Stubbo Solar Farm

Intended for
UPC Renewables Australia Pty Ltd

Date
June 2021

STUBBO SOLAR FARM
RESPONSE TO SUBMISSIONS REPORT

RAMBOLL Bright ideas. Sustainable change.

UPC AC Renewables AUSTRALIA
A joint venture of UPC & AC Energy

STUBBO SOLAR FARM
RESPONSE TO SUBMISSIONS REPORT

Project name	**Stubbo Solar Farm**
Project no.	**318001132**
Recipient	**UPC Renewables Australia Pty Ltd**
Document type	**Response to Submissions report**
Version	**V2**
Date	**01/06/2021**
Prepared by	**Taylor Hancock / Belinda Sinclair / Jon Williamson**
Checked by	**Jon Williamson**
Approved by	**Jon Williamson**
Description	**Response to Submissions Report for the Stubbo Solar Farm project.**

Ramboll
Level 2, Suite 18 Eastpoint
50 Glebe Road
PO Box 435
The Junction
NSW 2291
Australia

T +61 2 4962 5444
https://ramboll.com

Revision	Date	Prepared by	Checked by	Approved by	Description
V1	7 May 2021	JW, BS, TH	JW	JW	Draft for DPIE
V2	1 June 2021	JW, BS, TH	JW	JW	Final
V3					
V4					
V5					

Ramboll Australia Pty Ltd.
ACN 095 437 442
ABN 49 095 437 442

EXECUTIVE SUMMARY

Introduction

UPC Renewables Australia Pty Ltd, operating as UPC\AC Renewables Australia (UPC\AC), the Proponent, proposes to develop the Stubbo Solar Farm, a grid-connected photovoltaic solar farm of up to 400 megawatts in the New South Wales Central West Orana region (the project). The project would be located approximately 90 kilometres east of Dubbo, in the Mid-Western Regional Council Local Government Area. The project is located within the proposed Central-West Orana Renewable Energy Zone.

The capital value of the project would be in excess of $30 million. Accordingly, the project is a State Significant Development under the *State Environmental Planning Policy (State and Regional Development) 2011* and Part 4 of the *Environmental Planning and Assessment Act 1979*.

A development application and environmental impact statement were submitted for the project under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* on 11 December 2020. The development application and environmental impact statement for the project were publicly exhibited from 12 January 2021 to 19 February 2021.

This response to submissions report has been submitted to the Department of Planning, Industry and Environment to respond to the matters raised in the submissions received on the environmental impact statement during the exhibition period in accordance with clause 82(2) of the *Environmental Planning and Assessment Regulation 2000*.

Project amendments and clarifications since the EIS

Following submission of the environmental impact statement, UPC\AC has made one amendment to the project, which involves a proposed upgrade of Blue Springs Road in response to a submission provided by Mid-Western Regional Council. An amendment report has been prepared which describes the proposed road upgrade and accompanies this report.

The amendment report also provides further clarification about the project where it has been sought during the exhibition period and through ongoing discussions with stakeholders, landholders and the local community. Clarifications include information on:

- additional non-associated property identified after lodgement of the environmental impact statement in December 2020
- clarification of the intended use of the proposed development footprint shown within the TransGrid easement
- configuration of potential battery energy storage system
- layout of proposed switchyard within the substation area for the purpose of subdivision.

Additional assessments since the environmental impact statement

Additional assessments have been undertaken for the proposed upgrade of Blue Springs Road and to consider potential impacts associated with the following clarifications:

- assessment of potential noise and visual impacts at a non-associated property not previously identified in the environmental impact statement
- update of the preliminary hazard assessment to provide further clarity and additional information.

These additional assessments are documented in the amendment report.

Consultation since the environmental impact statement

Since the submission of the development application and environmental impact statement and the commencement of the exhibition period, the following community and stakeholder consultation has been undertaken:

- Community information session held on 25 March 2021 at the Country Women's Association Hall in Gulgong
- Regular project update on project website, email, Facebook page. Advertising in local newspapers. Ongoing discussions with local stakeholders such as Gulgong Chamber of Commerce
- Further landholder meetings: phone calls and face to face meetings with some of the closest neighbours of the project regarding road upgrades in April 2021
- Ongoing discussions with Transport for NSW regarding the proposed road upgrades
- Meetings, phone calls and emails with Mid-Western Regional Council in March, April and May 2021 to discuss the proposed upgrade of Blue Springs Road, terms of the voluntary planning agreement and waste management services
- Consultation with potential water suppliers
- Consultation with Dubbo waste facilities (Whylandra and Wellington)
- Consultation with the Forestry Corporation of NSW regarding road upgrade works within the Cope Road State Forest, including a site inspection with representatives on 12 May 2021
- Consultation with the Gulgong Chamber of Commerce on 11 May 2021
- Consultation with Registered Aboriginal Parties, as part of the amended Aboriginal Cultural Heritage Assessment Report (road upgrades only).

Submissions received

At the conclusion of the exhibition period, the Department of Planning, Industry and Environment had received 17 submissions from the public, two submissions from interest groups and advice from 17 government agencies.

Of the submissions received, approximately five per cent (two submissions) were in support of the project, 49 per cent (18 submissions) objected to the project and 46 per cent (17 submissions) provided comment. The most common matters raised in the submissions included concerns around socio-economic, traffic and transport, landscape character, land use and community consultation.

Conclusion

A revised summary of management and mitigation measures has been provided to address the refinements made to the project and to address matters raised in the submissions.

The environmental assessment undertaken for the project as part of the environmental impact statement and the additional assessment undertaken for the subsequent amendments to the project as part of the amendment report, has determined that the project would not result in significant impacts to environmental, cultural, social and economic values and residual impacts can be managed with the management and mitigation measures in place.

The project forms an important part of Australia's transition to renewable energy generation and would positively contribute in meeting Commonwealth and State targets. The project would enhance the reliability and security of electricity supply by contributing to the anticipated capacity gaps in the electricity market following the closure of major coal-fired power generators within New South Wales.

CONTENTS

TABLE OF TABLES

TABLE OF FIGURES

APPENDICES

Appendix 1
Response to the Submission from the Biodiversity Conservation Division

Appendix 2
Agricultural Resource Assessment

[redacted]

1. INTRODUCTION

1.1 Project overview

UPC Renewables Australia Pty Ltd, operating as UPC\AC Renewables Australia (UPC\AC), the Proponent, proposes to develop the Stubbo Solar Farm, a grid-connected photovoltaic solar farm of an intended capacity of 400 megawatts in the New South Wales (NSW) Central West Orana region (the project). The project would be located approximately 90 kilometres east of Dubbo, in the Mid-Western Regional Council Local Government Area (LGA). The project is located within the proposed Central-West Orana Renewable Energy Zone, recently identified by the NSW Government to help meet its objective to achieve net zero emissions by 2050.

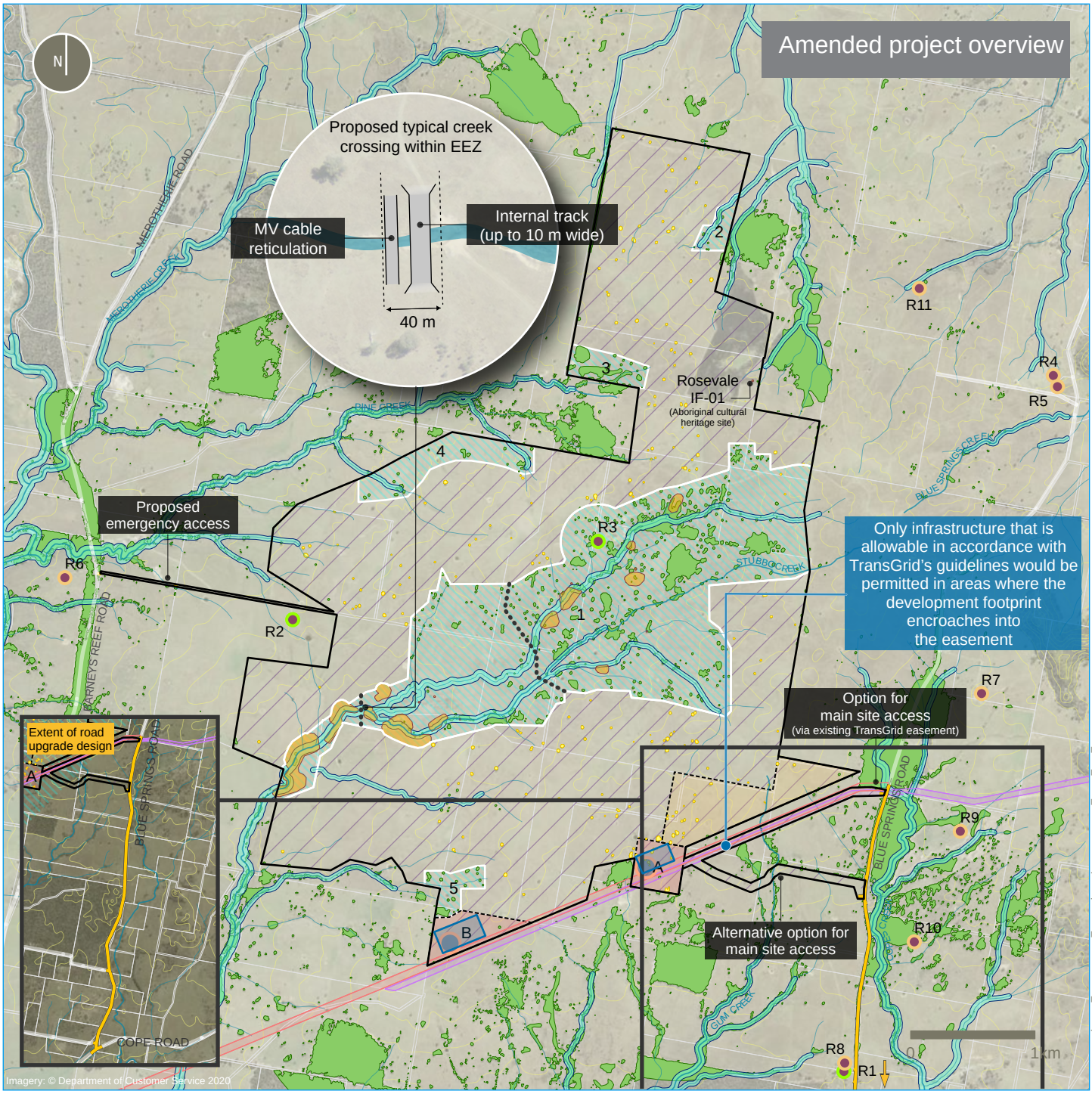
The project would include the construction, operation and decommissioning of a 400-megawatt solar farm that would supply electricity to the National Electricity Market (NEM). Key infrastructure for the project would include:

- photovoltaic modules (solar panels) installed in a series of rows across the development footprint
- power conversion units (PCUs) designed to convert the direct current (DC) electricity generated by the photovoltaic modules into alternating current (AC) form, compatible with the electricity network
- onsite substation containing two main transformers and associated switchgear
- transmission infrastructure including up to 33 kilovolt overhead and/or underground electrical reticulation; and connection from the substation to the existing 330 kilovolt transmission line (Line 79) operated by TransGrid
- a centralised or decentralised battery energy storage system (BESS)
- operational and maintenance ancillary infrastructure including staff office and amenities, car parking, spare parts storage and maintenance facilities; and supervisory control and data acquisition (SCADA) facilities
- access roads and local road upgrades, both to the project and internal access roads
- temporary facilities required during the construction and decommissioning phases, such as construction compounds and laydown areas, site office and amenities; and access tracks and associated infrastructure, including gates and fencing.

The permanent and temporary components associated with construction and operation would be solely located within the proposed development footprint.

The development footprint intends to minimise impacts of the development in the areas of highest environmental value with designated environmental exclusion zones. An indicative project layout is provided in **Figure 1-1**.

The project is expected to require up to 400 full-time employees during peak construction and approximately 10 full-time employees would be required during operation and ongoing maintenance of the solar farm.



A4
1:46,000

Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Road upgrade design
- Indicative subdivision area
- Proposed development footprint
- Environmental exclusion zones
- Indicative access across EEZ
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer
- Aboriginal cultural heritage sites including buffer

Figure 1-1 | Amended project overview

1.2 Approval process

The capital value of the project would be in excess of $30 million. Accordingly, the project is a State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SR&D) and Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

A development application (DA) and environmental impact statement (EIS) were submitted for the project under Part 4, Division 4.1 of the EP&A Act on 11 December 2020. The DA and EIS for the project were publicly exhibited from 12 January 2021 to 19 February 2021.

At the conclusion of the exhibition period, the Department of Planning, Industry and Environment (DPIE) had received 17 submissions from the public, two submissions from interest groups and advice from 17 government agencies. This response to submissions report will be submitted to the DPIE to respond to the matters raised in these submissions in accordance with clause 82(2) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

UPC\AC has made one amendment to the project that was the subject of the DA and EIS. This amendment includes a proposed upgrade to Blue Springs Road in response to a submission provided by Mid-Western Regional Council.

A separate amendment report has been prepared to outline the proposed road upgrade and the additional assessments that have been undertaken; and provides a summary of the potential impacts associated with the project. The amendment report also provides further clarification about the project where it has been sought during the exhibition period and through ongoing discussions with stakeholders, landholders and the local community. The amendment report has been submitted to DPIE in conjunction with this report.

1.3 Purpose of this response to submissions report

This report has been prepared to consider and respond to the issues raised during public exhibition of the EIS and has been submitted in conjunction with the amendment report. Following receipt of this report and the amendment report, DPIE will prepare its assessment report considering the EIS, subsequent amendments and clarifications to the project, and responses to submissions received during the exhibition process to make a determination on the project

The submissions received have been categorised, grouped and addressed by issue, rather than on an individual or stakeholder basis, consistent with Guideline 5 of *the Draft Environmental Impact Assessment Guidance Series* (NSW Department of Planning and Environment, 2017).

This report also describes the additional activities undertaken by UPC\AC during and after the EIS exhibition period.

1.4 Document structure

This report is structures as follows:

- **Section 1. Introduction** – provides background on the project and introduces the document purpose and structure
- **Section 2. Actions taken during and after EIS Exhibition** – describes the activities undertaken by UPC since exhibition of the EIS, including the project refinements, additional technical studies and stakeholder engagement activities undertaken
- **Section 3. Analysis of submissions** – provides a detailed summary of the submissions received on the project, including where the submissions were received from and the key issues raised
- **Section 4. Response to agency submissions** – provides responses to matters raised in the agency submissions on the EIS
- **Section 5. Response to organisation submissions** – provides responses to matters raised in the organisation submissions on the EIS
- **Section 6. Response to community submissions** – provides responses to matters raised in the community submissions on the EIS
- **Section 7. Revised summary of management and mitigation measures** – provides an updated summary of management and mitigation measures
- **Section 8. Project evaluation and conclusion** – presents the overall impacts and benefits of the project
- **Section 9. References**
- **Appendices –** including:
    - **Appendix 1**: Response to the submission from the Biodiversity Conservation Division
    - **Appendix 2**: Agricultural Resource Assessment
    - [redacted]

2. ACTIONS TAKEN DURING AND AFTER EIS EXHIBITION

2.1 Project refinement

Following submission of the EIS, UPC\AC has made one amendment to the project, which involves a proposed upgrade of Blue Springs Road in response to a submission provided by Mid-Western Regional Council. An amendment report has been prepared which describes in detail the proposed amendment and further assessments that have been undertaken following exhibition of the EIS.

The amendment report also provides further clarification about the project where it has been sought during the exhibition period and through ongoing discussions with stakeholders, landholders and the local community. Clarifications include information on:

- inclusion of an additional non-associated property that was identified following lodgement of the EIS in December 2020
- clarification to show some restrictions of the project where it encroaches into the existing TransGrid easement for the 330 kilovolt and 132 kilovolt transmission lines
- clarification that both a centralised and a de-centralised configuration for a battery energy storage system have been considered
- providing an indicative layout of the of area to be subdivided (switchyard within the substation areas).

The amendment report has been submitted to DPIE in conjunction with this report and can be viewed in full at: https://www.planningportal.nsw.gov.au/major-projects/project/31031

2.2 Further assessments

The additional assessments undertaken to assess potential environmental and social impacts associated with the proposed upgrade of Blue Springs Road have been considered in the amendment report.

Additional assessments were also undertaken to consider potential impacts associated with the following clarifications documented in the amendment report:

- assessment of the potential traffic and transport impacts associated with the proposed upgrade of Blue Springs Road and its intersection with Cope Road
- assessment of the potential biodiversity impacts associated with the proposed upgrade of Blue Springs Road, including intersection with Cope Road and with the proposed site entrance and access road options, and updating of biodiversity offset requirements
- assessment of the potential Aboriginal heritage and historic heritage impacts associated with the proposed upgrade of Blue Springs Road
- assessment of potential noise and visual impacts at a non-associated property not previously identified in the EIS
- update of the preliminary hazard assessment to provide further clarity and additional information.

2.3 Community and stakeholder engagement

Since the submission of the development application and EIS and commencement of the exhibition period, the following community and stakeholder consultation has been undertaken:

- Community information session held on 25 March 2021 at the Country Women's Association Hall in Gulgong. Approximately 15 people attended the drop-in session, including close neighbours. Questions or concerns raised included visual impact from neighbouring properties, road upgrades, positive safety impacts on neighbours' driveways and community benefit sharing.
- Regular project updates on the project website, via email and the project Facebook page. Advertising in local newspapers. Ongoing discussions with local stakeholders such as Gulgong Chamber of Commerce
- Further community meetings in April 2021, including phone calls and face to face meetings with some of the closest neighbours of the project regarding road upgrades
- Ongoing discussions with Transport for NSW regarding the proposed intersection upgrades (refer to **Section 4.6.1** for further details)
- Ongoing discussions with TransGrid regarding technical assessment under the National Electricity Rules (this is separate to the development application process) (refer to **Section 4.12.1** for further detail on the outcomes of the discussions)
- Meetings, phone calls and emails with Mid-Western Regional Council in March, April and May 2021 to discuss the proposed upgrade of Blue Springs Road, terms of the voluntary planning agreement and waste management services
- Consultation with potential water suppliers including Ulan Water, A1 Earthworks, Adrian Ingram and Mudgee Water (refer to **Section 4.11.1** for further detail on the outcomes of the discussions)
- Consultation with Dubbo waste facilities (Whylandra and Wellington) (refer to **Section 4.1.5** for further detail on the outcomes of the discussions)
- Consultation with the Forestry Corporation of NSW regarding road upgrade works within the Cope Road State Forest, including a site inspection with representatives of the Forestry Corporation of NSW on 12 May 2021 (refer to amendment report for further details)
- Consultation with Gulgong Chamber of Commerce on 11 May 2021
- Consultation with Registered Aboriginal Parties in relation to the proposed road upgrades
- Discussions and provision of information regarding the proposed road upgrade to residents along the Blue Springs Road. Where necessary, signed consents were obtained from landholders whose property boundary would be slightly impacted by the proposed road upgrade.

3. ANALYSIS OF SUBMISSIONS

3.1 Exhibition details

The EIS was publicly exhibited on DPIE's Major Projects website (https://www.planningportal.nsw.gov.au/major-projects/project/31031) from 12 January 2021 to 19 February 2021.

3.2 Overview of submissions received

At the conclusion of the exhibition period, DPIE had received 17 submissions from the community, two submissions from interest groups and advice from 18 government agencies. A summary of the submissions received is provided in **Table 3-1**.

Table 3-1: Summary of submissions received

Type	Objects	Supports	Comments	Total
Agency	-	1	17	**18**
Organisation	2	-	-	**2**
Community	16	1	-	**17**
Total	**18**	**2**	**17**	**37**

A graphical representation of the submitters view on the project is provided in **Figure 3-1**.

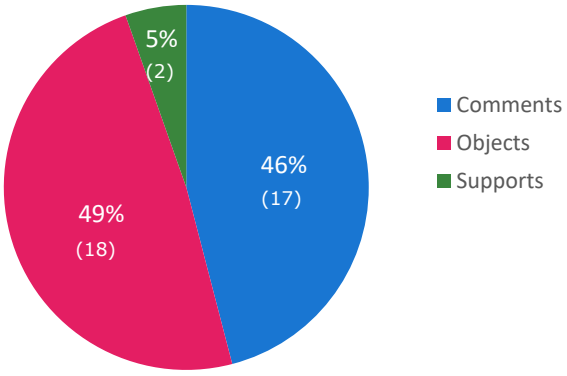


Figure 3-1: View of submitters on the project as a percentage

3.3 Response methodology

The following methodology has been applied in developing responses to the submissions received:

- collation and categorisation of submissions based on who they were from as follows:
  - agency
  - organisation and interest group
  - community
- review of the submission was undertaken, and the key issues raised in each submission identified
- responses prepared for each issue with input from specialists who prepared technical assessments for the EIS as required. The project team remained consistent with those who assisted with preparation of the EIS.

3.4 Agency submissions

3.4.1 Origin of submissions

Submissions were received from the following agencies:

- Mid-Western Regional Council
- Environment Protection Authority
- Biodiversity and Conservation Division
- Heritage NSW – Aboriginal Cultural Heritage
- Heritage NSW – Historic Heritage
- Roads and Maritime Services
- Transport for NSW
- Department of Primary Industry – Agriculture
- Department of Primary Industry – Fisheries
- WaterNSW
- Department of Planning, Industry and Environment – Water and the Natural Resources Access Regulator (Water Group)
- TransGrid
- Essential Energy
- Rural Fire Services
- Fire and Rescue NSW
- Regional NSW – Mining, Exploration and Geoscience
- Crown Lands
- Australian Rail Track Corporation.

3.4.2 Summary of matters raised

All agencies provided comment except for the Regional NSW – Mining, Exploration and Geoscience who indicated support for the project. A summary of the categories of issues raised by agencies is provided in **Table 3-2**.

Table 3-2: Categories of issues raised by agencies

Issue category	Agencies
Consultation	• Mid-Western Regional Council • TransGrid
Biodiversity	• Mid-Western Regional Council • Biodiversity and Conservation Division • Department of Primary Industry – Fisheries
Aboriginal heritage	• Heritage NSW – Aboriginal Cultural Heritage
Historic heritage	• Heritage NSW – Historic Heritage
Geology, soils and land capability	• Department of Primary Industry – Agriculture
Land use	• Mid-Western Regional Council
Traffic and transport	• Mid-Western Regional Council • Roads and Maritime Services • Transport for NSW • Australian Rail Track Corporation
Water	• Mid-Western Regional Council • Water Group
Hazards and risks	• Mid-Western Regional Council • Rural Fire Services • Fire and Rescue NSW
Socio-economic	• Mid-Western Regional Council
Waste and resources	• Mid-Western Regional Council
Decommissioning and rehabilitation	• Mid-Western Regional Council
EIS content	• Crown Lands
No issues raised	• Environment Protection Authority • Regional NSW – Mining, Exploration and Geoscience • WaterNSW • Essential Energy

3.5 Organisation and interest group submissions

3.5.1 Origin of submissions

Two submissions from organisations or interest groups were received:

- Wellington Valley Wiradjuri Aboriginal Corporation (WVWAC), based in Orange NSW
- SOS (Save Our Surroundings) Central West NSW, Based in Gulgong NSW.

3.5.2 Summary of matters raised

Issues raised by the WVWAC were all related to Aboriginal heritage (archaeological survey methodology).

Issues raised by SOS Central West NSW related to:

- EIS content
- project need, justification and alternatives
- climate change and greenhouse gas
- biodiversity
- Aboriginal heritage
- land use
- landscape character and visual
- noise and vibration
- traffic and transport
- water
- hazards and risks
- socio-economic
- waste and resources
- soil and water contamination
- decommissioning and rehabilitation
- community consultation
- cumulative impacts.

3.6 Community submissions

3.6.1 Origin of submissions

All community submissions were received from localities within NSW. Of the 17 submissions received from the community, the majority (82%) were from within the Mid-Western Regional Council LGA. Two submissions were received from the Dubbo Regional Council LGA and one submission was received from Newcastle. Details on the origin of the community submissions is provided in **Table 3-3**.

Table 3-3: Origin of community submissions

Suburb	Local Government Area	Number of submissions from locality
Stubbo	Mid-Western Regional Council	4
Cope	Mid-Western Regional Council	1
Gulgong	Mid-Western Regional Council	5
Mudgee	Mid-Western Regional Council	2
Beryl	Mid-Western Regional Council	1
Ulan	Mid-Western Regional Council	1
Wellington	Dubbo Regional Council	2
Merewether	City of Newcastle	1
Total		**17**

3.6.2 Summary of matters raised

A summary of the matters raised by the community and where each matter has been addressed in this report is provided in **Table 3-4**.

Table 3-4: Summary of matters raised by the community

Matter raised	Number of submissions where the matter is raised	Where matter has been addressed in this report
Project need, justification and alternatives	5	**Section 6.1**
Community consultation	9	**Section 6.2**
Biodiversity	6	**Section 6.3**
Geology, soils and land capability	3	**Section 6.4**
Land use	11	**Section 6.5**
Landscape character and visual	11	**Section 6.6**
Noise and vibration	7	**Section 6.7**
Traffic and transport	12	**Section 6.8**
Water	6	**Section 6.9**
Hazards and risks	8	**Section 6.10**
Socio-economic	18	**Section 6.11**
Waste and resources	4	**Section 6.12**
Air quality	1	**Section 6.13**
Climate change and greenhouse gas	2	**Section 6.14**
Cumulative	2	**Section 6.15**
Grid connection	1	**Section 6.16.1**
Decommissioning and rehabilitation	2	**Section 6.16.2**
Contamination	4	**Section 6.16.3**
Independency of the consultant	1	**Section 6.16.4**
Project life span	1	**Section 6.16.5**

4. RESPONSE TO AGENCY SUBMISSIONS

4.1 Mid-Western Regional Council

Comments

4.1.1 Traffic and transport

Matter raised

The EIS indicates that surveys to assess existing traffic movements during peak periods were carried out on one day. It is considered that the short duration of the traffic count survey data collection is insufficient to adequately assess the full impact of the proposed project. Council's general preference is to undertake surveys for a minimum of 7 days to obtain a more accurate indication of existing traffic movements along the proposed transport route. There is a risk that the existing traffic volumes may be underestimated for traffic management purposes.

A key concern for Council in relation to traffic movements is the significant increase in the number of vehicles utilising the local road network during the construction period. Council requests that a Construction Traffic Management Plan be prepared and approved by Council prior to the commencement of any construction activities.

The EIS indicates that the construction workforce would result in a maximum of 230 vehicles driving to/from the site each day. Council is concerned that the impact of increased vehicle numbers on the Gulgong township has not been adequately considered or addressed given only one intersection in the Gulgong township was considered one of the "seven key intersections" where traffic surveys were carried out.

If the assumption is that the majority of the construction workforce will travel from Mudgee to the site, Council's preference is that the construction workforce by-passes the Gulgong township. This can be achieved through the preparation of a Construction Traffic Management Plan, requiring workers to only use Castlereagh Highway, Fisher Street, Caledonian Street, Rouse Street, Cope Road and Blue Springs Road to access the site.

