golden Highway has sufficient capacity to accommodate construction and operational traffic associated with the project as well as potential cumulative traffic impacts if concurrent construction were to occur with surrounding State significant projects in the region.

6.5.7 Recommended conditions

230. The Department recommends conditions requiring ACEN to:

- restrict project related vehicles to the use of the approved access route;
- undertake dilapidation surveys of the relevant local roads and repair any damage resulting from project traffic;
- undertake all necessary road upgrades to the satisfaction of the road asset manager and/or the relevant roads authority prior to the use of roads for deliveries from heavy and heavy vehicles requiring escort;
- prepare a Transport Strategy which demonstrates that any high-risk heavy vehicles larger than 6.3 m in height or exceeding 5.8 m in width or blade lengths longer than 85m, can be accommodated on the road network and have identified the relevant approvals pathways and timing of the approvals and upgrades;
- ensure the other upgrades and approvals are in place from the port for heavy vehicles requiring escort are undertaken prior to the use of roads for deliveries from heavy vehicles requiring escort; and
- prepare a Traffic Management Plan in consultation with the road asset manager and relevant roads authority.

231. Subject to the recommended conditions, the Department is satisfied that the project would not result in significant impacts on road network capacity, efficiency or safety.

6.5.8 Conclusion

232. The Department considers the proposed transport routes could be appropriately upgraded to facilitate the transportation of large turbine components to the site, noting that the final road upgrade works would be subject to detailed design and approval of the road asset manager and/or relevant road authority prior to the implementation of these works or would be upgraded as part of the works to facilitate the renewable energy zones.

6.6 Other issues

233. The Department's consideration of other issues is summarised in **Table 9** below.

Table 9 | Assessment of other issues

Findings	Recommended conditions
Noise and vibration	
• 37 submissions raised concerns about construction, traffic and operational noise impacts. • ACEN prepared a Noise Impact Assessment (NIA) in accordance with the Department's *Wind Energy: Noise Assessment Bulletin (2016)* (the Noise Bulletin). • The project is located in a rural environment where background noise levels are typically below 30 dB L_{A90} for extended periods at low winds. • The NIA was revised to assess the amended project and as such, no project related noise impacts associated with access road construction within Uarbry is predicted following the removal of the access through Uarbry Village. **Construction noise and vibration** • The NIA predicts one non-associated receiver (receiver 236) would experience noise above the 'noise affected' criterion of 45 dB(A) in the EPA's *Interim Construction Noise Guideline* (2009) (ICNG) during construction. This would only occur during the proposed road upgrades within a six-month period. Importantly, the predicted construction noise levels at this receiver would be well below the highly noise affected level of 75 dB(A) as outlined in the *Interim Construction Noise Guideline.* • Noise related to all other construction stages, including noise from quarrying, is predicted to be below the 'noise affected' management level for non-associated receivers. • The Department acknowledges that there may be some instances where construction activities, such as concrete pouring and turbine erection may be time or climate sensitive, requiring construction to occur outside standard construction hours. Where these activities are inaudible at non-associated receivers, or if agreed with the Planning Secretary, the Department recommends conditions allowing these activities to be considered on a case-by-case or activity specific basis. • The Department has recommended conditions requiring ACEN to minimise noise during construction by implementing noise mitigation measures set out in the ICNG, including scheduling activities, using quieter equipment, consulting with affected residences prior to undertaking noisy construction works and establishing a complaint handling procedure. • The Department has also considered the impacts of noise and vibration from blasting associated with the project which would likely be required as part of quarry activities and for the construction of turbine foundations. • ACEN undertook a vibration impact assessment and determined that airblast overpressure and estimated ground vibration levels at all non-associated receivers would be below the criteria for all blasts, noting separation distances exceed 2,000 m at all non-associated receiver locations.	• Restrict construction to standard construction hours (ie 7 am to 6 pm Monday to Friday, and 8 am to 1 pm Saturday). • Construction outside of standard construction hours subject to approval from the Planning Secretary on a case-by-case or activity specific basis. • Limit blasting on site to between 9 am and 5 pm • Verify through noise monitoring that the noise generated by the operation of the wind farm does not exceed 35 dB(A) or the existing background noise level ($LA_{90\ (10\text{-}minute)}$) plus 5 dB(A) for each integer wind speed.

Findings	Recommended conditions
• The Department has recommended conditions on blasting, including strict criteria for airblast overpressure and allowable exceedances for any blasting carried out for the project, and requiring ACEN to comply with blasting limits at all receivers. **Construction traffic noise** • Construction traffic noise impacts were assessed in accordance with the *NSW Road Noise Policy* (DECCW, 2011) (RNP). Calculated noise levels indicate that compliance would be achieved with the RNP during the construction phase at all identified receivers, both for absolute noise levels and the relative increase criteria. **Operational noise** • Operational noise levels were assessed in accordance with the requirements of the Noise Bulletin. • Consistent with the Noise Bulletin, ACEN's noise assessment provided environmental noise criteria for operation of the turbines, based on different wind speeds (wind speeds at each integer from 3 m/s to 12 m/s) modelled at the hub height of the turbines for three candidate turbine models. The NIA indicates that predicted operational wind turbine noise levels are below the Noise Bulletin minimum criterion of 35 dB for all but one non-associated receiver. Receiver 5 is predicted to have a marginal excess of 0.2 dB for one of the candidate turbine models under worst case scenario modelling which assumes highest wind speeds and all wind directed towards each receiver. ACEN has committed to verify compliance with the Noise Bulletin criteria following detailed design and selection of the final turbine model. • Under the recommended conditions, ACEN would be required to meet the Noise Bulletin criteria when operational at this receiver and to confirm this through operational monitoring. • The cumulative impact assessment considered the neighbouring Liverpool Range Wind Farm and concluded that the compliance outcome does not change for any relevant receiver as a result of the project turbine layout. • Operational noise of the four proposed substations is predicted to be below 35 dB LAeq.	
Heritage	
Aboriginal Heritage: • ACEN prepared an Aboriginal Cultural Heritage Assessment Report (ACHAR) to assess the impacts of the project on Aboriginal heritage. • The ACHAR identified five Aboriginal sites within the survey area, consisting of one low-density artefact scatter (Kensington OS-1); two low-density artefact scatters with PAD (Orana OS-1 and Cainbil Creek OS-1), one quarry site incorporating an artefact scatter and PAD (Old Farm OS-1) and one isolated find (The Rock IF-1). No feedback was received from the RAPs	• Ensure the development does not cause any direct or indirect impacts on any items located outside the approved development footprint. • Salvage and relocate Aboriginal items identified for impact to suitable alternative locations in consultation with Aboriginal stakeholders.

Findings	Recommended conditions
regarding the social or cultural values of newly recorded sites and therefore all sites were conservatively assessed as having high social/cultural values. • The archaeological, aesthetic and historic value of all items was assessed as low to moderate with the exception of Old Farm – OS1 which was assessed as having high archaeological significance. ACEN has committed to avoiding impacts to this site as well as undertaking additional research including non-invasive recording, mapping and photography. • The ACHAR was revised to assess the impacts of the amended project and to address comments from Heritage NSW on the EIS. It includes findings of the additional surveys, with no new Aboriginal sites or PADs recorded. A potential ring tree was identified during the survey which would be protected during construction. • An addendum ACHAR was prepared for Amendment report number 3 which confirmed the location of a culturally modified tree (AHIMS ID# 28-06-0084) within the study corridor for works along Black Stump Way and Moorefield Road (west). The item would be protected during road upgrade works. • During exhibition, a submission was received from a representative of The Ibbai Waggan-Wiradjuri People citing perceived issues with the NSW planning system, adequacy of consultation undertaken and impacts on Aboriginal Cultural Heritage values. • Heritage NSW did not raise any concerns about the revised ACHAR, Submissions Report or Amendment Report and had no concerns around the adequacy of consultation undertaken. • ACEN would avoid impacts to all sites within the survey area, except for Cainbil Creek-OS1 and Kensington OS-1, which would be partially impacted, and The Rock IF-1 which would be totally impacted. • Where impacts cannot be avoided, ACEN has committed to the collection and salvage of artefacts in consultation with Registered Aboriginal Parties and in accordance with a Heritage Management Plan. • Heritage NSW concurs with mitigation measures, and commitment to avoid all impacts to areas of PADs (Orana OS-1), additional research at Old Farm OS-1 and avoidance of harm to several artefact scatters (Orana OS-1, Old Farm OS-1, site 36-3-0111, and potential ring tree). • Any unexpected finds of potential heritage significance on site could be appropriately managed by an unexpected finds protocol contained in the Heritage Management Plan. • Subject to the implementation of ACEN's proposed mitigation measures and the Department's recommended conditions, the Department and Heritage NSW considers that the project would not significantly impact the heritage values of the locality, and residual impacts would be appropriately managed through the implementation of a Heritage Management Plan.	• Implement all reasonable and feasible measures to avoid and minimise harm to Aboriginal heritage items located within the development corridor. • Undertake consultation with Aboriginal stakeholders prior to construction. • Prepare and implement a Heritage Management Plan in consultation with Heritage NSW and Aboriginal stakeholders, including procedures for unexpected finds and detailed photographic archival records.

Findings	Recommended conditions
Historic Heritage: • There are no Commonwealth or World listed heritage places, nor State listed or locally listed heritage places or items within or close to the site. • The site is not listed on the State Heritage Register (SHR), nor is it in the immediate vicinity of any SHR items. The Heritage Council was consulted regarding the project but raised no concerns. Council also raised no concerns regarding impacts to SHR items. As such, the Department considers impacts on heritage values from the project is unlikely and would be adequately managed by the implementation of recommended conditions.	
Land use compatibility	
Agriculture • Submitters raised concerns about the project being on agricultural land and impacts to the agricultural productivity of the surrounding region. • The project site and surrounds are dominated by agricultural land uses, particularly grazing and dryland cropping. • 1290.1 ha of the site is mapped as Biophysical Strategic Agricultural Land (BSAL). Approximately 94.3 ha of BSAL is within the Development Corridor of which, 23.9 ha is located within the indicative construction footprint. • The site is mostly comprised of Class 4 (30%) (moderate capability), Class 6 (25%) (very low capability) and Class 5 (23%) (moderate-low capability) land, with the balance of the site being Class 3 (12%) (high to moderate capability), Class 7 (7%) very low capability) land and Class 2 (4%) (high capability). • Wind harvesting is a passive land use that can co-exist with grazing activities, which can continue concurrently throughout the project lifespan. As such, the Department considers that the project would not compromise or significantly diminish the availability of land for primary production purposes within the project site or surrounding LGAs. • In regard to quarrying activities, ACEN has committed to developing and implementing a rehabilitation management plan to ensure the three quarry sites are rehabilitated to a condition fit for the intended land use and are commensurate with the surrounding landscape. The Department is satisfied that with the implementation of ACEN's commitments and recommended conditions, the quarries could be rehabilitated to a condition fit for the intended land use. **Crown land** • The project site contains several small parcels of Crown land including a travelling stock reserve along Black Stump Way. • ACEN committed to securing the necessary authorisations prior to commencement of any works within parcels of Crown land.	• Require the rehabilitation of the project site to a standard that makes it available for agricultural production following decommissioning. • Require the rehabilitation of the quarry sites as soon as practicable after the cessation of quarrying activities.

Findings	Recommended conditions
Aviation safety	
• Submitters raised concerns regarding the safe operation of aircraft in the vicinity of wind turbines, particularly aircraft used for aerial firefighting and wake turbulence and obstacle impacts for nearby airstrips. • The project is located 6 km south of Coolah Airport and 56 km north of Mudgee Airport. There are also two private air strips in proximity to the project – Tongy Aerodrome (approximately 1.4 km from the nearest turbine) and Turee Aerodrome (approximately 2.4 km from the nearest turbine). • ACEN undertook an assessment of aviation impacts as part of its EIS and provided additional information during the assessment. The assessment concluded that project would not have any adverse or significant impacts to air safety, subject to the implementation of mitigation measures and administrative controls. • The Department also engaged an independent aviation expert to review (**Appendix G)** ACENs assessment. • Aviation lighting is discussed in **Section 6.4.3**. **Airspace interference** • The site is not located in controlled airspace but is within Danger Area D538B and Restricted Area R559B associated with Military flying training operated by Royal Australian Air Force Base Williamtown. The Department of Defence (DoD) requested that the turbines be obstacle lit. • CASA identified that turbines would reach a height of 853 ft AGL, and therefore would infringe navigable airspace and may impact aircraft operating in the vicinity of the project, however this could be managed with appropriate notification to CASA. CASA also recommended that the site be obstacle lit. • Airservices Australia advised that the maximum height of turbines MH13 and MH25 would affect the lowest safe altitude (LSALT) for air route W627. ACEN removed turbine MH13 in their amended design and committed to request for the air route to be amended prior to construction of turbine MH25, in consultation with Airservices Australia. • Prior to construction of any wind turbines or meteorological monitoring masks masts, ACEN has committed to consultation with CASA, Airservices Australia and any relevant aerial agricultural or firefighting operators to communicate the final turbine coordinates and heights. • The Department has recommended a condition requiring ACEN to detail operational procedures in the event of a bushfire in its Emergency Plan. This would include measures such as shutting down turbines and positioning blades in a manner to minimise interference with aerial firefighting operations. • The Department has also recommended a condition requiring ACEN to develop an Aviation Management Plan in consultation with the Tongy and Turee Aerodrome operators which details the ongoing consultation with potentially impacted operators,	• Carry out the development in accordance with the *National Airports Safeguarding Framework Guideline D: Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers* • Notify the relevant aviation authorities and local airstrip operators of the final location and specifications of the wind turbines and any wind monitoring masts. • Install aviation hazard lighting in accordance with CASA's requirements. • Request for air route W627 to be amended in consultation with Airservices Australia. • Minimise the off-site lighting impacts of the project. • Shutting down turbines, positioning of turbine blades to minimise interference with aerial firefighting operations and use of aviation hazard lighting during firefighting. • Prepare and implement an Aviation Management Plan in consultation with the operators of Tongy and Turee aerodromes.

