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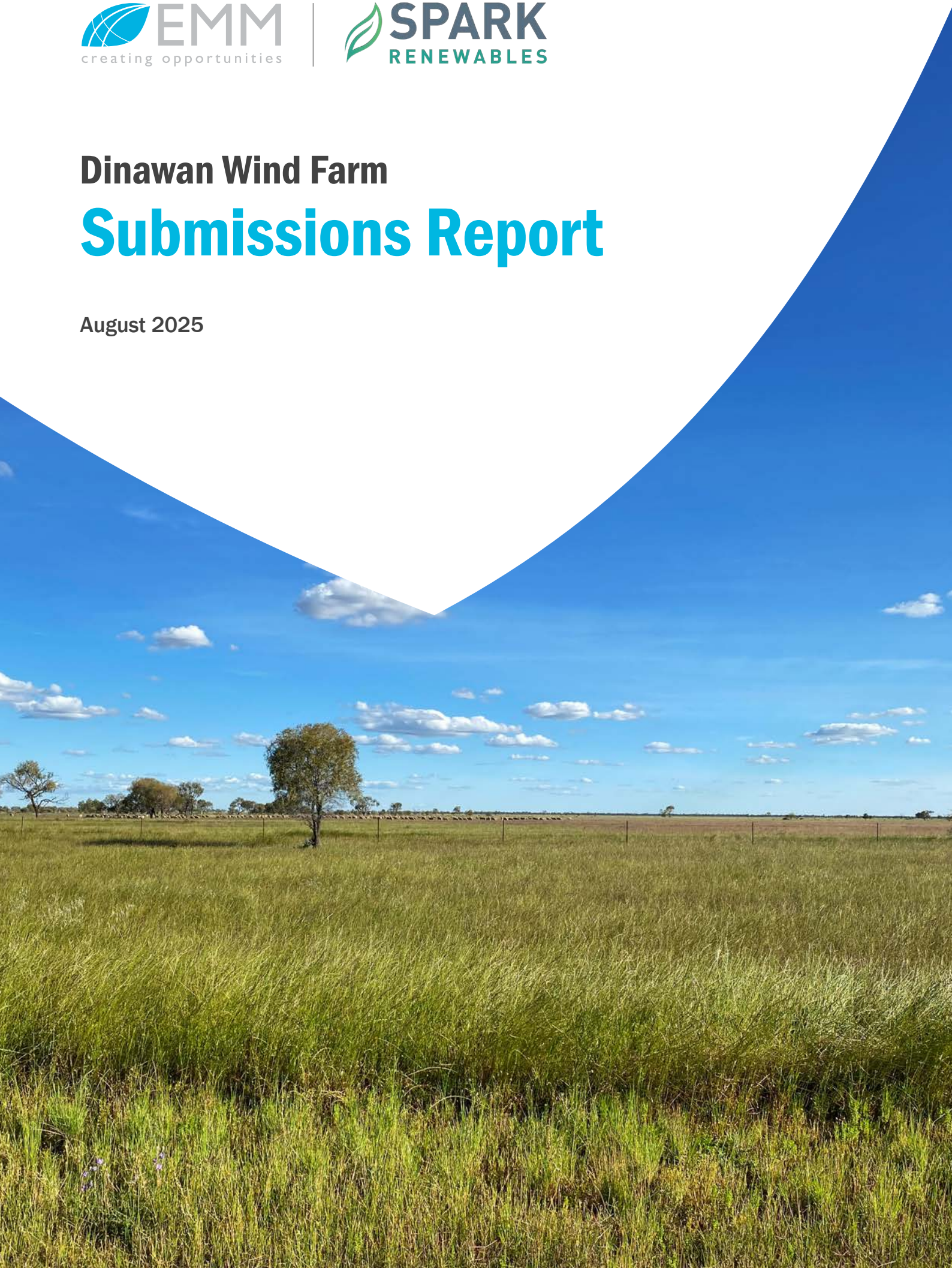
Dinawan Wind Farm

Submissions Report

August 2025



Dinawan Wind Farm

Submissions Report

Spark Renewables

E220305 RP#29

August 2025

Version	Date	Prepared by	Reviewed by	Comments
V1	7 March 2025	S Stergio and D Richards	K Cox	Draft for client review
V2	29 April 2025	S Stergio and D Richards	K Cox	Updated for client review
V3	9 May 2025	S Stergio and D Richards	K Cox	Updated for client review
V4	7 July 2025	S Stergio and D Richards	K Cox	Updated for client review
V5	19 August 2025	S Stergio and D Richards	K Cox	Final

Approved by

Kate Cox
Associate Director
19 August 2025

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Executive Summary

ES1 Background

Spark Renewables Pty Limited (Spark Renewables) proposes to develop the Dinawan Wind Farm, a wind farm with up to 200 wind turbine generators (WTGs) supported by associated infrastructure (the project). The project is on the traditional lands of the Wiradjuri people and several smaller nations of the Murrumbidgee plains, about halfway between the towns of Coleambally and Jerilderie. The regional context of the project is within the Murrumbidgee and Edward River local government area (LGA) in New South Wales (NSW).

The main objective of the project is to generate and dispatch electricity generated from renewable sources, consistent with NSW Government policy for renewable energy generation and storage. The project will have a generation capacity of up to approximately 1,200 megawatts (MW) (AC), equivalent to the demand of more than 700,000 NSW households.

The project is a State significant development (SSD) pursuant to schedule 1 of State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP). Accordingly, a development application (DA) and environmental impact statement (EIS) was submitted to the Department of Planning, Housing and Infrastructure (DPHI) under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS for the project was publicly exhibited from 12 July 2024 to 8 August 2024.

During the public exhibition of the EIS, a total of 89 submissions were received by DPHI from the public (including 82 individuals and 7 organisations). Additionally, 23 regulatory agencies provided advice on the project. This submissions report has been prepared to address the matters raised in these submissions, in accordance with Section 59(2) of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation).

ES2 Submission received

Of the 89 public submissions received by DPHI, 82 were from individuals and 7 were from organisations. Of these, 86 were objections and 3 provided comments on the project. Submissions from the local and regional area (i.e. less than 100 km from the project) accounted for 28% of the total submissions. In addition, 23 regulatory agencies provided advice on the project, including Murrumbidgee Council and Edward River Council, the relevant local government authorities.

The most commonly raised matters from public submissions included:

- justification of renewable energy
- decommissioning plan and waste
- impacts to agricultural land and productivity
- impacts to local biodiversity
- general justification and evaluation of the project.

ES3 Actions since EIS exhibition

ES3.1 Project refinements

Following the exhibition of the EIS, further review of the design has been completed to refine the development footprint, and Spark Renewables proposes to amend the project. The primary change involves a reduction in the number of assessed WTG locations (reduced from 267 to 200) and the corresponding reduction in development footprint, from 1,339 hectares (ha) to 1,095 ha (an 18% reduction). This enabled further avoidance of environmental impacts.

A separate amendment report has been prepared to assess the impacts of the amended project. The amendment report will be submitted to DPHI in conjunction with this submissions report.

ES3.2 Engagement

Stakeholder engagement for the project commenced in 2021 and has been ongoing. Since lodgement of the EIS, Spark Renewables has engaged with stakeholders including local authorities, government agencies, the local community and neighbouring landholders.

Spark Renewables has actively engaged with the local community since the exhibition of the EIS. For the amended project, this has included conducting targeted consultation with local community groups and neighbouring properties on the amended project in 2024 and 2025 and updating First Nations Groups on the amended project at Aboriginal focus group meetings in March 2025.

Engagement with government agencies has focused on their submissions following the EIS exhibition and subsequent project amendments, particularly DPHI, Murrumbidgee Council, Edward River Council, Biodiversity, Conservation and Science Group (BSC), Transport for NSW (TfNSW) and NSW National Parks and Wildlife Services (NPWS).

ES3.3 Further assessment of impacts

The following technical assessments have been updated in response to matters raised by government agencies and/or to reflect the amended project:

- Biodiversity development assessment report (BDAR) – the BDAR has been updated in response to comments from BCS, to incorporate recent field survey findings and to reflect the amended development footprint and WTG dimensions. The amended BDAR is provided in Appendix D.3 of the amendment report.
- Aboriginal cultural heritage assessment (ACHA) – the ACHA has been updated in response to comments from Heritage NSW and to reflect the amended development footprint. The amended ACHA is provided in Appendix D.4 of the amendment report.
- Bushfire assessment report – the bushfire assessment report has been updated in response to recommended conditions of consent from NSW Rural Fire Service (RFS), Murrumbidgee Council and Edward River Council and to align with project amendments. The amended bushfire assessment is provided in Appendix D.7 of the amendment report.
- Aviation impact assessment – the aviation impact assessment has been updated to reflect the amended project layout. The amended aviation impact assessment is provided in Appendix D.9 of the amendment report.

In addition to the above, the amendment report has considered how project amendments will affect other environmental assessments prepared for the EIS, such as landscape and visual, noise, traffic and hazards (refer Chapter 6 and Appendix D of the amendment report).

ES4 Evaluation and conclusion

In response to submissions received on the project and based on the outcomes of engagement with key stakeholders, the project has been amended. This has resulted in an 18% reduction in the size of the development footprint and a reduction in tip height from 280 m to 250 m, which has facilitated further avoidance of environmental impacts.

The amended project avoids and minimises the following impacts:

- Avoid a further 98 ha of NSW listed (16% reduction) and 59 ha of Commonwealth listed (22% reduction) threatened ecological communities.
- Biodiversity offsets required for the project have been reduced to 21,706 (11% reduction) for ecosystem credits. Despite further efforts to avoid and minimise impacts on threatened species, species credits for the project have increased. Gaps in survey coverage have resulted in the application of assumed presence for threatened species, with further survey planned for Spring 2025.
- Reduced visual impact rating for the closest non-associated residence (R019) to low (reduced from high), removing the requirement for visual screening.

The project is considered to be justified and in the public interest because it will:

- contribute to energy security and reliability in NSW by diversifying the State's energy mix and helping to prepare for the retirement of large-scale coal-fired power generation
- contribute to reducing greenhouse gas (GHG) emissions from electricity generation, reducing the impacts of climate change and the community and the environment
- align with Commonwealth and NSW Government electricity policies and strategies and regional plans
- provide ongoing economic benefits for both the local economy within the Murrumbidgee LGA and more broadly, the regional economy
- provide significant employment and business opportunities during construction.

The impacts of the amended project have been assessed and can be adequately managed through the proposed design and mitigation and management measures proposed to be implemented during construction and operations.

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Figures

1 Introduction

1.1 Background

Spark Renewables Pty Limited (Spark Renewables) proposes to develop the Dinawan Wind Farm (the project). The project includes the installation, operation, maintenance and decommissioning of up to 200 wind turbine generators (WTGs), and associated infrastructure. The project is on the traditional lands of the Wiradjuri people and several smaller nations of the Murrumbidgee plains, about halfway between the towns of Coleambally and Jerilderie. The regional context of the project is within the Murrumbidgee and Edward River local government area (LGA) in New South Wales (NSW) as shown in Figure 1.1.

The project is within the South West Renewable Energy Zone (REZ), a region selected by the NSW Government for its significant potential for renewable electricity generation and regional development.

The project will connect to the Dinawan Substation, to be constructed as part of the Project EnergyConnect interconnector that will run between Robertstown in South Australia and Wagga Wagga in NSW. The Dinawan Substation and interconnector are a separate approved project being built by Transgrid.

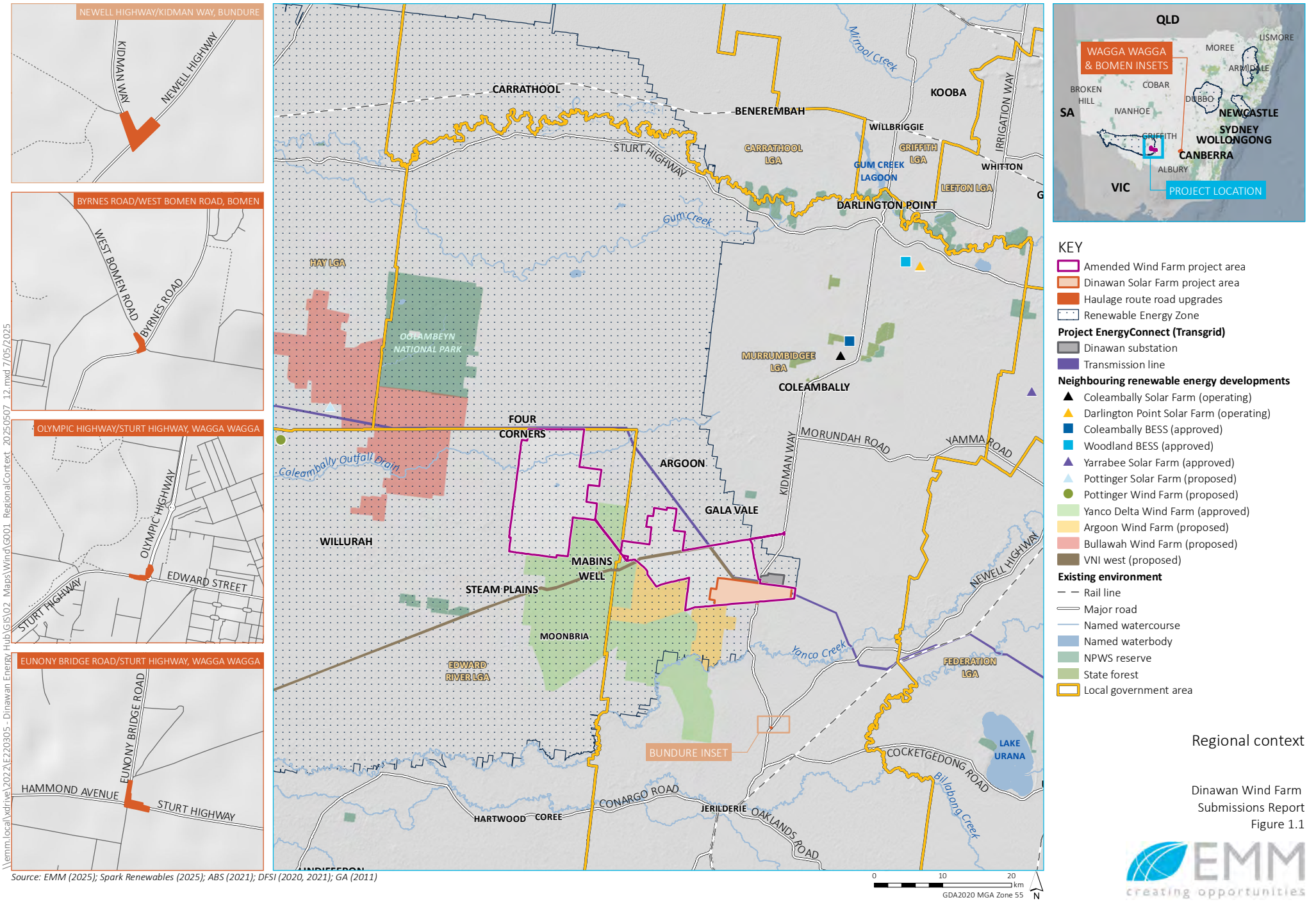
The main objective of the project is to generate and dispatch electricity generated from renewable sources, consistent with NSW Government policy for renewable energy generation and storage. The project will have a generation capacity of up to approximately 1,200 megawatts (MW) (AC), equivalent to the demand of more than 700,000 NSW households. Spark Renewables has successfully secured access rights for the Dinawan Energy Hub through the South West REZ access tendering process, being one of four projects to be awarded connection to the South West REZ transmission network. While the project has a total capacity of up to 1,200 MW, capacity will be scaled to meet the capacity awarded to the Dinawan Energy Hub through the South West REZ access tendering process. The project will significantly contribute to the government's planned 3.56 gigawatt (GW) generation target for the South West REZ. It will assist in meeting NSW and Australian Government emissions reduction targets and will abate approximately 3.2 million tonnes of greenhouse gases (GHG) annually.

The project is a State significant development (SSD) pursuant to schedule 1 of State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP). Accordingly, a development application (DA) and environmental impact statement (EIS) was submitted to the Department of Planning, Housing and Infrastructure (DPHI) under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS for the project was publicly exhibited from 12 July 2024 to 8 August 2024.

During the public exhibition of the EIS, a total of 89 submissions were received by DPHI from the public (including 82 individuals and 7 organisations). Additionally, 23 regulatory agencies provided advice on the project. This submissions report has been prepared to address the matters raised in these submissions, in accordance with Section 59(2) of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation).

Following the exhibition of the EIS, further review of the design has been completed to refine and optimise the project layout (including the removal of 67 potential WTG locations and an 18% reduction to the development footprint). Amendments to the project layout and development footprint have also been made in response to feedback from key stakeholders, including Transgrid (as proponents for the proposed Victoria to NSW Interconnector (VNI) West) and Origin Energy Power Limited (Origin) (as proponents for the approved Yanco Delta Wind Farm).

A separate amendment report has been prepared to outline the changes to the project and provide an assessment of the impacts associated with the amended project. The amendment report will be submitted to DPHI in conjunction with this submissions report.



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Source: EMM (2025); Spark Renewables (2025); ABS (2021); DFSI (2020, 2021); GA (2011)

Regional context

Dinawan Wind Farm
Submissions Report
Figure 1.1

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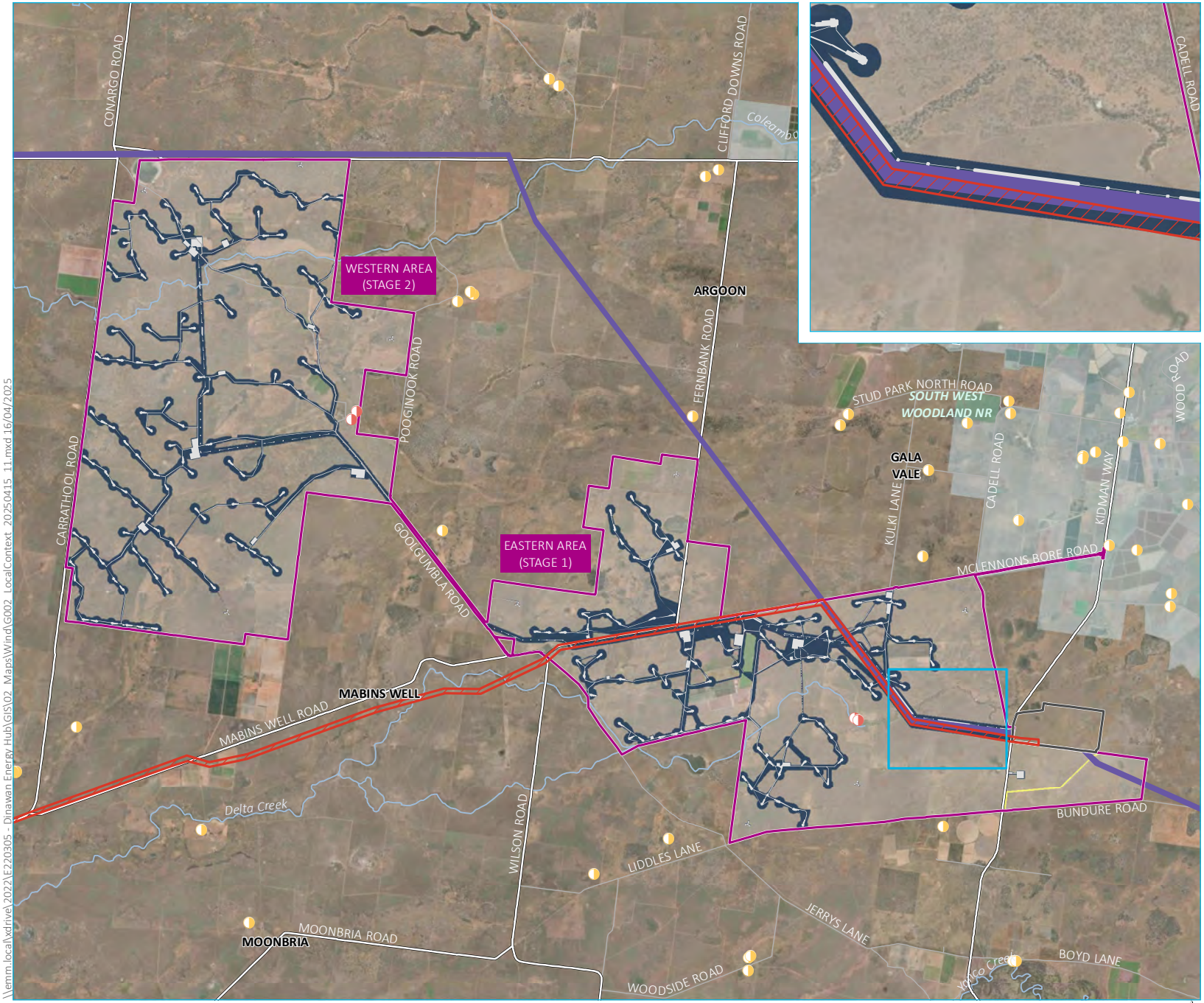

KEY

- Project area
- Development corridor
- Development footprint
- VNI West (proposed)

Project EnergyConnect (Transgrid)

- Dinawan Substation
- Transmission line

Residence

- Associated
- Non-associated

Existing environment

- Major road
- Minor road
- Watercourse (third order and higher)
- Coleambally irrigation area
- Coleambally irrigation channel
- NPWS reserve

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Source: EMM (2025); Spark Renewables (2025); DFSI (2020, 2021); ESRI (2025)

0 5 10 km

GDA2020 MGA Zone 55

N

Local context

Dinawan Wind Farm
Submissions Report
Figure 1.2

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1.2 Project overview

The key components of the amended project are listed below and shown in Figure 1.3:

- a network of up to 200 three-blade WTGs with a maximum blade tip height of 250 m
- electrical connection system, collector substations and control rooms
- electricity transmission line infrastructure (above ground and underground), including infrastructure connecting the collector substations to the Dinawan Substation site
- temporary construction infrastructure, including workforce accommodation, construction compounds, site offices and amenities, concrete batching plants, construction materials storage (including stockpiles), laydown areas, temporary meteorological monitoring masts (up to 200 m high), water tanks, water and sediment management infrastructure, storage and parking areas and borrow pits
- permanent supporting infrastructure, including operation and maintenance (O&M) infrastructure (including site offices and amenities, equipment and maintenance sheds and laydown, storage and parking areas), hardstands, water tanks and up to 10 permanent meteorological monitoring masts (up to 200 m high)
- site access and internal access roads, including access points from the public road network on Kidman Way, Fernbank Road, Goolgumbla Road and McLennons Bore Road
- road upgrades to facilitate the delivery of project infrastructure to the development corridor, including intersections away from the project area required for heavy vehicles under escort.

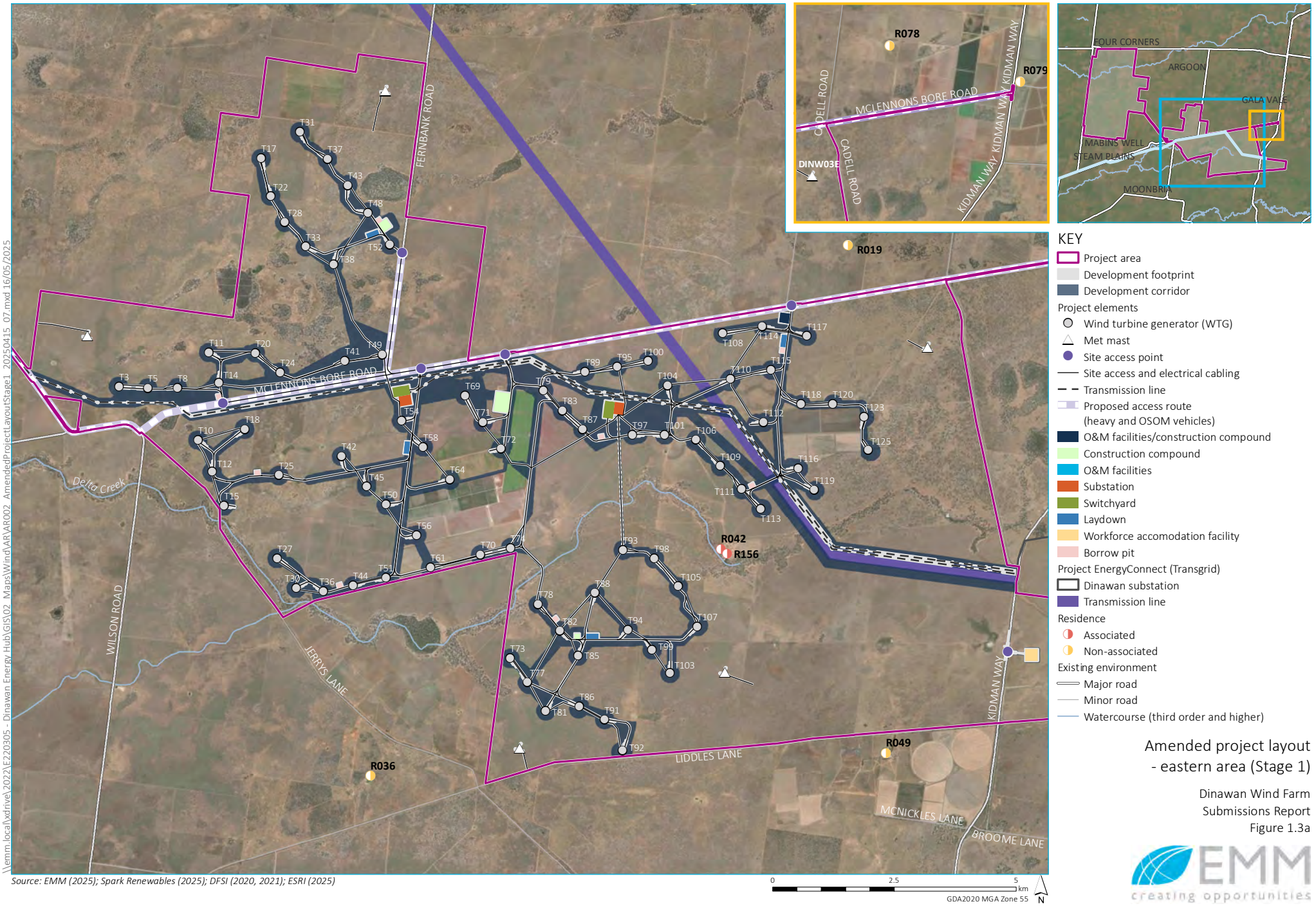
A detailed description of the amended project is provided in Chapter 3 and Appendix A of the amendment report.

1.3 Purpose of this report

Spark Renewables received correspondence from DPHI on 9 August 2024 requiring responses to the matters raised in the submissions to the EIS. Accordingly, this submissions report has been prepared by EMM Consulting Pty Limited (EMM) in accordance with the *State significant development guidelines – preparing a submissions report* (DPHI 2024a) (Submissions Report Guidelines). The purpose of this report is to consider and respond to submissions made by agencies, organisations, and the general public during the public exhibition of the EIS.

Following lodgement of this submissions report and the amendment report, DPHI will prepare its assessment report, considering the submissions received, and the project's response to these submissions. The NSW Independent Planning Commission (IPC) is declared to be the consent authority for the project under Section 4.5(a) of the EP&A Act by operation of Section 2.7 of the Planning Systems SEPP because:

- the project is SSD under Section 4.36 of the EP&A Act
- more than 50 submissions have been made by way of objection (other than from a council).



KEY

- Project area
- Development footprint
- Development corridor

Project elements

- Wind turbine generator (WTG)
- Met mast
- Site access point
- Site access and electrical cabling
- Transmission line
- Proposed access route (heavy and OSOM vehicles)
- O&M facilities/construction compound
- Construction compound
- O&M facilities
- Substation
- Switchyard
- Laydown
- Workforce accomodation facility
- Borrow pit

Project EnergyConnect (Transgrid)

- Dinawan substation
- Transmission line

Residence

- Associated
- Non-associated

Existing environment

- Major road
- Minor road
- Watercourse (third order and higher)

Source: EMM (2025); Spark Renewables (2025); DFSI (2020, 2021); ESRI (2025)

0 2.5 5 km

GDA2020 MGA Zone 55

N

Amended project layout - eastern area (Stage 1)

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Figure 1.3a

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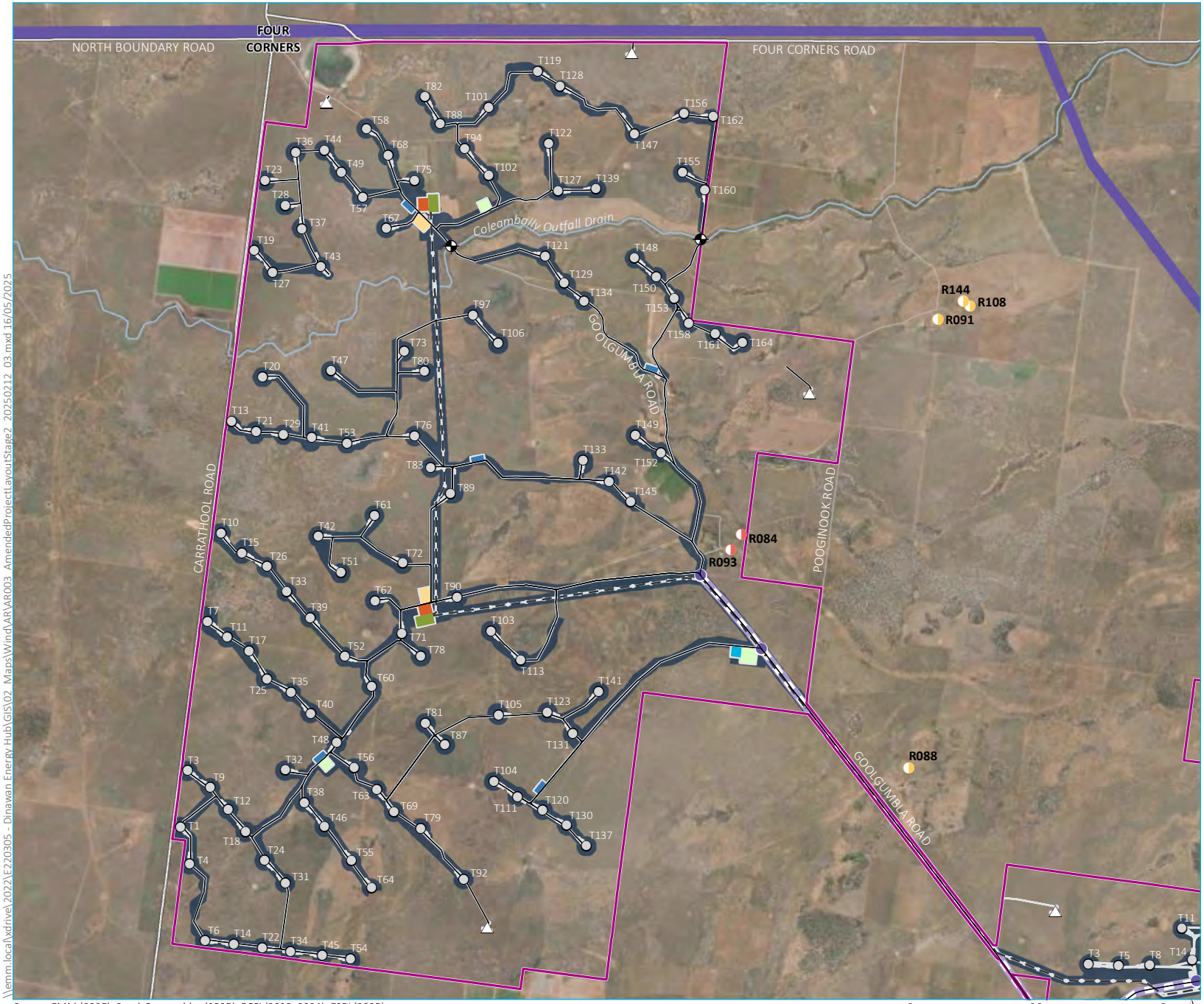

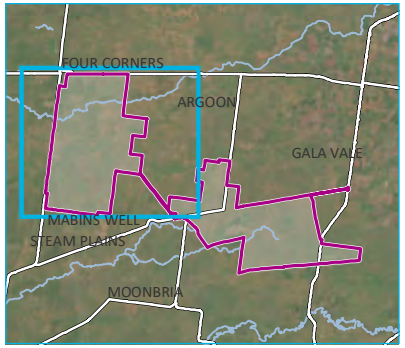

KEY

- Project area
- Development footprint
- Development corridor

Project elements

- Wind turbine generator (WTG)
- Met mast
- Site access point
- Site access and electrical cabling
- Transmission line
- Proposed access route (heavy and OSOM vehicles)
- O&M facilities
- Substation
- Switchyard
- Laydown
- Workforce accomodation facility
- Borrow pit
- Construction compound

Project EnergyConnect (Transgrid)

- Transmission line

Residence

- Associated
- Non-associated

Existing environment

- Bridge
- Major road
- Minor road
- Watercourse (third order and higher)

Amended project layout - western area (Stage 2)

Dinawan Wind Farm
Submissions Report
Figure 1.3b

Source: EMM (2025); Spark Renewables (2025); DFSI (2020, 2021); ESRI (2025)

0 2.5 5 km
GDA2020 MGA Zone 55

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2 Analysis of submissions

2.1 Summary of submissions

During the public exhibition of the EIS, 89 public submissions were received by DPHI. Of these, 82 were from individuals and 7 were from organisations. In addition, 23 regulatory agencies provided advice on the project, including Murrumbidgee Council and Edward River Council, the relevant local government authorities. Following the exhibition period, an additional public submission commenting on the project was received by DPHI from an individual. While not considered a formal submission, this submission has been included in the statistics in this chapter and has been responded to in Chapter 5.

A submissions register is provided in Appendix A of this report, which summarises all submissions received. Submissions are available to view on the NSW Government's Major projects website at: https://www.planningportal.nsw.gov.au/major-projects/projects/dinawan-wind-farm.

A summary of submissions, including the total number of submissions who oppose, support or commented on the project, is provided in Table 2.1.

Table 2.1 Summary of submissions received

Source	Object	Support	Comment	Advice	Total
Public – individual	80	-	2	-	82
Public – organisation	6	-	1	-	7
Sub-total	86	-	3	-	89
Government/public agency	-	-	-	23	23
Total	**86**	**-**	**3**	**23**	**112**

Note: The type of submission has been categorised by DPHI on the major projects website (i.e. object, support and comment).

The following organisations provided submissions on the project:

1. Origin Energy Power Limited (comment)
2. Save Our Surroundings Murrumbidgee (objection)
3. Save Our Surroundings (objection)
4. Save Our Surroundings (SOS) (objection)
5. Save Our Surroundings Barham (objection)
6. BG & JL Jarratt (objection)
7. CWO REZist Inc. (objection)

The following government agencies and other stakeholders provided advice on the project, of which eight acknowledged the project and did not raise matters that required a response:

1. DPHI Crown Lands
2. DPHI Hazards (comment only)

3. Department of Primary Industries – Fisheries (DPI Fisheries) (comment only)
4. Fire and Rescue NSW (comment only)
5. Airservices Australia
6. Civil Aviation Safety Authority (CASA)
7. Department of Primary Industries and Regional Development – Agriculture (DPIRD Agriculture)
8. Edward River Council
9. Environmental Protection Authority (EPA)
10. NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW) – Biodiversity, Conservation and Science Group (BCS) (now Conservation Programs, Heritage and Regulation Group of NSW DCCEEW)
11. NSW DCCEEW – Heritage Council of NSW (comment only)
12. NSW DCCEEW – Heritage NSW
13. NSW DCCEEW Water Group
14. Murray Darling Basin Authority (comment only)
15. Murrumbidgee Council
16. National Parks and Wildlife Services (NPWS)
17. NSW Resources (comment only)
18. NSW Rural Fire Service (RFS)
19. NSW Telco Authority (comment only)
20. Transport for NSW (TfNSW)
21. TfNSW (Sydney Trains)
22. Transgrid
23. WaterNSW (comment only).

2.2 Response methodology

All submissions received were collated and categorised based on who they were from, in accordance with the following categories:

- government or other agencies
- public submissions from individuals and organisations.

The submissions were reviewed and the key matters raised in each submission identified.

2.3 Categorisation of issues

Matters raised in the submissions have been classified as one of the following five broad categories in accordance with the Submissions Report Guidelines (DPHI 2024a):

1. The project (such as the project study area, the physical layout and design, key uses and activities, timing).
2. Procedural matters (such as the level of quality of engagement, compliance with the Secretary's Environmental Assessment Requirements (SEARs), identification of relevant statutory requirements).
3. The environmental, social or economic impacts of the project (such as amenity, air quality, biodiversity, heritage).
4. The justification and evaluation of the project as a whole (such as consistency of the project with Government plans, policies or guidelines).
5. Issues that are beyond the scope of the project assessment (such as broader policy issues) or not relevant to the project.

Each of these categories have been divided into sub-categories (such as biodiversity, air quality, bushfire, cumulative impacts) and then key matters raised have been further identified within these sub-categories as outlined below in Table 2.2.

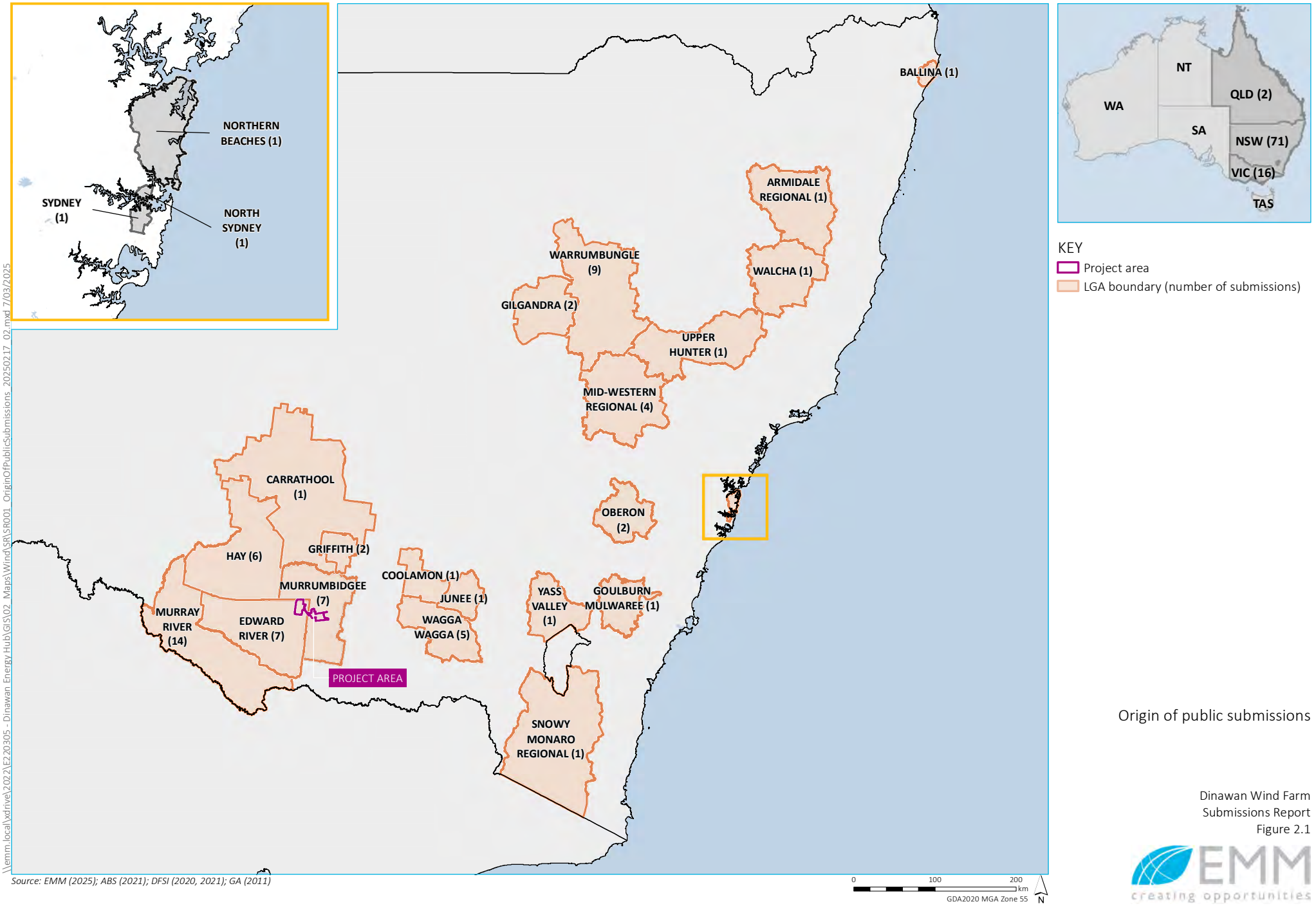
2.4 Public submissions

2.4.1 Origin of public submissions

The number of public submissions were analysed by their locality and distance from the project area. Public submissions came from 43 different localities. Of these 43 localities:

- 9% are from the local area (i.e. less than 5 kilometres (km) from the project area)
- 19% are from the regional area (i.e. 5–100 km from the project area)
- 72% comprise broader community interest (i.e. greater than 100 km from the project area).

The origin of public submissions is shown in Figure 2.1.



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Source: EMM (2025); ABS (2021); DFSI (2020, 2021); GA (2011)

Origin of public submissions

Dinawan Wind Farm
Submissions Report
Figure 2.1

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2.4.2 Summary of issues raised in public submissions

A list of the matters raised within the public submissions and where they have been addressed in this report is provided in Table 2.2.

The key matters most raised in public submissions include:

- justification of renewable energy (44% of submitters)
- decommissioning plan and waste (28% of submitters)
- impacts to agricultural land and productivity (27% of submitters)
- impacts to local biodiversity (26% of submitters)
- general justification and evaluation of the project (25% of submitters).

Table 2.2 List of matters raised in public submissions

Key matter	Sub-category	Number of submissions	Percentage of submitters	Relevant section where submission is addressed
The project				
Project description	Project description	1	1%	Section 5.1.1
Site suitability	Site suitability	2	2%	Section 5.1.1iii
Procedural matters				
Engagement with the community	Engagement	1	1%	Section 5.2.1
Adequacy of assessment	Assessment process	4	4%	Section 5.2.2
The environmental, social, or economic impacts of the project				
Landscape and visual	Landscape and visual	19	21%	Section 5.3.1
Noise and vibration	Noise and vibration	8	9%	Section 5.3.2
Impacts to local biodiversity	Biodiversity	23	26%	Section 5.3.3i
Collision impacts to birds and bats	Biodiversity	13	15%	Section 5.3.3ii
Effectiveness and ability to secure offsets	Biodiversity	3	3%	Section 5.3.3iii
Impacts to protected areas	Biodiversity	3	3%	Section 5.3.3iv
Impacts to threatened species and ecological communities	Biodiversity	14	16%	Section 5.3.3v
Controlled action under the EPBC Act	Biodiversity	8	9%	Section 5.3.3vi
Habitat destruction and fragmentation	Biodiversity	7	8%	Section 5.3.3vii
Impacts to Koalas	Biodiversity	1	1%	Section 5.3.3viii
Impacts to Aboriginal and historical heritage	Heritage	2	2%	Section 5.3.4
Impacts to transport infrastructure	Transport	6	7%	Section 5.3.5

Key matter	Sub-category	Number of submissions	Percentage of submitters	Relevant section where submission is addressed
Impacts to surface and groundwater	Water	5	6%	Section 5.3.6
Contamination of the environment from infrastructure	Contamination	17	19%	Section 5.3.7
Impacts to agricultural land and productivity	Land	24	27%	Section 5.3.8i
Soil erosion	Land	2	2%	Section 5.3.8ii
General fire risk	Hazards	13	15%	Section 5.3.9i
Impacts to aerial firefighting	Hazards	5	6%	Section 5.3.9ii
Risk of blade throw	Hazards	3	3%	Section 5.3.10i
Impacts to telecommunications infrastructure	Hazards	1	1%	Section 5.3.10ii
Local benefits and community benefit sharing	Social	7	8%	Section 5.3.11i
Impacts to community relationships and social cohesion	Social	4	4%	Section 5.3.11ii
General disruption to community and lifestyle	Social	12	13%	Section 5.3.11iii
Impacts to health and wellbeing	Social	6	7%	Section 5.3.11iv
Local employment and labour availability	Social	1	1%	Section 5.3.11v
Public interest and social license	Social	6	7%	Section 5.3.11vi
Workforce accommodation	Social	1	1%	Section 5.3.11vii
Property values	Economic	6	7%	Section 5.3.12i
Local economy and businesses	Economic	3	3%	Section 5.3.12ii
Insurance costs	Economic	2	2%	Section 5.3.12iii
Decommissioning plan and waste	Decommissioning	25	28%	Section 5.3.13
Cumulative impact of multiple renewable energy developments	Cumulative	7	8%	Section 5.3.14i
Cumulative impacts to roads	Cumulative	1	1%	Section 5.3.14ii
Cumulative impacts to biodiversity	Cumulative	5	6%	Section 5.3.14iii
The justification and evaluation of the project as a whole				
General justification and evaluation of the project	Justification	22	25%	Section 5.4
Issues that are beyond the scope of the project				
Impacts of transmission lines	Beyond the scope	1	1%	Section 5.5.1
Justification of renewable energy	Beyond the scope	39	44%	Section 5.5.2
Cost of electricity	Beyond the scope	6	7%	Section 5.5.3

Key matter	Sub-category	Number of submissions	Percentage of submitters	Relevant section where submission is addressed
Supply chain & lifecycle impacts	Beyond the scope	5	6%	Section 5.5.4
Location of renewables projects	Beyond the scope	6	7%	Section 5.5.5
Foreign ownership	Beyond the scope	6	7%	Section 5.5.6
Impact on whale migration	Beyond the scope	1	1%	Section 5.5.7

A graphical representation of the number of submissions received in relation to each sub-categories is provided in Figure 2.2.