The Construction Traffic Management Plan should also include specific measures to ensure that no other local roads, in particular unsealed roads north of the site that provide connections to the Golden Highway, are used to access the site.

Response

<u>Traffic surveys</u>
While the intersection counts were undertaken on one typical weekday outside of school holidays, a week-long, mid-block tube count was undertaken on Cope Road, close to Blue Springs Road. This captured a 7-day, 24-hour traffic demand profile for the area, which was classified in 15-minute increments, by direction and by Austroads vehicle class.

The variation across the week from the 7-day survey, presented in Figure 2-11 of the Traffic and Transport Report, indicated there was no significant difference in peak hour traffic volume across the weekdays. It was therefore considered that the surveyed intersection traffic volumes provided a robust baseline for the traffic impact assessment.

Construction traffic management plan

In line with Mid-Western Regional Council's request, UPC\AC has included the following commitment in the EIS (management and mitigation measure ID T2) as follows:

"A construction traffic management plan will be prepared in consultation with TfNSW and Mid-Western Regional Council. The plan will include:

- *details of the transport route to be used for all project-related traffic*
- *details of any road upgrade works required by Development Consent*
- *a protocol for undertaking independent dilapidation surveys to assess the existing condition of the proposed construction routes prior to construction, upgrading or decommissioning activities and the condition of the proposed construction routes following construction, upgrading or decommissioning activities*
- *a protocol for the repair of the construction routes if dilapidation surveys identify these roads to be damaged during construction, upgrading or decommissioning works*
- *details of the measures that will be implemented to minimise traffic impacts during construction, upgrading or decommissioning works, including:*
    - *Temporary traffic controls, including detours, temporary reduced speed limits and signage*
    - *Notifying the local community about project-related traffic impacts*
    - *Procedures for receiving and addressing complaints from the community about project related traffic*
    - *Minimising potential for conflict with school buses, other road users during peak hours and rail services as far as practicable (measures also required during operation of the project)*
    - *Minimising dirt tracked onto the public road network from project-related traffic*
    - *Scheduling of haulage vehicle movements to minimise convoy length or platoons*
    - *Responding to local climate conditions that may affect road safety such as fog, dust and wet weather*
    - *Responding to any emergency repair or maintenance requirements*
    - *A traffic management system for managing over-dimensional vehicle trips to and from the project*
- *a program to ensure drivers associated with the project receive suitable training on the Driver Code of Conduct and any other relevant obligations under the CTMP*
- *a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding*
- *controls for transport and use of dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, Australian Dangerous Goods Code and Australian Standard 4452 Storage and Handling of Toxic Substances.".*

Management measure ID T2 does not include that the Construction Traffic Management Plan include "*specific measures to ensure that no other local roads, in particular unsealed roads north of the site that provide connections to the Golden Highway, are used to access the site*". UPC\AC will amend the management and mitigation measure to include this requirement.

Roads and Maritime Services also raised specific requirements for the Construction Traffic Management Plan in their submission on the EIS. To avoid duplication, the proposed changes to management and mitigation measure ID T2, including both requests from Roads and Maritime Services and Mid-Western Regional Council, has been included in **Section 4.6**.

Traffic impacts in the Gulgong township

To reduce traffic impacts on the Gulgong township, UPC\AC is committed to including a requirement for workers to use Castlereagh Highway, Fisher Street, Caledonian Street, Rouse Street, Cope Road and Blue Springs Road as the route from Mudgee to site in the Construction Traffic Management Plan, which will be prepared in consultation with Transport for NSW (TfNSW) and Mid-Western Regional Council.

4.1.2 Road upgrades

Matter raised

The safety of all road users across the local network during construction and operation of the Stubbo Solar project is critical for Council. In this regard, based on the potential traffic impacts identified during construction (including increased vehicle numbers and potential damage to road infrastructure) and the reduction in the level of service on the road caused by platooning of construction traffic, Council requests the following improvements be made to the local traffic network prior to the commencement of any construction activities:

a) The intersection of Cope Road and Blue Springs Road should be designed and constructed to comprise a full length Rural Channelised T-junction intersection with a passing lane and acceleration/deceleration lanes designed in accordance with the relevant parts of the current version of Austroads Guide to Road Design.

b) Blue Springs Road from Cope Road up to and extending a minimum 100 metres beyond the Approved Access Point is required to be upgraded and widened to provide for no less than a 7 metre wide bitumen sealed pavement, with a 1 metre wide unsealed shoulder on each side.

c) Barneys Reef Road and any other local road proposed to be used for heavy vehicle access to the site must also be upgraded and widened for the full trafficked length to provide for no less than a 7 metre wide bitumen sealed pavement, with a 1 metre wide unsealed shoulder on each side.

d) Access to the site must be obtained using a suitably sized access crossover/intersection from Blue Springs Road situated at a location approved by Council that complies with and meets the requirements of Safe Intersection Sight Distances, provides for adequate turning paths for all construction vehicles, minimises removal of roadside vegetation and provides for adequate roadside drainage. The intersection must be sealed, line-marked and appropriate signage (Turning Traffic W5-25B, Watch for Turning Traffic W5-26C, or other approved) must be installed and maintained to the satisfaction of Council at all times.

e) Any alternative Emergency only access point must also be constructed but may only be used in an emergency to provide access to the site. The Emergency access crossover must be situated at a location approved by Council that complies with and meets the requirements of Safe Intersection Sight Distances, provides for adequate turning paths for all construction vehicles, minimises removal of roadside vegetation and provides for adequate roadside drainage. The intersection must be sealed, line-marked and appropriate signage (Turning Traffic W5-25B, Watch for Turning Traffic W5-26C, or other approved) must be installed and maintained to the satisfaction of Council at all times.

Council requests that reports providing full and detailed assessments of the structural and load capacity of all bridges and culverts is provided to Council for approval on any and all proposed access routes to be used by Oversize/Overmass vehicles. Reports are to be prepared and certified by a suitably qualified bridge Engineer.

Council also requests that pre and post dilapidation reports are provided to manage the impacts of the Stubbo Solar Farm on existing road assets along the proposed transport routes (including all roads, bridges and causeways). The dilapidation reports should be undertaken by the proponent for each phase of the development (i.e. construction, operation, decommissioning). Any damage to existing road assets, should be repaired at the full cost of the developer.

Response

Cope Road and Blue Springs Road intersection upgrade
UPC\AC accepts, in principle, the proposed intersection and road upgrades. Details of the proposed upgrade as endorsed by Mid-Western Regional Council, along with the technical assessments undertaken for the additional works, are included in the amendment report.

Heavy vehicle road upgrades and widening
UPC\AC accepts, in principle, the proposed intersection and road upgrades. Details of the proposed upgrades as endorsed by Mid-Western Regional Council, along with the technical assessments undertaken for the additional works (traffic, ecology and heritage), are included in the amendment report.

UPC\AC confirms that Barneys Reef Road will not be used for construction purposes or as a heavy vehicle access to site and will only be used as an emergency services access route.

Site access from Blue Springs Road and safe intersection sight distances requirements
UPC\AC accepts, in principle, the proposed intersection and road upgrades. Details of the proposed upgrade as endorsed by Mid-Western Regional Council, along with the technical assessments undertaken for the additional works, are included in the amendment report.

Alternative emergency only access point
An emergency only access would be provided from Barneys Reef Road and the location and design of the intersection will be agreed with Council prior to construction to ensure that it meets the requirements for safe intersection sight distance, turning paths, pavement seal; and line marking and signage.

Access arrangements in the event of an emergency would be outlined in the emergency response plan which is further discussed in **Section 4.15.1**.

Structural and load capacity of bridges and culverts
UPC\AC commits to commissioning a suitably qualified bridge engineer to prepare full and detailed assessments of the structural and load capacity of bridges and culverts where required on proposed access routes to be used by oversize/over mass vehicles within the Mid-Western LGA. The assessment reports will be provided to Council for approval.

This commitment has been added as a management and mitigation measure (as summarised in **Section 7**) (ID T5) for the project as follows:

> *"A full and detailed assessment will be undertaken by a suitably qualified bridge Engineer of the structural and load capacity of all bridges and culverts on any and all proposed access routes to be used by oversize/over mass vehicles. The assessment reports will be provided to Mid-Western Regional Council for approval prior to commencement of construction.".*

Pre and post dilapidation reports

UPC\AC commits to preparing pre and post dilapidation reports for existing road assets along the proposed transport routes during each stage of the development, as requested by Mid-Western Regional Council. Dilapidation reports would not be prepared where road upgrades are being undertaken by UPC\AC as part of the project (e.g. Blue Springs Road).

This commitment has been added as a management and mitigation measure (as summarised in **Section 7**) (ID T6) for the project as follows:

> *"Pre and post dilapidation reports will be prepared for existing road assets, with the exception where road upgrades are being undertaken by UPC\AC as part of the project, along the proposed transport routes in consultation with Council for each phase of the development (construction, operation, decommissioning). Damage to existing road assets caused by the project would be repaired at the full cost of the proponent.".*

4.1.3 Water

Matter raised

The EIS estimates that the project will require 200 kilolitres of water per day during construction and decommissioning, primarily for dust suppression purposes. The three water supply options identified in the report include externally sourced from commercial suppliers, opportunistically sourced from farm dams located within the study area or sourced from town water.

The transportation of water to site will further increase traffic movements on the local road network during the construction and decommissioning phases. Council is concerned that the estimated 10 trucks per day is underestimated, given the extent of the internal road network and area disturbed for construction purposes, especially during extended dry periods. Council requests that the additional vehicle movements that are likely to be generated by water cartage activities are included in the traffic assessment and Construction Traffic Management Plan.

Water usage estimates should also make adequate provision for contingencies such as additional dust suppression requirements during extended dry periods. The recent drought has demonstrated water is a highly valuable resource and Council does not support any potential threat to the existing town water supplies or the amount of water available for rural property owners for domestic and agricultural purposes.

It is noted that Council's town water supply does not service the subject site.

Response

Traffic movements associated with the transportation of water

The transportation of water to site via water cart has been accounted for in the Traffic assessment for the EIS (refer to Section 3.1.1 of the Traffic and Transport Assessment Report (Appendix H of the EIS)). Daily water use has been estimated at 200 kilolitres per day. A water cart has a carrying capacity of approximately 20 kilolitres and as such it is expected that 10 water carts would attend site daily. The quantities of water required for the project have been estimated based on similar equivalent developments undertaken by UPC\AC.

The Construction Traffic Management Plan will include consideration of water carts (refer to management and mitigation measure T2).

Water usage estimates

UPC\AC acknowledges that Mid-Western Regional Council's town water supply does not service the project. As stated in Section 2.7.1 of the EIS, alternative water sources including from commercial suppliers of treated wastewater in the nearby region and/or opportunistically sourced from farm dams located within the study area, would be used to service the project where available. These supplies would be determined in consultation with suppliers, landholders and Mid-Western Regional Council.

UPC\AC has undertaken preliminary consultation with several water suppliers within the Mid-Western Regional Council area to establish their plant capacity should they be involved in the construction phase. Further discussion on the water supply arrangements for the project is included in the response to the Water Group (refer to **Section 4.11.1**).

UPC\AC acknowledges the impact that periods of extended dry conditions have on water supplies within the region. This was considered in Section 2.7.1 of the EIS which notes "*During drought conditions, it is likely that most of the water will be sourced from commercial suppliers or treated wastewater*.". Water would only be taken from sources where agreed with the supplier or landholder, and any applicable water restrictions within the area would be observed.

4.1.4 Workforce and Accommodation

Matter raised

The EIS acknowledges the expected strain the project will have on local accommodation. To minimise these impacts, it is requested that the proponent submit an Accommodation and Workforce Strategy considering the total accommodation required under various workforce scenarios, assuming the construction period overlaps with other major projects and considering peak tourism activity. It should also include detailed information regarding the number of beds and types of accommodation to be-utilised on a monthly basis for the period of construction.

The Accommodation and Workforce Strategy should also outline the proponent's proposed strategy to maximise local employment opportunities during the construction phase. Council strongly encourages the proponent to employ as many locals as possible during the construction period. Not only will this maximise the local economic benefits of the project, but it will also alleviate pressures on accommodation availability.

The Accommodation and Workforce Strategy should be developed in consultation with Council and approved prior to the commencement of construction.

Response

To address the specific requests of Mid-Western Regional Council, management and mitigation measure ID SIA1 will be updated to (changes noted in bold):

"An Accommodation and Employment Strategy will be developed and implemented for the project in consultation with Mid-Western Regional Council. This strategy will:

- ***consider various workforce scenarios assuming the construction period overlaps with other major projects and considering peak tourism activity***
- *propose measures to manage workforce accommodation to minimise the effects of non-local hires during construction on short-term accommodation availability and the local housing market*
- *include a code of conduct for the projects workforce, particularly to avoid anti-social behaviour at peak construction and align with Mid-Western Regional Council's existing industry agreements*

- *to the extent possible and within UPC\AC's control, consider the cumulative impacts associated with other State significant development projects in the area, including nearby mines*
- *investigate options for prioritising the employment of local workers for the construction and operation of the project, where feasible* ***and appropriate given the required skills and experience***
- *include a program to report measures undertaken or implemented in line with the strategy include a program to monitor and review the effectiveness of the strategy over the life of the project, including regular monitoring and review during construction*
- ***include detailed information regarding the number of beds and types of accommodation to be-utilised monthly for the period of construction****.*

The strategy will be approved by Mid-Western Regional Council prior to commencement of construction*".*

As per the commitment above, which requires UPC\AC to investigate options for prioritising local workers where feasible, it is noted that UPC\AC will work closely with its selected lead Engineer Procure and Construct (EPC) contractor in the timeframe prior to and during the construction phase – for example, to introduce local workers and sub-contractors that have expressed an interest in the project during development.

The lead Engineering, Procurement and Construction contractor will typically be selected in the months leading up to financing and start of construction and would be responsible for preparing the workforce and accommodation strategy in consultation with Mid-Western Regional Council, to be approved by DPIE prior to commencing on site works.

4.1.5 Waste

Matter raised

Council requested as input to SEARs that the proponent provide specific details of the types of waste (including pallets, panels, steel piles, packaging and batteries), expected volumes and how the waste will be transported and disposed of during construction and decommissioning. In the absence of this detailed information, Council is unable to assess the suitability of waste that can be accepted at the Mudgee Waste Facility.

Council requests that the proponent provide a Waste Management Plan prior to construction and decommissioning, which details the types of waste (including pallets, panels, steel piles, packaging and batteries), expected volumes and the proposed method of disposal. A commercial waste agreement will likely be required.

The EIS has identified Gulgong and Kandos Waste Transfer Stations as possible sites for waste disposal. It is important to note that these waste facilities handle the disposal of domestic waste only and are not equipped to accept the waste generated from commercial developments such as the Stubbo Solar project.

The EIS also states that the timber waste is recyclable. Based on Council's experience, the timber product is held together with glue products and often treated and is therefore not suitable for recycling. Therefore, the timber is required to be disposed of in landfill.

Response

Waste management plan

In line with Mid-Western Regional Council's request, UPC\AC has included this commitment in the EIS (management and mitigation measure ID WR1) as follows:

"A construction waste management plan will be prepared in consultation with Council. The waste management plan will include:

- *details of the quantities of each waste type and the proposed reuse, recycling and disposal locations*
- *details on measures to reduce the types and volumes of waste*
- *measures to maximise reuse and recycling.".*

To address the specific requests of Mid-Western Regional Council, management and mitigation measure ID WR1 will be updated to (changes noted in bold):

"A construction waste management plan will be prepared in consultation with ***Mid-Western Regional*** *Council. The waste management plan will include:*

- *details of the quantities of each waste type and the proposed reuse, recycling and disposal locations*
- ***details on how the waste will be transported to disposal locations during construction and decommissioning***
- *details on measures to reduce the types and volumes of waste*
- *measures to maximise reuse and recycling.*

UPC\AC will continue to consult with Mid-Western Regional Council around specific details of the waste management strategy throughout the life of the project*.".*

Waste disposal location

UPC\AC notes that Gulgong and Kandos Waste Transfer Stations are not equipped to accept the waste generated from the project. Alternative waste management facilities that are equipped to accept larger volumes of commercial wastes such as the Mudgee Waste Facility would be used for the project.

Indicative construction waste volumes for a similar 400 megawatt solar farm (Stage 1 of the New England Solar Farm project) are listed in **Table 4-1** where available, with some adjustment where noted in the notes below the table. These are expected to be similar for the project.

Table 4-1: Indicative waste volumes during the construction phase

Waste source	Indicative quantity
Surplus construction wastes (scrap metal, cables, concrete, spent erosion and sediment control materials, soil, timber, glass, plastics, empty spray cans)	Dependent on detailed design
Fuels, liquid hazardous waste from cleaning, repairing and maintenance of construction equipment	Dependent on detailed design
Wooden pallets[1]	2000 units per week during peak delivery periods
Packing waste (photovoltaic modules and tracker components[1]	Five tonnes per week during peak delivery periods
Wastes from toilets and bathrooms[2]	80,000 litres per day

Waste source	Indicative quantity
General waste (office waste, domestic waste, other packaging)[3]	1,200 tonnes per year

Source: (SMEC Australia Pty Ltd, 2021)

Notes:

[1]Assumed to be similar to New England Solar Farm as a comparable 400 megawatt development.

[2]Projected waste water quantity is based on NSW Department of Health's general allowance of 200 litres of water per person per day.

[3]Projected general waste quantity based the *National Waste Report 2020* (Department of Agriculture, Water and Environment, 2020) allowance of 2.94 tonnes per person for 2018-19.

UPC\AC has undertaken preliminary consultation with Mudgee waste facility in order to have a better understanding of landfill capacity and type of waste material accepted within the facility. The indicative quantities outlined above were discussed with Mid-Western Regional Council Manager of Environmental Services. It was established that:

- the current cell has four years capacity with another cell to be opened in the future to accommodate future waste. Mid-Western Regional Council has engaged a specialist to design this new cell
- expected volumes of other landfill destined waste (approximately five tonnes per week at peak construction, based on New England Solar Farm figures) was not seen as problematic nor as impacting on cell capacity
- shrink wrap, cardboard and other recyclable materials must be correctly sorted to be recycled at the facility
- the main concern which is also reflected in Mid-Western Regional Council's submission is the disposal plans for the pallets.

Options for the management of pallets include:

- landfill
- offloading/on-selling to a third party/parties
- on-site chipping to be used for weed suppression activities at perimeter fencing
- recycling at facility
- a mix of the above management options.

These options will be discussed further with Mid-Western Regional Council and relevant third-party contractors during the development of the waste management plan. UPC\AC notes that the facility has previously dealt with similar waste materials from other developments.

UPC\AC has consulted the EPC contractor for New England Solar Farm who are actively investigating the above management options for pallets associated with that project. Outcomes from that process will inform the final plans for the pallets associated with the Stubbo Solar Farm construction. UPC\AC has committed to updating Mid-Western Regional Council's Manager of Environmental Services about the outcomes and developing a strategy for pallet waste. UPC\AC's preference is for as much re-use and recycling as possible, which is reflected in **Table 17-2**.

UPC\AC notes that the facility is a (dis)ability opportunity employer and will factor this into any management plans as appropriate.

UPC\AC have also undertaken preliminary consultation with Dubbo waste facilities (Whylandra and Wellington). Both facilities have previous experience with waste disposal from solar farms.

UPC\AC will continue consultation with Mid-Western Regional Council facilities as well as other waste facilities in the region.

UPC\AC had included management measure ID WR3 in the EIS as follows:

"*Wastes will be disposed of at suitable facilities permitted to accept the waste*".

Timber waste

Table 17-2 of the EIS notes the management for timber offcuts and pallets would be "*separated for reuse and recycling*". UPC\AC notes that any timber not suitable for recycling or reuse will be disposed of in landfill.

4.1.6 Agriculture

Matter raised

The EIS indicates that the entire study area of 1,772 hectares is currently utilised for agricultural production purposes including livestock grazing and cropping. The EIS anticipates that landholders would continue to use remaining portions of their properties for agricultural activities. Whilst the extent of these agricultural activities is unclear in the EIS, it is assumed that the remaining portions referred to are those not covered by the development footprint of 1,243 hectares.

As requested in Council's response to SEARs, an economic analysis should be provided to demonstrate the impact of removing valuable agricultural land and production activities from the local economy.

The EIS indicates that the subject site is classified Class 5 under the land and soil capability assessment scheme. It is important to note that as the Mid-Western Region has no Class 1 land and only a small amount of Class 2 land, classes 3-5 have greater agricultural value within the Region compared to other regions.

Response

UPC\AC notes that Stubbo Solar Farm will share space with agricultural land. Unlike mining and some other industries associated with energy production and large-scale urban development, solar farm development does not constitute permanent land use change. All involved landholders are aware and comfortable with the decommissioning processes and re-instatement options at the end of the solar farms' operations. Little actual rehabilitation is required from an environmental point of view as overall soil displacement is relatively low. Some pasture restoration may be needed if the landholder intends to resume farming activities (assessed on a case by case basis).

UPC\AC works closely with all project landholders to understand their operational needs should they wish to continue farming around or within the development footprint. Ancillary infrastructure such as water troughs and internal fencing may need to be incorporated into the solar farm to support grazing activities. This will be discussed with the landholders and the selected EPC contractor closer to the time of detailed design (i.e. post-approval). UPC\AC will work with farmers to facilitate agriculture in and around the solar farm where practical and desired.

UPC\AC confirms that the remaining portions referred to are those not covered by the development footprint. The study area covers an area of 1,772 hectares; the development footprint (excluding access tracks) covers an area of 1,243 hectares. Therefore, the area within the study area with no direct impacts to existing land use is 529 hectares.

Options are currently being investigated for shared land uses with sheep or cattle grazing activities within portions of the study area that are not expected to be occupied by infrastructure during operations of the solar farm.

It is important to note that generally land that is not included in the proposed development footprint is not intended to be leased for the project. This means that landholders will be free to access most areas outside of the development footprint and continue their farming activities. For example, most areas within the proposed environmental exclusion zones can easily be accessed via land outside of the development footprint and therefore will not become isolated by the project and farming activities would be able to continue.

There may be some specific areas outside of the development footprint that may be included in the development footprint and in these instances UPC\AC would develop specific access and management measures in consultation with landholders.

Consultation would be ongoing with affected landowners and neighbours to maintain stock movements if they were impacted by the project. In other terms, if there is an existing arrangement between landholders and neighbours regarding stock movement, UPC\AC will facilitate discussions between the parties for an alternative route outside of the fenced area of the project.

An Agricultural Resource Assessment has been completed by SLR Consulting and is included in **Appendix 2**. The key findings of the assessment are summarised as follows:

- The development footprint is mapped as land and soil capability class 5. It is noted that class 5 land in the region is considered by Mid-Western Regional Council to be valuable agricultural land.
- There will be no impact to "Important Agricultural Land" (class 1, 2 and 3 land) as a result of the project.
- The land and soil capability class, soil type, land use and agricultural economic potential of the development footprint are all expected to be the same or similar to pre-development potential following decommissioning and rehabilitation.
- The development footprint has a potential annual gross margin in farming use of $216,282 with variable costs of $52,206, calculated at $174 per hectare per annum based on the *NSW Department of Primary Industries Beef Stocking Rates & Farm Size* (NSW Department of Primary Industries, 2006) and the *Beef Cattle Gross Margin Budget Inland Store Weaners* (NSW Department of Primary Industries, 2019). These figures are derived from the optimum potential uses of the development footprint and are likely to be higher than the actual incomes being achieved from the area under actual production. **Appendix 2** includes further details on the economic analysis undertaken for the project.
- Whilst most of the development footprint could still be available for grazing during the life of the project, there will be some reduction in the actual area available for beef cattle grazing. This is due to the fact that cattle, as larger animals, may damage the photovoltaic panels. A reduction in beef carrying capacity can be offset by stocking sheep, and income from the lease payments. Under the worst-case scenario of a 20 per cent reduction in grazing, this only results in a potential loss of $43,326 per annum, reducing the potential annual gross margin to $172,956. The loss of $43,326 per annum equates to:
    - one full-time equivalent employee based on the approximate base salary (excluding overtime and holiday rates) of a Level 1 farm and livestock hand wage of $753.80 per week

    - an overall reduction in agricultural production in the Mid-Western Region of 0.03% per annum during the life of the project (the value of agricultural production for the Mid-Western Region is $145 million per annum).
- Any agricultural impacts resulting from the project, including any cumulative impacts, are expected to be minor and temporary and can be managed through application of appropriate mitigation measures and management strategies.
- The project will provide considerable economic benefits to the region whilst having negligible impact on agricultural resources, enterprises or related industries.

UPC\AC contributes to developing policies that support the co-existence of solar and agriculture and recently contributed to the Clean Energy Council's *Australian Guide to Agrisolar for Large-Scale Solar* (Clean Energy Council, 2021).

This report found that an actual reduction in stocking rate for sheep during the operation of the solar farm is unlikely, and stocking rates may actually increase. Solar farms may result in increased animal production, by providing shade during hot summers and also protection from cold winter winds (e.g. for lambing). There is significant anecdotal evidence to support this finding across the east of Australia with most farmers finding a net benefit to grazing in between the panel arrays.

Condensation forming on the solar panels and running off onto the ground could also potentially increase pasture growth and overall stocking rates in drier periods by providing increased soil moisture. Other benefits of solar grazing as outlined in the guide include:

- increased health and wellbeing of livestock due to protection from the elements
- less water consumption by livestock
- safety from predators due to secure fencing, this is particularly valuable during breeding season for sheep
- access to greener pasture, particularly during dry conditions or drought.

4.1.7 Removal of Vegetation

Matter raised

Council requests that any clearing of vegetation required for the upgrade of Blue Springs Road be included in the BDAR and subsequent offset requirements.

Response

A biodiversity assessment has been undertaken for the upgrade of Blue Springs Road and is included in the amendment report.

4.1.8 Decommissioning and Rehabilitation

Matter raised

Council requests that a decommissioning and site rehabilitation plan be submitted to Council for approval within 5 years of the commencement of operation. The plan should be reviewed every 5 years, so that it is readily available should operations cease earlier than planned.

A land management plan should demonstrate how the site will be maintained (including weed spraying, grazing and mowing) and how this will affect the land's capability to return to agricultural land upon decommissioning and rehabilitation of the site, with the primary issue being land contamination and soil degradation occurring as a result of continual pesticide

applications. The proponent should demonstrate measures to stabilise the site when the infrastructure is removed, so it can be used again for agricultural purposes. This may include, but not limited to, the planting of paddock trees.