Findings	Recommended conditions
procedure to ensure safe operations of aerodrome runways and mitigation measures for the management of impacts and hazards. **Wake Turbulence and Obstacle impacts for nearby Airstrips** • CASA identified a number of small airstrips in close proximity to the project. ACEN provided additional information, assessing potential wake turbulence and obstacle impacts for Tongy Aerodrome and Turee Aerodrome which fall within the area of interest for aviation activity (3 nautical miles or 5.6 km). • ACEN's assessment confirmed that all proposed WTG and meteorological mast locations fall outside the minimum safe lateral distance for both Tongy and Turee Aerodromes and therefore do not represent obstacles for take off or landing. • Wind data for the area indicates an easterly to southeasterly wind is the predominant wind in the area (approximately 70% of the time), which would not result in any turbulence impacts and either airstrip. The strongest winds for the area tend to blow from the north and east. • ACEN's assessment determined that, under westerly wind conditions which occur 20% of the time there would be some potential for light turbulence from turbines GR03 and GR04 experienced by aircraft operating in the western edge of the standard circuit area of Tongy Aerodrome. Turbulence levels were classified as being 'light' in accordance with the Bureau of Meterology's turbulence intensity classifications and is considered manageable for the light aircraft activities undertaken at Tongy aerodrome. • ACEN's assessment determined that, under westerly and south westerly wind conditions which occur 20% of the time there would be some potential for light turbulence from turbines GR08, GR09, GR10 and GR11 experienced by aircraft operating in the south western edge of the standard circuit area of Turee Aerodrome. Turbulence levels were assessed as being light and therefore manageable for the light aircraft activities undertaken at Turee aerodrome. • To minimise perceived risks associated with the nearby turbines, pilots operating from these aerodromes may choose to make minor adjustments to their usual flight paths. This would be undertaken at the pilot's discretion and requires registration in aeronautical publications to alert other pilots of the operating conditions at the aerodrome. • ACEN has committed to notify Tongy and Turee Aerodromes of the timing of both construction and operational phases of the project. The Department has also recommended that these operators be consulted in the preparation of the Aviation Management Plan. • The Department engaged an independent aviation expert to review (**Appendix G**) ACENs assessment. The independent review concluded that ACEN's assessment sufficiently addresses the potential risks and mitigation measures associated with wind turbulence and wind turbines as obstacles to these two aerodromes.	

Findings	Recommended conditions
• The Department notes that the community has raised concerns around the use of non-standard circuits as a mitigation measure, particularly in relation to the level of experience of the pilot and in instances of poor weather. The Department considers that operations could continue and that any adjustments would be at the pilot's discretion and based on their own assessment of the risks taking into consideration wind direction, speed, weather, aircraft type and level of experience. • The Department considers that any hazards from the turbines would be appropriately managed as long as the development is carried out in accordance with the *National Airports Safeguarding Framework Guideline D: Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers*, or its latest version. • With the recommended conditions, the Department is satisfied that the project is unlikely to result in any significant aviation hazards or impacts to aerial activities. **Aerial firefighting** • The community has raised concerns around the safety and practicality of aerial firefighting being carried out in proximity to the Project. • The NSW Rural Fire Service did not raise any concerns about the project however recommended that blade rotation cease, and aviation lights be lit when aerial firefighting is occurring in the locality. • ACEN committed to include in their Emergency Response Plan the requirement for wind turbines to be shut down immediately during emergency operations, and where possible position blades in the 'Y' or 'rabbit ear' position to provide the maximum airspace for aircraft to manoeuvre underneath, minimising potential obstacle issues. • ACEN also committed to including appropriate aviation markers on the meteorological masts. • The Department has recommended a condition that the Emergency Plan include operational procedures in the event of bushfires such as shutting down turbines and turning on aviation hazard lighting.	
Bushfire safety	
• Several public submissions had concerns regarding the impacts of the project on bushfire risk and management. Many submissions noted the significance of the 2017 Sir Ivan bushfire which burnt approximately 55,000 ha in the Warrambungle Shire region and highlighted the importance of aerial firefighting for its management. • A large proportion of the project site is mapped as bushfire prone land by the RFS and the site is located within the Castlereagh Bushfire Management Committee region. • ACEN would be required to establish and maintain a 10 m asset protection zone (APZ) at each wind turbine generator (WTG) and wind monitoring masts, and the compound for the operation and maintenance facilities, including substations in accordance with RFS's Planning for Bushfire Protection 2019;	• Ensure compliance with relevant asset protection requirements in the RFS's *Planning for Bushfire Protection 2019* (or equivalent). • Ensure the site is suitably equipped to respond to fires on site, including the provision of a 50,000 litre water supply.

Findings	Recommended conditions
• ACEN committed to compliance with the RFS's Planning for Bushfire Protection 2019 and the preparation and implementation of a Bushfire Management Plan and Emergency Response Plan to manage fire risks. ACEN also committed to a number of mitigation measures and strategies, including the development and distribution of operational guidelines regarding water-bombing setbacks from wind turbines to fire authorities, and the provision of water supplies during construction for fire fighting. • RFS supported the recommendations of the Bushfire Assessment Report included in the EIS. • The Department, NPWS, RFS and FRNSW are satisfied that the bushfire risks can be suitably managed through the implementation of standard fire management plans and procedures.	• Prepare and implement a Bushfire Management Plan, and an Emergency Response Plan. • Landscape planting to be in accordance with *Planning for Bushfire Protection 2019*.
Water resources	
Water Supply • The amount of water required for the construction of the wind farm is estimated to be around 1,110 ML. This includes water for the construction of concrete foundations for the wind turbines, pavements including access tracks and concrete hardstands, potable water for amenities and workers accommodation facilities and dust suppression during construction and in case of fire. • In addition, a maximum of 34,250ML would be required for crushing operations at the proposed quarries if all material is sourced from the on site quarries. No significant groundwater interactions are expected during quarrying activities. • ACEN proposes to obtain the water for construction and operation from multiple sources including farm dams under agreement with relevant landholders and may also utilise other water sources licensed under the *Water Management Act 2000*, including groundwater purchased from associated or adjacent landowners, water purchased from Council, and by purchasing and transporting water to site by tanker. ACEN has also considered the use of treated wastewater either onsite or offsite including potentially negotiating with relevant Councils to identify pathways to upgrade sewage treatment plants. • ACEN has also been in discussions with local landowners who have indicated availability of approximately 785ML per annum that could be made available during construction, subject to relevant approvals. • Water required for operation would be limited to amenities usage and is expected to be minimal. ACEN proposes to source the operation water supply from onsite rainwater tanks and by purchasing and transporting water to site by tanker. Groundwater will not be used during the operational phase. • Given the depth to groundwater (expected to be 10 metres below ground level or greater) impact on groundwater levels, quantity or quality from the project is expected to be negligible.	• Ensure the development has adequate water supplies for the project and that it obtains any necessary licences under the *Water Act 1912* or *Water Management Act 2000*. • Ensure all works are undertaken in accordance with Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018) and *Policy and Guidelines for Fish Habitat Conservation and Management* (2013). • Minimise any soil erosion in accordance with the *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) manual and ensure the project is constructed and maintained to avoid causing erosion on site.

Findings	Recommended conditions
• Although unlikely, should construction of project infrastructure occur in areas with shallow groundwater, further hydrogeological assessment would be undertaken in accordance with relevant guidelines and a Water Access License with sufficient entitlement to account for the groundwater take would be obtained, unless an exemption applies. • In addition, if this were to occur, a dewatering protocol would be followed. • The Department, including NSW DCCEEW Water Group (Water Group), is satisfied that the project's water use is unlikely to have any significant impact on water supply and demand in the region. **Flooding** • The project site is not within an area of flood prone land and so project infrastructure is not expected to be subject to flooding. **Erosion and sedimentation** • The site includes areas with highly erodible and potentially dispersive soils. The steep gradients across parts of the site, along with the infrastructure that would cross streams (e.g. access tracks and cables) further add to the potential for erosion of soils and the subsequent water quality impacts to surface water resources. • ACEN has committed to preparing an Erosion and Sediment Control Plan prior to the commencement of construction to ensure erosion control measures would be implemented in accordance with the relevant requirements in the *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) manual and the *Managing Urban Stormwater: Soils and construction - Volume 2A* manual (Landcom, 2008) (i.e. the 'Blue Book'). • To mitigate potential erosion impacts in accordance with the 'Blue Book', all areas within the bed and bank of streams, and within 40 m of the top of bank of defined streams (i.e. waterfront land) would be required to be managed as 'Soil Loss Class 6' land. • Potential water quality impacts during the operational phase would be minimal, as the day-to-day activities during this phase would be limited to routine maintenance and monitoring. • The Department considers that any erosion and sedimentation risks associated with the project can be effectively managed by complying with the relevant requirements in the Blue Book.	
Accommodation	
• The project construction workforce would increase demand for housing and accommodation in towns surrounding the project, noting the project is expected to have a peak construction workforce of 400. • While the project alone would not result in a significant population change across the Warrumbungle Shire LGA, the likely concurrent construction workforces from projects in the CWO REZ may result in cumulative impacts across the region.	• Prepare and implement an Accommodation and Employment Strategy for an on site workers camp prior to commencing construction in consultation with council.

Findings	Recommended conditions
• The Social Impact Assessment identifies that there is an existing shortage of local accommodation and community members raised increased pressure on housing and accommodation due to the construction workforce as a key area of concern. • ACEN originally considered two options for workforce accommodation – regional distribution in surrounding towns or a centralised workforce accommodation camp to accommodate the entire workforce. • ACEN provided the Department with additional information regarding the details of the workforce accommodation camp proposed to be located on Moorefield Road including the design, services, noise and social impacts. • The Department considers that the implementation of a workforce accommodation camp is required to appropriately manage impacts on housing and short-term accommodation availability and has included a condition to this effect. • ACEN committed to providing appropriate health and welfare services for the occupants of the camp including on-site nursing practitioners, telehealth services and first aid training.	
Social and economic	
• While some submitters raised concerns about socio-economic impacts, other submitters were supportive of the socio-economic benefits to the local community. • The project would generate direct and indirect benefits to the local community including: - up to 400 construction jobs and 50 ongoing operational jobs; - expenditure in the local economy by workers who would reside in the area; and - the procurement of goods and services by ACEN and associated constructors. • The project's economic stimulus is estimated at approximately $130 million in annual direct and indirect regional added value. • The project's construction phase is likely to generate approximately $43 million in direct and indirect household income. • ACEN has committed to enter a Voluntary Planning Agreement (VPA) with Warrumbungle Shire Council. The total contribution payable would be $1,050 per MW generation capacity installed, per year for the duration of the project. **Property value** • Submitters raised concerns about potential adverse impacts on property values in the area. • The Department notes that: - the project is sited within the CWO REZ an area aimed at encouraging investment in electricity infrastructure and providing additional renewable energy generation; - the project is permissible with consent under the relevant environmental planning instruments;	• Enter into a VPA with Warrumbungle Shire Council prior to commencing construction

Findings	Recommended conditions
- the project would comply with applicable amenity criteria established by the NSW Government for wind farm developments and ACEN has entered into agreements to compensate more highly impacted nearby landowners; - the Land and Environment Court has ruled on several occasions that the assessment of the impacts of projects on individual property values is not generally a relevant consideration under the EP&A Act, unless the project would have significant and widespread economic impacts on the locality, which is not the case in this instance; and - in particular, the Department notes that King & Anor v Minister for Planning; Parkesbourne-Mummel Landscape Guardians Inc v Minister for Planning; Gullen Range Wind Farm Pty Limited v Minister for Planning ([2010] NSWLEC 1102) considers property values for sites adjacent to a wind farm. The judgement determined that there was no loss of property value to which the Court could lawfully have regard, as the wind farm was permissible with consent. • Accordingly, the Department considers that the social and economic benefits of the project outweigh the negative social and economic impacts. As such, the project is in the public interest.	
Radiocommunication	
• Electromagnetic signals transmitted for telecommunication systems (such as radio, televisions, mobile phones and mobile/fixed radio transmitters) function most efficiently where a clear line of sight exists between the transmitting and receiving locations. Wind farms and other infrastructure have the potential to cause interference with this line of sight. • ACEN undertook an assessment of electromagnetic interference as part of the EIS. The assessment concluded that the project is likely to cause interference with several point-to-point links passing over the wind farm. Turbines may interfere with point-to-area style services such as mobile phone signals and terrestrial television broadcasting. Impacts to satellite television and internet signals that may be received at dwellings in the vicinity of the Project are considered unlikely. • The Department has recommended a condition requiring ACEN to make good any disruption to these services as soon as possible. • The Telco authority reviewed the project and did not raise any concerns. As such, the Department is satisfied that the project is not likely to have significant impacts on radiocommunications.	• If the project disrupts any radiocommunications services, ACEN must make good any disruption to these services as soon as possible, but no later than one month following the disruption of the service, unless the relevant service provider or user or Planning Secretary agrees otherwise.
Electric and magnetic fields (EMF)	
• Several public submissions raised concerns regarding the potential health impacts of electric and magnetic fields (EMF). • Most operational infrastructure (including turbines, substations, transmission lines and interconnecting cables) are sources of EMF. • The EIS includes an assessment of the EMF levels for operational infrastructure against public exposure guidelines. The results show that the project would comply with the International Commission on Non-Iodizing Radiation Protection (ICNIRP)	• Comply with the applicable EMF criteria

Findings	Recommended conditions
guidelines for electric, magnetic and electromagnetic fields which indicates that the levels of EMF would be significantly lower than the current internationally acceptable level for human health. • The Department notes that EMF reduces rapidly with distance from its source. The highest EMF emitter would be the substations, located more than 3 km away from all non-associated residences. • The Department is satisfied that with the proposed mitigation measures, including setting back electrical infrastructure from receivers, burying electrical infrastructure at sufficient depth to shield electrical fields and exclusion zones around substations, the project is not likely to have any significant EMF related impacts.	
Waste	
• The project is not expected to generate large volumes of waste during the development. ACEN has committed to the preparation of a Waste Management Plan in consultation with Warrumbungle Shire Council, that would detail measures to reduce waste generated by the project. • The Department has imposed a condition requiring ACEN to reduce waste, recycle where possible, and to dispose of unrecyclable waste at a licenced facility. • Noting the above, the Department considers that the waste generated by the project could be appropriately managed.	• Condition requiring waste be dealt with in accordance with the following hierarchy of: - avoid or reduce where possible; - re-use, recycle and recover; - treat or dispose of to a licenced facility.
Air Quality	
• ACEN has committed to a number of mitigation measures to manage potential air quality impacts, including dust suppression and controls and limiting construction during windy weather conditions. • Noting the above, and that any potential air quality impacts would be limited in duration, the Department considers that the project would not significantly impact the air quality in the locality.	• Ensure off-site dust, fume and blast emissions are minimised. • Ensure surface disturbance of the site is minimised.
Contamination	
• The project is not categorised as potentially hazardous or potentially offensive development under the *State Environmental Planning Policy (Resilience and Hazards) 2021*. The site is not listed as a contaminated site in the NSW EPA Contaminated Land Record or the list of NSW contaminated sites. • The site has historically been used for predominately agricultural purposes. Agricultural activities have the potential to cause contamination however no potentially contaminated locations have been identified to date. Minor earthworks would be required for construction which could expose unknown contaminated land.	• Comply with Section 120 of the POEO Act.