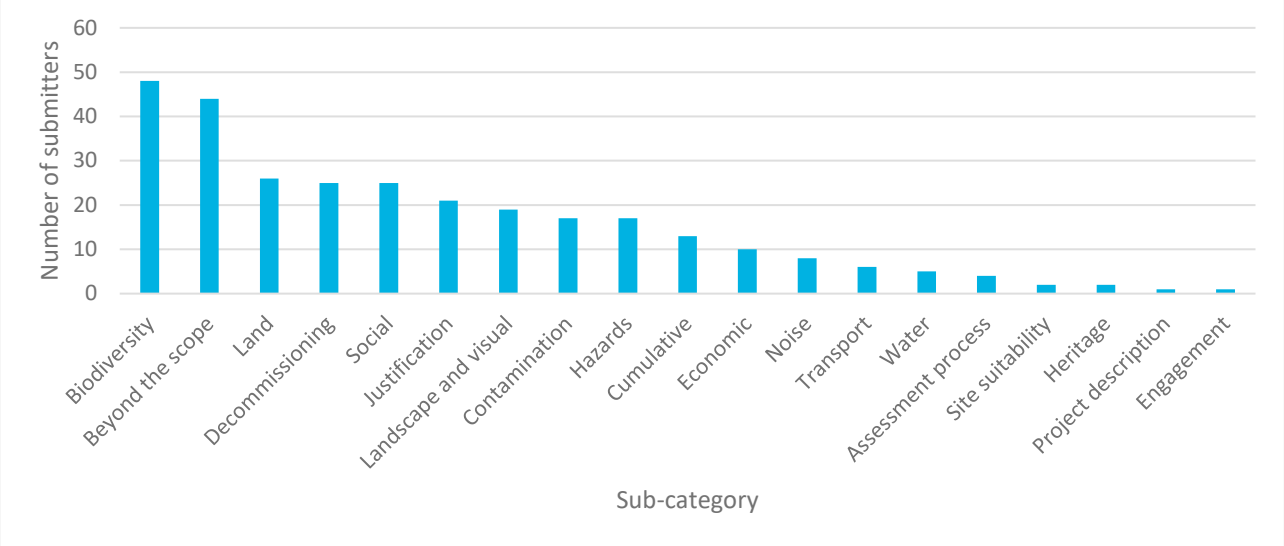


Figure 2.2 Sub-categorisation of public submissions

3 Actions taken since exhibition

3.1 Project amendments

Spark Renewables has amended the project following further detailed design, and in response to feedback from Transgrid (as the proponent for VNI West) and Origin Energy (as the proponent for Yanco Delta Wind Farm), as well as outcomes of ongoing engagement with the local community and government agencies. The development footprint has been reduced by approximately 245 ha (18%) from 1,339 ha to 1,095 ha. The reduction has facilitated further avoidance of impacts in the amended design.

The amended project has resulted in:

- a reduction in the project area from 39,061 ha to 34,510 ha (12% decrease)
- a reduction in the development corridor from 7,256 ha to 6,383 ha (12% decrease)
- a reduction in the development footprint from 1,339 ha to 1,095 ha (18% decrease)
- a reduction in the number of assessed locations for WTGs from 267 to 200 (no change to the total number of WTGs proposed for construction and operation), with up to 84 WTGs in Stage 1 (reduced from 117 in the EIS) and up to 116 WTGs in Stage 2 (reduced from 150 in the EIS)
- a reduction in the maximum tip height of each WTG from 280 m to 250 m
- amendments to the project layout, including revised locations for collector substation and switchyard options, electricity transmission line infrastructure, meteorological monitoring masts, site access, construction compounds, laydown areas, O&M facilities and worker accommodation facilities
- other minor amendments including:
    - nomination of 16 borrow pit locations (approximately 0.2 ha each)
    - addition of new disturbance areas for public road upgrades
    - updates to the proposed oversize/overmass (OSOM) and light vehicle routes
    - updates to biodiversity offset staging (i.e. from two to three stages).

A full description of the amendments proposed is provided in Chapter 3 of the amendment report and the amended project layout is shown in Figure 1.3.

3.2 Engagement

Stakeholder engagement for the project commenced in 2021 and has been comprehensive to date. A summary of engagement carried out during the preparation of the EIS is provided in Chapter 5 of the EIS.

Since the lodgement of the EIS, Spark Renewables has continued to engage with stakeholders including local authorities, government agencies, the local community and neighbouring landholders. An overview of the engagement activities carried out during and after the public exhibition of the EIS is provided in the following sections.

3.2.1 Community engagement

A summary of the community engagement undertaken post-submission of the EIS is provided in Table 3.1.

Table 3.1 Summary of engagement post-EIS submission – community

Stakeholder	Summary
Local community	Spark Renewables held drop-in sessions in Coleambally and Jerilderie in July 2024 during the public exhibition of the EIS to share project information and answer any questions about the project and EIS. The sessions raised community awareness of the project and facilitated greater connection of the Spark Renewables team with the local community. The Spark Renewables team discussed the project with a range of community members during the exhibition period including project neighbours, local residents, local businesses, community groups and clubs, local government and First Nations stakeholders. Both positive and negative feedback was received during the exhibition period with key matters discussed including opportunities for local employment, the project's pilot grant program, impacts on local roads, management of bushfire risks and visual amenity impacts. Spark Renewables continue to engage with local community groups and service providers (including Coleambally Lions Club and Aboriginal Medical Services in Griffith) and have participated in events orientated towards supporting the education and training of a local workforce (including the New Energy apprentice workshop in Leeton and Clean Energy Taster training in Hay).
Bundure Landowner Group	Spark Renewables has continued to engage with the Bundure Landowner Group including meetings, phone calls and written responses to matters raised. Further information has been provided on neighbour benefits, cumulative impacts, bushfire management and insurance.
Nearby landholders	Spark Renewables has maintained regular consultation with nearby landholders and continues to consult with neighbours regarding the Dinawan Energy Hub as a whole inclusive of both Dinawan Wind Farm and Dinawan Solar Farm to minimise consultation fatigue and to provide transparency. Since the public exhibition of the EIS, consultation has been targeted towards owners of residences within 10 km of a WTG (including R019, R036, R049, R078, R107, R111, R124, R157, R163 and R164).
First Nations groups	A summary of the amended Aboriginal cultural heritage assessment (ACHA) was presented to the registered Aboriginal parties (RAPs) for the project at three focus group meetings in March 2025. This included discussion around comments from Heritage NSW on the ACHA and the reduction in the development footprint that will maximise the preservation of cultural materials. Appropriate management actions if a burial site is identified during construction were also discussed. No concerns with the amendments or changes to the ACHA were raised. Spark Renewables has also met with representatives from the South West REZ First Nations Working Group to present its Aboriginal Participation Plan, which is intended to provide opportunities to local First Nations communities during the construction and operation of the project. Spark Renewables has signed a Memorandum of Understanding with the Griffith Local Aboriginal Land Council (LALC) to enable opportunities for the Aboriginal community. The focus of the partnership is to identify opportunities for mutual benefit, collaboration, training and employment pathway co-design.
Coleambally Irrigation Cooperative Limited (CICL)	CICL own land within the project area associated with Coleambally Irrigation Channel (east of Kidman Way) and have an easement within the project area and development footprint that is associated with Coleambally Outfall Drain. Spark Renewables continues to consult with CICL via email, phone calls and meetings with discussions focused on interactions with CICL infrastructure including use of CICL bridges, interactions with Coleambally Outfall Drain, flooding risks and fire management.

3.2.2 Agency engagement

Engagement with regulatory stakeholders continued post-submission of the EIS and is summarised in Table 3.2.

Table 3.2 Summary of engagement post-EIS submission – agencies

Stakeholder	Summary
DPHI	Spark Renewables continued to engage with DPHI during the public exhibition of the EIS and as part of the preparation of this submissions report and the amendment report. A meeting was held in October 2024 to provide an update on the project and discuss the proposed amendments, which included the initial removal of 24 WTGs. Following DPHI's feedback on the amendments to the project layout, a further 43 WTGs were removed from the development footprint (a total of 67 removed). There is no change to the total number of WTGs proposed for construction and operation (a total of 200 proposed). A letter was provided to DPHI in January 2025 to inform DPHI of the proposed amendments to the project and included a summary of the proposed assessment approach.
BCS	Meetings were held with BCS in February and August 2025 to provide updates on the amendments to the project (including further efforts that have been made to avoid and minimise impacts on biodiversity) and additional fieldwork that has been completed since the public exhibition of the EIS. Clarification was sought on several of the matters raised in BCS's submission on the EIS, including comments on the approach to vegetation mapping, plot collection and credit calculations. A separate meeting was held with BCS in September 2024 to discuss the comments provided on flood risk management. It was confirmed that both matters raised in its submission could be resolved post-determination. BCS encouraged early engagement with Murrumbidgee Council, Edward River Council and State Emergency Services around what's proposed during construction and operations to manage flood risks (e.g. access routes in an emergency and procedures or triggers for workforce evacuation). It was also confirmed that flood model outcomes had been considered in siting of high-risk infrastructure (primarily the substations and accommodation facilities).
Transgrid	Spark Renewables has engaged extensively with Transgrid regarding project design and potential interactions with VNI West alignment as well as interactions with on-site teams for Project EnergyConnect. The VNI West alignment and establishment of appropriate setbacks from the proposed transmission line were a major consideration in the amendments to the WTG layout in Stage 1.
Murrumbidgee Council	Spark Renewables continue to liaise with Murrumbidgee Council and provide regular updates on the project. This has included discussions with traffic engineers at Murrumbidgee Council to discuss the vehicle access requirements and proposed road upgrades associated with the project and Dinawan Solar Farm and discussions regarding mobile telecommunications reliability in the region. Discussions with Murrumbidgee Council have also included consideration of post approval requirements for the proposed accommodation facilities.
Edward River Council	Spark Renewables continue to liaise with Edward River Council and provide regular updates on the project. Edward River Council have provided a letter stating they are generally supportive of the project but do not wish to discuss voluntary planning agreements (VPAs) with any proponent until access rights have been awarded for the South West REZ. Following the announcement of the access rights for the South West REZ, Spark Renewables will continue to liaise with Edward River Council on the terms of the VPA.
Transport for NSW (TfNSW)	A meeting was held with TfNSW in December 2024 to discuss its submission on the EIS and clarify several of the matters raised. Spark Renewables provided an update on key changes to the project since public exhibition of the EIS and provided an update on the additional work undertaken to better understand OSOM transport limitations through Wagga Wagga.
National Parks and Wildlife Services (NPWS)	A meeting was held with NPWS in January 2025 to discuss its submission on the EIS, with a focus on potential impacts on telecommunication links and NPWS management activities. Spark Renewables is committed to maintaining a strong working relationship with NPWS during the construction and operation of the project.
Rail network operators	Spark Renewables has commenced engagement with Australian Rail Track Corporation (ARTC) and UGL Regional Linx (UGLRL) regarding potential interactions with level crossings, under-bridges and over-bridges and are committed to continuing this engagement throughout the assessment and approval process.

Stakeholder	Summary
Tunnel operators	Spark Renewables has commenced engagement with NorthConnex regarding the use of their tunnel infrastructure as part of OSOM vehicle movements and are committed to continuing this engagement throughout the assessment and approval process.
Civil Aviation Safety Authority (CASA)	An email was sent to CASA in March 2025 to offer an opportunity to discuss the outcomes of the amended aviation impact assessment and requirements for obstacle lighting on WTGs. No response has been received to date.

3.3 Further assessment of impacts

The following technical assessments have been updated in response to matters raised by government agencies and/or to reflect the amended project:

- Biodiversity development assessment report (BDAR) – the BDAR has been updated in response to comments from BCS, to incorporate recent field survey findings and to reflect the amended development footprint and WTG dimensions. The amended BDAR is provided in Appendix D.3 of the amendment report.
- Aboriginal cultural heritage assessment (ACHA) – the ACHA has been updated in response to comments from Heritage NSW and to reflect the amended development footprint. The amended ACHA is provided in Appendix D.4 of the amendment report.
- Bushfire assessment report – the bushfire assessment report has been updated in response to recommended conditions of consent from NSW RFS, Murrumbidgee Council and Edward River Council and to align with project amendments. The amended bushfire assessment is provided in Appendix D.7 of the amendment report.
- Aviation impact assessment – the aviation impact assessment has been updated to reflect the amended project layout. The amended aviation impact assessment is provided in Appendix D.9 of the amendment report.

In addition to the above, the amendment report has considered how project amendments will affect other environmental assessments prepared for the EIS, such as landscape and visual, noise, traffic and hazards (refer Chapter 6 and Appendix D of the amendment report). This has included inputs from technical specialists responsible for the preparation of the EIS technical assessments and, where required, assessment outcomes have been updated to consider the amendments to the development footprint and project layout.

4 Response to agency and council submissions

4.1 Introduction

A submissions register is provided in Appendix A, which summarises all submissions received from government agencies and councils.

As noted in Section 2.1, 23 agencies provided advice on the project. Each of the matters raised by government agencies and councils are provided in grey boxes in the sub-sections below, followed by a response to the comment or advice. The submissions received from these agencies and councils that required no further consideration are outlined in Table 4.1.

Table 4.1 No further response required

Agency	Submission	Response
Fire and Rescue NSW	It is deemed that the proposal has limited scope and application in regard to special hazards or special problems of firefighting. Fire and Rescue NSW submit no comments or recommendations for consideration, nor any requirements beyond that specified by applicable legislation. While there is currently no requirement for a Fire Safety Study, Fire and Rescue NSW may recommend one be undertaken at a later stage should information be provided such that the development is deemed to pose special problems of firefighting or special hazards exist that require additional fire safety and management measures.	Fire and Rescue NSW's submission did not contain matters requiring further consideration in this report. It is acknowledged that Fire and Rescue NSW may recommend a Fire Safety Study at a later stage.
Heritage Council of NSW	The subject site is not listed on the State Heritage Register (SHR), nor is it in the immediate vicinity of any SHR items. Further, the site does not contain any known historical archaeological relics. Therefore, no heritage comments are required. The Department does not need to refer subsequent stages of this proposal to the Heritage Council of NSW.	Heritage Council of NSW's submission did not contain matters requiring further consideration in this report.
Murray Darling Basin Authority (MDBA)	Based on the information provided, the MDBA has completed its assessment and concludes the EIS appears suitably comprehensive. The MDBA notes no specific conditions or further EIS requirements are applicable to this proposal.	MDBA's submission did not contain matters requiring further consideration in this report.
NSW Resources	NSW Resources has reviewed the information supplied in relation to the Project and based on the review has no specific comments in relation to Mining Act 1992 considerations and raises no issues regarding the Project at this stage.	NSW Resources' submission did not contain matters requiring further consideration in this report.
NSW Telco Authority	NSW Telco Authority noted that the wind farm turbines look to be clear of their microwave links. If there are any changes to the proposed turbine locations NSW Telco Authority would have to reassess. No further comments from NSW Telco Authority.	NSW Telco Authority's submission did not contain matters requiring further consideration in this report. It is acknowledged that amendments to the WTG layout have been made; however, no impacts to point-to-point microwave links are expected (Appendix D.8 of the amendment report).

Agency	Submission	Response
WaterNSW	WaterNSW has reviewed the EIS and found that the project is not located near any WaterNSW land, assets or infrastructure, therefore we have no particular comments or requirements regarding the proposal. Should the extraction of water from existing or new groundwater bores or water from other sources covered under the relevant water sharing plan be required, the proponent will need to apply for a Water Access Licence (WAL). Any such request will be assessed at time of application and are subject to availability.	WaterNSW's submission did not contain matters requiring further consideration in this report. Water will be sourced primarily from existing extraction bores that are owned by landholders associated to the project, where each bore has an applicable water access license (WAL). The extraction volumes (and associated impacts) predicted for the project are consistent with the current approved use and entitlements linked to the bores. All relevant water licensing and approvals will be obtained to support water supply arrangements for construction and operation if alternative sources are required.
DPI Fisheries	DPI Fisheries considers that potential direct and indirect impacts on aquatic habitats should be mitigated with the implementation of the water management and mitigation measures outlined in the EIS. Recommended that works be undertaken in accordance with *Policy and Guidelines for Fish Habitat Conservation and Management* (Update 2013).	Spark Renewables agrees to the recommended conditions and will adhere to relevant guidelines. DPI Fisheries' submission did not contain matters requiring further consideration in this report.
DPHI Hazards	DPHI Hazards is satisfied that the risks to surrounding land use are low.	DPHI Hazard's submission did not contain matters requiring further consideration in this report.

4.2 DPHI Crown Lands

Crown Roads, Crown Land ALC's

DPHI Crown Lands note that there are several Crown roads within the project area. These roads may provide legal access to the development but may not provide practical access. The Department advises that these roads should not be relied upon for practical access to the project site.

The EIS refers to an indicative physical layout and design in section 3.3. If infrastructure needs to be built on Crown land or roads the proponent will be required to lodge an application for Landowners consent prior to any development occurring. Further information regarding Landowner's consent for Crown land and roads can be found at the following link: https://www.crownland.nsw.gov.au/resources/guides-and-factsheets

If any structures are to be built or cable transmission lines are to traverse Crown Land or Crown Roads a licence will be required to authorise ongoing occupation until such time as an easement is formalised.

The amended development footprint intersects approximately 51 ha of Crown land (inclusive of travelling stock reserves and Crown paper roads). Most of this area (88% or 45 ha) is associated with sections of the development footprint that overlap with McLennons Bore Road, Fernbank Road and Wilson Road and associated road reserves.

Parcels of Crown land and travelling stock reserves have been identified along sections of McLennons Bore Road, Fernbank Road and Wilson Road that will be used by project-related traffic. Consultation with DPHI's Crown Lands (Griffith and Hay District Office) about potential impacts on Crown land and travelling stock reserves is ongoing.

A licence for occupation and/or use of Crown roads will be sought from DPHI's Crown Lands. Works within and/or occupation of travelling stock reserves will also be subject to licencing from Crown Lands and will be undertaken in a manner that will allow the reserve to continue to be used for stock movements where possible, and in accordance with licence conditions issued by Crown Lands.

It is acknowledged that Crown roads cannot be relied upon for practical access to the development footprint. A network of access tracks is proposed as part of the project and will be used to facilitate vehicle movements from public roads across the development footprint.

Travelling Stock Reserves/Reserves/Commons/Aboriginal Land Claims/Native Title

R 35786, (Lot 7004 & 7005 DP 105588) is reserved for Travelling Stock Route and Camping and is located on the western curtilage of the project area. This reserve is managed by Riverina Local Land Services and is currently the subject of undetermined Aboriginal Land Claims (ALC's 37935 & 38034). As such, concurrence with the NSW Aboriginal Land Council (NSWALC) would be required if the reserve is in anyway impacted by the development. Additionally, a tenure would be required to authorise any use of and/or access to this reserve, which may be subject to Native Title. This will need to occur prior to the commencement of any works.

The two land parcels, Lot 7004 and Lot 7005 of DP 105588, relating to R 35786 and Aboriginal Land Claims 37935 and 38034 are excluded from the project area and will not be impacted. No use of, or access to these lots is proposed. Cadastral boundaries within proximity of these land parcels have been verified by a registered surveyor and the amended project area, development corridor and development footprint have been prepared using the verified data rather than relying on publicly available cadastral data.

4.3 Airservices Australia

Airspace Procedures

With respect to procedures designed by Airservices in accordance with ICAO PANS-OPS and Doc 9905, at a height of 392.9 m (1290 ft) AHD, the wind farm will not affect any sector or circling altitude, nor any instrument approach or departure procedure at Narrandera aerodrome.

The wind farm will affect the W419 air route. The W419 LSALT between VINOP and MAKIV will need to be increased to 2300ft. This change is not expected to adversely impact IFR operations.

The maximum height of the wind farm without affecting the W419 air route is 335.28m (1100ft) AHD.

Note: Procedures not designed by Airservices at Narrandera aerodrome were not considered in this assessment.

The aviation impact assessment provided as part of the EIS identified the impact on the W419 air route and proposed a 200-foot (ft) increase to the lowest safe altitude (LSALT) to 2,300 ft. As recognised by Airservices Australia, this increase in LSALT is not expected to adversely impact instrument flight rule (IFR) operations.

The amended aviation impact assessment (Appendix D.11 of the amendment report) identified impacts on three additional air routes, Q60, Q346 and W762, and proposes a 100 ft increase to the LSALT to 2,300 ft above mean sea level.

Grid lowest safe altitude (LSALT)

It is our view that the proposed wind farm will impact the published Grid LSALT.

The maximum height without affecting the published Grid LSALT is 365m (1199ft) AHD.

Spark Renewables acknowledges that the project will impact on the published LSALT as described above.

Communications/Navigation/Surveillance (CNS) Facilities

We have assessed the proposed activity to the above specified height for any impacts to Airservices Precision/Non- Precision Navigation Aids, Anemometers, HF/VHF/UHF Communications, A-SMGCS, Radar, PRM, ADS-B, WAM or Satellite/Links and have no objections to it proceeding.

Spark Renewables acknowledges that Airservices Australia has no objections to the project proceeding.

Air Traffic Control (ATC) Operations

There are no additional instructions or concerns from our ATC.

Spark Renewables acknowledges that there are no concerns from Airservices Australia's ATC.

Summary – W419 LSALT

It is our view that the proposed Dinawan Wind Farm impacts Airservices designed airspace procedures, CNS facilities or ATC operations.

The W419 LSALT between VINOP and MAKIV will need to be increased to 2300ft. All amendments to airspace procedures are on a commercial basis.

Spark Renewables acknowledges W419 LSALT between VINOP and MAKIV will need to be increased to 2,300 ft and that all amendments to airspace procedures are on a commercial basis.

As noted above, the amended aviation impact assessment (Appendix D.11 of the amendment report) identified impacts on three additional air routes, Q60, Q346 and W762, and proposes a 100 ft increase to the LSALT to 2,300 ft above mean sea level.

Summary – Grid LSALT

It is our view that the proposed Dinawan Wind Farm impacts Airservices designed Grid LSALT as currently presented. The Grid LSALT will need to increase to 2300ft.

Please advise the Vertical Obstacle Data (VOD) team at VOD@airservicesaustralia.com of any need to increase Grid LSALT heights at least two (2) weeks before construction commencing by supplying the below information:

- Approved wind turbine locations
- Elevations at the top of the highest point of the turbine in metres AHD
- A copy of this email.

Spark Renewables will follow the above notification procedures in line with Airservices Australia’s submission.

Vertical Obstacle Notification

This proposed wind farm is more than 30m (99ft) AGL.

Please follow the below notification process:

1. Complete the Vertical Obstacle Notification Form: ATS-FORM-0085_Vertical_Obstruction_Data_Form.pdf (airservicesaustralia.com)

2. Submit completed form to: VOD@airservicesaustralia.com as soon as the development reaches the maximum height.

Spark Renewables will follow the above notification procedures in line with Airservices Australia's submission.

4.4 Civil Aviation Safety Authority

Except for Recommendation 8 'Lighting of WTGs' which defers to the risk assessment (page 44-46), CASA agrees with the Recommendations at Section 12 (page 58/59) of the Aviation Impact Assessment.

Contrary to Recommendation 8, CASA considers the proposed wind farm will be a hazard to aviation safety and recommends that the wind farm is obstacle lit with steady medium-low intensity red obstacle lighting in accordance with the National Airports Safeguarding Framework Guideline D 'Managing the Risk of Wind Turbine Farms as Physical Obstacles to Air Navigation' National Airports Safeguarding Framework Principles and Guidelines and section 9.31 of Part 139 Aerodromes Manual of Standards Part 139 (Aerodromes) Manual of Standards 2019 (lower level lights on the turbine support columns are not essential).

An amended aviation impact assessment has been prepared and considers the revisions to the WTG layout (Appendix D.11 of the amendment report). The assessment concludes that there will be an acceptable level of aviation safety risk associated with the potential for an aircraft collision within a WTG without obstacle lighting on the WTGs. Aviation hazard lighting requirements are subject to ongoing consultation with CASA. An aviation obstacle lighting plan has been prepared in accordance with the *Wind Energy Guideline* (DPHI 2024a) and is provided in Appendix D.13 of the amendment report.

International standards require 2,000 candela lighting intensity on the nacelle (also recommended in the NASF guideline) and 200 candelas at the mid-point of the turbine mast. CASA recommends that 200 candela as a minimum intensity lighting on the nacelle would suffice (due mainly to the lack of background lighting in the vicinity of the turbines). The obstacle lighting should be monitored to alert the wind farm operator of any outage and at least some of the obstacle lights remain on during an outage. CASA is prepared to review a lighting plan that indicates which turbines are proposed to be lit.

Aviation hazard lighting requirements are subject to ongoing consultation with CASA. An aviation obstacle lighting plan has been prepared in accordance with the *Wind Energy Guideline* (DPHI 2024a) and is provided in Appendix D.13 of the amendment report. It requires that 67 of the 200 WTGs be lit with two low intensity steady red lights.

As the Aviation Safety regulator, CASA does not consider the visual impact of obstacle lighting on neighbours / homesteads. However, there are mitigations for visual impact such as baffling and intensity control (as described in the Aviation Impact Assessment Table 11 / Page 56 'Effect of obstacle lighting on neighbours').

Aviation hazard lighting requirements are subject to ongoing consultation with CASA. An aviation obstacle lighting plan has been prepared in accordance with the *Wind Energy Guideline* (DPHI 2024a) and is provided in Appendix D.13 of the amendment report. It outlines shielding requirements to reduce light spill and visual impacts

to receptors, with no more than 5% of the nominal light intensity emitted at or below 5 degrees below horizontal and no light emitted at or below 10 degrees of horizontal.

Further to Recommendation 12, and as recommended by the Aerial Application Association of Australia, CASA recommends that the following Australian Standard be considered regarding overhead transmission lines:

- AS 3891.2, Air navigation — Cables and their supporting structures — Marking and safety requirements, Part 2: Low-level aviation operations.

The detailed design of the project will consider and apply all appropriate Australian Standards, including AS3891.2, Air navigation — Cables and their supporting structures — Marking and safety requirements.

The impacts on lowest safe altitudes (LSALT) are covered in Aviation Impact Assessment Section 5.5 Consultation and Section 11 Conclusions but not specifically included in Section 12 Recommendations. The Airservices assessment of 3 June 2024 advises:

- The W419 LSALT between VINOP and MAKIV will need to be increased to 2300ft

- The Grid LSALT will need to increase to 2300ft

The proponent (or the proponent's Aviation Consultant) should engage with Airservices Australia regarding the changes to the LSALTs.

Spark Renewables will engage with Airservices Australia regarding the changes to the LSALTs.

4.5 NSW DCCEEW Water Group

NSW DCCEEW Water Group has reviewed the Environmental Impact Statement and has recommendations regarding water supply, take and licensing, and activities on waterfront land.

1.0 Water supply, take and licensing

1.1 Recommendation – pre-determination

That the proponent provides clarification on the ability to obtain a secure water supply for the Project. This should include the confirmation of relevant agreements where required.

Explanation

Water trucked in from commercial water providers is the preferred option to meet the Project's construction and operation potable water demands (maximum demand being 188 ML/year during the construction phase). Extracting groundwater from licensed bores under agreement with the associated landholders is the preferred option to meet the Project's construction and operation non-potable water demands (maximum demand being 176 ML/year during the construction phase). Confirmation of the agreements with the commercial water providers, and the landholders of the licensed bores, will demonstrate that the Project's construction and operation potable and non-potable water demands can be met using these options, and therefore alternative water supply arrangements which may need to be licensed under the Water Management Act 2000 are not required.

During construction and operation, it is proposed to use non-potable water from a total of 3,691 unit shares of water entitlement, linked to four existing bores within the project area under three water supply works and water use approvals (Table 6.27 of the EIS). The use of the nominated groundwater bores for the project's water supply will be well within the existing maximum extraction limits under the relevant Works Approvals and therefore will operate within their existing approvals. The project landholder has confirmed the availability of this water for use

by the project. In consultation with the landholder, applications to modify the nominated usage of the bores will be submitted post-approval.

All potable water needs will be met by sourcing water from existing local regulated potable water sources, which will be transported to the site as necessary. Water will be transported to the site by trucks on a weekly basis and stored in tanks connected to the accommodation units and communal infrastructure. Potable water will be acquired from one of 14 identified and nominated regulated potable water sources within an approximately 150 km radius of the project. Letters of enquiry have been distributed to all identified providers to assess available quantities and confirm feasibility. Initial responses indicate that the identified sources can feasibly meet the project's requirements without strain on the local water network. Consultation will continue and final quantities will be confirmed prior to construction.

1.2 Recommendation - post approval

The proponent should ensure all of the Project's works that will occur on waterfront land, as described in the Project's Water Resources Assessment (EMM, May 2024), are consistent with all of the relevant guidelines for controlled activities on waterfront land, available at: https://water.dpie.nsw.gov.au/licensing-and-trade/controlled-activity-approvals/guidelines.

Explanation

Based on the information provided in the Project's Water Resources Assessment (EMM, May 2024), it is expected that adverse impacts to waterfront land will be avoided. This is based on the assurance that the Project's works which will occur on waterfront land will be designed and constructed to consider local hydraulic conditions, minimise local flooding impacts, and be consistent with the relevant guidelines, including the controlled activity guidelines. This recommendation is to ensure that the Project's works that will occur on waterfront land will be consistent with the correct controlled activity guidelines.

The project will require works within waterfront land, including upgrades of existing crossings and/or establishing new crossings over watercourses within the development corridor. Where instream works (i.e. activities within the mapped corridor of a watercourse) are proposed, these works will be designed and constructed to consider local hydraulic conditions, minimise local flooding impacts, and consistent with relevant guidelines, including *Guidelines for Controlled Activities on Waterfront Land* (NRAR 2018).

4.6 DPIRD Agriculture

Although the proposal is likely to cause some disruptions to agriculture during the construction and operation phases, the most impacts have been identified in the EIS and appropriate mitigation measures have been proposed relevant to agriculture. The EIS considers that residual impacts to agriculture are expected to be minor and temporary.

However, a key refinement in the EIS has been the inclusion of several accommodation facility options to minimise impacts on local housing availability and short-term accommodation providers. Any proposal for worker accommodation should include a Land Use Conflict Risk Assessment (LUCRA) undertaken to specifically justify the proposed worker accommodation sites. The development of extra dwellings on RU1 Primary Production zoned lands increases the potential for land use conflicts from ongoing agriculture and seasonal conditions on residents of such facilities.

A land use conflict risk assessment (LUCRA) has been prepared for the project using the *Land Use Conflict Risk Assessment Guideline* (DPI 2011) (see Attachment E of the land and resources assessment in Appendix E.8 of the EIS). The LUCRA considered all elements of the project, including temporary accommodation facilities. It is noted that the accommodation facilities are setback at least 1.2 km from the closest non-project-related land parcel and 3.4 km from the closest dwelling. Setbacks from existing dwellings and non-project-related land were a significant

consideration in the selection of sites for the proposed accommodation facilities. The use of the accommodation facilities during construction is not anticipated to impact neighbouring agricultural operations. There is no potential for ongoing land use conflicts once construction is completed, as the accommodation facilities will be temporary for the duration of construction only.

Spark Renewables will develop and implement an accommodation facility management plan in consultation with Murrumbidgee Council and Edward River Council prior to commencement of construction to ensure the accommodation facilities comply with relevant standards and requirements.

DPIRD notes that the following mitigation measures as outlined in the EIS should minimise impacts on agriculture and agricultural production in the project area:

- Soil management measures to preserve soil resources
- Mitigation measures to maintain, and to avoid interference of, existing agricultural activities during the life of the project
- Management of weeds, pathogens and pest species that may impact agriculture during the life of the project
- Erosion and sediment control measures
- Site rehabilitation and revegetation measures during and post construction, and upon decommissioning
- Protocols for identifying potential contaminated land during construction, operation and decommissioning
- Any proposed subdivision resulting in a lot that is smaller than the minimum lot size should not create additional dwelling entitlements.

Spark Renewables acknowledges the above and are committed to the implementation of mitigation measures outlined in Appendix B of this report.

4.7 Edward River Council

Impact on Road Infrastructure

The EIS references the joint preparation of a CTMP and Road Maintenance strategy however provides limited detail on how this will be formulated and how it will ensure minimal impact on local roads, local traffic and haulage routes. It is important that these documents carefully assess and mitigate any conflicts given the high volume of traffic that will be introduced into these areas.

A detailed CTMP and road maintenance strategy will be developed in consultation with Edward River Council prior to the commencement of works in Stage 2. A dilapidation survey will also be commissioned prior to the start of construction in Stage 2 to assess the existing condition of the sections of Wilson Road and Goolgumbla Road that will be used by vehicles associated with the project.

The CTMP will address the safety of workers and road users within the vicinity of the project and will aim to:

- minimise the impact of construction vehicle traffic on the overall operation of the road network
- ensure continuous, safe and efficient movement of traffic for both the general public and construction workers

- provide a description of the construction vehicles and the volume of these construction vehicles accessing the development footprint
- provide a description of the proposed external routes for vehicles including the construction vehicles accessing the development footprint.

Further information on the intended contents of the CTMP is provided in Section 6.2.1 of the Traffic Impact Assessment (Appendix E.6 of the EIS). The CTMP will include a complaint management system to enable active community consultation and maintain positive communication with local residents.

The CTMP will also include a Driver's Code of Conduct that will be provided to all relevant personnel prior to their arrival at site. The Driver's Code of Conduct is to be read and signed by all light and heavy vehicle drivers prior to operation of vehicles. This will be in addition to regular safety briefings and updates. The Driver's Code of Conduct will address all relevant site and locality road safety and traffic management measures including:

- compliance with all road rules and regulations
- commuter traffic routes
- vehicle speeds
- driving to local road conditions
- driver behaviour
- courtesy to other road users
- fatigue management
- dangers of mobile phone use while driving
- checking vehicles and covering loads
- the appropriate use of compression braking
- safety procedures for accidents and breakdowns.

Construction Compound and Accommodation Camp

Given the lack of infrastructure for the proposed accommodation camps additional information is required to understand the scale of the sites, servicing arrangements and decommissioning works plan for returning the sites back to pre-development conditions, at the completion of use.

Conditions are recommended to specifically address these matters.

Approval for the accommodation facility to be constructed as part of the project is sought as part of the SSD development application for the Dinawan Wind Farm. Any development consent issued for the Dinawan Wind Farm will therefore constitute approval under the EP&A Act for the construction and operation of this facility. It is understood that secondary approvals will also be required from Edward River Council for the operation of the accommodation facility (including permits for on-site wastewater management and commercial kitchen operations).

Spark Renewables will develop and implement an accommodation facility management plan in consultation with Edward River Council and Murrumbidgee Council prior to commencement of construction to ensure the accommodation facilities comply with relevant standards and requirements.

The impacts of the accommodation facility have been assessed in the EIS. The accommodation facility is described in Section 3.3.5 of the EIS, which includes a description of the accommodation facility, including intended capacity, key components and location. In addition, Section 3.3.7 of the EIS describes key requirements during the operation of the accommodation facility including water, telecommunications, sewage treatment, electricity, diesel, grease and waste management.

Spark Renewables will provide further details on the accommodation facility to Edward River Council once further detailed design is completed, including:

- design and site layout
- details of facilities and amenities
- water sources
- wastewater management
- general waste management
- parking
- fire protection measures
- requirements for building certifications
- any other approvals.

Following the completion of project construction, the accommodation facility may be maintained for the construction workforce associated with other developments in the region, if this is approved as part of future development applications. Otherwise, the accommodation facility will be decommissioned. The prefabricated demountable units will be removed as the construction workforce decreases. Once construction is complete, communal infrastructure, such as the dining hall, water storage and fencing will be removed to enable the site to be generally restored to its former condition.

Bushfire

Bushfire risks associated with the construction and operation of the development are very generally covered in the EIS. Of specific concern is the Bushfire Prone Land areas consisting of large expanses of grassland and the remoteness of these areas. Adequate resources would be required to protect these areas and the properties of adjoining landowners in the event of fire outbreak. The availability of adequate resources, available fire personnel and response times due to travel distances, could be catastrophic in the event of a fire outbreak. A site-specific plan to remove reliance on external resources, that may not be in a position to provide immediate response, is needed. Conditions are recommended to specifically address on site fire defence.

The following combination of bushfire mitigation measures are proposed to address the risk of bushfire caused by the project and to demonstrate compliance with *Planning for Bush Fire Protection* (RFS 2019):

- Preparation of a Fire Management Plan in consultation with the NSW RFS District Office for the Mid Murray Zone and Argoon and Goolgumbla Rural Fire Brigades. Spark Renewables will continue to consult with Argoon and Goolgumbla Rural Fire Brigades around specific weather conditions that may require works to temporarily cease during construction.

- Preparation of a bushfire emergency management and evacuation plan in consultation with RFS in accordance with Table 6.8d of *Planning for Bush Fire Protection* (NSW RFS 2019). The plan will be consistent with *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* (RFS 2014). Spark Renewables will continue to consult with Argoon Rural Fire Brigade around specific weather conditions that may require works to temporarily cease during construction.

- Provision of APZs for infrastructure including WTGs and worker accommodation facilities in accordance with Appendix 4 of *Planning for Bush Fire Protection* (RFS 2019). An APZ between safe refuge buildings (radiant heat exposure equivalent to less than 10 kW/m^2) and woodland hazards will also be provided to ensure radiant heat thresholds of <10 kW/m^2.

- Buildings within 100 m of bush fire prone vegetation will be constructed to comply with AS 3959:2018 – *Construction of buildings in bushfire-prone areas.*

- Provision of access and water supply in compliance with *Planning for Bush Fire Protection* (RFS 2019). In addition to static water supply requirements, two mobile water supplies with a minimum capacity of 500 L each (e.g. vehicle mounted tanks or standalone tankers) will be available on-site during construction and operation.

- Maintenance and housing of infrastructure so that it will not create a source of ignition to the surrounding vegetation and grassland.

- Spark Renewables will continue to engage with local aerial firefighting operators to develop procedures for their safe operation within the project area.

- Spark Renewables will investigate options for firefighting training for construction and operational personnel, as well as opportunities to incentivise workforce participation in Argoon and Goolgumbla Rural Fire Brigade.

Waste Management

The management of waste from the construction works and proposed Accommodation Camps is not clear in the EIS and needs to be provided in more detail to show that this has been carefully considered. The types and volume of waste products that will be generated and the limited options for local disposal may cause impacts on the surrounding environment. Conditions are recommended to address adequate waste management arrangements.

All waste produced during construction will be transported to a licensed waste facility by Spark Renewables personnel or subcontractors. Waste will be segregated where possible to enable recycling and reduce landfill contributions. Licensed transport and disposal processes will be used to ensure full compliance with state and local regulations and will not require utilisation of Edward River Council's waste transport vehicles.

Waste management facilities with potential to accept the project's general waste have been identified. Four large-scale, licensed waste management facilities that accept commercial and demolition waste have been identified within 250 km of the project (including facilities in Griffith, Leeton, Wagga Wagga and Albury). These facilities are equipped to accept construction waste in compliance with environmental and regulatory standards. The combined annual waste capacity of the identified facilities demonstrates sufficient capacity to accommodate the project's waste volumes. Acceptance of project-related waste will not exceed the facilities' operational tolerances or impact their ability to service the wider community.

Letters of enquiry have been distributed to all identified facilities to confirm their capacity to accept the expected quantities of waste generated by the project. Consultation will continue and final quantities and arrangements will be confirmed to ensure compliance with waste management obligations.

A detailed waste management plan will be prepared prior to each project phase identifying the type, quantity, classification and management of waste in consultation with DPHI, Murrumbidgee Council and Edward River Council.

4.8 NSW Environment Protection Authority

The EPA has reviewed the information provided and determined that an Environment Protection Licence (EPL) will be required for the scheduled activity of Electricity Generation - electricity works (wind farms).

The Applicant will need to make a separate application to the EPA to obtain this licence and further consultation with the EPA to discuss other possible scheduled activities that may be triggered under the Protection of the Environment Operations Act (1997).

It should be noted that there are several requirements for holders of environment protection licences, including monthly recording and reporting and provision of a financial assurance. The EPA will discuss further with the Applicant at the EPL application stage.

It is acknowledged that an EPL will be required for the project.

Noise

The EPA understands that the final project design will likely require micro-siting and height adjustments, which will affect the determination of noise criteria. The EPA recommends that prior to commencement of construction, a revised noise and vibration impact assessment is provided to demonstrate that the final design and final turbine selection is predicted to comply with noise criteria in the Wind Energy: Noise Assessment Bulletin. This information may be used to inform licence conditions, including but not limited to noise limits.

The operational noise model has been updated to reflect the amendments to the WTG layout and changes to the candidate WTG technology (Appendix D.2). Noise from WTG operation is predicted to comply with the relevant noise criteria determined in accordance with the *Wind Energy: Noise Assessment Bulletin for State Significant Wind Energy Development* (DPE 2016) at all non-associated residences. Prior to commencement of construction, the operational noise model will be updated to reflect the final WTG layout and WTG technology to confirm the project complies with the relevant noise assessment criteria.

Waste

The EPA notes the EIS indicates anticipated volumes of construction and decommissioning waste may exceed the capacity of local waste management facilities. As a result, the EPA recommends Department of Planning Housing and Infrastructure considers the inclusion of a Condition of Consent for the Applicant to prepare and implement a Waste Management Plan to show that the waste will be directed to facilities that can lawfully accept it.

All waste produced during construction will be transported to a licensed waste facility by Spark Renewables personnel or subcontractors. Waste will be segregated where possible to enable recycling and reduce landfill contributions. A detailed waste management plan will be prepared prior to each project phase identifying the type, quantity, classification and management of waste in consultation with DPHI, Murrumbidgee Council and Edward River Council.

Waste management facilities with potential to accept the project's general waste have been identified. Four large-scale, licensed waste management facilities that accept commercial and demolition waste have been identified within 250 km of the project (including facilities in Griffith, Leeton, Wagga Wagga and Albury). These facilities are equipped to accept construction waste in compliance with environmental and regulatory standards. The combined annual waste capacity of the identified facilities demonstrates sufficient capacity to accommodate the project's waste volumes. Acceptance of project-related waste will not exceed the facilities' operational tolerances or impact their ability to service the wider community.

Letters of enquiry have been distributed to all identified facilities to confirm their capacity to accept the expected quantities of waste generated by the project. Consultation will continue and final quantities and arrangements will be confirmed to ensure compliance with waste management obligations.

ATTACHMENT A – Recommended Conditions of Consent

If the proposal is approved, the EPA recommends the following conditions should be considered by the Department of Planning, Housing and Infrastructure:

Noise

1. The Applicant must prepare and provide a revised noise and vibration impact assessment to the Planning Secretary for approval, for the final wind turbine generator model and layout, prior to installation of the wind turbine generators.

The revised noise and vibration assessment must demonstrate, through appropriate modelling and in accordance with the "Wind Energy: Noise Assessment Bulletin – For State significant wind energy development (DPA/EPA, 2016)", that the final wind turbine generator models and layout can meet the limits developed consistent with the "Wind Energy: Noise Assessment Bulletin – For State significant wind energy development (DPA/EPA, 2016)".

The details of any 'curtailment' or requirements for wind turbine generators to operate in low noise mode, if required, must be fully presented in the revised noise and vibration impact assessment.

As described above, prior to commencement of construction, the operational noise model will be updated to reflect the final WTG layout and WTG technology to confirm the project complies with the relevant noise assessment criteria.

2. Prior to commissioning of the turbines, the Applicant must prepare and implement a Noise Management Plan to manage noise emissions from the operation of the project. The Plan must include, but not necessarily be limited to:

a) compliance monitoring within one year of commissioning, in accordance with the "Wind Energy: Noise Assessment Bulletin – For State significant wind energy development (DPA/EPA, 2016)" procedures to certify noise.

b) identification and implementation of best practice management techniques for minimisation of noise emissions where reasonable and feasible.

c) if required, measures to be undertaken to rectify annoying characteristics resulting from the operation of the project such as excessive low frequency noise, excessive tonality or adverse mechanical noise from component failure.

d) if required, procedures and corrective actions to be undertaken if non-compliance is detected.

Within six months of the commercial operations date (COD), Spark Renewables will undertake noise monitoring to determine whether the project is complying with the relevant noise criteria determined in accordance with the *Wind Energy: Noise Assessment Bulletin for State Significant Wind Energy Development* (DPE 2016) at all non-associated residences. In the event of non-compliance, Spark Renewables will identify measures to minimise noise emissions, excessive low frequency noise and/or excessive tonality and provide details of corrective actions to DPHI and EPA.

3. A condition requiring that noise from ancillary plant and equipment (e.g. electrical compound(s) and substation(s)) at any residence not associated with the development does not exceed a level of:

- $L_{Aeq,15minutes}$ 40dB(A) during the day (7 am to 6 pm Monday to Saturday or 8 am to 6 pm on Sundays and public holidays)
- $L_{Aeq,15minutes}$ 35dB(A) during the evening (6 pm to 10 pm)
- $L_{Aeq,15minutes}$ 35dB(A) during the night (remaining periods)

Spark Renewables acknowledges the recommendations from EPA and does not object to undertaking these requirements.

Air Quality

1. Prior to the commencement of the construction activities, the Applicant must develop and implement an Air Quality Management Plan (AQMP) to manage air quality emissions, including dust emissions from construction activities. As a minimum, the AQMP must consider the following:

a) Objectives

b) Risk assessment

c) Proactive and reactive mitigation strategies

d) Key performance indicator(s) to evaluate the implementation of mitigation strategies

e) Monitoring method(s)

f) Location, frequency and duration of monitoring

g) Record keeping

h) System and performance review for continuous improvement.

The EIS identifies that the Construction Environmental Management Plan (CEMP) for the project will include measures to manage off-site air quality impacts including:

- monitoring and modifying working practices by limiting activity during periods of adverse weather (hot, dry and windy conditions)
- applying dust suppression measures to active work areas where necessary
- revegetating earthworks and disturbed areas to stabilise surfaces as soon as practicable
- imposing vehicle speed limits along internal roads and work areas during construction
- ensuring vehicle loads entering and leaving the project area are covered to prevent escape of materials during transport.

A separate AQMP is not proposed.

Water

1. Unless otherwise authorised by an EPL, the Applicant must ensure that none of development stages will cause any water pollution, as defined under Section 120 of the Protection of the Environment Operations Act 1997.

Spark Renewables acknowledges this requirement.

2. Prior to the commencement of the construction activities, the Applicant must develop and implement a Water Management Plan to manage surface water and groundwater. Consideration must be given but not necessarily limited to mitigation measures included in the Water Resources Assessment (EMM, 2024).

Management measures to address potential impacts to surface water and groundwater during construction are discussed in the EIS (Table 6.28) and will be implemented as part of the CEMP.

A separate Water Management Plan is not proposed.

3. The Applicant must:

a) ensure that appropriate components of the concrete batching plants and construction sites are suitably bunded.

b) ensure that all liquid waste captured on-site is classified, transported, and disposed of at a facility that can lawfully accept the waste.

c) minimise any spills of hazardous materials or hydrocarbons and clean up any spills as soon as possible after they occur.