Response

Decommissioning and Rehabilitation Plan

In line with Mid-Western Regional Council's request, UPC\AC has included this commitment in the EIS (management and mitigation measure ID LU6) as follows:

"A decommissioning and rehabilitation plan will be prepared that outlines the rehabilitation objectives and strategies to return the study area to its pre-existing condition for agricultural land use. This will include but not be limited to:

- *rehabilitation objectives and strategies*
- *describing the design criteria of the final land use and landform*
- *performance indicators to be used to guide the return of the land back to agricultural production*
- *expected timeline for the rehabilitation program.".*

To address the specific requests of Mid-Western Regional Council, management and mitigation measure ID LU6 will be updated to (changes noted in bold):

"A decommissioning and rehabilitation plan will be prepared ***and submitted to Mid-Western Regional Council for approval within 5 years of the commencement of operation*** *that outlines the rehabilitation objectives and strategies to return the study area to its pre-existing condition for agricultural land use. This will include but not be limited to:*

- *rehabilitation objectives and strategies*
- *describing the design criteria of the final land use and landform*
- *performance indicators to be used to guide the return of the land back to agricultural production*
- *expected timeline for the rehabilitation program.*

The plan will be reviewed every 5 years, so that it is readily available should operations cease earlier than planned.*".*

Land Management Plan

A Land Management Plan would be included in the site Operational Management Plan.

The Land Management Plan would be developed in accordance with management and mitigation measure ID LU1:

"Land management within the study area will include measures to minimise impacts to surrounding agricultural land use with reference to DPI's publication Infrastructure proposals on rural land (Kovac, M and Briggs, G, 2013). These measures will also be implemented during operation of the project and will include strategies to minimise impacts of aerial spraying. The land management measures will aim to minimise impacts on:

- *land and soil capability within the development footprint*
- *biosecurity both at a local and regional level*
- *soil erosion*
- *surface water runoff*
- *agricultural activities on neighbouring properties.".*

The measures to be included in the Land Management Plan will be developed with the aim to return the land's capability to agricultural land upon decommissioning and rehabilitation of the study area.

4.1.9 Developer Contributions

Matter raised

Pursuant to the Mid-Western Regional Contributions Plan 2019, solar farms are subject to Section 7.12 contributions, calculated as per Table 6 at 1.0% of the total cost of development. Council requests that developer contributions are applied to the development in accordance with this plan and paid prior to construction commencement.

Alternatively, the proponent may negotiate a Voluntary Planning Agreement with Council, to make direct contributions to local infrastructure and services impacted by the development. It should be noted that Council expects that all road upgrades would be required as a condition of approval, and are not included in the VPA.

Response

UPC\AC held discussions with Mid-Western Regional Council in May 2021 to discuss the terms of the voluntary planning agreement. Mid-Western Regional Council provided a letter on 27 May 2021 indicating support for the general terms of a voluntary planning agreement and confirming that the proposed terms voluntary planning agreement will be formally endorsed by Mid-Western Regional Council during its 16 June 2021 council meeting. [redacted]

The voluntary planning agreement will include provisions for the payment, collection, management and distribution contributions under the agreement, with a focus in funding community enhancement in the area surrounding the location of the project site and/or any localities or community infrastructure impacted by the project.

The payment details discussed and supported by Mid-Western Regional Council included a lump sum payment of $100,000 in total, to be paid in two tranches over the construction period of approximately two years. Additionally, an annual contribution of $300 per megawatt (AC) (adjusted for consumer price index annually), based on the final installed electricity generating capacity, commencing on the date on which the project begins commercial operations until the cessation of the operation of the project.

Prior to construction commencing, UPC\AC and Mid-Western Regional Council will finalise the voluntary planning agreement proposal in accordance with legislative requirements under the EP&A Act.

Consultation with Mid-Western Regional Council on the details is on-going and expected to be finalised at the end of the financial year.

4.1.10 Bushfire

Matter raised

An Emergency Plan should be prepared to respond to hazards such as bushfire. Given that surrounding land includes grassland and woodland vegetated areas, it is considered that there will be a need to construct a suitably sized permanent storage water supply to provide for fire-fighting purposes.

Prior to construction, a report must be prepared by a suitably qualified bushfire expert providing full details of proposed water storage requirements to provide for fire-fighting requirements. The report should include location and capacity of tanks, methods of pumping to

provide sufficient pressures, and details of any proposed internal reticulation or hydrant network.

Response

Emergency Plan

In line with Mid-Western Regional Council's request, UPC\AC has included the following commitments in the EIS (management and mitigation measure ID H1, H2 and H3) as follows:

> *"A Construction Bushfire Management Plan (BMP) will be prepared in consultation with the Rural Fire Service, and to the satisfaction of the Secretary. The BMP will include the management and mitigation measures described in Section 15.3.3.".* (H1)
>
> *"An Operation BMP will be prepared in consultation with the Rural Fire Service, and to the satisfaction of the Secretary. The BMP will include the management and mitigation measures described in Section 15.3.3.".* (H2)
>
> *"A Bush Fire Emergency Management and Evacuation Plan will be prepared consistent with 'Development Planning A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan (NSW RFS, 2014) and Australian Standard AS3745 2010 'Planning for Emergencies in Facilities'. A copy of the plan will be displayed and available for review in a prominent location directly adjacent to the site's main entry point/s.".* (H3)

Water storage requirements

The Rural Fire Services requested that a 20,000 litre minimum capacity static water supply be provided on-site (refer to discussion in **Section 4.14.4**). UPC\AC will continue to consult with the Rural Fire Service regarding the design of any proposed water storage.

UPC\AC will commit to the preparation of a Fire Safety Study by a suitably qualified bushfire expert providing full details of the required water storage requirements for fire-fighting requirements prior to commencement of construction. The commitment has been added as an additional management and mitigation measure in **Section 7.3** (ID H5).

4.1.11 Community Consultation

Matter raised

Council requests that community consultation is ongoing to ensure that the community has current and accurate information about the project and to provide feedback on the proposed project including traffic, construction or social impacts. It is recommended that a Community Hotline be established prior to the commencement of construction to manage any community enquiries or complaints.

Response

Community consultation activities commenced prior to the submission of the Scoping Report and are ongoing. In line with Mid-Western Regional Council's request, UPC\AC has included the following commitments in the EIS (management and mitigation measure ID CU1) as follows:

> *"Develop and implement a community and stakeholder engagement plan that includes ongoing consultation with neighbouring operations to manage and cumulative impacts.".*

As listed in Table 5-2 'Community and stakeholder consultation tools' of the EIS, UPC\AC has already established a Community Information Line (1800 571 185) that provides an avenue for

the community to enquire about the project or make a complaint. A Community Information Line will be in place for the life of the project.

4.2 Environment Protection Authority

Comments

Matter raised

Based on the information provided, the proposal does not appear to require an environment protection licence under the Protection of the Environment Operations Act 1997. Furthermore, the EPA understands that the proposal is not being undertaken by or on behalf of a NSW Public Authority nor are the proposed activities other activities for which the EPA is the appropriate regulatory authority.

In view of these factors, the EPA has no comments to provide on this project and no follow-up consultation is required.

The EPA does not require any follow-up consultation and Mid-Western Regional Council should be consulted as the appropriate regulatory authority for the Protection of the Environment Operations Act 1997 in relation to the proposal.

Response

UPC\AC acknowledges the submission from the Environmental Protection Authority and notes that no matters were raised for consideration. UPC\AC will continue to consult with Mid-Western Regional Council as the appropriate regulatory body.

4.3 Biodiversity and Conservation Division

Comments

4.3.1 The BDAR must adequately demonstrate a Category 1-exempt land designation

Matter raised

1.1. The accredited assessor should adequately justify the classification of Category 1-exempt as required by section 60H of the Local Land Services Act 2013. Multiple pieces of evidence should be provided in the justification.

Response

A response to the submission from the Biodiversity Conservation Division from Eco Logical Australia (ELA) is provided in **Appendix 1**.

ELA clarifies that all areas currently containing woodland or scattered trees were assessed as Category 2-regulated land within the submitted Biodiversity Development Assessment Report (BDAR).

The Category 1-exempt land classification was applied to cleared paddock areas of non-woody vegetation of the development site only. The classification of these tree-less areas within the study area as Category 1-exempt land was consistent with all three lines of evidence as described in section 1.4.2 of the BDAR. The evidence provided included:

- the majority of the development footprint is identified as "Grazing modified pastures" in the NSW Land Use Mapping (DPIE, 2017)
- aerial imagery reveals extensive cropping and ploughing has been undertaken in the study area from 1964 to current

- the current vegetation integrity score for the paddock zone within the study area is 5.2 out of a possible 100. This confirms the above assessment that these areas of the study area are in very low condition and would not require offsetting under the Biodiversity Assessment Method (BAM).

Additional justification supporting the above statements is provided in **Appendix 1**.

4.3.2 Removal of species from candidate list must be adequately justified

Matter raised

2.1 In order to exclude Euphrasia arguta from the candidate list based on the absence or degradation of habitat constraints not listed in the TBDC the assessor must provide adequate justification in the BDAR. As a minimum, the justification must include;

I. the specific habitat constraint(s) or microhabitat missing on the subject land; and
II. a description of the field technique used to assess the presence of or degradation of the constraint or microhabitat and any other data or information used to make the decision

Response
A response to the submission from the Biodiversity Conservation Division from ELA is provided in **Appendix 1**.

A targeted survey for *Euphrasia arguta* was undertaken by ELA in March 2021. March is considered to be a suitable survey time for the species as identified in the BAM-C and BioNet, and high rainfall over Summer 2020/21 has resulted in a suitable survey season for the species.

Targeted survey utilised five metre parallel transects in potential habitat, in accordance with the NSW BAM Guidelines for surveying threatened plants and their habitats. *Euphrasia arguta* was not recorded. As this species has now been adequately surveyed and has not been identified by the assessor as known or likely within the study area, the BAM-C case for the Stubbo Solar Farm BDAR has been updated to indicate targeted survey was undertaken in March for *Euphrasia arguta*, and the species was not recorded. No further assessment is required and no species credits are required for this species.

Ecosystem and species credits have been calculated for the project which are discussed in detail in the amendment report. UPC\AC's preferred option is to pay offsets through the NSW Biodiversity Conservation Trust but will investigate any other options prior to construction commencement.

4.4 Heritage NSW – Aboriginal Cultural Heritage

Comments

4.4.1 Access track option (1-3)

Matter raised

HNSW recommend that the selection of access tracks from the 3 options described in the ACH assessment report (OzArk 2020:89) is based on minimising harm to Aboriginal objects. No objects were observed during the survey assessments for options 2 and 3 whilst option 1, is yet to be surveyed to determine presence or absence of objects. HNSW expect that the

determination of the access track will be based on avoiding harm to objects and if necessary, have adequate management procedures in place to mitigate harm.

Response
It is noted that additional Aboriginal Cultural Heritage Assessment undertaken for the Blue Springs Road upgrade and site access tracks is included in the amendment report.

4.4.2 Aboriginal consultation

Matter raised

HNSW have identified that the Aboriginal consultation undertaken for the project is consistent with the requirements set down in the SEARs (as described in Ozark 2020:16-20).

Response
Noted.

4.4.3 Issues raised by WVWAC and Gallanggabang Aboriginal Corporation (GAC)

Matter raised

Two Registered Aboriginal Parties (WVWAC and GAC) raised several issues regarding the survey method and management strategies. In some instances, the proponent has accepted points raised by the RAPS on the draft assessment approach and subsequently, modified the survey method. HNSW is satisfied with the proponent's responses to all other issues raised by the 2 Registered Aboriginal Parties (OzArk 2020:17-20).

Response
Noted. Further discussion on the response to the WVWAC submission on the EIS is included in **Section 5.1**.

4.4.4 Adequacy of Aboriginal Cultural Heritage assessment

Matter raised

Heritage NSW is satisfied with the ACH assessment of the proposed project area which has been undertaken in a manner consistent with the Secretary's Environmental Assessment Requirements (SEARs).

HNSW also note that the ACH assessment results indicate that the Stubbo Creek complex has interesting archaeology based on the dominance of high-grade quality quartz artefact material. Therefore, should the project proposal change and there is a need for excavating areas closer to the creek margins it is recommended that research inquiries relevant to quartz tool making technology are considered. Notwithstanding possible project changes HNSW is satisfied that no direct harm to the 24 Aboriginal sites will occur including areas of potential archaeological deposit.

Response
Noted. Further discussion on the response to the WVWAC submission on the EIS is included in **Section 5.1**.

In line with Heritage NSW – Aboriginal Cultural Heritage's note on the archaeology of the Stubbo Creek complex, UPC\AC has included the following commitments in the EIS (management and mitigation measure ID HH1) as follows:

> *"To avoid the potential for harm to historic objects on unassessed adjacent landforms, all ground surface disturbing activities will be confined to the development footprint.".*

The development footprint excludes areas within the creek margin where the potential for archaeological sites is higher.

4.5 Heritage NSW – Historic Heritage

Comments

4.5.1 Assessment methodology

Matter raised

Chapter 8 of the EIS also describes the historic research and investigations for the proposal (in the general vicinity of the historic 'Guntawang' run near Gulgong NSW).

p.151 notes that 'The historic heritage assessment has been undertaken in accordance with the Heritage Council's Historical Archaeology Code of Practice (Heritage Council 2006).'

Although it is taken from the report in Appendix D this is an odd comment as the Code describes the responsibilities of various different parties for archaeological site investigations. Other relevant Heritage Council documents for this type of work would be Archaeological Assessments 1966 and Assessing Significance for Historical Archaeological Sites and Relics 2009.

Response

OzArk provides the following response to this matter:

> *"The Guntawang homestead is only mentioned in the technical report in order to help provide historical context for the general region where the study area is located. The Guntawang homestead is approximately 14 kilometres southwest of the study area.*
>
> *The Historical Archaeology Code of Practice is referenced since it does outline the responsibilities of the archaeologist during historical archaeological assessments. We do also follow the Archaeological Assessments 1996 when conducting the assessment and in future will also include this reference.*
>
> *We include the Assessing Significance for Historical Archaeological Sites and Relics 2009 when a historical item / building / archaeological deposit has been identified (or is already listed on a register) inside or adjacent to the study area and an assessment of significance is required. As no historical items / buildings / archaeological deposits were identified during the assessment for the Stubbo Solar Farm proposal, assessment of significance was not necessary.".*

4.5.2 Unexpected finds

Matter raised

The measures are considered sufficient for this project as it is unlikely to affect an historic heritage sites or "relics" within the meaning of the NSW Heritage Act, 1977.

If the project is approved, DPIE could consider placing an Unexpected Finds Condition for historic heritage on the approval.

I note that if 'relics' are found s146 of the NSW Heritage Act, 1977 requires them to be reported to the Heritage Council of NSW. That section of the Act is not suspended by the planning approval process.

Response

In line with Heritage NSW – Historic Heritage's comment, UPC\AC has included the following commitments in the EIS (management and mitigation measure ID HH1 and HH3) as follows:

> *"If items of historic heritage significance are uncovered during the project, then the Unanticipated Finds Protocol for Historic Heritage included in Appendix 5 of the Aboriginal cultural heritage and historic heritage assessment (Appendix D) will be enacted.".* (HH1)
>
> *"An unanticipated finds protocol for historic heritage will be developed and implemented as required during construction.".* (HH3)

The unanticipated finds protocol in Appendix D includes notification to the Heritage Council of NSW as soon as practical, providing any details of the find and its location.

It is anticipated that DPIE would place an Unexpected Finds Condition for historic heritage on the approval for the project.

4.6 Roads and Maritime Services

Comments

4.6.1 Cope and Blue Springs Road intersection upgrade

Matter raised

Prior to commencement of construction of the solar farm, the intersection of Cope and Blue Springs Roads is to be upgraded in accordance with Austroads Guide to Road Design and any relevant TfNSW supplements, including:

- *A Basic Right (BAR) turn treatment in accordance with Part 4 A28 (copy enclosed). The BAR treatment is to be sealed, designed and constructed for a 100km/h speed environment, able to accommodate the largest vehicle using the intersection, match existing road levels and not interfere with existing road drainage.*
- *A Basic Left (BAL) turn treatment as shown in Figure 8.2 Part 4A (copy enclosed). The BAL facility is to be sealed, designed and constructed for a 100km/h speed environment, able to accommodate the largest vehicle using the intersection, match existing road levels and not interfere with existing road drainage.*
- *The intersection is to be designed and constructed to ensure that all turning movements at the intersection of Cope and Blue Springs Roads can be performed without traversing into the opposing lane of traffic.*

Note: Should DPIE support the above recommendation, a plan of the proposed road work will need to be submitted to TfNSW for concurrence pursuant to section 138(2) of the Roads Act 1993 and prior to Council granting its consent for the road works.

Response
Details on the Cope and Blue Spring Road intersection upgrade, including technical assessments undertaken for the works, are included in the amendment report.

UPC\AC provided a concept design to Transport for NSW for comment on 19 May 2021 in response to this submission. Transport for NSW provided comments on 25 May 2021 as follows:

> "*The concept design provided to TfNSW on the 19 of May 2021 only identifies the BAL intersection treatment and does not include the BAR intersection treatment which is required as per the letter from TfNSW on the 20 of January 2021.*
>
> *The BAR/BAL are required to be designed for the largest vehicle and it is noted in the letter that all turning movements at the intersection of Cope and Blue Springs Roads can be performed without traversing into the opposing lane of traffic. Swept path analysis would be required to prove these two points and must accompany the s138(2) application required to be lodged with Mid-Western Regional Council and referral to TfNSW.*
>
> *You will need to apply for a s138(2) application with Mid-Western Regional Council (the Roads Authority) who will refer to TfNSW to obtain concurrence prior to the commencement of works for this intersection treatment. Concurrence from TfNSW must be obtained prior to any works commence on the intersection treatments*.".

UPC\AC, along with BTE Consulting (road designer), subsequently held further discussions with Transport for NSW regarding the Basic Right (BAR) and Basic Left (BAL) turn treatments on 25 May 2021. UPC\AC clarified that as noted in the design report, the design criteria was revised to upgrade the intersection of Blue Springs Road and Cope Road to suit BAL intersection treatment only and to utilise the existing BAR treatment provided on the westbound carriageway on Cope Road following a site inspection undertaken on 12 May 2021 involving representatives from UPC\AC, Mid-Western Regional Council, ELA (biodiversity specialists), the NSW State Forestry Corporation and BTE Consulting.

It was noted that the existing BAR treatment on Cope Road at Blue Springs Road intersection width does not comply with *Austroads Guide to Road Design* part 4A treatment requirements by less than 0.5 metres in some sections. However, it is proposed to retain the existing BAR treatment to avoid property impacts (including existing trees, fences and property boundaries) and as providing further widening with no roadside drainage treatment would cause wearing of the pavement/verge/embankment.

Transport for NSW responded to the above clarifications on 26 May 2021 noting "*…the proposed concept from a preliminary review appears to align with the advice provided by TfNSW on the 20 of January 2021. Although this comment is not based on any design review or any evidence identifying that the design vehicle can be accommodated within the BAR/BAL*.". Transport for NSW reiterated the need to apply for a Section 138(2) application and requirement to obtain concurrence from Transport for NSW prior to commencement of construction.

UPC\AC will work towards a full Detailed Design prior to commencing construction. The full detailed design will be prepared in consultation with Transport for NSW and Mid-Western Regional Council and any other relevant public agencies as part of a Traffic Management Plan and relevant Development Consent conditions.

As agreed with Transport for NSW, UPC\AC will apply for a Section 138(2) application with Mid-Western Regional Council (the Roads Authority) who will refer to Transport for NSW to obtain concurrence prior to the commencement of works for this intersection treatment. Concurrence from Transport for NSW will be obtained prior to any works commence on the intersection treatments.

4.6.2 Safe Intersection Sight Distance for Cope and Blue Springs Road intersection

Matter raised

Safe Intersection Sight Distance (SISD) requirements outlined in the Austroads Guide to Road Design Part 4A and relevant TfNSW supplements is to be provided and maintained in both directions at the intersection of Cope and Blue Springs Roads

Response

UPC\AC has included the following management and mitigation measure in the EIS (ID T3):

> *"The safe sight distance analysis undertaken at the Cope Road / Blue Springs Road intersection and at the proposed site access point options from Blue Springs Road will be ground-truthed to determine if vegetation trimming or speed limit reductions need to be applied to provide the required safe sight distance for all vehicle types expected to access the project. Ground-truthing of the analysis undertaken for the emergency-only access point proposed from Barneys Reef Road will also be undertaken, with appropriate measures to be put in place for the (unlikely) event of this access point being utilised.".*

Details on the Cope and Blue Springs Road intersection upgrade, including technical assessments undertaken for the works, are included in the amendment report. Barneys Reef Road would only be used during emergencies and not for general construction or operation purposes.

4.6.3 Advance truck warning signs

Matter raised

Prior to the commencement of construction work, 'Advance truck warning signs' (W5-22 Size B) with distance plates (W8-5 Size B), are to be erected adjacent to Cope Road, 250 metres from its intersection with Blue Springs Road. The signs are to be removed at completion of construction.

Response

UPC\AC recognises the request from Roads and Maritime Services and will include the additional management and mitigation measure (as summarised in **Section 7**) (ID T7) for the project as follows:

> *"Prior to the commencement of the relevant construction work involving heavy vehicle movements to site, 'Advance truck warning signs' (W5-22 Size B) with distance plates (W8-5 Size B), will be erected adjacent to Cope Road, 250 metres from its intersection with Blue Springs Road. The signs will be removed at completion of construction.".*

4.6.4 Approvals for oversized loads

Matter raised

Relevant approvals from the National Heavy Vehicle Regulator and TfNSW are to be obtained by the proponent prior to the transportation of any oversize/over mass loads on public roads.

Response

UPC\AC recognises the request from Roads and Maritime Services and will include the additional management and mitigation measure (as summarised in **Section 7**) (ID T8) for the project as follows:

"Relevant approvals from the National Heavy Vehicle Regulator and TfNSW will be obtained by the proponent prior to the transportation of any oversize/over mass loads on public roads.".

4.6.5 Traffic Management Plan

Matter raised

Prior to the commencement of construction work, a Traffic Management Plan (TMP) is to be prepared in consultation with Mid-Western Regional Council and TfNSW to outline measures to manage traffic related issues associated with delivery and construction of the solar plant, ancillary structures, any construction or excavated materials, machinery and personnel involved in the construction, operation or decommissioning of the facility. The TMP is to detail the potential impacts associated with the development, the measures to be implemented, and the procedures to monitor and ensure compliance. The TMP is to address, but not be limited to:

a) The origin, number, size, frequency and final destination of vehicles accessing/exiting the site.
b) Loads, weights and lengths of haulage and construction related vehicles and the number of movements of such vehicles.
c) Existing and projected background traffic, peak hour volumes and types and their interaction with projected development related traffic.
d) The management and coordination of construction and staff vehicle movements to the site and measures to limit disruption to other motorists. The management of construction staff access to the work site is to include strategies and measures employed to manage the risks of driver fatigue and driver behaviour.
e) Scheduling of haulage vehicle movement to minimise convoy length of platoons.
f) Details of access intersection improvement works in accordance with Austroads Guide to Road Design and TfNSW supplements. Any gate or grid in the access is to be setback a distance equal to the longest vehicle required to access the site during construction, operation and decommissioning of the facility.
g) Local climate conditions that may affect road safety for vehicles used during construction, operation and decommissioning of the facility (e.g. fog, dust, wet weather).

Road and access intersection improvement works are to be approved and completed prior to the commencement of construction of the solar farm.

Response

As discussed in the response to Mid-Western Regional Council (**Section 4.1.1**), UPC\AC has committed to the development of a Construction Traffic Management Plan in consultation with TfNSW and Mid-Western Regional Council. UPC\AC recognises that the submission from Roads and Maritime Services is consolidated with the response from TfNSW (refer to **Section 4.6**).

To address the specific requests of Roads and Maritime Services and Mid-Western Regional Council, management and mitigation measure ID T2 will be updated to (changes noted in bold):

"A construction traffic management plan will be prepared in consultation with TfNSW and Mid-Western Regional Council, to the satisfaction of the Secretary. The plan will include:

- ***details of:***
  - ***the transport route to be used for all project-related traffic***
  - ***the origin, number, size, frequency and final destination of vehicles accessing/exiting the site***
  - ***loads, weights and lengths of haulage and construction related vehicles and the number of movements of such vehicles***
  - ***existing and projected background traffic, peak hour volumes and types and their interaction with projected development related traffic***
  - ***local climate conditions that may affect road safety for vehicles used during construction, operation and decommissioning of the facility (e.g. fog, dust, wet weather).***
- *details of any road upgrade works required by Development Consent*
- ***identification of the routes which are to be used to access the site***
- *a protocol for undertaking independent dilapidation surveys to assess the existing condition of the proposed construction routes prior to construction, upgrading or decommissioning activities and the condition of the proposed construction routes following construction, upgrading or decommissioning activities*
- *a protocol for the repair of the construction routes if dilapidation surveys identify these roads to be damaged during construction, upgrading or decommissioning works*
- *details of the measures that will be implemented to minimise traffic impacts during construction, upgrading or decommissioning works, including:*
  - *temporary traffic controls, including detours and signage*
  - *notifying the local community about project-related traffic impacts*
  - *procedures for receiving and addressing complaints from the community about project related traffic*
  - *minimising potential for conflict with school buses, other road users during peak hours and rail services as far as practicable (measures also required during operation of the project)*
  - *minimising dirt tracked onto the public road network from project-related traffic*
  - *scheduling of haulage vehicle movements to minimise convoy length or platoons*
  - *responding to local climate conditions that may affect road safety such as fog, dust and wet weather*
  - *responding to any emergency repair or maintenance requirements*
  - *a traffic management system for managing over-dimensional vehicle trips to and from the project*
- *a program to ensure drivers associated with the project receive suitable training on the Driver Code of Conduct and any other relevant obligations under the CTMP*

- *a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding*
- *controls for transport and use of dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, Australian Dangerous Goods Code and Australian Standard 4452 Storage and Handling of Toxic Substances.*

Following the Secretary's approval, UPC\AC will implement the construction traffic management plan.*".*

4.7 Transport for NSW

Comments

Matter raised

RMS will be providing a consolidated letter on behalf of TfNSW.

Response

UPC\AC acknowledges that the submission from TfNSW has been consolidated with the Roads and Maritime Services response (refer to **Section 4.6**).

4.8 Department of Primary Industry – Agriculture

Comments

4.8.1 Clarify the need for the site requiring a full soil assessment

Matter raised

As noted in response to SEARs for this project, the requirements have all been addressed except for the need to consider a full soil assessment. The desktop analysis and field inspection in the EIS notes the high risk of erosion already evidenced on site and the nature of the soils that show characterises that can have impacts on site stability as well as plant growth following construction.

We recognise the commitment to a soil survey in Appendix E (Land Use Conflict Risk Assessment) where a baseline soil survey will be undertaken prior to construction if the proposal is approved. We consider that undertaking a soil survey in association with a geotechnical assessment preconstruction is essential to deal with confirming construction limitations and assists to identify any potential amelioration that is required so as to ensure erosion is minimised, plant growth establishment potential is maximised etc. The information that is gained out of this work can be used for final rehabilitation as part of the decommissioning work that will assist in recovering land to its original land and soil capability or better.