Findings	Recommended conditions
• ACEN has committed to the preparation of a Soil and Water Management Plan which would include procedures to manage unexpected contamination. If contaminated soils are encountered, they would be handled and disposed of in accordance with NSW EPA guidelines, Australian Standards, and relevant industry codes of practice. • The Department considers the site would be suitable for the proposed development and that the proposed mitigation is sufficient to minimise risks.	
Decommissioning and rehabilitation	
• The Department has developed standard conditions for wind farms to cover this stage of the project life cycle, including clear decommissioning triggers and rehabilitation objectives. • Additionally, the Department has provided guidance on how host landowner agreements should consider refurbishment, decommissioning and rehabilitation in the NSW Wind Energy Framework's Negotiated Agreement Advice Sheet. • With the implementation of these measures, the Department considers that project infrastructure would be suitably decommissioned, either at the end of the project life or if the project is not operating for more than a year, and the site appropriately rehabilitated to a standard that would allow the ongoing productive use of the land.	• Decommission wind turbines (and associated infrastructure) within 18 months of the cessation of operations; • Rehabilitate the site, and minimise the total disturbance area exposed at any time; and • Comply with a number of rehabilitation objectives, including removing redundant above-ground infrastructure, restoring rural land capability and vegetation, ensuring public safety and ensuring the site is maintained in a safe, stable and non-polluting condition.
Blade Throw	
• One submission raised concerns regarding the risk of blade throw (where a turbine blade falls off a tower) to public safety. • ACEN's risk assessment concluded that the risk of blade throw at a distance of 90 m from a turbine was 10^{-5} per year (1 in 100,000). As no local roads surrounding the project area are located within 90 m of a turbine, the risk of blade throw to passing cars is 1 in 100,000 per year, which is lower than the annual risk of death on Australian roads. • ACEN's risk assessment concluded that the risk of blade throw at a distance 250 m from a turbine was 10^{-6} per year (1 in 1 million). There are no dwellings or other sensitive locations within 250 m of the proposed turbine locations, with all dwellings more than 860 m from the nearest proposed wind turbine. • ACEN amended their hazard assessment to include an assessment of the risk of blade throw impacting the proposed BESS facility causing damage to the BESS and potential fire. The separation distance between the BESS and the closest turbine (GR26) is at least 236 m, with the exact location to be finalised during detailed design. The assessment recommended that	• Prior to commencing construction of the battery storage facility, unless otherwise agreed in writing by the Planning Secretary, the Applicant must demonstrate that the battery storage layout is consistent with the recommendations of the Preliminary Hazard Analysis (Sherpa Consulting, 04 July 2023).

Findings	Recommended conditions
the BESS compound is to be located outside of the blade throw zone (>250 m). The recommended conditions require the final layout to address the recommendations of the Preliminary Hazard Analysis, including this separation distance. • Given the distance of the turbines from occupied dwellings and roads, the Department is satisfied that the project is unlikely to pose significant blade throw risk to the community.	
High Pressure Gas Pipeline	
• The Central Ranges High Pressure Gas Transmission Pipeline (Gas pipeline) traverses the project area and in particular runs adjacent to a section of Black Stump Way (shown on **Figure 2**). • The transmission line proposed by ACEN crosses over the alignment of the Gas pipeline easement. There is the potential for induced current to be attracted the pipeline (which is steel) from the electricity transmission lines traversing above, which could represent a safety risk to operators of the pipeline. • ACEN is also proposing road upgrade works along sections of Black Stump Way which has the potential to fall within or adjacent to the Gas pipeline easement. • APT Pipelines (NSW) Pty Ltd (APA) is the Licensee for this pipeline and have recommended that an electrical risk study in accordance with AS4853 and AS2832 to be undertaken and risk mitigation measures be implemented prior to the operation of the transmission lines. • APA have also requested that all plans include and appropriately label the pipeline easement and that works on or under land within the gas transmission pipeline easement must not be undertaken without prior consent in writing from APA. • The Department has recommended conditions to capture these mitigation measures. APA has confirmed they support the recommended conditions.	• No construction within the gas transmission pipeline easement without prior written agreement of the pipeline operator. No structure or vegetation will be permitted on the easement that prohibits maintenance of line of sight along the pipeline easement. • Prior to commencing construction near or over a gas transmission pipeline, the Applicant must prepare and submit an electrical hazard study in compliance with *Australian Standard 4853-2012-Electrical Hazards on metallic pipelines.* The Applicant must address and implement all relevant requirements, recommendations, or actions from the outcomes of the study or as specified by the pipeline operator.
Cumulative	
• Submitters raised concerns regarding cumulative impacts of the project particularly as it is within the CWO REZ. • The approved CWO REZ Transmission project is adjacent to the project with the approved Liverpool Range Wind Farm and Birriwa Solar Farm located less than 10 km from the project. As such, cumulative impacts are likely if there is an overlap of peak construction periods. ACEN propose a temporary workers accommodation camp to facilitate the project and would therefore not compete with surrounding projects for accommodation. • Cumulative traffic impacts during the construction phase are a key issue with development within the CWO REZ. The Transport Assessment conducted a cumulative impact review of adjacent approved developments using common traffic	• No specific conditions required.

Findings	Recommended conditions
routes, including the Liverpool Range Wind Farm, Uungula Wind Farm, Wollar Solar Farm, Stubbo Solar Farm and Dunedoo Solar Farm. The review found that there is ample spare capacity on the Golden Highway to cater for estimated future traffic volumes. • In addition, NSW Government confirmed in its *Renewable Energy Transition Update* (November 2024) that it has committed to undertaking cumulative impact studies for the Central- West Orana, New England and South West REZs. These studies will identify ways for the Government to support host communities by identifying specific actions and plans that can be implemented to alleviate the potential pressures of cumulative impacts on local and regional infrastructure and services. It is intended that this will address issues like traffic and transport, housing and workforce accommodation, social infrastructure and services, water security and waste management.	

7 Evaluation

234. The Department has assessed the development application, EIS, Submissions Report and additional information and has carefully considered:

    - submissions received from members of the community;
    - comments provided by Council; and
    - advice received from State and local Government agencies.

235. The Department has also considered the objectives of the EP&A Act, including the ESD principles, and relevant considerations under section 4.15(1) of the EP&A Act. The Department has given consideration to ACEN's evaluation of the project's merits against applicable statutory and strategic planning requirements.

236. The project is located in the Central West region of NSW within the CWO REZ, an area identified as strategically advantageous with strong renewable energy resource potential, proximity to the existing electricity network, and consideration of potential interactions with existing land uses, including agricultural land and biodiversity conservation.

237. The project is permissible with consent in accordance with the Transport and Infrastructure SEPP and is located on historical disturbed land used for agricultural purposes.

238. The project has been designed and amended through the assessment process in response to concerns raised during community engagement and to avoid key constraints, including reducing the number of turbines from an initial 148 to 131 in the amended application.

239. The project has also implemented a number of measures to avoid and minimise biodiversity impacts including avoiding areas of Box Gum Woodland CEEC and DNG where possible, reducing the development footprint from 1,318 ha to 734.96 ha and committing to providing an additional offset area for Box Gum Woodland.

240. The project would not significantly impact threatened species and/or ecological communities of the locality. The Department considers that any residual biodiversity impacts can be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits.

241. The Department considers that the project would meet the visual performance objectives in the *Visual Assessment Bulletin* and that there would be no significant visual impacts on surrounding residences due to distance or intervening topography and existing and proposed vegetation providing screening from non-associated residences and public viewpoints.

242. Regarding traffic, the Department considers the proposed transport routes could be appropriately upgraded to facilitate the transportation of large turbine components to site.

243. To address the residual impacts of the project, the Department has recommended a range of detailed conditions, developed in conjunction with agencies and Council, to ensure these impacts are effectively minimised, managed and/or offset. ACEN has reviewed the conditions and does not object to them.

244. The Department considered the submissions made through the exhibition of the project and the issues raised by the community and agencies during consultation. These matters have been addressed through changes to the project and the recommended conditions of consent.

245. Importantly, the project would assist in transitioning the electricity sector from coal and gas-fired power stations to low emissions sources and is consistent with the goals of the *NSW's Climate Change Policy Framework* and the *Net Zero Plan Stage 1 :2020-2030*. It would have a generating capacity of 943 MW of clean electricity, which is enough to power approximately 519,000 homes.

246. The inclusion of a BESS would enable the project to store energy for dispatch to the grid when the wind isn't blowing and/or during periods of peak demand, increasing the grid stability and energy security.

247. The project would also provide flow-on benefits the local community, including up to 400 construction jobs, 50 operational jobs and up to $24.8 million (adjusted to CPI and based on 131 turbine layout) in contributions to council through a voluntary planning agreement for community enhancement projects. There would be broader benefits to the State through the injection of $1.68 billion in capital investment into the NSW economy.

248. Overall the Department considers that the project achieves an appropriate balance between maximising the efficiency of the wind resource development and minimising the potential impacts on surrounding land uses and the environment

249. On balance, the Department considers that the project is in the public interest and is approvable, subject to the recommended conditions of consent (see **Appendix F**)

250. This assessment report is hereby presented to the Independent Planning Commission for determination.

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Appendices

Appendix A – Environmental Impact Statement

Appendix B – Submissions and government agency advice

Appendix C – Submissions Report

Appendix D – Amendment Report

Appendix E – Additional Information

Appendix F – Recommended Development Consent

Appendices A to F available at: https://www.planningportal.nsw.gov.au/major-projects/projects/valley-winds-wind-farm

Appendix G – Independent Aviation Expert Report

Appendix H – Biodiversity impact summary tables

Table 10 | Ecosystem credit requirements

Plant Community Type	Condition	Conservation status*		Entities at risk of SAII	Impact Area (ha)	Credit Liability
		BC Act	EPBC Act			
84 River Oak - Rough-barked Apple - red gum - box riparian tall woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion	Moderate	-	-	-	1.14	12
267 White Box - White Cypress Pine - Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion	Moderate	E	E	-	0.67	19
	Low	E	E	-	4.04	58
281 Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Good	CE	CE	Yes	0.66	30
	Moderate	CE	CE	Yes	7.70	273
	Moderate	CE	-	Yes	4.00	212
	Low	CE	-	Yes	3.7	44
	DNG	CE	-	Yes	13.79	0
479 Narrow-leaved Ironbark- Black Cypress Pine - stringybark +/- Grey Gum +/- Narrow-leaved Wattle shrubby open forest on sandstone hills in the southern Brigalow Belt South Bioregion and Sydney Basin Bioregion	Burned	-	-	-	4.52	107
	Moderate	-	-	-	8.06	159
	Regenerating	-	-	-	5.7	28
	Low	-	-	-	4.19	0
483 Grey Box x White Box grassy open woodland on basalt hills in the Merriwa region, upper Hunter Valley	Good	CE	CE	Yes	0.28	12
	Moderate	CE	CE	Yes	27.46	511
	Moderate	CE	-	Yes	80.53	1,755
	Low	CE	-	Yes	156.18	3,034
	Poor	-	-	-	327.30	53
				Total	**649.92**	**6,307**

Table 11 | Species credit requirements

Fauna Species	Conservation significance		Entities at risk of SAII	Impact on habitat (ha)			Credit Liability
	BC Act	EPBC Act		Known	Assumed	Total	
Barking owl *Ninox connivens*	V	-	-	15.72	2.17	17.89	422
Brush-tailed phascogale *Phascogale tapoatafa*	V	-	-	0	1.21	1.21	34
Bush stone-curlew *Burhinus grallarius*	E	-	-	0	2.17	2.17	63
Eastern Cave Bat *Vespadelus troughtoni*	V	E	Yes	0	2.36	2.36	23
Gang-gang cockatoo *Callocephalon fimbriatum*	E	E	-	0	1.21	1.21	34
Koala *Phascolarctos cinereus*	E	E	-	0	2.17	2.17	63
Large-eared pied bat *Chalinolobus dwyeri*	V*	V*	Yes	52.21	6.07	58.91	1452
Masked owl *Tyto novahollandiae*	V	-	-	2.77	2.17	4.94	140
Pale-headed snake *Hoplocephalus bitorquatus*	V	-	-	0	1.14	1.14	15
Pink-tailed legless lizard *Aprasia parapulchella*	V	V	-	0	2.90	2.90	32
Powerful owl *Ninox strenua*	V	-	-	2.77	2.17	4.94	140
Southern myotis *Myotis macropus*	V	-	-	0	0.28	0.28	1
Squirrel glider *Petaurus norfolcensis*	V	-	-	11.98	2.17	14.15	446
Superb parrot *Polytelis swainsonii*	V	V	-	0	2.17	2.17	63
						Total Fauna Species Credit Liability	**2,928**

*the BC Act and EPBC Act listing of this species has changed from Vulnerable to Endangered since finalising the BDAR.

Appendix I – Statutory considerations

Objects of the EP&A Act

In line with the requirements of section 4.15 of the EP&A Act, the Department's assessment of the project has given detailed consideration to a number of statutory requirements. These include:

- the objects found in section 1.3 of the EP&A Act; and
- the matters listed under section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.

The Department has considered all these matters in its assessment of the project and has provided a summary of this assessment in **Table 12** below.

Table 12 | Objects of the EP&A Act and how they have been considered

Summary
Objects of the EP&A Act
The objects of most relevance to the Consent Authority's decision on whether to approve the project are found in sections 1.3(a), (b), (c), (e) and (f) of the EP&A Act. The Department considers the project encourages the proper development of natural resources (Object 1.3(a) and the promotion of orderly and economic use of land (Object 1.3(c)), particularly as the project: • is a permissible land use on the subject land; • is located in a logical location for efficient wind farm development; • is able to be managed such that the impacts of the project could be adequately minimised, managed, or at least compensated for, to an acceptable standard; • would contribute to a more diverse local industry, thereby supporting the local economy and community; • would not fragment or alienate resource lands in the LGA; and • is consistent with the goals of NSW's *Climate Change Policy Framework and Net Zero Plan Stage 1: 2020*-2030 and *Implementation update* (2022) and would assist in meeting Australia's renewable energy targets whilst reducing greenhouse gas emissions. The Department has considered the encouragement of Ecologically Sustainable Development (ESD) (Object 1.3(b)) in its assessment of the project. This assessment integrates all significant socio-economic and environmental considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences. In addition, the Department considers that appropriately designed SSD wind development, in itself, is consistent with many of the principles of ESD. ACEN has also considered the project against the principles of ESD. As such, the Department considers that the project can be carried out in a manner that is consistent with the principles of ESD. Consideration of environmental protection (Object 1.3(e)) is provided in S**ection 6** of this report. The Department considers that the project can be undertaken in a manner that would at least maintain the biodiversity values of the locality over the medium to long term and would not significantly impact threatened species and ecological communities of the locality. The Department is also satisfied that any residual biodiversity impacts can be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits. Consideration of the sustainable management of built and cultural heritage (Object 1.3(f)) is provided in S**ection 6** of this report. The Department considers the project would not significantly impact the built or cultural heritage of the locality, and any residual impacts can be managed and/or mitigated by imposing appropriate conditions.