Spark Renewables acknowledges the recommendations from EPA and does not object to undertaking these requirements. Section 6.7.6 and Section 6.14.3 of the EIS include the following mitigation measures:

- stormwater management measures for concrete batching plants during construction will include:
  - diverting clean runoff away from cement and concrete handling areas and stockpiles

- maximising recycling of process wastewater, with dedicated storages for excess wastewater that will be manually emptied via vacuum truck and disposed of off site
- bunded areas for refuelling

- maintaining spill kits on-site at all times during construction and operation
- collection of liquid waste in drums or tanks for disposal at a licensed facility.

Waste

1. Waste generated during construction, operation, upgrading and decommissioning must be dealt with in accordance with the following priorities:

a) waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced

b) where avoiding or reducing waste is not possible, waste must be re-used, recycled, or recovered

c) where re-using, recycling or recovering waste is not possible, waste must be treated or disposed of.

2. The importation of waste and storage, treatment, processing, reprocessing or disposal of such waste must comply with the Protection of the Environment Operations Act 1997, the Protection of the Environment Operations (Waste) Regulation 2014, and orders or exemptions under the regulation.

3. Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.

4. All waste that is removed from site must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.

5. The Applicant shall prepare and implement a Waste and Resource Recovery Management Plan for the project prior to the commencement of operation. This program must:

a) be prepared in consultation with EPA, Murrumbidgee Council and Edward River Council

b) be approved by the Planning Secretary prior to commencement of operation

c) include in the plan:

- details of the quantity, type and source of waste received
- details of the quantity, type and quality of the waste produced and their intended fate
- details of the intended fates of all other waste and materials received/produced on site which are not suitable for re-use
- details of any materials produced which will require a specific Resource Recovery Order
- details of any materials produced under a Resource Recovery Order, and the controls/procedures in place for meeting the conditions of that order
- details of any testing/monitoring procedures
- details of how materials segregation will be achieved, particularly the segregation of contaminated soils and resource recovery materials
- the capability of the selected waste management facilities to accept the volumes of waste predicted to be deposited and any associated approvals required to create and/or expand waste storage or disposal facilities
- any infrastructure that may be required at any waste facilities that are proposed to be created and/or expanded to receive additional volumes of waste from the project.

A detailed waste management plan will be prepared prior to each project phase identifying the type, quantity, classification and management of waste in consultation with DPHI, Murrumbidgee Council and Edward River Council. A copy of the plan can be provided to EPA.

4.9 Biodiversity, Conservation and Science Group

It is acknowledged that there has been an organisational name change from Biodiversity, Conservation and Science Group (BCS) to Conservation Programs, Heritage and Regulation Group of NSW DCCEEW. BCS is used below.

Flood Risk Management

1. The proponent consult with the local Council and the NSW SES on emergency management related flood impacts.

1.1. Actively engage with the local Council and the NSW SES on emergency management matters, and develop a site-specific flood emergency response plan that includes actions the Council and NSW SES support.

Spark Renewables will engage with Murrumbidgee Council, Edward River Council and State Emergency Services to discuss flood risk management. Flood risk management protocols (as outlined in Appendix B) will be developed and implemented in the event of flood events that could impact construction sites or access, including:

- suitable early warning/prediction measures and communication protocols
- site preparedness activities and procedures
- triggers for closure, evacuation and recovery
- emergency response and support.

2. Additional detail is required on the impact of the proposed development on flood behaviour, as well as the impacts and risks of flooding on the development.

2.1. Ensure future hydraulic models include the detailed designs associated with proposed project infrastructure to adequately show the impact of the project on flood behaviour and the impact and risks of flooding on the development.

A meeting was held with BCS in September 2024 to discuss the comments provided on flood risk management. It was confirmed that this matter could be resolved post-determination. It was confirmed that flood model outcomes had been considered in siting of high-risk infrastructure (primarily the substations and accommodation facilities).

The development footprint has been refined based on existing modelled flooding constraints in the area. The project is compatible with the modelled flood hazard; the majority of infrastructure has been located in areas that are either free of flooding or subject to low flood hazard that is generally safe for people, vehicles and buildings for events up to and including the 1% annual exceedance probability (AEP).

Management of long-term flooding risks will be considered as part of detailed design, and through the implementation of the proposed water management approach provided in Section 5.3 of the water resources assessment (Appendix E.7).

Biodiversity

The BDAR needs to be updated to allow BCS to determine if serious and irreversible impacts (SAII) are likely

1.1. Provide further evidence-based justification that the proposal will not contribute to SAII Principle 3 for Austral Pillwort and Claypan Daisy.

Austral Pillwort is no longer an SAII species. Accordingly, this assessment has been removed. It is further noted that it is unlikely to be present in the development corridor.

An SAII assessment for Claypan Daisy has been updated in Appendix 5 of the amended BDAR (see Appendix D.3 of the amendment report). Surveys for this species were completed in September and November 2022, 2023 and 2024 and it has not been recorded to date. Limited spatial gaps in survey effort occur in some areas and these will be surveyed in Spring 2025. Given the extent of survey effort to date, it is considered highly unlikely that this species will be recorded within the development corridor.

2.1. Provide justification for the impact to Plains-wanderer important habitat mapping including where mapping incorporates existing access tracks.

Direct impacts to mapped important habitat for Plains Wanderer have been reduced from 4.02 ha to 2.38 ha. These residual impacts result from areas where the mapped important habitat polygons overlap an existing public road (Goolgumbla Road), as well as existing formed farm tracks that will require upgrades as part of the construction of the project. The use of existing roads and farm tracks has been prioritised, as these areas are already disturbed and used for access. An SAII assessment for Plains Wanderer has been updated in Appendix 5 of the amended BDAR (see Appendix D.3 of the amendment report).

2.2. Relocate the permanent meteorological mast DINW02E to an area outside mapped Plain-wanderer habitat. Include access to DINW20E in the assessment, ensuring that proposed access tracks avoid Plains-wanderer habitat.

Further avoidance has been undertaken during design refinement of the amended project. The meteorological mast DINW02E and associated access tracks have been relocated outside of mapped important habitat for Plains Wanderer.

The candidate lists of threatened species, survey effort, suitable habitat and species polygons need to be revised to ensure they are prepared in accordance with the BAM.

3.1. Provide further justification for excluding candidate fauna species in Section 4.3 and Table 110. If further justification cannot be provided in accordance with the BAM, Section 5.2.2 (3) should be applied, and the species assessed further.

Section 4.3 of the amended BDAR has been updated to include further justification for excluded candidate species. Detailed justification has been provided for Koala and Southern Myotis. It is noted that Southern Myotis is no longer an excluded species.

4.1. Provide additional information to confirm threatened species surveys were conducted in accordance with relevant guidelines and the TBDC. If additional surveys cannot be completed, assume presence or provide an expert report. The proponent needs to provide further detail and justification for the fauna survey methods used. Fauna transects shown in the spatial data appear to be following vehicle tracks. While this may be acceptable for Australian Bustard it is not an appropriate approach for other fauna surveys. The proponent has also not provided evidence of the fauna survey effort for large areas of the proposal. For example:

- There is no detail about where Bush Stone-curlew surveys were conducted.
- It is not appropriate to use Bird Utilisation Survey (BUS) as targeted survey for dual credit raptor species.

BCS recommend additional information be provided for the following fauna species and guilds:

- Raptors
- Forest owls
- Amphibians
- Australian bustard
- Bush stone-curlew

Biosis and the BAM assessor disagree that bird utilisation surveys are not appropriate to use as targeted survey. These surveys are extensive, completed across two years (eight seasons), and supplemented by additional survey for large nests and hollow bearing trees, in accordance with the TBDC.

Additional surveys have been completed for forest owls, Bush-stone Curlew, raptors and Australian Bustard. Threatened species survey details are provided in Section 4.3.1 of the amended BDAR (Appendix D.3 of the amendment report). Targeted fauna survey extent is shown in Figure 11B of the amended BDAR.

5.1. Review threatened flora survey effort data to ensure the spread of survey effort covers all associated PCT grid points in the correct survey months.

Additional targeted flora survey was completed in September 2024 and November 2024. Extensive survey has now been undertaken in appropriate seasons across a three-year period. However, due to the large size of the development corridor, and ongoing evolution of the project design to account for constraints identified during surveys (notably for biodiversity and heritage), this has resulted in areas which were extensively surveyed being subsequently excluded from the development corridor. As a result, survey gaps do occur. Where survey gaps occur, presence has been assumed in accordance with the BAM and will be subject to further survey in Spring 2025.

5.2. Where survey effort including walking transects and grid points have not been completed in the correct survey month, remove this effort from the effort calculations in Table 30.

Table 30, which provided a comparison of threatened flora survey effort per species and per vegetation zone, has been removed from the amended BDAR. The threatened flora survey method is described in detail in Section 4.3.1 of the amended BDAR.

5.3. Remove any driving transects from survey effort calculations and maps then reevaluate additional survey effort for each species.

Driving transects for threatened flora surveys have been excluded from the amended BDAR.

5.4. Complete additional flora surveys in the correct survey month for each flora species to meet the minimum survey requirements set out in the BAM 'Surveying threatened plants and their habitats' guide or seek agreement from BCS to use a different approach for this project. If additional surveys cannot be undertaken, assume presence or provide an expert report.

Additional targeted surveys for threatened flora species were completed in Spring 2024. Where gaps in survey coverage still occur, presence has been assumed and additional surveys will be undertaken in Spring 2025.

6.1. Prepare species polygons in accordance with Box 2 of the BAM for each species credit species, in consultation with BCS.

6.2. Present the species polygons for fauna species on maps in the BDAR.

Species polygons have been updated following completion of additional surveys. Species polygons for threatened flora and fauna species are included in Figure 12 of the amended BDAR (Appendix D.3 of the amendment report).

The proponent needs to demonstrate the efforts to avoid and minimise

7.1. Use the outcomes of turbine risk assessment and collision risk modelling to further avoid and minimise project impacts and identify the 200 turbines that have the lowest impacts on biodiversity including birds and bats.

To address comments from BCS and DPHI, significant effort has been made to refine the project to a total of 200 WTGs, reduced from 267 potential WTG locations assessed in the EIS and original BDAR. The refinement of WTG locations considered a range of constraints, including the outcomes of the turbine risk assessment and collision risk modelling. Additional constraints and design inputs were also used to inform the amendments.

All ‘very high’ risk WTGs have been removed or relocated. Further justification for remaining ‘high’ risk WTGs has been included in the amended BDAR (Appendix D.3 of the amendment report). This includes locating WTGs within areas considered lower biodiversity value from a native habitat sense, but which are predicted to have a high collision risk due to flocking waterbirds that reside at certain times due to irrigated channels and paddocks.

Some WTGs identified as ‘low’ and ‘moderate’ risk have also been removed or relocated, due to the presence of other biodiversity constraints such as EPBC Act listed TECs and threatened species records.

Turbine risk assessments and collision risk modelling have been updated to reflect the amended WTG layout in Chapter 6 of the amended BDAR. In summary, there are:

- 0 ‘very high’ risk WTGs (reduced from 4 in the EIS)
- 33 ‘high’ risk WTGs (reduced from 59 in the EIS)
- 104 ‘moderate’ risk WTGs (reduced from 114 in the EIS)
- 63 ‘low’ risk WTGs (reduced from 90 in the EIS).

7.2. Use the outcomes of the species surveys, State and Commonwealth TEC mapping and prescribed impact assessment to further avoid and minimise project impacts for the proposed 200 turbines.

As described above, the body of biodiversity knowledge has been used to refine the project from 267 WTGs to 200 WTGs in the amended layout, which has further reduced biodiversity impacts. The amended layout has included:

- removing 33 WTGs in the eastern area and 34 WTGs in the western area, including removing 26 WTGs with a 'high' collision risk and all WTGs with a 'very high' collision risk for bird and bat species
- changes to WTG blade length and hub height reducing the maximum tip height and increasing the distance between the canopy height and the lowermost blade tip height
- reducing impacts to TECs listed under the BC Act from 604.7 ha to 507 ha (16% reduction)
- reducing impacts to TECs listed under the EPBC Act from 264.9 ha to 205.6 ha (22% reduction)
- avoiding impacts to a known Plains Wanderer location
- removing and/or relocating WTGs from areas of PCT 26 (intact) where vulnerable listed Painted Honeyeaters were recorded and vulnerable listed Grey-crowned Babblers were nesting
- avoiding and minimising impacts to large patches of *Swainsona murrayana* and *Swainsona sericea.*

7.3. Prepare an additional (third) BAM-C child case in the parent case to include those turbines and ancillary facilities above the maximum of 200 turbines that are the least likely to be developed.

This is no longer necessary as the number of potential WTG locations has been reduced to 200.

7.4 Table 70 of the BDAR summaries the turbine risk assessment. Of the 267 turbines, four have a very high risk, 59 are high risk and 114 are moderate risk. There is no evidence in the avoid and minimise measures of the BDAR that the proponent has used the results of the turbine risk assessment to further reduce impacts. Given the project only intends to construct 200 of the 267 turbines, the very high and high risk turbines (totalling 63) should be removed. Where the proponent proposes retaining any very high or high risk turbines, BCS requests they provide a detailed justification for doing so.

Turbine risk assessments and collision risk modelling have been updated to reflect the amended WTG layout in Chapter 6 of the amended BDAR. In summary, there are:

- 0 'very high' risk WTGs (reduced from 4 in the EIS)
- 33 'high' risk WTGs (reduced from 59 in the EIS)
- 104 'moderate' risk WTGs (reduced from 114 in the EIS)
- 63 'low' risk WTGs (reduced from 90 in the EIS).

8.1. Remove or relocate all very high-risk turbines.

All 'very high' risk WTGs have been removed or relocated.

8.2. Remove or relocate all high-risk turbines, or where this is not possible, provide a detailed justification for retaining them.

There are 33 'high' risk WTGs remaining, reduced from 59 'high' risk WTGs in the EIS. Further justification for remaining 'high' risk WTGs has been included in the amended BDAR (Appendix D.3 of the amendment report). This includes locating WTGs within areas considered lower biodiversity value from a native habitat sense, but which are predicted to have a high collision risk due to flocking waterbirds that reside at certain times due to irrigated channels and paddocks. For example, relocating WTGs from irrigated cropping land that have a 'high' risk rating would result in greater impacts to native vegetation on adjoining land; however, the collision risk rating would reduce.

9.1. Revise Section 7 to detail how changes to the development corridor has reduced biodiversity impacts, in accordance with BAM section 7.1.2.

Chapter 7 of the amended BDAR has been updated, including an additional Section 7.4, which addresses how the amended project has further reduced the project's biodiversity impacts.

9.2. Include maps of the alternative and selected development options with key biodiversity constraints including (but not limited to) Plains-wanderer important habitat mapping, no-go zones, and areas of high biodiversity value.

Maps of the alternative (Figure 17) and selected development options (Figure 18) are provided in the amended BDAR. Preliminary constraints mapping that was used to inform the project layout is also provided in Figure 16 of the amended BDAR. A summary of the key constraints that have informed the project is also provided in Figure 2.3 of the amendment report.

10.1. After completing additional survey identified in issues 5 and 6, and updating the avoid and minimise assessment as per issues 7, 8 and 9, revise Table 74 to demonstrate the application of avoid and minimise in accordance with the BAM.

The amended BDAR has been updated to demonstrate the application of avoid and minimise principles. The amended BDAR includes a tabulated summary of avoidance and minimisation of impacts in Table 72.

10.2. If the required survey is not completed, the BDAR must include:

- a statement in Table 74 about survey limitations and clearly identifying that high biodiversity values may not all have been identified and avoided.
- mapping in section 7.1 and 7.4 of the BDAR for unsurveyed areas for threatened flora and fauna species where the avoid and minimise principle could not be applied based on the outcomes of survey results.

As described in Chapter 4 of the amended BDAR, extensive threatened flora and fauna species surveys have been completed. Despite this extensive survey, gaps in survey effort have been identified and presence has been assumed for select threatened species where these gaps occur. Further survey is planned in Spring 2025.

Where presence has been assumed, this is defined spatially via the species polygons provided for threatened flora and fauna species (Figure 12 of the amended BDAR). Survey limitations are discussed in Section 3.1.5 of the amended BDAR.

11.1. Justify the location of the development footprint for each large hollow-bearing tree proposed to be removed.

Hollow-bearing trees are discussed in Section 7.3 of the amended BDAR. The project will impact 9 hollow bearing trees of the 60 recorded within the development corridor that contain small, medium and large hollows, or a combination of all three. This represents an 85% retention of woody vegetation with medium or greater sized hollows. Hollows provide denning, sheltering and breeding for a raft of hollow dependent native fauna; however, observations during multiple seasonal surveys noted use of the hollows by more common fauna such as Galahs and Blue Bonnets.

The majority of the hollow-bearing trees that will be impacted by the project require removal to facilitate the construction of a transmission line proposed to cross the Coleambally Outfall Drain. Relocating the transmission line elsewhere would result in impacts to other biodiversity values as a result of the densely vegetated riparian corridor adjacent to the Coleambally Outfall Drain. One hollow-bearing tree that will be impacted by the project is adjacent to an existing public road that requires upgrades to facilitate the project's construction vehicle movements.

Measure B2 in Table 83 of the amended BDAR has been updated to include further information on pre-clearance survey requirements. Pre-clearance protocols will be implemented prior to the removal of hollow-bearing trees and these will be detailed within the BMP.

11.2. Amend the scattered tree spatial data to include tree identifiers and proposed impact (removed or retained) as per Table 73 of the BDAR.

Scattered tree spatial data has been amended to include tree identifiers and proposed impact.

PCT, TEC, and vegetation zone identification and mapping need to be revised and the biodiversity credit calculation updated.

12.1. Provide maps showing the distribution and extent of the PCTs identified on the subject land and described in BDAR s.3.2.3, as required by BAM s.4.2.

Due to the extensive size of the project area, detailed mapping to PCTs was only determined with confidence for the development corridor, and mapping to vegetation class provided more broadly to assist with consideration of connectivity and prescribed impacts. In response to this request from BCS, this has now been expanded with mapping of PCTs completed more broadly, albeit with lower confidence in some areas.

Vegetation mapping is provided in Chapter 3 of the amended BDAR. Spatial data provided with the amended BDAR identifies whether vegetation mapping has been field verified or is desktop only.

13.1. Update the BDAR and calculations of impacts to NSW Weeping Myall TEC to include derived native grassland condition.

Extensive discussion and justification on TECs is provided in Section 3.2.4 of the amended BDAR. Similar to the adjacent Dinawan Solar farm where the justification for excluding Weeping Myall DNG areas was accepted, PCT 26 typically occurs on fertile red top brown clay soils and sometimes moderate to extensive gilgai that are subject to seasonal waterlogging. For areas of Weeping Myall DNG, the scientific criteria states in many areas of the Riverina, Myall Woodland has been eliminated and replaced by a grassland of *Chloris*, *Austrodanthonia* and *Austrostipa*, that lacks the woody components of the original woodland vegetation (TSSC 2009).

DNG areas within the subject land are simplified grasslands and do not conform with the determination reference to 'Myall Woodlands'. Historic and current grazing and agricultural practices would continue to inhibit the recovery of these areas to a potential woodland state. Recruitment of *Acacia pendula* rarely occurs in the DNG zone, which helped assign this zone to PCT 26, and no other grassland communities, but cover is generally <1%.

14.1. Update each BAM-C child case for each stage to only include VI plots collected for that stage.

BAM-C child cases for each of the project stages have been updated. The staging of the project is solely related to anticipated construction staging and associated credit obligation retirement. The development corridor has been assessed in its entirety and, therefore, vegetation zones and plot allocation is representative of what is observed within the development corridor rather than specific stages.

14.2. Where VI plots from another stage are required to make up for a shortfall in the required VI plots, provide justification within the BDAR for each plot on why it is suitable to use in the vegetation zone.

As noted above, the staging of the project is solely related to anticipated construction staging and associated credit obligation retirement. The development corridor has been assessed in its entirety and, therefore, vegetation zones and plot allocation is representative of what is observed within the development corridor rather than specific stages.

15.1. Collect additional VI plots where plots are not within the vegetation zone for each stage of the development footprint.

BAM-C child cases for each of the project stages have been updated. This included a review of all plot data and some plots are no longer included. Additional plots were also undertaken to address identified gaps as a result of the amendments to the project and these have been incorporated into the amended BDAR. Further information on plot data is provided in Section 3.3.2 of the amended BDAR.

The impact assessment requires revision, and mitigation measures need to include more specific detail to be effective in managing impacts.

16.1. Assess all areas where native vegetation will be impacted by the project, including where there will be clearing for ancillary infrastructure, and to construct or upgrade access and transport routes.

The amended BDAR assesses all areas where native vegetation will be impacted by the project. The development footprint is inclusive of disturbance required for ancillary infrastructure, as well as upgrades to public roads and access tracks that will be necessary to facilitate project-related vehicle movements.

16.2. Clarify the location and number of accommodation camps included in the assessment.

Three locations have been assessed for accommodation facilities, one in the eastern area and two in the western area; however, approval is only sought for up to two accommodation facilities to be constructed and operated (i.e. one in the eastern area and one in the western area). Each accommodation facility will be established early in the construction phase for each stage of the project and will accommodate up to 450 workers.

17.1. Amend Section 8.2 of the BDAR to provide evidence to justify the predicted impacts and discuss any limitations to the data and assumptions made. Revise Table 80 to detail specific measures to mitigate indirect impacts, including details required by BAM s.8.4.

Section 8.2 of the amended BDAR has been updated to address this comment.

17.2. Further assess the impacts wood collection and exotic plant invasion into adjacent vegetation, including Plains-wanderer habitat.

The likelihood and consequence of wood collection and disturbance to specialist breeding and foraging habitat (including from exotic plant invasion) has been updated in Table 78 of the amended BDAR.

17.3. Provide feasible measures to minimise or mitigate any identified impacts from exotic plant invasion or wood collection.

Feasible measures to minimise or mitigate impacts from exotic plant invasion and wood collection are described in Table 78 and Table 86 of the amended BDAR.

18.1. Include measures to minimise or mitigate impacts of sedimentation on threatened entities, including Plains-wanderer habitat, and specify monitoring requirements to ensure controls are effective.

Sedimentation risks can be managed through the implementation of standard erosion and sediment control practices. Spark Renewables has committed to managing and mitigating impacts to soil erosion through the implementation of measures outlined in Section 6.8.4 of the EIS, in accordance with industry standard practice. These measures include:

- minimising the extent and duration of land disturbance
- controlling water movement through the development footprint
- stabilising disturbed areas promptly
- maximising sediment retention on site
- maintaining drainage, erosion and sediment control measures
- monitoring and adjusting drainage, erosion and sediment control practices to achieve the desired performance standard
- constructing suitable watercourse crossings
- considering the erosion hazards posed by the dispersive subsoils during excavation of cable and pipe trenches and construction of roads, tracks and ancillary facilities.

Table 86 of the amended BDAR includes actions to minimise or mitigate impacts of sedimentation on threatened entities, including the development and implementation of erosion and sediment control measures.

19.1. Update Section 9 of the BDAR (including Table 83) to include mitigation measures that follow the SMART principles and address the identified impacts.

Chapter 9 of the amended BDAR has been updated to address this comment. A BMP will be prepared in consultation with BCS prior to the commencement of construction. The BMP will be prepared in accordance with the amended BDAR and will include further detail around proposed mitigation measures listed in Table 86 (including timeframes for implementation), as well as a program to monitor and report on the effectiveness of the proposed mitigation measures.

19.2. Ensure that the language in Table 83 sets out clear commitments.

Spark Renewables are committed to the implementation of the mitigation measures in Table 83 of the amended BDAR. While the measures proposed represent firm commitments it is not realistic to commit to measures that go beyond what is reasonable or feasible to implement. The measures have been prepared based on the information available at the time and acknowledge that environmental management of large-scale construction projects requires adaptive management guided by the principles of avoidance and minimisation of impacts.

The CEMP will be implemented consistent with the common conditions of consent for SSD projects that require proponents to minimise harm to the environment:

> All reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction, commissioning, operation, upgrading, rehabilitation or decommissioning of the development.

The measures proposed within Table 83 of the amended BDAR are considered appropriate. The BMP will be prepared in accordance with the amended BDAR and will include further detail around proposed mitigation measures listed in Table 86 (including timeframes for implementation), as well as a program to monitor and report on the effectiveness of the proposed mitigation measures.

19.3. Revise Table 83 to detail auditable mitigation and management measures to be implemented through post-approval plans. Amend Table 83 to include residual impacts and risk of failure.

As noted above, the measures proposed within Table 83 of the amended BDAR are considered appropriate. The BMP will be prepared in accordance with the amended BDAR and will include further detail around proposed mitigation measures listed in Table 86 (including timeframes for implementation), as well as a program to monitor and report on the effectiveness of the proposed mitigation measures.

19.4. Provide details in measure B2 to specify the criteria for micro-siting and pre-clearing survey requirements.

Measure B2 in Table 83 of the amended BDAR has been updated to include further information on pre-clearance survey requirements. As discussed in Measure B8 in Table 83 of the amended BDAR, the BMP will provide detail on survey requirements prior to micro-siting of infrastructure components within the development corridor and provide criteria that must be met to ensure there is no increase to the project's biodiversity impacts as a result of micro-siting during detailed design.

19.5. Detail how injured and uninjured animals will be treated, particularly with respect to relocation to nearby habitat. The BDAR should discuss what the potential impacts of any relocations/translocations of displaced fauna (particularly threatened species) may be on adjoining habitat and what measures (e.g. monitoring) will be used to minimise any detrimental effects on existing faunal populations that use such areas.

The measures to mitigate and manage impacts that are listed in Table 86 of the amended BDAR will be expanded upon in the BMP and will include further detail on how injured and uninjured animals will be treated during construction, particularly with respect to relocation to nearby habitat.

Management actions for injured birds and bats are described in Section 6.3 and Table A4 of the draft BBAMP (refer to BBAMP.10.1, BBAMP.10.2, BBAMP.10.3 and BBAMP.10.4 of Appendix 9 of the amended BDAR).

19.6. Remove requirements for handling and relocating Southern Bell Frog from Action B2, Table 83.

It is unclear why the handling and relocation of Southern Bell Frog was asked to be removed. The BMP will include standard hygiene protocols that would be implemented during the handling and relocation of Southern Bell Frog to mitigate the risk of introducing pathogens that are not already present in the area.

19.7. Document the mitigation priorities and strategies proposed to reduce impacts of predators on Plains-wanderer as indicated in Table 80.

As discussed in Measure B2 in Table 83 of the amended BDAR, the BMP will provide detail on priorities and strategies to reduce predators for Plains Wanderer. This is anticipated to include the implementation of coordinated feral animal control programs in consultation with host landholders, Local Land Services and NPWS.

The prescribed impact assessment needs to include all prescribed impacts and further assess the impacts to individual entities

20.1. Revise Section 8.3 of the BDAR to assess the prescribed impacts that the proposal will, or is likely to have, on threatened entities and their habitat in accordance with Section 8.3 of the BAM. The BDAR should include information on how each prescribed impact is likely to impact each specific species or guild.

Section 8.3 of the amended BDAR has been updated in response to this comment and a table summary of threatened species considered for each prescribed impact has been provided.

20.2. Revise the BDAR to include figures displaying corridors for different guilds (arboreal, terrestrial, aquatic, etc) to demonstrate that movement will not be impaired.

The impact of the project on habitat connectivity is considered in Section 8.3.2 of the amended BDAR. The project may reduce the width of habitat connectivity areas, but will not remove any key areas of connectivity for aquatic, arboreal or terrestrial species. Key connectivity through the subject land to external wildlife corridors will be maintained, including woodland, waterways, shrubland and grassland. The project will not result in the loss of, or substantial impacts to, key functional corridors within the landscape.

20.3. Assess the impact of the new network of access tracks on habitat connectivity for threatened entities.

The impact of access tracks on habitat connectivity for threatened species is considered in Section 8.3.2 of the amended BDAR. It is acknowledged that the new network of access tracks throughout the subject land has the potential to alter/reduce habitat connectivity, particularly for ground-dwelling threatened fauna; however, the nature, extent and consequences of this are not considered significant. Access tracks to be constructed as part of the project are expected to be level with the ground, or slightly elevated, and similar to existing farm tracks throughout the subject land. Ground-dwelling threatened fauna species are capable of crossing these kinds of tracks, and have been recorded on tracks both on-site and at other sites in the region. The proposed network of tracks is not expected to substantially or significantly affect habitat connectivity for these species.

20.4. Assess the risk of sedimentation (from clearing, construction and operation) on threatened species habitat for individual species during and after high rainfall events when water is moving through the landscape.

Sedimentation risks can be managed through the implementation of standard erosion and sediment control practices. Spark Renewables has committed to managing and mitigating impacts to soil erosion through the implementation of measures outlined in Section 6.8.4 of the EIS, in accordance with industry standard practice. These measures include:

- minimising the extent and duration of land disturbance
- controlling water movement through the development footprint
- stabilising disturbed areas promptly
- maximising sediment retention on site
- maintaining drainage, erosion and sediment control measures
- monitoring and adjusting drainage, erosion and sediment control practices to achieve the desired performance standard
- constructing suitable watercourse crossings
- considering the erosion hazards posed by the dispersive subsoils during excavation of cable and pipe trenches and construction of roads, tracks and ancillary facilities.

Table 86 of the amended BDAR includes actions to minimise or mitigate impacts of sedimentation on threatened entities, including the development and implementation of erosion and sediment control measures.

20.5. Include Southern Myotis and Corben's Long-eared Bat in the assessment of fauna that may use the site as a flyway or migration route

Prescribed impacts arising from the construction and operation of WTGs are not considered to be significant, given flyways for Southern Myotis and Corben's Long-eared Bat are anticipated to be below the RSA height. Further, WTGs have been preferentially located outside of optimal habitat for these species.

21.1. Include all threatened fauna in the vehicle strike assessment and provide mitigation measures to address all impacted species.

Threatened fauna considered in the vehicle strike impact assessment are listed in Table 84 of the amended BDAR. The potential for vehicle strikes can be effectively managed through the implementation of:

- reduced speed limits and signage
- education on fauna species, particularly threatened species, at risk from vehicle strike
- minimising project-related vehicle movements between dusk and dawn
- vehicle strike protocols, including contact numbers (e.g. WIRES) and steps to be undertaken in the event of a vehicle strike with an animal
- prompt carcass removal if collisions do occur to prevent further potential collisions with scavengers
- monitoring of roads and collisions and mapping of any hotspots where increased mitigation may be required.

21.2. Assess vehicle strike impacts for all roads and tracks constructed or used for the project.

Vehicle strike impacts have been assessed in Section 8.3.5 of the amended BDAR.

21.3. Detail the nature and extent of night vehicle movements and revise the assessment to include all additional species at risk of vehicle strike.

Vehicle strike impacts have been assessed in Section 8.3.5 of the amended BDAR. Project-related vehicle movements at night will be limited during construction and operations. During construction, night vehicle movements are anticipated to be required for OSOM deliveries and shuttle bus movements to/from the accommodation facilities. During operation, night vehicle movements are anticipated to be required for emergency equipment maintenance.

The Bird and Bat Adaptive Management Plan (BBAMP) and collision risk model need to be revised

22.1. Confirm the proposed lower tip height and update Figure ES1 in the EIS to match the assessed RSA or revise the assessment to address the additional impact of a lower tip height of 50 metres.

The amended project has:

- reduced the maximum upper tip height of each WTG from 280 m to 250 m
- reduced the blade length from 100 m to 86 m
- increased the minimum lower tip height of each WTG from 50 m to 64 m
- reduced the hub height from 180 m to between 150 m and 164 m.

The turbine risk assessments, species risk assessments and collision risk modelling have been updated to account for the amendments to the WTG dimensions (refer to Chapter 6 of the amended BDAR).

22.2. Update all results in the draft Bird and Bat Management Adaptive Plan (BBAMP), including Bird and Bat Use Survey results and collision risk modelling) if the lower tip height is 50 metres.

A draft BBAMP is included as Appendix 9 of the amended BDAR and has considered the amendments to the WTG dimensions described above.

23.1. Review the list of birds recorded at the subject land in Table A.5 and correct any potential misidentifications.

The list of birds recorded in the subject land has been updated. Some data entry coding errors have been corrected. All species were correctly identified in the field.

23.2. Update all results in the draft BBAMP after revising the species list.

A draft BBAMP is included as Appendix 9 of the amended BDAR and the results consider an up-to-date species list.

24.1. Revise the collision risk assessment in Tables 62 and 63 to include a column for 'Likelihood and nature of collision impacts'.

The collision risk assessments in Table A1 (birds) and Table A2 (bats) of Appendix 9 of the amended BDAR have been updated and include reference to the likelihood of collision risk as well as habitat values and behavioural considerations that informed the risk assessment for each species.

24.2. Include Painted Honeyeater and White-fronted Chat in the collision risk assessment.

Painted Honeyeater and White fronted Chat have been included in the risk assessment table in the draft BBAMP (refer to Appendix 1.1 of Appendix 9 of the amended BDAR).

25.1. Update triggers for Tier 1 and 2 non threatened 'at risk' species in consultation with BCS.

Triggers for Tier 1 (Table 10) and Tier 2 (Table 11) non-threatened 'at risk' species have been reviewed and updated as part of the preparation of the draft BBAMP (Appendix 9 of the amended BDAR). The draft BBAMP will be revised following further consultation with BCS and will be finalised post-approval.

25.2. In consultation with BCS review the turbine layout and, where appropriate, group turbines where they are in proximity to a landscape feature and treat them as a single turbine for the purpose of impact triggers.

As shown in Figure 2 of the draft BBAMP (Appendix 9 of the amended BDAR), several higher-risk WTGs have been grouped in management clusters for the purposes of assigning precautionary management principles and triggers. If one WTG within a cluster is subject to a trigger, all WTGs within the cluster would be subject to investigation. The draft BBAMP will be revised following further consultation with CPHR and will be finalised post-approval.

26.1. Revise the draft BBAMP framework in Section 9.1.2 in consultation with BCS, and ensure outcomes based on the results of the BBUS data are fully justified with supporting information and literature.

A draft BBAMP is included as Appendix 9 of the amended BDAR and has been informed by BBUS data and published literature on relevant bird and bat species.

26.2. Prepare a standalone BBAMP that is appended to the BDAR.

A draft BBAMP is included as Appendix 9 of the amended BDAR.

26.3. Ensure the measures in the BBAMP follow the SMART principles and set out clear and specific commitments.

Management actions and performance criteria are detailed in Appendix 8 of the draft BBAMP (Appendix 9 of the amended BDAR). The draft BBAMP will be revised following further consultation with BCS and will be finalised post-approval.

Potential Biodiversity Stewardship

27.1. Discuss any potential stewardship sites that may be within turbines area of influence with BCS.

Following lodgement of the submissions report amendment report, additional consultation with BCS and BCT will be undertaken on the proposed stewardship sites.

The assessment of Matters of National Environmental Significance requires review.

28.1. Amend Table 98 of the BDAR to include further justification to support excluding MNES species from further assessment.

Further information has been provided on EPBC Act listed species and communities and updated assessments are provided in Chapter 12 and Appendix 6 of the amended BDAR.

28.2. Amend section 12 of the BDAR and specifically address each of the bilateral assessment requirements as detailed in Attachment C to this response.

Further information has been provided on EPBC Act listed species and communities and updated assessments are provided in Chapter 12 and Appendix 6 of the amended BDAR.

28.3. Amend s12.1.7 of the BDAR to address MNES offset requirements covered by the bilateral agreement as per s6 in Attachment C of this response.

Offsetting of residual impacts to MNES is discussed in Section 12.1.8 of the amended BDAR.

28.4. After additional surveys for threatened flora are completed, review the significance assessments in Appendix 6 of the BDAR to ensure the validity of outcomes.

The significance assessments in Appendix 6 of the amended BDAR have been updated to reflect the outcomes of all surveys completed to date. Where relevant, survey gaps have been acknowledged in Appendix 6; however, it is considered highly unlikely that these species will be present based on survey effort to date within and outside the amended development footprint.

28.5. Provide specific information around the proposed additional offsets outlined in s12.1.7 of the BDAR for MNES.

Offsetting of residual impacts to MNES is discussed in Section 12.1.8 of the amended BDAR.

BAM and BOAMS administration

29.1. Add a new child case within the parent case in BOAMs for stage 2 of the development.

As shown in Chapter 13 of the amended BDAR, cases have been submitted for the overall project, enabling works, Stage 1 and Stage 2.

29.2. Add a new child case within the parent case to split the scattered trees by stage.

As shown in Chapter 13 of the amended BDAR, scattered trees have been split into two stages, Stage 1 and Stage 2. There are no scattered trees within the enabling works stage.

29.3. Revise Table 77 to present the scattered tree impact summary for Stage 1 and Stage 2. Revise Table 91 to present the scattered tree credit liability for each stage.

As shown in Table 92 and Table 93 of the amended BDAR, the scattered tree credit liability has been split into two stages, Stage 1 and Stage 2. There are no scattered trees within the enabling works stage.

4.10 Heritage NSW – Aboriginal Cultural Heritage

1. We recommend that additional documentation of the consultation process with Registered Aboriginal Parties (RAPs) is requested, including the following

a. Demonstrate Deniliquin LALC and Waddi Housing and Advancement Corporation were contacted as advised by Edward Rivers Council and Murrumbidgee Council

Waddi Housing and Advancement Corporation was contacted but no response was received. Deniliquin LALC was not contacted as the project is not within their jurisdiction. Following recommendations from Murrumbidgee Council and Edward River Council, invitations to register were sent to Griffith Local Aboriginal Land Council and Yarkuwa, respectively. Invitations to register for the ACHA are provided in Attachment B.3 of the amended ACHA (Appendix D.4 of the amendment report).

b. The project information and assessment methodology document dated 23rd of January 2023 lists Kevin Atkinson as a RAP, but he is not included on the RAP list in the ACHAR, please clarify the involvement of Kevin Atkinson.

Kevin Atkinson is the CEO of Bangarang Aboriginal Corporation and his involvement in the ACHA has been via this organisation.

c. Applicant needs to provide evidence that consultation was undertaken regarding the Draft ACHAR (such as an email with all relevant email addresses shown, if BCC was used for RAP emails a screenshot may be required) and provide any responses from the RAPs.

No comments were provided by RAPs during their review of the draft ACHA. Evidence of the distribution of the draft ACHA to RAPs is provided in Attachment B.5 of the amended ACHA (Appendix D.4 of the amendment report).

d. Only minutes for Aboriginal Focus Group (AFG) 1 are provided, while five AFG meetings are listed in the consultation log (Attachment B.1). Please provide minutes for the other AFGs, in particular AFG 5 which is noted as the meeting where RAP feedback on the Draft ACHAR was provided.

Copies of all AFG meeting minutes have been collated and provided in Attachment B.6 of the amended ACHA (Appendix D.4 of the amendment report).

2. Please provide detail on the application of the refined predictive model to the 32% of the development corridor that has not been subject to survey. Heritage NSW notes the identification of landforms of higher archaeological potential including source bordering dunes, paleochannels, gilgai and ephemeral wetlands; and the identification of highly disturbed landforms that have low archaeological potential including areas subject to laser levelling and construction of irrigation infrastructure; described as a result of the survey. Please identify any areas not yet subject to survey and assessment that will require consideration for the final design process. Also please include a consideration of appropriate management measures for potential impact to any unsurveyed landforms with archaeological potential identified through the application of the refined predictive model.

The combined field survey efforts encompassed ~450 km (~5,400 ha, or 85% of the development corridor) of pedestrian transects across the development corridor and included >1,000 individual points of observation and documentation. Following amendments to the project, approximately 15% of the development corridor has not been surveyed.

An additional management measure has been included in Table 11.1 of the amended ACHA (AH03), recommending that additional survey be undertaken for specific portions of the development corridor that have not been surveyed as part of the amended ACHA and that are predicted to contain cultural materials. If any Aboriginal objects and/or sites are identified during these works, they will be integrated into the Aboriginal Cultural Heritage Management Plan (ACHMP).

3. Please provide the proposed management recommendations for all sites that are identified to be potentially subject to impact.

Specific management recommendations will be developed as part of the ACHMP in consultation with RAPs. Guiding principles proposed to manage sites potentially subject to impact are provided in Attachment F of the amended ACHA (Appendix D.4 of the amendment report).

4. Please clarify the meaning of recommended management measure 'the installation of underground/detectable tape at depths of 50 cm below current ground surface across the surface of the cultural deposits' in Attachment F. Section 1.2. Will this require ground disturbance?

This management measure was unintentionally included in the report and has been removed.

5. Traffic upgrades to the Kidman Way, Mclennons Bore Road, Fernbank Road, Wilson Road and Goolgumbla Road are listed in the Traffic Impact Assessment Report as including the increase in width of roads between to 4-5m to 10m width (8m road surface with 1m shoulder each side). The road upgrades are outside project area of the provided ACHAR. If upgrades involve ground disturbance, please provide assessment of the potential impacts to Aboriginal Cultural Heritage as required in the SEARs.

Parts of McLennons Bore Road, Goolgumbla Road, Wilson Road, Kidman Way and Newell Highway that are proposed to be upgraded have been surveyed as part of the amended ACHA (refer Figure 7.1 of Appendix D.4 of the amendment report). This included survey at the intersection of Newell Highway and Kidman Way.

A visual inspection of the proposed Eunony Bridge Road/Sturt Highway intersection upgrade occurred in February 2025, with subsequent inspections of the Olympic Highway/Sturt Highway intersection and Byrnes Road/West Bomen Road intersection upgrades in May 2025. All three inspections identified the localities as retaining low archaeological sensitivity and is discussed in Section 7.2 of the amended ACHA (Appendix D.4 of the amendment report).

Upgrades to Fernbank Road will occur within the predominantly disturbed road corridor that dissects DEHW-OA9 (#55-1-0143). Any site-specific mitigation measures will be developed as part of the ACHMP (AH04).

4.11 Murrumbidgee Council

Council can confirm that:

1. It supports the development.

2. The reasons it supports the project is that it is committed to renewable energy and that Spark Renewables have committed to the funding of community, and neighbourhood benefits which will result in measurable, relevant and intergenerational community, neighbourhood and Indigenous benefits.

Spark Renewables acknowledges Murrumbidgee Council's support for the project.

1. Traditional Lands

Council advises that the constant referral throughout the EIS to the traditional lands upon which the proposed Dinawan Wind Farm as being on Wiradjuri land is incorrect.

Council refers you to the attached map originally drawn up in the 1940's that establishes the site of the proposed Dinawan Wind Farm is on the traditional lands of the Jeithi Tribe (Norman Tindale 1974).

Any discussions therefore must be conducted with representatives of the current Jeithi Tribe in the preparation and finalisation of the Aboriginal Participation Plan.

Spark Renewables acknowledges the comments provided by Murrumbidgee Council. Spark Renewables and EMM have engaged extensively with senior knowledge-holders within the region for over two years. Inputs from First Nations stakeholders have informed the Acknowledgement of Country that is provided in the EIS, which acknowledges the Wiradjuri people and several smaller nations of the Murrumbidgee plains as the Traditional Owners of the land on which the project is proposed. As part of the preparation of the Aboriginal Participation Plan, Spark Renewables will engage with representatives from First Nations communities within both Edward River and Murrumbidgee local government areas to ensure representation from multiple geographies and in recognition of the scale of the project and the opportunities it could provide for First Nations peoples.

Spark Renewables has also met with representative from the South West REZ First Nations Working Group to present its Aboriginal Participation Plan, which is intended to provide opportunities to local First Nations communities during the construction and operation of the project.

2. Voluntary Planning Agreement

Section 5.7 of the EIS discusses a Community Benefit Sharing and Voluntary Planning Agreement.

Council is committed to agreeing to a VPA with Spark Renewables and has had initial discussions with representatives from Spark to achieve intergenerational community projects.

Council is determined that the community projects identified and included, following community consultation, in Council's current Development Contribution Plan are achieved.

Recommended Condition of Consent

i. That Spark Renewables enter into a Voluntary Planning Agreement with Murrumbidgee Council to achieve the intergenerational community projects listed in the Murrumbidgee Council Developer Contributions Plan prior to any Construction Certificate being issued.

Spark Renewables is committed to delivering a project that provides a positive legacy for the local community. The key terms of the community benefit sharing program and VPAs that have been agreed upon with Murrumbidgee Council are listed in Section 5.7 of the EIS. Spark Renewables acknowledges the recommended condition of consent from Murrumbidgee Council and does not object to undertaking these requirements.

3. Bushfire

Section 6.10 of the EIS discusses the potential risks from bush fire and commits to the preparation of a Fire Management Plan that addresses a range of matters in conjunction with the NSW Rural Fire Service Guidelines.

Due to the associated potential risks to surrounding landholdings and fire-fighting personnel Council is committed to ensuring that fires within wind farms are able to be extinguished both safely and expeditiously whilst having a minimal effect on surrounding properties and the resources of existing community based local RFS brigades.

The EIS states that the eastern area, within Murrumbidgee LGA, is not mapped as bushfire prone Land. This is incorrect as the land is subject to a draft plan not yet adopted.

The draft plan indicates that the majority of the site is in fact bush fire prone land.

Therefore, in addition to the requirements listed by the NSW Rural Fire Service – Planning for Bush Fire Protection 2019, the Fire Management Plan (referred to in Table 6.32) must contain a Risk Report and Plan as set out by the NSW Planning Hazardous Industry Planning Advisory Paper No. 2 - Fire Safety Study Guidelines.

Spark Renewables acknowledges Murrumbidgee Council's comment that the majority of the project area is identified as bush fire prone in the draft bush fire prone land map, noting it is yet to be certified by the RFS.

Key issues such as bushfire hazard, including the requirement to demonstrate compliance with *Planning for Bushfire Protection* (RFS 2019), have been addressed within the amended bushfire assessment report (Appendix D.7 of the amendment report) for the entire project area (including areas currently not mapped as bushfire prone land).

The amended bushfire assessment report (Appendix D.7 of the amendment report) includes mitigation measures to manage on-site bushfire risks during construction and operations. The Fire Management Plan will include details of access, equipment and resources to manage fire. Static and mobile water supply and firefighting equipment will be provided on-site to respond to fires.

As described in Section 6.11.4 of the EIS, the project is not considered to be 'potentially hazardous' and does not require a preliminary hazard analysis. Further, as a battery energy storage system is not proposed as part of the project, a risk report and plan as set out by *Hazardous Industry Planning Advisory Paper No. 2 - Fire Safety Study Guidelines* is not required as this guideline is not applicable.