Response

The soil investigation for the project included a review of regional soil data accompanied with a detailed site walk-over to ground truth desktop studies. As noted in Section 9.1.1 of the EIS, this approach was deemed adequate for the purposes of the EIS given the low risk profile of the project to adversely impact soils within the study area and immediate surrounds.

As per the commitment in Appendix E of the EIS, a baseline soil survey will be undertaken prior to commencement of construction. This has been added as a management and mitigation measure (as summarised in **Section 7**) as follows:

"A baseline soil survey of the development footprint will be undertaken prior to construction. The baseline soil survey will be undertaken in conjunction with a geotechnical assessment to identify any potential amelioration that is required so as to ensure erosion is minimised and plant growth establishment potential is maximised. The results of the baseline soil survey and geotechnical assessment will be used to inform the Decommissioning and Rehabilitation Plan and assist in recovering the development footprint to its original land and soil capability or better."

4.9 Department of Primary Industry – Fisheries

Comments

4.9.1 Construction of access roads and cable crossings over waterways

Matter raised

The construction of the internal access roads and cable crossings in Stubbo Creek should be in accordance with DPI Fisheries Guideline document: Policy and Guidelines for Fish Habitat Conservation and Management (Update 2013).

Response

In line with the Department of Primary Industry – Fisheries request, UPC\AC has included the following commitment in the EIS (management and mitigation measure ID B13) to address this matter as follows:

"All waterway crossings will be designed in accordance with Policy and Guidelines for Fish Friendly Waterway Crossing (DPI, n.d.) where appropriate.".

4.10 WaterNSW

Comments

Matter raised

WaterNSW has reviewed the EIS and determined that the proposal should not impact on our assets, being Lake Burrendong or the quality of water flowing into the system. It is considered that the mitigation measures outlined within the EIS will manage the project impacts adequately, including impacts to soil and water.

Response

Noted.

4.11 The Water Group

Comments

4.11.1 Water supply

Matter raised

Pre-approval recommendation

The proponent should confirm access to a secure water supply for the project.

Comment: Insufficient information has been provided to confirm access to a secure water supply for this project. Options to source the 73ML/yr of water required for the project's construction have been proposed, which include farm dams, commercial suppliers of treated wastewater and accessing town water supplies. The ability to obtain the necessary water from

these sources and any associated agreements and impact assessments has not been provided. This represents a commercial risk to the project.

Response
As noted in the response to Mid-Western Regional Council (**Section 4.1.3**), UPC\AC acknowledges that Mid-Western Regional Council's water supply does not service the project. Alternative water supply options for the project include the use of farm dams under an agreement with the landowners and under the maximum harvestable use rights allowance and from commercial suppliers of treated wastewater in the region.

UPC\AC has undertaken preliminary consultation with several water suppliers around Mid-Western Regional Council (e.g. Ulan Water, Mudgee Water, Adrian Ingram and A1 Earthworks). The organisations have confirmed their experience in civil construction and have provided some technical information and equipment availability on how they could provide assistance with dust suppression during construction. The selected contractors can provide water carts with a capacity of up to 30,000 litres. UPC\AC will continue consultation with local suppliers until an EPC Contractor has been selected.

The details of water supply requirements and options, including identification of appropriate water suppliers, will be further considered by UPC\AC and/or its appointed lead contractor during post-approval works as part of ongoing project design and planning work and preparation of the Construction Environmental Management Plan and Operational Environmental Management Plan.

4.11.2 Approvals and licences

Matter raised

Post-approval recommendation

Obtain relevant approvals and licences under the Water Management Act 2000 before commencing any works which intercept or extract groundwater or surface water (unless an exemption applies) or for any works which have the potential to alter the flow of floodwaters.

Response
Consistent with the strategy outlined in Section 4.2.7 of the EIS, approvals are unlikely to be required under the *Water Management Act 2000* for the project as there are no plans to use bores to extract groundwater. Further clarification and discussion on the water supply arrangements for the project has been included in **Section 4.1.3** and **Section 4.11.1** of this report.

Although not anticipated, should this change for any reason, UPC\AC would obtain the relevant approvals and licences from the Water Group prior to commencing any works which intercept or extract surface water or groundwater, in line with the Water Group's request and legislative requirements.

4.11.3 Erosion and sediment control plan

Matter raised

Post-approval recommendation

Prepare a Construction and Operational Environmental Management Plan (incorporating an Erosion and Sediment Control Plan) prior to commencement of activities.

It is recommended this be developed in accordance with industry standards including the guideline 'Managing Urban Stormwater: Soils and Construction' (Landcom 2004) and relevant specific measures to address the high erosion risk at the project site.

Comment: The site is recognised to have a significant erosion risk if the soils are disturbed or exposed. This represents a significant risk for the project with the potential for erosion and sedimentation within both the project site and downstream and resulting impacts to agricultural land and watercourses. This is of most risk during the construction phase but will also need to be adequately managed during the operation phase. Specific management controls will need to be developed with regular monitoring and maintenance. The EIS has proposed relevant measures in Table 9-1 and 14-2. It is recommended however that the conditions listed in Section 14.3.1 be specifically included to mitigate a significant impact.

Response

In line with the request from the Water Group, UPC\AC has included the commitment in the EIS to develop an erosion and sediment control plan as part of the Construction Soil and Water Management Plan (management and mitigation measure ID W7) as follows:

"A construction soil and water management plan (CSWMP) will be prepared to outline measures to manage soil and water impacts associated with the construction works, including contaminated land. The CSWMP will provide:

- *measures to minimise/manage erosion and sediment transport both within the construction footprint and offsite including requirements for the preparation of erosion and sediment control plans (ESCP) for all progressive stages of construction Measures to manage waste including the classification and handling of spoil*
- *procedures to manage unexpected contaminated finds*
- *measures to manage stockpiles including locations, separation of waste types, sediment controls and stabilisation*
- *measures to manage accidental spills including the requirement to maintain materials such as spill kits*
- *controls for receiving waterways which may include:*
    - *Designation of 'no go' zones for construction plant and equipment*
    - *Creation of catch/diversion drains and sediment fences at the downstream boundary of construction activities where practicable to ensure containment of sediment-laden runoff*
- *erosion and sediment control measures will be implemented and maintained at all work sites in accordance with the principles and requirements in Managing Urban Stormwater – Soils and Construction, Volume 1 (Landcom 2004) and Volume 2D (NSW Department of Environment, Climate Change and Water 2008b), commonly referred to as the "Blue Book".*

The specific measures listed in Section 14.3.1 of the EIS are:

"Research suggests that a solar farm would not have a significant impact on the hydrology of the study area under the following conditions:

- *the soil profile has not been overly compacted due to heavy machinery during construction*
- *vegetation cover has been established*
- *the study area is established to encourage distributed flow across the surface rather than concentrated flows along narrow flow paths*
- *the gap between each row of solar panels is greater than or equal to the width of the solar panel rows to allow the runoff from the upslope panel a buffer strip to spread across the surface and allow vegetation growth*

- *revegetation occurs along any concentrated drainage paths*
- *construction and operation of access tracks and crossings is completed ensuring appropriate sediment control and drainage is designed and implemented (e.g. silt fencing and sedimentation basins are used and swale are vegetated).".*

These conditions will be specifically included in the erosion and sediment control plan as requested by the Water Group.

4.11.4 Works within waterfront land

Matter raised

Post-approval recommendation

Ensure any works within waterfront land are in accordance with the Guidelines for Controlled Activities on Waterfront Land (NRAR 2018).

Response
As described in Section 14.3.1 of the EIS, no artificial structures planned to be installed in the creek in the central environmental exclusion zone except for up to two waterway road and cable crossings. The waterway road and cable crossings would be designed and constructed in compliance with the *Guidelines for Controlled Activities on Waterfront Land (NRAR 2018)*. This has been included as an additional management and mitigation measure in **Section 7** (ID W9).

4.12 TransGrid

Comments

4.12.1 Suitability of using the existing 330 kilovolt transmission line easement as the preferred site access

Matter raised

Consultation is currently underway to determine the suitability of using the existing 330 kilovolt transmission line easement on the western side of the development footprint as the preferred site access in accordance with the TransGrid Easement Guidelines and the TransGrid Fencing Guidelines. It is expected that TransGrid would provide a submission to the EIS regarding this access.

Response
Consultation with TransGrid has continued following exhibition of the EIS regarding the access easement and network capacity. TransGrid provided the following comments regarding use of the easement:

- The [proponent] will need to maintain the condition of the track into the future. There may also be times where [TransGrid] need to close or modify the track to operate and maintain our assets.
- The track and any other infrastructure will need to comply with the easement guidelines.
- The [proponent] will need to consult with the landowner to put in place any requisite property interests. In doing so, they will need to seek [TransGrid's] approval and ensure that usage of the easement is not materially impaired. As an easement holder, TransGrid cannot grant the Customer a property right.

- In order to give approval as abovementioned, [TransGrid] will need to assess the [proponent's] access track in accordance with TransGrid's easement guidelines. [TransGrid] can only assess this once [they] have further detail on their intended usage.
- For any proposed fencing & gates within the easement corridor, these would need to be installed in accordance to *TransGrid Fencing Guidelines* and would need to give TransGrid access consideration to the easement and structures at the location.
- Provided TransGrid access means does not become impacted or restricted by [the proponent's] use of the easement, [TransGrid] would not expect any issue with the proposal.

UPC\AC notes and acknowledges TransGrid's comments and will comply with all the requirements should the northern access track option proceed.

UPC\AC has been progressing connection applications with TransGrid, under the National Electricity Rules. At date of lodgement of this report, UPC\AC was anticipating that TransGrid will shortly commence the system strength Full Impact Assessment as required under the rules. TransGrid has not changed its previous advice regarding the availability of sufficient capacity on line 79, nor has it identified any specific grid-related constraints that would prevent the project from proceeding.

Consultation with TransGrid will continue throughout the development of the project.

4.13 Essential Energy

Comments

Matter raised

According to the scope of the proposed development contained within the EIS, the project is anticipated to connect into the Transgrid electricity transmission network. In considering the proposed connection strategy, Essential Energy does not have any comments to make.

Response
Noted.

4.14 Rural Fire Services

Comments

4.14.1 Asset Protection Zone Conditions

Matter raised

The intent of measures is to minimise the risk of bush fire attack and provide protection for emergency services personnel, residents and others assisting firefighting activities. To achieve this, the following conditions shall apply:

1. From the start of building works, the property around all structures must be managed as an inner protection area (IPA) for a distance of 50 metres in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019. Road access to the site, power transmission, fencing and any other services to the site are excluded from this requirement. When establishing and maintaining an IPA the following requirements apply:

- *tree canopy cover should be less than 15% at maturity;*
- *trees at maturity should not touch or overhang the building;*
- *lower limbs should be removed up to a height of 2m above the ground;*

- *tree canopies should be separated by 2 to 5m;*
- *preference should be given to smooth barked and evergreen trees;*
- *large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings;*
- *shrubs should not be located under trees;*
- *shrubs should not form more than 10% ground cover;*
- *clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.*
- *grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and*
- *leaves and vegetation debris should be removed.*

Response

The requirements under Appendix 4 of *Planning for Bush Fire Protection 2019* will be incorporated into the Construction BMP (management and mitigation measure ID (H1) and Operation BMP (management and mitigation measure ID (H2) (refer to discussion in **Section 4.1.10**).

UPC\AC recognises the request from Rural Fire Services to manage the property around all structures as an inner protection area and will include an additional management and mitigation measure (as summarised in **Section 7**) (ID H6) for the project as follows:

"From the start of building works, the property around all buildings will be managed as an inner protection area for a distance of 50 metres in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019. Road access to the site, power transmission, fencing and any other services to the site are excluded from this requirement. The following requirements will apply when establishing and maintaining an inner protection area:

- *tree canopy cover should be less than 15% at maturity*
- *trees at maturity should not touch or overhang the building*
- *lower limbs should be removed up to a height of 2 metres above the ground*
- *tree canopies should be separated by 2 to 5 metres*
- *preference should be given to smooth barked and evergreen trees*
- *large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings*
- *shrubs should not be located under trees*
- *shrubs should not form more than 10% ground cover*
- *clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation*
- *grass should be kept mown (as a guide grass should be kept to no more than 100mm in height)*
- *leaves and vegetation debris should be removed.".*

4.14.2 Construction Standards Conditions

Matter raised

The intent of measures is that buildings are designed and constructed to withstand the potential impacts of bush fire attack. To achieve this, the following conditions shall apply:

2. Fences and gates are to be of non-combustible construction.

Response
UPC\AC will ensure that fences and gates are comprised of non-combustible construction materials.

4.14.3 Access - Property Access Conditions

Matter raised

3. Property access roads must comply with the following requirements of Table 7.4a of Planning for Bush Fire Protection 2019:

- *property access roads are two-wheel drive, all-weather roads;*
- *the capacity of road surfaces and any bridges/causeways is sufficient to carry fully loaded firefighting vehicles (up to 23 tonnes), bridges and causeways are to clearly indicate load rating.*
- *there is suitable access for a Category 1 fire appliance to within 4m of the static water supplies;*
- *minimum 4m carriageway width;*
- *a minimum vertical clearance of 4m to any overhanging obstructions, including tree branches;*
- *where they can't be avoided dead end roads must provide a suitable turning area in accordance with Appendix 3 of Planning for Bush Fire Protection 2019;*
- *curves have a minimum inner radius of 6m and are minimal in number to allow for rapid access and egress;*
- *the minimum distance between inner and outer curves is 6m;*
- *the crossfall is not more than 10 degrees; and,*
- *maximum grades for sealed roads do not exceed 15 degrees and not more than 10 degrees for unsealed roads.*

Note: Some short constrictions in the access may be accepted where they are not less than 3.5m wide, extend for no more than 30m and where the obstruction cannot be reasonably avoided or removed. The gradients applicable to public roads also apply to community style development property access roads in addition to the above.

Response
As noted in **Section 4.14.1**, the requirements under Appendix 4 of *Planning for Bush Fire Protection 2019* will be incorporated into the Construction BMP (management and mitigation measure ID (H1) and Operation BMP (management and mitigation measure ID (H2) (refer to discussion in **Section 4.1.10**).

4.14.4 Water and Utility Services Conditions

Matter raised

4. The provision of water, electricity and gas must comply the following in accordance with Table 5.3c of Planning for Bush Fire Protection 2019:

- *A 20,000 litre minimum capacity static water supply must be provided on-site;*
- *a connection for firefighting purposes is located within the IPA or non-hazard side and away from the structure;*
- *65mm Storz outlet with a ball valve is fitted to the outlet;*
- *ball valve and pipes are adequate for water flow and are metal;*
- *supply pipes from tank to ball valve have the same bore size to ensure flow volume;*

- *underground tanks have an access hole of 200mm and a hardened ground surface for truck access is supplied within 4m to allow tankers to refill direct from the tank;*
- *above-ground tanks are manufactured from concrete or metal;*
- *raised tanks have their stands constructed from non combustible material or - bush fire-resisting timber (see Appendix F of AS 3959);*
- *unobstructed access can be provided at all times;*
- *underground tanks are clearly marked;*
- *all exposed water pipes external to the building are metal, including any fittings;*
- *where pumps are provided, they are a minimum 5hp or 3kW petrol or diesel-powered pump, and are shielded against bush fire attack; any hose and reel for firefighting connected to the pump shall be 19mm internal diameter; and*
- *where practicable, electrical transmission lines are underground;*
- *where overhead, electrical transmission lines are proposed as follows:*
  - *lines are installed with short pole spacing (30m), unless crossing gullies, gorges or riparian areas; and*
  - *no part of a tree is closer to a power line than the distance set out in accordance with the specifications in ISSC3 Guideline for Managing Vegetation Near Power Lines.*
- *reticulated or bottled gas is installed and maintained in accordance with AS/NZS 1596:2014 and the requirements of relevant authorities, and metal piping is used;*
- *all fixed gas cylinders are kept clear of all flammable materials to a distance of 10m and shielded on the hazard side;*
- *connections to and from gas cylinders are metal;*
- *polymer-sheathed flexible gas supply lines are not used; and*
- *above-ground gas service pipes are metal, including and up to any outlets.*

Response

The requirements for water and utility services under *Planning for Bush Fire Protection 2019* will be incorporated into the Construction BMP (management and mitigation measure ID H1), Operation BMP (management and mitigation measure ID H2) and the Bush Fire Emergency Management and Evacuation Plan (H3) as relevant (refer to discussion in **Section 4.1.10**).

UPC\AC will continue to consult with Rural Fire Services on the static water supply arrangements on site for emergency fire-fighting purposes.

4.14.5 Emergency Management Conditions

Matter raised

5. A Bush Fire Emergency Management and Operations Plan must be developed prior to the commencement of construction identifying all relevant risks and mitigation measures associated with the construction and operation of the wind or solar farm. This should include:

- *detailed measures to prevent or mitigate fires igniting;*
- *work that should not be carried out during total fire bans;*
- *availability of fire-suppression equipment,*
- *access and water;*
- *storage and maintenance of fuels and other flammable materials;*
- *notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and*

- *appropriate bush fire emergency management planning.*

Response

In line with the request from Rural Fire Services, UPC\AC included the following commitment in the EIS (management and mitigation measure ID H3) as follows:

"A Bush Fire Emergency Management and Evacuation Plan will be prepared consistent with 'Development Planning A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan (NSW RFS, 2014) and Australian Standard AS3745 2010 'Planning for Emergencies in Facilities'. A copy of the plan will be displayed and available for review in a prominent location directly adjacent to the site's main entry point/s.".

To address the specific requirements of Rural Fire Services' submission, management and mitigation measure ID H3 will be updated to (changes noted in bold):

"A Bush Fire Emergency Management and Evacuation Plan will be prepared consistent with 'Development Planning A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan (NSW RFS, 2014) and Australian Standard AS3745 2010 'Planning for Emergencies in Facilities'. ***The plan will include:***

- ***detailed measures to prevent or mitigate fires igniting;***
- ***work that should not be carried out during total fire bans;***
- ***availability of fire-suppression equipment,***
- ***access and water;***
- ***storage and maintenance of fuels and other flammable materials;***
- ***notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and***
- ***appropriate bush fire emergency management planning.***

A copy of the plan will be displayed and available for review in a prominent location directly adjacent to the site's main entry point/s.".

4.15 Fire and Rescue NSW

Comments

4.15.1 Emergency Response Plan

Matter raised

In the event of a fire or hazardous material incident, it is important that first responders have ready access to information which enables effective hazard control measures to be quickly implemented. Without limiting the scope of the emergency response plan (ERP) requirements of Clause 43 of the Work Health and Safety Regulation 2011 (the Regulation), the following matters are recommended to be addressed:

1. That a comprehensive ERP is developed for the site.

2. That the ERP specifically addresses foreseeable on-site and off-site fire events and other emergency incidents (such as fires involving solar panel arrays, battery energy storage systems, bushfires in the immediate vicinity) or potential hazmat incidents.

3. That the ERP details the appropriate risk control measures that would need to be implemented to safely mitigate potential risks to the health and safety of firefighters and other first responders (including electrical hazards).

Such measures will include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures to be instigated, minimum evacuation zone distances and a safe method of shutting down and isolating the photovoltaic system (either in its entirety or partially, as determined by risk assessment).

4. Other risk control measures that may need to be implemented in a fire emergency (due to any unique hazards specific to the site) should also be included in the ERP.

5. That two copies of the ERP (detailed in recommendation 1 above) be stored in a prominent 'Emergency Information Cabinet' located in a position directly adjacent to the site's main entry point/s.

Response

In line with the request from Fire and Rescue NSW, UPC\AC has included the following commitments in the EIS (management and mitigation measure ID H3) as follows:

"A Bush Fire Emergency Management and Evacuation Plan will be prepared consistent with 'Development Planning A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan (NSW RFS, 2014) and Australian Standard AS3745 2010 'Planning for Emergencies in Facilities'. The plan will include:

- *detailed measures to prevent or mitigate fires igniting;*
- *work that should not be carried out during total fire bans;*
- *availability of fire-suppression equipment,*
- *access and water;*
- *storage and maintenance of fuels and other flammable materials;*
- *notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and*
- *appropriate bush fire emergency management planning.*

A copy of the plan will be displayed and available for review in a prominent location directly adjacent to the site's main entry point/s.".

4.15.2 Local emergency management committee

Matter raised

6. Once constructed and prior to operation, that the operator of the facility contacts the relevant local emergency management committee (LEMC). The LEMC is a committee established by Section 28 of the State Emergency and Rescue Management Act 1989. LEMCs are required to be established so that emergency services organisations and other government and non-government agencies can proactively develop comprehensive inter agency local emergency procedures for significant hazardous sites within their local government area. The contact details of members of the LEMC can be obtained from the relevant local council.

Response

In line with the request from Fire and Rescue NSW, UPC\AC included the following commitment in the EIS (management and mitigation measure ID H4) to address this matter as follows:

"The operator will contact Mid-Western Local Emergency Management Committee (LEMC) to discuss how the site will be considered under the Mid-Western Local Disaster Plan (DISPLAN).".

4.15.3 Fire Safety Study

Matter raised

7. Page 2 of the EIS states that the proposal includes a 200MW battery energy storage system. FRNSW recommends that as a Condition of Consent a Fire Safety Study (FSS) be prepared for the BESS component of the site and submitted to FRNSW for review and determination. The FSS should be developed in consultation with and to the satisfaction of FRNSW.

Response
UPC\AC will prepare a Fire Safety Study (FSS) for the battery energy storage system in consultation with Fire and Rescue NSW as required under the development consent for the project. The FSS would be prepared prior to construction of the battery energy storage system. This has been included as an additional management and mitigation measure (H7) in **Chapter 7**.

4.16 Regional NSW – Mining, Exploration and Geoscience

Supports

Matter raised

MEG has reviewed the EIS in relation to resource sterilisation (including potential biodiversity offsets) and titleholder consultation. We have no concerns to raise in relation to this EIS.

Response
Noted.

4.17 Crown Lands

Comments

4.17.1 Incorrect reference in the EIS

Matter raised

Please note that Crown Lands has incorrectly been referred to as "Service NSW - Crown Lands" in the EIS. It should read "DPIE - Crown Lands" (page 96/332).

Response
Noted. The correct name will be used hereafter.

4.18 Australian Rail Track Corporation

Comments

4.18.1 Access over level crossings

Matter raised

I advise that ARTC have reviewed Appendix H Traffic and Transport Assessment Report as provided for the abovementioned SEAR's request. Subsequently ARTC advises access over ARTC railway lines (level crossings) for either the construction or operational phases of the site will need specific requirements on existing Public roads with regards to vehicles that are not currently gazetted to use such roads and related level crossing. Requirements would be based on a specific case basis. For private access level crossings a review in terms of the current

allowable usage and related tenure aspects will also need to be developed on a case by case basis and approved by ARTC.

Response
UPC\AC will seek approval on a specific case basis from ARTC as required for access over any ARTC railway lines at level crossings.

Interactions with ARTC level crossings and associated management measures will be outlined in the construction traffic management plan (refer to discussion in **Section 4.1.1**).

5. RESPONSE TO ORGANISATION AND INTEREST GROUP SUBMISSIONS

5.1 Wellington Valley Wiradjuri Aboriginal Corporation

Objects

5.1.1 Field survey methodology

Summary of matter raised

WVWAC raised concerns over the field survey methodology used in the Aboriginal Cultural Heritage Assessment undertaken by OzArk (Appendix D to the EIS). Concerns included:

- Splitting of the Registered Aboriginal Parties' (RAPs) Cultural Heritage Field Officers into two groups as opposed to operating in one large group
- Artefacts may have been missed due to the survey methodology adopted
- Sites have not been identified and recorded during the field survey due to the spacing of Cultural Heritage Field Officers being greater than 20 metres apart
- WVWAC recommend that all remaining areas of this project development area be surveyed comprehensively with all RAPs Field Officers present as one large group to ensure adequate survey coverage of the project area.

Response

The concerns raised by WVWAC have been previously provided to OzArk as comments on the draft Aboriginal Cultural Heritage Assessment Report (ACHAR). OzArk provided a response to these concerns on 9 December 2020. A summary of the response is provided in Table 4-2 of the final ACHAR (Appendix D to the EIS) and is reproduced below.

Table 5-1: Stage 4 comments from WVWAC and OzArk responses (reproduced from Table 4.2 of the ACHAR)

WVWAC comment	OzArk Response
WVWAC have concerns over the actual spacing of Cultural Heritage Field Officers, as discussions with various Field Officers present including those from other RAP's indicate that the spacing was far greater than the reported 20m.	The survey spacing was amended to having surveyors approximately 20 metres (m) apart at the recommendation of WVWAC's review of the assessment methodology. The 20 m spacing was used during the field survey, with some deviations in spacing due to physical constraints such as fences, dams, and swampy ground. Section 6.1 has been revised with additional information.
WVWAC have concerns over the splitting of RAP's Cultural Heritage Field Officers into two groups in an attempt to cover more area within a short time period. The Cultural Heritage Field Officers should have operated as one group as to mutually verify what is found in the area covered and to ensure adequate survey coverage of the project area.	For a large project it is reasonable to have two separate teams working apart from each other and OzArk has used this method successfully for other projects. In addition, there were difficulties related to vehicular movements through the study area (access, boggy conditions). Having two separate teams therefore made the survey more efficient and increased our survey coverage.
WVWAC have concerns around missed artefact sites that may have been present between the Cultural Heritage Field Officers and that fact	The survey was conducted following the guidelines outlined in Requirement 5 of the

WVWAC comment	OzArk Response
that the project area was sampled in an almost Due Diligence manner rather than a more comprehensive field survey.	Code of Practice; particularly Requirement 5a which states that the survey must: • include all landforms that will potentially be impacted. Where there is more than one instance of similar or the same landforms that have the potential to be impacted each individual landform must be sampled. • place a proportional emphasis on those landforms deemed to have archaeological potential, clearly describing, and justifying the reasons for their selection. Therefore, the assessment methodology was to conduct pedestrian survey through all survey areas (as defined in Section 6.1) which were designed around sampling the various types of landforms present in the study area (outlined in Section 2.1, Section 6.1 and Section 6.3). At no time was a due diligence approach used during the survey.
WVWAC cite issues with the current Wellington Solar Farm where the spacing between Cultural Heritage Field Officers was too great and ground cover impeded the Field Officers from properly identifying cultural artefact sites, which were later found during collection and sub-surface testing phases which prolonged the project by an additional 3 weeks due to the location within the approved area and RAPs forcing the issue that these areas be Recorded, Salvaged and sub surface tested correctly. It is due to this and other projects in recent times where initial surveys were rushed or conducted in a sample methodology to have a 100% project area approved, that WVWAC raise serious concerns of unrecorded sites future loss through this development without being properly identified, recorded and salvaged.	OzArk notes the concerns WVWAC raise concerning the unsurveyed areas. However, the higher potential sections of the study area have been surveyed comprehensively (as noted above in connection to Requirement 5a). The unsurveyed areas of the study area have low potential for archaeological deposits or Aboriginal sites to be present. This was confirmed by sample survey of these landform types in other parts of the study area. In relation to the conservation and management of Aboriginal cultural values in the study area, we note: • The areas and sites which are associated with potential archaeological deposits (PAD) have been excluded from the impact footprint of the proposal including buffers around any site or PAD extent (see Section 8.3). • The Aboriginal Cultural Heritage Management Plan (ACHMP) which will be prepared for the ongoing management of Aboriginal heritage sites inside the study area will include procedures for unanticipated finds; particularly in those landforms of low

WVWAC comment	OzArk Response
	potential that were not surveyed to the same extent as other areas.
WVWAC again would like to indicate that areas close by to this development area have known Cultural Heritage sites and that this Development area is a known to be in our traditional information relating back to the Mudigee Clan as the clan boundary is very close by. This is a boundary of three Clan areas and is highly culturally significant as meetings took place in and around this project development site.	OzArk thanks WVWAC for the cultural information which has been incorporated into Section 8.2.
WVWAC recommend that all remaining areas of this project development area be surveyed comprehensively with ALL RAPs Field Officers present as 1 large group to ensure adequate survey coverage of the project area. Further archaeological assessment would be required if the proposal activity extends beyond the sampled area assessed in this report. This would include full consultation and involvement with the Registered Aboriginal Parties.	The ACHAR already recommends that all land-disturbing activities must be confined to within the development footprint and associated tracks and/or cable crossings, and if the proposed work extends beyond these areas, then further archaeological assessment will be required. • As the survey has followed Requirement 5 of the Code of Practice, further survey is not necessary, provided the development footprint and associated tracks and/or cable crossings do not change.
The Proponent should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Proposed Solar Farm and for the management of known sites and artefacts within the proposal area. The Plan should include the unexpected finds procedure to deal with construction activity which includes the written notification of ALL RAPs within 24hrs of the Unexpected Find. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties.	The necessity of the proponent preparing an Aboriginal Cultural Heritage Management Plan (ACHMP) has already been addressed in the ACHAR (see Section 9.1, Section 9.3 and Section 14.1). This includes an unanticipated finds protocol and inclusion of RAPs in the ACHMP preparation process.
In the unlikely event that human remains are discovered during the construction of the Proposed Solar Farm, all work must cease in the immediate vicinity. The appropriate heritage team within the Department of Planning, Industry and Environment (DPIE) and the local police should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-	A protocol regarding human skeletal remains will be included in the ACHMP as outlined in Section 9.3.2. OzArk will supply the proponent with the recommended procedures by WVWAC, so these recommendations can be taken into account when the ACHMP is being prepared.