Summary
State significant development
Under section 4.36 of the EP&A Act, the project is considered State significant development. Under section 4.5(a) of the EP&A Act and Clause 1(b) of section 2.7 of the Planning Systems SEPP, the Independent Planning Commission is the consent authority for the development as the project received more than 50 unique public submissions by way of objection, and Warrumbungle Shire Council objects to the project.
Environmental Planning Instruments (EPIs)
The Warrumbungle LEP applies and is discussed in **Section 4.3** of this report, particularly regarding permissibility and land use zoning. Electricity generating works are permitted with consent within the relevant land use zoning. The project is not categorised as potentially hazardous or potentially offensive development under the State Environmental Planning Policy (Resilience and Hazards) 2021. The site is not listed as a contaminated site in the NSW EPA Contaminated Land Record or the list of NSW contaminated sites. Given the site has historically been used for predominately agricultural uses, the Department considers the site would be suitable for the proposed development. ACEN has committed to implementing management plans which would minimise the potential for contamination of the site associated with the development and has also committed to implementing an unexpected finds protocol to manage any contamination which may be identified during construction. The Department has also reviewed the proposal against the Transport and Infrastructure SEPP, and considers the project is permissible under the SEPP. In accordance with the Transport and Infrastructure SEPP, the Department has given written notice of the project to EnergyCo as the electricity supply authority and TfNSW. The Department has considered the provisions of *State Environmental Planning Policy (Primary Production) 2021*. Of relevance to the project, the SEPP aims to facilitate the orderly economic use and development of lands from primary production to reduce land use conflict and sterilisation of rural land and to identify State significant agricultural land. The Department has considered all of these matters in S**ection 6.6** of this report and concluded that the project is generally consistent with the broader and specific land use planning objectives for the site and the region under the relevant planning instruments and strategies. Chapter 3 of the *State Environmental Planning Policy (Biodiversity and Conservation) 2021* applies to areas within the Warrumbungle Shire LGA zoned RU1: Primary Production. The biodiversity development assessment report (BDAR) prepared for the project found no evidence of Koala, and the Department has considered biodiversity in S**ection 6.3** of this report.

Appendix J – Consideration of community views

The Department exhibited the EIS for the project from 23 May 2022 until 20 June 2022 (29 days) and received 106 public submissions, of which 105 were unique (94 objecting to the project, six in support and five comments). The Department also consulted with government agencies and relevant councils throughout the assessment process.

The key issues raised by the community (including in public submissions) and considered in the Department's Assessment Report include visual, socio-economic, bushfire risk, biodiversity and agricultural impacts. A summary of how the Department considered these matters is presented in **Table 13** below. Other issues are addressed in detail throughout this Assessment Report.

Table 13 | Consideration of community views

Issue	Consideration
Visual impacts Impacts on the surrounding landscape and dwellings Shadow flicker and night lighting	**Assessment** Most submissions objecting to the project raised concerns about visual amenity and landscape impacts, particularly regarding the size and scale of the wind farm in the landscape and views from residences and public areas. The Department considers that visual performance objectives in the Visual Assessment Bulletin is achievable at all receivers. While several receivers located within 4.95 km of a turbine may have some views of turbines, the Department considers that these impacts could be sufficiently mitigated through visual impact mitigation measures (such as landscaping and visual screening). The Department is satisfied that the project would not fundamentally change the broader landscape characteristics of the area or result in any significant visual impacts on the surrounding non-associated residences. The project would not exceed 30 hours of shadow flicker per year at any non-associated receiver. ACEN has committed to using subtle colours and a low reflectivity surface treatment on turbines to minimise blade glint. **Recommended conditions** • offer landscaping and/or vegetation screening to all non-associated dwellings within 4.95 km of any approved turbine; • implement all reasonable and feasible measures to minimise the visual impacts of the development; • paint turbines off-white/grey and finishing blades with a treatment that minimises potential for any glare or reflection; • implement all reasonable and feasible measures to minimise the off-site lighting impacts of the development; and • ensure that shadow flicker from turbines does not exceed 30 hours per annum at any non-associated dwelling.
Socio-economic Property values Worker accommodation Lack of community benefits	**Assessment** Concerns about socio-economic impacts were raised in 56 public submissions, particularly regarding non-local employment and diminishing property values. The project would generate up to 400 construction jobs and 50 ongoing operational jobs. ACEN has committed to preparing a Local Participation Plan prior to construction which will investigate prioritising local workers where feasible.

Issue	Consideration
	While ACEN has committed to a local participation and procurement approach, the Department has recommended a condition requiring ACEN to prepare an Accommodation and Employment Strategy in consultation with council, to prioritise local employment and procurement, and to mitigate the potential impacts of worker housing unavailability. The Land and Environment Court has ruled on several occasions that the assessment of the impacts of projects on individual property values is not generally a relevant consideration under the EP&A Act, unless the project would have significant and widespread economic impacts on the locality, which is not the case in this instance. In addition, the Department notes that King & Anor v Minister for Planning; Parkesbourne-Mummel Landscape Guardians Inc v Minister for Planning; Gullen Range Wind Farm Pty Limited v Minister for Planning ([2010] NSWLEC 1102) considers property values for sites adjacent to a wind farm. The judgement determined that there was no loss of property value to which the Court could lawfully have regard, as the wind farm was permissible with consent. Accordingly, the Department considers the project would not result in any significant or widespread reduction in land values in the areas surrounding the wind farm. **Recommended conditions** • Prepare an Accommodation and Employment Strategy for the project in consultation with Council, with consideration to prioritising the employment of local workers. • Enter into a VPA with Council prior to commencing construction.
Hazards Increased bushfire risk Impacts to aerial firefighting	**Assessment** Of the submissions objecting to the project, 41 raised concerns about increased hazard and bushfire risk including impacts to aerial firefighting in the area. A large proportion of the project site is mapped as bushfire prone land by the RFS and the site is located within the Castlereagh Bushfire Management Committee region. ACEN would be required to establish and maintain a 10 m asset protection zone (APZ) at each wind turbine generator (WTG) and wind monitoring masts, and the compound for the operation and maintenance facilities, including substations in accordance with RFS's *Planning for Bushfire Protection 2019*; ACEN committed to compliance with the RFS's *Planning for Bushfire Protection 2019* and the preparation and implementation of a Bushfire Management Plan and Emergency Response Plan to manage fire risks. ACEN also committed to a number of mitigation measures and strategies, including the development and distribution of operational guidelines regarding water-bombing setbacks from wind turbines to fire authorities, and the provision of water supplies during construction for fire fighting. Prior to construction of any wind turbines or meteorological monitoring masks masts, ACEN has committed to consultation with CASA, Airservices Australia and any relevant aerial agricultural or firefighting operators to communicate the final turbine coordinates and heights. RFS supported the recommendations of the Bushfire Assessment Report included in the EIS. **Recommended Conditions** • Ensure the site is suitably equipped to respond to fires on site, including the provision of a 50,000 litre water supply.

Issue	Consideration
	• Prepare and implement a Bushfire Management Plan, and an Emergency Response Plan. • Landscape planting to be in accordance with *Planning for Bushfire Protection 2019*. • Notify the relevant aviation authorities and local airstrip operators of the final location and specifications of the wind turbines and any wind monitoring masts. • Install aviation hazard lighting in accordance with CASA's requirements. • Shutting down turbines and the positioning of turbine blades to minimise interference with aerial firefighting operations.
Agricultural Land	**Assessment** Of the submissions objecting 35 raised concerns regarding the loss of agricultural land and potential impacts to agricultural practices. The project site and surrounds are dominated by agricultural land uses, particularly grazing and dryland cropping. 1290.1 ha of the site is mapped as Biophysical Strategic Agricultural Land (BSAL). Approximately 94.3 ha of BSAL is within the Development Corridor of which, 23.9 ha is located within the indicative construction footprint. The site is mostly comprised of Class 4 (30%) (moderate capability), Class 6 (25%) (very low capability) and Class 5 (23%) (moderate-low capability) land, with the balance of the site being Class 3 (12%) (high to moderate capability), Class 7 (7%) very low capability) land and Class 2 (4%) (high capability). Wind harvesting is a passive land use that can co-exist with grazing activities, which can continue concurrently throughout the project lifespan. As such, the Department considers that the project would not compromise or significantly diminish the availability of land for primary production purposes within the project site or surrounding LGAs. Regarding quarrying activities, ACEN has committed to developing and implementing a rehabilitation management plan to ensure the three quarry sites are rehabilitated to a condition fit for the intended land use, and are commensurate with the surrounding landscape. The Department is satisfied that with the implementation of ACEN's commitments and recommended conditions, the quarries could be rehabilitated to a condition fit for the intended land use. **Recommended Conditions** • Require the rehabilitation of the project site to a standard that makes it available for agricultural production following decommissioning. • Require the rehabilitation of the quarry sites as soon as practicable after the cessation of quarrying activities.
Noise impacts Construction and operational noise Traffic noise Low frequency noise	**Assessment** Concerns about construction, traffic and operational noise were raised in 37 public submissions. During access road construction noise levels over the 'noise affected' criterion in the EPA's *Interim Construction Noise Guideline* (2009) (ICNG) of 45 dB would be exceeded at one non-associated receiver (receiver 236). Noise exceedances would only occur during the proposed road upgrades which would be completed within a six-month period. Importantly, the predicted construction noise levels at this receiver would be well below the highly noise affected level of 75 dB(A) as outlined in the *Interim Construction Noise Guideline.*

Issue	Consideration
	Noise related to all other construction stages are predicted to be below the 'noise affected' management level for non-associated receivers. The Department accepts that the proposed construction activities are unlikely to result in significant adverse impacts during daytime hours and consequently has developed conditions restricting to standard construction hours (i.e. 7 am to 6 pm Monday to Friday, and 8 am to 1 pm Saturday) with no work on Sundays or NSW public holidays The Department has also considered the impacts of noise and vibration from blasting associated with the project which would likely be required as part of quarry activities and for the construction of turbine foundations. ACEN undertook a vibration impact assessment and determined that airblast overpressure and estimated ground vibration levels at all non-associated receivers would be below the criteria for all blasts, noting separation distances exceed 2000 m at all non-associated receiver locations. Construction traffic noise impacts were assessed in accordance with the NSW Road Noise Policy (DECCW, 2011) (RNP). Calculated noise levels indicate that compliance would be achieved with the RNP during the construction phase at all identified receivers, both for absolute noise levels and the relative increase criteria. Construction traffic noise impacts were assessed in accordance with the NSW Road Noise Policy (DECCW, 2011) (RNP). Calculated noise levels indicate that compliance would be achieved with the RNP during the construction phase at all identified receivers, both for absolute noise levels and the relative increase criteria. The project will require an Environment Protection Licence administered by the EPA to operate. The Department also considered the impacts of low frequency noise resulting from the project. Low frequency noise was assessed by Marshall Day Acoustics, and risk assessment indicates low frequency noise levels are under the 60 dB(C) level, above which the Noise Bulletin requires further assessment. As such, the Department is satisfied that any low frequency noise impacts would be minor and acceptable. Both the Department and the EPA consider that the operational noise impacts of the project can comply with the requirements of the Noise Bulletin and the Department has recommended conditions to this effect. **Recommended conditions** • Restrict construction to standard construction hours (ie 7 am to 6 pm Monday to Friday, and 8 am to 1 pm Saturday). • Undertake noise monitoring within 6 months of the commencement of operations to determine whether the project is complying with the relevant noise criteria. • Adjust noise monitoring results for tonality and low frequency noise in accordance with the Noise Bulletin. • Manage blasting operations to comply with the criteria in the *Australian and New Zealand Environment Council Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration* at any residence on privately owned land. • Only carry out blasting on site between 9 am and 5 pm Monday to Friday and between 9 am and 1pm on Saturday, in accordance with the blasting guidelines.

Issue	Consideration
Biodiversity Vegetation clearing Impacts to threatened species Bird and bat strike	**Assessment** Of the submissions objecting to the project, 34 raised concerns about impacts on biodiversity, including impacts from direct clearing of vegetation, habitat fragmentation and edge effects, clearing of Threatened Ecological Communities (TECs), blade strike impacts to avifauna species. The development footprint includes 634 ha of native vegetation, of which approximately 495 ha (78%) is in low or poor condition. The project has been designed and refined to avoid and minimise biodiversity impacts to areas of higher conservation value. The Department considers that the vegetation clearing impacts of the project would not be significant, subject to a range of mitigation and adaptive management measures and by offsetting the residual biodiversity impacts. ACEN has proposed a range of monitoring and management measures as part of a Bird and Bat Adaptive Management Plan (BBAMP). Given this, the Department is satisfied that the project's impacts to avifauna can be appropriately managed. **Recommended conditions** • Minimise the clearing of native vegetation and key fauna habitat, including hollow bearing trees, within the development footprint and protect native vegetation and key fauna habitat outside the approved disturbance area in accordance with limits in the recommended conditions. • Prepare and implement the Biodiversity Management Plan which includes a description of the measures to: • minimise the potential indirect impacts on threatened flora and fauna species; • secure land comprising 282 ha of Box Gum Woodland and implement measures to enhance and protect, in perpetuity, this vegetation to condition state commensurate with Box Gum Woodland • rehabilitate and revegetate temporary disturbance areas and maximise the salvage of resources within the approved disturbance area for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and revegetation of the site; • control weeds and feral pests; • provide a detailed program to monitor and report on the effectiveness of these measures. • Prepare and implement a Bird and Bat Adaptive Management Plan in consultation with CPHR and the AG DCCEEW. • retire the applicable biodiversity offset credits in accordance with the NSW Offsets Policy prior to carrying out any development that could directly or indirectly impact the biodiversity values requiring offset.

Appendix K – Assessment of Matters of National Environmental Significance

In accordance with the Bilateral Agreement between the Australian Government and NSW Government, the Department provides the following additional information required by the Commonwealth Minister, in deciding whether to approve a proposed action (i.e. the project) under the EPBC Act.

The Department's assessment has been prepared based on the assessment contained in the Environmental Impact Statement (EIS) for Valley of the Winds Wind Farm, Submissions Report, Amendment Report, revised Biodiversity Development Assessment Report (BDAR) and additional information provided during the assessment process, public submissions, and advice provided by the CPHR, other NSW government agencies and the AG DCCEEW.

This Appendix is supplementary to, and should be read in conjunction with, the assessment included in S**ection 6.3.8** of this report, which includes consideration of impacts to listed threatened species and communities, and mitigation and offsetting measures for threatened species and communities, including Matters of National Environmental Significance (MNES).

Controlled Action Decision – EPBC 2020/8668

On 13 July 2020, the Valley of the Winds Wind Farm was determined to be a Controlled Action by the Australian Government (AG) DCCEEW for the controlling provision of listed threatened species and communities and listed migratory species. The Commonwealth Referral Decision (EPBC 2020/8668) (Referral Decision) was based on likely significant impacts to:

- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia – Endangered;
- White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered;
- regent honeyeater (*Anthochaera phrygia*) – Critically Endangered;
- painted honeyeater (*Grantiella picta*) – Vulnerable;
- swift parrot (*Lathamus discolor*) - Critically Endangered;
- white-throated needletail (*Hirundapus caudacutus*) - Vulnerable;
- superb parrot (*Polytelis swainsonii*) – Vulnerable;
- large-eared pied bat (*Chalinolobus dwyeri*) – Vulnerable;
- Corben's long-eared bat (*Nyctophilus corbeni*) – Vulnerable; and
- koala (*Phascolarctos cinereus*) (combined populations of Queensland, New South Wales and the Australian Capital Territory) – Vulnerable.