Recommended Condition of Consent

a. The Fire Management Plan is to be developed and submitted to Council and the RFS for approval prior to the issue of a Construction Certificate that addresses the following:

i. A summary of fire hazards and risks to and from the site, specific to its location, infrastructure, activities and occupancy. Fire Management Plan Structure and Content is to be based on sound hazard identification and risk management processes. This must include risks to firefighter safety during emergencies.

ii. Description of control measures to prevent and reduce the consequences of external fire impacting the facility, including Fire permits, ignition source controls, hot work permits, job hazard analyses, infrastructure, vehicle, equipment, road, fence, access maintenance, waste management, compliant dangerous goods storage and handling, vegetation/fuel reduction and management.

iii. Description of control measures to prevent and reduce the consequences of external fire impacting the facility, including Bushfire monitoring, bushfire preparedness, reduced personnel presence/ activities/travel on days of Severe and above Fire Danger Rating, creation and management of fire breaks at the site perimeter and around infrastructure, vegetation/fuel reduction and management, Emergency Plan.

iv. Details of equipment and resources to manage fire at the facility, addressing Performance standards for risk controls, specific activities to verify controls (servicing/maintenance, housekeeping inspections, external audits), review processes for risk control effectiveness

v. Procedures for review of the Fire Management Plan. Review triggers and schedule, organisational accountability for the Plan, allocated responsibilities (to persons or roles) for the ongoing review and development of the Plan.

Spark Renewables acknowledges the recommendations from Murrumbidgee Council and does not object to undertaking these requirements. A Fire Management Plan will be prepared in consultation with the NSW RFS District Office for the Mid Murray Zone, Argoon and Goolgumbla Rural Fire Brigades. With regards to reduced personnel presence, activities and/or travel on severe and above fire danger ratings, the Fire Management Plan will include consideration of activities that may be exempt on periods of total fire ban days.

b. An Emergency Management Plan is to be developed and submitted to Council and the RFS for approval prior to the issue of a Construction Certificate that includes:

i. A facility description, including infrastructure details, operations, number of personnel, and operating hours.

ii. A site plan depicting infrastructure (substations, grid connection points, transmission lines, dangerous goods storages, buildings, bunds), site access points and internal roads; fire services (water tanks, pumps, booster systems) drainage and neighbouring properties.

iii. An emergency response procedure for each credible emergency event and scenario, based on a comprehensive risk management process.

iv. Up-to-date contact details for facility personnel, and any relevant off- site personnel that could provide technical support during an emergency.

v. Evacuation procedures and where appropriate, shelter-in-place procedures for facilities at-risk of bushfire or grassfire, if it is too late to evacuate.

vi. Details of emergency resources, including fire detection and suppression systems and equipment; gas detection; emergency eye- wash and shower facilities; spill containment systems and equipment; emergency warning systems; communication systems; personal protective equipment; and first aid.

vii. A manifest of dangerous goods (if required under the Dangerous Goods (Storage and Handling) Regulations 2022).

Spark Renewables acknowledges the recommendations from Murrumbidgee Council and does not object to undertaking these requirements. A bushfire emergency management and evacuation plan will be prepared in consultation with RFS in accordance with Table 6.8d of *Planning for Bushfire Protection* (RFS 2019). It will be consistent with *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* (RFS 2014).

4. Traffic

Recommended Condition of Consent

i. The Transport mitigation measures listed under Table 6.23 are to be included in the proposed Construction Traffic Management Plan and are to be undertaken and completed at the full cost of the developer.

ii. That the Construction Traffic Management Plan listed under Table 6.24 is to be submitted to Council for approval prior to any Construction certificate being approved and is to include provisions for the inspection, in conjunction with representatives of Murrumbidgee Council, of all roads proposed to be utilised by the developer during construction and operational phases, to determine the current conditions of these roads in order that these roads will either be kept in an acceptable condition during the construction period or returned to a satisfactory condition post construction.

iii. Water from the existing dams located within the road reserves of Wilsons Road, McLennons Bore Road, Cadell Road or any other road within the Murrumbidgee Council area can not be used for road construction or maintenance purposes or for any other purpose.

Spark Renewables acknowledges the recommendations from Murrumbidgee Council. The Construction Traffic Management Plan (CTMP) and Road Maintenance Strategy will be prepared in consultation with Murrumbidgee Council.

A dilapidation survey will be commissioned prior to the start of construction to assess the existing condition of the sections of McLennons Bore Road, Fernbank Road, Wilson Road and Goolgumbla Road that will be used by project-related vehicles. The requirements for, and timing of, dilapidations surveys will be discussed with Murrumbidgee Council as part of the preparation of the CTMP.

Water from existing dams within the road reserves of Wilsons Road and McLennons Bore Road, or any other road within the Murrumbidgee Council LGA will not be used for road construction or maintenance purposes or for any other purpose.

5. Accommodation Camp

The EIS states that a workers accommodation camp is to be constructed as part of the early stages of the project, however does not appear to reference the design, required approvals or any proposed management of this camp.

Recommended Condition of Consent

i. The developer is to submit details of the proposed workers accommodation plan prior to the issue of any Construction Certificate, including but limited to, site layout and design, numbers and types of facilities and amenities, waste water management, potable water sources, general waste management, off street car parking, certification of buildings, fire protection services and evidence of approval under the Local Government Act 1993 and Environmental Planning & Assessment Act 1979.

Approval for the accommodation facility to be constructed as part of the project is sought as part of the SSD development application for the Dinawan Wind Farm. Any development consent issued for the Dinawan Wind Farm will therefore constitute approval under the EP&A Act for the construction and operation of this facility.

Spark Renewables appreciates the guidance provided by Murrumbidgee Council in February 2025 regarding secondary approvals necessary for the operation of the accommodation facility, which are permits for on-site wastewater management and commercial kitchen operations.

The impacts of the accommodation facility have been assessed in the EIS. The accommodation facility is described in Section 3.3.5 of the EIS, which includes a description of the accommodation facility, including intended capacity, key components and location. In addition, Section 3.3.7 of the EIS describes key requirements during the operation of the accommodation facility including water, telecommunications, sewage treatment, electricity, diesel, grease and waste management.

Spark Renewables will provide further details on the accommodation facility to Murrumbidgee Council once further detailed design is completed, including:

- design and site layout
- details of facilities and amenities
- water sources
- wastewater management
- general waste management
- parking
- fire protection measures
- requirements for building certifications
- any other approvals.

Spark Renewables will develop and implement an accommodation facility management plan in consultation with Edward River Council and Murrumbidgee Council prior to commencement of construction to ensure the accommodation facilities comply with relevant standards and requirements.

6. Waste

The management of waste from the development as discussed under Section 6.14 is to be undertaken in accordance with Council's existing Policy that prohibits any waste generated by a renewable energy development from being disposed of in any landfill or waste water treatment plant within the Murrumbidgee Council area.

Recommended Condition of Consent

i. The use of any landfill, transfer station or waste water treatment plant within the Murrumbidgee Council area for the disposal of any waste generated during the construction and the operation of the proposed wind farm is prohibited.

All waste produced during construction will be transported to a licensed waste facility by Spark Renewables personnel or subcontractors. Waste will be segregated where possible to enable recycling and reduce landfill contributions. Licensed transport and disposal processes will be used to ensure full compliance with state and local regulations and will not require utilisation of Murrumbidgee Council's waste transport vehicles.

Waste management facilities with potential to accept the project's general waste have been identified. Four large-scale, licensed waste management facilities that accept commercial and demolition waste have been identified within 250 km of the project (including facilities in Griffith, Leeton, Wagga Wagga and Albury). These

facilities are equipped to accept construction waste in compliance with environmental and regulatory standards. The combined annual waste capacity of the identified facilities demonstrates sufficient capacity to accommodate the project's waste volumes. Acceptance of project-related waste will not exceed the facilities' operational tolerances or impact their ability to service the wider community.

Letters of enquiry have been distributed to all identified facilities to confirm their capacity to accept the expected quantities of waste generated by the project. Consultation will continue and final quantities and arrangements will be confirmed to ensure compliance with waste management obligations.

A detailed waste management plan will be prepared prior to each project phase identifying the type, quantity, classification and management of waste in consultation with DPHI, Murrumbidgee Council and Edward River Council.

7. Cumulative Impacts

Section 6.15 of the EIS does not adequately address the impact of Health Care services other than rely upon a first aid station at the camp and transport to Griffith for further attention. It is entirely possible that the nearest hospital and doctor's surgery, both at Jerilderie, will be hugely affected by the three accommodation camps located within 30kms of Jerilderie.

Spark Renewables is committed to continuing to engage with Murrumbidgee Council and Edward River Council to identify potential service limitations and will implement measures such as provision of on-site medical facilities and identification of preferred telehealth providers to reduce competition for local services such as medical and general practitioner services.

Further, the cumulative impact of three major renewable energy developments (Yanco Delta, Spark Renewables and RES Argoon) plus the Dinawan accommodation camp and substation site has not been satisfactorily addressed in this EIS or the others despite anecdotal evidence that telecommunications and traffic are already severely affected.

Recommended Condition of Consent

i. Further consideration and assessment of the cumulative impact of three major renewable energy developments (Yanco Delta, Spark Renewables and RES Argoon) plus the Dinawan accommodation camp and substation site will have on local health care facilities, telecommunications and traffic.

Murrumbidgee Council's comments regarding cumulative impacts are acknowledged. The EIS and amendment report for the project have considered cumulative impacts associated with the concurrent construction of the project and Yanco Delta Wind Farm, Argoon Wind Farm, Dinawan Solar Farm and VNI West (refer Section 6.15 of the EIS and amendment report). The likely construction sequencing and scale of these projects will become clearer following the release of access rights for the South West REZ; however, it is considered unlikely that these developments will be constructed concurrently and at the scale presented in their environmental assessment and approval documentation. Following the award of access rights, project proponents (including Spark Renewables and Origin Energy) will be able to engage constructively on measures to address potential cumulative impacts.

Cumulative impacts to local health care facilities are considered in the Social Impact Assessment prepared for the project (Appendix E.14 of the EIS). As described in Section 6.15.3 of the EIS, to address the project's potential increase to demand for health services, an on-site first aid room will be established at the accommodation facility and will be staffed by personnel with suitable first aid/medical training.

It's acknowledged that during construction, the use of the mobile network by the project's construction workforce may impact network availability for neighbouring landowners.

Cumulative traffic impacts associated with nearby developments are described in Section 6.15.3 of the EIS. The primary local road that will experience traffic from all the proposed developments will be Kidman Way. Cumulative traffic on Kidman Way will not result in significant impacts for road users. Kidman Way is expected to operate at level of service (LOS) B during the AM and PM peaks and will be able to perform at an acceptable level with the additional cumulative traffic volumes. Proposed intersection upgrades will be sufficient to accommodate cumulative traffic volumes.

ii. The Social Impact Management Plan, Industry Participation Plan and the Aboriginal Participation Plan are to be submitted to Murrumbidgee Council for assessment and approval before any Construction Certificate can be issued.

Spark Renewables will consult with Murrumbidgee Council during the preparation of the project's Social Impact Management Plan, Industry Participation Plan and Aboriginal Participation Plan.

4.12 National Parks and Wildlife Services

1. Telecommunications

On review of the Appendix E10 - Dinawan Wind Farm Telecommunication Impact Assessment Middleton Group Engineering Pty Ltd, dated 30 May 2024 (TIA).

The TIA has adequately addressed the current fixed telecommunications systems and considered potential affects and offered mitigation measures. Overall the analysis concluded that no significant interference is expected to any link, NPWS agrees based on Australia Standards and compliance with the Radiocommunications Act 1992, 2020 ICNIRP Health Guidelines and equipment manufacturers.

The issues raised by NPWS are about the inadequacies of the current fix telecommunications system in this locality, and the agency's reliance on seasonal and emergency deployment of temporary towers (or Cell on Wheels) for periodic and emergency works to augment the radio network. These systems have not been considered as part of the TIA. NPWS accepts that they are not registered on the Australian Communication and Media (ACM) system and are variable in application, but the remain critical to our land management operations. NPWS is reliant on these portable towers to establish and ensure reliable coverage during high risk program delivery inclusive of aerial shooting, baiting and wildfire response. This is critical to both ground based and aerial responses. This has not been addressed as part of the TIA.

NPWS recommends

Revising the EIS and the TIA to ensure

1.1. use of the mobile communication systems, deployment of temporary towers (or Cell on Wheels) for periodic and emergency works to ensure reliable radio coverage during NPWS high risk program delivery is considered, assessed and residual risk articulated with respect to NPWS estate and the NSW Telecommunication Authority as the radio network operator.

1.2. future operational plans for the wind farm are to ensure the current VHF simplex channels, future UHF PSN Trunking services and mobile systems remain operational post wind farm construction. NPWS simply requests a set pathway to report and seek resolution to any telecommunications links or performance issues resulting from the wind farm.

Spark Renewables acknowledges NPWS's comment that the Telecommunication Impact Assessment prepared for the project (Appendix E.10 of the EIS) has adequately addressed the current fixed telecommunications systems. It is noted that this assessment has been updated to assess potential telecommunication impacts associated with the amended WTG layout; however, the assessment findings have not changed, and impacts to point-to-point microwave links are not expected. During a meeting with NPWS, it was acknowledged that potential impacts on

mobile and/or temporary communication systems utilised by NPWS could not be assessed as part of the Telecommunication Impact Assessment.

Spark Renewables is committed to maintaining a strong working relationship with NPWS during the construction and operation of the project. Should any concerns arise regarding the performance of NPWS's telecommunications infrastructure (including temporary towers) after the installation of the WTGs, Spark Renewables will engage with NPWS to address these concerns.

2. Aviation

On review of the Appendix E9 – Aviation Impact Assessment Dinawan Wind Farm (E220305) prepared by Aviation Projects Pty Ltd, dated 29 May 2024 (AIA).

The AIA makes no reference to NPWS as a government agency, bush fire firefighting authority or land manager with respect to aviation impacts attached to low-flight aerial operations. Nor has the AIA address the implications aerial operation across this landscape based on the Oolambeyan National Park and the South West Woodland Nature Reserve complex, especially considering the disconnected nature of the nature reserves in this landscape.

NPWS conducts low flight operations, often low visibility operations for both land management and emergency purposes using both rotary and fixed winged aircraft. The AIA also failed to mention the currently operations helipads used by NPWS within 30km of wind farm as raised. NPWS's policy is that the agency may respond to bush fires threats within 8kms of its estate boundary, at the discretion of the NPWS Area Manager. The NASF Guideline D: Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers also requires identification of safety risks posed by wind turbine generators or wind monitoring installations from an aviation perspective.

NPWS recommends

Revising the EIS and AIA to ensure:

2.1. un-certified Aircraft Landing Area (ALA) as aerodrome (helipad) located on Oolambeyan National Park (as the Old Cricket Pitch) is considered. NPWS also highlights that temporary aircraft landing facilities, or emergency landing can occur anywhere on NPWS estate during a state of emergency or medical evacuations.

2.2. direct and cumulative impacts associated with renewable energy development (wind farms) on NPWS operations, with recognition of likely increased aviation hazards, radar and communication system interference, as it relates to emergency and operational use of NPWS estate are assessed.

Based on consultation with NPWS, it is understood that several aerial operations can occur in Oolambeyan National Park each year, including aerial baiting and firefighting operations. NPWS use the old cricket pitch within Oolambeyan National Park as an aircraft landing area. The distance between the old cricket pitch and the closest WTG is approximately 24 km and the distance between the closest WTG and Oolambeyan National Park is approximately 11 km.

Spark Renewables will continue to engage with local aerial agricultural and aerial firefighting operators, including NPWS, to develop procedures for their safe operation within the project area. Spark Renewables is committed to maintaining a strong working relationship with NPWS during the construction and operation of the project.

4.13 NSW Rural Fire Service

The Bush Fire Assessment Report (Ref W23032, dated 24/05/2024) has addressed the requirements of Section 8.3.5 of Planning for Bush Fire Protection 2019 and the items listed in our correspondence dated 17 March 2023. The NSW Rural Fire Services raises no objections to the proposal progressing subject to adoption of recommendations 1 to 8 (and the associated mapping provided in Appendix 2) of the above referenced report.

Spark Renewables acknowledges that NSW RFS have no objections to the project.

It should be noted that the proposed development creates an asset with an extensive perimeter that may exceed the current capacity of local fire fighting resources. Servicing and infrastructure delivery for the proposal should include the consideration of operational response for emergency services. In considering future operational fire fighting infrastructure, the proponents should;

- identify what proposed servicing arrangements are required for operational response;
- identify whether proposed servicing arrangements are practical;
- present the proposal to the Mid Murray Zone Bush Fire Management Committee and discuss any impacts on the combat agencies operational capacity.

A Fire Management Plan will be prepared in consultation with the NSW RFS District Office for the Mid Murray Zone, Argoon and Goolgumbla Rural Fire Brigades. As part of the preparation of the Fire Management Plan, Spark Renewables will:

- identify what proposed servicing arrangements are required for operational response
- identify whether proposed servicing arrangements are practical
- present the proposal to the Mid Murray Zone Bush Fire Management Committee and discuss any impacts on the combat agencies operational capacity.

The Fire Management Plan will include details of the access provisions for emergency vehicles and contact details for both a primary and alternative site contact who may be reached 24/7 in the event of an emergency. The access points nominated for the project will not inhibit the ability of emergency response vehicles to access the site from other locations in the event of an emergency.

During the preparation of the Fire Management Plan, members of the NSW RFS District Office for the Mid Murray Zone, Argoon and Goolgumbla Rural Fire Brigades will be able to provide input into suitable emergency access points for the project.

4.14 Transport for NSW

4.14.1 High-risk OSOM route assessment

i General additional information required for both high-risk OSOM routes

1. The application proposes the traffic of heavy mass vehicles and vehicles with very large axle group loadings, which may be an issue for older short-span bridges. The OSOM route will require bridge assessments to be undertaken.

It is anticipated that axle loads will be within design specifications for bridges on major state roads and highways. Where OSOM vehicles deviate off state roads, further engagement with local councils will be required to confirm load limits for bridge structures.

The selection of the final WTG model for construction, confirmation of weights and dimensions for OSOM deliveries and selection of the OSOM transport contractor will influence vehicle configurations and axle loadings.

Load limits for bridges along the proposed OSOM routes will be reviewed as part of the preparation of the CTMP and prior to the commencement of the NHVR permit process for OSOM vehicles.

2. An extensive review of the height obstructions along the high-risk OSOM route (e.g., powerlines and gantry heights) is required, and mitigation measures must be identified to navigate them.

As part of the preparation of the amended OSOM route study (Appendix B of Appendix D.5 of the amendment report), overhead structures, including tunnel clearances, bridges, gantries and signs were identified and these limitations will be used to inform the maximum loaded height of OSOM vehicles proposed to utilise each route.

Overhead powerlines along each of the assessed routes may require permanent lifting and/or relocation. Following selection of the final WTG model for construction and confirmation of dimensions for OSOM deliveries (including maximum heights), overhead powerline surveys will be conducted for each route to allow sufficient time for any upgrades to be performed by the relevant power authorities.

3. Swept path analysis for intersections required for the high-risk OSOM movements for the largest high-risk OSOM design vehicle for the key intersections and accesses with the State Road network are required to accompany the revised TIA. The strategic concept designs will need to be revised to include the necessary pavement for the high-risk OSOM design vehicle if the swept paths identify that the OSOM design vehicle turning arc cannot occur within the existing or proposed pavement.

The amended OSOM route study (Appendix B of Appendix D.5 of the amendment report) has been updated to assess the proposed routes for OSOM vehicles. The routes have been revised in some sections compared to the routes presented in the EIS. There has also been a change to the specifications of the WTG blade and tower components. At locations where additional pavement is required to accommodate turning movements of vehicles, high level concept designs have been prepared. These are included in the addendum TIA (Appendix D.5 of the amendment report).

4. The RJA route assessment and Traffic Impact Assessment (TIA) is contingent upon road upgrades provided by EnergyCo from Port of Newcastle to Elong Elong. The applicant must review pavement extents and scope of works to ensure vehicle configurations and swept paths for this project's higher-risk OSOM align with the scope of the P2R project, particularly the relocation of traffic signals at George Street, Industrial Drive and Mayfield Road intersection. Evidence of the assessment of consistency with P2R project is required as a part of the revised route study.

The vehicle configurations and route from the Port of Newcastle to Elong Elong are consistent with the Port to REZ (P2R) Project. A review of the routes against the P2R Project upgrades is included in Section 20 of the amended OSOM route study (Appendix B of Appendix D.5 of the amendment report).

5. The swept paths for the route assessment are required to be based on the longest high-risk OSOM design vehicle and component for the project, which is the blade component and vehicle configuration. The swept paths within the route assessment have been based on the power train component, which is not the longest design vehicle for the project. The swept paths in the route analysis are required to be updated with a revised swept path analysis for the blade movement, which is the longest high-risk OSOM design vehicle and load for this project.

The amended OSOM route study assesses three routes:

- Route 1: Newcastle to Dinawan Wind Farm – blades (maximum loaded height 5 m) (via Sydney – NorthConnex)
- Route 1A: Newcastle to Dinawan Wind Farm – blades (maximum loaded height 5 m) (via Sydney – NorthConnex) – this includes an option for the blades to detour the Wagga Wagga rail bridge
- Route 2: Newcastle to Dinawan Wind Farm – towers (maximum loaded height 6.1 m) (via Central West NSW)
- Route 3: Newcastle to Dinawan Wind Farm – nacelles, generators, drive trains, hubs and smaller components (maximum loaded height 5.3 m) (via Sydney – Pennant Hills Road)

Swept paths for the route assessment are based on the longest high-risk OSOM vehicles for the respective route (i.e. blades for Route 1 and Route 1A and tower components for Route 2). Swept paths have not been provided for Route 3 as no issues were identified for the infrastructure proposed to be delivered using this route.

6. Strategic concept designs are required for each high-risk OSOM route for any road upgrades or modifications required to the State road network.
Note: Results of the bridge assessments may result in a change to the route which must be provided in an updated route assessment.

Concept designs are included for locations where road upgrades require additional pavement to be constructed and upgrades are not currently proposed as part of the P2R project. This includes:

- Kidman Way/McLennons Bore Road (Gala Vale)
- Newell Highway/Kidman Way (Bundure)
- Eunony Bridge Road/Sturt Highway (East Wagga Wagga)
- Olympic Highway (Moorong Street)/Sturt Highway (Wagga Wagga)
- Byrnes Road/West Bomen Road (Bomen).

The concept design are included in the addendum TIA (Appendix D.5 of the amendment report).

ii Rail comments in relation to the OSOM routes-both routes

7. Two routes have been proposed for high-risk OSOM vehicles access to the site:
a. Access Route from the Port of Newcastle to Site – Option 1, this Heavy Vehicle access route will be crossing CRN rail corridor at two locations:
   I. Sturt Highway: Crossing at non-operational rail corridor from Narrandera to Tocumwal at Narrandera as shown in Figure 1
   II. Proposed Route Hume Highway: Crossing non-operational rail corridor from Cootamundra to Gilmore at Coolac as shown in Figure 2.
The applicant must also note that the proposed route Option 1 crosses ARTC and Sydney Trains rail corridor and level crossings at several locations.

b. Access Route from the Port of Newcastle to Site – Option 2. The route proposed in Option 2 will cross CRN rail corridors at (7) locations:

I. Sturt Highway: Crossing non-operational rail corridor from Narrandera to Tocumwal rail corridor at Narrandera as shown in Figure 3.

II. Newell Highway: Crossing operational rail corridor from Junee to Narrandera at Narrandera as shown in Figure 4.

III. Newell Highway: Crossing non-operational Barmedman to Rankins rail corridor at Alleena as shown in Figure 5.

IV. Newell Highway: Crossing operational rail corridor from Temora to Griffith at Mirrool as shown in Figure 6.

V. Henry Parkes Way: Crossing Vehicle and Pedestrian Level Crossing on CRN Operational rail corridor from Molong to Parkes at Parkes as shown in Figure 7.

VI. Newell Highway: Crossing operational West Wyalong to Unagarie rail corridor at West Wyalong as shown in Figure 8.

VII. Golden Highway: Crossing non-operational rail corridor from Sandy Hollow to Merriwa near Maitland Street Gungal Figure 9.

The applicant must be aware of the crossings on CRN rail corridors and is to include information on the crossings shown above and any other identified crossings of the CRN rail corridor in the updated EIS documents. In addition, if any adverse impacts to CRN corridors are identified in the EIS documents, the applicant shall seek approvals from UGLRL. Please also note that the applicant must adhere to the transport management and safety requirements of UGLRL and TfNSW.

The amended OSOM route study includes identification of rail crossing points for each of the assessed routes. An assessment of 10 rail crossings has been completed including those identified by TfNSW. All rail crossings were checked for conflicts, considering the width and vertical curve, and all crossings are suitable for the stated loads proposed to use each route. In addition to the rail crossings, there are a number of rail over-bridges along each route, which will require approval from relevant authorities before loads can access the relevant route.

Interactions with rail infrastructure will require approval from relevant authorities before loads can access these routes, including identifying relevant transport management and safety requirements of UGLRL, TfNSW, ARTC and other operators as required. Spark Renewables has commenced consultation with UGLRL and ARTC regarding potential interactions with level crossings, under-bridges and over-bridges and are committed to continuing this engagement throughout the assessment and approval process.

It is advised that the proposed haulage routes would also be crossing the rail corridors managed by Agencies other than TfNSW. It is recommended that the DPIE should refer this application to other relevant agencies (e.g. ARTC and Sydney Trains).

Interactions with rail infrastructure will require approval from relevant authorities before loads can access these routes, including identifying relevant transport management and safety requirements of other operators as required. Spark Renewables has commenced consultation with UGLRL and ARTC regarding potential interactions with level crossings, under-bridges and over-bridges and are committed to continuing this engagement throughout the assessment and approval process.

iii High risk OSOM route 1: Port of Newcastle via Sydney and Hume Highway

8. The RJA route study does not include relevant TfNSW projects on the state road network. The route study must be updated to include TfNSW projects that have commenced or have been completed and mitigation measures to navigate any identified pinch points. The Hexham Straight is a notable project impacting Route 2 and the route assessment must be updated to assess the alternative route via Newcastle Inner City Bypass to Newcastle Road, for high-risk OSOM loads that do not exceed the vertical clearance limitations.

Section 19 of the amended OSOM route study (Appendix B of Appendix D.5 of the amendment report) considers potential conflicts with TfNSW road upgrade projects. Of note, the following projects would require monitoring of status to address any issues with OSOM transport and conflicts with construction activities:

- Hexham Straight Widening Project – estimated completion is during 2026. While limited OSOM deliveries may commence from mid-2026, it likely that the majority of OSOM movements will be completed in 2027/2028, after completion of the Hexham Straight Widening Project.

- M1 to Raymond Terrace Project – estimated completion is during 2028. If OSOM transport and road upgrades coincide, there is potential for disruption and delays which will require appropriate planning, particularly during widening of the New England Highway at Tarro and construction of new and modified ramps. Once completed, the upgrades would have a beneficial impact for the project.

The following measure is proposed to manage interactions between construction works and OSOM transport:

- monitor TfNSW's interactive portal and consult with TfNSW during detailed design and transport route planning to manage potential interactions.

9. Details of road geometry and alignment along the identified transport route/s, including existing formations, crossings, bridges, intersection treatments and any identified hazards, including each at-risk road structure i.e bridges, traffic signals, signage, powerlines, major and minor culverts.

Swept path assessments within the amended OSOM route study and the strategic concept designs for each of the identified road upgrades include details of road geometry and other features.

10. Include an assessment of the pull-over locations and rest areas that includes the following:
a. Locations (including GPS coordinates) and dimensions, and
b. swept path analysis for the largest high-risk OSOM vehicles demonstrating the largest design vehicle can physically enter, exit and park without impacting travel lanes with respect to pull over locations or public parking within rest areas.

Suitable locations for parking are summarised in Figure 5.1 and Figure 5.2 of the addendum TIA (Appendix D.5 of the amendment report). The amended OSOM route study (Appendix B of Appendix D.5 of the amendment report) includes an assessment of parking areas that can be used for fatigue breaks and overnight parking. For each of the routes, parking areas are considered in the relevant route assessment table. Section 9 of the amended OSOM route study includes swept path analyses for the longest vehicle configurations (i.e. blades) to demonstrate that these vehicles can enter and exit the nominated parking locations.

11. NorthConnex tunnel operator will need to be consulted regarding this route.

Spark Renewables has commenced engagement with NorthConnex regarding the use of their tunnel infrastructure as part of OSOM vehicle movements and are committed to continuing this engagement throughout the assessment and approval process.

12. Provide within the updated route study further assessment of roundabout intersections identified on the Sturt Highway (Figures 25, 26, 27 and 29 of the RJA- Route Study- Dinawan Wind Farm) addressing the following:
a. Clarification on whether a portion of roundabouts will be removed or if it is proposed to mount existing annulus(s).
c. Swept paths and road design plans are needed to confirm the impacts on the roundabout(s).
d. Identify any vegetation removal or trimming required.
e. Any other infrastructure required to be removed or modified.

There are four roundabouts along the Sturt Highway in/near Wagga Wagga. In this locality, the amended OSOM route study (Appendix B of Appendix D.5 of the amendment report) identifies the following along Route 1:

- roundabouts at chainages 614.6 km, 617.3 km, 618.4 km and 621.5 km
- roundabouts are to be made trafficable, and existing signage (where present) will require relocation and/or to be made removeable
- no vegetation removal/trimming is identified as required.

These upgrades are within the existing pavement and TfNSW agreed that concept plans for this type of upgrade are not required at this stage. Further consultation with TfNSW will be undertaken during detailed design and transport route planning.

13. The removal of traffic islands at the Gillenbah Road/Sturt Highway pinch point to facilitate the high-risk OSOM movements will conflict with the service centre conditions and infrastructure to prohibit right turns into Gillenbah Road. Designs to navigate this pinch point without impacting service centre consent conditions must be investigated and included within a revised route assessment (accompanied by swept paths and strategic designs).

The amended OSOM route study (Appendix B of Appendix D.5 of the amendment report) includes updated swept path diagrams for this intersection. The revised swept paths (based on reduced blade lengths compared to the original OSOM route study) have resulted in reduced interaction with traffic islands at this location. The upgrades required at this location (including traffic islands to be made trafficable and removal of signage) are within the existing pavement and TfNSW agreed that concept plans for this type of upgrade are not required at this stage. Further consultation with TfNSW will be undertaken during detailed design and transport route planning.

14. A further detailed assessment is to be provided to TfNSW at the rail underpass on Sturt Highway at Wagga Wagga before any further consideration of the proposed route. This is required as the clearances of the underpass may impact the viability of the transport route for blade components.

The amended OSOM route study includes an updated assessment of the rail underpass on the Sturt Highway in Wagga Wagga. A survey has been undertaken of this underpass and the proposed blade was modelled travelling into, under and out of the underpass. The initial measurements of the underpass showed a minimum clearance of 500 mm for the proposed blade, which is considered to be acceptable based on the transport equipment modelled in the amended OSOM route study. A more detailed investigation is being completed using LiDAR data to confirm the outcomes of the initial assessment.

An alternative bypass option has also been identified and assessed as part of the amended OSOM route study. In the event the use of Route 1 is not considered viable, Route 1A would be used for blade transport.

iv High risk OSOM Route 2: Port of Newcastle via Golden Highway, Newell Highway, Sturt Highway and Kidman Way

15. The refugee island at Bettington Street/Vernacher Street Merriwa is located on a state classified road (Golden Highway). TfNSW requires the scope of works in the form of a strategic concept design identifying the removal of the refugee island and evidence of consultation with the relevant Council.

The upgrades required at this location (including traffic islands to be made trafficable, and removal of signage) are within the existing pavement and TfNSW agreed that concept plans for this type of upgrade are not required at this stage.

It is also noted that this location is along the P2R transport route for the Central West Orana REZ and the vehicle configurations adopted in the amended OSOM route study are consistent with the P2R Project assumptions. Therefore, it is anticipated that should road upgrades be required at this location, EnergyCo will be responsible for delivering these upgrades.

Further consultation with TfNSW will be undertaken during detailed design and transport route planning.

16. A swept path analysis for the largest high-risk OSOM vehicle demonstrating the largest high-risk OSOM design vehicle can physically enter, exit, and park without impacting access for other vehicles permitted to access the identified rest area or pullover locations.
Note: The governing high-risk OSOM design vehicle is required to be identified for each pull over location and rest area identified within the route study.

Suitable locations for parking are summarised in Figure 5.1 and Figure 5.2 of the addendum TIA (Appendix D.5 of the amendment report). The amended OSOM route study (Appendix B of Appendix D.5 of the amendment report) includes an assessment of parking areas that can be used for fatigue breaks and overnight parking. For each of the routes, parking areas are considered in the relevant route assessment table. Section 9 of the amended OSOM route study includes swept path analyses for the longest vehicle configurations (i.e. blades) to demonstrate that these vehicles can enter and exit the nominated parking locations.

17. Strategic concept designs and swept paths must be provided for any road widening on the State road network required to accommodate high-risk OSOM vehicles. The hardstands and pavement are to be sealed to the standards of the adjacent road.

Concept designs are included for locations where road upgrades require additional pavement to be constructed and upgrades are not currently proposed as part of the P2R project. This includes:

- Kidman Way/McLennons Bore Road (Gala Vale)
- Newell Highway/Kidman Way (Bundure)
- Eunony Bridge Road/Sturt Highway (East Wagga Wagga)
- Olympic Highway (Moorong Street)/Sturt Highway (Wagga Wagga)
- Byrnes Road/West Bomen Road (Bomen).

The concept design are included in the addendum TIA (Appendix D.5 of the amendment report).

18. Confirm the correct height of base tower and vehicle configuration it is noted that the height of the base tower and vehicle would be 6.1-6.2m which does not correlate with the height of 5.9m identified in the RJA Route Assessment. The RJA route assessment must be updated to reflect the correct height of the laden load of the base tower and vehicle configuration.

The amended OSOM route study has been updated to clarify the height of the laden load for the towers, and identifies a height of 6.1 m for the high load route (i.e. Route 2).

19. Section 4.7.4 route 2 will already have significant OSOM vehicles on the Golden Hwy for the Central West Orana projects. Travel schedule will need to consider cumulative impacts and possible restrictions imposed for REZ OSOM vehicles.

The need to carefully consider route planning and congestion along OSOM routes is acknowledged. Consideration of cumulative impacts will be undertaken in consultation with TfNSW and EnergyCo to ensure that delivery schedules adequately manage cumulative impacts. Further consultation with TfNSW will be undertaken during detailed design and transport route planning and further information regarding scheduling will be provided as soon as practicable.

20. Timing of high-risk OSOM deliveries within the construction schedule, indicative weekly program(s), and timeframe to complete deliveries from relevant port to the site is required.

Section 21 of the amended OSOM route study (Appendix B of Appendix D.5 of the amendment report) includes a draft delivery schedule. The timing of high-risk OSOM deliveries cannot be practically foreseen at this stage of the project; however, it is acknowledged that consultation with TfNSW regarding scheduling of OSOM movements will be critical. Further consultation with TfNSW will be undertaken during detailed design and transport route planning and further information regarding scheduling will be provided as soon as practicable.

21. The RJA route study does not include relevant TfNSW projects on the state road network. The route study must be updated to include TfNSW projects that have commenced or have been completed and mitigation measures to navigate any identified pinch points. The Hexham Straight is a notable project impacting Route 2 and the route assessment must be updated to assess the alternative route via Newcastle Inner City Bypass to Newcastle Road, for high-risk OSOM loads that do not exceed the vertical clearance limitations.

Section 19 of the amended OSOM route study (Appendix B of Appendix D.5 of the amendment report) considers potential conflicts with TfNSW road upgrade projects. Of note, the following projects would require monitoring of status to address any issues with OSOM transport and conflicts with construction of activities:

- Hexham Straight Widening Project – estimated completion is during 2026. While limited OSOM deliveries may commence from mid-2026, it likely that the majority of OSOM movements will be completed in 2027/2028, after completion of the Hexham Straight Widening Project.

- M1 to Raymond Terrace Project – estimated completion is during 2028. If OSOM transport and road upgrades coincide, there is potential for disruption and delays which will require appropriate planning, particularly during widening of the New England Highway at Tarro and construction of new and modified ramps. Once completed, the upgrades would have a beneficial impact for the project.

The following measure is proposed to manage interactions between construction works and OSOM transport:

- monitor TfNSW's interactive portal and consult with TfNSW during detailed design and transport route planning to manage potential interactions.

22. The RJA route assessment and Traffic Impact Assessment (TIA) is contingent upon road upgrades provided by EnergyCo from Port of Newcastle to Elong Elong. The applicant must review pavement extents and scope of works to ensure vehicle configurations and swept paths for this project's higher-risk OSOM align with the scope of the P2R project, particularly the relocation of traffic signals at George Street, Industrial Drive and Mayfield Road intersection. Evidence of the assessment of consistency with P2R project is required as a part of the revised route study.

The vehicle configurations and route from the Port of Newcastle to Elong Elong are consistent with the P2R Project. A review of the routes against the P2R Project upgrades is included in Section 20 of the amended OSOM route study (Appendix B of Appendix D.5 of the amendment report).

4.14.2 Key Issue 2: Turn warrants assessment

23. The TIA is to be revised to include the cumulative traffic volumes for turn warrant assessments for traffic associated with other major projects that will be present in the background or turning traffic volumes of McLennons Bore Road/Kidman Way and Cadell Road/Kidman Way the intersections for both project peaks 2027 and 2029.

Turn warrant assessments for the Kidman Way/McLennons Bore Road intersection have been updated in the addendum TIA (Appendix D.5 of the amendment report) and include consideration of baseline, project-related and cumulative traffic volumes for month 15 only. This is considered appropriate as traffic volumes for month 15 will be greater than traffic volumes for month 37, and therefore, turn warrant assessments for month 15 are more conservative than for month 37 and can be used to inform the proposed upgrade requirements at this intersection.

As Cadell Road (south) is no longer proposed to be used by project-related vehicles, turn warrant assessments at the Cadell Road/Kidman Way intersection are no longer required.

24. The TIA proposes that workforce accommodation facilities will be provided. The turn warrant assessment is to be revised to reflect the changes to the construction traffic because of the inclusion of the workforce accommodation camp, specifically:
a. If workforce accommodation is proposed, then the TIA is required to assess the pre-construction, construction schedule, staging, parallel construction activities and traffic generation until the workforce is fully accommodated at the camp. The traffic assessment requirements identified in this letter will apply to the workforce accommodation.

No pre-construction minor work will be undertaken until completion of the proposed road upgrades on Kidman Way (i.e. at the entrance to the accommodation facility) and the intersection of McLennons Bore Road and Kidman Way. Traffic volumes, types and hours of operation will be within assessed limits during construction of the accommodation facility. Turn warrant assessments have been completed based on peak construction traffic volumes, which will be higher than traffic volumes required during construction of workforce accommodation facilities. Therefore, turn warrant assessments are considered appropriate.

4.14.3 Key Issue 3: Revised strategic concept designs for project access

25. Strategic concept designs are required to be prepared for the proposed accesses to the Kidman Way, Mclennons Bore Road/Kidman Way, and Cadell Road/Kidman Way intersections. They are to be submitted as part of the revised TIA traffic based on the outcome of the turn warrant assessment and accompanied by swept paths for the largest design vehicle for the project.

Strategic concept designs have been prepared for the Kidman Way site access intersection and the Kidman Way/McLennons Bore Road intersection and are provided in the addendum TIA (Appendix D.5 of the amendment report). As Cadell Road (south) is no longer proposed to be used by project-related vehicles, strategic concept designs at the Cadell Road/Kidman Way intersection are not required.

26. Strategic designs must be accompanied by swept paths for the largest vehicle required to access each public and private access with the state road network. Swept paths must demonstrate the largest heavy vehicle can turn concurrently in all turn directions without crossing into the incorrect lane, well within proposed/existing pavement and within existing intersection treatments (where applicable). Intersection upgrades are to be in accordance with Austroads and relevant TfNSW supplements.

Strategic concept designs have been prepared with swept paths for the largest vehicle required to utilise each of the relevant intersections on the State road network (Appendix D.5 of the amendment report).

27. Strategic concept designs must identify any acquisition required to facilitate the scope of road upgrades and road works, including pinch points identified for each route.
Note: The design must comply with TfNSW strategic design requirements for DAs, TfNSW technical directions, supplements, corridor strategies, Austroads, and any other applicable TfNSW policies/strategies.

Acquisition of land is not required to facilitate road upgrades identified within the amended OSOM route study. All road upgrades on the State road network will be within the nominated road reserve.

Strategic concept designs have been prepared in accordance with relevant guidance.

4.15 Transport for NSW (Sydney Trains)

TfNSW (Sydney Trains) notes that two routes have been proposed for high-risk OSOM vehicles access to the site in the Traffic Impact Assessment. Of interest to TfNSW (Sydney Trains) is OSOM route from Port of Newcastle to the project area – Option 1. Appendix E.6 – Traffic impact assessment shows that the proposed Option 1 may cross Sydney Trains' rail corridor and level crossings at several locations.

The applicant must be aware of the crossings on TfNSW (Sydney Trains) rail corridors and is to include information on the crossings shown above in the updated RtS documents. In addition, if any adverse impacts to Sydney Trains corridors are identified in the documents, the applicant shall seek approvals from TfNSW (Sydney Trains). Please also note that the applicant must adhere to the transport management and safety requirements of TfNSW (Sydney Trains).

The amended OSOM route assessment has considered potential interactions with Sydney Trains' rail corridor and level crossings (Appendix A of Appendix D.5 of the amendment report). No adverse impacts to Sydney Trains' rail corridor or level crossings are anticipated because of the project. The project will adhere to the transport management and safety requirements of TfNSW (Sydney Trains).

4.16 Transgrid

Transgrid respectfully requests that the Department consider including the following conditions of approval for the Dinawan Wind Farm EIS:

- Spark Renewables must work collaboratively with Transgrid in relation to electricity transmission network requirements as part of the planning, design, construction, and commissioning of the project and work with Transgrid to ensure any necessary easements across the Dinawan Wind Farm project site are created and protected to facilitate the access, construction, operation, and maintenance of the 500kV double circuit transmission line. The Department must be assured that any agreed Transgrid easement has been allocated and protected by the proponent prior to any approval.
- Spark Renewables must take into consideration the Energy Networks Australia Guideline for Wind Turbines Proximity to Electricity Transmission Lines (ENA DOC 047-2022) which lays out required safe clearance distances between wind turbines and electricity transmission lines, notably the proposed VNI-W and PEC 500kV transmission line alignments.
- Spark Renewables must give due consideration to potential cumulative environmental impacts.

Spark Renewables has engaged extensively with Transgrid regarding project design and potential interactions with the VNI West alignment as well as interactions with on-site teams for Project EnergyConnect. The VNI West alignment and establishment of appropriate setbacks from the proposed transmission line were a major consideration in the amendments to the WTG layout in Stage 1. Whilst the EIS for VNI West is currently under preparation and is not yet publicly available, the amended WTG layout considers information provided to Spark Renewables by Transgrid regarding the transmission line's alignment through the project area.

Spark Renewables is committed to continuing to work with Transgrid in relation to the project's interactions with the electricity transmission network.

Cumulative impacts are considered in Section 6.15 of the EIS and amendment report and include consideration of impacts from the project, Project EnergyConnect. Cumulative impacts with VNI West have been considered in the amended project layout to the extent possible, based on engagement with Transgrid. Given an EIS for VNI West is still in preparation, it is expected that the VNI West EIS will address cumulative impacts with the Dinawan Wind Farm.

5 Response to public submissions

5.1 The project

5.1.1 Project description

One submitter raised the following questions regarding the nature of the project:

- EIS needs to have more detail on transmission lines into substation. How does it fit with Project EnergyConnect, VNI West, Yanco Delta Wind Farm, and Argoon Wind Farm lines into Dinawan all to cross Kidman Way.
- Are they high voltage lines, how big are the towers at this point?
- Will night lighting be required on the WTGs?
- Will concrete base of WTG be removed at decommissioning? Will internal substations also be rehabilitated on decommissioning?

i Transmission

The project electrical network is expected to comprise 33 kV circuits between the WTGs and collector substations, and a 132 kV or 330 kV transmission line between the collector substations and Dinawan Substation. Overhead electricity lines are expected to be between 20 and 80 m above the ground, depending on the capacity of the line and type of power pole/transmission tower. The distance between power poles (or transmission towers) will be dependent on the type used.

Spark Renewables has engaged with Transgrid regarding potential interactions with its transmission projects including VNI West and Project EnergyConnect. Discussions since 2021 have included an initial project briefing, project updates and ongoing discussions about potential interactions with Transgrid's projects.

Spark Renewables has engaged Brighty Energy to complete a compliance assessment to ensure that the amended layout is complaint with the *Guideline for Wind Turbines Proximity to Electricity Transmission Lines* (ENA DOC 047-2022) (Energy Networks Australia 2022). It should be noted that the VNI West is still under assessment with the EIS for the project not yet available, and the design subject to change. Spark Renewables is committed to working with Transgrid in relation to electricity transmission network requirements across the project area.

Spark Renewables has relied on the Yanco Delta Wind Farm EIS and will seek to engage directly with Origin (the proponent for the Yanco Delta Wind Farm) as part of detailed design. The Argoon Wind Farm is at an earlier stage in the planning process and an EIS is still in preparation. If required, Spark Renewables will consult with the proponent during detailed design.

ii Aviation hazard lighting

An amended aviation impact assessment has been prepared for the amended project and is provided in Appendix D.9 of the amendment report. The assessment concludes that there will be an acceptable level of aviation safety risk associated with the potential for an aircraft collision with a WTG without obstacle lighting on the WTGs. Aviation hazard lighting requirements are subject to ongoing consultation with CASA. An aviation obstacle lighting plan has been prepared in accordance with the *Wind Energy Guideline* (DPHI 2024a) and is provided in Appendix D.13 of the amendment report. It requires that 67 of the 200 WTGs be lit with two low intensity steady red lights.

iii Decommissioning

As outlined in the EIS, once the project reaches the end of its operational life, a decision will be made to either decommission or re-power the facility, subject to approval requirements.

If the project is decommissioned, all aboveground structures will be removed (unless otherwise agreed with landowners and regulators) and the site rehabilitated generally to its pre-existing land use, as far as practicable. Project infrastructure will be managed in accordance with the waste management hierarchy and contemporary waste management legislation.

WTG foundations, including concrete structures, will typically be retained in situ and covered with soil and/or rock and revegetated. Underground cabling will typically be decommissioned and removed, unless the Planning Secretary agrees otherwise. Internal substations will typically be decommissioned and removed, as there is no ongoing need for this infrastructure once electricity generation has ceased.

These measures will help to ensure the effective restoration of the land to its original condition, minimising long-term environmental impacts and enabling future land use flexibility.

5.1.2 Site suitability

Two submitters commented on the suitability of the site, due to its high agricultural and biodiversity value and impacts to surrounding neighbours.