WVWAC comment	OzArk Response
Aboriginal. If the remains are deemed to be Aboriginal in origin the Registered Aboriginal Parties should be advised of the find as directed by the appropriate heritage team within DPIE. WVWAC have been in this situation previously and require that ALL RAP's be notified immediately upon discovery, site inspection be arranged and be involved in all meetings and discussions with Forensics Officers, DPIE, Archaeologists and Project Managers before any decision is made in regards to the origins of the burial or bone deposit.	

Heritage NSW – Aboriginal cultural heritage noted the following comments in their submission on the project:

> "***Adequacy of ACH assessment***
> *Heritage NSW is satisfied with the ACH assessment of the proposed project area which has been undertaken in a manner consistent with the Secretary's Environmental Assessment Requirements (SEARs).".*
>
> "***Issues raised by Wellington Valley Wiradjuri Aboriginal Corporation (WVWAC) and Gallanggabang Aboriginal Corporation (GAC)***
> *Two Registered Aboriginal Parties (WVWAC and GAC) raised several issues regarding the survey method and management strategies. In some instances, the proponent has accepted points raised by the RAPs on the draft assessment approach and subsequently, modified the survey method. HNSW is satisfied with the proponent's responses to all other issues raised by the 2 Registered Aboriginal Parties (OzArk 2020:17-20)."*

5.1.2 Proximity of clan boundary

Summary of matter raised

WVWAC stated in their submission "*WVWAC again would like to indicate that areas close to this development area have known Cultural Heritage sites and that this Development area is a known to be in our traditional information relating back to the Mudigee Clan as the clan boundary is very close by within this project area. This is a boundary of three Clan areas and is highly culturally significant as meetings took place in and around this project development site*.".

Response

As indicated in the submission, this concern was previously raised with OzArk as comments on the draft ACHAR (refer to **Table 5-1**). OzArk responded to the concern by including additional detail on the cultural significance of the area in Section 8.2 of the ACHAR.

5.1.3 Cultural heritage management plan

Summary of matter raised

WVWAC recommended that a Cultural Heritage Management Plan (CHMP) is prepared in consultation with the RAPs to address the potential for finding additional Aboriginal artefacts during the construction of the project. WVWAC recommended that the CHMP includes an

unexpected finds procedure which includes the written notification of all RAPs within 24 hours of the Unexpected Find.

Response
UPC\AC has included this commitment in the EIS (management and mitigation measure ID AH1) as follows:

> "*The proponent will develop the ACHMP which is to be agreed to by the RAPs and DPIE. The ACHMP will also include an unanticipated finds protocol, unanticipated skeletal remains protocol and long-term management of any artefacts*.".

5.2 SOS (Save Our Surroundings) Central West NSW

Objects

5.2.1 Adequacy of the EIS

Failure to meet the Secretary's Environmental Assessment Requirements

Summary of matter raised
SOS Central West NSW state they object to the project because it fails to meet many of the requirements set out in the Secretary's Environment Assessment Requirements (SEARs) document.

Response
UPC\AC acknowledges the comment from SOS Central West NSW and notes that the EIS has been deemed as adequately addressing the SEARs by DPIE prior to going on exhibition.

Content of the EIS

Summary of matter raised
SOS Central West NSW state the EIS is inadequate in addressing:

- the justification for the development
- the basis of the site selection
- the environmental impacts
- its failure to meet the objectives of the EP&A Act (including ecologically sustainable development, land use conflicts)
- how the project contributes to the security and reliability of the electricity system
- a full evaluation of the merits of the project as a whole
- comparison with alternatives.

Response
UPC\AC acknowledges the comment from SOS Central West NSW and notes that the EIS has been deemed as adequate by DPIE prior to going on exhibition. Further response to the matters outlined above is detailed throughout the response to SOS Central West NSW in this section.

5.2.2 Net benefits of proposed project cannot be substantiated

Greenhouse gas emissions

Summary of matter raised
SOS Central West NSW raised the following matters:

- The project cannot use emissions reductions as justification for the project as it cannot influence the climate at its scale.

- The total life cycle of an industrial photovoltaic electricity generating system and the associated extra supporting infrastructure needed creates substantially more carbon dioxide emissions than a nuclear power plant of the same nameplate capacity (megawatts). Hence, lower emissions will be achieved if the project is not approved.
- The Applicant ignored the SOS request to indicate the amount of greenhouse gases embedded in its project. The Applicant should supply greenhouse gas estimates so that alternative forms of electricity generation can be compared.

Response

While no renewable energy project is expected to influence global climate outcomes at an individual level, the project is part of NSW's and Australia's transition to carbon-free electricity production. This is consistent with the NSW Government's energy and climate policy and the Australian Government's international climate policy commitments, which are intended to address global climate change outcomes.

Regarding a hypothetical alternative of nuclear power, UPC\AC understands that the construction and operation of nuclear power plants in NSW is prevented by state legislation.

Reliable and continuous supply

Summary of matter raised

SOS Central West NSW raised the following matters:

- The Applicant in the EIS equated Liddell Power station with its project and suggested that their project would help to replace the lost output when Liddell is closed in 2023. They incorrectly stated that Liddell has 450 megawatts capacity (EIS p59), so implying their 400 megawatts project is comparable. Liddell is now 1680-megawatt capacity and currently produces 8,000 gigawatt hours of electricity output of annually.
- The comparison of annual outputs in Table 1.1 of the EIS over a year is misleading, as is equating a 400 megawatts solar works with a 400 megawatts continuous output generator. The project cannot claim it is a standalone electricity generating system able to supply thousands of homes with reliable and available on demand electricity.
- The Applicant's claim that the project generates enough electricity to supply 150,000 typical homes is a falsehood.
- Page 59 of the EIS refers to the project adding to the security and reliability of supply. As for security of supply there are lots of examples where weather-dependent renewables can't deliver.

Response

UPC\AC acknowledges a typographical error on page 59 of the EIS that noted Liddell Power Station as operating at 450 megawatts capacity. This should read:

> "*Currently generating 1680 megawatts through its four generators that are currently operating at a reduced capacity of 420 megawatts each*".

UPC\AC notes that a modern electricity system such as the NEM balances the demand for energy with supply. While intermittent generation from wind and solar energy sources is challenging for the grid operator (Australian Energy Market Operator (AEMO)) and the transmission network, managing the balance between energy supply and demand would be expected to continue as usual.

It would not be expected that a single energy generator (whether that is a solar farm, wind farm, coal fired power station or gas peaking plant) would be available and continuously operating at all

times in order to contribute towards security of supply. There are existing mechanisms operating in NSW designed to safeguard adequate energy supplies to meet demand, including:

- the NEM's wholesale price mechanism, which provides a signal for new investment and for backup generation (and in the future storage) to come online,
- the Retailer Reliability Obligation
- AEMO's powers to act as a trader of last resort and a raft of associated state government policies such as the NSW Roadmap (Electricity Infrastructure Investment Act).

Projects such as the Stubbo Solar Farm project will play an important role in the future contribution to this overall security of supply, along with other existing and emerging technologies.

The claim that, if constructed, the project could be capable of providing power for up to 150,000 NSW homes is based on a calculation which takes into account typical energy consumption for a NSW dwelling. This estimate was provided to assist the public's understanding of the scale of the project and is illustrative in nature.

Lowering retail electricity prices

Summary of matter raised

SOS Central West NSW raised the concern that whilst the project may put downward pressure on wholesale prices, it would not reduce retail costs for consumers. SOS Central West NSW reference the half-yearly results published by AGL and Origin Energy which demonstrate that whilst their wholesale prices are reducing, the retail costs are rising because of increased infrastructure costs, massive subsidies, financial support and favourable regulations, massive losses and write-downs and massive cost blow outs have to be recovered from the consumer or taxpayers.

SOS Central West NSW state "*the Stubbo proposal should be rejected as it will exacerbate the problem of too much electricity being generated at the wrong time of day, if at all*.". This is in reference to the excess electricity generated by roof top solar panels during the day that is fed back into the NEM.

Response

UPC\AC acknowledges SOS Central West NSW's concerns around retail electricity prices, however, notes that the issue of retail price regulation is outside of the scope of considerations for a planning application for a solar farm development. The claim in the EIS was simply to state that the increasing contribution of low cost renewable energy in the NEM wholesale market is leading to downward pressure on wholesale prices (as acknowledged by the AEMO and the Australian Energy Regulator) which typically make up about half of a customer's retail bill.

The cost of Large-Scale Solar photovoltaic has fallen dramatically in recent years from $135 per megawatt hour in 2015 to around 1/3 of this in 2020 (Australian Renewable Energy Agency, 2021).

If developed, the battery energy storage system would store renewable energy during peak production times (i.e. in the middle of the day), when demand from households with rooftop photovoltaic systems is low, for use when it is needed (i.e. in the evenings after the rooftop systems stop producing power).

AEMO has prepared the Integrated System Plan (ISP) 2020 to provide government, industry and consumers with guidance on investment needed to achieve affordable, secure and reliable energy future while meeting prescribed emissions trajectories. The ISP analysis identified the least

system cost investments needed for Australia's future energy system. These are "distributed energy resources (including rooftop PV, batteries, and other resources at the customer level), variable renewable energy (including solar, wind, and other variable renewable energy resources at the utility level), supporting dispatchable resources and power system services.

The project is consistent with the optimal development path in the 2020 ISP, which highlights that over 26 gigawatts of new grid-scale renewables is needed to replace coal, much of it built in Renewable Energy Zones such as the Central West Orana Renewable Energy Zone.

Long-term operation and industry viability

Summary of matter raised
SOS Central West NSW are concerned around UPC\AC's long-term responsibility to uphold management and mitigation commitments and to decommission and rehabilitate the site.

SOS Central West NSW note that UPC\AC Australia Pty Ltd was registered on 1 April 2017 and have no track record of construction of weather-dependent renewables plants in Australia. They question "*If UPC/AC or their joint owners fail then who is responsible for operation and decommissioning? Who pays*?".

SOS Central West NSW make reference previously ASX listed renewables companies, and the number of these that have been either sold or delisted. SOS Central West NSW therefore question UPC\AC's ability to uphold any commitments.

They also note that the Applicant has made no reference to Power Purchase Agreements or Government assistance in the EIS and question if this could be a financial risk for the project.

Response
As stated in **Section 4.1.8**, a decommissioning and rehabilitation plan will be prepared within 3 years of the commencement of operation of the project that outlines the rehabilitation objectives and strategies to return the study area to its pre-existing condition for agricultural land use. This will include:

- rehabilitation objectives and strategies
- describing the design criteria of the final land use and landform
- performance indicators to be used to guide the return of the land back to a condition suitable for agricultural production (i.e. sheep and cattle grazing)
- expected timeline for the rehabilitation program.

As the approval authority for State significant solar energy projects, DPIE will be responsible for monitoring compliance with the conditions of approval, including the decommissioning and rehabilitation of the site. UPC\AC or any future owner of the asset would comply with any directions of DPIE.

UPC Renewables Group has been operating globally since the early 1990s with more than 4,500 megawatts of operating wind and solar projects with an estimated investment value of over AU$6 billion across North America, Europe, Asia and Africa. The company established itself in Australia in late 2016 and has been developing numerous renewable energy projects with the combined international experience of its global operations and its local experience of the Australian management team which has an extensive track record from previous roles in the industry.

In Australia, UPC Renewables Group operates as a joint venture with AC Energy, the energy platform owned by the Ayala Corporation, a publicly listed conglomerate based in the Philippines with nearly 190 years of history and several projects in South East Asia developed in partnership with UPC Renewables Group. New England Solar Farm, based in NSW and now in construction, is the joint venture's first project that has been delivered so far in Australia. Other projects in the portfolio include Axedale Solar Farm in Victoria, Robbins Island and Jim's Plain Wind Farms in Tasmania, and Baroota Pumped Hydro and Bridle Track Solar Farm in South Australia.

UPC\AC typically has an 'owner-operator' business model, which means it will continue to be directly involved in projects as they are constructed and operated for their full lifecycle, including decommissioning. This means a core UPC\AC project development principle is fostering a trusted relationship and providing a legacy with beneficial outcomes for the local community and the environment.

With regards to the comments made about a Power Purchasing Agreement (PPA), UPC\AC notes that this is not a planning consideration, and that having a PPA is not a pre-requisite to building or operating a power generation asset in the NEM. For example, the first stage of the New England Solar Farm (also 400 megawatts) has just been financed by UPC\AC with a syndicate of two domestic and one international bank on a fully "merchant" basis (i.e. no PPA). The future revenue and/or market trading strategy of the Stubbo Solar Farm project will be determined by UPC\AC closer to the time when a final investment decision is being made.

Using natural resources economically and without harming the environment

Summary of matter raised

SOS Central West NSW raised the following concerns around the use of resources:

- The land requirements of the project are massive compared to viable and necessary alternatives.
- The tonnes of materials required for the project far exceeds that needed for rooftop solar by a factor of 5.5.
- The mining of specific minerals for solar works and battery storage units extends globally. The project would require 10 times more mining than what a 400 megawatt natural gas power plant leading to the creation of more carbon dioxide and waste.
- The decision by the Independent Planning Commission and upheld by the Land and Environment Court in December 2020, in assessing the Bylong Valley coal mine application stated that not only does the Commission have to take into account greenhouse gas emissions but also environmental impacts external to the project. These principles should be applied in assessing the Applicant's EIS.
- The project adds excessively to the World's consumption of finite resources which is detrimental to both Australia's and the environments of other countries.

Response

The project would temporarily reduce the agricultural productivity of approximately 1,243 hectares of land during the construction and operation phases. UPC\AC and the host landholders have plans to trial the colocation of sheep grazing within the solar farm during operation, which would maintain some ongoing agricultural use.

Once the project has reached the end of its operational life, all project infrastructure would be decommissioned and removed and the study area would be made suitable for its pre-existing land use, namely grazing of sheep and/or cattle, as agreed by the project owner and the landholder at that time.

UPC\AC considers that it is not appropriate for the submission report to comment on the land requirements of alternative energy projects as consideration has been to alternatives to the project as part of the project justification and development process. The proposed solar farm is considered the preferred project to develop further.

As noted in Section 17.3.1 of the EIS, whilst the use of non-renewable resources can increase material scarcity, the materials required for the project (steel, copper, silicon wafers, glass etc.) are not currently limited or restricted globally. In the volumes required, the project will not place any significant pressure on the availability of such resources.

At present the vast majority of energy investment is flowing into wind and solar projects, because these are the cheapest way of delivering new generating capacity. In contrast to this, there are no commercially viable coal fired power plant proposals and very few natural gas fired power plant proposals currently attracting capital investment interest in Australia, due to the comparatively higher costs and significantly higher commercial risks. For example, in a recent article is noted that the Tallawarra B gas peaking plant announced to be developed by Energy Australia is receiving government grants of $83 million from the NSW Government and Federal Governments in order to make the business case work (Macdonald-Smith, 2021).

UPC\AC is not a provider of rooftop solar photovoltaic systems, so do not consider that as a viable alternative for the company to develop instead of the project. It is also noted that it is not appropriate to comment on the Independent Planning Commission's handling of the Bylong Valley coal mine application.

The SEARs did not require an assessment of the project's potential climate change and greenhouse gas impacts, however, to address concerns raised by SOS Central West NSW a qualitative assessment of the project's potential climate change and greenhouse gas impacts was undertaken as part of the EIS (refer to Section 18.2). The estimated amount of CO_2e emissions stated in Section 18.2.3 of the EIS of 255 kilotonnes CO_2e over the project lifecycle is based on the average lifecycle emissions for solar photovoltaic projects according to the World Nuclear Association (World Nuclear Association, 2011). Lifecycle emissions include:

- upstream processes – raw material extraction, material production, material transportation to site, and installation and construction
- operational processes – power generation and operational maintenance
- downstream processes – decommissioning and disposal.

It is noted that due to the need for mining of coal and extraction of natural gas as the fuel for coal and gas fired power stations, and the direct emissions associated with the combustion of these fuels during power generation, the life cycle emissions of solar photovoltaic, even considering the mining of materials used in the panels, steel piles etc, are generally recognised as being vastly lower.

Reducing the Incidence of Global Slavery

Summary of matter raised

SOS Central West NSW raised the concern around the project's contribution to slavery as a result of mining cobalt in from the Democratic Republic of the Congo for use in the BESS.

Response
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.

It is also noted that the Clean Energy Council has formed a Modern Slavery Working Group. The objectives are to facilitate the process of reporting under the Modern Slavery Act 2018 and raise the standard of practice across the clean energy sector in Australia. It does this by providing a platform to discuss and consider collaboration on efforts to:

- identify and address risks of modern slavery within supply chains
- report under the national Modern Slavery Reporting Requirement

Furthermore, banks investing in the project would be required to observe the Equator Principles as part of the project legal due diligence process. Further information may be obtained at the following link:
https://equator-principles.com/wp-content/uploads/2021/02/The-Equator-Principles-July-2020.pdf

Creating net Australian jobs

Summary of matter raised
SOS Central West NSW raise concerns around the number of jobs that would be created as a result of the project and potential job losses that could extend to other industries. SOS Central West NSW reference a study undertaken in Spain that concluded that for every subsidised job in renewables that 2.2 jobs were lost elsewhere in the economy.

Response
The project is expected to require up to 400 full-time equivalent employees during peak construction. Operation of the project is expected to generate approximately 10 full time jobs. It is expected that these positions would be largely filled locally or from the region. If outside workers are required to supplement the required workforce, they would be expected to relocate to the area.

Annual direct full-time equivalent employment in large scale solar photovoltaic renewable energy activities in Australia was estimated at 4,740 jobs in 2018-19. This is an increase of 1,600 full-time equivalent jobs from the previous year (2017-18) (Australian Bureau of Statistics, 2020). This makes large scale photovoltaic solar the second largest contributor to full-time equivalent employment related to renewable energy activities (18% of total) (Australian Bureau of Statistics, 2020). The reference to subsidised jobs in Spain and their impact on the wider economy is noted, but is not considered relevant to the Australian large scale renewable energy sector. The renewable energy sector is recognised as a major creator of jobs and in the large scale solar segment this is primarily job opportunities in regional Australia due to the location of most projects (Clean Energy Council, 2020).

5.2.3 Key issues

Biodiversity

Summary of matter raised

SOS Central West NSW raised the following matters regarding biodiversity:

- SOS Central West NSW compare the study area to a 5.8 hectare property located 6 kilometres south-west. They state that the land has no natural water or dams only a few trees and is fully fenced (1.2 metres high), yet over thirty different species of fauna live on or visited the property in 2020 alone. Based on this, SOS Central West NSW do not agree with the statement on page 4 of the EIS that "...*the proposed development site footprint is located on land with little or no biodiversity value*".
- 70% of the total site's habitats and ecosystems will be destroyed by the proposed earthworks.
- The 2.4 metre high security wire-mesh fence will prevent the movement larger animals from feeding and watering anywhere on the site and also prevent the natural movement of these animals for establishing new territories e.g. a new mob of kangaroos. By preventing access, these animals will have denser populations elsewhere and so be more likely to be involved in vehicle accidents because of the closeness of roads to the site.
- The addition of 800,000 or more solar panels covering much of the site will affect the larger flocks of birds by reducing their landing and feeding areas and reducing fertilisation of the ground via their droppings.
- Months of frequent loud and sudden noise from pile-driving and the operation of large machinery could cause prolonged stress in the animals. This stress can cause aggressive and other negative behaviour as well as affecting weight gain and quality of the meat.
- Barking Owls are present on the development site. Inverters and transformers produce noise when the batteries are supplying electricity after dark, albeit for short duration given the small storage capacity. This frequent noise will make hunting by the owl harder and may drive it out of the site altogether.
- Removal of the top layer of grazing vegetation will encourage the spread of weeds, including invasive species. Management and control of weeds over such a large site covered in solar panels will be extremely difficult. The weed density will rapidly increase, and seeds will spread to neighbouring properties, so passing the effort and cost of controlling these weeds to the owners.

Response

Potential impacts to biodiversity associated with the project have been assessed in the EIS in compliance with the SEARs and State and Commonwealth legislation. The assessment has been based on extensive ground survey of the proposed development footprint, which is an area that has been intensely used for sheep and cattle grazing for many years. This assessment is included as Appendix B and summarised in Section 6 of the EIS. The site referred to by SOS Central Weest NSW located to the south-west, while it may contain biodiversity values (UPC\AC makes no comment on the accuracy of this claim), is not considered relevant to the impact assessment for the project site.

The project has been located to avoid and minimises impacts to biodiversity values. This has included selecting the location of the proposed development with consideration of limiting the amount of intact vegetation to be removed.

It is acknowledged that direct and indirect impacts to biodiversity may result from the project. The risk assessment undertaken for the EIS found that based on the extensive survey and

assessment undertaken, the potential impacts of the project pose a low to very low risk to biodiversity values, provided the proposed management measures are adequately implemented, which UPC\AC are committed to.

Ecosystem and species credits have been calculated for the project to manage biodiversity impacts which are discussed in detail in the amendment report.

The potential for Barking Owls within the study area is, however, noted in the EIS and the minimisation of removal of vegetation will help to avoid impacting on any habitat if they are present.

Weed management and other biosecurity impacts during construction and operation will be managed appropriately through the implementation of the management measures outlined in **Section 7** and in accordance with the *NSW Biosecurity Act 2015*.

Heritage

Summary of matter raised
SOS Central West NSW is concerned about the instances of other renewable energy applicants not doing what they propose in their submissions and communications with the impacted communities. In particular, SOS Central West NSW are concerned that the Wiradjuri artefacts within the study area would be destroyed or removed and commitments not upheld.

Response
UPC\AC makes no comment on instances relating to other renewable energy applicants, however, avoidance of significant Aboriginal cultural heritage values has been a key aspect of the project refinement process. UPC\AC is committed to the protection of Aboriginal heritage and would implement the management measures described in the EIS (management and mitigation measures AH1 to AH3).

UPC\AC notes that it is an offence under Section 90 of the NSW *National Parks and Wildlife Act 1974* to harm or desecrate an Aboriginal object or place without an Aboriginal heritage impact permit. Additionally, under Section 89A of the Act, it is a requirement to notify the Secretary of the Department of Premier and Cabinet of the location of an Aboriginal object. UPC\AC will operate in accordance with the legislation.

Land

Summary of matter raised
SOS Central West NSW are concerned about the removal of agricultural land for the project for an extended period and the misuse of agricultural land that would result from the project, when compared to other electricity generation methods.

SOS Central West NSW state "*Our region is not a desert, but is a major agricultural, mining and tourist area. Many farmers are also tradespeople or people who also work in the mines or in retail and commercial activities. There are already shortages in many of the trades. All these "farmers" and others depend on real ongoing work availability, which this project does not provide*.".

Response
It is acknowledged in the EIS that the project would temporarily reduce the agricultural productivity of approximately 1,243.2 hectares of land during the construction and operation

phases. UPC\AC and the host landholders have plans to trial the colocation of sheep grazing within the solar farm during operation, which would maintain some ongoing agricultural use. Once the project has reached the end of its operational life, all project infrastructure would be decommissioned and removed and the study area would be made suitable for its pre-existing land use, namely grazing of sheep and/or cattle grazing, as agreed by the project owner and the landholder at that time.

Further discussion on the agricultural value of the study area land is included in the response to Mid-Western Regional Council (refer to **Section 4.1.6**).

It is noted that compared with alternative power generation technologies such as coal-fired and gas-fired power plants that require the extraction of resources for fuel, solar farm construction is relatively low impact and there is not expected to be a long term negative impact on the land for a solar farm.

Visual

Summary of matter raised
SOS Central West NSW note that some nearby landholders did not respond to the Applicant's attempts to contact them. SOS Central West NSW state they are "*not aware at this time if such landholders would be impacted visually if the project was to proceed*.".

Response
UPC\AC acknowledges SOS Central West NSW's comment. Visual impacts to nearby landowners are assessed in Section 11 of the EIS and in the Landscape Character and Visual Assessment Report in Appendix F.

Noise

Summary of matter raised
SOS Central West NSW note that some nearby landholders did not respond to the Applicant's attempts to contact them. SOS Central West NSW state they are "*not aware at this time if such landholders would be impacted by noise if the project was to proceed*.".

Response
UPC\AC acknowledges SOS Central West NSW's comment. Noise impacts are assessed in Section 12 of the EIS and in the Noise and Vibration Assessment Report in Appendix G.