Additionally, the AG DCCEEW identified there was some risk that there may be significant impacts on the following matters:

- *Androcalva procumbens* – Vulnerable
- austral toadflax (*Thesium australe*) –Vulnerable
- bent pomaderris (*Pomaderris sericea*) –Vulnerable

- bluegrass (*Dichanthium setosum*) – Vulnerable
- greater glider (*Petauroides volans*) – Vulnerable
- grey-headed flying-fox (*Pteropus poliocephalus*) – Vulnerable
- hoary sunray (*Leucochrysum albicans subsp. tricolor*) – Endangered
- *Homoranthus darwinioides* – Vulnerable
- *Indigofera efoliata* – Endangered
- *Kennedia retrorsa* – Vulnerable
- *Lasiopetalum longistamineum* – Vulnerable
- malleefowl (*Leipoa ocellata*) – Vulnerable
- Mount Vincent mintbush (*Prostanthera stricta*) – Vulnerable
- *Ozothamnus tesselatus* – Vulnerable
- Sandy Hollow commersonia (*Androcalva rosea*) – Endangered
- small purple-pea (*Swainsona recta*) – Endangered
- smooth bush-pea (*Pultenaea glabra*) – Vulnerable
- spotted-tail quoll (*Dasyurus maculatus maculatus*) (SE mainland population) – Endangered
- *Tylophora linearis* – Endangered
- Wollemi mint-bush (*Prostanthera cryptandroides subsp. cryptandroides*) – Vulnerable

In relation to migratory species, the AG DCCEEW Referral Decision (EPBC 2020/8668) (Referral Decision) was based on likely significant impacts to:

- white-throated needletail *(Hirundapus caudacutus);* and
- fork-tailed swift *(Apus pacificus).*

The revised BDAR for the project identified and addressed all the listed threatened species and communities and migratory species included in the Referral Decision.

ACEN assessed the significance of the impacts on these listed species and communities using the methodology outlined in the *Matters of National Environmental Significance Significant Impact Guidelines 1.1* (2013) as documented in Section 11 of the revised BDAR.

Impact on EPBC Listed Threatened Species and Communities

Section 6.3 of this report describes the biodiversity assessment undertaken for the project and the resulting BDAR.

All entities that were identified as requiring an assessment of significance were assessed. Of those, 24 threatened species and one migratory species was assessed as not occurring in the project site and were not considered further. One migratory species (fork-tailed swift) was also assessed as not occurring.

In January 2025, the project was amended to include additional road upgrades along Black Stump Way and Moorefield Road to facilitate construction and operation of the project. As a result, seven MNES entities that were previously assessed as not occurring in the project site were assumed present in areas where targeted surveys were not completed for Black Stump Way and Moorefield Road.

Table 14 provides a summary of the likelihood of occurrence for each of the remaining species identified above by the Commonwealth DCCEEW as requiring consideration.

Table 14 | Impacts on MNES entities considered likely to occur

Entity	Conservation Status	Likelihood of Occurrence	Comments
Threatened Ecological Communities			
Box Gum Woodland and DNG	CE	Present	Community is associated with areas of PCT 281 and PCT 483 which meet condition threshold requirements. Identified within the study area. Removal of vegetation within the development footprint. No significant residual impact considered likely.
Grey Box (*Eucalyptus macrocarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	E	Present	Community is associated with areas of PCT 267 which meet condition threshold requirements. Identified within the study area. Removal of vegetation within the development footprint. No significant residual impact considered likely.
Threatened Fauna Species			
White-throated needletail (*Hirundapus caudacutus*)	V, Migratory	Recorded	Recorded in the development corridor. Habitat within the locality and IBRA subregions is extensive. The species is migratory and is not restricted to the subject land. The air space over woodland habitat in the development footprint may provide foraging opportunities. Habitat within the IBRA subregions is extensive and the species is not restricted to NSW. CPHR identified that the impact of turbine collision may have a minor impact on population numbers. Impacts to species habitat would be offset via ecosystem credits as outlined in **Section 6.3.9** of this report.
Large-eared pied bat (*Chalinolobus dwyeri*)	V*	Recorded	The project has avoided all areas of potential cliff line and cave habitat for the large-eared pied bat. This species was recorded in very low numbers within the project site, indicative of a low regional population utilising the development site for foraging only. Therefore, there are no direct impacts from the project on breeding/roosting habitats, however 58.91 ha of foraging habitat would be impacted. Impacts to species habitat would be offset via ecosystem credits as outlined in 6.3.5 of the main report. Also assumed present in areas where surveys were not completed. Minimal amount of potential habitat impacted along Black Stump Way and Moorefield Road for road upgrade works. “Low” risk rating of wind turbine strike.
Regent Honeyeater (*Anthochaera Phrygia*)	CE	Assumed present	Removal of 1.24 ha of potential foraging habitat. No significant residual impact considered likely.

Entity	Conservation Status	Likelihood of Occurrence	Comments
Swift parrot (*Lathamus discolor*)	CE	Assumed present	Not identified on important area mapping. No impact to breeding habitat and minimal amount of potential foraging habitat impacted. Removal of 2.17 ha of potential foraging habitat. No significant residual impact considered likely.
Superb parrot (*Polytelis swainsonii*)	V	Assumed present	Assumed present in areas where adequate survey was not completed and based on minimal amount of potential foraging habitat impacted. Removal of 2.17 ha of potential foraging habitat. No significant residual impact considered likely.
Koala (combined populations of QLD, NSW and the ACT)	V	Assumed present	Not identified by field surveys for the Project. Assumed present in areas where surveys were not completed. Minimal amount of potential habitat impacted along Black Stump Way and Moorefield Road for road upgrade works. Removal of 2.17 ha of potential habitat. No impacts to breeding habitat. No significant residual impact considered likely.
Pink-tailed Legless Lizard (*Aprasia parapulchella*)	V	Assumed present	Not identified by field surveys for the Project. Assumed present in areas where surveys were not completed. Minimal amount of potential habitat impacted along Black Stump Way and Moorefield Road for road upgrade works. Removal of 2.90 ha of potential habitat. No impacts to breeding habitat. No significant residual impact considered likely.
Gang-gang Cockatoo (*Callocephalon fimbriatum*)	E	Assumed present	Not identified by field surveys for the Project. Assumed present in areas where surveys were not completed. Minimal amount of potential habitat impacted along Black Stump Way and Moorefield Road for road upgrade works. Removal of 1.21 ha of foraging habitat. No significant residual impact considered likely.
Grey-headed Flying-fox *(Pteropus poliocephalus)*	V	Assumed present	Not identified by field surveys for the Project. Assumed habitat present in areas where surveys were not completed. Minimal amount of potential foraging habitat impacted along Black Stump Way and Moorefield Road for road upgrade works. No camps to be impacted. Removal of 2.17 ha of potential foraging habitat. No significant residual impact considered likely.
Threatened Flora Species			
Bluegrass (*Dichanthium setosum*)	V	Recorded	Species identified within the greater study area. Subsequently, additional targeted surveys were undertaken in April and May 2021 (see Section 4.2.4 of the amended BDAR). The development footprint was revised to avoid all areas of known and potential habitat for Bluegrass. No removal of any individuals, and 0 ha impacted. No significant impact

*Listed as endangered on 15 November 2023.

Impacts on threatened ecological communities

As described in **Section 6.3.2** of this report, ACEN has generally focused on avoidance of impacts through site selection and avoidance of higher quality native vegetation and habitat during the preliminary design process for the action. This work has focussed largely on avoiding impacts to areas of Box Gum Woodland CEEC.

Notwithstanding, the action would result in the clearance of approximately 40.81 ha of TEC, comprised of:

- 36.1 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (woodland); and
- 4.71 ha of Grey Box (*Eucalyptus macrocarpa*) Grassy Woodlands and Derived Native Grasslands of Southeastern Australia, consisting of 0.67 ha woodland and 4.04 ha grassland.

As a result, the assessments of significance contained within the MNES Assessment concluded that there would be no significant residual impact from the project on EPBC Act threatened species and communities.

ACEN would offset the residual biodiversity impacts of the action in accordance with the requirements of NSW Biodiversity Offset Scheme. The Department considers that impacts to this community would be appropriately offset via the ecosystem credit requirements detailed in S**ection 6.3** of this report.

Impacts on threatened flora species

No threatened flora species listed under the EPBC Act were recorded or considered likely to occur within the action area. One flora species (bluegrass) was recorded within the survey area. Additional surveys did not identify the species within the development corridor, and impacts to this species would be avoided.

Impacts on threatened fauna species

ACEN determined that there is predicted habitat or identified known habitat within the project area for two threatened fauna species listed under the EPBC Act. Assessments of significance were carried out for these species, summarised in the BDAR (7 March 2025).

The assessments of significance for these species determined that the project is unlikely to have a significant impact on any threatened fauna species.

The Department considers that the species identified would be appropriately offset via the ecosystem and species credit requirements detailed in **Section 6.3** of this report. The Department has recommended conditions and additional measures to avoid or minimise impacts on threatened fauna species as detailed in **Section 6.3** of this report.

Impacts on migratory species

Other than the white-throated needletail (assessed above), no EPBC Act listed migratory species were recorded during field surveys.

ACEN's assessments of significance concluded that while some migratory birds may use the project area, it is not considered important habitat for these species and would therefore not have a significant impact on these species. The Department and CPHR agree with the outcome of ACEN's assessment.

Conservation Advice

In its MNES assessment, ACEN has appropriately referred to the Conservation Advice for Grey Box Woodland TEC and Box Gum Woodland CEEC in relation to the relevant recovery and threat abatement actions for each TEC relevant to the proposal.

Conservation Advice for *Dichanthium setosum*, large-eared pied bat, and white-throated needletail are also appropriately referred to inform habitat requirements for each species.

The Department notes the key threats to species and communities include landscape fragmentation, introduction of weeds, competition for land, habitat degradation (particularly by rabbits, unmanaged goats, and feral pigs), climate change, disease transmission (particularly by feral pigs), biological effects associated with invasive species and predations (particularly by feral cats and foxes).

The Department's recommended conditions require ACEN to prepare and implement a Biodiversity Management Plan detailing how these risks would be minimised and managed, including measures to:

- ensure the development does not adversely affect the native vegetation and habitat outside the disturbance footprint;
- minimise the clearing of native vegetation and habitat within the disturbance footprint;
- minimise the impacts of the development on threatened flora and fauna species within the disturbance footprint and its surrounds;
- rehabilitate and revegetate temporary disturbance areas;
- protect native vegetation and key fauna habitat outside the approved disturbance footprint;
- maximise the salvage of resources within the approved disturbance footprint – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and revegetation of the project area;
- collect and propagate seed (where relevant);
- control weeds and feral pests;
- control erosion; and
- manage bushfire.

ACEN would be required to prepare the Biodiversity Management Plan in consultation with CPHR and the AG DCCEEW, and ensure the plan is prepared by a suitably qualified and experienced biodiversity expert.

In addition, ACEN is required to ensure impacts on species and communities are avoided and minimised, where practicable during detailed design, and offset the residual biodiversity impacts of the project in accordance with the NSW Biodiversity Offset Scheme.

Recovery Plans

Recovery plans for the relevant species and communities are referenced in throughout the MNES assessment. Recovery Plans have generally been referenced to inform the identification of areas of important habitat for the above species.

Threat Abatement Plans

The relevant Threat Abatement Plans that apply to the project include:

- *Threat abatement plan for the biological effects*, including lethal toxic ingestion, caused by cane toads (Australian Government Department of Sustainability, Environment, Water, Population and Communities, 2011);
- *Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa*) (Australian Government Department of the Environment and Energy, 2017);
- *Threat abatement plan for predation by feral cats* (Australian Government Department of the Environment, 2015);
- *Threat abatement plan for predation by the European red fox* (Australian Government Department of the Environment, Water, Heritage and the Arts, 2008);
- *Threat abatement plan for competition and land degradation by rabbits* (Australian Government Department of the Environment and Energy, 2016); and
- *Threat abatement plan for competition and land degradation by unmanaged goats* (Australian Government Department of the Environment, Water, Heritage and the Arts, 2008).

The Department has included measures for the control of feral animals under the recommended Biodiversity Management Plan for the project, including specific requirements for the Applicant to consider the actions identified in relevant Threat Abatement Plans. With these measures in place, the Department considers that the action can be carried out in a manner which is compatible with the relevant Threat Abatement Plans.

Subject to the recommended conditions, the Department considers that the project can be carried out in a manner that is consistent with the relevant conservation advice, recovery plans and threat abatement plans.

Review of EPBC listed threatened species and communities

Table 15 provides a detailed review of whether the assessment documentation (i.e. the EIS, Submissions Report, Amendment Report and revised BDAR) includes all relevant required information.

Table 15 | CPHR advice to the Department on EPBC Act listed threatened species and communities

EF20/22238– Valley of the Winds Wind Farm (SSD-10461)
EPBC Bilateral Assessment

TABLE 1: BCS OFFICER PROJECT ADVICE TO DPHI ON EPBC ACT LISTED THREATENED SPECIES AND COMMUNITIES

Requirement	Information	Reference (BAM / BLA[1])
Background & Description of Action	Does the EIS/BDAR[2]: ☒ clearly show how operational and construction footprints, including clearing boundaries, structures to be built and elements of the action are situated with regard to MNES ☒ depict stages and timing of the action that may impact on MNES ☒ provide a map(s) of the subject land boundary showing the final proposal/disturbance footprint with respect to location of MNES, including GIS shape files. Include references to where this detail is provided.	BAM Chapters 3, 4, 5 and 8

	Provide advice on the adequacy of the background and action description with respect to MNES and identify any recommended additional information requirements:
	
	The bilateral assessment for this project relates to the construction of a wind farm with a development footprint of approximately 695 hectares (a reduction from 1,318 ha proposed in the exhibited EIS), which is comprised of:
	• up to 131 wind turbine generators (WTGs) with a maximum tip height of 250 meters above ground level across three WTG clusters, which include:
	  ◦ The Mount Hope Cluster – 65 turbines
	  ◦ The Girragulang Road Cluster – 45 turbines
	  ◦ The Leadville Cluster - 21 turbines
	• internal roads and WTG hardstands
	• substations in each cluster and a step-up facility at the Girragulang road central substation
	• a battery energy storage system (BESS) (potentially)
	• overhead transmission lines connecting internal substations
	• operation and maintenance facilities
	• meteorological masts (up to ten)	

[1] Bilateral agreement (BLA) made under section 45 of the EPBC Act, including Amending Agreement No. 1 (2020)
[2] Or revisions of the BDAR and associated documentation made as a result of previous reviews or project changes post-exhibition.