The EIS outlined the reasons why the project area is ideally located for the development of a wind farm. These included the following:

- Location with the South West REZ – the project area is in a REZ formally declared for significant investment in renewable electricity generation, storage and transmission projects.
- Proximity to approved transmission infrastructure – the project area is adjacent to Project EnergyConnect's Dinawan Substation, which will export the electricity generated by the project directly into the grid.
- Proximity to major transport networks – the project will be accessed from Kidman Way via short local road connections. Kidman Way is an approved B-Double route, with access to the Sturt and Newell highways. Local roads including McLennons Bore Road, Fernbank Road, Cadell Road, Wilson Road and Goolgumbla Road will be used to access the project from Kidman Way.
- Few surrounding receptors – the land surrounding the project area is sparsely populated. There are 23 non-associated residences within 8 km of a WTG (see Figure 1.3). There are no non-associated residences within 2 km of a WTG.
- Strong wind resource – the project area is relatively flat and has a very good wind resource that peaks overnight.
- Compatible surrounding land use – the existing agricultural land use within and surrounding the project area is compatible with a large-scale wind farm, and agriculture will continue within the project area throughout wind farm operation.
- Ability to avoid and minimise impacts – Spark Renewables has maximised the avoidance of potential environmental impacts. This has included limiting the project infrastructure footprint to the minimum required, avoiding higher value vegetation clearance where practicable, maximising the use of previously disturbed land, protecting significant heritage values where practicable, and minimising impacts on neighbouring (non-associated) landholders.

With regards to the agricultural and biodiversity value of the land, the project area has been selected as it does not contain any Biophysical Strategic Agricultural Land, Critical Industry Clusters, Stage Significant Agricultural Land or high to extremely high capability land (LSC class 1-3) under *The land and soil capability assessment scheme* (OEH 2012). Agricultural land use will continue within the project area adjacent to the development footprint during construction and operation. It is acknowledged that there are varied biodiversity values within the project area, including some high biodiversity values, such as threatened ecological communities. As outlined in Section 2.5 of the amendment report and Chapter 7 of the amended BDAR, Spark Renewables has sought to avoid and minimise impacts to high biodiversity values to the extent practicable.

5.2 Procedural matters

5.2.1 Engagement

One submitter commended Spark Renewables for ongoing communication with impacted neighbours and stated they are hopeful for positive outcomes. The submitter requested that ongoing open communication with neighbours including neighbouring businesses/farms, particularly through construction.

Spark Renewables appreciates the positive feedback from the submitter regarding ongoing communication with impacted neighbours and stakeholders.

Spark Renewables recognises the importance of ongoing, transparent stakeholder engagement to the success of the project. Consultation and engagement with affected parties, stakeholders, and the broader community has been an integral part of the development of the project. Engagement has been undertaken by Spark Renewables in accordance with the requirements of *Undertaking Engagement Guidelines for State Significant Projects* (DPHI 2024b) (SSD Engagement Guidelines) and the SEARs. Engagement for the project is discussed in Chapter 5 of the EIS, which included letters, face-to-face meetings (including with nearby landholders), community information sessions and project communication channels. Engagement was consistent with the community participation objectives in the SSD Engagement Guidelines, as shown in Section 5.9 of the EIS.

Early project and scoping phase engagement commenced in 2021. Following the launch of the project in September 2021, newsletters were delivered to 25 residences within a 5 km radius of the project investigation area for the project in October, calls were made, and emails were sent to those residences, a media release was issued, advertisements were published in the newspaper and a campaign was run across four radio stations.

Scoping phase engagement in 2022 included briefing meetings with First Nations people, business groups and landholders. Spark Renewables also engaged with Murrumbidgee Council, Edward River Council, and local Members of Parliament (MPs). At the recommendation of the community, Spark Renewables presented about the project at various community groups and local service provider meetings during this phase.

The engagement program continued during the preparation of the project EIS and the Dinawan Solar Farm EIS in 2023 and 2024. This included engagement with government agencies, Murrumbidgee Council, Edward River Council, EnergyCo, nearby landholders, First Nations representatives, service providers, local businesses and the broader community.

Feedback from the community has been broadly supportive of the project with many excited by the community benefits sharing program. There has been enthusiasm for the economic opportunities the project would create for the local area particularly local employment. One of the main concerns raised by the community during consultation has been the bushfire risk and ensuring there are proper mitigation methods in place.

Key areas of interest raised by the community and stakeholders include:

- mitigating bushfire risk
- opportunities for community benefit sharing

- opportunities for local workforce participation, supplies and services from local business
- visual amenity impacts to nearby towns and natural parks
- the necessity for meaningful engagement with local First Nations communities regarding cultural heritage and opportunities for participation and benefit-sharing
- impacts on agricultural productivity within and around the project area
- impacts to birds and bats associated with native vegetation and wetlands across the broader region
- concerns about traffic impacts and transport routes during construction
- availability of construction workforce accommodation and coordination with other major projects.

These keys issues were considered and addressed through consultations and preparation of the project's development application. Spark Renewables has engaged closely with key stakeholders to ensure that key issues raised by the community are well understood and impacts can be avoided.

Spark Renewables is committed to ongoing open communication with neighbours throughout all phases of the project, including construction.

One submitter commented on the use of dwellings to inform impacts from the project to neighbouring landholders, stating that "the fact that a property doesn't have a dwelling should not exclude that landowner or that parcel of land from respecting its proximity to the project."

Assessments have been completed in accordance with guidelines referenced in the SEARs. For impacts to amenity, such as visual and noise impacts, there is a focus on impacts at residences, which are typically defined as 'assessment locations' as required by the relevant guidelines. Amenity impacts to the surrounding environment have also been assessed in the EIS. Impacts to the landscape character have been determined based on landscape character units (LCUs), impacts to traffic have been assessed within the local road network and impacts to air quality have been assessed qualitatively. Hazards and risks from the project have generally been assessed based on land use.

5.2.2 Adequacy of assessment

Four submitters commented on the level of assessment in the EIS, including:

- concerns that not enough research has been provided to adequately assess the impacts of the project
- concerns that mitigation measures lack the detail required or do not adequately address community concerns, particularly socio-economic impacts
- concerns that the Yanco Delta Wind Farm project has not been adequately considered and will be adversely impacted by the project.

The EIS was prepared in general accordance with the *State significant development guidelines – preparing an environmental impact statement* (DPE 2022a), the *Wind Energy Guideline for State significant wind energy development* (DPE 2016a) and the *Draft Wind Energy Guideline* (DPE 2023a) which were the most relevant and latest guidelines for a large-scale wind farm when the EIS was exhibited.

The Renewable Energy Planning Framework has since been released on the 12 November 2024, which provides that latest guidance on the development of large-scale wind projects. In accordance with *Renewable Energy Planning Framework – Transitional Arrangements* (DPHI 2024b), the *Wind Energy Guideline* (DPE 2016a) remains the relevant guidance for the project.

The EIS describes the project, the existing environment, planning considerations and the statutory context for the project, potential impacts (during construction, operation and decommissioning of the project), mitigation measures, residual impacts and a description of the community engagement undertaken and outcomes. It is informed by the technical assessments contained in the appendices and provides an overview of these assessments. It addresses the requirements of the SEARs issued by DPHI and the appended agency requirements. A summary of how the SEARs have been addressed is provided in Appendix A of the EIS.

The methodology for each of the technical assessments is provided in the corresponding reports (Appendix E.1 to Appendix E.15 of the EIS).

Mitigation measures for the amended project are provided in Appendix B, with new mitigation measures shown in **bold**. These mitigation measures will be used to produce management plans for the project, including a construction environmental management plan, which will provide further detail on measures to mitigate environmental and socio-economic impacts.

A response to concerns regarding consideration of Yanco Delta Wind Farm has been provided in Section 5.6.

5.3 Environmental, social and economic impacts

5.3.1 Landscape and visual

Nineteen submitters raised concerns regarding the visual amenity impacts of the project, and the disruption to the landscape character of the area, summarised as follows:

- concerns that the WTGs are too tall and will be visible for many kilometres
- concerns that the project will disrupt the natural landscape and change the serene, and picturesque landscape character that defines the area
- concerns that WTGs will be an industrial blight on the landscape.

It is acknowledged that the project will introduce new infrastructure elements into the landscape that will be visible from the surrounding area.

A substantial site selection process was undertaken by Spark Renewables, during which visibility was a key consideration. As documented in Section 2.3 of the EIS, the land surrounding the project area is sparsely populated; there are 23 non-associated residences within 8 km of a WTG (see Figure 1.2), with the closest nearby townships approximately 30 km away (Jerilderie and Coleambally).

As part of the project refinement process during the preparation of the EIS, the design and location of the development footprint within the project area went through a number of revisions in response to stakeholder engagement and environmental constraints identification. This included:

- avoidance of vegetation clearing where possible to maintain existing levels of visual screening provided by vegetation
- consideration of the colours of ancillary structures to ensure minimal contrast and to help blend into the surrounding landscape to the extent practicable

- incorporation of setbacks from viewpoints, including:
    - placement of WTGs at least 2 km from non-associated residences
    - placement of substation and switchyard infrastructure at least 4 km from non-associated residences.

A landscape and visual impact assessment (LVIA) was prepared in Appendix E.1 of the EIS in accordance with the methodology outlined in the *Wind Energy: Visual Assessment Bulletin for State significant wind energy development* (DPE 2016b).

In the EIS, it was determined that of the 22 non-associated residences within 8 km of WTG locations, all but one were likely to experience a negligible to low visual impact. One non-associated residence (R019) was likely to experience a high visual impact. There were no key public viewpoint locations within 8 km of a WTG location. Key viewpoints greater than 8 km from the project area were assessed and views towards the project from these locations will be largely screened by existing vegetation. However, it is acknowledged that the local landscape character is likely to be altered by the visibility of the project and surrounding wind farms, with simultaneous views likely from Kidman Way and surrounding roads.

Following the public exhibition of the EIS, the development footprint was amended. Amendments include a reduction in the number of WTGs assessed for the project, from 267 WTGs assessed in the EIS, to 200 WTGs for the amended project. An addendum LVIA has been prepared (refer Appendix D.1 of the amendment report) and found that generally visual impacts will be consistent with or lower than what was assessed in the EIS. A photomontage assessment for R019 found that the project will now have a low visual impact on this non-associated residence and no mitigation is required.

5.3.2 Noise

Eight submitters commented on the noise impacts of the project, raising concerns that noise or 'infrasound' from operation of the WTGs will impact human health and wellbeing, including sleep disturbances and increased stress.

The noise impact assessment for the project (Appendix E.2 of the EIS) included an assessment of construction noise, operational noise, traffic noise and cumulative noise in accordance with relevant guidelines and policies.

The noise impact assessment found that predicted noise levels from WTG and collector substation operation is less than 35 dB(A) at all non-associated residences and is predicted to comply with the relevant noise criteria. A visual representation of operational noise modelling is provided in Figure 6.2 of the EIS.

Following the exhibition of the EIS, the development footprint was amended. The noise impacts of the amended project will be substantially the same as assessed in the EIS with noise levels from operation and construction of the amended project predicted to comply with all relevant noise criteria at all non-associated residences, with the exception of three non-associated residences (R019, R079 and R088), which will temporarily be in a noise affected area at specific times during the construction phase.

Construction noise management measures will be implemented during haulage route road upgrades to reduce impacts at nearby receivers.

One submitter raised concerns that recent studies have found that intermittent infrasound is damaging to human health and that no studies have been completed to determine human health impacts of WTGs greater than 250-m tall.

The Clean Energy Council's fact sheet on *Wind turbines and health* (CEC 2025a) outlines that WTGs in Australia typically do not produce harmful low-frequency noise. The fact sheet references multiple scientific, peer reviewed studies which have found that infrasound from wind farms does not cause negative health effects. The Australian National Health and Medical Research Council (NHMRC) also provides advice that there is currently no consistent evidence that wind farms cause adverse health effects in humans.

Two submitters also raised concerns for noise impacts to wildlife, particularly to two species:

- Koalas, quoting research by Martin (2024) which found wind turbines can cause Koalas to "abandon high quality habitat, and it masks long range contact calls, thereby decreasing their breeding success."
- Plains Wanderer, including concerns that the noise created by the blade will interfere with the bird's ability to communicate which will impact breeding and make them more vulnerable to predators.

As outlined in Appendix D.4 of the amendment report, there is limited koala habitat within the subject land (minimum 500 m buffer from the development corridor) with rare occurrence of primary feed trees. Generally, the subject land is not considered to support habitat for koalas. In the context of the Riverina more broadly, Koala habitat is associated with major rivers, such as the Murrumbidgee, Edward and Murray rivers, where large stands of River Red Gum and Black Box trees occur on the regularly inundated inner floodplains along these larger river systems. This is supported by the clear concentration of Koala records along major rivers only, the majority of which occur around 80 km south, or over 50 km north, of the subject land. The closest recording of Koala species is 14.5 km from the development corridor. Given there is low potential for koala habitat within proximity of the project, no impacts are expected.

Concerns were raised that noise from WTGs will interfere with the Plains Wanderer's ability to communicate, which will impact breeding and make them more vulnerable to predators. Plains Wanderer calls have an extremely low frequency range and this species has a narrow range of hearing, making them especially tolerant of loud noise. Plains Wanderers have a large aural canal through the middle of their head, which limits their ability to detect sounds in all but lower frequency ranges. University researchers have observed Plains Wanderers remaining calm and continuing to feed in a noisy university animal house despite clanging of pans, vocalisations of sheep and bats and constant vehicle traffic. The call is described as a soft, low-pitched "oo-oo" sound, repeated at regular intervals during the breeding season, especially at night. These calls are audible to humans, which places them generally within the human hearing range (roughly 20–20,000 Hz); however, is likely to be around 200–1,000 Hz, and centred around 450 Hz based off field recordings and acoustic surveys.

WTG noise occurs across a range of frequencies from infrasonic (0–20 Hz) up through low frequency sound (generally below or around 200 Hz), and into the higher frequency range (above 200 Hz). There is a low risk that low frequency noise produced by WTGs will have an impact on Plains Wanderers' ability to communicate by masking communication, interfering with mating calls and/or reducing territory defence.

5.3.3 Biodiversity

i Impacts to local biodiversity

Twenty-three submitters commented on general impacts to local biodiversity, including

- concerns around impacts to native flora and fauna
- concerns that the project will cause the extinctions of species
- views that the EIS underestimates impacts to flora and fauna and does not provide sufficient data on how the project will minimise and avoid impacts to species.

The BDAR prepared for the EIS (Appendix E.3 of the EIS) and the amended BDAR prepared for the amendment report (Appendix D.3 of the amendment report), define the 'subject land' as the area where biodiversity impacts from the project are predicted to occur. The subject land consists of the development footprint, where direct impacts are predicted, and a buffer area, where indirect and prescribed impacts are predicted.

The subject land contains native vegetation in the form of native grasslands (natural and derived), Weeping Myall woodland, Black Box woodland and White Cypress Pine-dominated sandhills. There are wetlands and drainage systems that support seasonal and semi-permanent wetland habitats.

The iterative project design process avoided the highest quality plant community types (PCTs) and threatened species habitat within the subject land to the extent possible, resulting in the irregular shape of the development footprint.

The EIS acknowledged that residual impacts to biodiversity included the removal of:

- 1,145 ha of native vegetation requiring offsets (approximately 73% of which is Weeping Myall woodland in various condition states), including:
  - 604.7 ha of BC Act listed TEC
  - 264.9 ha of EPBC Act listed TEC
- 144.5 ha of confirmed threatened species habitat requiring offsets
- 109.2 ha of habitat for threatened species assumed to be present (for which surveys are yet to be completed)
- 4 Yellow Gum individuals (assumed to be present in areas where surveys are yet to be completed)
- 29 scattered trees
- 15 hollow bearing trees.

Following the exhibition of the EIS, Spark Renewables amended the development footprint to further avoid and minimise impacts to biodiversity. As outlined in Appendix D.3 of the amendment report, the amended development footprint has been reduced by 18% to 1,095 ha. Amendments also include a reduction in the number of WTGs assessed for the project, from 267 WTGs assessed in the EIS, to 200 WTGs for the amended project.

The amended project has further avoided impacts by:

- removing 33 WTGs in the eastern area and 34 WTGs in the western area, including removing 26 WTGs with a high collision risk and all WTGs with a very high collision risk for bird and bat species
- changes to WTG blade length and hub height reducing the maximum tip height and increasing the distance between the canopy height and the lowermost blade tip height
- reducing impacts to TECs listed under the BC Act from 604.7 ha to 507 ha (16% reduction)
- reducing impacts to TECs listed under the EPBC Act from 264.9 ha to 205.6 ha (22% reduction)
- avoiding impacts to a known Plains Wanderer location
- removing and/or relocating WTGs from areas of PCT 26 (intact) where vulnerable listed Painted Honeyeaters were recorded and vulnerable listed Grey-crowned Babblers were nesting
- avoiding and minimising impacts to large patches of *Swainsona murrayana* and *Swainsona sericea.*

Residual impacts to biodiversity will include removal of:

- 948 ha of native vegetation requiring offsets (approximately 84% of which is Weeping Myall woodland in various condition states), including:
    - 507 ha of BC Act listed TEC
    - 205.6 ha of EPBC Act listed TEC
- 128.8 ha of confirmed threatened species habitat requiring offsets
- 2,227 ha of habitat for threatened species assumed to be present (for which surveys are yet to be completed)
- 16 scattered trees
- 9 hollow bearing trees.

ii Collision impacts to birds and bats

Thirteen submitters raised concerns about the collision impacts of the project to birds and bats, particularly migratory and endangered species, including:

- concerns about wind turbines causing high mortality rates among birds, bats, and insects, including endangered or migratory species such as Wedge-tailed Eagles, Australasian Bittern and Australian Painted Snipe
- concerns that the project will cause an ecological imbalance by killing insect-eating bats and predatory birds and seed-eating birds, which could lead to increased pest populations
- calls for more studies to assess the prevalence of threatened species and determine flight paths of migratory birds to mitigate the impact of the wind turbines
- suggestions that wind turbines should be set back by 200–300 metres from critical habitats to reduce the risks
- questions about the commitment to implement a Biodiversity Management Plan (BMP) and whether there will be independent oversight or auditing to ensure it is followed.

The BDAR prepared for the EIS (Appendix E.3 of the EIS) and the amended BDAR prepared for the amendment report (Appendix D.3 of the amendment report), acknowledge that impacts on birds and bats could arise from the operation of WTGs through:

- blade strike
- barotrauma due to low air pressure zones at the blade tips
- reduction of habitat connectivity between essential resources (i.e. WTGs create a barrier effect)
- avoidance of habitat due to air disturbance surrounding operational WTGs (i.e. habitat sterilisation).

Collision risk modelling using BBUS data has been used to predict which bird and bat flight movements could be at risk of collision with a WTG during each year of operation. This was based on species that were recorded flying at the height at which the WTG blades are proposed to rotate.

The amended project has reduced the tip height and blade length of WTGs and changed the WTG layout, which has changed the predicted impacts. The model's results are expressed as the number of flights at risk of collision per year for each species. Based on an assumption that the collision avoidance capacity of recorded species is 95%, the results of the collision risk model predict:

- eight species with less than one annual flight that will be at some risk of collision
- nine species with one to five annual flights that will be at some risk of collision
- two species with greater than five annual flights that will be at some risk of collision (reduced from six in the EIS).

Risk assessments identified bird and bat species considered to be at risk of collision with WTGs (refer to Section 6.2 of Appendix D.3 of the amendment report). A total of 23 species of birds (1 'high risk', 4 'moderate risk' and 18 'low risk') and 7 species of bats (all 'low risk') are considered to be at more than a negligible risk of impact from turbine collisions, and thus 'at-risk' as a result of the project (refer to Table 62 of Appendix D.3 of the amendment report).

In total, 83.5% of the WTGs fall within a low to moderate risk category (increased from 77% in the EIS) and 16.5% fall within the high risk category (decreased from 22% in the EIS). All very high risk category WTGs have been removed as part of the amended project.

It is acknowledged that microbats are at risk of colliding with WTGs; however, with appropriate adaptive management in place, these impacts are considered unlikely to result in population level changes that would result in observable or measurable changes to insect populations that are preyed upon by microbats.

Insect-eating microbats consume a variety of insects in their diet (e.g. moths, beetles, spiders), and likely change the proportion of these in response to availability and seasonality. Ecological interactions are complex, and insect population abundance is driven by factors other than predation alone. Many insects, particularly agricultural pests, demonstrate eruptive population dynamics triggered by environmental conditions, irrespective of the presence of a wind farm development, such as agricultural practices (e.g. use of pesticides), drought, flood, fire and the cumulative impacts of climate change. These dynamics alone could result in ecological imbalances, and it is unlikely that project-related impacts to bats or birds would exacerbate these existing dynamics, particularly with the implementation of the proposed mitigation measures that will minimise ongoing operational impacts to these species.

The collision risk model predictions for bird strike do not indicate a significant impact to existing populations of birds as a whole that could cause an ecological imbalance, nor is significant strike likely to affect the general bat population as a whole, as only a select few microbats are considered at risk of strike, with many foraging at canopy or below only.

With regards to the Biodiversity Management Plan (BMP), it is expected that it will be a requirement of the conditions of consent that a BMP be developed to the satisfaction of the Planning Secretary. It is also expected that the conditions of consent will require an Independent Audit to be conducted as outlined in the *Independent Audit Post Approval Requirements* (DPIE 2020b) to ensure compliance with the BMP.

iii Effectiveness and ability to secure offsets

Three submitters raised concerns regarding effectiveness and ability to secure biodiversity offsets for the project, including:

- doubts around the feasibility of securing the necessary 24,521 ecosystem credits and 7,332 species credits for biodiversity offsets
- views that the biodiversity offset scheme is flawed and that offsets will not "bring creatures back to life or replace their breeding habitat with 'like for like'".

The offset strategy has been developed consistent with the requirements of the Biodiversity Assessment Method (BAM) (DPIE 2020a), which identified three main options to offset residual biodiversity impacts that cannot be avoided:

- payment to the Biodiversity Conservation Fund managed by the Biodiversity Conservation Trust
- purchase of credits from the open market
- establishment of a biodiversity stewardship site(s) to generate credits for offsetting the project specifically.

Spark Renewables has commenced investigations into the establishment of local biodiversity stewardship sites. Five properties, with a total area of 11,785 ha, have been subject to desktop and on-ground assessment to determine their suitability for establishment of biodiversity stewardship sites. This has included background research, field investigation, credit calculations and suitability assessments. A sixth site, as well as areas excised from the development footprint for Dinawan Solar Farm, have also been identified as potentially suitable for stewardship site establishment and will be considered.

Field investigations have confirmed the presence of nine different PCTs across the five properties investigated, including six of the ten PCTs that require offsetting as part of the project (refer Table 96 of Appendix E.3 of the EIS). Threatened species habitat has also been assessed and habitat has been recorded for a number of species expected to require offsets as a result of the project (including Silky Swainson-pea, Superb Parrot and Southern Bell Frog). Further investigations will be undertaken during appropriate seasons to determine the presence of threatened species at the subject properties. If found to be present, stewardship sites will be used to generate species credits.

The EIS outlined the credit requirements generated by the project, including 24,521 ecosystem credits to compensate for impacts to native PCTs and ecosystem credit species; and 7,332 species credits for impacts to threatened species.

Following the public exhibition of the EIS and as described in Section 3.1, the development footprint has been amended to further reduce biodiversity impacts. Biodiversity offsets required for the project have been reduced to 21,706 (11% reduction) for ecosystem credits. Despite further efforts to avoid and minimise impacts on threatened species, species credits for the project have increased. Gaps in survey coverage have resulted in the application of assumed presence for threatened species, with further survey planned for Spring 2025.

iv Impacts to protected areas

Three submitters raised concerns regarding impacts from the project to protected areas.

Of these, one submitter raised concerns that the project is too close to Oolambeyan National Park, stating that 'fauna does not respect boundaries'. Two submitters raised concerns that the project is within a national park/protected area.

The development footprint located within private freehold land, currently used for agriculture. The project is not located within a National Park or other protected area.

Oolambeyan National Park is located approximately 11 km north-west of the development corridor. Proximity to Oolambeyan National Park has been a key factor in project refinement, with the removal of an adjacent property from the project area in the scoping phase. As described in Section 4.12, Spark Renewables has consulted with NPWS on potential impacts from the project on Oolambeyan National Park. Spark Renewables will continue engagement with NPWS to manage potential impacts to Oolambeyan National Park.

v Impacts and threatened species and TECs

Fourteen submitters raised concerns regarding the level of impact that the project would have on threatened species and threatened ecological communities (TECs). Submitters specifically raised concerns regarding impacts to two TECs, nine flora species and sixteen fauna species. Some submitters were concerned that the project would increase extinctions of native flora and fauna.

Throughout the development and refinement of the project, and documented in the EIS, the iterative project design process has sought to avoid the highest quality PCTs and threatened species habitat within the subject land to the extent possible. This is reflected in the irregular shape of the development corridor and development footprint.

Following the exhibition of the EIS, Spark Renewables has amended the development footprint to further avoid and minimise impacts to threatened species and TECs, in response to agency and community concerns. Additional surveys for threatened flora and fauna species were conducted in September, October and November 2024 to reduce the areas for which species have been assumed to be present.

The residual impacts of the amended project on threatened species and TECs have been assessed in the amended BDAR (Chapter 8 of Appendix D.3 of the amendment report) and are summarised in Section 6.3 of the amendment report.

A summary of the residual impacts to TECs and species identified as being of concern by submitters is provided below:

Flora species

1. Small Scurf-pea (*Cullen parvum*) – there is no suitable microhabitat for this species within the subject land, therefore there is low potential for it to occur in the subject land and low potential for impacts.

2. Slender Darling Pea (*Swainsona murrayana*) – this species will be impacted by the project and impacts will be offset through the retirement of species credits.

3. Silky Swainsona Pea (***Swainsona sericea)*** – this species will be impacted by the project and impacts will be offset through the retirement of species credits.

4. Spiny Peppercress (*Lepidium aschersonii*) – there is no suitable microhabitat for this species within the subject land, therefore there is low potential for it to occur in the subject land and low potential for impacts.

5. Winged Peppercress (*Lepidium monoplocoides*) – this species has not been identified during targeted surveys to date; however, further survey will be completed in Spring 2025 to confirm it is not present within the development footprint.

6. Sandhill Spider Orchid (*Caladenia arenaria*) – there is no suitable microhabitat for this species within the subject land and it is not known to occur within this locality.

7. Small Purple-pea (*Swainsona recta*) – impacts to this species did not require assessment as part of the BDAR. The project is outside of the areas of known or predicted habitat for this species.

8. Riverina Bluebell (*Wahlenbergia multicaulis*) – impacts to this species did not require assessment as part of the BDAR. Impacts to flora species that form part of PCTs within the development footprint will be offset through the retirement of ecosystem credits.

9. Matted Flax-lily (*Dianella amoena*) – impacts to this species did not require assessment as part of the BDAR. The project is outside of the areas of known or predicted habitat for this species.

Fauna species

1. Plains-wanderer *(Pedionomus torquatus)* – this species and its habitat could be impacted by the project and impacts will be offset through the retirement of species credits.

2. Superb Parrot *(Polytelis swainsonii)* – this species and its habitat could be impacted by the project and impacts will be offset through the retirement of species credits.

3. Swift Parrot *(Lathamus discolor)* – suitable habitat for this species was not identified within the development footprint and it was not observed during two years of bird utilisation surveys.

4. Southern Bell Frog also known as Growling Grass Frog *(Litoria raniformis)* – this species and its habitat could be impacted by the project and impacts will be offset through the retirement of species credits.

5. Grey-headed Flying Fox *(Pteropus poliocephalus)* – suitable habitat for this species was not identified within the development footprint and it was not observed during surveys.

6. Striped Legless Lizard *(Delma impar)* – impacts to this species did not require assessment as part of the BDAR. The project is outside of the areas of known or predicted habitat for this species.

7. Squirrel Glider *(Petaurus norfolcensis)* – impacts to this species did not require assessment as part of the BDAR. The project is outside of the areas of known or predicted habitat for this species.

8. Australian Painted Snipe *(Rostratula australis)* – there is suitable habitat for this species within the subject land; however, it was not observed during two years of bird utilisation surveys.

9. Bush Stone-curlew *(Burhinus grallarius)* – there is suitable habitat for this species within the subject land; however, it was not observed during targeted surveys.

10. Regent Honeyeater *(Anthochaera phrygia)* – there is no suitable habitat for this species within the subject land, therefore there is low potential for it to occur in the subject land and negligible potential for impacts.

11. Northern Corroboree Frog *(Pseudophryne pengilleyi)* – impacts to this species did not require assessment as part of the BDAR. The project is outside of the areas of known or predicted habitat for this species.

12. Southern Pygmy Perch *(Nannoperca australis)* – impacts to this species did not require assessment as part of the BDAR. The project is outside of the indicative distribution for this species.

13. Pink-tailed Worm-lizard *(Aprasia parapulchella)* – impacts to this species did not require assessment as part of the BDAR. The project is within an area of predicted habitat for this species.

14. Wedge-tailed Eagle *(Aquila audax)* – this species is at high risk of collision with WTGs (up to six individuals at risk of collision annually). Potential impacts will be managed through the implementation of the BBAMP.

15. Major Mitchell Cockatoo *(Lophochroa leadbeateri)* – suitable habitat for this species was identified within the development footprint; however, it was not observed during two years of bird utilisation surveys.

Threatened ecological communities (TECs)

1. Weeping Myall Woodland – this TEC will be impacted by the project and impacts will be offset through the retirement of ecosystem credits.

2. Natural Grasslands of the Murray Valley Plains – this TEC will be impacted by the project and impacts will be offset through the retirement of ecosystem credits.

vi Controlled action under the EPBC Act

Eight submitters requested that the project be a controlled action and is 'referred to the EPBC Act'.

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), an action that may or will have a significant impact on matters of national environmental significance (MNES), or the environment generally for 'Commonwealth agencies', is to be referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for determination as to whether or not it is a 'Controlled Action' requiring approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Spark Renewables referred the project to DCCEEW on 30 April 2023. DCCEEW determined that the project is a Controlled Action on 12 July 2023, on the basis that it is likely to have a significant impact on EPBC Act listed threatened species and communities.

The Commonwealth Government's bilateral agreement with the NSW Government applies to the project. Accordingly, DPHI issued supplementary SEARs that included DCCEEW's assessment requirements.

Each of the matters raised in the supplementary SEARs were addressed in the EIS (biodiversity – Section 6.3 and Appendix E.3). Appendix A of the EIS summarises how the EIS addresses the relevant SEARs.

The Commonwealth Minister for the Environment will be informed by the EIS and associated NSW assessment processes in their decision on whether to approve the project under the EPBC Act.

vii Habitat destruction and fragmentation

Seven submitters raised concerns around loss of habitat and habitat fragmentation from the project.

The EIS and the amendment report acknowledge residual impacts to biodiversity and species habitat. Following the exhibition of the EIS, Spark Renewables amended the development footprint to further avoid and minimise impacts to biodiversity. Loss of native vegetation and threatened species habitat from the EIS project and amended project is summarised in Table 5.1.

Table 5.1 Residual impacts to biodiversity requiring offsets

Type	Impact area for EIS project (ha)	Impact area for amended project (ha)
Native vegetation	1,145	948
BC Act listed TEC	604.7	507
EPBC Act listed TEC	263.9	205.6
Confirmed threatened species habitat	144.5	128.8
Habitat for threatened species assumed to be present[1]	109.2	2,227
Scattered trees	29	16
Hollow bearing trees	15	9

Note: 1. A conservative approach has been take to the assumption of presence within the amended BDAR resulting in a significant increase in the area of habitat for threatened species assumed to be present. Additional surveys will be undertaken in Spring 2025 to address this.

Habitat connectivity is critical for maintaining healthy populations, as it promotes biological diversity through the exchange of genes. Woody areas within the subject land create stepping stones for mobile fauna to actively move through the subject land, as well as promoting movement of genetic floristic material into adjacent areas of habitat such as riparian areas, retained grassland areas and roadside vegetation.

Areas of more abundant and mature woody vegetation, as well as lower lying ephemeral grasslands and drainage lines, have been prioritised for avoidance, with retained areas subject to improvement within criteria set out in a BMP. This would continue to allow for the uninterrupted movement of the majority fauna species to be possible during construction and operation of the project.

Perimeter or non-rural exclusion fencing of areas within the development corridor if installed may cause disruption to large ground dwelling fauna such as Kangaroos and Emus. This will primarily be around critical infrastructure only. Overall, this effect is not likely to be substantially increased beyond the existing impacts of rural farm fencing that already exist.

While the project will diminish local connectivity, this is unlikely to prevent genetic exchange of the threatened entities known to be inhabiting the subject land and broader area.

viii Impacts to Koalas

One submitter raised concerns around impacts to koalas, including clearing of habitat and the reduction in connectivity between patches of remnant woodland.

In NSW, the Koala mainly occurs on the central and north coasts, however there are some populations in western region. Koalas feed almost exclusively on eucalypt foliage, and in the Riverina, their primary feed trees are *Eucalyptus camaldulensis*.

In the region, suitable habitat is broadly available within woodland communities PCT 10, 13, and 15. Habitat is associated with major rivers, such as the Murrumbidgee, Edward and Murray rivers where large stands of River Red Gum and Black Box trees occur on the regularly inundated inner floodplains along these larger river systems. Habitat connectivity in terms of Koala movement is fragmented between these major river systems and the subject land.

Koala records in the region are concentrated along these major rivers, the majority of which occur around 80 km south, or over 50 km north, of the subject land. The closest Koala record to the project is 14.5 km from the subject land.

During biodiversity surveys, no evidence of Koalas was found opportunistically within the subject land. Preferred feed trees (*Eucalyptus camaldulensis)* rarely occur in the development corridor and subject land and those that do occur are considered low condition. Secondary feed trees are more common, such as Black Box (common within the subject land) and River Red Gum (occasional fragmented stands within the development corridor).

The subject land is not considered to support habitat for Koala. Therefore, it is considered that there is low potential of koala occurrence in the subject land and low potential for impact.

5.3.4 Heritage

Two submitters raised concerns over impacts to Aboriginal and historical heritage items. One submitter's views were that the project breaches lore and will cause harm and loss to sacred land.

Avoidance of significant Aboriginal cultural heritage values was a key objective of the project refinement process. Extensive on-Country investigations with the local Aboriginal community identified a substantive cultural assemblage across the project area, dominated by surface stone artefacts, hearths and culturally modified trees.

Field surveys for the EIS identified 32 Aboriginal objects and/or sites within the project area and surrounds, and totalling approximately 896 ha in size. Project refinement resulted in the avoidance of 15 Aboriginal sites, with residual impacts to 17 sites encompassing approximately 367 ha including, a total loss of value to six moderate significance sites; and partial loss in value of four sites of high significance, four of moderate and one of low value.

Following the exhibition of the EIS, Spark Renewables amended the development footprint to further avoid and minimise impacts to Aboriginal cultural heritage. Of the 43 sites identified as part of the amended ACHA within the project area and surrounds, 24 will be avoided with residual impacts to 19 sites. Of the 19 sites impacted, only 4 moderately significant sites are entirely within the development footprint with remaining sites only partially within the development corridor and/or development footprint.

An Aboriginal cultural heritage management plan (ACHMP) will be developed for the project in consultation with registered Aboriginal parties (RAPs) and Heritage NSW. The ACHMP will detail the management of known Aboriginal sites and mitigation measures to further avoid impacts to Aboriginal heritage values in the project area, along with unanticipated finds procedures and training and reporting protocols.

Spark Renewables and EMM have engaged extensively with senior knowledge-holders within the region since 2022. Areas of higher archaeological potential were identified during initial archaeological constraints modelling and avoided as part of preliminary project design, including aeolian landforms, paleochannels, watercourses, and the eastern fringes of Gilgai and ephemeral wetlands. The refinement of the project's development footprint has been iterative and has been informed by the ACHA surveys and test excavation findings as they became available. The amended development footprint avoids a total of 24 of the discrete Aboriginal sites and site complexes of high and moderate significance identified by the field investigations.

With regards to historical heritage, a total of eight historical heritage sites of local significance were identified in the project area. In the EIS, all sites were located outside the development footprint, while five sites were intersected by the development corridor.

In the EIS, direct impacts to all identified heritage sites within the development corridor were avoided. Indirect impacts were predicted to be low to negligible. It was also predicted that there would be a low adverse effect on the broader cultural landscape due to the placement of project infrastructure in a predominantly rural landscape. Similarly, direct impacts to all identified heritage sites within the amended development corridor will be avoided.

5.3.5 Transport

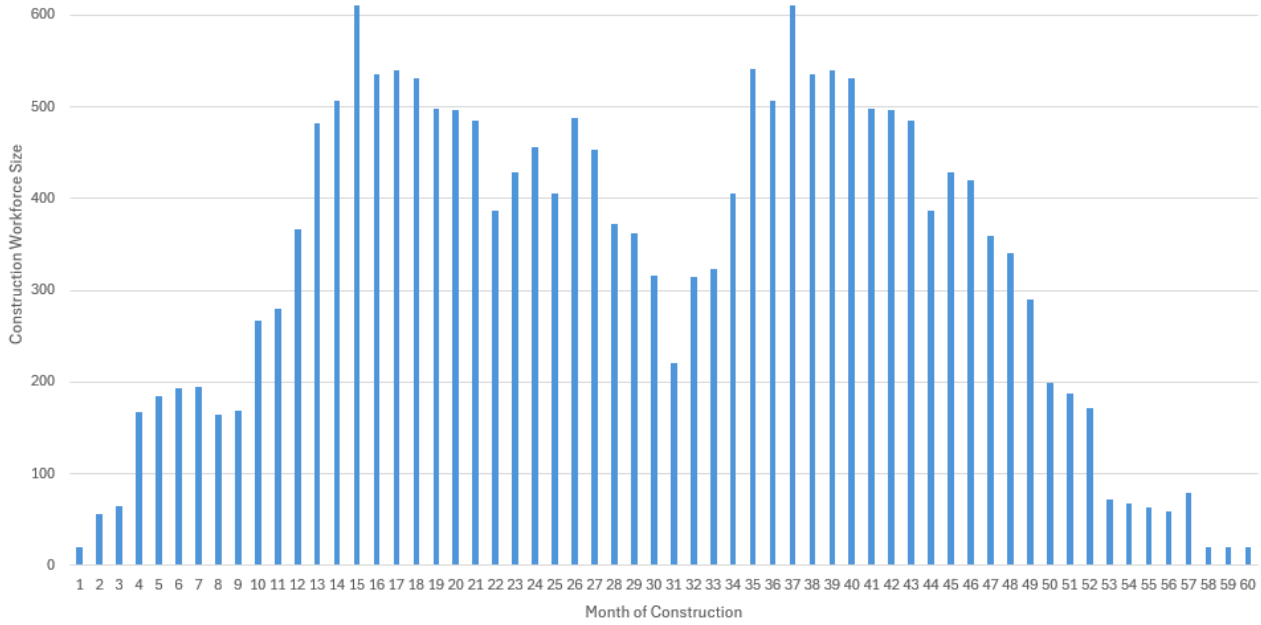
Six submitters raised concerns regarding the impacts to roads and traffic, including:

- concerns that the project will increase traffic and disrupt the local road network
- concerns that the project will cause disrepair to local roads due to the number of traffic movements
- concerns around the safety of the local roads and local agricultural traffic.

The construction of the project will result in an increase in traffic movements on the local road network for the duration of the construction period. The development footprint will be accessed from Kidman Way, McLennons Bore Road, Fernbank Road and Goolgumbla Road.

Construction vehicles will include light vehicles and shuttle buses transporting workers, and heavy vehicles delivering materials, project components and equipment.

The traffic impact assessment (TIA) prepared for the EIS found that at the peak of construction (month 15 in Figure 5.1), 638 estimated daily and 249 peak hour vehicle movements are anticipated. During the construction peaks in month 15 and month 37, there are expected to be 104 monthly OSOM movements, predominantly to deliver WTG components from the Port of Newcastle.



Source: Spark Renewables

Figure 5.1 Indicative construction workforce overview

The TIA also found that the level of service (amount of delay experienced by a driver) at key intersections and on Kidman Way and McLennons Bore Road will not be adversely impacted. The level of service is generally predicted to be LOS A (less than 14 seconds of delay), with the exception of peak hour travel on Kidman Way under a cumulative scenario (assumes concurrent construction of Dinawan Solar Farm, Yanco Delta Wind Farm, VNI West and Argoon Wind Farm), where LOS B (14 to 28 seconds of delay) is predicted. With the implementation of the proposed mitigation measures, no significant impacts to traffic flow or road safety are expected.

Road and intersection upgrades are proposed to accommodate construction traffic using the local road network. The new intersections at the site access points will be designed for the largest heavy vehicles and OSOM vehicles that will be accessing the development footprint. Road upgrades proposed for the project area listed in Table 5.2 (additional road upgrades will also be undertaken along the OSOM haulage route – a full list is included in the Amendment Report).

Table 5.2 Schedule of local road upgrades

Road	Proposed upgrade	Relevant stage(s)	Description
Kidman Way/site access intersection	New intersection	Stage 1	• A dedicated turning bay for left turning vehicles from Kidman Way. • Intersection upgrades to accommodate a 26 m long truck and to allow the passage of the largest OSOM vehicle.
Kidman Way/McLennons Bore Road intersection	Upgrade of existing intersection	Stage 1 Stage 2	• A widened shoulder for left turning vehicles and a dedicated turning bay for right turning vehicles from Kidman Way. • Intersection upgrades to accommodate a 36.5 m long truck and to allow the passage of the largest OSOM vehicle.
McLennons Bore Road/Cadell Road intersection	Upgrade of existing intersection	Stage 1 Stage 2	• Intersection upgrades to accommodate a 36.5 m long truck and to allow the passage of the largest OSOM vehicle. • Subject to outcomes of engagement with Murrumbidgee Council, the major road priority at this intersection may change from Cadell Road to McLennons Bore Road. Give-way signage would be installed on Cadell Road on both the north and south approaches.

Road	Proposed upgrade	Relevant stage(s)	Description
McLennons Bore Road	Road upgrade and widening	Stage 1 Stage 2	• Upgrade of dry weather road from Cadell Road to Kidman Way to an all-weather road and removal of existing signage relating to the use of this road during dry weather only. • Widening of unsealed road (where necessary) to cater for construction traffic (8 m trafficable width and 1 m unsealed shoulder on both sides, totalling 10 m wide unsealed carriageway or as otherwise agreed with Murrumbidgee Council).
McLennons Bore Road/site access intersections	New site access intersections	Stage 1	• Construct intersection to suit 36.5 m long truck and to allow the passage of the largest OSOM vehicle.
McLennons Bore Road/Fernbank Road intersection	Upgrade of existing intersection	Stage 1	• Intersection upgrades to accommodate a 36.5 m long truck and to allow the passage of the largest OSOM vehicle.
Fernbank Road	Road widening	Stage 1	• Widening of the unsealed road between McLennons Bore Road and the site access points to cater for construction traffic (8 m trafficable width and 1 m unsealed shoulder on both sides, totalling 10 m wide unsealed carriageway or as otherwise agreed with Murrumbidgee Council).
Fernbank Road/site access intersections	New site access intersections	Stage 1	• Construct intersection to suit 36.5 m long truck and to allow the passage of the largest OSOM vehicle.
McLennons Bore Road/Wilson Road intersection	Upgrade of existing intersection	Stage 2	• Intersection upgrades to accommodate a 36.5 m long truck and to allow the passage of the largest OSOM vehicle.
Wilson Road	Road widening	Stage 2	• Widening of the unsealed road between McLennons Bore Road and Goolgumbla Road to cater for construction traffic (8 m trafficable width and 1 m unsealed shoulder on both sides, totalling 10 m wide unsealed carriageway or as otherwise agreed with Murrumbidgee Council).
Goolgumbla Road	Road widening	Stage 2	• Widening of the unsealed road between Wilson Road and the site access points to cater for construction traffic (8 m trafficable width and 1 m unsealed shoulder on both sides, totalling 10 m wide unsealed carriageway or as otherwise agreed with Edward River Council).
Goolgumbla Road/site access intersections	New site access intersections	Stage 2	• Construct intersection to suit 36.5 m long truck and to allow the passage of the largest OSOM vehicle.

The costs associated with the public road upgrades listed in Table 5.2 will be the responsibility of Spark Renewables. Spark Renewables will not generate substantial traffic beyond the construction period. Maintenance of the road network during operations will continue to be the responsibility of the existing road authorities. Further, in relation to ongoing road maintenance, Spark Renewables will enter into a VPA with Murrumbidgee Council and Edward River Council, the purpose of which is to support the cost of maintenance of services such as local roads.

Spark Renewables will develop a CTMP to ensure effective traffic management measures are put in place to avoid and mitigate potential impacts. The CTMP will be developed in consultation with TfNSW, Murrumbidgee Council and Edward River Council prior to the commencement of road upgrades and construction of the project. The CTMP will address the safety of workers and road users within the vicinity of the development footprint and will aim to:

- minimise the impact of the construction vehicle traffic on the overall operation of the road network

- ensure continuous, safe and efficient movement of traffic for both the general public and construction workers
- provide a description of the construction vehicles and the volume of these construction vehicles accessing the development footprint
- provide a description of the proposed external routes for vehicles including the construction vehicles accessing the development footprint.

5.3.6 Water and flooding

Five submitters raised concerns around the use of the water and potential flooding impacts, including:

- statements that the project will use "millions of litres of water daily"
- concerns that project use of groundwater will impact the wider district's access to bore water
- concerns that WTG foundations will be susceptible to rising water table or flooding due to the expanding and contracting of clay soils in wet and dry periods.

i Water use and groundwater availability

A water resources assessment was prepared in Appendix E.7 of the EIS. The water resources assessment considers potential impacts to both surface water and groundwater from the project in general accordance with relevant guidelines and legislation. A flood study was prepared as part of the water resources assessment and is provided in Attachment A of the water resources assessment (Appendix E.7 of the EIS).

Since the exhibition of the EIS, the project has been amended. An assessment of the impacts of the amended project on water resources in Section 6.7 of the amendment report. The amended project's impacts on surface water and groundwater resources are anticipated to be substantially the same as outlined in the EIS.

The estimate of water demand for the project was outlined in Section 3.4.5 of the EIS, which has been reproduced below. Indicative water demand during construction is provided in Table 5.3.