Transport

Summary of matter raised
SOS Central West NSW raised the following matters in regard to transport:

- The traffic study undertaken surveyed seven intersections, yet the two most dangerous intersections were ignored, namely Medley Street and Mayne Street, and, Herbert Street and Mayne Street, which also has two pedestrian crossings that are heavily used by all residents and visitors. Congestion at these intersections would have a detrimental impact on the functioning of the town.
  At both these intersections, turning left or right into Mayne Street encounters a "one-way at a time courteous give way" as only one vehicle can pass at a time because of the narrowing of the road and parked vehicles. Likewise, once crossing Mayne Street and

entering Medley Street from either direction the "one-way at a time courteous give way" protocol, well known to Gulgong locals, applies.

- Increased risk to walkers, joggers and cyclists in Gulgong from the increase in vehicle traffic during the morning peak (6am to 7am).
- Traffic from the project would increase risk of road accidents, particularly at the left-hand turn from Cope Road as it is used to access the Gulgong Waste Depot. This has a 100 kilometre per hour speed limit and often trailers slow right down to make the turn.
- The Applicant states that, "*The decommissioning phase would see lower traffic generation in relation to expected mechanical decommissioning processes and reduced labour force compared to the construction phase*." (EIS page 223). How much lower traffic generation and over what time period?
- SOS takes issue with the Applicant's claim, "*In addition, there is no evidence that the rail track to the west of Gulgong, which includes level crossings on Cope Road/Station Street, Barney's Reef Road and Black Lead Lane, is in use.*" (EIS Section 13.2.6, page 220). There are several goods trains a week passing through or stopped at these crossings. This could cause significant traffic to build up if 260 project vehicles were wanting to travel through the crossings when a train is passing through or stopped.

Response

As discussed in the response to Mid-Western Regional Council (**Section 4.1.1**), UPC\AC has committed to the development of a Construction Traffic Management Plan in consultation with TfNSW and Mid-Western Regional Council. The Construction Traffic Management Plan will include details of the measures that will be implemented to minimise traffic impacts during construction, upgrading or decommissioning works.

As noted in the EIS, all heavy vehicle movements for construction will arrive at site via Cope Road from the East and then turn right into Blue Springs Road and enter site. As such, there will be no heavy vehicles passing through Gulgong township. To reduce light vehicle traffic impacts on the Gulgong township, UPC\AC is committed to including a requirement for workers to use Castlereagh Highway, Fisher Street, Caledonian Street, Rouse Street, Cope Road and Blue Springs Road as the route from Mudgee to site in the Construction Traffic Management Plan, which will be prepared in consultation with TfNSW and Mid-Western Regional Council.

As stated in the response to ARTC (**Section 4.18**), UPC\AC will seek approval on a specific case basis from ARTC as required for access over any ARTC railway lines at level crossings. Interactions with ARTC level crossings and associated management measures will be outlined in the construction traffic management plan.

Water

Summary of matter raised

SOS Central West NSW has significant concerns about the potential for the project to adversely impact the area's water sources and its use of huge amounts water. SOS Central West NSW is particularly concerned about the impacts of drought and potential impacts to groundwater and farm dams. In addition, SOS Central West NSW are of the opinion that the solar panels will require more frequently cleaning than stated in the EIS, particularly during dust storms.

SOS Central West NSW note that the creek systems on and near the site are noted in the Mid-Western Regional Local Environmental Plan (LEP) as "Groundwater Vulnerability" and the EIS has not considered the potential contamination from solar panels. SOS Central West NSW note that any chemicals leaching from the solar panels into the soil could be washed by surface water into

the creeks, bores and groundwater, both in-situ during operation of the project, or once disposed of in landfill. Damage from fire, hail, wind and lightning strikes exacerbates the speed of toxic chemicals leaching into the ground.

SOS Central West NSW request that "*Independent soil and water testing for all the chemicals included in solar panels and in batteries must be done before construction (as a baseline), at commissioning, during operation (annually or after each major hazardous event), and post rehabilitation of the site. The results of such soil studies must be made public.*". SOS Central West NSW ask the question "*If unsafe levels of toxins are identified how will the issue be managed?*".

Response
Water sources including from commercial suppliers of treated wastewater in the nearby region and/or opportunistically sourced from farm dams located within the study area, would be used to service the project where available. These supplies would be determined in consultation with suppliers, landholders and with Mid-Western Regional Council.

Further discussion on the water supply for the project is included in the response to the Water Group (refer to **Section 4.11.1**).

It is noted that most of the water needs are for dust suppression during construction. The suggestion regarding the frequency of needing to wash solar panels is noted but is not consistent with industry practice or experience with solar farms even in arid environments, including deserts.

Potential contamination issues associated with chemicals leaching from the solar panels are considered in **Section 6.16.3** of this submissions report.

Hazards and risks

Summary of matter raised
SOS Central West NSW raised concerns around the risk of fires at the study area. They note that local air temperatures can be in the low 40 degrees Celsius range, well above the preferred storage temperature for batteries of below 30 degrees. They also note the inverters, substation, PCU, electrical wiring can all cause a fire. SOS Central West NSW state that apart from the many panel, battery, inverter, etc. fire risks that may be mitigated it is the human caused fire either on the site or outside of it that poses the highest risk.

Specific reference is made to Table 15.6 on page 252, which lists risks as medium and the likelihood as "very unlikely". SOS Central West NSW are of the opinion that these risks in combination increase the probability of some major hazardous event occurring.

SOS Central West NSW note that Mid-Western Regional Council are yet to sign-off on the proposed bushfire prone zoning for Gulgong, but the Applicant knows it exists and should assume it will be approved.

SOS Central West NSW state that solar plant fires are extremely hard for fire-fighters to contain due to the dangers (toxic fumes and high voltages) and large confined areas. They claim it takes a long time to fully remediate a damaged plant.

SOS Central West NSW raises the question of public liability should a significant fire event occur on an adjoining property to the study area, if started negligently.

Response
Bush fire risks have been considered in Chapter 15 of the EIS and in the Preliminary Hazard Analysis in Appendix J to the EIS. An updated Preliminary Hazard Analysis has been submitted with the amendment report.

The issues raised above are discussed further in the following sections:

- **Section 4.1.10** (Mid-Western Regional Council)
- **Section 4.14** (Rural Fire Services)
- **Section 4.15** (Fire and Rescue NSW)
- **Section 6.10.1** (hazards and risks).

Regarding comments about the operational specifications of batteries, the potential for arc flash, and other equipment related issues, it is noted that all equipment will be installed by reputable contractors meeting the relevant Australian standards, and in accordance with all relevant NSW and Federal legislation relating to construction and operation of electrical facilities (including health and safety regulations).

Socio-economic

Summary of matter raised
SOS Central West NSW raised the following matters:

- Concerns over an increase in tourism and new residences in the region, particularly with the uncertainty around Covid-19 restrictions. They state that local real estate agents have confirmed this increased demand for established housing (purchase or rental) is already occurring, and home builders have also confirmed the demand for their already overstretched resources has increased.
- There is concern that the project would remove tradespeople, especially electricians, from servicing the local area as these are already in short supply. SOS Central West NSW note the alternative is to bring in a huge team of tradespeople from outside the locality, and either way the local community suffer and tourists have fewer accommodation options and who may go elsewhere.
- Employment of backpackers via labour hire firms take resources away from fruit growers.
- The project's estimate of 200 local workers during the 12 months peak construction is extremely optimistic. Likely most workers will be non-local, which raises the question of where they will be accommodated and what implications that has for the region.
- The Applicant presents very optimistic assumptions on how hundreds of non-local workers would be temporarily accommodated for up to 12 months. If international and intermittent State border closures continue well into 2022 then domestic tourism will be well above historic numbers. If travel restrictions are eased, Gulgong will be able to run its highly successful festivals and events, including The Clay Festival, for which attendees book accommodation up to 12 or more months in advance.
- During the construction of Beryl solar works, some residents claimed that crime increased in Gulgong.
- The loss of land which can be used for agriculture and grazing stock, reduces the ongoing job opportunities for Gulgong area local workers and businesses.
- Concerns that the addition of 400 workers in the region would place more pressure on the capacity of health services, when residents have been fighting for months to get a doctor for their hospital and that one has to book days in advance to see a doctor at the Medical Centre.

Response
UPC\AC acknowledges the concerns of SOS Central West NSW and is committed to developing an accommodation and employment strategy for the project in consultation with Mid-Western Regional Council and its lead Engineering, Procurement and Construction contractor once selected, as discussed in the response in **Section 4.1.4**.

It is noted that several major solar farms have been constructed in many regions of NSW, including in the Central West Orana region near townships such as Gulgong, Wellington, Parkes and Forbes, as well as in more remote areas of the country. The Engineering, Procurement and Construction contractors that are directly involved in building these solar farms are well aware of the challenges in the logistics of hiring, accommodating and moving workers to and from site every day and ensuring that there are adequate services provided so that local infrastructure is not overwhelmed and negative social impacts are avoided or mitigated.

UPC\AC is experienced with managing these issues, as it is now in the construction phase of the New England Solar Farm and has worked with its selected Engineering, Procurement and Construction contractor and the local community to find the right balance between relying on local businesses and local workers on the one hand and bringing in workers and services on the other.

The proximity of larger towns such as Mudgee and Dubbo, as well as the mining industry-related infrastructure in the area, such as the Ulan Green Village workers accommodation village, suggest that compared with building solar farms in more remote areas, the proposed development will not present any unusual or particularly difficult challenges provided that a suitable accommodation and employment strategy is prepared prior to the start of construction.

Waste

Summary of matter raised
SOS Central West NSW raised concerns around the waste disposal option for solar panels and state that a plan of how much materials that will have to be disposed of and how recycling over the entire project life should be provided.

SOS Central West NSW are concerned around the hazardous waste issues created by the cumulative impacts of solar panel disposal, stating that the Victorian government has *"estimated that more than 100,000 tonnes of solar panels will enter Australia's waste stream by 2035.".* There is concern that the materials within solar panels can leach into soils and groundwater causing contamination and safety concerns. It is noted that Australia has a lack of dedicated facilities that can recover the valuable materials in solar panels.

It is noted that the Gulgong Waste Facility is for residents only use and UPC\AC should confirm the tonnes of non-recycling materials can be dumped at the facility.

Response
The waste disposal strategy for the project will be developed by UPC\AC and its selected Engineering, Procurement and Construction contractor in consultation with the Mid-Western Regional Council (refer to **Section 4.1.5** for further discussion).

UPC\AC acknowledges that Gulgong Waste Transfer Station is not equipped to accept the waste generated from the project and alternative waste management facilities that are equipped to accept commercial wastes such as the Mudgee Waste Facility or potentially other facilities further afield would be used for the project.

UPC\AC is currently undertaking preliminary consultation with Mudgee waste facility in order to have a better understanding of landfill capacity and type of waste material accepted within the facility. UPC\AC will continue consultation with Mid-Western Regional Council facilities as well as other waste facilities in the area.

Reuse and recycling practices will be adopted wherever feasible as noted in the EIS.

5.2.4 Legislation, policies and guidelines

Summary of matter raised
SOS Central West NSW states "*the Applicant needs to include rooftop solar in its comparison of alternatives to their project*.". SOS Central West NSW also provide comment on the *Electricity Infrastructure Investment Act 2020,* predictions by the AEMO on electricity cost reductions as a result of the Renewable Energy Zone, and on the Department of Industry, Science, Energy and Resources submission to the House of Representatives Standing Committee on the Environment and Energy on the Climate Bills 2020.

Response
UPC\AC acknowledges SOS Central West NSW's comments on rooftop solar and the NSW energy policy framework, however, UPC\AC is not a provider of rooftop solar systems and notes that the EIS has given consideration to alternatives to the project as part of the project justification and development process. The proposed solar farm is considered the preferred project to develop further.

With regards to the comments that maintaining feed in tariffs for rooftop photovoltaic are a better way of incentivising new generation capacity rather than large scale solar, it is noted that the detailed regulations to be implemented under the NSW *Electricity Infrastructure Investment Act 2020* are still in development and at this time and there is no specific detail around the "safeguard mechanism" (option to enter into a contract for differences, or floor price guarantee) announced by the State Government. Hence it is not possible to compare the relative cost-effectiveness of the policies.

5.2.5 Consultation

Summary of matter raised
SOS Central West NSW rejects the Applicant's claim they have wide community support for their project. They note that the communities of Gulgong and Mudgee have resoundingly rejected two solar electricity generating works proposed for Gulgong (445 submissions, 439 against) and Mudgee (over 1100 submissions, almost all against). Both proposals were unanimously rejected by the Western Regional Planning Panels four nil (Gulgong) and five nil (Burrundulla, Mudgee).

They state "*UPC/AC's conclusion that "Overall, there has been a generally positive or neutral response" (EIS Main page 4) may either be due to a very small sample size (only 40 people attended the 28/10/20 open session) or resident fatigue*.".

SOS Central West NSW note members attended the drop-in session on 28 October 2020 and "*held unsatisfactory discussions with several of the Applicant's representatives for about 40 minutes and subsequently submitted 31 questions by email on 30/11/20*.". The response from the Applicant was that the EIS would address the questions that were raised by SOS Central West NSW. This did not give SOS Central West NSW the opportunity to raise follow-on questions from

their responses. SOS Central West NSW state that of the emailed questions, only seven questions were fully addressed and four partially addressed by the EIS.

Response
UPC\AC acknowledges SOS Central West NSW's comments on comparison to proposed solar farms in Mudgee and Gulgong and notes that it is not appropriate for the submissions report to comment on other projects. It is noted, however, that community engagement in relation to the project has been underway since late 2018 and continued in the lead up to submitting the EIS, after the EIS was on public exhibition and is ongoing at the time of writing.

UPC\AC received the email from SOS Central West NSW on 30 November 2020 containing a list of questions which was based on the representatives' review of the project fact sheet that was provided at the information session along with the extensive discussions held at that session.

Given that many of the group's questions related to the contents of the EIS, it was suggested that in the interests of maintaining transparency, that the group submit their questions as part of the formal response to submissions process. SOS Central West NSW did not respond to this email, however UPC\AC notes that the group has taken the opportunity to provide questions on the EIS, which are being addressed in this report.

Further discussion on community consultation is included in the response in **Section 6.2**.

Response to the questions raised by SOS Central West NSW is included in **Section 5.2.6**.

5.2.6 Other issues

Summary of matter raised
SOS Central West NSW raised the following other matters in their submission:

- Vagueness of wording throughout the EIS main document.
- The majority of the questions in Appendix A still require responses from the Applicant.
- The Beryl solar works is but one example where developers can say things in their submissions and then not do them adequately because there is little or no oversight. This is especially true where the ownership changes hands so rapidly and frequently. The Applicant, who is new to building renewable projects and them operating them in Australia, has made a lot of mitigation commitments, but who will ensure they satisfactorily carry them out for 30 years or more. Who is responsible for independently managing this risk?
- The Applicant's claim that the grazing sheep on a solar works site has been successfully done elsewhere. In addition, what happens to sheep when grass fires occur on site? How are the pastures maintained to ensure soil is not degraded and the health and quality of sheep maintained?

Response
UPC\AC cannot comment on the actions of Beryl Solar Farm however, UPC\AC has an 'owner-operator' business model, which means it is directly involved in the construction, operation and full lifecycle of the project, including decommissioning. This lifecycle ownership means a core UPC\AC project development principle is fostering a trusted relationship and providing a legacy with beneficial outcomes for the local community and the environment.

UPC Renewables Group has been operating globally since the early 1990s with more than 4,500 megawatts of operating wind and solar projects with an estimated investment value of over AU$6

billion across North America, Europe, Asia and Africa. The company established itself in Australia in late 2016 and has been developing numerous renewable energy projects with the combined international experience of its global operations and its local experience of the Australian management team which has an extensive track record from previous roles in the industry.

In Australia, UPC Renewables Group operates as a joint venture with AC Energy, the energy platform owned by the Ayala Corporation, a publicly listed conglomerate based in the Philippines with nearly 190 years of history and several projects in South East Asia developed in partnership with UPC Renewables Group. New England Solar Farm, based in NSW and now in construction, is the joint venture's first project that has been delivered so far in Australia. Other projects in the portfolio include Axedale Solar Farm in Victoria, Robbins Island and Jim's Plain Wind Farms in Tasmania, and Baroota Pumped Hydro and Bridle Track Solar Farm in South Australia.

Discussion on the proposed sheep grazing including guidance on successful implementation is included in the response to Mid-Western Regional Council (refer to **Section 4.1.6**).

A response to the additional questions raised by SOS Central West NSW is provided below.

Question
"As the site will be fully fenced how will sheep escape during a major fire?"

Response
If grazing occurs within the solar farm, a fencing strategy that considers sheep movements will be developed in consultation with the landowners. It is noted that the existing farms face the same potential risk but would not have the benefit of a detailed construction Bushfire management plan or the associated infrastructure (firefighting equipment) and protocols that will be implemented as part of the project.

UPC\AC notes that responses to this question are discussed further in the following sections:

- **Section 4.1.10** (Mid-Western Regional Council)
- **Section 4.14** (Rural Fire Services)
- **Section 4.15** (Fire and Rescue NSW)
- **Section 6.10.1** (hazards and risks).

Question
"As solar panels are declared as e-waste by the Victorian Environmental Protection Authority and by the European Union, what measures will you take to prevent contamination of the site?"

Response
Potential contamination issues associated with chemicals leaching from the solar panels are considered in **Section 6.16.3** of this submissions report.

The waste disposal strategy for the project will be developed in consultation with the Mid-Western Regional Council (refer to **Section 4.1.5** for further discussion).

Question
"Exactly what type of solar panels will be installed? What are all the metals and chemicals in these panels?"

Response
The number and type of photovoltaic modules (solar panels) is subject to detailed design, available technology at the time of financing and contracting and the final capacity available in the 330-kilovolt network at the time of finalising the connection agreement with TransGrid.

The photovoltaic modules will most likely use polycrystalline or monocrystalline technology which do not contain heavy metals. As the project will most likely be financed under a typical project finance structure (normal for infrastructure projects in Australia), there will be very strict requirements to only procure Tier 1 photovoltaic modules and a high level of technical due diligence will be conducted on the manufacturer and its production lines and track record prior to locking in the specific panels to be used.

Question
"What will the solar panel starting efficiency and warranted time for 80% efficiency."

Response
The starting efficiency of the solar panels will be dependent on the selected panel supplier and this would be resolved during detailed design and procurement. As mentioned, the project will most likely be financed under a typical project finance structure and, there will be very strict requirements to only procure Tier 1 photovoltaic modules and a high level of technical due diligence will be conducted on the manufacturer and its production lines and track record prior to locking in the specific panels to be used.

Question
"Will the site be soil and water tested for the chemicals/minerals/metals used in your panels before work commences to establish a baseline for each?"

Response
As per the commitment in Appendix E of the EIS, a baseline soil survey will be undertaken prior to commencement of construction. This is discussed further in **Section 4.1.8**.

Question
"Will ongoing regular soil and water monitoring be done against the baselines and reported to the community?"

Response
A construction soil and water management plan (CSWMP) will be prepared to outline measures to manage soil and water impacts associated with the construction works, including contaminated land. The requirement for ongoing monitoring during operation will be considered in consultation with DPIE as part of the implementation of the development approval conditions.

Question
"Please explain how you propose to power one typical NSW home, which uses electricity 24/7, when your solar works produces no electricity at night."

Response
As noted in **Section 5.2.2** the balance between energy supply and demand is regulated under the NEM. The project will be part of a clean energy generation mix across NSW and the NEM that balances a diverse range of generation sources and loads at any given time. The future energy system will likely require a diverse mix of wind and solar power, backed up by pumped hydro, battery storage and gas peaking (NSW Electricity Infrastructure Roadmap 2020).

Question
"How is your 600,000 tonnes reduction of CO2 calculated?"

Response
Explanation is given in Section 18.2.3 of the EIS. The average lifecycle emissions for solar photovoltaic projects according to the World Nuclear Association is 85 tCO_2e/GWh (World Nuclear Association, 2011). Based on this, the project would generate approximately 255 kilotonnes over its lifecycle, which is 814 kilotonnes less than the average lifecycle emissions from conventional brown coal projects and 633 kilotonnes less than the average lifecycle emissions from black coal projects. Conservatively, it is stated in Section 3.1.1 of the EIS that once the project is operational, it would contribute up to 600,000 tonnes per annum in annual greenhouse gas emissions reductions.

Question
"How is your 190,000 cars taken off our roads calculated?"

Response
The question raised by SOS Central West NSW is referring to a statement made on a UPC\AC project poster from the community session held in October 2020 available at: https://stubbosolarfarm.com.au/wp-content/uploads/2020/10/Stubbo_solar_farm_factsheet_online_oct20.pdf.

The poster states "*The 400MW solar farm will produce about one million megawatt hours of clean renewable electricity each year, enough energy to power 150,000 typical NSW homes. It will help reduce greenhouse gas emissions by more than 600,000 tonnes of CO_2 each year, equivalent to taking 190,000 cars off the road*."

The 600,000 tonnes of CO_2 each year was calculated by using the NSW emissions factor of 0.6 (i.e. 1000-gigawatt hours production). The average car emissions was reported by the Australian Bureau of Statistics as being typically around 3.1 tonnes per annum when the calculation work was done by UPC\AC. This resulted in a comparative value for greenhouse gas emissions of just over 190,000 cars.

Question
"How many tonnes of CO2 (including CO2 equivalents) are imbedded in your total solar works (I.e. from mining, processing, transport, manufacturing, etc)?"

Response
The estimated amount of CO_2 emissions stated in Section 18.2.3 of the EIS (255 kilotonnes CO_2e over the project lifecycle) is based on the average lifecycle emissions for solar photovoltaic projects according to the World Nuclear Association (World Nuclear Association, 2011). Lifecycle emissions include:

- upstream processes – raw material extraction, material production, material transportation to site, and installation and construction
- operational processes – power generation and operational maintenance
- downstream processes – decommissioning and disposal.

Question
"Council has requirements for residents that a septic sewerage system must be 200 metres from any waterway and a 60 metres setback for buildings on R1 rated land. Your setbacks appear to inside of these limits. Why?"

Response
The detailed site layout will be developed in accordance with the development consent and associated conditions of approval, including preparation of required management plans ad consultation with Mid-Western Regional Council as required.

Question
"What is the breakdown of the 400 construction jobs by trade/skill set?"

Response
Section 16.3.1 of the EIS states "*an indicative breakdown of the expected skilled and non-skilled workforce is:*

- *35 per cent (140 FTE) university or TAFE qualified (e.g. engineers, electricians)*
- *45 per cent (180 FTE) specialised trained (e.g. machine operator, mechanical mounter)*
- *20 per cent (80 FTE) unskilled.*

More detailed assumptions around the workforce roles and timing of specific skillsets is expected to be available following detailed design and engagement of a construction contractor."

Question
"What is the breakdown of the up to 10 operations jobs by trade/skill set?"

Response
There will be a requirement for a mix of office-based staff managing the solar farm and maintenance staff during operation.

Question
"How many of the up to 10 operations jobs will be full-time onsite?"

Response
The up to 10 positions are full time equivalent roles which means there would be a combination of full time and part time roles. The number on site at any time may vary, but typically there would be at least two or three personnel on site during operating hours and additional workers required on a part time for specific maintenance purposes relating to the mechanical aspects of the plant, DC system, general site management (fencing, vegetation management etc), and electrical contractors responsible for the high voltage assets.

Question
"What business and contracting opportunities are there specifically?"

Response
Prior to construction, UPC\AC and its contractor will develop an Accommodation and Employment Strategy in consultation with Mid-Western Regional Council. This strategy will consider the employment opportunities both directly to the project as well as through contracted services. Typically, contracting opportunities for the local community would include fencing, general earthworks and other civil works and electrical works.

Further, investigation will be undertaken into the value of investment in local tertiary training institutions to address skills shortages where identified during the development of the Accommodation and Employment Strategy. Where value is identified and a strategy is defined, investment will be targeted through the community benefit share fund.

Question
"Who owns UPC/AC Renewables Australia?"

Response
UPC\AC Renewables Australia is a joint venture between the UPC Renewables Group and AC Energy. Further detail on the track record of UPC\AC is provided above in response to other questions (refer to **Section 5.2.2**).

AC Energy is the energy platform of Ayala, one of the largest and oldest business groups in the Philippines with a history of nearly 190 years. AC Energy is one of the fastest growing energy companies with ~US$2 billion of invested and committed equity in renewable and thermal energy in the Philippines and around the region.

It is also noted that this is not a planning consideration.

Question
"How do your solar works actually contribute to reducing wholesale electricity prices when your output is low (e.g. a cloudy day) or zero at night?"

Response
Refer to earlier comment regarding the need for a diverse energy market aligned with the ISP 2020.

Question
"What method and frequency will be used to clean your solar panels?"

Response
Rain when it occurs and manual and/or mechanical cleaning when required. Typically, a clean once per year is factored in.

Question
"Assuming that the majority of the construction workers will be for assembly of the cross supports and panels for a few months, where will they be accommodated in Gulgong, especially during our festive events and peak tourist seasons?"

Response
UPC\AC is committed to developing an Accommodation and Employment Strategy for the project in consultation with Mid-Western Regional Council, as discussed in the response in **Section 4.1.4**.

Question
"Given the safety restrictions for fire-fighters in fighting solar works fires how do you intend to eliminate any risk of a catastrophic fire on your site escaping the perimeter?"

Response
UPC\AC notes that responses to this question are discussed in the following sections:

- **Section 4.1.10** (Mid-Western Regional Council)
- **Section 4.14** (Rural Fire Services)
- **Section 4.15** (Fire and Rescue NSW)
- **Section 6.10.1** (hazards and risks).

Question
"What is your definition of "near neighbours"?"

Response
Residences located within a two-kilometre radius of study area.

Question
"What is the expected economic and physical lives of the works?"

Response
The operational lifespan of the project would be around 30 years, unless the facility is re-powered at the end of the photovoltaic modules' operational life.

Question
"Why did you not choose a site such as a reclaimed mine site, such as in Ulan?"

Response
As discussed in Section 3.2.4 of the EIS, UPC\AC considered several alternative locations. The suggestion is noted, however, reclaimed mine sites present unique challenges of their own (e.g. contaminated land) and the owners of such land are not necessarily interested in a solar project.

Question
"Why did you choose the Stubbo site?"

Response
The process undertaken by UPC\AC in selecting the Stubbo site is discussed in Section 3.3 of the EIS. In summary, the proposed site was selected largely due to the following reasons:

- proximity to existing electricity transmission infrastructure (330 kilovolt line) with capacity to evacuate the energy generated by the solar farm into the grid
- available and suitable land for a project of a big enough size to justify the connection costs (roughly speaking, a 400-megawatt project is appropriate for the 330-kilovolt connection)
- relatively few environmental constraints at the site when compared to alternatives
- existing rural land uses surrounding the site and low density of surrounding dwellings
- interests of the landholders to be involved.

Question
"What will be the impact of clearing all vegetation from the site for all the wildlife that live or visit the site"

Response
Potential impacts to biodiversity associated with the project have been assessed in the EIS and have been based on extensive ground survey of the proposed development footprint. This assessment is summarised in Section 6 of the EIS.