Requirement	Information	Reference (BAM / BLA[1])

	• access and egress points to each cluster from public roads including intersection and road upgrades
	• temporary construction elements including:
	  • concrete batching and crushing plants
	  • site compound and office
	  • quarry sites for construction material (rock for access tracks and hardstands)
	  • temporary meteorological masts
	  • stockpiles, material storage compounds and laydown areas
	  • potential construction workforce accommodation site.
	
	The BDAR dated April 2022, initially formed Appendix G of the EIS for the proposed development. The BDAR was subsequently updated in October 2023, and an addendum memo was prepared in March 2024 after the Response to Submissions (RTS). All references to the 'BDAR' in this assessment refer to the version dated 27 October 2023 and the 'Addendum Memo' dated 11 March 2024.
	
	The locations of MNES in relation to the development are in **Figure 75** of the BDAR. This includes the mapping of:
	
	• *White Box-Yellow Box- Blakely's Red Gum Grassy Woodlands and Derived Native Grassland* Critically Endangered Ecological Community (CEEC)
	
	• *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands* Endangered Ecological Community (EEC)
	
	• Recorded observations of large-eared pied bat, white-throated needletail and *Dicanthium setosum*.
	
	The above mapping does not include federally listed species assumed to be present, including ecosystem credit species (see Table 2 of this response). Additional survey work for microbats was completed after the RTS and has been included in the Addendum Memo. These surveys caught an additional single individual of large-eared pied bat within the Girragulang Road Cluster.
	
	The proponent provided BCS with shape files for the maps in the BDAR. Since the proponent prepared an Addendum Memo, BCS has not conducted a detailed consistency review of the updated spatial data and BAM-C cases against the older version of the BDAR.	

Requirement	Information	Reference (BAM / BLA[1])
	The Addendum Memo has not addressed identified errors, inconsistencies or lack of suitable justification for habitat suitability assessment for several MNES. This includes large-eared pied bat, *Dichanthium setosum* and *Pomaderris cotonester*. BCS requested further justification and revisions to the habitat suitability and species polygon mapping for these species but have not received the update at the time of preparing this document.	
Landscape Context of the MNES	**Provide advice on the adequacy of the landscape context information and identify any additional information requirements:** Section 2 'Landscape Features' of the BDAR describes the landscape context and features of the project. This section includes information which meets the requirements of the BAM. No further information is required.	BAM Section 3.1 BLA clause 7.4
EPBC Act Listed Threatened Species & Communities	Verify that the EIS/BDAR includes relevant information on the identification of all EPBC Act listed threatened species and communities on the site or in the vicinity[3] via: ☒ field based survey effort ☒ published peer reviewed literature ☒ local data ☒ supporting databases (such as the NSW BioNet Vegetation Classification, NSW BioNet Threatened Biodiversity Data Collection, NSW BioNet Atlas, Commonwealth Species Profile and Threats Database search results) ☒ Verify that the EIS/BDAR includes appropriate mapping of all EPBC Act listed threatened species and communities in accordance with the relevant Commonwealth Listing Advice. The EIS/BDAR should include important populations and critical habitat as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans. **Provide advice on the adequacy of the identification methods and mapping information / any additional information requirements:** ***Field-based survey effort:*** The methods used for surveys are documented in Section 3.2 of the BDAR. The survey methodology for assessing native vegetation (vegetation integrity plots and native vegetation mapping) is described in Section 3.5.	BAM Chapters 4 and 5

[3] On land to which impacts may extend

Requirement	Information	Reference (BAM / BLA[1])
	Descriptions of the survey effort for threatened flora and fauna is provided in Sections 4.2.4, 4.2.5 and 4.2.6. Summaries are provided in various tables, specifically Tables 17, 18 and 20. Details of the bat activity monitoring and bird utilisation surveys are provided in section 6.1 and 6.2 of the BDAR, respectively. Floristic and vegetation integrity data were collected in accordance with the minimum requirements under the BAM. Vegetation surveys identified *White Box-Yellow Box- Blakely's Red Gum Grassy Woodlands and Derived Native Grassland* CEEC ('Box Gum Woodland') and *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands* EEC on site. Section 3.7.2.2 of the BDAR states that 43.59 ha of Box Gum Woodland, listed under the EPBC Act, is present in the development site. Table 71 of Section 11.3 indicates that 35.88 ha of EPBC Act listed Box Gum Woodland is to be removed along with 4.71 ha of EPBC Act listed *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands* EEC. BCS identified potential inconsistencies and errors in the categorisation of EPBC Act listed Box Gum Woodland in the BDAR. The inconsistencies raised by BCS were reviewed in the Addendum Memo. BCS is satisfied that the proponent has adequately assessed these inconsistencies. The Executive Summary of the BDAR outlines that there is a significant construction buffer around the final development, allowing for considerable micro-siting within the bounds of the proposed development corridor. The proponent estimates that they can expect a 25% reduction in the total project impact area. The development footprint finalised in the Addendum Memo contains: • 34.7 ha of *White Box-Yellow Box- Blakely's Red Gum Grassy Woodlands and Derived Native Grassland* CEEC • 4.71 ha of *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands* EEC One EPBC Act listed threatened flora species, bluegrass (*Dichanthium setosum*), was documented within the development corridor for the proposed project however all impacts to this species are avoided. Two EPBC Act listed threatened fauna species were found on the project site; the vulnerable large-eared pied bat (*Chalinobus dwyeri*) and a migratory species, the white-throated needletail (*Hirundapus caudacutus*). BCS is satisfied that flora and fauna survey requirements for the BAM have been met. ***Published peer reviewed literature:*** Section 12 'References' of the BDAR includes peer-reviewed papers that were used for the assessment of MNES entities. No references to NSW or Commonwealth Government websites are included. The list of	

Requirement	Information	Reference (BAM / BLA[1])
	references is relatively short and, in general, lacks a broad range of peer-reviewed literature that is generally expected to underpin decision-making in the BDAR. While two references relating to impacts on wedge-tailed eagles is provided, BCS considers that the assessment of blade strike and indirect impacts on fauna would have benefited from a more comprehensive literature search. ***Local data:*** No local data was used for the proposed project. ***Supporting databases:*** Six databases were used for the MNES assessment: • NSW DCCEEW BioNet Vegetation Information System (VIS) • NSW DCCEEW BioNet Threatened Biodiversity Data Collection (TBDC) • NSW DCCEEW BioNet Atlas • The Royal Botanic Gardens NSW Plant Information Network System (PlantNET) • Atlas of Living Australia • Australian Virtual Herbarium **Appropriate mapping of all EPBC Act-listed species and communities in accordance with relevant Commonwealth Listing Advice:** During the exhibition period of the EIS, BCS raised that mapping of native vegetation particularly relating to CEECs had incorrectly applied the BAM and were therefore inadequately assessed. Concerns were raised that the land categorisation method had failed to be informed by the presence of CEEC extent across the site, underestimating the extent of Box Gum Woodland required to be cleared for the project. During the RTS, BSC noted that the issue of underestimation of Box Gum Woodland had been partially addressed. Further potential inconsistencies and errors with the revised mapping and stratification were raised. During the request for further information, BCS stated that the Addendum Memo did include further justification to support the stratification of vegetation zones, thus resolving the mapping concerns for CEECs. The mapping of MNES threatened ecological communities (Box-Gum Woodland CEEC and Inland Grey Box EEC) has been subsequently revised in the Addendum Memo. The proposed development footprint will directly impact:	

Requirement	Information	Reference (BAM / BLA[1])
	• 34.7 ha of *White Box-Yellow Box- Blakely's Red Gum Grassy Woodlands and Derived Native Grassland* CEEC • 4.71 ha of *Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands* EEC Both threatened ecological communities (TECs) and two threatened species have been assessed within the development corridor against the Approved Conservation Advice criteria published by the Commonwealth Threatened Species Scientific Committee (TSSC). The assessment for Inland Grey Box Woodland EEC has been provided in section 11.3.1.1 of the BDAR and Box-Gum Woodland CEEC in section 11.3.1.2 of the BDAR. The assessment for the large-eared pied bat, white-throated needletail and bluegrass are provided in sections 11.3.1.3, 11.3.1.4 and 11.3.1.5 of the BDAR, respectively. The species polygon for the large-eared pied bat is presented in Figure 31 of the BDAR. The white-throated needletail was recorded on site, but as it is an ecosystem credit, no species polygon is required. The MNES referral documentation listed the critically endangered regent honeyeater (*Anthochaera phrygia*) and swift parrot (*Lathamus discolor)*, as likely to be significantly impacted. Targeted surveys were not conducted for either species as areas of important habitat mapping does not occur within the project area. Table 71 of the BDAR states that these species will not be affected by the project, and no further assessment was required. Neither of these species were considered to have breeding habitat (species credit habitat) present within the development site. Therefore, these species are treated as ecosystem credit species. The foraging value of the project area to these species, and the likely impact to these species, is defined by the PCTs that the species are associated with in the TBDC. While maps of the PCTs impacted by this project are provided in the BDAR, specific habitat for these two MNES threatened fauna species have not been mapped. **Any important populations and critical habitat, as defined in Approved Listing Advice, Approved Conservation Advice and Recovery Action Plans:** There are no 'important populations' or 'critical habitat' likely to be impacted by the project.	
	Advise whether there is appropriate justification and supporting evidence for the addition and/or the exclusion of any EPBC Act listed threatened species and/or communities from the list (if applicable):	

Requirement	Information	Reference (BAM / BLA[1])
	All species and communities identified in the referral documentation have been assessed. However, some errors, inconsistencies or lack of suitable justification for habitat suitability assessment for large-eared pied bat, *Dichanthium setosum* and *Pomaderris cotonester* have been identified by BCS and have not yet been addressed.	
Avoidance, Minimisation, Mitigation & Management	Verify that the EIS/BDAR demonstrates all feasible alternatives and efforts to avoid and minimise impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including an analysis of alternative: ☒ designs and engineering solutions ☒ modes or technologies ☒ routes and locations of facilities ☒ sites within the subject site ☒ Verify that the EIS/BDAR identifies any other site constraints in determining the location and design of the proposal (such as bushfire protection requirements, flood planning levels, servicing constraints, etc). Verify that the EIS/BDAR provides feasible measures to mitigate and/or manage impacts on EPBC Act listed threatened species and communities (including direct, indirect and prescribed impacts) including: ☒ techniques, timing, frequency and responsibility ☒ identify measures for which there is risk of failure ☒ evaluate the risk and consequence of any residual impacts ☒ any adaptive management strategy proposed to monitor and respond to impacts. **Confirm that all feasible alternatives and efforts have been made to avoid and minimise impacts on EPBC Act listed threatened species and communities.** During the exhibition period of the EIS, BCS raised that the quantum of impact to Box Gum Woodland was not supported and recommended the development footprint be revised to avoid and minimise the impact on Box Gum Woodland. During the RTS, BCS was satisfied that detailed consideration had been given to reducing direct impacts to biodiversity values, including Box Gum Woodland.	BAM Chapters 6, 7 and 8 BLA clause 7.1

Requirement	Information	Reference (BAM / BLA[1])
	Section 7 of the BDAR addresses avoidance and minimisation of biodiversity values. Table 50 in the BDAR outlines the project design changes between the scoping study and the final proposal which have been undertaken to avoid and minimise impacts. The project has utilised the CWO REZ transmission line to remove the electrical connectivity component, reducing the development site size and impact. The project has also removed 17 turbines since EIS and proposed a narrower construction corridor to reduce the impact to the areas of highest biodiversity value. These measures have reduced the total area of impact to native vegetation, including Box Gum Woodland (both woodland and derived grassland components). Of the infrastructure for the project located in native vegetation, approximately 78% is in low or poor quality condition. Section 7.1.2 outlines the efforts undertaken to demonstrate how the project has avoided prescribed impacts. Efforts included avoiding direct impacts to caves and cliffs, migratory flight paths, forest edges, riparian corridors, wetlands, gullies and water bodies to minimise impacts to fauna. Section 1.4 of the Addendum Memo contains an SAII assessment for EPBC Act listed large-eared pied bat within the rotor swept area. The project commits to micro-siting the turbine locations for LV22 and MH15, such that the rotor swept area is completely outside of the potential breeding habitat buffer. A baseline collision risk assessment has been provided for the large-eared pied bat and the white-throated needletail in section 6.6 of the BDAR. The risk rating for both species is identified in Table 45 in the BDAR as negligible. However, BCS considers that the risk rating may be understated. Given the location of 118 turbines immediately adjacent to woodland, and 3 turbines immediately adjacent to cliffs which provide habitat for threatened microbats, BCS suggested criteria indicates a strike consequence of moderate or higher. **Verify that the EIS/BDAR provides feasible measures to mitigate and/or manage impacts on EPBC Act listed threatened species and communities (including direct, indirect, and prescribed impacts)** Section 8.6 of the BDAR outlines the mitigation measures to manage the direct and indirect impacts. The prescribed impacts and adaptive management strategy is outlined in section 8.7 of the BDAR. A Biodiversity Management Plan (BMP) and a Bird and Bat Adaptive Management Plan (BBAMP) are proposed. BCS have identified risks to Box Gum Woodland with the quantum of impact proposed to be impacted. The proposed package of additional and appropriate measures for Box Gum Woodland CEEC would not on its own mitigate the direct impacts to this entity.	