Table 5.3 Indicative water demand

Activity	Water requirement	Source
Construction (non-potable)	176 megalitres (ML) over 5 years	Water will be sourced primarily from existing extraction bores that are owned by landholders associated to the project, where each bore has an applicable water access license (WAL). Demand for groundwater will be minimised by opportunistic use of water from rainwater tanks collecting roof runoff, reuse of water captured by construction sediment basins and extraction from existing landholder dams in accordance with harvestable rights.
Construction (potable), for use by: • construction workforce accommodation facility • construction offices • concrete batching.	188 ML over 5 years	Trucked to site by commercial water provider.

This accounts for an average of 1,400,000 litres of combined potable and non-potable water per week during construction.

The estimated ongoing operational water usage for the project will be lower than construction, at 5 ML (5,000,000 litres) per year for ongoing maintenance, dust suppression, permanent site amenities and fire protection.

During construction and operation, it is proposed to use non-potable water from a total of 3,691 unit shares of water entitlement, linked to four existing bores within the project area under three water supply works and water use approvals (Table 5.4). Therefore, there is sufficient existing licenced access to groundwater to meet non-potable demands.

Table 5.4 Groundwater works proposed to be used by the project

Approval number	Documented works description	Location of works	Nominated works purpose	Licence expiry	Bore ID	Bore yield recorded at construction (litres per second (L/s))	Water access license number	Entitlement (units)
50CA503992	Extraction groundwater works 1 x bore (no size nominated)	Delta Park Lot 144 of DP756418	Irrigation	30/9/2029	GW401211	265	11874	1,091
50CA503997	Extraction groundwater works 1 x bore (408 millimetres (mm))	Hawks Nest Lot 1 of DP593484	Irrigation	26/2/2031	GW062049	157	11876	743
50CA504004	Extraction groundwater works 3 x bores (457 mm, 130 mm, 460 mm)	Goolgumbla Merino Stud Lot 13 of DP756299 Lot 14 of DP756257	Irrigation, Stock and Domestic	14/5/2028	GW065059	227.5	11879	1,857
					GW414356	160		

The extraction volumes (and associated impacts) predicted for the project are consistent with the current approved use and entitlements linked to the bores. The risk to the groundwater environment from the proposed supply of water to the project is low, as the likely demands for the project will be within the available water entitlements and the documented individual groundwater yields of each of the individual bores.

Groundwater availability for existing users in the vicinity of the project (e.g. registered bores and GDEs) would not be impacted as project construction activities are not anticipated to intersect the regional water table.

ii Flooding

Some project infrastructure, including WTGs, has been placed in lower order mapped watercourses.

Based on flood modelling predictions completed in Appendix E.7 of the EIS, flooding within watercourses in a 1% AEP event are predicted to have a velocity of between 0.2 and 1.8 metres per second (m/s) with peak velocities predicted within the Coleambally Outfall Drain of 3.6 m/s. Flooding outside mapped watercourses and generally across the development footprint will have a lower velocity, due to the flat terrain.

Permissible velocities for typical open channel linings were reviewed by Fortier and Scobey (1926), Soil Conservation Service (1954) and Landcom (2004). These studies indicated that typically, rock and revetment lined channels can sustain flows up to 6 m/s. Concrete footings, such as those proposed for the project's WTGs, are considered comparable to rock and revetment lined channels, and therefore, will sustain flows up to 6 m/s.

Given that these velocity thresholds are much greater than what is predicted to occur during flood events within the development footprint, erosion of concrete footings required to be constructed in flow paths is unlikely to occur over the project life. Once operational, the project will be subject to ongoing site inspections of assets, specifically following flood events, as part of post-approval management plan requirements.

More information regarding impacts to water are provided in Section 6.7 of the amendment report and Appendix E.7 of the EIS.

5.3.7 Contamination

Seventeen submitters raised concerns regarding contamination impacts from the project, including:

- concerns that over time, microplastics and Bisphenol A (BPA) from deteriorating turbine blades will contaminate soil and waterways, entering the food chain through livestock. There are particular concerns around the implications of BPA exposure on public health, agricultural viability, and environmental safety
- concerns around contamination of the soils and waterways from heavy metals and oils uses in WTGs.

Spark Renewables recognise the community's strong commitment to public health, agricultural viability, and environmental safety. A preliminary site investigation (PSI) has been undertaken for the project area (refer Appendix D.6 of the amendment report). The contamination risk within the project area is considered low except for two moderate risk contamination sources associated with existing fuel and chemical storage. Targeted soil sampling is proposed in areas where a moderate contamination risk has been identified to quantitatively assess the risk and inform appropriate material management/disposal/remediation measures during construction.

Microplastic emission is caused by surface erosion on the outermost layer of WTG blades from rain and hail (Mishnaevsky et al. 2024). Research by Mishnaevsky et al. (2024) estimates that the mass of eroded plastic ranges from 8–50 g/year per blade. The total of microplastics pollution produced by wind farms across Australia is likely to be much lower than microplastics pollution from other sources, such as the wear and tear of tyres, which is estimated at approximately 0.23 to 4.7 kilograms per person per year (Kole et al 2017).

With regards to BPA, fact sheets produced by American Clean Power in March 2023 determined that "wind turbine blades contain only microscopic traces of residual BPA and therefore do not account for large, or any, emissions of BPA or microplastics to the environment" (American Clean Power 2023).

The fact sheet also reiterates the following:

> Once the BPA-based epoxy glue used in manufacturing of turbine blades is hardened in the factory prior to delivery to a project site, the blades only contain microscopic traces of residual BPA.
>
> If released to a natural environment, the trace amounts of BPA will rapidly undergo biodegradation and thereby be removed.
>
> The extremely low potential for BPA emissions from wind turbine blades does not pose a risk to the environment or people, and is much lower compared to what the U.S. Food and Drug Administration has approved for human exposure from food and beverage packaging.

With proper maintenance of WTGs, no impacts are predicted to public health, agricultural viability, and environmental safety.

Project infrastructure, including WTGs and substations, will be manufactured by reputable manufacturers meeting all relevant international and domestic standards. The substation and WTGs will be designed and constructed by reputable contractors and will incorporate sufficient bunding/storage capacity to contain any potential spills. With appropriate management and maintenance, these components are not expected to release any materials that present a risk to the environment.

Appropriate spill prevention and management measures will be developed as part of the CEMP, which will include spill clean-up procedures which would be implemented during construction and throughout the project's operations.

In summary, infrastructure containing heavy metals will be contained and will not come into direct contact with soils. Therefore, it is considered that the risk of contamination from the project and subsequent impacts on agricultural productivity and the surrounding environmental are low.

5.3.8 Land

i Agricultural impacts

Twenty-four submitters raised concerns around the impacts to agricultural land, including:

- concerns around the loss of agricultural land, that the project will reduce the area of productive agricultural land and contribute to food insecurity
- statements that the project contravenes article 2.1(b) of the Paris Agreement, which protects agricultural land
- concerns around "long-term, irreversible impacts" to agricultural land and productivity
- concerns around the reduced ability for aerial spraying for nearby landholders
- questions around how host landowners will be able to comply with LPA meat standards if animals will continue to graze during construction.

The land within the development footprint will be temporarily unavailable for the current land use (i.e. sheep and cattle grazing with some cropping) during construction, removing up to $574,784 in annual agricultural productivity based on estimates on livestock and cropping land use and regional productivity information. Existing agricultural land uses will continue adjacent to the development footprint during construction and operation.

The significance of the removal of LSC Class 4, 5 and 6 land is minor, with the project removing approximately 0.12% of LSC Class 4 land mapped within the South West REZ.

Article 2.1(b) of the Paris Agreements states that the agreement aims to "*strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, … by increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.*" As existing agricultural land uses will continue adjacent to the development footprint during construction and operation, the project is not considered a threat to food production and therefore does not contravene the Paris Agreement.

With the implementation of effective land management procedures during construction and operation, and effective decommissioning and rehabilitation at the end of project life, the project will have no permanent impacts on agricultural resources or enterprises.

As outlined in the Clean Energy Council's fact sheet on *Solar synergies: how renewable energy and agriculture thrive together* (CEC 2025b), there is evidence to support the benefits of complementary agricultural production and electricity generation. Renewables energy project can provide farmers a guaranteed income that isn't connected to fluctuating commodity prices or impacted by extreme weather. The Clean Energy Council's fact sheet outlines two case studies to support this: Dubbo Solar Farm and University of Queensland's Gatton Solar Farm.

It is acknowledged that aerial agricultural operations, such as for the application of fertilisers and pesticides, are conducted in the area. Consultation with local aerial application operators will be undertaken to determine if safe aerial application operations will be possible within the project area and on surrounding properties. The following mitigation measures are outlined in Section 6.11.7 of the EIS to manage safety risks from aerial agricultural operations:

- Provision of project details, including the 'as constructed' location and height information of WTGs, meteorological monitoring masts and overhead transmission lines, to local and regional aircraft operators prior to construction, including nearby landowners to facilitate aerial application operations planning.
- Further engagement with local aerial agricultural operators and aerial firefighting operators emergency services providers regarding aircraft operations in the vicinity of the project.
- Identification of overhead transmission lines and/or supporting poles that could adversely affect aerial application operations in consultation with local aerial application operators, and marked in accordance with Part 139 MOS 2019 Chapter 8 Division 10 section 8.110 (7) and section 8.110 (8).
- Engagement with Airservices Australia and CASA regarding changes to the LSALT, and with aviation authorities, local aerodrome owners/operators and local aerial agricultural operators regarding any changes to the LSALT from the project.

With regards to Livestock Product Assurance (LPA) standards, statements from Integrity Systems, the organisation that administers the LPA program, were received by Clean Energy Council in October 2024 advising that "there is no prohibition or restriction on having items such as transmission lines, solar panels, wind turbines or any similar operations or equipment on property." Risks to compliance with LPA standards from the project are primarily linked to any potential contamination from degrading infrastructure/equipment leaking into soils. Project equipment and infrastructure will be maintained in accordance with manufacturer recommendations and industry standards to prevent this from occurring. With the implementation of mitigation measures, the project will not prevent the host landholder from complying with LPA meat standards.

ii Soil erosion

Two submitters raised concerns that land clearing and extensive road building would lead to soil erosion.

Spark Renewables has committed to managing and mitigating impacts to soil erosion through the implementation of measures outlined in Section 6.8.4 of the EIS, in accordance with industry standard practice. These measures include:

- minimising the extent and duration of land disturbance
- controlling water movement through the development footprint
- stabilising disturbed areas promptly
- maximising sediment retention on site

- maintaining drainage, erosion and sediment control measures
- monitoring and adjusting drainage, erosion and sediment control practices to achieve the desired performance standard
- constructing suitable watercourse crossings
- considering the erosion hazards posed by the dispersive subsoils during excavation of cable and pipe trenches, construction of roads, tracks and ancillary facilities.

A land and rehabilitation assessment was prepared to inform the EIS (Appendix E.8 of the EIS) and is summarised in Section 6.9 of the EIS.

5.3.9 Bushfire

i General fire risk

Thirteen submitters raised concern about fire risk associated with the project, including:

- concern that the project would start or propagate a grass and/or bushfire to neighbouring properties
- concern that the project is in a high fire risk area and susceptible to lightning strikes
- views that fire risks to near neighbours have not been appropriately addressed
- concern regarding potential release of hazardous/toxic smoke from a fire associated with the project.

One submitter raised concern that the bushfire assessment report has a lack of understanding of fire behaviour in the local area.

It is acknowledged that bushfire risk is a serious concern within the surrounding community.

A bushfire assessment report was prepared in Appendix E.12 of the EIS. The guideline *Planning for Bush Fire Protection* (RFS 2019) was considered in the preparation of the bushfire assessment. Mitigation measures have been identified to minimise the chance of bushfire ignition due to the project, and to reduce the severity of potential impacts if a bushfire occurs within the site. Mitigation measures included:

- provision of asset protection zones (APZs) for infrastructure including WTGs, temporary worker accommodation facility and safe refuge buildings, in accordance with Appendix 4 of *Planning for Bush Fire Protection* (RFS 2019)
- buildings within 100 metres of bush fire prone vegetation are constructed to comply with *AS3959:2018 – Construction of buildings in bushfire-prone areas*
- provision of access and water supply in compliance with *Planning for Bush Fire Protection* (RFS 2019)
- maintenance and housing of infrastructure so that it will not create a source of ignition to the surrounding vegetation and grassland
- preparation of an Emergency Management Plan

- preparation of a Fire Management Plan in consultation with the NSW RFS District Office for the Mid Murray Zone.

The assessment found that with the application of these mitigation measures, bushfire risk will be reduced to an acceptable level and comply with the aims, objectives and specific performance criteria of *Planning for Bushfire Protection* (RFS 2019).

The bushfire assessment report has since been amended to align with amended project and further consultation outcomes with NSW RFS, Murrumbidgee Council and Edward River Council and is included in Appendix D.7 of the amendment report. Bushfire risk from the project has not been materially altered by the amended project.

An individual from CICL provided an extensive submission in relation to the project's bushfire assessment and management of bushfire risk during construction and operations. A separate response to each of the matters raised by that individual has been provided by Spark Renewables and can be made available to DPHI if required.

ii Aerial firefighting impacts

Five submitters raised concerns around the impact of the project on aerial firefighting, including concerns that the physical height, blade diameter and wind turbulence for the WTG will make it difficult to control aircraft and prevent aerial water bombers operating within 5 km to 10 km of any wind farm.

It is acknowledged that bushfire risk is a serious concern within the surrounding community, including aerial firefighting impacts.

As outlined in the bushfire assessment report (Appendix D.7 of the amendment report) and the amendment report, Spark Renewables will implement the following operational mitigation measures to reduce risks to aerial firefighting:

- Preparation and implementation of a Fire Management Plan that includes:
  - location of hazards that may impact firefighting operations
  - warning lights or visible markers (such as orange balls) on meteorological monitoring masts to minimise risks during aerial firefighting operations
  - protocols for the rapid shut down of turbines in emergency situations ensuring acknowledgement of who has the authority to direct turbine shut down procedures.
- Preparation and implementation of a bushfire emergency management and evacuation plan in consultation with NSW RFS in accordance with Table 6.8d of *Planning for Bush Fire Protection* (RFS 2019) and consistent with *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* (RFS 2014). A copy of the bushfire emergency management and evacuation plan will be provided to the local emergency management committee prior to the start of construction.
- Continued engagement with local aerial firefighting operators, including Argoon and Goolgumbla Rural Fire Brigades who are likely to be involved in the coordination of aerial firefighting operations, to develop procedures the safe operation of emergency aircraft in the vicinity of the project.

5.3.10 Hazards

i Blade throw

Three submitters raised concerns around the risk of blade throw, including:

- views that the project should be set back at least 2 km from neighbouring lands, not just dwellings
- concerns that the WTGs are not sufficiently set back from transmission lines
- concern that a blade throw event would cause fire.

A blade throw risk assessment was prepared for the project by Sherpa Consulting as part of a hazards and risks assessment and is provided in Section 4 of Appendix E.13 of the EIS. The assessment conservatively defined the risk area for maximum throw distance of entire blade for overspeed conditions as 750 m from WTGs.

For blade throw impact to residences, the acceptable risk for individual fatality in areas of residential land use is defined in Hazardous Industry Planning Advisory Paper (HIPAP) No. 4: *Risk Criteria for Land Use Safety Planning* (DoP 2011) as 1×10^{-6} per year (i.e. one in a million). In the project design, WTGs have been setback at least 2 km from non-associated residences. As there are no residences within 750 m of a WTG, the HIPAP No. 4 individual fatality risk criterion for residential land use is met and societal risk from blade throw is expected to be negligible. As outlined in Appendix D.8 of the amendment report, as the separation distances between WTGs and nearest receptors remain similar, if not greater, blade throw risks to residences and BESS facilities are similar if not lower for the amended project.

Risk results presented in Appendix E.13 of the EIS for residences are for location specific individual risk (LSIR) and do not account for probability of presence (i.e. whether someone will be in that location at the time in which the blade throw event occurs). The risk level for blade throw to neighbouring land used for agricultural production and nearby public roads would be lower than for residences when adjusted based on the probability of presence.

For blade throw risk to transmission lines, the project has been designed with reference to *Guideline for Wind Turbines Proximity to Electricity Transmission Lines* (ENA DOC 047-2022) (Energy Networks Australia 2022) which defines industry best practice for setback distances to avoid hazards, including blade throw. Spark Renewables will continue to engage with Transgrid (proponent for Project EnergyConnect and VNI West) and Origin (proponent for Yanco Delta Wind Farm) to manage blade throw risks from the project.

With regards to bushfire risk from blade throw, blade throw has been identified as a potential source of ignition of bushfire during the operation of the project in the bushfire assessment report (Appendix D.7 of the amendment report). Mitigation measures outlined in the bushfire assessment report will be implemented to reduce and manage risks from bushfire.

ii Telecommunications

One submitter raised concerns around the impact of the project on mobile coverage in the area, stating that without upgrades to the Broome Lane Communications tower the additional 500 people in the area from the construction workforce will further impact the tower signal. The submitter requested that upgrades should be at the expense of the project owner and considers it highly unlikely that any of the Community Benefit Funds will be put towards any upgrades of the current telecommunications tower. The submitter is concerned about the impacts to business and the safety and wellbeing of surrounding residents.

It's acknowledged that during construction, the use of the mobile network by the project's construction workforce may impact network availability for neighbouring landowners.

5.3.11 Social

i Local benefits and community benefit sharing

Seven submitters raised concerns relating to ongoing benefits to the local community, including:

- concerns that there will be little to no local labour employed and all the benefits of the project will flow directly to Spark Renewables
- concerns that the Community Benefit Sharing and VPA favours non-effected residents of the LGA and that it needs to include those communities closer to the project which will be most impacted
- views that commercial agreements should be required with every non-associated dwelling within 5.5 km of WTGs and if these are not gained, then 'offending' turbines need to be removed from the project.

Spark Renewables is committed to delivering a project that provides a positive legacy for the local community.

Spark Renewables and Murrumbidgee Council have agreed on a community benefit sharing program that is predominantly delivered in partnership with the council through VPAs. Spark Renewables is in ongoing consultation with Edward River Council to agree on the VPA for the project's community benefit sharing fund. The key terms of the community benefit sharing program and VPAs that have been agreed upon with Murrumbidgee Council and that are being discussed with Edward River Council are provided in Section 5.7 of the EIS.

The total fund amount will be split between funding administered by Murrumbidgee Council and Edward River Council and by Spark Renewables as follows:

- 70% of the funding ($735 per MW) will be provided to the respective council hosting the wind capacity for projects identified in that council's approved Development Contributions Plan or Community Strategic Plan.
- 15% of the funding ($157.50 per MW) will go to a Community Benefit Fund to be administered by a committee of the relevant council, which will provide annual grant funding to initiatives that are put forward by and benefit the local and broader community.
- 15% of the funding ($157.50 per MW) will be administered by Spark Renewables (or the project owner) and will go to initiatives to share project benefits with the neighbouring community and local Aboriginal and Torres Strait Islander communities.

The Community Benefit Fund will prioritise funding for suitable projects located closer to the project and be used for environmental programs, enhancing local biodiversity, recreational facilities, education programs, arts or cultural programs and other initiatives that benefit the local community.

The potential positive social impact of the project, in terms of employment and direct and indirect jobs and supply chain opportunities, will be enhanced through implementation of participation plans. An industry participation plan will be developed and implemented, which will identify the approach to opportunities for supply of goods and services, employment and training, including Aboriginal participation, as well as sustainable procurement. An Aboriginal participation plan will also be developed and implemented in consultation with First Nations stakeholders to optimise local capacity and aspirations through targeted participation initiatives within the

regional area. This would include setting targets for First Nations participation in the project workforce and procurement.

It is acknowledged that while the majority of employment opportunities from project are short-term (associated with construction), the combined projects in the REZ will offer many years of employment opportunities.

A landscape and visual impact assessment (LVIA) was prepared for the project by Moir Landscape Architecture in accordance with methods outlined in *Wind Energy: Visual Assessment Bulletin* (the Visual Bulletin) (DPE 2016b).The EIS LVIA found that of the 13 non-associated residences within 5.5 km of WTG locations, 6 are likely to experience a negligible visual impact, 6 are likely to experience a low visual impact and one (R019) is likely to experience a high visual impact. Mitigation measures were proposed to reduce visual impacts at R019.

Following the public exhibition of the EIS, the development footprint was amended. Amendments include a reduction in the number of WTGs assessed for the project from 267 to 200 and a reduction in a tip height from 280 m to 250 m. An amended photomontage was produced for R019 (refer Appendix D.1 of the amendment report) which found that the amended project will have a low visual impact on R019.

In accordance with the Visual Bulletin, no commercial agreements are proposed.

ii Community relationships

Four submitters raised concerns that the project will fracture community relationships, cause a political, social and economic divide within the community and contribute to a loss of social cohesion.

Spark Renewables' communication and stakeholder engagement objectives for the project are to:

- deliver an honest, innovative, flexible and transparent community engagement process
- engage with, and inform, local residents, the broader community and other stakeholders about the project, its benefits and potential impacts by providing timely and ongoing access to project information
- develop relationships with the community and other stakeholders to facilitate positive outcomes through the project for the community.

Spark Renewables acknowledges concerns regarding the impact on community cohesion. Spark Renewables is committed to a range of mitigation and management measures to minimise the social impacts of the project.

Through various mechanisms including the community benefit sharing program delivered in partnership with Murrumbidgee Council and Edward River Council, Spark Renewables seeks to ensure that financial and non-financial benefits are distributed to the broader community and other local and regional stakeholders. Spark Renewables aims to do so in a way that drives sustainability, community resilience to change and distributive equity.

Additionally, through the payment of South West REZ access fees Spark Renewables will make significant financial contributions to the NSW Government to be directly invested into communities within the South West REZ.

iii General disruption to community and lifestyle

Twelve submitters raised concerns that the project will impact the current lifestyle, daily operations and cultural values of the community and contribute to less people living in the area. One submitter raised concerns around the lengthy 60-month construction period causing an extended period of negative impacts to the community.

The project has been designed to minimise amenity impacts on the surrounding community including:

- incorporation of setbacks from public roads and private viewpoints
- inclusion of an accommodation facility to minimise impacts on local housing availability and short-term accommodation providers
- design of construction traffic routes to avoid potential conflict with road users on local roads and minimise vehicle movements on the public road network to the extent practicable
- maximising distance between potential noise-generating infrastructure (including the on-site substations and WTGs) and the closest residences.

Further, Spark Renewables will provide ongoing benefits to the local community as part of the community benefit sharing program and through the payment of South West REZ access fees which will be directly invested by the NSW Government into communities within the South West REZ.

The SIMP will include methods for engaging various stakeholders, including local businesses, and local workforces, on their key interests to manage impacts, enhance benefits, and provide suitable mechanisms for project feedback. A publicly available complaints and grievance procedure will be included as part of the SIMP.

iv Health and wellbeing

Six submitters raised concerns that the uncertainty and disruption caused by the project is and will impact the health and wellbeing of neighbouring landholders, particularly in regard to stress and anxiety. One submitter raised concerns around the health implications of noise impacts, stating that operational noise from the WTGs will cause sleep disturbances and increased stress levels.

Spark Renewables acknowledges that the planning and development stage of any major project can cause stress for local communities and landholders, especially associated with uncertainty over the project's potential impacts, and in the broader context of renewable development in the South West REZ.

Studies have been undertaken relating to the stress and anxiety of major developments, especially coal mining and coal seam gas. These studies recognise that health and well-being impacts need to be considered at a community level. In a study of the health of Hunter Valley communities close to coal mining and power generation, where there is a significant concentration of such activities, Merritt et al. (2013) found that:

> There were no significant differences in management rates of mental health conditions in the Hunter Valley region compared with the rest of rural NSW. Management rates of depression and anxiety were not higher, nor were prescription rates of antidepressants.

This indicates similar levels of anxiety are experienced in the Hunter Valley region compared to rural NSW as a whole, although the causes of anxiety may vary between regions.

The social impacts and benefits of the project are discussed in Section 6.11 of the EIS, acknowledging that the project may generate feelings of stress and anxiety in landholders and the broader community. Mitigation measures proposed in Section 6.11 of the EIS also addresses several community concerns related to the project, which should reduce uncertainty, and consequently, mental health and/or stress associated with the project.

The positive regional benefits of the project, including employment opportunities and flow-on economic effects, will help to reduce mental health stress on some members of the community by improving resilience in times where agricultural production is jeopardised by climatic or economic uncertainty.

v Local employment and labour availability

One submitter raised doubts that the project will be able to adhere to prioritising local labour, given current labour shortages in Jerilderie and Coleambally.

For the purposes of the traffic impact assessment, the EIS assumes that 25% of the required workforce (i.e. 150 personnel) will be sourced from within the region, defined as approximately one hour's driving distance from the project area. The regional centre of Griffith is included within this defined area and will not solely rely on workers from Jerilderie and Coleambally. The remaining 75% of the workforce (i.e. 450 personnel) is assumed to come from outside the region and will be accommodated in temporary workforce accommodation facilities.

An industry participation plan will be developed and implemented, which will identify the approach to opportunities for supply of goods and services, employment and training, including Aboriginal participation, as well as sustainable procurement. An Aboriginal participation plan will also be developed and implemented in consultation with First Nations stakeholders to optimise local capacity and aspirations through targeted participation initiatives within the regional area. This would include setting targets for First Nations participation in the project workforce and procurement.

If less than 25% of the workforce is able to be sourced from the local region, a greater number of personnel may be sourced from outside the region.

vi Public interest and social license

Six submitters stated that the project is not in the public interest or does not have social licence to operate. One submitter specifically referred to the landscape values survey completed by 14 people in December 2021, stating that the survey is not a wide enough sample of the population to indicate social licence.

Spark Renewables values its relationship with the local community and has been proactive in engaging with the community to build social licence.

While 86 objections to the project were made during public exhibition of the EIS, a large proportion of the those were opposed to renewable energy projects and/or the South West REZ in general and were not specific to the project.

Some objections were submitted by local residents, with 7 objections received by submitters within 5 km of the project area, which accounts for 9% of total submissions. This distance is based on the locality nominated within the submission (e.g. Bundure and Jerilderie) and doesn't mean that the submitter's residence is within 5 km of the project area. It is acknowledged that the impacts of projects are most often borne by those closest to the project. Specific mitigation measures have been identified in the EIS to mitigate these impacts, and Spark Renewables continues to engage with local residents to address concerns regarding the project. The local area will also benefit from the project through Spark Renewables' community benefit sharing program. This program is designed to ensure that non-associated landholders, who may be adversely impacted by the project, such as impacts to local infrastructure, benefit from the project's opportunities.

The project is considered to be justified and in the public interest because:

- it will contribute to energy security and reliability in NSW by diversifying the State's energy mix and helping to prepare for the retirement of large-scale coal-fired power generation
- it will contribute to reducing GHG emissions from electricity generation, reducing the impacts of climate change and the community and the environment

- it is aligned with Commonwealth and NSW Government electricity policies and strategies and regional plans
- it will provide ongoing economic benefits for both the local economy within the Murrumbidgee LGA and more broadly, the regional economy
- it will provide significant employment and business opportunities during construction
- the impacts of the amended project have been assessed and can be adequately managed through the proposed design and mitigation and management measures proposed to be implemented during construction and operations.

vii Workforce accommodation

One submitter queried the approach to construction workforce accommodation, asking for construction accommodation facilities to be centralised within the host property to avoid duplication or to even negotiate with other developments in the area.

Temporary worker accommodation facilities for non-local construction employees (where skills cannot be sourced locally) are proposed in the eastern area for Stage 1 and the western area for Stage 2. Indicative locations are shown on Figure 1.3. Each accommodation facility will be established early in the construction phase for each stage of the project. Each facility will accommodate up to 450 workers.

The accommodation facility in the eastern area will be co-located with the temporary Dinawan Solar Farm worker accommodation facility, if the Solar Farm project (SSD-50725959) is approved. This accommodation facility is centrally located within the Dinawan Solar Farm project area.

Two accommodation facility location options in the western area are shown in Figure 1.3, however, only one of the two accommodation facility location options will be constructed.

The project will be constructed in approximately 36 months for each stage (approximately 60 months total to allow for 6-month overlap between stages).

Temporary worker accommodation facilities have been proposed for each stage primarily to reduce travel times for workers during each stage. Travel from the accommodation facility in Stage 1 to the north-western corner of Stage 2 would take approximately 45 minutes. Additionally, given the length of the construction period (up to approximately 5 years), it is considered reasonable to propose an accommodation facility for each stage of construction.

During the scoping phase of the project, Spark Renewables engaged Transgrid regarding the co-location of workforce accommodation for the project at the Project EnergyConnect accommodation facility at the Dinawan Substation site. Given the large size of the construction workforce and the uncertainty surrounding construction overlap of the two projects, it was determined that a separate workforce accommodation facility would be proposed for the project to provide certainty that social impacts to local and regional accommodation would be mitigated. Spark Renewables will continue engagement with Transgrid to determine any opportunities to share accommodation facilities in the future.

5.3.12 Economic

i Property values

Six submitters raised concerns that visual impacts form the project could devalue neighbouring properties. One submitter stated that numerous studies have shown that the presence of wind turbines can lead to a significant decrease in nearby property values and raised concerns around the value of their investments and the local real estate market.

The impact of the project to the amenity of neighbouring properties and the locality has been considered in relation to impacts on land values. The EIS and supporting technical assessments have considered potential amenity impacts from the project's construction and operations. Significant impacts to neighbouring landholders have been avoided through the refinement of the project and/or management and mitigation measures have been proposed to mitigate potential impacts.

As outlined in the Clean Energy Council's fact sheet on *Property prices and insurance* (CEC 2025c), studies have shown that renewable energy projects, including wind farms, "do not have ongoing negative impacts on nearby property values" and in some cases have been found to slightly increase property values, due to increased local investment and the perception of clean energy benefits.

ii Local economic impacts

Three submitters raised concerns that the project will impact the local economy, including:

- concerns that impacts to local infrastructure would be immense, and the long-term maintenance costs could burden the community
- concerns that the project will decimate the productivity of the land and cause a decline in the creation of wealth and prosperity of the people.

The project will generate an alternative revenue stream for associated landholders through landholder agreements. Associated landholders will receive financial payments from Spark Renewables under the provisions of the relevant landholder agreement. Income diversification will assist associated landholders to sustain their livelihoods now and into the future.

Neighbouring properties will also benefit from the project through Spark Renewables' community benefit sharing program. This program is designed to ensure that non-associated landholders, who may be adversely impacted by the project, such as impacts to local infrastructure, benefit from the project's opportunities.

Further, Spark Renewables will enter into a VPA with Murrumbidgee Council, the purpose of which is to support the cost of maintenance of services and community programs. Spark Renewables is in ongoing consultation with Edward River Council to agree on the VPA for the project's community benefit sharing fund.

Construction phase project procurement activities have the potential to deliver economic benefits to businesses within the local and regional area. Local procurement may also enable flow-on economic impacts, which would be realised in the regional area. To maximise local procurement benefits derived from the project, Spark Renewables will engage Murrumbidgee and Edward River Councils, local businesses and the Coleambally Chamber of Commerce, as part of the industry participation plan, to inform an understanding of opportunities and limitations for procuring local goods and services, as well as aspirations amongst local businesses.

Spark Renewables will undertake regular engagement (to be defined in the SIMP) with local businesses to advise of construction periods and the potential increase in trade or patronage. This will provide these businesses with an opportunity to plan as required to maximise benefits of increased demand, and its associated revenue.

Spark Renewables will also identify measures in the SIMP to encourage the project workforce, particularly during the construction phase, to support and contribute to the local and regional community through local spending. This may be done through project provided vouchers at local businesses, and promoting the local offering, such as on notice boards at the accommodation facility.

Impacts to agricultural productivity within the development footprint are discussed in Section 5.3.8i. No impacts to agricultural productivity (and associated revenue from these operations) are predicted outside the development footprint.

iii Cost of insurance

Two submitters raised concerns that the project will increase the insurance costs of neighbours, particularly public liability insurance. One submitter described that increases will be "exorbitant" and impacts to neighbours in regards to insurance have been "enormously underestimated".

The Insurance Council of Australia has provided guidance on this issue in a key statement published on 14 May 2024, stating:

> Current information indicates that insurers generally do not have specific concerns related to a property hosting transmission lines or neighbouring energy infrastructure. At the time of writing, the Insurance Council is not aware of any instances where Insurance Council members have been unable to provide insurance or have increased premiums as a result of a farm (or a neighbouring property) hosting energy infrastructure (ICA 2024)

As noted by the Clean Energy Council (2025d), there is no evidence to suggest that renewable energy projects increase the cost or impact the ability for a neighbouring landholder to obtain public liability insurance.

Further, advice from the Clean Energy Council (2025c; 2025d), confirms that increases to insurance premiums are likely instead related to "escalating costs of natural disasters, increasing value of homes and vehicles, inflation pushing up building and vehicle repair costs and the increasing cost of doing business for insurers," rather than renewable energy projects.

Given the above, the project is not expected to alter the ability of neighbouring properties to obtain cost-effective insurance premiums.

Spark Renewables will take multiple steps to minimise the risk of fire (both spreading to and originating at the project), including developing emergency response plans, providing emergency vehicle access, managing vegetation, creating fire breaks (i.e. APZs), installing and maintaining water storage, building access roads, training staff, active monitoring and coordinating with Argoon and Goolgumbla Rural Fire Brigades.

5.3.13 Decommissioning, rehabilitation and waste

Twenty-five submitters commented on the decommissioning plan for the project, summarised as follows:

- Concerns that the site will not be fully decommissioned and rehabilitated, including views that both above-ground and underground infrastructure should be removed to restore land to its original condition.
- Questions around the approach for when WTG components reach end-of-life, or are damaged or no longer functional during the operational phase. There is concern that WTG components will end up in landfills due to limited recycling options, including views that WTGs are not recyclable.
- Calls for a bond to cover decommissioning, disposal, recycling, and land rehabilitation costs, similar to coal mines. Worries that costs and responsibilities will ultimately fall on land hosts rather than the developer.

At the end of the project life, the development footprint will be rehabilitated to a condition as near as practicable to the condition that existed prior to construction of the project, in consultation with the landowners.

As is typical for large scale wind farm developments in NSW, it is anticipated that any consent for the project will include conditions requiring that the site will be rehabilitated to the satisfaction of the Planning Secretary in compliance with rehabilitation objectives listed within the development consent.

Decommissioning bonds are not typically part of contemporary consent conditions for large scale wind farm developments in NSW. Spark Renewables has entered into agreements with project landholders, which include obligations regarding decommissioning and rehabilitation.

Initial rehabilitation will involve removal of any temporary infrastructure, such as construction phase laydown areas. Rehabilitation of the development footprint would occur following the cessation of operations. Rehabilitation would involve removal of the wind farm and ancillary infrastructure. It is possible that some infrastructure may be retained where it is agreed with the landowners to do so (subject to appropriate development consent). For example, some infrastructure may have alternative uses that support future grazing activities such as access roads, hardstand areas, sheds and tracks. Structures and equipment that cannot be reused or recycled will be disposed of at an approved waste management facility in accordance with the project's waste management plan.

If the project is decommissioned, all aboveground structures will be removed (unless otherwise agreed with landowners and regulators) and the site rehabilitated generally to its pre-existing land use, as far as practicable. Project infrastructure will be managed in accordance with the waste management hierarchy and contemporary waste management legislation. WTG foundations, including concrete structures, will typically be retained in situ and covered with soil and/or rock and revegetated. Underground cabling will typically be decommissioned and removed, unless the Planning Secretary agrees otherwise.

These measures will help to ensure the effective restoration of the land to its original condition, minimising long-term environmental impacts and enabling future land use flexibility.

At the end of the project's operational life, the WTGs will be reused, recycled or if required, landfilled. Approximately 90% of a wind turbine — including material like steel, aluminium, and copper — is readily recyclable (CEC 2025d; American Clean Power 2024). The remaining 10% is largely from WTG rotors (including blades) which are composed of mainly epoxy resin and glass fibre. When landfilling is necessary, turbine materials are relatively inert in terms of environmental impact. Spark Renewables anticipates that by the time the project reaches the operational phase, and certainly at the time of decommissioning, there will be significantly more recycling options available within Australia. Spark Renewables will seek to avoid landfill options wherever possible through innovative reuse or recycling options for WTG blades, should replacement be required during the operational phase.

Spark Renewables is committed to minimising waste sent to landfill from the project and will attempt to recover/recycle all dismantled and decommissioned infrastructure and equipment. Manufacturers, distributors and installers of WTGs that are members of product stewardship schemes will be selected where possible.

5.3.14 Cumulative impacts

i Cumulative impacts from multiple renewable energy projects

Seven submitters commented on the cumulative impacts from multiple renewable energy projects in the area, particularly concerned about the transformation of the wider landscape. One submitter is particularly concerned that there has been no proper planning for the location of renewable energy projects.

Cumulative impacts were assessed in accordance with *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPE 2022b) in Section 6.14 of the EIS. The screening process identified projects (proposed, approved, under construction and operational) within 50 km of the project which may plausibly contribute to cumulative impacts.

Cumulative impacts have been primarily considered in relation to potential overlaps in construction phases, as the ongoing impacts from operation of the project are expected to be minimal in comparison to construction impacts. In addition, the number of projects that will be built will be determined by DPHI's approval process, the outcomes of the competitive South West REZ access process and the successful construction of the approved project. It is highly unlikely that all projects will be approved and/or built and therefore, the assessment of cumulative impacts is considered conservative.

Cumulative impacts on employment and workforce; housing and short-term accommodation; regional economy; agricultural production; population change; services; amenity; traffic; and biodiversity were assessed in Section 6.15 of the EIS.

It is acknowledged that the landscape character is likely to be altered by the visibility of the project and surrounding wind farms, with simultaneous views likely from Kidman Way and surrounding roads. However, as described in Section 5.1.1iii, the project area is considered ideally located for the project, primarily due to its location within the South West REZ and proximity to approved transmission infrastructure.

Justification for the location of the South West REZ is outside of the scope of this project. Details on REZs in NSW, and specifically the South West REZ, are provided on EnergyCo's public website (https://www.energyco.nsw.gov.au/sw-rez).

ii Cumulative impacts to roads

One submitter commented on the cumulative impact of renewable energy developments on roads, raising concerns about the impacts to the residents, road users and road surfaces from the use of the same route over hundreds of kilometres.

All traffic associated with the project is expected to travel along Kidman Way, McLennons Bore Road, Wilson Road and Goolgumbla Road.

A summary of the traffic upgrades proposed for the project are provided in Section 5.3.5. The costs associated with these public road upgrades will be borne by Spark Renewables. Spark Renewables will not generate substantial traffic beyond the construction period.

Ongoing maintenance of the State road network will continue to be the responsibility of the existing road authorities. A road maintenance strategy will be developed in consultation with Murrumbidgee Council and Edward River Council for the maintenance of local roads during construction.

iii Cumulative impacts to biodiversity

Five submitters commented on the cumulative impacts to biodiversity, including:

- concerns that there has been insufficient consideration of cumulative impacts to the biodiversity of the local area
- concerns that wind turbines from multiple projects in the area will impact migratory native birds including Australian Painted Snipe and Australasian Bittern
- concerns that multiple developments will impact kangaroos.

The cumulative impact to biodiversity from the proposed and current renewable energy developments in the South West REZ is assessed in Section 8.6 of the amended BDAR (Appendix D.3 of the amendment report). Based on publicly available assessment documentation, 22 large-scale renewable energy generation, storage and transmission projects are identified in the region (including part of the South West REZ) that will impact similar PCTs, habitats and threatened species to the project. The biodiversity impact of each project has been surveyed and assessed as per individual development applications separate to the project, which informed the cumulative assessment. Impacts from individual projects will be required to avoid, minimise and where necessary, offset residual impacts.

The cumulative impacts of the project and other wind farm development on species mortality, movement patterns and use of adjacent habitat are assessed in Section 8.3.4 of the amended BDAR. Detailed and adaptive management plans, such as the project's BBAMP, will be required to be developed and implemented consistently to provide an effective monitoring program and strategy to manage and mitigate operational issues relating to the potential cumulative impacts from multiple projects. A coordinated effort will be required to ensure issues that may occur at one wind farm site, and which could be prevented at another, are consistently reported upon and mitigation strategies consistently applied.

A key strategy to minimise the potential for at-risk waterbird and other nomadic species, such as Australasian Bittern, to collide with operational turbine blades is the implementation of increased monitoring during rare flood events. During these events, it is proposed to:

- increase monitoring of WTGs within 500 m of ephemeral waterbodies and creek lines during flooding events

- WTGs may be curtailed to reduce the risk of collision when suitable habitat occurs within 500 m of a blade tip of a WTG during the flooding event
- end of curtailment will be determined via confirmation that birdlife and habitat value had reduced significantly enough back to pre-flood conditions for operation of the WTGs to not increase collision risk for at risk species.

The BBAMP will include details of catchment-scale flood event monitoring requirements that would trigger additional monitoring of habitats in proximity to the project.

With the exception of Dinawan Solar Farm, the majority of renewable energy infrastructure within proximity of the project will not require extensive perimeter fencing. Wind farms and transmission lines only require perimeter fencing around critical infrastructure for safety reasons (e.g. substations) and not through the entire development footprint. In some areas, this may disturb the movement of larger ground-dwelling fauna (such as kangaroos and emus); however, this is not anticipated to be substantially exacerbated beyond existing impacts from rural property fencing.

5.4 Justification and evaluation

Twenty-two submitters commented on the general justification and evaluation of the project, summarised as follows:

- Views that the project is useless, not a good idea and should be abandoned.
- Views that the natural resources required and environmental impacts will far outweigh any benefits.

The project is consistent with relevant Commonwealth, State, regional and local strategic plans and polices, in particular the *NSW Electricity Infrastructure Investment Roadmap*, which sets out the plan to deliver REZs in NSW. The project will contribute to the energy generation targets for the South West REZ, with an indicative capacity of around 1,200 MW.

The South West REZ was selected by the NSW Government following a detailed state-wide geospatial mapping exercise to identify optimal locations to host renewable energy generation, including areas with strong renewable energy resource potential, proximity to the existing electricity network, and consideration of potential interactions with existing land uses, including agricultural lands and biodiversity conservation (EnergyCo 2025).

The project area is favourable for the construction and operation of a solar and battery project due to the available solar resource, physical conditions (relatively flat topography and predominantly cleared, agricultural land), absence of biophysical strategic agricultural land and relatively few residences within close proximity. The project area adjoins the site of the Dinawan Substation, part of Project EnergyConnect, making it an optimal location for the export of electricity to the grid.

Spark Renewables has maximised the avoidance of potential environmental impacts throughout the project refinement process, including the application for an amendment to further reduce the development footprint. Project refinement has followed the principles of avoiding vegetation clearance where practicable, maximising use of previously disturbed land, limiting the footprint for project infrastructure to the minimum required, protecting significant heritage values and minimising impacts on neighbouring landholders.

The proposed development footprint is the most appropriate area for the project infrastructure based on inputs provided during consultation activities with regulatory and community stakeholders, environmental assessments and the functional requirements of project infrastructure. The shape of the development footprint is a result of avoiding identified impacts (particularly higher quality native vegetation and threatened species habitat).

Were this project not to proceed, the project's benefits, including contributions to the generation of electricity from sources of renewable energy and increased energy security, would not be realised. As electricity generation projects from renewable energy are needed in NSW, not proceeding with the project in its proposed location may encourage development in a less favourable location, resulting in undesired outcomes, such as greater requirements for grid connection infrastructure and greater environmental and social impacts.

It is acknowledged that the project will have both impacts and benefits on the surrounding natural and built environments. The impacts have been assessed and can be adequately managed through the proposed design, mitigation, and management during construction and operation. On balance, it is therefore considered that the project is in the public's interest.

5.5 Issues beyond the scope

5.5.1 Impacts of transmission lines

One submitter objected to the project based on issues associated with Project EnergyConnect, the transmission infrastructure proposed to connect the project to the grid, including a lack of accountability and general 'failings'.

Transgrid's Project EnergyConnect is an approved State significant infrastructure (SSI) project (SSI-9172452) and is currently under construction. While Dinawan Wind Farm will connect to the grid via Project EnergyConnect's Dinawan Substation, Dinawan Wind Farm is a separate project that has been proposed by a separate applicant.

Spark Renewables is committed to open and honest communication and to operating with transparency while delivering renewables energy projects that provide real benefits to communities.

5.5.2 Justification of renewable energy

Thirty-nine submitters disagreed with the benefits of renewable energy, as follows:

- Concerns that wind energy is weather dependent and therefore, not reliable, including views that this will contribute to electricity insecurity and that the project is redundant.
- Views that other alternatives should be considered for electricity generation such as coal, natural gas and nuclear.
- Concerns that the cost of the construction and decommissioning and the use of resources too great/not environmentally friendly.
- Views that there is no climate emergency, and that renewable energy is not required.
- Concerns that the lifespan of the project is too short.

The project is consistent with the Commonwealth, State, regional and local strategic plans and polices outlined in Section 2.2 of the EIS, including *The Paris Agreement*, the *Large-scale Renewable Energy Target*, the N*SW Electricity Strategy* (DPIE 2019), the Net Zero Plan, and the NSW *Electricity Infrastructure Investment Act 2020*. The NSW Government has committed to halving its carbon emissions based on 2005 levels by 2030 and both the state and federal governments have pledged to achieve net zero emissions by 2050. The NSW Electricity Infrastructure Roadmap sets out the plan for how this will be achieved, primarily through the delivery of REZs in NSW.

The project will contribute to the electricity generation targets for the South West REZ, with an indicative capacity of approximately 1,200 MW. The development and operation of the project, in conjunction with other large-scale renewable energy projects, will contribute to filling the need for replacement power as ageing coal-fired generators close.

While all sources of electricity result in some GHG emissions over their lifetime, renewable energy sources have substantially fewer emissions than fossil fuel-fired power plants (World Resources Institute 2020). Most of the lifecycle emissions from fossil generators occur from fuel combustion, which occurs at a high level throughout operations. The United States National Renewable Energy Laboratory conducted a comparison of lifecycle GHG emissions of various electricity generation sources (NREL 2021), which included the review of lifecycle assessment studies for multiple utility scale electricity generation and storage technologies. The key outcome of the study is shown graphically in Figure 5.2, which identifies that renewable energy generation (including solar and wind) produced significantly lower lifecycle GHG emissions compared with alternatives such as coal, oil and natural gas. Advice from the Australian Department of Climate Change, Energy, the Environment and Water supports this, stating that multiple studies show that a WTG's carbon payback period (how long it takes for a WTG to offset the amount of carbon used in its lifetime) is between 5-12 months (DCCEEW 2025).