The project has been located to avoid and minimises impacts to biodiversity values. This has included selecting the location of the proposed development with consideration of limiting the amount of intact vegetation to be removed.

It is acknowledged that direct and indirect impacts to biodiversity may result from the project. The risk assessment undertaken for the EIS found that based on the extensive survey and assessment undertaken, the potential impacts of the project pose a low to very low risk to biodiversity values, provided the proposed management measures are adequately implemented, which UPC\AC is committed to.

Ecosystem and species credits have been calculated for the project to manage biodiversity impacts which are discussed in detail in the amendment report.

Question
"What will the impact on larger wild-life that cannot pass through the fenced-off site?"

Response
As discussed above, potential impacts to biodiversity associated with the project have been assessed in the EIS and have been based on extensive ground survey of the proposed development footprint. The findings of this assessment are summarised in Section 6 of the EIS.

Question
"What is the percentage breakdown of the cost of the works into Australian content and imported content?"

Response
The breakdown of cost is not currently known, but it is acknowledged that a significant share of the capital cost is for the procurement of equipment that is manufactured overseas. This level of detail would be developed during detailed design and would be further understood when an engineering, procurement and construction Contractor is selected.

Question
"Who is responsible for decommissioning and rehabilitation of the site when the works are no longer viable?"

Response
As owner-operator for the proposed solar farm, UPC\AC would be responsible for the decommissioning and rehabilitation of the site. In the event of a change of ownership, the owner current at the time of decommissioning would be responsible for decommissioning and rehabilitation in accordance with the conditions of the development approval and State law.

Question
"Who is responsible for recycling/disposal of all the works materials and the safe handling and disposal of the e-waste solar panels?"

Response
As owner-operator for the proposed solar farm, UPC\AC or its contractors appointed at the time of decommissioning would be responsible for the recycling/disposal of all the works materials and the safe handling and disposal of the e-waste solar panels.

Question

"Does the company have to lodge a bond for the future decommissioning, disposal and site rehabilitation in case you are no longer the owner or a subsequent owner becomes bankrupt?"

Response

No such bond is required in NSW as the State typically imposes the requirement to prepare a decommissioning and rehabilitation plan and to implement this as part of the conditions of the planning consent. The terms of the agreements with the landholders are confidential.

Question

"What are the tonnes of each material used for your 900,000 solar panels works (e.g. steel, concrete, copper, glass, aluminium, rare earths, etc)?"

Response

This is not currently known as the selection of available equipment would be further understood when an engineering, procurement and construction Contractor is selected.

6. RESPONSE TO COMMUNITY SUBMISSIONS

6.1 Project need, justification and alternatives

6.1.1 Necessity of the project

Summary of matter raised
Submitters questioned the necessity of the project in its overall contribution to the electricity supply network.

Response
As recognised by the NSW Government in its Electricity Infrastructure Roadmap and by the AEMO, between 7,000 and 8,000 gigawatts of coal fired generation capacity is closing in NSW in the next 10-15 years. Given the relative costs of different generation technologies and the outlook for continuing cost reductions in renewables and batteries, projects such as the Stubbo Solar Farm form a key part of the future energy system of NSW.

The AEMO is ultimately responsible for assessing the demand vs supply outlook of the overall energy system and does this every year in its Electricity Statement of Opportunities (ESOO) in which it forecasts the need for new capacity. In NSW, a small shortfall after the closure of Liddell in 2023 will likely be further exacerbated towards the end of the decade when Vales Point and potentially one more major coal plant are anticipated to close.

The AEMO has also become responsible for developing the optimal path for the longer-term transition to the future energy system in its Integrated System Plan (ISP). The 2020 ISP recognises that over 26 gigawatts of new renewable generating capacity will be needed in the NEM by 2040 to replace ageing coal fired power stations, with much of this being built in renewable energy zones such as the Central West Orana Renewable Energy Zone.

6.1.2 Reliable and continual supply

Summary of matter raised
Submitters commented on the reliability of supply from solar farms noting that the project relies on the sun to generate electricity. One submitter notes "*peak solar output occurs at midday, whereas peak electricity demand occurs in the evening when the sun is not shining*.".

Response
The photovoltaic modules (solar panels) will be mounted on a single axis tracking system and this will provide for a longer period of time generating electricity in the later stages of the day (i.e. after the fixed, north-facing rooftop photovoltaic panels have stopped producing). If installed, the battery energy storage system would store up to 200 megawatt hours of energy during the middle of the day, and make this available for dispatch into the network when it is needed most.

As noted earlier in response to other comments, solar farms only form a single component of the strategy for transition to an energy system based on renewable energy. The broader strategy will require a diverse mix of wind and solar power, backed up by pumped hydro, batteries and gas peaking (NSW Electricity Infrastructure Roadmap 2020).

Further discussion on the reliability and security of supply is included in the response to SOS Central West NSW (refer to **Section 5.2.2**).

6.1.3 Comparison to alternative power generating facilities

Summary of matter raised
Submitters questioned the benefits of the project in comparison to alternative power generating facilities such as nuclear plants, coal fired power plants and roof top solar.

Response
UPC\AC acknowledges the submitters' comments and notes that it is not a developer of nuclear power plants, coal fired power plants or a provider of rooftop solar systems. Further, it is noted that NSW and other states have legislation banning nuclear power plants and there is currently no credible private sector interest in funding coal fired power plants in Australia given its higher costs and commercial risks.

6.2 Consultation

6.2.1 Lack of consultation undertaken

Summary of matter raised
Submitters raised concerns around the lack of community consultation that was undertaken on the project prior to submission of the EIS. Some submitters feel the project has moved too fast to allow the community to adequately consider and comment on the project.

Response
Stakeholder engagement, including activities carried out before and during the preparation of the EIS, is described extensively in Chapter 5 of the EIS. Consultation with landowners around the study area commenced in the second half of 2018.

UPC\AC used a variety of consultation methods and tools to communicate with the local community and to provide various avenues for individuals to comment on the project throughout the assessment process. These included:

- Phone calls with community members
- Face-to-face meetings with community members
- Community Information Line 1800 571 185
- Project email address stubbo@upc-ac.com
- The project website https://stubbosolarfarm.com.au/
- The project Facebook page https://www.facebook.com/StubboSolarFarm
- Newsletters, notifications and fact sheets delivered via letterbox to near neighbours
- Community meetings held at the Gulgong RSL on 29 August 2018 and 6 December 2018 (primarily aimed at landholders that were identified in and around the study area)
- Community information sessions on 28 October 2020 and 25 March 2021
- Presentations and briefings to specific stakeholder groups
- Various media releases including newspaper advertisements in the Mudgee Guardian and Dunedoo District Diary on 20 October 2020 and 21 October 2020.

It is therefore considered by UPC\AC, that contrary to some of the views put forward regarding the absence of consultation with various stakeholders, a significant effort was made to contact neighbouring landholders and extensive opportunities were made available to the local

community, including neighbouring landholders, to obtain further information about the project, raise specific concerns or to provide feedback on the project design.

In addition, **Section 2.3** of this response to submissions report provides a summary of the additional stakeholder engagement activities that have been undertaken by UPC\AC both during and after the public exhibition of the EIS.

UPC\AC is committed to ongoing consultation and maintaining the established methods of communication (Facebook, project website, email etc.).

6.3 Biodiversity

6.3.1 Biodiversity assessment for the Blue Springs Road upgrade

Summary of matter raised
Submitters were concerned that the proposed upgrade to Blue Springs Road would be outside areas included in the biodiversity assessment undertaken for the EIS.

Response
Details of the proposed upgrade, along with the technical assessments undertaken for the additional works (including biodiversity), are included in the amendment report.

6.3.2 Destruction of habitat

Summary of matter raised
Submitters were concerned about the impacts the development would have on fauna habitat, particularly in relation to the Barking Owl. Concerns were also raised that the construction of a 2.4-metre-high fence around the development would remove habitat access for larger native animals, driving them onto neighbouring properties and roads.

Response
UPC\AC acknowledges that the project will have some impact on fauna habitat as described in Section 6 and Appendix C of the EIS. The risk assessment undertaken for the EIS found that the potential impacts of the project pose a low to very low risk to biodiversity values, provided the measures are adequately implemented.

The 528.7-hectare environmental exclusion zones in the study area helps to avoid most of the potential impacts on biodiversity values and retains fauna habitat.

There is potential for Barking Owls to occur within the study area, however, it is noted in the EIS that minimising vegetation removal will help to avoid impacting on any habitat for barking owls or other native fauna if they are present.

The installation of security fencing around the solar farm infrastructure is not expected to direct animals onto the road.

Ecosystem and species credits have been calculated for the project to manage biodiversity impacts which are discussed in detail in the amendment report. UPC\AC has also included the following commitments to reduce impacts to fauna habitat:

> *"A procedure will be developed for the relocation of habitat features (e.g. fallen timber, hollow logs) to adjacent retained habitat."* (management and mitigation measure ID B8).
>
> *"A strategy will be developed and implemented to protect vegetation and habitat adjacent to the project. This will outline the following:*
> - *rubbish disposal guidance*
> - *prohibition of wood collection*
> - *prohibition of lighting of fires*
> - *no-go-zones for native vegetation outside the development footprint*
> - *speed limits on the surrounding road network."* (management and mitigation measure ID B11).

UPC\AC is committed to implementing these management measures for the project.

6.3.3 Weed management

Summary of matter raised
Submitters raised the concern that noxious weeds will not be controlled and may spread to neighbouring land.

Response
UPC\AC acknowledges the potential impacts that the spread of weeds can have on neighbouring properties if the appropriate management and mitigation measures are not implemented.

A weed assessment of the study area was undertaken by ELA and was included in Appendix 6 of the EIS. The assessment identified that some weeds are present within the study area however, with the appropriate mitigation measures in place, the risk of spreading of these weeds is considered low.

UPC\AC has included the following commitment to mitigate the spread of weeds (management and mitigation measure ID B8):

> *"All machinery will be cleaned prior to entering and exiting the study area to minimise the transport of weeds to vegetated areas to be retained. Weeds that are present within the study area that are listed under the NSW Biosecurity Act 2015 will be managed.".*

Additionally, all personnel will receive awareness training on noxious weed management as part of the site induction process, as per management and mitigation measure ID B9.

6.4 Geology, soils and land capability

6.4.1 Sediment and erosion control

Summary of matter raised
Submitters were concerned about the increase in erosion and sediment run off that would occur as a result of the project, during both construction and operation. Some submitters raised the importance of pasture management in preventing erosion.

Response
UPC\AC acknowledges that sediment and erosion controls will be required for the project to mitigate impacts as described in Section 9.3 of the EIS. Once construction is complete, progressive stabilisation of the study area and revegetation would be undertaken, and significant impacts to soils are not anticipated given the limited ground disturbance expected for ongoing operation and maintenance of the solar farm.

It is also noted that due to the several metres of spacing between the rows of panels and the relatively low ground coverage ratio of the infrastructure (in the order of 30 to 40 percent), there is still ample opportunity for rainwater to fall between the rows and to be disbursed naturally across the solar farm site. This will help prevent drastic changes to surface water movements as articulated in the EIS.

As discussed in the response to the Water Group (refer to **Section 4.11.3**), an erosion and sediment control plan will be developed for the project to manage and mitigate impacts.

6.4.2 Salinity

Summary of matter raised
Submitters were concerned around the impacts of salinity for the project, from both a soil and groundwater perspective. It was noted by one submitter that "*the placement of electrical infrastructure on a saline discharge area is high hazard land use*".

According to eSPADE1, solodic soils and siliceous sands to the east and north of Gulgong, are characterised by low to moderate salinity. One submitter noted that saline soil environments can have a significant impact on steel components thereby shortening the life of such metal assets and additional reinforcement with concrete is required.

Response
Section 4.1.1.4 and Section 9.2.3 of the EIS acknowledge that salinity can be a severe hazard in class 5 land, along with acidification. UPC\AC and it's engineering, procurement and construction contractor once appointed will consider potential salinity impacts to infrastructure during detailed design of the project – including in the design of the steel piles used for the foundations and the underground electrical cabling.

6.5 Land use

6.5.1 Incompatibility with land zoning

Summary of matter raised
Submitters questioned the suitability of the site for a solar farm as electricity generation is a prohibited development with the RU1 Primary Production land zoning of the *Mid-Western Regional Local Environmental Plan 2012* (LEP).

Response
Land zoning under the LEP is discussed in Section 4.1.4.1 of the EIS. It is acknowledged that whilst electricity generation is prohibited within the RU1 zone, the provisions of the *State Environmental Planning Policy (Infrastructure) 2007* override the LEP in accordance with Clause 4.38(2) of the EP&A Act.

Further discussion on the agricultural value of the study area land is included in the response to Mid-Western Regional Council (refer to **Section 4.1.6**).

While activities associated with the solar farm would impact on land available for primary production, it is noted that this is not a permanent loss of land for agricultural use. The limited ground disturbance and the ease of removal of the equipment at the end of the project's life would allow the land to be returned to use for primary production or other rural land uses. Further, UPC\AC and the host landholders have plans to trial the colocation of sheep grazing within the solar farm during operation, which would maintain some ongoing agricultural use.

6.5.2 Use of productive land

Summary of matter raised
Submitters questioned the suitability of the site for a solar farm as the soil quality of the site is regarded as having high production value. One member of the community states "*the proposal totally ignores the devastating impact on existing agricultural land uses and the ongoing rifts within the community by handsomely rewarding those that break long established and well entrenched planning principles. The Government must choose between electricity and food production. It is not possible to have both on this class of land*.".

Response
Further discussion on the agricultural value of the study area land is included in the response to Mid-Western Regional Council (refer to **Section 4.1.6**). UPC\AC acknowledges that class 5 land has a higher value within the Mid-Western Regional Council LGA.

6.5.3 Excessive land requirements

Summary of matter raised
Submitters questioned the amount of land required for the solar farm, particularly in comparison to the land requirements for alternative energy production developments (e.g. a coal fired power station).

One submitter raised concerns around the large scale of the development, questioning why so many panels (approximately 800,000) are needed over such a large area (1,243 hectares) if solar energy is meant to be a viable resource.

Response
Discussion on the land requirements for the project is included in the response to SOS Central West NSW (refer to **Section 5.2.2**).

Regarding the comparison with coal fired power plants, it is noted that while a solar farm may occupy relative more surface area per megawatt of capacity within its fence line, the solar farm does not cause a long term or permanent destruction or reduction the quality of the land that it is located on, and at least 60 percent of the area within that fence line does not even have infrastructure installed on it.

By contrast, a coal-fired power plant and the associated mine that provides the fuel for the plant has a far more severe and lasting impact on the land due to the mining process itself, mine tailings, the release of air pollutants (particulates and other emissions that go into the local airshed), the need for a facility to take the waste ash and other harmful substances (e.g. mercury

and lead), as well as the need for a major water source for cooling (nearby lake, cooling ponds etc).

6.5.4 Land fragmentation

Summary of matter raised
Submitters of the community raised concerns around fragmentation of farmland that would occur because of the project.

Response
It is acknowledged that some fragmentation of farmland would occur because of the project. However, it is noted that all of the landholders involved in the project have only committed part of their farming properties to the project, leaving a significant amount of land that will continue to be used for farming as it currently used. UPC\AC has plans with the landholders for trialling the grazing of sheep within the solar farm site, which would maintain some ongoing agricultural use.

Once the project has reached the end of its operational life, all project infrastructure would be decommissioned and removed and the study area would be made suitable for its pre-existing land use, namely grazing of sheep and/or cattle grazing, as agreed by the project owner and the landholder at that time.

6.6 Landscape character and visual

6.6.1 Visual impact of the project from neighbouring properties

Summary of matter raised
Submitters raised concerns around the visual impact of the project from neighbouring properties and the possibilities of planting trees along the solar farm boundary to create a visual buffer.

Response
A Landscape Character and Visual Impact Assessment was undertaken by Moir Landscape Architecture as part of the EIS (refer to Appendix F and Section 11 of the EIS). The assessment concluded that there is an assessed low or no potential for visual impacts during construction and operation from seven dwellings within two kilometres of the site. The proposed development footprint is already screened by either topography, vegetation or both from all these dwellings.

Once decommissioned, the visual landscape has the capacity to return to its current state. The proposed development could be undertaken whilst maintaining the core landscape character of the area and have a minimal visual impact on the surrounding visual landscape.

Hence UPC\AC does not propose planting and maintaining a vegetation screen around the perimeter of the project site to reduce the visual impact of the project from neighbouring farmland.

Summary of matter raised
Submitters raised concerns around the visual impact of the project from the town of Gulgong as it is on a higher elevation to the site.

Response
The study area is located approximately 10 kilometres north of Gulgong. Due to the distance, views toward the project from Gulgong are likely to be difficult to discern. Based on the Visual

Sensitivity Rating matrix (refer to Table 1 in the Landscape Character and Visual Assessment in Appendix F to the EIS), townships located over seven kilometres away have a low visual sensitivity rating.

Moir Landscape Architecture Pty Ltd (Moir) undertook further assessments Flirtation Hill, a lookout in Gulgong. The project is located in excess of 10 kilometres to the north of the lookout. Views from this location are expansive and extend to distant ranges associated with Barneys Reef and beyond. Residential dwellings, industrial buildings and roads are visible in the foreground. Moir determined that, due to the distance, views toward the project from the lookout (and Gulgong) are likely to be difficult to discern and existing vegetation is likely to screen a large portion of the project.

6.6.2 Landscape character conflict

Summary of matter raised
Submitters raised concerns around the project being in conflict with the rural character of the local environment. For example, one member of the community stated "*the industrial development is not in keeping with the character of our rural environment*". Another stated "*the sight of the solar farm will wreck the whole atmosphere of rural living and country lifestyle*.".

Response
UPC\AC recognises the concerns members of the community have regarding visual impacts to the existing landscape. As stated in the Landscape Character and Visual Assessment (Appendix F of the EIS), with the implementation of the recommended mitigation measures, the proposed development could be undertaken whilst maintaining the core landscape character of the area and have a minimal visual impact on the surrounding visual landscape.

Due to the relatively low height of the panels, the existing topography and existing tree lines along the sides of the public roads, the recommended mitigation methods required to reduce the potential visual impacts are limited in nature and will be effective in integrating the development into the surrounding landscape.

UPC\AC has committed to reducing visual impacts and conflicts with the existing rural landscape environment through the following measures:

> *"The design will retain the existing roadside planting where possible along the eastern boundary of the site to reduce the overall visual impact."* (management and mitigation measure ID LCV1).
>
> *"Consideration will be given to the colours of the PCUs, the battery facility, O&M buildings and storage shed to confirm minimal contrast and to help blend into the surrounding landscape to the extent practicable."* (management and mitigation measure ID LCV2).
>
> *"Existing vegetation within the environmental exclusion zones will be retained and protected to maintain the existing level of screening."* (management and mitigation measure ID LCV3).

6.7 Noise and vibration

6.7.1 Increased noise from construction and operation

Summary of matter raised
Submitters raised concerns around increased noise during construction and operation of the solar farm. In particular, some nearby residences were concerned around impacts to livestock (sheep and cattle) and other fauna in the area and the distress that increased noise would cause.

Response
As stated in the EIS, noise modelling undertaken based on a worst-case scenario approach, indicates that all construction noise management levels are expected to be complied with during standard hours. The only out of hours work exceedance predicted is at residence 'R2', which is located on a host landholder's property.

During construction, there may be short-term noise impacts on livestock at neighbouring properties. These impacts are not expected to be significant.

Construction noise and vibration management measures will be implemented consistent with recommendations contained within the *Interim Construction Noise Guideline*. These will be outlined in the Construction Environmental Management Plan (CEMP) for the project.

UPC\AC has established a Community Information Line (1800 571 185) so that members of the community can lodge a complaint in response to noise impacts. During construction, complaints will be investigated by UPC\AC and/or its appointed engineering, procurement and construction contractor with the appropriate actions implemented in response based on the nature of the complaint.

6.8 Traffic and transport

6.8.1 Increased local traffic

Summary of matter raised
Submitters raised concerns around the capacity of the local road network to accommodate the increase in traffic that would result from the project.

Response
UPC\AC understands the impact that large construction projects can have on local road networks. As such, this was considered in the Traffic and Transport Assessment in the EIS (Appendix H).

As discussed in Section 3.4.3 of the EIS, two potential access options were considered for the project being, either from Blue Springs Road to the east or from Barneys Reef Road to the West, via either Stubbo Road or Black Lead Lane. UPC\AC selected the former option for the project, following consideration of the potential impacts on the local road network and in response to community feedback. Access from Barneys Reef Road is only considered to be an emergency access, such as in the event of bushfire for local fire crew access or for evacuation.

UPC\AC has committed to developing a Construction Traffic Management Plan to mitigate traffic impacts from the project (refer to response in **Section 4.1.1**).

6.8.2 Heavy vehicles on Blue Springs Road

Summary of matter raised
One submitter states that Blue Springs Road need to be upgraded to the recommended width in the Austroads guideline to accommodate heavy vehicles.

Response
Refer to the response to Mid-Western Regional Council in **Section 4.1.1**.

6.8.3 Safety of pedestrians and cyclists

Summary of matter raised
Submitters raised concern that increased traffic in the area would pose a threat to the safety of pedestrians and cyclists along the proposed transport routes.

Response
As stated in Section 13.3.4 of the EIS, the project is not anticipated to result in significant impacts on pedestrian and cyclist facilities during construction. Given that the proposed construction working hours are from 7am to 6pm, the staff car trips would be mostly generated before 7am and after 6pm, which are outside the normal peak period for walking and cycling activity in Gulgong.

As discussed in the response in **Section 4.1.1**, the Construction Traffic Management Plan would include measures to minimise the potential for conflict with school buses, other road users during peak hours and rail services as far as practicable (measures also required during operation of the project).

6.8.4 Railway crossing

Summary of matter raised
One member of the community mentioned that the traffic impact assessment does not consider impacts to the Wallerawang Gwabegar Railway level crossing and if any upgrades are required.

Response
As discussed in the response to the Australian Rail Track Corporation (refer to **Section 4.18**), UPC\AC will seek approval on a specific case basis from ARTC as required for access over any ARTC railway lines at level crossings. Interactions with ARTC level crossings and associated management measures will be outlined in the construction traffic management plan.

6.9 Water

6.9.1 Water supply and quantity

Summary of matter raised
Submitters questioned the water supply for the project. Community members were concerned about the use of farm dams as a water supply source as they are relied upon heavily by local landholders during periods of drought or when bushfires occur. Concerns were also raised that these damns may be connected to groundwater.

Community members were also concerned about the large quantities of water that would be required during construction.

Response
As noted in the EIS, a range of water sources would be used to service the project, including buying water from commercial suppliers of treated wastewater in the nearby region and/or using water opportunistically sourced from farm dams located within the study area, where available. These supplies would be determined by UPC\AC and the engineering, procurement and construction contractor appointed to build the project in consultation with suppliers, landholders and with Mid-Western Regional Council.

Further discussion on the water supply for the project is included in the response to the Water Group (refer to **Section 4.11.1**).

UPC\AC has committed to undertaking further hydrological and hydraulic modelling during detailed design (refer to management and mitigation measure W6). This will consider groundwater relationships with farm dams. The use of any farms dams during construction will be agreed with the landholder and the estimated maximum harvestable right dam capacity will not be exceeded.

6.9.2 Interaction with groundwater

Summary of matter raised
Submitters raised concern that the project will involve interaction with groundwater, particularly during underground cable trenching and for the piles upon which the solar panels will be mounted. It is noted that the LEP identifies the site as 'groundwater vulnerable'. One respondent questioned how shallow the groundwater is in the study area.

Response
An assessment on the potential groundwater impacts from the project is included in Section 14.2.3 of the EIS. It is noted in this section that groundwater in lower parts of the study area and surrounding the study area creek systems are noted in the Mid-Western Regional LEP as 'Groundwater Vulnerability'.

Bores drilled to the west (GW801270) and south (GW016368) of the study area in granite rock, were drilled to 17 metres below ground level and 60 meters below ground level. The depth of the water bearing zone was not recorded however the depth of the groundwater bore is an indication of the depth of drilling required to establish a water supply. These depths are well below the ground level of the deepest infrastructure to be installed for the project, namely the steel piles which are typically driven to a depth of between 1.5 metres to 2.4 metres below ground level.

Groundwater interception is therefore not expected to occur for the project. The presence of shallow groundwater or springs would likely occur in association with rock fractures identified by valleys present in the study area, however the majority of these occur within the central environmental exclusion zone and outside the disturbance area for the project.

6.10 Hazards and risks

6.10.1 Bushfires

Summary of matter raised
Submitters raised concerns around the risks and management of bushfires for the solar farm. It was expressed by community members that there have been a few bushfires in the area,

including one on the "Rosevale" property four years ago and a fire front from Ulan to Birriwa 40 years ago, both within the study area.

One community member states that there is no incorporation of onsite static water supply to assist in fire suppression and to reduce grassfire risks to nearby residents in the project.

Response
Management of bushfire risks is discussed in the response to Rural Fire Services (**Section 4.14**) and Fire and Rescue NSW (**Section 4.15**). This includes the development of a Construction BMP, Operation BMP and Bush Fire Emergency Management and Evacuation Plan in consultation with Rural Fire Services and Fire and Rescue NSW.

UPC\AC will also prepare a Fire Safety Study for the battery energy storage system in consultation with Fire and Rescue NSW if required under the development consent for the project.

6.10.2 Lightning strikes

Summary of matter raised
Submitters were concerned about the rate of lightning strikes in the area and the potential risks associated with the project such as soil and water contamination arising from solar panel damage, or fire risk.

Response
Risks associated with lighting strike have been considered in the Preliminary Hazard Assessment, which has been updated as part of the amendment report. Several Bushfire Protection Measures would be inherent to the project design and layout and would also be incorporated into the construction and operating procedure.

Potential contamination issues associated with chemicals leaching from the solar panels are considered in **Section 6.16.3** of this submissions report.

6.11 Socio-economic

6.11.1 Property de-valuation

Summary of matter raised
Submitters raised concern that the project would devalue their property by having the development near their home.

Response
As stated in Section 21.2 of the EIS, there is currently no empirical evidence or detailed academic studies in an Australian setting (e.g. quantitative research or economic assessments) that considers whether an increase in large-scale solar photovoltaic developments in an area is associated with a decline or increase in surrounding property values.

However, it is understood that impacts relating to visual amenity are a key concern relating to loss of property value for neighbouring residential properties. The landscape character and visual impact assessment undertaken by Moir Landscape Architecture (Appendix F of the EIS) concluded that project could be undertaken whilst maintaining the core landscape character of the area and would have a minimal visual impact on the surrounding visual landscape and low to no visual

impact on residential dwellings. It is therefore unlikely that a decline in neighbouring property values would occur because of the project.

6.11.2 Overstated benefits to the local economy

Summary of matter raised
Some submitters feel that the claim that the project would be beneficial to the local economy is overstated, as the affects would only be short term. It is noted in some community submissions that very little to nothing is sourced locally for construction and therefore the economic benefits are limited.