Requirement	Information	Reference (BAM / BLA[1])
	In consideration of the risks associated with operational impacts on birds and bats, BCS recommended a precautionary approach be adopted with conservative operational mitigation measures being applied equally for all turbines including: • micro-siting turbines away from threatened species habitat post-approval, • operational low windspeed curtailment for the wind turbines at highest risk of striking microbats, and • triggers for the operational shutdown of wind turbines in post-consent adaptive management plans, should strike impacts be significant. Section 1.4 of the Addendum Memo commits to micro-siting the turbine locations for LV22 and MH15, such that the rotor swept area is completely outside of the potential breeding habitat buffer for the large-eared pied bat.	
Impact Assessment	Verify that the EIS/BDAR: ☒ identifies the residual adverse impacts likely to occur to **each** EPBC Act listed threatened species and/or community after the proposed avoidance and mitigation measures are taken into account ☒ provides adequate justification and evidence for the predicted level of impact, with reference to the: • Commonwealth's Significant Impact Guideline: *https://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf* • DPIE Guidance to Assist a Decision-Maker to Determine a Serious and Irreversible Impact (SAII): (*https://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf*) Section 7 of the BDAR 'Avoid and Minimising Impacts on Biodiversity Values' addresses the measures that have been taken to avoid and minimise impacts to biodiversity. Section 8.7 'Mitigating prescribed impacts and adaptive management strategy' outlines the monitoring program and strategy to manage and mitigate operational issues relating to bird and bat impacts for the wind farm. Table 62 of the BDAR provides a BBAMP framework. BCS have committed to working with the proponent post-approval when they prepare the BBAMP to ensure that mitigation measures appropriate to the risk are implemented. Specific comments on avoidance and minimisation of impacts to MNES are included below. **Box-Gum Woodland CEEC and Inland Grey Box EEC**	BAM Chapters 8 and 9 BLA clauses 6.2(b)(i)-(ii) and 7.1

Requirement	Information	Reference (BAM / BLA[1])
	Section 7 of the BDAR states that avoidance of high value vegetation such as CEECs was considered a priority. Figure 56 of the BDAR provides a comparison of the development footprints between the 2022 EIS and the October 2023 BDAR and the area of Box Gum woodland being impacted. Tables 49 and 50 of the BDAR described how native vegetation was avoided although these address impacts to MNES in only a very general manner. An analysis of the impact assessment for each TEC is not provided. The Addendum Memo outlines that the direct impact to EPBC Act Box-Gum Woodland will be 34.7ha. Table 9 of the Addendum Memo indicates that the impact to Box-Gum Woodland is 34.15 hectares of woodland. Table 75 of the BDAR indicates that the impact to Inland Grey Box Woodland is 4.71 hectares which includes 0.67 hectares of woodland and 4.04 hectares of derived native grassland. **Prescribed Impacts** Prescribed impacts are described in section 7.1.2 of the BDAR, avoidance measures in Table 52 and minimisation in Table 53. A 10% loss has been applied to areas of woodland over-swept by blades (section 7.1.3). The resultant 3.2 ha of impacted woodland has been added to the existing area calculations and offset accordingly (Table 54 of the BDAR). Proposed measures to mitigate and manage prescribed impacts are discussed in Section 8.7 of the BDAR and will be outlined in the BBAMP. The proponent has proposed an offsetting strategy for turbine strikes which will be outlined in the BBAMP. **Habitat Connectivity** Section 3 of the BDAR states that the project area is located on land that is currently, and historically, used for grazing and agriculture. In these areas the native understorey and mid-storey are diminished and often contain significant amounts of non-native vegetation. Vegetation within the Leadville area is the most poorly degraded within the study area, due to ongoing agricultural practices and a significant uncontrolled fire in 2017, which burnt a large portion of remnant vegetation between the Girragulang Road and Mount Hope clusters. Due to the severity of the fire and drought conditions for a large period following the fire event, the vegetation in this area may take more than 50 years to recover.	

Requirement	Information	Reference (BAM / BLA[1])
	There are some patches of better condition native vegetation around the slopes adjacent to the study areas at the Girragulang Road and Mount Hope clusters, as well as in riparian areas in steep gullies north of the study area. **Vehicle Strike** Table 31 of the BDAR states that vehicle movements more than 60km/hr would be on existing formed roads. All new roads within the project area will be trafficked at lower speeds (likely less than 40km/hr). it is expected that this will not increase the risk of vehicle strike on threatened fauna. **Turbine Strike** 131 WTGs are proposed for the Valley of the Winds Wind Farm. The turbines will have a maximum blade tip height of 250 metres above ground level. An analysis of bat activity within the rotor swept area has been provided (Appendix K of the BDAR). No EPBC Act listed species were recorded flying at RSA heights during bat utilisation surveys. We consider that the risk to birds remains uncertain and there is insufficient evidence to support the risk assessment for threatened birds. BCS has committed to work with the proponent post-approval while they prepare the BBAMP to ensure that mitigation measures appropriate to the risk are implemented.	

Requirement	Information	Reference (BAM / BLA[1])
	Complete the following information for each EPBC Act listed threatened species and/or community (add/remove rows as necessary): • EPBC Act listed threatened species and/or community • nature and consequences of impacts (i.e. direct and indirect) • duration of impact (e.g. construction, operation, life of project) • quantum of impact • consequences of impacts on the species, the population and / or extent of the community at local, state and national scales Confirm the level of predicted impact (cross appropriate): ☒ high risk of impact (requiring offsets)# or SAII ☒ Low risk of impact (not requiring offsets) # For purposes of EPBC approval, as a minimum, significant adverse residual impacts **must** be offset (significant impact can be evaluated with reference to the significance impact guidelines) **Confirm that all EPBC Act listed threatened species and communities that occur on the subject land, or in the vicinity, have been identified in the BDAR/EIS including those that are ecosystem credit species.** BCS confirms that all EPBC Act listed threatened species and communities that occur on the subject land, or in the vicinity, have been identified in the BDAR (see further information below). **If any species and communities identified in the referral documentation (provided by DAWE) have been ruled out because they don't occur on or near the site, verify that there is robust analysis and justification for why these species can be ruled out.** The referral decision brief (dated 13 July 2020) identified that the project was likely to have a significant impact on: • *Grey box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia* TEC, listed as Endangered • *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland* TEC, listed as Critically Endangered • Regent honeyeater (*Anthochaera phrygia*) – listed as Critically Endangered	

Requirement	Information	Reference (BAM / BLA[1])
	• Painted honeyeater (*Grantiella picta*) – listed as Vulnerable • Swift parrot (*Lathamus discolor*) – listed as Critically Endangered • White-throated needletail (*Hirundapus caudacutus*) – listed as a Vulnerable and Migratory • Superb parrot (*Polytelis swainsonii*) – listed as Vulnerable • Large-eared pied bat (*Chalinolobus dwyeri*) – listed as Vulnerable • Corben's long-eared bat (*Nyctophilus corbeni*) – listed as Vulnerable • Koala (*Phascolarctos cinereus*) – combined populations of Queensland, New South Wales and the Australian Capital Territory, listed as Endangered In addition, the Commonwealth identified potential for some risk of significant impacts to the following matters: • *Androcalva procumbens* –Vulnerable • Austral Toadflax (*Thesium australe*) –Vulnerable • Bent Pomaderris (*Pomaderris sericea*) –Vulnerable • Bluegrass (*Dichanthium setosum*) – Vulnerable • Greater glider (*Petauroides volans*) – Vulnerable • Grey-headed flying-fox (*Pteropus poliocephalus*) – Vulnerable • Hoary Sunray (*Leucochrysum albicans* subsp. *tricolor*) – Endangered • *Homoranthus darwinioides* – Vulnerable • *Indigofera efoliata* – Endangered • *Kennedia retrorsa* – Vulnerable • *Lasiopetalum longistamineum* – Vulnerable • Malleefowl (*Leipoa ocellata*) – Vulnerable • Mount Vincent Mintbush (*Prostanthera stricta*) – Vulnerable • *Ozothamnus tesselatus* – Vulnerable • Sandy Hollow Commersonia (*Androcalva rosea*) – Endangered • Small Purple-pea (*Swainsona recta*) – Endangered • Smooth Bush-pea (*Pultenaea glabra*) – Vulnerable • Spotted-tail Quoll (*Dasyurus maculatus maculatus*) (SE mainland population) – Endangered • *Tylophora linearis* – Endangered • Wollemi Mint-bush (*Prostanthera cryptandroides* subsp. *cryptandroides*) – Vulnerable The referral also identifies that the proposed action is likely to have a significant impact on the following listed migratory species: • White-throated needletail (*Hirundapus caudacutus*) – listed as a Vulnerable and Migratory • Fork-tailed swift (*Apus pacificus*) – listed as Migratory	

Requirement	Information	Reference (BAM / BLA[1])

Entity	BDAR
Listed in the referral decision brief (dated 13 July 2020)	
Grey box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia TEC	Assessed in Section 11.3.1.1 of the BDAR
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC	Assessed in Section 11.3.1.2 of the BDAR
Koala (*Phascolarctos cinereus*)	Table 17, Section 4.2.3 of the BDAR states that 47 koala Spot Assessment Technique (SAT) surveys were conducted across 138.45 ha of potential habitat and that 456.4 km of spotlighting was undertaken. Survey effort exceeds the survey requirements. No koalas were detected in the development corridor and no evidence of koala occupation was observed in the wind farm development corridor.
Large-eared pied bat (*Chalinolobus dwyeri*)	Table 17, Section 4.2.3 of the BDAR states that 64 harp trap nights and 466 songmeter nights conducted within appropriate habitat. Survey effort exceeds the survey requirements. Assessed in Section 11.3.1.3 of the BDAR.
Corben's long-eared Bat (*Nyctophilus corbeni*)	A total of 64 harp trap nights, and 466 songmeter nights were undertaken across the project (Section 4.2.6.1 of the BDAR). Not identified by field surveys.
Grey-headed flying-fox (*Pteropus poliocephalus*)	Assessed in Table 9 of the Amendment Memo.
White-throated needtletail (*Hirundapus caudacutus*)	Assessed in Section 11.3.1.4 of the BDAR.

Requirement	Information		Reference (BAM / BLA[1])
	Bluegrass (*Dichanthium setosum*)	Assessed in Section 11.3.1.5 of the BDAR.	

Provide advice on whether there are any other MNES species or communities that are missing from the assessment based on BCS knowledge and experience.

The following MNES species were surveyed for but a full assessment for this project has not been provided:

Entity	
Listed in the referral decision brief (dated 13 July 2020)	
Greater glider (*Petauroides volans*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.
Spotted-tail Quoll (*Dasyurus maculatus maculatus*) (SE mainland population)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.
Painted honeyeater	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.
Superb parrot (*Polytelis swainsonii*)	Table 17, Section 4.2.3 of the BDAR states that 451 bird surveys were conducted across the study area. Survey effort exceeds the survey requirements.
Malleefowl (*Leipoa ocellata*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.
Androcalva procumbens	Table 17, Section 4.2.3 of the BDAR states that 594 hours of threatened flora searches in appropriate habitat. Survey effort exceeds the survey requirements. Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.

Requirement	Information		Reference (BAM / BLA[1])
	Austral Toadflax (*Thesium australe*	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Bent Pomaderris (*Pomaderris sericea*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Hoary Sunray (*Leucochrysum albicans* subsp. *tricolor*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Homoranthus darwinioides	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Indigofera efoliata	Table 17, Section 4.2.3 of the BDAR states that 252 hours of threatened flora searches in appropriate habitats. Survey effort exceeds the survey requirements. Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Kennedia retrorsa	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Lasiopetalum longistamineum	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Mount Vincent Mintbush (*Prostanthera stricta*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Ozothamnus tesselatus	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	

Requirement	Information		Reference (BAM / BLA[1])
	Sandy Hollow Commersonia (*Androcalva rosea*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Small Purple-pea (*Swainsona recta*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Smooth Bush-pea (*Pultenaea glabra*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Wollemi Mint-bush (*Prostanthera cryptandroides* subsp. *cryptandroides*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Tylophora linearis	Table 17, Section 4.2.3 of the BDAR states that 342 hours of threatened flora searches in appropriate habitats. Survey effort exceeds the survey requirements. Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Fork-tailed swift (*Apus pacificus*)	Table 71 of the BDAR states that as the species was not recorded during field surveys, it will not be affected by the project, and no further assessment is required.	
	Table 71 of the BDAR states that as the project area is not identified on important area mapping for either the regent honeyeater or swift parrot and these species were not recorded during field surveys, they will not be affected by the project, and no further assessment was required. **Advise whether there is appropriate justification and supporting evidence for the addition and/or exclusion of any EPBC Act listed threatened species and/or communities from the list (if applicable):** Two threatened species (the regent honeyeater and the swift parrot) were not recorded in the proposed development footprint, but foraging habitat was identified for both species.		

Requirement	Information	Reference (BAM / BLA[1])
	Twenty four threatened species listed in the referral decision brief as likely to be significantly impacted, were assessed as not occurring in the proposed development site. One migratory species (fork-tailed swift) was also assessed as not occurring. BCS is satisfied that it was justifiable to include the threatened species and communities listed below in the assessment of MNES. These entities have been appropriately assessed: **MNES Entity** / **EPBC Listing Status** / **Reason for Inclusion** White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland / Critically Endangered / Recorded Grey box (*Eucalyptus macrocarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia / Endangered / Recorded Large-eared pied bat (*Chalinolobus dwyeri*) / Vulnerable / Recorded White-throated needletail (*Hirundapus caudacutus*) / Vulnerable / Recorded Bluegrass (*Dichanthium setosum*) / Vulnerable / Recorded **Provide advice on whether adequate justification and evidence is provided for species and communities that have been identified as being at low risk of impact.** All threatened species and communities likely to be impacted have been assessed under the BAM and an offset obligation has been calculated. During the RTS, the proponent provided additional information on the targeted surveys for the superb parrot (Table 9, Addendum Memo), concluding it was unlikely that the species would breed in the development corridor. While cliff lines and caves occur in the project area, the project has avoided all areas of potential cliff line and cave habitat for the large-eared pied bat. It is stated (e.g., Table 31 of the BDAR) that "appropriate buffers" around caves and cliffs have also been avoided but it is not indicated what this buffer is. Section 6.1.3 states	

<table>
<tr><th>Requirement</th><th>Information</th><th>Reference (BAM / BLA[1])</th></tr>
<tr><td></td><td>that, based on the results of the vertical and horizontal bat activity surveys, large-eared pied bat will require a collision strike risk assessment.

Assess the consequences of impacts on the species, the population and / or extent of the community at local, state and national scales.

<table>
<tr><th>MNES Entity</th><th>Area of Impact (ha)</th><th>Local Consequence</th><th>State Consequence</th><th>National Consequence</th></tr>
<tr><td>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</td><td>35.88 ha</td><td>The project will increase fragmentation of this community within the landscape. The development straddles for IBRA sub-regions: Liverpool Range, Talbragar Valley Pilliga and Kerrabee. These IBRA sub-region has been subjected to extensive clearing.</td><td>Current extent in NSW is approximately 250,000 hectares. The amount of this community to be impacted is small in the context of the NSW community occurrence (0.02% of the estimated NSW extent).</td><td>Current national extent of approximately 416,000 hectares. The amount of this community to be impacted is small in the context of the NSW community occurrence (0.01% of the estimated national extent).</td></tr>
<tr><td>Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of</td><td>4.71 ha</td><td>Occurs in the NSW South West Slopes IBRA region (inland Slopes sub-region) and Brigalow Belt South IBRA region (Talbralgar Valley subregion). The</td><td>The estimated extent in NSW in 2010 (Threatened Species Scientific Committee) was between 300,000 and 330,000 ha. The amount of this</td><td>The estimated national extent in 2010 (Threatened Species Scientific Committee) was around 534,500 ha. The amount of this community to be</td></tr>
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Requirement	Information					Reference (BAM / BLA[1])
	South-eastern Australia		subject land is the eastern-most occurrence of this community. The project will further fragment this community in an already fragmented landscape.	community to be impacted is small in the context of the NSW community occurrence (0.01% of the estimated NSW extent).	impacted is small in the context of the NSW community occurrence (0.005% of the estimated national extent).	
	Large-eared pied bat (*Chalinolobus dwyeri*)	3.94 ha	Given the presence of rocky escarpments and caves in the locality, it is likely that Large-eared Pied Bat are breeding in the area. Whilst there are no direct impacts to potential breeding/roosting habitats within the development footprint, the Project will remove 3.94 hectares of foraging habitat for the species. Vegetation within the development footprint is well connected to surrounding vegetation. The removal of 3.94	The proposal is unlikely to significantly reduce the area of occupancy given the nature and extent of the potential habitat removal.	The proposal is unlikely to significantly reduce the area of occupancy given the nature and extent of the potential habitat removal.	