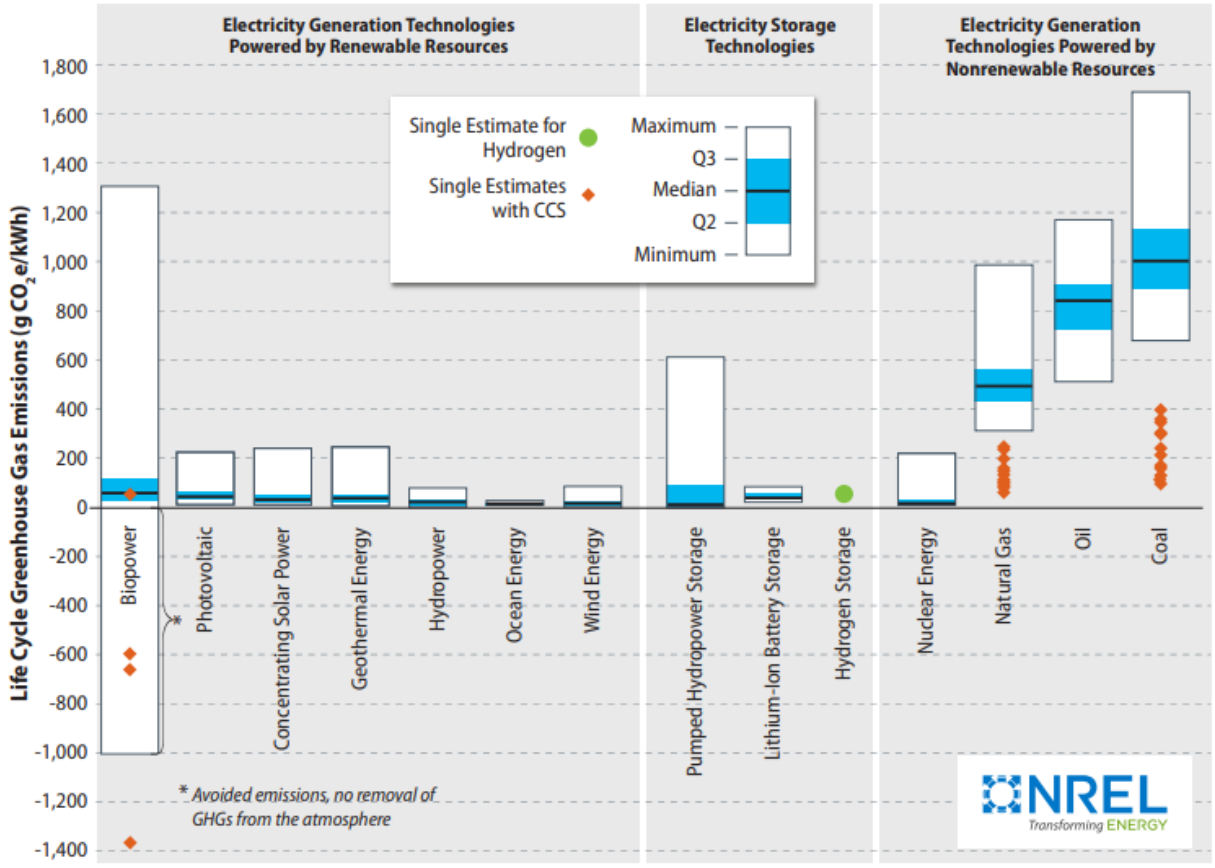


Figure 5.2 Lifecycle GHG emissions comparison (NREL 2021)

All power generation technologies, regardless of whether they are renewable or fossil fuel-based, require resources to be mined and extracted for the manufacture of the required equipment (e.g. steel for the boilers and concrete for the cooling towers in a coal plant). A full comparison of the lifecycle resource requirements of these different technologies and a comparison of alternative power generation is outside of the scope of the EIS.

5.5.3 Cost of electricity

Six submitters raised concerns regarding the cost of electricity, with views that the project will increase electricity costs.

The AEMO is responsible for developing the optimal path for the longer-term transition to the future energy system. The *2024 Integrated System Plan* (AEMO 2024) states that with coal retiring, "renewable energy connected with transmission and distribution, firmed with storage and backed up by gas-powered generation is the lowest-cost way to supply electricity to homes and businesses as Australia transitions to a net zero economy."

The development of the South West REZ, of which the project is a key part, is part of the transformation of the NEM, of which the objective is to provide reliable, secure and affordable electricity to consumers. Once operational, the project will dispatch low-cost electricity into the NEM.

The US investment bank Lazard released their 17th edition of their Levelised Cost of Energy Analysis in June 2024, which found onshore wind as a significantly cheaper source of energy when compared to traditional energy sources (Lazard 2024). A figure from their June 2024 report is reproduced in Figure 5.3.

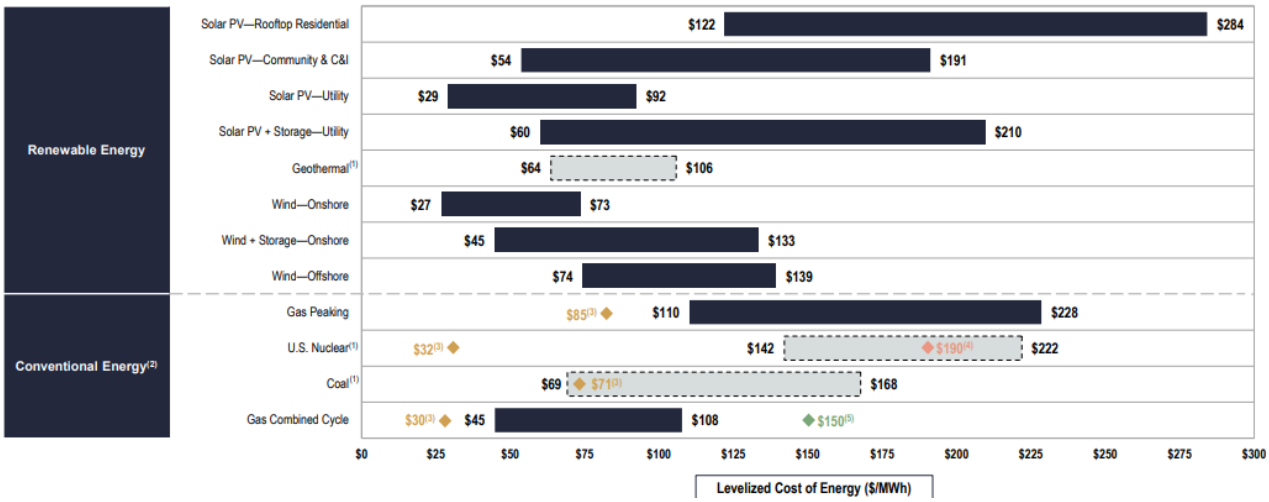


Figure 5.3 Levelised cost of energy comparison – Version 17.0 (Lazard 2024)

Utility-scale wind and solar energy are some of the lowest-cost sources of new electricity in Australia. Additionally, the cost of electricity from wind farms is predicted to continue to decrease, with ARENA expecting wind farms to deliver electricity at below $50/Megawatt-hour in 2030 (ARENA 2024).

Further, the Clean Energy Council's report on *The Impact of a Delayed Transition on Electricity Bills* (Jacobs 2025) found that household energy bills would be 30% more expensive in 2030 if Australia were to stall the pace of building new renewable energy projects, increasing the average household bill by $449-606 a year in 2030. The construction and operation of the project would contribute to lowering overall energy costs by reducing reliance on aging coal infrastructure and mitigating the risk of significant outages.

5.5.4 Supply chain & lifecycle impacts

Five submitters raised concerns regarding the lifecycle impacts of the project, summarised as:

- Concerns that the material required for the project will be unethically sourced and could involve modern slavery.
- Concerns around the embedded greenhouse gas emissions to produce project components, and that the project will increase greenhouse gas emissions.

The factory location for the WTG components which will be procured for the project will largely depend on the module provider selected for the project.

The Commonwealth *Modern Slavery Act 2018* requires entities based, or operating in, Australia, which have an annual consolidated revenue of more than $100 million, to report annually on the risks of modern slavery in their operations and supply chains, and actions to address those risks. Other entities based, or operating, in Australia may report voluntarily.

Spark Renewables is a signatory to the *Pledge Against Modern Slavery*, developed by the Clean Energy Council as part of an industry-wide response to addressing modern slavery risks. The pledge commits Spark Renewables to practices designed to ensure their supply chain is free of adverse human rights impacts, including modern slavery, and declare its corporate responsibility to respect human rights. Spark Renewables' *Modern Slavery Statement* is available on their website: https://sparkrenewables.com/governance/modern-slavery-statement.

In conjunction with the engineering, procurement, and construction partner, a Supplier Code of Conduct will be established for the project, which will include minimum requirements to be met by all suppliers to achieve the aims of the project and meet the requirements set by the government and Spark Renewables. The Supplier Code of Conduct will include requirements for suppliers to protect labour and human rights including the following:

- Comply with contractual requirements related to employment and participation.
- Comply with all relevant legislation related to labour participation and human rights.
- Declare any known risks within their supply chain that may contribute to Modern Slavery in a timely manner.
- Commit their suppliers and sub-contractors to meeting the standards of the Code of Conduct.
- Comply with *ISO 45001 Occupational Health and Safety Management Systems Certification or Health & Safety Plan* for the project

With respect to climate change and GHG emissions, the project will contribute to renewable energy supply in NSW, supporting the Commonwealth and State governments in achieving their respective renewable energy and GHG emissions reduction targets. Once operational, the project will abate approximately 3.2 million tonnes of GHG emissions annually.

The GHG emissions associated with the resources required to produce materials for the project are classified as 'Scope 3 emissions', which are indirect emissions of the project but are from sources not owned or operated by Spark Renewables. Notably, these emissions are accounted for by the producers of the material in their Scope 1 emissions.

All power generation technologies, regardless of whether they are renewable such as wind and solar, or fossil fuel based technologies such as coal plants and gas plants, require resources to be mined and extracted for the manufacture of the required equipment (e.g. steel for the boilers and concrete for the cooling towers in a coal plant). Whilst a full comparison of the lifecycle resource requirements of these different technologies is outside of the scope of the EIS, there is a significant body of literature that demonstrates that the total lifecycle GHG emissions of wind electricity generation is much lower than the total lifecycle GHG emissions of electricity generation from fossil fuel based technologies. A comparison of lifecycle GHG emissions for different technologies is provided in Section 5.5.2.

5.5.5 Location of renewable projects

Six submitters commented on the location of the project within rural areas.

The project is within the South West REZ. Justification for the location of the South West REZ is outside of the scope of this project. Details on REZs in NSW, and specifically the South West REZ, are provided on EnergyCo's public website (https://www.energyco.nsw.gov.au/sw-rez).

5.5.6 Foreign ownership

Six submitters raised concerns that Spark Renewables is not an Australian owned company and that overseas companies are "destroying our environment."

Spark Renewables is a leading developer, long-term owner, and operator of Australian renewable energy projects. The company's portfolio comprises the Bomen Solar Farm, operational since 2020, and a number of projects in the development phase. Spark Renewables is currently developing more than 7 GW of solar, wind, and renewable storage projects across the National Electricity Market (NEM), including the Dinawan Energy Hub, Mallee Wind Farm, Mallee Solar Farm and Wattle Creek Solar Farm, within NSW.

Spark Renewables is headquartered in Manly on Sydney's Northern Beaches. The company's goal is to develop and build projects leading the renewable energy transition in Australia. They aim to provide sustainable, socially acceptable solutions for generation of electricity.

Spark Renewables is a wholly owned business within Tenaga Nasional Berhad (TNB), which acquired Spark Renewables in October 2023. TNB is the largest electricity utility in Malaysia and also the largest publicly-listed power company in south-east Asia. With the core business of providing electricity to businesses, homes and industries, TNB's activities encompass the entire electricity production and supply value chain.

5.5.7 Impact on whale migration

One submitter raised concerns that the project may impact whale migratory patterns, stating that the full effects of wind farms on whales is not known.

It is acknowledged that potential impacts on whale migratory patterns are an important consideration for offshore wind farms. However, it is important to clarify that this is an onshore wind farm project located more than 350 km from the ocean.

Given the significant distance between the project area and marine environments, there is no direct interaction between the proposed development and whale migratory pathways. As such, the project is not expected to have any impact on whales or their migration.

5.6 Interactions with approved projects

A detailed response to Origin Energy Power Limited's (Origin) submission is provided below. Origin is the owner of Yanco Delta Wind Farm, an approved wind farm adjacent to the project.

> The Dinawan Wind Farm EIS has not included the approved Yanco Delta Wind Farm project footprint, and in particular, the approved transmission connection along McLennons Bore Road/Cadell Road to the Dinawan Substation has not been appropriately identified.

Yanco Delta Wind Farm's approved transmission connection along McLennons Bore Road/Cadell Road to the Dinawan Substation has been considered in the selection of access points for Dinawan Wind Farm.

Based on publicly available information, no vehicles associated with the construction or operation of the Yanco Delta Wind Farm are proposed to use McLennons Bore Road, nor is the use of McLennons Bore Road identified in the conditions of consent for the Yanco Delta Wind Farm. No vehicles associated with the construction or operation of Dinawan Wind Farm are proposed to use Cadell Road.

> The setback distance of the proposed Dinawan Wind Farm wind turbines from the approved Yanco Delta Wind Farm transmission line along McLennons Bore Road do not provide appropriate clearances from the transmission line to address risks such as blade throw, or turbulence produced by the Dinawan Wind Farm wind turbines. These risks have the potential to cause line failure resulting in a facility outage which would impact energy production and grid stability.

In response to feedback from Origin on setback distances between the project's WTGs and the transmission line approved for construction as part of Yanco Delta Wind Farm, Spark Renewables engaged Brighty Energy to complete a compliance assessment (Appendix C). The assessment considers the recommendations provided within the *Guideline for Wind Turbines Proximity to Electricity Transmission Lines* (ENA DOC 047-2022) (Energy Networks Australia 2022), which defines industry best practice for setback distances to avoid hazards, such as wake turbulence and blade throw. The assessment concludes that the project's setback distances are compliant with the guidelines when applying a 1.5 x WTG rotor diameter (1.5D) setback criteria. As described in the compliance assessment, Origin's request to apply a 3 x WTG rotor diameter (3D) setback is not considered appropriate. It is noted that WTGs approved for construction as part of Yanco Delta Wind Farm do not accommodate a 3D setback from Yanco Delta Wind Farm's approved transmission line.

> The proximity of two of the proposed Dinawan Wind Farm wind turbines to the Yanco Delta Wind Farm wind turbines could increase structural loading resulting in curtailment of operation and reduced energy output for the Yanco Delta Wind Farm.

In the EIS, the two WTGs located closest to Yanco Delta Wind Farm were T1 and T7 in the eastern area (Stage 1). These WTGs have been removed as part of the amended project. As stated above, the compliance assessment concluded that the project's setback distances are compliant with the guidelines when applying a 1.5 x WTG rotor diameter (1.5D) setback criteria.

> As stated in the Dinawan Wind Farm EIS, construction of the Dinawan Wind Farm will coincide with the Yanco Delta Wind Farm construction period. The Dinawan Wind Farm access points and main access route for high risk and Oversize and/or Overmass Vehicles (OSOM) has not taken into consideration the construction and/or operation of the proposed transmission line along McLennons Bore Road.

Yanco Delta Wind Farm is an approved project, however, has not commenced construction. Given the construction durations of the two projects span 3-5 years, it is possible that an overlap will occur if both projects proceed to the construction stage. The construction periods of Dinawan Wind Farm and Yanco Delta Wind Farm will be subject to a variety of factors, including outcomes of the South West REZ access scheme.

McLennons Bore Road is a local road servicing local landholders. Yanco Delta Wind Farm has nominated this route for its transmission line connection to the Dinawan Substation. Based on publicly available information, no vehicles associated with the construction or operation of the Yanco Delta Wind Farm are proposed to use McLennons Bore Road, nor is the use of McLennons Bore Road identified in the conditions of consent for the Yanco Delta Wind Farm. McLennons Bore Road is nominated as the main access route for project traffic for Dinawan Wind Farm, including heavy and OSOM vehicles. Site access points and swept paths for heavy and OSOM vehicles for the amended project will avoid the approved footprints for Yanco Delta Wind Farm's transmission towers. Spark Renewables has considered cumulative traffic impacts with Yanco Delta Wind Farm as described and assessed in the Yanco Delta Wind Farm EIS. Spark Renewables will consult with Origin, as well as other landholders, regarding access requirements for heavy vehicles and OSOM vehicles during construction of the project.

Spark Renewables will engage with Origin regarding timing of construction so that interactions between the two projects can be considered and addressed during detailed design of Dinawan Wind Farm, and so that Yanco Delta Wind Farm can consider construction and operation of the Dinawan Wind Farm in its future planning.

It is noted that the conditions of consent for Yanco Delta Wind Farm require the following to be addressed in the traffic management plan:

- (vii) minimising potential cumulative traffic impacts with other projects along the access route
- (viii) minimising potential conflict with rail services, stock movements, school buses and other road users as far as practicable, including preventing queuing on the public road network.

Spark Renewables expects to have a similar requirement in any consent conditions issued for the project.

6 Updated project justification

6.1 Strategic context

The project is consistent with relevant Commonwealth, State, regional and local strategic plans and polices, in particular the *NSW Electricity Infrastructure Investment Roadmap*, which sets out the plan to deliver REZs in NSW. The project will contribute to the energy generation and storage targets for the South West REZ, with an indicative capacity of around 1,200 MW.

6.2 Site suitability

The South West REZ was selected by the NSW Government following a detailed state-wide geospatial mapping exercise to identify optimal locations to host renewable energy generation, including areas with strong renewable energy resource potential, proximity to the existing electricity network, and consideration of potential interactions with existing land uses, including agricultural lands and biodiversity conservation (EnergyCo 2025).

The project area is favourable for the construction and operation of a wind project due to the available wind resource, physical conditions (relatively flat topography and predominantly cleared, agricultural land), absence of biophysical strategic agricultural land and relatively few residences within close proximity. The project area adjoins the site of the Dinawan Substation, part of Project EnergyConnect, making it an optimal location for the export of electricity to the grid.

6.3 Design development

Spark Renewables has maximised the avoidance of potential environmental impacts throughout the project refinement process, during both the preparation of the EIS and the amendment report. This followed the principles of avoiding higher quality vegetation and threatened species habitat where practicable, maximising use of previously disturbed land, limiting the footprint for project infrastructure to the minimum required, protecting significant heritage values and minimising impacts on neighbouring landholders.

The development footprint presented in the EIS has been reduced by 18%, further avoiding and minimising environmental impacts, particularly biodiversity impacts. The amended development footprint avoids a further 98 ha of two BC Act listed TECs (16% reduction) and 59 ha of two EPBC Act listed TECs (22% reduction).

Biodiversity offsets required for the project have been reduced to 21,706 (11% reduction) for ecosystem credits. Despite further efforts to avoid and minimise impacts on threatened species, species credits for the project have increased. Gaps in survey coverage have resulted in the application of assumed presence for threatened species, with further survey planned for Spring 2025.

The amended development corridor and amended development footprint have been optimised for the project's infrastructure based on inputs provided during consultation activities with regulatory and community stakeholders, environmental assessments and the functional requirements of project infrastructure.

Where potential impacts cannot be avoided, Spark Renewables has minimised environmental impacts and/or implement mitigation measures, to manage the extent and significance of residual impacts. Residual biodiversity impacts will be offset by establishing local biodiversity stewardship sites and payment into the Biodiversity Conservation Fund.

6.4 Conclusion

Were this project not to proceed, the project's benefits, including contributions to the generation of renewable energy and increased energy security, would not be realised. Renewable energy generation projects are needed in NSW and the project is proposed in a highly suitable location that makes optimal use of existing transmission infrastructure and minimises the need for additional grid connection infrastructure. The environmental and social impacts of the project can be readily managed with the application of practical mitigation measures.

Abbreviations

Abbreviation	Definition
AC	alternating current
ACHA	Aboriginal cultural heritage assessment
ACHMP	Aboriginal Cultural Heritage Management Plan
AEP	annual exceedance probability
AGL	above ground level
AHD	Australian Height Datum
APZ	asset protection zones
ATC	air traffic control
BAM	*Biodiversity Assessment Method* (DPIE 2020)
BBUS	bird and bat utilisation survey
BCS	Biodiversity, Conservation and Science Group
BDAR	biodiversity development assessment report
BMP	biodiversity management plan
BPA	Bisphenol A
CASA	Civil Aviation Safety Authority
CEMP	construction environmental management plan
CEO	chief executive officer
CICL	Coleambally Irrigation Cooperative Limited
CTMP	construction traffic management plan
DA	development application
DPHI	NSW Department of Planning, Housing and Infrastructure
DPIRD	NSW Department of Primary Industries and Regional Development
EIS	environmental impact statement
EMM	EMM Consulting Pty Limited
EPA	Environmental Protection Authority
EPL	environment protection licence
ft	feet
GDE	groundwater dependent ecosystem
GHG	greenhouse gas
GW	gigawatts
ha	hectares
HIPAP	Hazardous Industry Planning Advisory Paper

Abbreviation	Definition
IFR	instrument flight rule
IPC	Independent Planning Commission
km	kilometres
kV	kilovolt
LALC	Local Aboriginal Land Council
LCU	landscape character units
LGA	local government area
LOS	level of service
LPA	Livestock Product Assurance
LSALT	lowest safe altitude
LSC	land soil capability
LUCRA	land use conflict risk assessment
LVIA	landscape and visual impact assessment
m	metres
MDBA	Murray Darling Basin Authority
ML	megalitres
mm	millimetres
MNES	matters of national environmental significance
MW	megawatts
NEM	national electricity market
NHMRC	Australian National Health and Medical Research Council
NPWS	National Parks and Wildlife Services
NSW DCCEEW	NSW Department of Climate Change, Energy, the Environment and Water
NSW	New South Wales
O&M	operation and maintenance
Origin	Origin Energy Power Limited
OSOM	oversize/overmass
PCT	plant community type
P2R	port to REZ
RAP	registered Aboriginal party
REZ	Renewable Energy Zone
RFS	Rural Fire Service
SEARs	Secretary's Environmental Assessment Requirements

Abbreviation	Definition
SIMP	social impact management plan
SSD	State significant development
SSI	State significant infrastructure
TCP	traffic control plan
TEC	threatened ecological communities
TfNSW	Transport for NSW
TIA	traffic impact assessment
TNB	Tenaga Nasional Berhad
VPA	voluntary planning agreement
WTG	wind turbine generator

References

AEMO 2023, *Draft 2024 Integrated System Plan,* Australian Energy Market Operator.

AEMO 2024, *2024 Integrated System Plan,* Australian Energy Market Operator.

American Clean Power 2023, *Claims vs. Facts: Microplastics and BPA in Wind Turbine Blades*. Accessed 26 February 2025 at https://cleanpower.org/resources/microplastics-and-bpa-in-wind-turbine-blades/

American Clean Power 2024, *Wind Turbine Disposal and Recycling Strategies,* Factsheet, October 2024. Accessed December 2024 from https://cleanpower.org/resources/wind-turbine-disposal-and-recycling-strategies/.

ARENA 2024, *Wind energy*, Australian Renewable Energy Agency. Accessed 26 February 2025 from https://arena.gov.au/renewable-energy/wind/

CEC 2025a, *Wind turbines and health,* Clean Energy Council, accessed 25 February 2025 from https://cleanenergycouncil.org.au/for-consumers/fact-sheets/wind-turbines-and-health.

CEC 2025b, *Solar synergies: how renewable energy and agriculture thrive together*, Clean Energy Council. Accessed 5 March 2025 at https://cleanenergycouncil.org.au/for-consumers/fact-sheets/renewable-energy-agriculture

CEC 2025c, *Renewable energy rising: Property prices and insurance,* Clean Energy Council. Accessed 26 February 2025 at https://cleanenergycouncil.org.au/for-consumers/fact-sheets/impacts-and-benefits-to-consumers-get-the-facts/local-benefits-of-renewable-energy-projects-8481a5bc6764f03190370663d69da6ab

CEC 2025d, *Recycling in the future: sustainable solutions for renewable energy technologies*, Clean Energy Council. Accessed 26 February 2025 at https://cleanenergycouncil.org.au/for-consumers/fact-sheets/recycling-get-the-facts/recyling-wind-turbines-solar-panels-batteries

DCCEEW 2025, *Offshore wind facts*, Accessed March 2025 from https://www.dcceew.gov.au/energy/renewable/offshore-wind/offshore-wind-facts#offshore-wind-farms-save-more-carbon-than-they-emit-during-their-manufacture

DoP 2011, *Hazardous Industry Planning Advisory Paper No. 4 Risk Criteria for Land Use Safety Planning*. NSW Department of Planning.

DPE 2016a, *Wind Energy Guideline for State significant wind energy development*, NSW Department of Planning and Environment.

DPE 2016b, *Wind Energy: Visual Assessment Bulletin for State significant wind energy development*, NSW Department of Planning and Environment.

DPE 2022a, *State significant development guidelines – preparing an environmental impact statement.* NSW Department of Planning and Environment.

DPE 2022b, *Cumulative Impact Assessment Guidelines for State Significant Projects.* NSW Department of Planning and Environment.

DPHI 2024a, *State significant development guidelines – preparing a submissions report*. NSW Department of Planning, Housing and Infrastructure.

DPHI 2024b, *Undertaking Engagement Guidelines for State Significant Projects.* NSW Department of Planning, Housing and Infrastructure.

DPI 2011, *Land Use Conflict Risk Assessment Guideline.* NSW Department of Primary Industries.

DPIE 2019, *NSW Electricity Strategy.* NSW Department of Planning, Industry and Environment.

DPIE 2020a, *Biodiversity Assessment Method* (BAM). NSW Department of Planning, Industry and Environment.

DPIE 2020b, *Independent audit post approval requirements*, NSW Department of Planning, Industry and Environment.

Energy Networks Australia 2022, *Guideline for Wind Turbines Proximity to Electricity Transmission Lines,* ENA DOC 047-2022.

EnergyCo 2025, *South West Renewable Energy Zone*. Accessed 26 February 2025 from https://www.energyco.nsw.gov.au/sw-rez

Fortier, S. and Scobey, F. 1926, Permissible Canal Velocities. *Transactions, American Society of Civil Engineers*, Vol. 89, 1588, pp 940-984.

ICA 2024, *Farm Insurance and Energy Infrastructure*, published 18 November 2024, Insurance Council of Australia.

Jacobs 2025, *Impact of a Delayed Transition on Consumer Electricity Bills,* Commissioned by the Clean Energy Council.

Kole PJ, Löhr AJ, Van Belleghem FGAJ, Ragas AMJ 2017, Wear and Tear of Tyres: A Stealthy Source of Microplastics in the Environment. *Int J Environ Res Public Health*. 14(10) pp.1265. doi: 10.3390/ijerph14101265.

Lazard 2024, *Levelised Cost of Energy.* Accessed 26 February 2025 from https://www.lazard.com/research-insights/levelized-cost-of-energyplus/

Landcom 2004, *Soils and Construction, Managing Urban Stormwater*, Volume 1, 4th edition, NSW Government.

Meritt TD, Cretikos MA, Smith W & Durrhiem DN 2013, The health of Hunter Valley communities in proximity to coal mining and power generation, general practice data, 1998–2010, *NSW Public Health Bulletin,* Vol. 24(2).

Mishnaevsky L Jr, Tempelis A, Belahurau Y, & Johansen NFJ 2024, Microplastics Emission from Eroding Wind Turbine Blades: Preliminary Estimations of Volume. *Energies*, 17(24), pp.6260. https://doi.org/10.3390/en17246260

NRAR 2018, *Guidelines for Controlled Activities on Waterfront Land.*

NREL 2021, *Life cycle greenhouse gas emissions from electricity generation: update*, NREL Fact Sheet. Accessed December 2024 from https://www.nrel.gov/analysis/life-cycle-assessment.html

OEH 2012, *The land and soil capability assessment scheme,* New South Wales Office of Environment and Heritage.

RFS 2014, *Guide to Developing a Bush Fire Emergency Management and Evacuation Plan.* NSW Rural Fire Service.

RFS 2019, *Planning for Bushfire Protection,* NSW Rural Fire Service, November 2019.

Soil Conservation Service 1954, *Handbook of Channel Design for Soil and Water Conservation*.

World Resources Institute 2020, Setting the Record Straight About Renewable Energy, retrieved June 2024 from https://www.wri.org/insights/setting-record-straight-about-renewable-energy

Appendix A
Submissions register

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Table A.1 Submissions register

Name	Location	Section where comments are addressed in this report
Agencies & councils		
Fire and Rescue NSW	-	4.1
Heritage Council of NSW	-	4.1
Murray Darling Basin Authority	-	4.1
NSW Resources	-	4.1
NSW Telco Authority	-	4.1
WaterNSW	-	4.1
DPI Fisheries	-	4.1
DPHI Hazards	-	4.1
DPHI Crown Lands	-	4.2
Airservices Australia	-	4.3
Civil Aviation Safety Authority	-	4.4
NSW DCCEEW Water Group	-	4.5
DPIRD Agriculture	-	4.6
Edward River Council	-	4.7
NSW Environment Protection Authority	-	4.8
Biodiversity, Conservation and Science Group	-	4.9
Heritage NSW – Aboriginal Cultural Heritage	-	4.10
Murrumbidgee Council	-	4.11
National Parks and Wildlife Services	-	4.12

Name	Location	Section where comments are addressed in this report
NSW Rural Fire Service	-	4.13
Transport for NSW	-	4.14
Transport for NSW (Sydney Trains)	-	4.15
Transgrid	-	4.16
Public – organisations		
Origin Energy Power Limited (SE-74570990)	Barangaroo	5.3.10i, 5.2.2, 5.3.5
Save Our Surroundings Barham (SE-74056463)	Barham	5.3.8i
CWO REZist Inc. (SE-73305717)	Coolah	5.5.2, 5.5.5, 5.5.4, 5.3.3iv, 5.3.3v, 5.3.14i, 5.3.12i, 5.3.11i, 5.3.11iii, 5.3.1, 5.3.2, 5.3.5, 5.3.6, 5.3.11vi, 5.3.13
Save Our Surroundings Murrumbidgee (SE-74342229)	Griffith	5.3.7, 5.5.2
Save Our Surroundings (SOS) (SE-74241975)	Gulgong	5.5.4, 5.5.2, 5.5.3, 5.3.13, 5.3.3iii, 5.3.3ii, 5.3.9i, 5.3.2, 5.3.7, 5.3.8i, 5.3.1, 5.3.5, 5.3.14ii
BG & JL Jarratt (SE-74032707)	Hay South	5.3.7, 5.3.3v, 5.5.1, 5.3.8i, 5.5.2
Save Our Surroundings (SE-74340467)	Lake Albert	5.4, 5.3.9i, 5.5.2, 5.3.7
Public – individuals		
Alleena Burger (SE-74482213)	Barham	5.5.2, 5.3.3ii
Ebony Burger (SE-74483960)	Barham	5.4, 5.3.13, 5.3.9i, 0
Tom Sleigh (SE-74541959)	Bundure	5.3.11ii, 5.3.9i, 5.3.12i, 5.3.2, 5.3.3i, 5.3.13, 5.5.5, 5.5.2
Michael Hill (SE-74586252)	Chatham Valley	5.3.9i, 5.3.10i, 5.3.14i, 5.3.1, 5.3.11i, 5.3.11ii
Heidi Howden (SE-74588711)	Chatham Valley	5.3.9i, 5.3.3i, 5.3.11iii, 5.3.1, 5.5.5, 5.5.4, 5.5.2
Kevin Kelly (N/A)	Coleambally	0, 5.3.9i
Noel Hicks (SE-74541462)	Griffith	5.3.8i, 5.5.6, 5.5.2, 5.3.13
Stan Moore (SE-74587994)	Gundary	5.3.3i, 5.3.3ii, 5.3.7, 5.3.13

Name	Location	Section where comments are addressed in this report
Andrew Sleigh (SE-74504709)	Jerilderie	5.1.1, 0, 5.3.8i, 5.3.11v, 5.3.10i, 5.3.13, 5.3.3i, 5.2.1, 5.3.5, 0, 5.3.11i, 5.3.11iv, 5.3.12iii, 5.3.12i, 5.3.1, 5.3.3v, 5.3.3ii, 5.3.3iii, 5.3.11vii, 5.3.6, 5.3.9i, 5.2.2, 5.3.14iii
David Leeds (SE-74580743)	Jerilderie	5.2.2, 5.3.1, 5.3.2, 5.3.3i, 5.3.3ii, 5.3.3v, 5.3.7, 5.3.8ii, 5.3.10ii, 5.3.11i, 5.3.11iv, 5.3.12i
Kevin Loughrey (SE-74587725)	Keith Hall	5.3.3i, 5.3.13, 5.3.8i, 5.5.2, 5.5.3
Michael Henderson (SE-74587732)	Maxwell	5.3.8i, 5.5.6, 5.3.13, 5.5.2, 5.5.3
Kym Daniel (SE-74586228)	Merriwa	5.3.3v, 5.3.3i, 5.3.6, 5.3.11iii, 5.3.4, 5.3.8i, 5.2.2
David Landini (SE-74585966)	Wakool	5.3.1, 5.3.8i, 5.3.12ii, 5.5.5, 5.3.13, 5.3.11vi, 5.5.2, 5.5.3
Ian McDonald (SE-74585475)	Walcha	5.3.3ii, 5.3.3viii, 5.3.2, 5.3.3iii, 5.3.3iv, 5.5.6, 5.5.2
John Moore (SE-74580762)	Wangaratta	5.3.3ii, 5.3.14iii, 5.3.9i, 0, 5.5.2, 5.5.4
John McGrath (SE-74586255)	Woolgarlo	5.3.3v, 5.3.3ii, 5.3.13
Amber Pedersen (SE-74541742)	Yarrabin	5.3.14i, 5.3.11iii, 5.4, 5.3.7, 5.3.13
SE-74586718	Balgowlah	5.4, 5.3.3vi, 5.3.3vii, 5.5.2
SE-73871207	Barham	5.3.7
SE-73871457	Barham	5.3.8i, 5.4
SE-73871960	Barham	5.5.2, 5.3.8i, 0
SE-73871963	Barham	5.3.11iii, 5.3.11ii, 5.3.11iv, 5.3.1
SE-74485006	Barham	5.3.1, 5.3.9i, 5.3.7
SE-74500965	Barham	5.3.14i, 5.5.5, 5.3.11iv, 5.3.8i, 5.3.3i, 5.3.13
SE-74542482	Barham	5.3.3ii, 5.3.14iii
SE-74563213	Bundure	5.3.3ii, 5.3.14iii, 5.5.2, 5.3.8i, 5.3.11i
SE-74034957	Coolah	5.3.11vi, 5.5.6, 5.3.11i, 5.3.13, 5.3.3vii, 5.3.7, 5.3.6, 5.5.2
SE-74540756	Coolah	5.3.11vi, 5.3.6, 5.3.3vii, 5.3.3v, 5.3.11iii, 5.3.13, 5.5.2, 5.3.14i

Name	Location	Section where comments are addressed in this report
SE-74542477	Coolah	5.3.1, 5.3.11vi, 5.3.13, 5.5.2, 5.3.3i, 5.3.11iii
SE-74574015	Coolah	5.3.14i, 5.3.3i, 5.5.5
SE-74408976	Coolamon	5.5.2, 5.3.3vii, 5.4
SE-74586715	Coonabarabran	5.3.3vi
SE-73470480	Cunninyeuk	5.3.3i, 5.3.13
SE-73474711	Cunninyeuk	5.3.13, 5.3.3i
SE-74542254	Dederang	5.3.3vii
SE-73872713	Gannawarra	5.3.8i, 5.5.2
SE-74462711	Gannawarra	5.3.8i, 5.3.11iv, 5.3.13, 5.4
SE-74548708	Goolgowi	5.3.3v, 5.3.8i, 5.4
SE-74016707	Gulgong	5.3.14i, 5.5.2, 5.4
SE-74016714	Gulgong	5.5.4, 5.5.2, 5.5.3
SE-74580739	Guyra	5.3.4, 5.4, 5.3.13
SE-74342218	Harefield	5.4, 5.5.2
SE-74037460	Hay	5.4, 5.5.2, 5.3.1
SE-74564721	Hay	5.5.2, 5.3.5, 5.3.3vii, 5.3.9i, 5.3.2, 5.3.3iv, 5.4
SE-74031958	Hay South	5.5.2
SE-74540734	Hay South	5.3.8i
SE-74542457	Hay South	5.5.2
SE-73871460	Horsham	5.3.13
SE-74239465	Jerilderie	5.3.3i, 5.3.1, 0, 5.3.11i

Name	Location	Section where comments are addressed in this report
SE-74540970	Jerilderie	5.3.11iii, 0
SE-74541957	Jerilderie	5.3.8i, 5.3.3i, 5.3.3ii, 5.3.14iii, 5.3.5, 5.3.9i, 5.3.12iii
SE-74539960	Kanya	5.3.8i, 5.3.3v
SE-74342222	Kepnock	5.3.11vi, 5.5.2
SE-74344465	Kooringal	5.3.1, 5.5.2, 5.3.8i, 5.3.7, 5.4
SE-74340497	Lake Albert	5.5.2, 5.3.7
SE-74346710	Mallan	5.4, 5.3.8i
SE-74574013	Mendooran	5.3.3vi, 5.3.11iii
SE-74580760	Mendooran	5.3.11iii, 5.3.3i, 5.3.3vi
SE-74574006	Mollyan	5.3.3vi, 5.3.3v, 5.4
SE-74574010	Mollyan	5.5.2, 5.3.3i, 5.3.3vi
SE-74580765	Mollyan	5.3.3vi, 5.3.3i, 5.3.11iii
SE-73489707	Moulamein	5.5.6, 5.4, 5.3.11iii
SE-73871712	Moulamein	5.3.12i, 5.3.1, 5.3.3v
SE-73871965	Moulamein	5.3.3i, 5.3.3vii, 5.3.8ii, 5.3.7, 5.3.9i, 5.3.12ii
SE-74055957	Moulamein	5.3.3v, 5.3.2
SE-74056732	Moulamein	5.3.3i
SE-74057460	Moulamein	5.5.3, 5.5.2
SE-74059228	Moulamein	5.3.8i, 5.3.3ii
SE-74056708	Romsey	5.3.8i, 5.3.1, 5.3.13
SE-74540972	South Yarra	5.3.8i, 5.3.3ii, 5.3.3i, 5.3.11ii, 5.3.12i

Name	Location	Section where comments are addressed in this report
SE-74340493	Springfield	5.3.3i, 5.3.7, 5.5.2
SE-74574029	Springfield	5.3.1, 5.5.2, 5.3.11iv, 5.3.7
SE-73477717	Swan Hill	5.3.1, 5.5.6, 5.4
SE-73479710	Swan Hill	5.5.2, 5.4, 5.3.3i
SE-73484745	Swan Hill	5.3.3i, 5.3.1
SE-73871958	Swan Hill	5.3.13, 5.5.2, 5.4
SE-74041732	Swan Hill	5.3.1, 5.3.12ii
SE-74059226	Swan Hill	5.3.13, 5.3.7, 5.4
SE-74415224	Swan Hill	5.3.13, 5.3.7, 5.3.3v
SE-73871710	Torque	5.3.2, 5.5.2
SE-74586258	Waverton	5.3.3vi, 5.3.3v

Appendix B
Updated mitigation measures

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Spark Renewables commits to implementing the mitigation measures consolidated in Table B1.

New or updated mitigation measures as a result of the amendments have been **bolded**. Removed mitigation measures as a result of the amendments have been shown as ~~strikethrough~~. Other minor changes to wording have also been made in some instances to improve clarity.

Table B.1 Summary of mitigation measures

ID	Mitigation measures
Landscape and visual	
LV1	The WTGs will have a predominantly matte white (or other non-reflective) finish.
~~LV2~~	~~Visual screening planting will be undertaken at non-associated residence R019, or as otherwise agreed with the landowner. An indicative example of visual screening is provided in Appendix E of the LVIA (Appendix E.1 of the EIS). The following general guidelines for planning landscaping and visual screening will be adopted:~~ ~~• planting will occur post-construction in consultation with the landowner~~ ~~• planting will remain in keeping with existing landscape character~~ ~~• species selection will be typical of the area, with a preference for locally native species~~ ~~• planting layout will avoid screening views of the broader landscape~~ ~~• landscaping will avoid the clearing of existing vegetation, and where required, reinstate any lost vegetation.~~
LV2	The following mitigation measures will be ~~considered~~ **implemented** during detailed design of the project to mitigate the visual impact of transmission lines: • selecting routes for overhead transmission lines to reduce visibility from surrounding areas and minimise vegetation loss • using subtle colours and a low reflectivity surface treatment on power poles to ensure that glint is minimised.
LV3	The following mitigation measures will be ~~adopted~~ **implemented** to reduce residual visual impacts from O&M facilities: • siting O&M facilities to ensure minimal screening vegetation loss • using a recessive colour palette to blend structures into the existing landscape • avoiding unnecessary lighting, signage on fences and logos.
LV4	**Aviation hazard lighting that is required on the WTGs or meteorological monitoring masts will be designed to minimise the impact of lighting, in consultation with relevant aviation authorities.**
Noise and vibration	
N1	Background noise monitoring will verify existing background noise levels prior to construction.
N2	Noise modelling will be updated prior to construction to confirm that the final WTG layout complies with the noise assessment criteria.
N3	A construction noise management plan will be prepared to manage noise during construction, and will include specific measures to minimise noise at assessment locations that are noise affected.
N4	Construction work activities will be scheduled to minimise noise impacts, including: • with the exception of the categories below, construction will be undertaken during standard construction hours: – Monday to Friday 7 am to 6 pm – Saturday 8 am to 1 pm – no work on Sundays or public holidays • works outside the standard hours listed above will be within the following categories: – deliveries by heavy vehicles and RAVs outside of peak traffic times – concrete batching and pouring – crane movements between WTG sites – activities that are inaudible at non-associated residences – activities for WTG construction hindered by adverse weather conditions.

ID	Mitigation measures
N5	Construction infrastructure, including construction compounds, and plant and equipment will be placed to minimise noise impacts by: • placing fixed plant and equipment as far as practicable from non-associated residences • locating the site access points, construction compounds and parking areas as far as practicable from non-associated residences • maximising acoustic shielding by the use of temporary site buildings and materials stockpiles as noise barriers to R019, R079 and R088, where practicable.
N6	Residents in R019, R079 and R088 (which will be potentially impacted by construction noise) will be consulted to determine appropriate measures to minimise the effects of any impacts.
N7	Construction work practices to manage construction noise on-site and construction-related traffic will be documented in the construction noise management plan and will be implemented to minimise noise impacts.
N8	**Once further information is available on construction duration and timing for public road upgrades at the intersection of Eunony Bridge Road and Sturt Highway, Spark Renewables will engage with relevant receivers to discuss total construction time; what works are expected to be noisy; the duration of these works; what is being done to minimise noise; when respite periods will occur; and ongoing communication and complaint methods.**
Biodiversity	
B1	Detailed design of the project will: • avoid and minimise the loss of native vegetation and habitat, including consideration of the results of additional biodiversity surveys in **Spring 2025** • avoid and minimise impacts to breeding habitat for fauna, including threatened species to the extent possible.
B2	A BMP will be prepared by a qualified ecologist in consultation with CPHR. The BMP will include: • a plan for adaptive management and for implementing, evaluating and reporting on the effectiveness of all mitigation measures • survey requirements prior to micro-siting of infrastructure within the development corridor (including criteria that must be met to ensure there is no increase to biodiversity impacts as a result of micro-siting during detailed design) • figures showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features, revegetation areas and retained tree hollows • pre-clearing survey requirements and clearing protocols (including specific measures for threatened species, nests, construction in waterways and removal of dams) • procedures for unexpected threatened species finds (including relocation requirements) • procedures for monitoring of retained threatened flora species • procedures for fauna handling, monitoring and management, including identification and reporting of fauna mortalities • speed limits for project-related vehicles on local roads and access tracks • sub-plans for weed and biosecurity management, pest animal management and rehabilitation management • measures to reduce the risk of spreading weeds and pathogens, and other biosecurity items into or out of the development footprint, including: – collection of baseline weed and invasive pest data to determine if an increase of key emerging weeds or invasive pests occurs during construction or operation – consultation with Local Land Services and neighbouring landholders on fox control and baiting programs • training and education awareness for all staff on key threatened species, both flora and fauna, relevant to the region and project • monitoring of soil and water controls to prevent indirect impacts associated with water pollution to all waterways • biodiversity performance targets, monitoring criteria, corrective actions, timing and responsibilities • annual reporting and consultation requirements.
B3	Noise during construction will be managed as part of the construction noise management plan (NMP). The NMP will include noise management strategies for construction works adjacent to known breeding habitats.
B4	Shading and artificial light impacts will be minimised where possible through detailed design and lighting will be designed in general accordance with AS/NZS 4282:2019 Control of the Obtrusive Effects of Outdoor Lighting.

ID	Mitigation measures
B5	Adaptive management strategies within the BMP will ~~consider~~ **include** any new and relevant data from ongoing assessment and monitoring. This will include measures to monitor predicted and uncertain impacts that will trigger adaptive management actions, allowing effective and quick responses. The strategies will include consideration of impacts on biodiversity that are uncertain such as: • inadvertent impacts to native vegetation adjacent to the development footprint • introduction of pests, pathogens and weeds to native vegetation adjacent to the development footprint and further afield • degradation of downstream habitats via worsening of water quality or alteration to hydrological processes • vehicle strikes.
B6	Measures will be implemented to protect vegetation and fauna habitat outside the development footprint, including minimising indirect impacts, especially to known threatened flora species and potential fauna species.
B7	The **draft BBAMP (Appendix 9 of Appendix D.3) will be updated** in consultation with DPHI and CPHR prior to operation and will: • address the prescribed impacts associated with blade strike impacts • include trigger levels to manage impacts during operation (including timing of implementation of additional mitigation measures) – the purpose of these triggers will be to identify unacceptable events and subsequent mitigation measures, providing an ongoing feedback loop and reducing the potential for the project to result in substantial unforeseen operational impacts to bird and bat species • develop the impact monitoring framework, including baseline and operation monitoring.
Aboriginal heritage	
AH1	The project will avoid impacts to the following identified Aboriginal objects and/or sites within or near the development corridor: • **hearths and associated cultural materials: DEHW-2023-HAS13 (#55-1-0162), DEHW-2023-HIF5 (#48-6-0283), PEC-E-47 (#55-1-0057), PEC-E-50 (#55-1-0060), DEHW-2023-HAS1 (#54-3-0071)** • **culturally modified trees: DEHW-2023-ST1 (#48-6-0273), DEHW-2023-ST8 (#48-6-0253), PEC-E-48 (#55-1-0058), PEC-E-49 (#55-1-0059), DEHW-2024A-ST5, DEHW-2024A-ST6, DEHW-2024A-ST7, DEHW-2024A-ST8, DEHW-2024A-ST10, DEHW-2024A-ST11, DEHW-2024A-ST12 and DEHW-2024A-ST13** • **occupation areas: DEHW-OA3 (#48-6-0308), DEHW-OA6 (#54-3-0076), and DEHW-2023-HAS4 (#54-3-0070)** • **cultural sites: DEHW-CS1 (#48-6-0310) and other significant cultural areas including three potential ring trees (DEHW-2023-STAS2 (#48-6-0250), DEHW-2023-ST12 (#55-1-0144) and DEHW-2024A-RT1), a potential culturally modified tree DEHW-2023-HH2 (#55-1-0196), and key identified cultural material components within a potential women's area DEHW-2023-STAS1 (#55-1-0143).** Site-specific avoidance measures developed to address this commitment will be integrated into AH4.
AH2	The project will investigate the micro-siting of project infrastructure and construction activities in consultation with an Aboriginal heritage specialist to avoid or minimise impacts to: • **hearths and associated cultural materials: DEHW-2023-H3 (#48-6-0257), DEHW-2023-HAS8 (#48-6-0267), DEHW-2023-HAS7 (#55-1-0165), DEHW-2024-HAS2 (#48-6-0292), DEHW-2024-H1 (#48-6-0289), DEHW-2024-HAS1 (#48-6-0291) and DEHW-2023-HAS12 (#55-1-0163)** • **culturally modified trees: DEHW-2023-ST10 (#48-6-0251) and DEHW-2024A-ST9** • **occupation areas: DEHW-2023-HASST1 (#48-6-0264), DEHW-OA1 (#55-1-0172), DEHW-OA2 (#49-4-0243), DEHW-OA4 (#49-4-0244), DEHW-OA5 (#48-6-0309), DEHW-OA7 (#55-1-0171), DEHW-OA8 (#55-1-0169), and DEHW-OA9 (#55-1-0170)** • **cultural site: DEHW-2023-STAS1 (#55-1-0143)** • **areas of higher archaeological potential including identified aeolian, paleochannels, and watercourse features, and the eastern fringes of Gilgai and ephemeral wetlands. These are prevalent in the western portion of the amended project area, where sand dunes and/or sandy soil profiles have been predicted and/or observed.** Management and any site-specific mitigation measures developed to address this commitment will be integrated into AH4.
AH3	**Additional archaeological field survey will be undertaken in sensitive landforms (i.e. wetlands, Gilgai, paleochannels, drainage lines or sand dunes) in discrete areas in the vicinity of T61W, T72W, T51W, T42W, T122W, T139W and T147W, and an access track and cabling corridor between T73W and T97W. Any Aboriginal objects, sites, places and/or deposits identified during these works will be integrated into AH4.**

ID	Mitigation measures
AH4	An ACHMP will be prepared by a suitably qualified heritage professional in consultation with the RAPs and Heritage NSW. The ACHMP will describe: • processes, timing, communication methods and project involvement for maintaining Aboriginal community consultation and participation through the remainder of the project • content of a cultural heritage induction package for all project staff and contractors • methods for documenting and archival recording of any Aboriginal sites and/or objects that will be impacted by the project • recording and archaeological mitigation requirements for archaeological test/salvage excavations/monitoring of Aboriginal sites and/or objects that will be impacted by the project • methods for surface collection of identified isolated objects and stone artefact scatters that will be impacted by the project • methods for mitigation and/or recovery of culturally modified trees that will be impacted by the project • methods for delineation and protection of Aboriginal sites and/or objects within or in close proximity to the development corridor, including clear marking, appropriate screen for any gender-specific areas and surface protection • procedures for managing the unexpected discovery of Aboriginal objects, sites and/or human remains during the project • procedures for the curation and long-term management of recovered cultural materials • methods of post-excavation analysis and reporting of the archaeological investigations, including suitable collection and processing of stone artefacts, paleo-environmental, chronological and other soils from archaeological activities • a monitoring regime for implementing the above measures.
AH5	An inspection will be undertaken by a qualified arboriculturist of all tentatively identified culturally modified trees to confirm whether the modifications have formed through anthropogenic or natural processes. The findings of this inspection and the management of confirmed culturally modified trees will be described in the ACHMP (AH4).
AH6	An Aboriginal heritage-interpretation strategy and plan will be developed by an Aboriginal heritage specialist, in consultation with the RAPs. The plan will identify the interpretive Aboriginal heritage values of the project area and provide direction for interpretive installations and devices.
AH7	Consultation regarding cultural heritage management will be maintained with the RAPs.
AH8	A copy of the ACHA and all relevant AHIMS site recording forms and information for the project will be lodged with Heritage NSW and provided to each of the RAPs.
Historical heritage	
HH1	The project's construction environmental management plan (CEMP) will provide the following to mitigate risks to heritage items during construction: • list of identified heritage sites • site-specific management measures outlined in mitigation measure HH2 (including clearly defined responsibilities and actions) • an unexpected finds protocol • heritage awareness and management training as part of the induction process • management measures to be implemented if there will be impacts to heritage items due to changes to the development footprint.
HH2	DEHW003, DEHW005, **DEHW007** and DEHW008 will be clearly demarcated with markers and signage. Construction personnel will be informed of any restrictions regarding DEHW003, DEHW005, **DEHW007** and DEHW008, before commencing work near these sites.
HH3	If the development footprint is amended in proximity of DEHW001 and impacts to the ram shed and stockyards cannot be avoided, archival recording of the site will be required prior to impacts occurring.

ID	Mitigation measures
HH4	If the development footprint is amended in proximity of DEHW003 and impacts cannot be avoided, archival recording of the site will be required prior to impacts occurring. Subject to the easement requirements of the transmission line, Spark Renewables should consult with an arborist to determine whether the tree can be partially removed (i.e. maintained in situ below any height limitations for vegetation within the easement), whilst avoiding impacting the marking on the tree or its longevity.
Transport	
T1	A detailed Construction Traffic Management Plan (CTMP) will be developed in consultation with TfNSW, Edward River Council and Murrumbidgee Council prior to the commencement of works.
T2	**The Kidman Way/Kidman Way Eastern Site Access intersection will include:** • **dedicated turning bays for left-turning and right-turning vehicles from Kidman Way** • **upgrades on both the north and south approaches** **upgrades designed for a 26m long B-double truck and to allow the passage of the largest OSOM vehicle.**
~~T3~~	~~The Kidman Way/Cadell Road (south) intersection will be upgraded to include:~~ ~~• a dedicated turning bay for left turning vehicles from Kidman Way~~ ~~• a widened shoulder on the eastern side of Kidman Way at the intersection~~ ~~• upgrades on both the north and south approaches~~ ~~• closure of right turn from Kidman Way north approach into Cadell Road (south), subject to consultation with TfNSW and Murrumbidgee Council~~ • upgrades designed for light vehicle access.
T3	The Kidman Way/McLennons Bore Road intersection will be upgraded to include: • **a dedicated turning bay for left turning vehicles and a dedicated turning bay for right turning vehicles from Kidman Way** • upgrades on both the north and south approaches • upgrades designed for a 36.5-m-long truck and to allow the passage of the largest OSOM vehicle.
T4	Obtain a permit (from NHVR) to allow up to 36.5-m-long trucks as well as OSOM vehicles to use the road network as part of construction. Conditional approval will be requested from NHVR for 36.5-m-long trucks to access McLennons Bore Road, Fernbank Road, Wilson Road and Goolgumbla Road, as it is currently only approved for 19-m-long heavy vehicles. Relevant councils will be consulted as part of the approval process.
T5	The following gravel roads will be widened to comply with the relevant Australian Road Research Board (ARRB) rural roads design guidelines (unless agreed otherwise with the relevant local council): • McLennons Bore Road • Fernbank Road from McLennons Bore Road to the site access point • Wilson Road between McLennons Bore Road and Goolgumbla Road • Goolgumbla Road between Wilson Road and the northern site access point.
T6	McLennons Bore Road between Cadell Road and Kidman Way will be upgraded from a dry weather road to an all-weather unsealed road and existing signage relating to the use of this road during dry weather only will be removed.
T7	All site access points will be constructed as per council's Rural Property Access standard to the satisfaction of **the relevant road authority**.
T8	Subject to outcomes of engagement with Murrumbidgee Council, the major road priority at the intersection of McLennons Bore Road and Cadell Road will change from Cadell Road to McLennons Bore Road. Give way signage will be installed on Cadell Road on both the north and south approaches. Alternatively, if the major road priority cannot be changed, truck warning signage will be installed on Cadell Road on both approaches to the intersection.
T9	At Wilson Road/McLennons Bore Road intersection, truck warning signage will be placed on Wilson Road to warn drivers of trucks turning at Wilson Road/McLennons Bore Road intersection.
T10	The McLennons Bore Road/Fernbank Road and McLennons Bore Road/Wilson Road intersections will be widened based on the recommendations of the swept path assessment to facilitate access by the longest vehicles requiring access via these intersections.

ID	Mitigation measures
T11	A dilapidation survey will be commissioned prior to the start of construction to assess the existing condition of the sections of McLennons Bore Road, ~~Cadell Road (south),~~ Fernbank Road, Wilson Road and Goolgumbla Road that will be used by vehicles associated with the project.
T12	A road maintenance strategy will be developed in consultation with Murrumbidgee Council and Edward River Council.
T13	**To prohibit light and heavy vehicle usage on Cadell Road, a 'Drivers Code of Conduct' will be prepared, which will clearly outline that this road is not to be used by project-related vehicles. The proponent is willing to work with Murrumbidgee Council on effective measures to prohibit development traffic from using Cadell Road.**
T17	**Haulage route (OSOM) and road upgrades and relevant timing is listed in Table 6.20 of the amendment report and will be implemented for the project.**
Water	
W1	Management measures to address potential impacts to surface water and groundwater during construction will include: • appropriate siting of proposed infrastructure within the development footprint to minimise disturbance to existing drainage lines and overland flow paths • designing earthworks to maintain the prevailing surface gradients and fall towards existing drainage lines, to minimise changes to existing flow paths • providing general surface drainage infrastructure comprising: – diversion of upslope runoff around infrastructure – surface drainage measures to control runoff generated within the development footprint, minimise soil erosion and direct runoff towards receiving drainage lines – sheet flow conditions will be maximised, and construction of diversion drains, channels and table drains will be minimised to the extent practicable – treatments to armour earthwork batters and site drainage where needed for scour protection, where flow concentrations cannot be avoided – retention of existing flow paths where possible and minimise catchment diversions, with the objective of minimising changes to flow regimes in receiving watercourses • stabilising disturbed areas and progressively rehabilitating soils as early as practicable • maintaining drainage, erosion and sediment control measures, including monitoring and adjustment protocols to achieve the desired performance standard • capturing stormwater runoff from buildings in rainwater tanks for use on-site, to minimise demand for imported water • storing hazardous material in accordance with Australian Standards • maintaining spill kits on-site at all times during construction and operation • considering weather preparedness and response planning.
W2	Specific stormwater management measures for the substation and switchyard areas will include: • diverting clean runoff away from potentially oil-contaminated areas • bunding potentially oil-contaminated areas • providing stormwater treatment device(s) to remove oil/grease, hydrocarbons and sediment from runoff prior to discharge to the downstream drainage system.
W3	Specific stormwater management measures for the concrete batching plants during construction will include: • diverting clean runoff away from cement and concrete handling areas and stockpiles • maximising recycling of process wastewater, with dedicated storages for excess wastewater that will be manually emptied via vacuum truck and disposed of off-site • bunded areas for refuelling.
W4	Management measures to address ongoing site-specific risks to surface water and groundwater during operation will include: • rehabilitating temporary works and construction disturbance areas not being utilised for operation • maintaining stabilised and vegetated surfaces, drainage and sediment and erosion control measures throughout operation.

ID	Mitigation measures
W5	Erosion and sediment control measures and site rehabilitation and revegetation will be implemented in accordance with best practice comprising *Managing Urban Stormwater: Soils and Construction – Volume 1* (Landcom 2004) and *Volume 2A* (DECC 2008) and *Best Practice Erosion and Sediment Control* (IECA 2008). Measures and principles will include: • minimising the extent and duration of land disturbance • controlling water movement through the development footprint • minimising soil erosion • promptly stabilising disturbed areas • maximising sediment retention on-site • maintain drainage, erosion and sediment control measures • monitor and adjust drainage, erosion and sediment control practices to achieve the desired performance standard • construction of suitable watercourse crossings • consideration of the erosion hazard specifically posed by the dispersive subsoils.
W6	Progressive erosion and sediment control plans will be developed for all discrete disturbance areas.
W7	Flood management protocols will be developed and implemented in the event of flood events that could impact construction sites or access, including: • suitable early warning/prediction measures and communication protocols • site preparedness activities and procedures • triggers for closure, evacuation and recovery • emergency response and support.
W8	Temporary construction infrastructure will be designed and constructed to: • ~~consider~~ **manage** flood risk, including overland flow paths and mainstream flood risk, in the placement of temporary works, plant, materials and workforce facilities • ensure that temporary works minimise off-site flooding impacts as far as practical.
W9	Permanent infrastructure will be designed and constructed to: • locate sensitive infrastructure (e.g. substations) on high ground above 1% AEP event flood levels (or other suitable level of flood immunity as determined during detailed design) and to avoid or otherwise divert local overland flow paths around infrastructure • ensure finished ground levels are constructed at-grade and not materially higher than existing levels in areas subject to existing mainstream flooding, in order to minimise potential off-site flooding impacts as far as practical. Where a change in ground level is proposed in areas, as part of future design stages or refinements, assessment of the change should be quantified to confirm off-site flooding impacts do not occur. If changes in the project layout or changes in the landform are required and there is a risk of flooding, then flood modelling will be conducted to confirm the flood behaviour due to the project.
W10	Flood management protocols will be developed and implemented for operations.
W11	Watercourse crossings and stormwater outlets will be designed and constructed to: • ~~consider~~ **address** the appropriate level of serviceability and flood immunity required for the project • ~~consider~~ **address** local hydraulic conditions and minimise scour potential • minimise local flooding impacts • be consistent with: – *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (DPI Fisheries 2003) – *Policy and Guidelines for Fish Habitat Conservation and Management* (DPI 2013)
W12	Removal of any private irrigation infrastructure (i.e. not owned by CICL) within the development footprint will be in agreement with relevant landowners. If infrastructure is removed for the project, it will be reinstated following the project, or as otherwise agreed with landowners.
W13	Spark Renewables will continue to consult with CICL regarding cable crossings of irrigation infrastructure during detailed design. Designs, construction methods and timing will be agreed with CICL prior to implementation.

ID	Mitigation measures
W14	All relevant water licensing and approvals will be obtained to support water supply arrangements for construction and operation if alternative sources are required.
W15	Temporary and permanent on-site wastewater management and effluent reuse systems will: • be appropriate for each site based on consideration of the project layout, site conditions and relevant environmental constraints (e.g. sensitive surface or groundwater water features) • be designed, constructed, operated, maintained and decommissioned in accordance with best practise and relevant guidelines and standards and in consultation with the relevant Council.
Air quality	
AQ1	A CEMP will be prepared and will include measures to manage off-site air quality impacts including: • monitoring and modifying working practices by limiting activity during periods of adverse weather (hot, dry and windy conditions) • applying dust suppression measures to active work areas where necessary • revegetating earthworks and disturbed areas to stabilise surfaces as soon as practicable • imposing vehicle speed limits along internal roads and work areas during construction • ensuring vehicle loads entering and leaving the project area are covered to prevent escape of materials during transport.
Land	
L1	Soil management measures to preserve soil resources will include: • avoiding and minimising soil disturbance to the extent practical • assessing topsoil depths to be stripped prior to stripping to minimise the mixing of topsoil and subsoil • preserving as much topsoil as possible • aiming to strip and manage different soils orders or mapping units separately • avoiding mixing topsoil with subsoil during soil handling operation • managing subsoils in separate layers to minimise introduction of constraints higher into the soil profile where subsoils exhibit variance of constraints with depth • avoiding stripping, handling or compacting soil following heavy rain periods that leaves the soil structure saturated • avoiding compaction of soil during stripping and stockpiling operation • applying ameliorants to topsoil and, where necessary, subsoil during stripping operation in accordance with a soil scientists' recommendations, with ameliorants applied prior to stripping each soil layer, to maximise mixing of the ameliorants during the stripping process • stockpiling topsoil separately from subsoil (where it is necessary to strip subsoil) • reinstating soil horizons in the correct order and depths, where possible • locating subsoils and topsoils so that stockpiled material is placed on the same underlying soil unit where practical • protecting stockpiles from erosion using soil stabilising polymers, cover crops or other forms of stabilisation • stabilising long-term topsoil stockpiles to minimise stockpile waterlogging, the generation of anaerobic conditions, help maintain topsoil biological viability and nutrient cycling and to create a seed store • testing stockpiled subsoil and topsoil to determine amelioration requirements prior to reinstatement • testing any imported soil materials to characterise and determine suitable usage and amelioration requirements prior to reinstatement.
L2	Undertake agricultural mitigation activities during the life of the project, including: • maintaining existing internal livestock fencing and other required infrastructure within the development footprint • avoiding interference with the operation of irrigation channels.
L3	The following will be implemented to manage impacts associated with weeds, pathogens and pest species: • implementing hygiene and washdown protocols, including washdown and inspection of vehicles, plant and machinery when moving from areas with known populations of weed and pest species • removing identified weeds through methods such as herbicide spraying, scalping and hand-pulling • managing importation of gravel, crushed rock or soil to ensure that the material is free from noxious weed seed • implementing measures to manage pest fauna species within the development footprint.

ID	Mitigation measures
L4	The following erosion and sediment control measures, site rehabilitation and revegetation will be implemented in accordance with industry standard practice: • minimising the extent and duration of land disturbance • controlling water movement through the development footprint • minimising soil erosion • stabilising disturbed areas promptly • maximising sediment retention on site • maintaining drainage, erosion and sediment control measures • monitoring and adjusting drainage, erosion and sediment control practices to achieve the desired performance standard • constructing suitable watercourse crossings • considering the erosion hazards posed by the dispersive subsoils while installing driven piles, excavation of cable and pipe trenches, construction of roads, tracks and ancillary facilities.
L5	An unexpected finds protocol will be developed for construction, operation and decommissioning. It will include procedures to identify potentially contaminated land, such as: • the observation of discolouration or staining of soils • visible signs of plant stress, presence of drums or other waste material • stockpiles, fill material or odours. If a potential source of contamination is identified, work within the affected area will cease until an assessment is completed to advise the need for further investigation or remediation.
L6	**Prior to commencement of earthworks, a materials management plan will be prepared and implemented. This will include targeted soil sampling in areas where a moderate contamination risk has been identified. The materials management plan will be prepared in conjunction with a CEMP and outline specific management measures during construction relating to:** • **spoil material generation – specifying the locations, indicative volumes and types of materials** • **the spoil management hierarchy – including strategies for reduction, reuse and disposal** • **handling and transportation of generated materials/spoil** • **stockpile management** • **spoil testing and classification regime.**
Bushfire	
BF1	A Fire Management Plan will be prepared that includes: • bushfire fuel management • site infrastructure plan • site access and internal road plan • APZs and their ongoing maintenance • location of hazards that may impact firefighting operations • activities that may be exempt on periods of total fire ban days • consideration of the Grain Harvesting and Fire Safety Guide (Appendix 1 of Appendix D.7) • recording of meteorological monitoring masts in the tall structures database maintained by Airservices Australia (Civil Aviation Safety Authority 2018) • warning lights or visible markers (such as orange balls) on meteorological monitoring masts to minimise risks during aerial firefighting operations • protocols for the rapid shut down of turbines in emergency situations ensuring acknowledgement of who has the authority to direct turbine shut-down procedures. The Fire Management Plan will be prepared in consultation with the Argoon **and Goolgumbla** Rural Fire Brigades, NSW RFS District Office for the Mid Murray Zone and Fire Rescue NSW.

ID	Mitigation measures
BF2	A bushfire emergency management and evacuation plan will be prepared in consultation with NSW RFS in accordance with Table 6.8d of *Planning for Bush Fire Protection* (RFS 2019). It will be consistent with *A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* (RFS 2014). A copy of the bushfire emergency management and evacuation plan will be provided to the local emergency management committee prior to the start of construction.
BF3	The development footprint will be maintained to the standard of an inner protection area (IPA) in accordance with the requirements of Appendix 4 of *Planning for Bush Fire Protection* (RFS 2019) including: • a minimum 10 m wide APZ around WTGs • a minimum 14 m wide APZ between workers accommodation facilities and grassland hazards • a minimum 16 m wide APZ between workers accommodation facilities and woodland hazards • a minimum 36 m wide APZ between safe refuge buildings (radiant heat exposure equivalent to less than 10 kW/m^2) and grassland hazards • a minimum 42 m wide APZ between safe refuge buildings (radiant heat exposure equivalent to less than 10 kW/m^2) and woodland hazards
BF4	Landscape screening (if required) will ~~consider the~~ **address any** potential increase in fire risk due to the type (species), density, height, location and overall width of the vegetation screening. Where landscaping is proposed to provide a visual screen: • landscaping will be located more than 100 m from workers accommodation facilities, or • landscaping within 100 m from workers accommodation facilities will be designed in accordance with Section A1.10 low threat vegetation–exclusions, or Appendix 4 of *Planning for Bush Fire Protection* (RFS 2019).
BF5	Buildings within the workers accommodation facilities, if constructed within 100 m of bushfire prone vegetation, will comply with Australian Standard *AS3959-2018 Construction of Buildings in Bushfire-prone Areas* or the relevant requirements of the *NASH Standard – Steel framed construction in bushfire areas* (incorporating amendment A – 2015). All new buildings constructed for the project will comply with the construction requirements in Section 7.5 of *Planning for Bush Fire Protection* (RFS 2019).
BF6	Internal access roads will provide access for local emergency service vehicles to WTGs, switchyards, substations, construction compounds and O&M buildings to support property protection activities. The design of worker accommodation facility access roads will comply with the property access road requirements outlined in Table 7.4a of *Planning for Bush Fire Protection* (RFS 2019).
BF7	An adequate static water supply will be provided for firefighting purposes in accordance with Table 7.4a of *Planning for Bush Fire Protection*. Water supply for firefighting purposes will be located at the primary vehicle access points to the project area as well as at the worker accommodation facilities, construction compounds, O&M building, substations and grid connections and elsewhere as determined at the detailed design phase in consultation with Argoon **and Goolgumbla** Rural Fire Brigades, NSW RFS District Office for the Mid Murray Zone, and Fire and Rescue NSW. In addition to static water supply requirements, two mobile water supplies with a minimum capacity of 500 L each (e.g. vehicle-mounted tanks or standalone tankers) will be available on-site during construction and operation.
BF8	The provision of gas will comply with *Planning for Bush Fire Protection* (RFS 2019).
BF9	Spark Renewables will continue to consult with Argoon **and Goolgumbla** Rural Fire Brigades around specific weather conditions that may require works to temporarily cease during construction.
BF10	Spark Renewables will investigate options for firefighting training for construction and operational personnel, as well as opportunities to incentivise workforce participation in Argoon **and Goolgumbla** Rural Fire Brigades.
BF11	Spark Renewables will continue to engage with local aerial firefighting operators to develop procedures for their safe operation within the project area.
Hazards and risks	
AV01	Spark Renewables will report the WTGs and meteorological monitoring masts to CASA in accordance with CASR 139.165 following detailed design and prior to construction.
AV02	'As constructed' details of WTG and meteorological monitoring masts coordinates and elevation will be provided to Airservices Australia.

ID	Mitigation measures
AV03	Any obstacles that will be above 100 m above ground level (including temporary construction equipment) will be reported to Airservices Australia (Notice to Airmen offices) until they are incorporated in published operational documents. For example, a notification regarding crane operations may include: • the planned operational timeframe • the maximum height of the crane • the general area/route within which the crane will operate.
AV04	Project details, including the 'as constructed' location and height information of WTGs, meteorological monitoring masts and overhead transmission lines, will be provided to local and regional aircraft operators prior to construction, including nearby landowners to facilitate aerial application operations planning.
AV05	Spark Renewables will engage with local aerial agricultural operators and aerial firefighting operators emergency services providers regarding aircraft operations in the vicinity of the project.
AV06	**Spark Renewables will incorporate guidance from the Australasian Fire and Emergency Service Authorities Council in *Wind Farms and Bushfire Operations* (AFAC 2018) as part of preparation of the bushfire emergency management and evacuation plan. Spark Renewables will:** • **engage with relevant fire and land management agencies** • **ensure access is available to the project by emergency services response for on-ground firefighting operations** • **develop procedures to shut down affected wind turbines during emergency operations – where possible, blades should be stopped in the 'Y' or 'rabbit ear' position, as this positioning allows for the maximum airspace for aircraft to manoeuvre underneath the blades and removes one of the blades as a potential obstacle.**
AV07	Overhead transmission lines and/or supporting poles that could adversely affect aerial application operations will be identified in consultation with local aerial application operators and marked in accordance with Part 139 MOS 2019 Chapter 8 Division 10 section 8.110 (7) and section 8.110 (8) **and AS3891.2, Air navigation — Cables and their supporting structures — Marking and safety requirements.**
AV08	Spark Renewables will consult with Airservices Australia and CASA regarding changes to the LSALT and will consult with aviation authorities, local aerodrome owners/operators and local aerial agricultural operators regarding any changes to the LSALT from the project.
AV09	If required following consultation with CASA and Airservices Australia, temporary and permanent meteorological monitoring masts will be marked according to the requirements set out in MOS 139 Section 8.10 (as modified by the guidance in NASF Guideline D). Specifically: • marker balls, high visibility flags or high visibility sleeves will be placed on the outside guy wires • paint markings will be applied in alternating contrasting bands of colour to at least the top 1/3 of the mast • guy wire ground attachment points will have contrasting colours to the surrounding ground/vegetation.
AV10	Consultation with CASA and Airservices Australia will be completed to determine whether meteorological monitoring masts present an unacceptable risk to aviation safety. If a meteorological monitoring mast is assessed as likely to present an unacceptable risk to aviation safety, lighting will be installed. **An indicative obstacle lighting plan has been prepared in Appendix D.13 of the amendment report.** Characteristics of obstacle lighting will be in accordance with CASA's *Manual of Standards*.
AV11	The rotor blades, nacelle and the mast supporting the WTGs will be painted predominantly white. No additional marking measures will be installed for WTGs.
AV12	**Aviation hazard lighting requirements are subject to ongoing consultation with CASA. An indicative aviation obstacle lighting plan has been prepared in accordance with the *Wind Energy Guideline* (DPHI 2024a) and is provided in Appendix D.13 of the amendment report.**
DG1	If diesel is stored with other flammable liquids (e.g. gasoline), a separation distance of at least 10 m to the nearest development footprint boundary will be maintained to ensure that the SEPP screening threshold is not exceeded.
TEL1	Should impacts to wireless or satellite services at associated residences occur, Spark Renewables will engage with the landholders to identify a suitable alternative.

ID	Mitigation measures
TEL2	**Based on engagement with Bureau of Meteorology on potential impacts to meteorological radars:** • **Spark Renewables will inform the Bureau of Meteorology of any changes to the location of proposed WTGs (excluding a 100 m micro siting allowance) and/or alterations to WTG height.** • **Where possible, Spark Renewables will inform the Bureau of Meteorology at least 2 weeks prior to any planned shutdown of the project (for maintenance or any other reason).** • **Spark Renewables will collaborate with the Bureau of Meteorology in the event of severe weather conditions to assist in matters of community safety.**
Social	
S1	A Social Impact Management Plan (SIMP) will be implemented prior to construction. The SIMP will ~~aim to~~: • describe desired project social outcomes • outline post-approval engagement activities, including timing and purpose • describe a feedback procedure that will allow feedback and timely response throughout construction and operation • define targets to monitor performance over time, identify monitoring responsibilities, and methods to share outcomes. The SIMP will include methods for engaging stakeholders on their key interests to: manage impacts, enhance benefits, and provide suitable mechanisms for project feedback. Key stakeholders include Murrumbidgee and Edward River Councils, landowners, broader community, First Nations stakeholders, services and utilities, local businesses, and local workforces. An adaptive management approach to the implementation the SIMP is proposed, allowing Spark Renewables to manage and respond to changing circumstances and new information through ongoing monitoring and periodic review of mitigation strategies allowing for modification if required.
S2	An industry participation plan (IPP) will be implemented. The IPP will identify: • opportunities for supply of goods and services, employment and training, including Aboriginal participation, as well as sustainable procurement • metrics to track goals and requirements for each identified opportunity • engagement with Murrumbidgee and Edward River Councils, local businesses and the Coleambally Chamber of Commerce to inform an understanding of opportunities and limitations for procuring local goods and services, as well as aspirations amongst local businesses • online and offline methods to share and register interest in project opportunities.
S3	An Aboriginal participation plan (APP) will be implemented in consultation with First Nations stakeholders to optimise local capacity and aspirations through targeted participation initiatives within the regional area. This will include setting targets for First Nations participation in the project workforce and procurement. Commitments will be measurable, and a report of progress to the local First Nations community will contribute to the measurement of outcomes.
S4	Regular engagement (to be defined in the SIMP) with local businesses will advise of construction periods and the potential increase in trade or patronage. This will allow businesses with planning to maximise benefits of increased demand, and associated revenue.
S5	The project workforce will be encouraged, particularly during the construction phase, to support and contribute to the local and regional community through local spending. This may be done through initiatives such as provision of vouchers for use at local businesses, or promoting local business offerings, such as on notice boards at the accommodation facilities.
S6	Murrumbidgee and Edward River councils will be engaged to identify potential service constraints. Measures such as provision of on-site medical facilities and identification of preferred telehealth providers will be implemented to prevent excessive demand on GP services closest to the site.
S7	Temporary worker accommodation facilities will be used in preference to local short-term and rental accommodation. Local residents will be recruited for the construction workforce as far as possible.
S8	**An accommodation facility management plan will be developed and implemented in consultation with Murrumbidgee Council/Edward River Council prior to commencement of construction to ensure accommodation facilities comply with relevant standards and requirements.**

ID	Mitigation measures
S9	A Community Engagement Plan and Worker Code of Conduct (as part of the SIMP) will be developed and implemented to address perceived public safety risks. The plan will include engaging with community services, such as police and emergency services, so that they are familiar with the project in case of an incident.
Economic	
ECON1	Employment of regional residents will be prioritised where they have the required skills and experience.
ECON2	Spark Renewables will participate in business groups, events and programs in the regional community.
ECON3	Non-labour inputs to production will be sourced locally where local producers can be cost and quality competitive.
ECON4	A Community Benefit Fund will be established and managed through VPAs with Murrumbidgee Council and Edward River Council.
ECON5	Lease payments will be paid to project landowners to provide an alternative drought-proof income with potential flow-on benefits to the regional economy.
ECON6	Agricultural activities will continue during project operation, where consistent with the landholders' requirements.
Waste	
WAS1	All waste will be managed in accordance with the requirements of the NSW *Protection of the Environment Operations Act 1997* and the NSW *Waste Avoidance and Resource Recovery Act 2001*.
WAS2	All wastes will be classified, stored and handled in accordance with the *Waste Classification Guidelines – Part 1: Classifying Waste* (EPA 2014), with appropriate segregation of waste streams to maximise reuse and recycling of suitable waste streams.
WAS3	Waste will be managed in accordance with the waste hierarchy, in order of preference: • avoid/reduce waste production • recover resources for reuse • recycle or dispose of waste at licenced facilities.
WAS4	A detailed waste management plan will be prepared prior to each project phase identifying the type, quantity, classification and management of waste.
WAS5	As part of decommissioning, Spark Renewables will maximise opportunities to recover/recycle decommissioned infrastructure and equipment.

Appendix C

Compliance assessment (transmission line setbacks)

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Monday, 11 November 2024
Newcastle, NSW, AU
Our Reference: SPK03-TN-241024-01(E)
contact@brighty.energy

RE: DINAWAN WIND FARM ENA-047 COMPLIANCE ASSESSMENT (TRANSMISSION LINE – WTG SETBACK)

Background

The *Guideline for Wind Turbines Proximity to Electricity Transmission Lines* (ENA DOC 047-2022) attempts to define an industry best practice for selection of setback distances between a wind turbine generator (WTG) and a transmission line to avoid undesirable interactions such as:

a) Wake turbulence generated from WTGs causing undesirable vibration or oscillations in transmission line components (*Wake Effect Risk*),
b) Damage to transmission line infrastructure caused by a catastrophic event where a turbine falls on a transmission line (*Catastrophic WTG Support Structure Collapse Risk*),
c) Damage to transmission infrastructure caused by parts of WTG blades being 'thrown' into nearby transmission lines (*Blade Throw Risk*) and,
d) Restrictions on transmission line maintenance activities (*Maintenance Impact*).

Criteria defined in the guideline is summarised as follows:

Setback	**Implications**	**Notes**
Less than1.5 x WTG Rotor Diameter Setback	Not recommended for critical lines[1].	
Greater than 1.5 x WTG Rotor Diameter (but less than 3 x WTG Rotor Diameter) Setback	Conductor damping recommended to be considered due to concerns raised by the ENA working group that wake induced aeolian vibration is plausible at this distance.	
Greater than 3 x WTG Rotor Diameter	No impact expected.	Excessively conservative approach, without any empirical justification. Not recommended to be applied for reasons described in the following section of this technical note.
Collapse Risk Setback	Fallen WTG is not expected to encroach transmission line easement under the most conservative analysis.	Extremely conservative given the probability of WTG tower foundation failure, in the exact direction of the transmission line, without tower structural deformation during collapse, and WTG yaw and blade rotation angle at worst case angle during collapse.

Table 1 – Summary of Setback Criteria

[1] Critical Lines are described by ENA-047 as follows: "where the loss of a critical line for a significant period of time would have a major impact on wider the community and society".

Compliance Assessment

Two calculations were prepared to aid in assessment of compliance. *Appendix A* provides the calculations for the recommended setback distance between the expected WTG dimensions and transmission lines. *Appendix B* provides the calculations for the maximum considered WTG dimensions and transmission lines. Item "h" in each calculation provides the recommended minimum setback distance between the Dinawan Wind Farm WTGs and the Yanco Delta transmission line.

The following observations are made in relation to the transmission line and wind turbine setback distances described in planning documents for the Dinawan and Yanco Delta Wind Farms:

1) While strict compliance criteria are not defined by ENA047-2022, for the purposes of this technical note, the most appropriate criteria informed by ENA-047-2022 will be used: the 1.5 x WTG Rotor Diameter Criteria, and the Collapse Risk Setback set out in *Table 1*.

2) With reference to *Appendix A* and *Table 2* (below), the Dinawan Wind Farm layout [1] is compliant with ENA-047[2] when applying the 1.5 x WTG rotor diameter criteria along with the expected turbine dimensions.

3) Several WTGs forming part of the Yanco Delta Wind Farm [4] are noted to be closer to the Yanco Delta Wind Farm Transmission line [3] than wind turbines forming part of the Dinawan Wind Farm [1].

4) With reference to the Yanco Delta Wind Farm planning layout [3,4], several Yanco Delta Wind Farm turbines may not be compliant with 1.5 x diameter rotor setback criteria, or 3 x diameter rotor setback criteria set out in ENA-047.

5) The Dinawan Wind Farm design is compliant with Catastrophic Wind Turbine Generator Support Structure Collapse Risk described in ENA-047.

6) Due to short setback distances from the Yanco Delta Wind Farm transmission line [4], the Yanco Delta Wind Farm layout is not compliant with the Catastrophic Wind Turbine Generator Support Structure Collapse Risk described in ENA-047.

7) Use of 3 x rotor diameter setback criteria is excessively conservative and not recommended because:
   a) Empirical evidence [5] indicates that the effects of aeolian vibration due to wind turbine wake may be negligible, as anticipated by ENA-047 (Section 2.5),
   b) If aeolian vibration effects were not assessed during transmission line engineering (suggested by only for less than 1.5 x rotor diameter setbacks), and low-cost vibration dampers were not prudently installed as a contingency measure prior to commissioning of the transmission line, then these dampers can be installed during a scheduled outage to address any vibration observed during operations and,
   c) Mandating 3 x rotor diameter setbacks from transmission lines unnecessarily results in an inefficient wind farm design, which may result in undesirable effects such as loss of biodiversity, increased construction costs and material use, higher wake losses and reduced generator output.

8) With reference to *Appendix B* and *Table 2* (below), the Dinawan Wind Farm layout [1] is compliant with ENA-047 [2] when applying the 1.5 x WTG rotor diameter criteria along with the largest anticipated turbine dimensions, provided that the turbine is 'micro-sited' away from the transmission line by approximately 7m during detailed design.

	Closest Wind Turbine Generator to Transmission Line	
	WTG Setback Distance from Transmission Line Corridor Centerline (m)	Turbine ID
Yanco Delta Wind Farm	71 m	W-111
Dinawan Wind Farm	290 m	T108

Table 2 - Minimum setback distances

Additional Notes

In the case of *Wake Effect Risk*, ENA DOC 047-2022 employs an extremely conservative approach in deriving WTG to transmission line setback distances, which were not informed by any field tests, despite data being available at the time of publication[2]. The guideline recommends avoidance of setbacks less than 1.5 x WTG rotor diameters without detailed investigation of the particular location and environment, including the prevailing wind direction and relative elevations of the transmission conductors and WTG.

Blade Throw Risk and *Catastrophic WTG Support Structure Collapse Risk* are extremely low probability events, with a comparable risk profile to collapse of urban structures commonly located adjacent to transmission line easements.

In the case of *Maintenance Risk*, rigid setback criteria are not offered by ENA-047-2022.

Regulatory bodies should be cautious when considering mandating compliance to ENA DOC 047-2022 or setback distances described within ENA DOC 047-2022 given the limited empirical data available to demonstrate any causal relationship between wind turbine wake turbulence and transmission line conductor aeolian vibration.

Further, regulators should contemplate the negative planning outcomes that are caused by excessively conservative setback distances (described in the previous section) and the readily available, low-cost, practical mitigation measures available: i.e. installing conductor dampers on any transmission lines exhibiting any aeolian vibration either during initial construction as a preventative measure, or during a convenient scheduled outage if vibration is noticed during maintenance events on portions of the line (this practice occurs where vibrational effects are noted even when wind turbines are not in proximity).

References

[1] Dinawan Wind Farm Layout provided by Spark Renewables in shapefile format
[2] ENA DOC 047-2022, Guideline for Wind Turbines Proximity to Electricity Transmission Lines
[3] Transmission line centerline georeferenced shapefile provided by Spark Renewables
[4] Yanco Delta Wind Farm Co-ordinates, converted to georeferenced shapefile format by Spark Renewables
[5] "Investigation of Wind Turbine Wake Effects on Overhead Line Conductor Vibration", CIGRE-IEC 2019 Conference on EHV and UHV (AC & DC),April 23-26, 2019, Hakodate, Hokkaido, Japan.

Appendices

APPENDIX A – Calculation of Setback Distances with Typical Turbine Dimensions

APPENDIX B – Calculation of Setback Distances with Maximum Possible Turbine Dimensions

[2] "Investigation of Wind Turbine Wake Effects on Overhead Line Conductor Vibration", CIGRE-IEC 2019 Conference on EHV and UHV (AC & DC),April 23-26, 2019, Hakodate, Hokkaido, Japan.

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Aim

To determine setback distances between wind turbines and any 'critical' transmission line infrastructure for project layout designs.

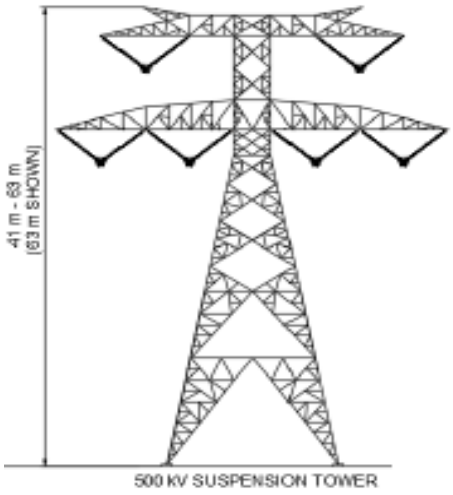
Inputs		Value	Units	Source
(i)	Blade length	84.35	m	Spark Renewables
(ii)	Hub height	149	m	Spark Renewables
(iii)	Overhead structure/conductor excursion from TL centreline	23.91	m	[3] (Note 6)
(iv)	Non flashover distance	4.4	m	[4] Table 3.1 (Note 6)
(v)	Hub Diameter	3.3	m	Spark Renewables
(vi)	Foundation pivot tolerance	8	m	Assumption
(vii)	Critical line easement width	70	m	[5] Assumption TBC (Note 5)

Calculation		Value	Units	Notes
(a)	Turbine tip height	235	m	(i) + (ii) + 0.5 x (v)
(b)	Setback from transmission line centreline to avoid flashover	272	m	(a) + (iii) + (iv) + (vi)
(c)	Rotor diameter	172	m	2 x (i) + (v)
ENA 047-2022 setback distance from WTG centre point to transmission line centre line:				
(d)	1.5 x Rotor diameter setback	282	m	1.5 x (c) + (iii)
(e)	3 x Rotor diameter setback	540	m	3 x (c) + (iii)
(f)	Setback to avoid flashover	272	m	(b)
(g)	Setback to avoid fallen WTG encroaching line easement	278	m	(a) + (vi) + 0.5 x (vii) (Note 5)
(h)	Recommended minimum setback distance	**282**	m	Greater of (d) and (g)

Notes:

1. Additional 'micro-siting' tolerance has not been included for transmission towers or turbines. Consideration to proximity should be given during 'micro siting'/detailed design.
2. Setbacks in excess of 1.5 turbine rotor diameters are not considered. Aeolian vibration effects are assumed to be addressed by vibrational dampers during detailed transmission line design and may also be negligible beyond critical line setback [1,2].
3. Distance from transmission line easement centreline may conservatively be a non-conductive part of transmission line.
4. Blade throw interactions not considered due to low probability of interaction.
5. Assumes line design towers are located at centre line of transmission easement.
6. Conservatively assumes dual circuit 500kV, setback distances may be reduced for lower voltage circuits.
7. Turbine micro-siting may be required where turbine dimensions increase.

Assumed structure geometry:



References:

[1] ENA 047 2022 - Guideline for Wind Turbines Proximity to Electricity Transmission Lines, Energy Networks Association, 2022
[2] "Investigation of Wind Turbine Wake Effects on Overhead Line Conductor Vibration", CIGRE-IEC 2019 Conference on EHV and UHV (AC & DC),April 23-26, 2019, Hakodate, Hokkaido, Japan.
[3] Project EnergyConnect Environmental Impact Statement, Technical Paper 13, Electromagnetic Interference Study, (NSW Eastern Section) doc: 2580421-1777122916-1196
[4] AS2067, Australian Standard - Substations and high voltage installations exceeding 1kV, 2016
[5] "Easement Guidelines Living and working with electricity transmission lines", Transgrid, 2021

Aim

To determine setback distances between wind turbines and any 'critical' transmission line infrastructure for project layout designs.

Inputs		Value	Units	Source
(i)	Blade length	89.35	m	Spark Renewables
(ii)	Hub height	149	m	Spark Renewables
(iii)	Overhead structure/conductor excursion from TL centreline	23.91	m	[3] (Note 6)
(iv)	Non flashover distance	4.4	m	[4] Table 3.1 (Note 6)
(v)	Hub Diameter	3.3	m	Spark Renewables
(vi)	Foundation pivot tolerance	8	m	Assumption
(vii)	Critical line easement width	70	m	[5] Assumption TBC (Note 5)

Calculation		Value	Units	Notes
(a)	Turbine tip height	240	m	(i) + (ii) + 0.5 x (v)
(b)	Setback from transmission line centreline to avoid flashover	277	m	(a) + (iii) + (iv) + (vi)
(c)	Rotor diameter	182	m	2 x (i) + (v)
ENA 047-2022 setback distance from WTG centre point to transmission line centre line:				
(d)	1.5 x Rotor diameter setback	297	m	1.5 x (c) + (iii)
(e)	3 x Rotor diameter setback	570	m	3 x (c) + (iii)
(f)	Setback to avoid flashover	277	m	(b)
(g)	Setback to avoid fallen WTG encroaching line easement	283	m	(a) + (vi) + 0.5 x (vii) (Note 5)
(h)	Recommended minimum setback distance	**297**	m	Greater of (d) and (g)

Notes:

1. Additional 'micro-siting' tolerance has not been included for transmission towers or turbines. Consideration to proximity should be given during 'micro siting'/detailed design.
2. Setbacks in excess of 1.5 turbine rotor diameters are not considered. Aeolian vibration effects are assumed to be addressed by vibrational dampers during detailed transmission line design and may also be negligible beyond critical line setback [1,2].
3. Distance from transmission line easement centreline may conservatively be a non-conductive part of transmission line.
4. Blade throw interactions not considered due to low probability of interaction.
5. Assumes line design towers are located at centre line of transmission easement.
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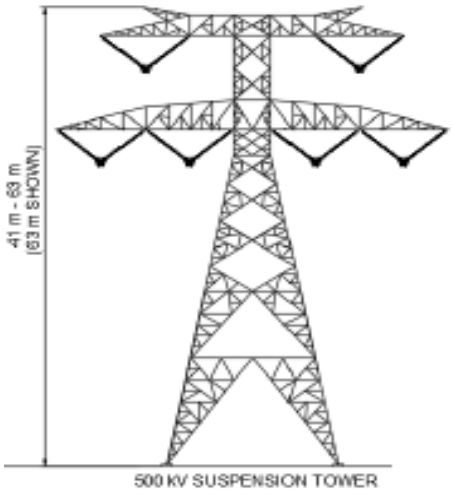
7. Turbine micro-siting may be required where turbine dimensions increase.

Assumed structure geometry:



References:

[1] ENA 047 2022 - Guideline for Wind Turbines Proximity to Electricity Transmission Lines, Energy Networks Association, 2022
[2] "Investigation of Wind Turbine Wake Effects on Overhead Line Conductor Vibration", CIGRE-IEC 2019 Conference on EHV and UHV (AC & DC),April 23-26, 2019, Hakodate, Hokkaido, Japan.
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[4] AS2067, Australian Standard - Substations and high voltage installations exceeding 1kV, 2016
[5] "Easement Guidelines Living and working with electricity transmission lines", Transgrid, 2021

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