Requirement	Information					Reference (BAM / BLA[1])
			hectares of native vegetation represents a very small portion of the native vegetation within the foraging distance of the species and is therefore not considered to have a significant impact on the species.			
	White-throated needletail (*Hirundapus caudacutus*)	639.7 ha	Recorded in the development corridor. Habitat within the locality and IBRA subregions is extensive. The species is migratory and is not restricted to the subject land.	The air space over woodland habitat in the development footprint may provide foraging opportunities. Habitat within the IBRA subregions is extensive and the species is not restricted to NSW.	The impact of turbine collision may have a minor impact on population numbers.	
Offsets	Verify that the EIS/BDAR: ☒ identifies any MNES that haven't been offset using the BAM ☒ identifies how impacts requiring offsets correlate to MNES impacts ☒ identifies the plant community types (PCTs) requiring offset and the number and type of ecosystem credits required for impacts to MNES ☒ identifies threatened species requiring offset and the number of species credits required for impacts to MNES ☒ correctly uses the BAM (and BAM calculator) to identify the number and class of biodiversity credits that need to be offset to achieve a standard of 'no net loss' of biodiversity ☐ identifies if ecological rehabilitation and/or biodiversity conservation actions are proposed for offsetting					BAM Chapter 10 BLA clauses 7.1 and 7.2

Requirement	Information	Reference (BAM / BLA[1])
	☒ if known, identifies any other offsetting approach proposed, such as land-based offsets, retiring credits by payment into the Biodiversity Conservation Fund and/or through supplementary measures#. # In accordance with the BAM there is no longer a requirement to define the offsetting approach at EIS stage. The white-throated needletail has not been offset using a species polygon via the BAM. The white-throated needletail is associated with all native PCT's impacted by the development. All ecosystem credits generated by the proposed development will provide habitat for the white-throated needletail. Information on the additional and appropriate measures that will be applied to minimise Serious and Irreversible Impacts (SAII) to microbats and Box-Gum Woodland CEEC has been provided in Section 9.1. of the BDAR. The Additional and Appropriate Measures commitments for Box Gum Woodland include: • Within 5 years of Notice to Proceed (NtP), establish a Conservation Agreement under Part 5 Division 3 of the BC Act over a parcel of land equivalent in size to the clearing of Box Gum Woodland associated with the Valley of the Winds Project. • The Conservation Agreement will include Native Vegetation Management and augmentation, to restore species composition to replicate the condition of Box Gum Woodland that was cleared. • If the proponent can further reduce impacts to Box Gum Woodland during the detailed design and construction phase, the area of restoration required can be amended to the final area of impact.	
	Provide advice on the adequacy of the proposed offsets in meeting the requirements of the BAM: Section 10 "High level offset strategy" outlines how the credit requirement for the project may be retired. This strategy is lacking in detail, indicating that a review was undertaken to identify areas of vegetation within 100km of the development to identify areas suitable for land-based offsets. Based on this review there are large areas of suitable vegetation with 50km of the project that may be suitable to provide offsets. Payment into the Biodiversity Conservation Fund may be used to resolve any residual offset liability. The proponent has proposed to conserve additional areas of Box-Gum Woodland CEEC in perpetuity via a biodiversity stewardship agreement.	
Other Considerations	Verify if any relevant Commonwealth guidelines and policy statements are applicable to the action and listed threatened species and/or community, including but not limited to:	

Requirement	Information	Reference (BAM / BLA[1])
	☒ International environmental obligations ☒ Recovery Plans ☒ Approved Conservation Advice ☐ Threat Abatement Plans *The relevant Commonwealth guidelines and policy statements for each species and community are available at: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl*	BLA clauses 6.2(b)(iv), 7.2(c), 7.3 and 7.4
	For each EPBC Act listed threatened species and/or community, provide advice on whether the assessment has been adequately informed by applicable Commonwealth guidelines and/or policy statements. For example, the interaction between the proposed action and important populations or critical habitat identified in policy documents and/or the interaction between the proposed action and threatening processes or recommended conservation actions outlined in Commonwealth policies and plans. **International environmental obligations** Various section of the BDAR (Table 79 for example) relating to the white-throated needletail make reference to the Significant Impact Criteria for migratory species. The BDAR does not specifically discuss international environmental obligations. The proposal site does not impact on any Ramsar wetlands. **Recovery Plans** Recovery plans are mentioned in Table 73 "Consistency with Key Issues of the referral notice" but are not referred to in relation to Box-Gum Woodland and Inland Grey Box Woodland TECs or any threatened species listed in the EPBC referral documentation. **Conservation Advices** Conservation advices are mentions in Table 73 "Consistency with Key Issues of the referral notice" but are not referred to in relation to Box-Gum Woodland and Inland Grey Box Woodland TECs or any threatened species listed in the EPBC referral documentation. **Key Threatening Processes and threat abatement plans**	

Requirement	Information	Reference (BAM / BLA[1])
	Key threatening process are mentioned in Table 65 "Evaluation of an impact on a TEC consistent with 9.1.2 of the BAM" but are not adequately addressed in relation to TECs or any threatened species listed in the EPBC referral documentation. Threat abatement plans are mentioned in Table 72 "Consistency with the general requirements of the referral notice" but are not adequately addressed in relation to TECs or any threatened species listed in the EPBC referral documentation.	
Recommended Conditions	**Provide advice on any recommended conditions and reasons for imposing the conditions:**	BLA clause 6.2(c)(iii)

Table 16 | MNES impact and offset summary

Threatened Species / Community listed under EPBC Act	PCTs associated with the ecosystem credit species / ecological community (if applicable)	Area of Impact (ha)	Credits Required	Offsetting Approach	Reference (EIS, BDAR)
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	PCT 281 PCT 483	34.15 ha of MNES equivalent woodland	195 ecosystem credits for PCT281 542 ecosystem credits for PCT483	Retirement of credits through: • Land based offsets through the establishment of new stewardship sites (and subsequent retirement of credits) or by retiring credits from existing stewardship sites. • Purchasing credits through the open credit market. • Paying into the Biodiversity Conservation Fund.	Table 9 of the Addendum Memo Appendix D of the BDAR Addendum contains finalised credit reports.
Grey Box *(Eucalyptus microcarpa)* Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	PCT 267	4.71 ha of MNES equivalent woodland and grassland	77 ecosystem credits	Retirement of credits through: • Land based offsets through the establishment of new stewardship sites (and subsequent retirement of credits) or by retiring credits from existing stewardship sites. • Purchasing credits through the open credit market. • Paying into the Biodiversity Conservation Fund.	Table 9 of the Addendum Memo Appendix D of the BDAR Addendum contains finalised credit reports.

Large-eared Pied Bat	PCT 267 PCT 281	3.92 ha of foraging habitat	191 species credits	Retirement of credits through: • Land based offsets through the establishment of new stewardship sites (and subsequent retirement of credits) or by retiring credits from existing stewardship sites. • Purchasing credits through the open credit market. • Paying into the Biodiversity Conservation Fund.	Table 9 of the Addendum Memo Table 30 of the BDAR Appendix D of the BDAR Addendum contains finalised credit reports.
Grey-headed flying-fox	PCT 84 PCT 281 PCT 267	22.69 ha of foraging habitat	599 credits for PCT 281 77 credits for PCT 267 12 credits for PCT 84.	Will be offset through ecosystem credit requirement	Table 9 of the Addendum Memo
Regent Honeyeater	PCT 84 PCT 267 PCT 281 PCT 479 PCT 483	643.52 ha	12 credits for PCT 84 77 credits for PCT 267 599 credits for PCT 281 420 credits for PCT 479 542 credits for PCT 483.	Will be offset through ecosystem credit requirement	Table 9 of the Addendum Memo
Swift Parrot	PCT 84 PCT 281	643.52 ha	12 credits for PCT 84	Will be offset through ecosystem credit requirement	Table 9 of the Addendum Memo

	PCT 267 PCT 479 PCT 483		77 credits for PCT 267 599 credits for PCT 281 420 credits for PCT 479 542 credits for PCT 483.		Table 9 of the Addendum Memo
White-throated Needletail	PCT 84 PCT 281 PCT 267 PCT 479 PCT 483	643.52 ha	12 credits for PCT 84 77 credits for PCT 267 599 credits for PCT 281 420 credits for PCT 479 542 credits for PCT 483.	Will be offset through ecosystem credit requirement	Table 9 of the Addendum Memo

Additional EPBC Act Considerations

Table 17 contains the additional mandatory considerations, factors to be taken into account and factors to have regard to under the EPBC Act that are additional to those already discussed.

Table 17 | Additional considerations for the Commonwealth Minister under the EPBC Act

EPBC Act Section	Considerations	Conclusion
Mandatory considerations		
136(1)b	Economic and social matters are discussed in **Sections 2.1** and **6.6** of this report.	The project would provide benefits for the local and regional economy and is of public benefit. Up to 400 workers would be required during the construction period. Up to 50 ongoing jobs would be required for operation of the project. Impacts on the local community would primarily occur during the construction period, which has been considered in the assessment report. The recommended conditions require ACEN to minimise potential traffic and amenity impacts including noise, dust and visual impacts. Key social impacts would also be managed through an Accommodation and Employment Strategy.
3A, 391(2)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular: • the long term and short term economic, environmental, social and equitable considerations that are relevant to this decision; • conditions that restrict environmental impacts and impose monitoring and adaptive management, reduce any lack of certainty related to the potential impacts of the project; • conditions requiring the project to be delivered and operated in a sustainable way to protect the environment for future generations and conserving the relevant matters of national environmental significance; • advice provided within this report reflects the importance of conserving biological diversity, ecological and cultural integrity in relation to all of the controlling provisions for this project; and • mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms are promoted by placing a financial cost on the proponent to mitigate the environmental impacts of the project.	The Department considers that the project, if undertaken in accordance with the recommended conditions of consent, would be consistent with the principles of ESD.

EPBC Act Section	Considerations	Conclusion
136(2)(e)	Other information on the relevant impacts of the action.	The Department considers that all information relevant to the impacts of the project has been taken into account in its assessment.
139(1)	Requirements for decisions about threatened species and endangered communities	Recovery plans and threat abatement plans are addressed above. Australia's obligations under the Convention on Biological Diversity (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and technologies, and by appropriate funding. The recommendations of this assessment report are consistent with the Biodiversity Convention, which promotes environmental impact assessment (such as this process) to avoid and minimise adverse impacts on biological diversity. Accordingly, the recommended development consent requires avoidance, mitigation and management measures for listed threatened species, and all information related to the project is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity. There are no additional requirements for decisions about threatened species and endangered communities that apply to the project. The Apia convention and CITES are not relevant to the project.
Factors to have regard to		
176(5)	Bioregional plans	There is no approved bioregional plan related to the activity.
Consideration on deciding conditions		
134(4)	Must consider: • Information provided by the person proposing to take the action or by the designated Applicant of the action; and • The desirability of ensuring as far as practicable that the condition is a cost effective means for the Commonwealth and the person taking the action to achieve the object of the condition.	All project related documentation is available on the NSW Planning Portal - www.planningportal.nsw.gov.au. The Department considers that the recommended conditions at Appendix F are a cost effective means of achieving their purpose. The conditions are based on material provided by the Applicant that was prepared in consultation with the Department, CPHR and other government agencies.

Conclusions on Controlling Provisions

The Department considers that effort has been made to avoid and minimise biodiversity impacts as far as practicable through project design. This has been achieved through measures such as locating infrastructure within areas of non-native vegetation, adopting buffers for important habitat features and avoiding threatened species habitat, including areas of high-quality Box Gum Woodland. ACEN has committed to adopt further avoidance wherever practicable as part of the detailed design process.

The Department considers that the recommended condition for a Biodiversity Management Plan and Bird and Bat Adaptive Management Plan would further minimise the impacts on vegetation and fauna, including the collision risk to birds and bats.

Overall, the Department considers that the biodiversity impacts of the project are acceptable, subject to the implementation of the recommended conditions, offsetting the residual biodiversity impacts of the project, and the provision of minimisation measures to manage impacts to Box Gum Woodland CEEC.

For the reasons set out in Section 6.3 of this report and this Appendix, the Department considers that the impacts of the action would be acceptable, subject to the avoidance and mitigation measures described in the EIS, Amendment Report, revised BDAR, and the recommended development consent in **Appendix F.**

Appendix L – Additional Visual Impact Assessment

Table 18 | Visual Impact Assessment: non-associated residences between blue and black Line

Receiver	Distance (km) to closest turbine	VIZ	Department assessment - aligns with visual performance objective?			Recommended mitigation
			Visual Magnitude	Multiple wind turbine	Landscape scenic integrity / Key feature disruption	
Northern cluster						
24, 498	MH39 (4.86)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
69	MH37 (3.89)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
72	MH63 (3.49)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
75	MH63 (3.70)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
318	MH36 (3.37)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
16	MH76 (3.49)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
129, 130	MH64 (4.71)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
138	MH29 (4.69)	VIZ3	Yes	No - (turbines in 2 sectors however 3 sectors inc LRWF)	Yes	Vegetation screening on request
144	MH36 (4.74)	VIZ3	Yes	No - (turbines in 2 sectors however 3 sectors inc LRWF)	Yes	Vegetation screening on request
234, 241, 242	MH76 (3.94)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
243	MH76 (4.52)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
Black Stump Way						
185	GR42 (4.51)	VIZ3	Yes	No – turbines in 4 sectors however those in 2 sectors are >5km away	Yes	Vegetation screening on request

Receiver	Distance (km) to closest turbine	VIZ	Department assessment - aligns with visual performance objective?			Recommended mitigation
			Visual Magnitude	Multiple wind turbine	Landscape scenic integrity / Key feature disruption	
501	MH3 (4.59)	VIZ3	Yes	No – turbines in 3 sectors however those in 2 sectors are >5km away	Yes	Vegetation screening on request
502	GR42 (3.31)	VIZ2	Yes	No – turbines in 3 sectors however those in 1 sector is >5km away	Yes	Currently no dwelling exists, considered for future builds. Vegetation screening on request
South-eastern						
7, 8, 9, 10, 11, 12	GR3 (3.97)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
283	GR4 (4.88)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
284	GR7 (3.91)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
285	GR8 (4.36)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
286	GR8 (4.74)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
287, 288, 289	GR12 (4.37)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
Leadville						
21, 203	LV20 (4.11)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
152-176 (Dwelling 154 is representative of Leadville village)	LV20 (3.51)	VIZ2	Yes	Yes	Yes– multiple turbines will be visible however vegetation and topography mitigate	Vegetation screening on request
178	LV20 (3.63)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
192	LV9 (4.31)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
313	LV20 (3.74)	VIZ2	Yes	Yes	Yes	Vegetation screening on request
323, 200	LV20 (4.79)	VIZ3	Yes	Yes	Yes	Vegetation screening on request
357	LV3 (3.41)	VIZ2	Yes	Yes	Yes	Vegetation screening on request