Response
Whist the components of the solar arrays and some of the supporting infrastructure is not available locally, materials such as fencing, pre-fabricated buildings or materials for the operations and control room and spare parts storage warehouse, concrete used for the substation pad and any pads needed for the PCUs, as well as quarried materials for the gravel roads, and the associated trades and sub-contractors involved in delivering these works can be locally sourced.

An accommodation and employment strategy will be developed and implemented for the project in consultation with Mid-Western Regional Council to address the accommodation and employment workforce management measures. This will promote the strategic hiring of local workers which will result in the stimulation of the local economy through increased spending on local goods and services. Where the local available workforce is reasonably exhausted, the strategy will include an appropriate accommodation strategy for non-local hires, which would aim to minimise excessive competition for accommodation as well as promoting local spending.

Further, UPC\AC proposes to develop a community benefit share fund. Community projects needing funding will be identified and prioritised based on potential project impacts and in collaboration with representatives of the local community and Mid-Western Regional Council. This will provide UPC\AC the opportunity to invest directly into the local community.

6.11.3 Permanent loss of work associated with farming

Summary of matter raised
Submitters raised concerns around the project leading to the permanent reduction or loss of farm support work that local residents and businesses depend on for their livelihoods.

Response
As discussed in the response in **Section 4.1.6**, options are currently being investigated for shared land uses with sheep or cattle grazing activities within portions of the study area that are not expected to be occupied by infrastructure during operation of the solar farm. This would minimise the reduction or loss of farming associated work during operation of the solar farm. All the study area landholders have significant remaining properties which will continue to rely on labour and contractors for harvesting, shearing and other farming activities.

The Agricultural Resource Assessment has been completed by SLR Consulting (included in **Appendix 2** and summarised in **Section 4.1.6**) concluded that the project will provide considerable economic benefits to the region whilst having negligible impact on agricultural resources, enterprises or related industries.

Consultation would be undertaken with landholders to determine suitable areas of the study area that may potentially be used for agricultural activities. Landholders would receive monetary compensation for the life of the project under a landholder agreement, which may be used to assist in agricultural land management.

Once the project has reached the end of its operational life and all infrastructure has been removed, the site would be returned to its pre-existing land use, namely suitable grazing of sheep and/or cattle.

6.11.4 Workforce accommodation

Summary of matter raised
Submitters raised concerns around the lack of available accommodation in the region to support the construction workforce and the associated social and economic impacts this would have.

Response
UPC\AC acknowledges the concerns by submitters and will develop an Accommodation and Employment Strategy for the project in consultation with Mid-Western Regional Council, as discussed in the response in **Section 4.1.4**.

6.11.5 Fracturing communities

Summary of matter raised
One member of the community was concerned that the project would 'fracture' and 'splinter' the quiet rural community, by destroying good will and good faith between neighbours.

Response
UPC\AC is committed to ongoing consultation with neighbours and the community. We encourage everyone to raise their concerns and we are available to meet anyone to address and resolve potential issues.

UPC\AC has undertaken an appropriately transparent consultation program which commenced with negotiations with the associated landholders, consultation was then progressed to the near neighbours in advance of lodging the Scoping Report and at around the same time UPC\AC widened the consultation effort to the broader community. UPC\AC has not been made aware of the fracturing of relationships between neighbours.

6.11.6 Humanitarian issues

Summary of matter raised
Submitters raised concerns around the indirect impacts the project will have on slave labour in developing nations.

Response
Refer to the response to SOS Central West NSW in **Section 5.2.2**.

6.11.7 Impacts to aeroplane operations

Summary of matter raised
One member of the community mentioned that the applicant fails to recognise the impacts a large-scale solar farm will have on aeroplane operations including the existing operations on Stubbo Road.

Response
As discussed in Section 11.3.2 of the EIS, the assessment titled *Impact of Solar PV on Aviation And Airports* undertaken by the Solar Trade Association concludes they do not believe that there is cause for concern in relation to the impact of glint and glare from solar photovoltaic on aviation and airports, nor relating to infringement on airspace or interference with communications equipment. Solar photovoltaic panels are designed to absorb not reflect light, and their level of reflectivity is lower than that of other objects commonly visible on and around aerodromes, e.g. metal roofs, glass windows, cars, and bodies of water. Further, it is noted that solar farms have been installed on several airports around the world including at the Darwin, Melbourne and Osaka international airports.

6.11.8 Ulan Village Green

Summary of matter raised
Ulan Village Green is an all-inclusive accommodation facility in the Ulan Village that provides short-term and long-term accommodation opportunities. Ulan Village Green support the project as it would support the local community.

Response
UPC\AC acknowledges the support of Ulan Village Green and will investigate the accommodation opportunities available to support the project workforce.

6.12 Waste and resources

6.12.1 Waste management strategy

Summary of matter raised
Submitters were concerned that the EIS has not identified a waste disposal strategy for the project. One submission noted that the Gulgong Waste Transfer Station is already under pressure from existing residential wastes alone.

Response
UPC\AC notes that Gulgong Waste Transfer Station is not equipped to accept the waste generated from the project and alternative waste management facilities that are equipped to accept commercial wastes such as the Mudgee Waste Facility would be used for the project.

UPC\AC is currently undertaking preliminary consultation with Mudgee waste facility in order to have a better understanding of landfill capacity and type of waste material accepted within the facility. UPC\AC will continue consultation with Mid-Western Regional Council facilities as well as other waste facilities in the area.

The waste disposal strategy for the project will be developed in consultation with the Mid-Western Regional Council (refer to **Section 4.1.5** for further discussion).

6.12.2 Disposal of solar panels following decommissioning

Summary of matter raised
Submitters raised concern around the disposal the solar panels following decommissioning of the project. There is concern that the semi-conductor material used in the solar panels would be considered hazardous waste, and not beneficial for the environment.

Response
The waste disposal strategy for the project will be developed in consultation with the Mid-Western Regional Council (refer to **Section 4.1.5** for further discussion). This will include options for the disposal or recycling of solar panels following decommissioning of the project.

6.13 Air quality

6.13.1 Dust control

Summary of matter raised
Submitters were concerned about the dust impacts from the project. Some submitters were concerned that the volume of water required for dust suppression has been underestimated.

One submission noted that "*the soil type is granite based, of which silica is a major component, which can cause respiratory conditions such as silicosis*.".

Response
Dust impacts have been considered in Section 18.1 of the EIS. It is noted that construction and decommissioning activities associated with the project have the potential to result in nuisance impacts (e.g. dust soiling) and impacts to human health, however this is usually manageable through standard management methodologies such as application of water and minimising the carrying out of dust generating work during adverse weather conditions. Protocols to minimise air quality impacts will be included in the Construction Environmental Management Plan.

Dust generated from the project would generally be carried in a south-westerly direction during the mornings and a north-easterly direction during the afternoons. This is away from the majority of receivers, which are primarily located south of the study area near Gulgong.

Further discussion on the water supply for the project is included in the response to the Water Group (refer to **Section 4.11.1**).

6.14 Climate change and greenhouse gas

6.14.1 Emissions involved in the production of project materials

Summary of matter raised
Submitters raised concern around the resources required to produce materials for the project and the indirect impacts that would result from the project. One example given is the input raw materials and energy required to produce the silicon used in solar panels.

Response
The SEARs did not require an assessment of the project's potential climate change and greenhouse gas impacts, however, to address concerns raised by the neighbouring landholders, a

qualitative assessment of the project's potential climate change and greenhouse gas impacts was undertaken as part of the EIS (refer to Section 18.2).

The estimated amount of CO_2e emissions stated in Section 18.2.3 of the EIS (255 kilotonnes CO_2e over the project lifecycle) is based on the average lifecycle emissions for solar photovoltaic projects according to the World Nuclear Association (World Nuclear Association, 2011). Lifecycle emissions include:

- upstream processes – raw material extraction, material production, material transportation to site, and installation and construction
- operational processes – power generation and operational maintenance
- downstream processes – decommissioning and disposal.

Further, it is noted that all power generation technologies, regardless of whether they are renewables 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). A full comparison of the lifecycle resource requirements of these different technologies is considered outside of the scope of the EIS and is not a planning consideration under the NSW planning framework.

6.14.2 Contribution to reducing climate change

Summary of matter raised
Submitters questioned the contribution that the shift to renewable energy would have in meeting Australia's Paris Climate Agreement targets and the overall contribution to climate change mitigation.

Response
UPC\AC acknowledges the submitters' comments and notes that the policy position of both the NSW Government and the Australian Government is to stimulate investment in renewable energy generation technologies. The extent to which this will contribute towards Australia's Paris Climate Agreement targets is a matter for the Australian Government, not individual project developers.

6.15 Cumulative impacts

6.15.1 Developments in the Central-West Orana Renewable Energy Zone

Summary of matter raised
Submitters were concerned about the number of developments in the Central-West Orana Renewable Energy Zone, both current and future, and their cumulative impacts on the region. Of particular concern was the negative influence these renewable energy developments could have by leading to a population decrease in the region, thereby threatening the viability of businesses, health services, educational opportunities and police numbers.

Response
The Central-West Orana Renewable Energy Zone has been legislated by the NSW Government to help meet its objective to achieve net zero emissions by 2050. UPC\AC notes that the question of whether this is an appropriate choice by the NSW Government is not within the control of an individual project developer.

6.15.2 Cumulative impacts with the Beryl Solar Farm

Summary of matter raised
Submitters raised concern around the cumulative impacts the development would have with the Beryl solar farm, particularly regarding loss of grazing land.

Response
Cumulative impacts with the Beryl Solar Farm have been considered in Section 19 of the EIS. UPC\AC has committed to developing and implementing a community and stakeholder engagement plan that includes ongoing consultation with neighbouring operations to manage and cumulative impacts (management and mitigation measure ID CU1).

6.16 Other matters

6.16.1 Grid connection problems

Summary of matter raised
Submitters raised concerns around grid connection problems for the project. One member of the community states "*approvals should not be made unless there is a Power Purchase Agreement (PPA) and connectivity to the grid is guaranteed by TransGrid*.".

Response
As stated in **Section 5.2.2**, a Power Purchase Agreement is not a requirement for the financing of power generation projects in Australia – for example, UPC\AC has just financed stage one of the New England Solar Farm without a Power Purchase Agreement.

The grid connection application process is governed by section 5 of the National Electricity Rules and that process is being followed by UPC\AC which is working with TransGrid and the AEMO towards receipt of an Offer to Connect later this year, prior to making a final investment decision on the project. At the time of lodgement, TransGrid has not changed its previous advice regarding the availability of sufficient capacity on line 79, nor has it identified any specific grid-related constraints that would prevent the project from proceeding. It is noted that this process has no relation to the NSW planning approvals process.

6.16.2 Decommissioning and rehabilitation

Summary of matter raised
Submitters raised concern around the decommissioning plan for the project. Concerns related to:

- the disposal of infrastructure
- responsibility of the developer to pay for rehabilitation and decommissioning of the site
- details around how the site will be returned to its former land use.

One member of the community was concerned about the possibility of the DA approval "*lasting for the rest of time because it is highly likely there will be no lapsing clause inserted into the Consent, nor will there be any requirement for the proponents to do any work or take any steps to build the project*.".

Response
As stated in Section 20.3 of the EIS, a decommissioning and rehabilitation plan will be prepared near completion of operation of the project that outlines the rehabilitation objectives and

strategies to return the study area to its pre-existing condition for agricultural land use. This will include:

- rehabilitation objectives and strategies
- describing the design criteria of the final land use and landform
- performance indicators to be used to guide the return of the land back to a condition suitable for agricultural production (i.e. sheep and cattle grazing)
- expected timeline for the rehabilitation program.

The decommissioning and rehabilitation plan will be developed in consultation with DPIE.

As the approval authority for State significant solar energy projects, DPIE will be responsible for monitoring compliance with the conditions of approval, including the decommissioning and rehabilitation of the site. UPC\AC would comply with any directions of DPIE.

6.16.3 Contamination

Summary of matter raised
Submitters raised concerns around potential contamination of soil and water resulting from the leaching of chemicals from solar panels following damage from hail stones or other means. This could result in the contamination of water supplies used for domestic and stock purposes, and soils used for cropping and grazing. Submitters suggest that contamination of these resources would directly impact on the livelihood of nearby landowners.

Response
The photovoltaic modules will be manufactured by a Tier 1 supplier and use polycrystalline or monocrystalline wafer technology which do not contain heavy metals. The modules are not anticipated to physically degrade over the project's lifetime and come with a manufacturer warranty. Therefore, there is a zero to negligible likelihood of the photovoltaic modules causing contamination.

6.16.4 Independency of the consultant producing the EIS

Summary of matter raised
Submitters questioned the "independent" nature of the EIS as it has been instructed by and paid for by the proponents.

Response
UPC\AC acknowledges the submitters' comments and note that it is not considered appropriate for this submissions report to comment on the process for preparing development applications in NSW, under which it is the proponent's responsibility to pay for the EIS.

As stated in the certification in the EIS, the authors of the EIS declare "*To the best of my knowledge, this assessment contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure, and that information in the EIS is neither false nor misleading*.".

6.16.5 Project life span

Summary of matter raised
One member of the community was concerned about the possibility of the DA approval "*lasting for the rest of time because it is highly likely there will be no lapsing clause inserted into the Consent,*

nor will there be any requirement for the proponents to do any work or take any steps to build the project.".

Response
UPC\AC would comply with any consent conditions associated with the approval, and the directions of DPIE.

7. REVISED SUMMARY OF MANAGEMENT AND MITIGATION MEASURES

7.1 Changes to the management and mitigation measures from the EIS

A summary of the changes made to the management and mitigation measures identified for the project in the EIS following review of the submissions received is provided in **Table 7-1**.

Table 7-1: Changes to the management and mitigation measures from the EIS

ID	Management/mitigation measure	Timing
	Land use	
LU6	A decommissioning and rehabilitation plan will be prepared **and submitted to Mid-Western Regional Council for approval within 5 years of the commencement of operation** that outlines the rehabilitation objectives and strategies to return the study area to its pre-existing condition for agricultural land use. This will include but not be limited to: • rehabilitation objectives and strategies • describing the design criteria of the final land use and landform • performance indicators to be used to guide the return of the land back to agricultural production • expected timeline for the rehabilitation program. **The plan will be reviewed every 5 years, so that it is readily available should operations cease earlier than planned.**	Prior to decommissioning
	Traffic and transport	

T2	A construction traffic management plan will be prepared in consultation with TfNSW and Mid-Western Regional Council, to the satisfaction of the Secretary. The plan will include:
	• **details of:**
	  ○ **the transport route to be used for all project-related traffic**
	  ○ **the origin, number, size, frequency and final destination of vehicles accessing/exiting the site**
	  ○ **loads, weights and lengths of haulage and construction related vehicles and the number of movements of such vehicles**
	  ○ **existing and projected background traffic, peak hour volumes and types and their interaction with projected development related traffic**
	  ○ **local climate conditions that may affect road safety for vehicles used during construction, operation and decommissioning of the facility (e.g. fog, dust, wet weather).**
	• details of any road upgrade works required by Development Consent
	• **identification of the routes which are to be used to access the site**
		Prior to construction

ID	Management/mitigation measure	Timing

	• a protocol for undertaking independent dilapidation surveys to assess the existing condition of the proposed construction routes prior to construction, upgrading or decommissioning activities and the condition of the proposed construction routes following construction, upgrading or decommissioning activities
	• a protocol for the repair of the construction routes if dilapidation surveys identify these roads to be damaged during construction, upgrading or decommissioning works
	• details of the measures that will be implemented to minimise traffic impacts during construction, upgrading or decommissioning works, including:
	  ○ temporary traffic controls, including detours, temporary reduced speed limits and signage
	  ○ notifying the local community about project-related traffic impacts
	  ○ procedures for receiving and addressing complaints from the community about project related traffic
	  ○ minimising potential for conflict with school buses, other road users during peak hours and rail services as far as practicable (measures also required during operation of the project)
	  ○ minimising dirt tracked onto the public road network from project-related traffic
	  ○ scheduling of haulage vehicle movements to minimise convoy length or platoons
	  ○ responding to local climate conditions that may affect road safety such as fog, dust and wet weather
	  ○ responding to any emergency repair or maintenance requirements
	  ○ a traffic management system for managing over-dimensional vehicle trips to and from the project
	• a program to ensure drivers associated with the project receive suitable training on the Driver Code of Conduct and any other relevant obligations under the CTMP
	• a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding
	• controls for transport and use of dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, Australian Dangerous Goods Code and Australian Standard 4452 Storage and Handling of Toxic Substances.
	Following the Secretary's approval, UPC\AC will implement the construction traffic management plan.	

	Hazards and risks	
H3	A Bush Fire Emergency Management and Evacuation Plan will be prepared consistent with 'Development Planning A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan (NSW RFS, 2014) and Australian Standard AS3745 2010 'Planning for Emergencies in Facilities'. **The plan will include:** • **detailed measures to prevent or mitigate fires igniting;**	Prior to construction / prior to operation

ID	Management/mitigation measure	Timing
	• **work that should not be carried out during total fire bans;** • **availability of fire-suppression equipment,** • **access and water;** • **storage and maintenance of fuels and other flammable materials;** • **notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and** • **appropriate bush fire emergency management planning.** A copy of the plan will be displayed and available for review in a prominent location directly adjacent to the site's main entry point/s.	
	Socio-economic	
SIA1	An Accommodation and Employment Strategy will be developed and implemented for the project in consultation with Mid-Western Regional Council. This strategy will: • **consider various workforce scenarios assuming the construction period overlaps with other major projects and considering peak tourism activity** • propose measures to manage workforce accommodation to minimise the effects of non-local hires during construction on short-term accommodation availability and the local housing market • include a code of conduct for the projects workforce, particularly to avoid anti-social behaviour at peak construction and align with Mid-Western Regional Council's existing industry agreements • to the extent possible and within UPC\AC's control, consider the cumulative impacts associated with other State significant development projects in the area, including nearby mines • investigate options for prioritising the employment of local workers for the construction and operation of the project, where feasible and appropriate given the required skills and experience • include a program to report measures undertaken or implemented in line with the strategy include a program to monitor and review the effectiveness of the strategy over the life of the project, including regular monitoring and review during construction • **include detailed information regarding the number of beds and types of accommodation to be-utilised monthly for the period of construction.**	Prior to construction

ID	Management/mitigation measure	Timing
	The strategy will be approved by Mid-Western Regional Council prior to commencement of construction.	
	Waste and resources	
WR1	A construction waste management plan will be prepared in consultation with Mid-Western Regional Council. The waste management plan will include: • details of the quantities of each waste type and the proposed reuse, recycling and disposal locations • **details on how the waste will be transported to disposal locations during construction and decommissioning** • details on measures to reduce the types and volumes of waste • measures to maximise reuse and recycling. **UPC\AC will continue to consult with Mid-Western Regional Council around specific details of the waste management strategy throughout the life of the project.**	Prior to construction

7.2 Additional management and mitigation measures

A summary of the additional management and mitigation measures identified for the project following review of the submissions received is provided in **Table 7-2**.

Table 7-2: Additional management and mitigation measures

ID	Management/mitigation measure	Timing
	Soils	
S4	A baseline soil survey of the development footprint will be undertaken prior to construction. The baseline soil survey will be undertaken in conjunction with a geotechnical assessment to identify any potential amelioration that is required so as to ensure erosion is minimised and plant growth establishment potential is maximised. The results of the baseline soil survey and geotechnical assessment will be used to inform the Decommissioning and Rehabilitation Plan and assist in recovering the development footprint to its original land and soil capability or better.	Prior to construction
	Traffic and transport	
T5	A full and detailed assessment will be undertaken by a suitably qualified bridge Engineer of the structural and load capacity of all bridges and culverts on any and all proposed access routes to be used by oversize/over mass vehicles. The assessment reports will be provided to Mid-Western Regional Council for approval prior to commencement of construction.	Prior to construction
T6	Pre and post dilapidation reports, with the exception where road upgrades are being undertaken by UPC\AC as part of the project, will be prepared for existing road assets along the proposed transport routes in consultation with Council for each phase of the development (construction, operation, decommissioning). Damage to	Prior to construction

ID	Management/mitigation measure	Timing
	existing road assets caused by the project would be repaired at the full cost of the proponent.	
T7	Prior to the commencement of the relevant construction work involving heavy vehicle movements to site, 'Advance truck warning signs' (W5-22 Size B) with distance plates (W8-5 Size B), will be erected adjacent to Cope Road, 250 metres from its intersection with Blue Springs Road. The signs will be removed at completion of construction.	Prior to construction
T8	Relevant approvals from the National Heavy Vehicle Regulator and TfNSW will be obtained by the proponent prior to the transportation of any oversize/over mass loads on public roads.	Prior to construction
	Water	
W9	No artificial structures planned to be installed in the creek in the central environmental exclusion zone except for two waterway road and cable crossings. The waterway road and cable crossings would be designed and constructed in compliance with the *Guidelines for Controlled Activities on Waterfront Land (NRAR 2018)*.	At all times
	Hazards and risks	
H5	Prior to construction, a Fire Safety Study will be prepared by a suitably qualified bushfire expert providing full details of the required water storage for fire-fighting requirements. The report will include location and capacity of tanks, methods of pumping to provide sufficient pressures, and details of any proposed internal reticulation or hydrant network.	Prior to construction
H6	From the start of building works, the property around all buildings will be managed as an inner protection area for a distance of 50 metres in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019. Road access to the site, power transmission, fencing and any other services to the site are excluded from this requirement. The following requirements will apply when establishing and maintaining an inner protection area: • tree canopy cover should be less than 15% at maturity • trees at maturity should not touch or overhang the building • lower limbs should be removed up to a height of 2 metres above the ground • tree canopies should be separated by 2 to 5 metres • preference should be given to smooth barked and evergreen trees • large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings • shrubs should not be located under trees • shrubs should not form more than 10% ground cover • clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation • grass should be kept mown (as a guide grass should be kept to no more than 100mm in height)	During construction and operations

ID	Management/mitigation measure	Timing
	• leaves and vegetation debris should be removed.	
H7	UPC\AC will prepare a Fire Safety Study (FSS) for the battery energy storage system in consultation with Fire and Rescue NSW as required under the development consent for the project. The FSS would be prepared prior to construction of the battery energy storage system.	Prior to construction

7.3 Amended management and mitigation measures

A consolidated summary of the amended management and mitigation measures that will be implemented during the construction and operation of the project is presented in **Table 7-3**.

Table 7-3: Summary of amended management and mitigation measures

ID	Management/mitigation measure	Timing
	Consultation	
C1	UPC\AC is committed to ongoing consultation through detailed design and compliance with TransGrid's design requirements including: • ensuring that the design and construction of the access track is compliant with the TransGrid Easement Guidelines • ensuring that any fencing and gates within the easement corridor are designed and installed in accordance with the TransGrid Fencing Guidelines and that access to the easement by TransGrid is provided for • maintaining the condition of the track into the future • accounting for times when TransGrid may need to close or modify the track to operate and maintain their assets • continued consultation with the landowner to put in place any requisite property interests and consultation with TransGrid to ensure that their usage of the easement is not materially impaired.	Prior to construction / construction
	Biodiversity	
B1	Clearing protocols will be developed that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance (e.g. removal of native vegetation by chainsaw instead of heavy machinery where only partial clearing is proposed). Fencing (or other barriers as required) and signage will be placed around those areas of vegetation to be maintained to prevent any accidental construction damage and provide a permanent barrier between the development footprint and retained areas. The type of fencing during construction may be of a temporary nature and scale that is robust enough to withstand damage during this stage of work. Use of appropriate machinery for vegetation removal adjacent to retained areas.	Prior to construction / construction
B2	Pre-clearance surveys will be undertaken prior to tree clearing. Active breeding or nesting identified during pre-clearance surveys will be avoided in August, September and October which is the breeding/nesting period for most fauna species.	Prior to construction / construction

ID	Management/mitigation measure	Timing
	A qualified ecologist/licenced wildlife handler will supervise tree removal in accordance with best practise methods.	
B3	A procedure will be developed for the relocation of habitat features (e.g. fallen timber, hollow logs) to adjacent retained habitat.	Prior to construction
B4	Monitoring will be undertaken within the environmental exclusion zones to ensure biodiversity values are not significantly affected by indirect impacts. This may include: • comparison against EIS baseline monitoring • consideration of natural seasonal variation • development of trigger values for the commencement of adaptive management actions • details of proposed adaptive management actions to reduce or eliminate recorded impacts.	Construction / decommissioning
B5	Appropriate controls will be implemented to manage exposed soil surfaces and stockpiles to prevent sediment discharge into waterways. All works within proximity to the drainage lines will have adequate sediment and erosion controls (e.g. sediment barriers, sedimentation ponds). Revegetation will also commence as soon as is practicable to minimise risks of erosion.	Prior to construction / construction
B6	Construction works will only be undertaken during daylight hours and night lights will not be used. Lights associated with operation will be directional to avoid unnecessarily shining light into adjacent retained vegetation where possible.	Construction / operation
B7	Dust suppression measures will be implemented to limit dust onsite. Revegetation will also be commenced as soon as practicable to minimise areas likely to create dust.	Construction
B8	All machinery will be cleaned prior to entering and exiting the study area to minimise the transport of weeds to vegetated areas to be retained. Weeds that are present within the study area that are listed under the *NSW Biosecurity Act 2015* will be managed.	Construction
B9	All personnel working on the project will undertake an environmental induction as part of their site familiarisation. This will include: • site environmental procedures (vegetation management, sediment and erosion control, exclusion fencing and noxious weeds) • what to do in case of environmental emergency (e.g. chemical spills, fire, injured fauna) • key contacts in the case of an environmental emergency.	Construction

ID	Management/mitigation measure	Timing
B10	A Traffic Management Plan will be developed which includes speed limits and controls to reduce risk of fauna strike. Any vehicle strike incidents will be recorded.	Construction / operation
B11	A strategy will be developed and implemented to protect vegetation and habitat adjacent to the project. This will outline the following: • rubbish disposal guidance • prohibition of wood collection • prohibition of lighting of fires • no-go-zones for native vegetation outside the development footprint • speed limits on the surrounding road network	Construction
B12	Suitable species will be used as ground cover species in any revegetation areas.	Construction
B13	All waterway crossings will be designed in accordance with *Policy and Guidelines for Fish Friendly Waterway Crossing* (DPI, n.d.) where appropriate.	Detailed design
B14	Noting that minimising vegetation removal has been a key objective in developing the proposed Blue Springs road upgrade concept design, opportunities to further reduce impacts to vegetation would be considered where possible during the detailed design and construction and impacts at the intersection of Cope Road would be limited to trimming of vegetation needed to provide safe sight distance where possible.	Detailed design
	Aboriginal heritage	
AH1	The proponent will develop the ACHMP which is to be agreed to by the RAPs and DPIE. The ACHMP will also include an unanticipated finds protocol, unanticipated skeletal remains protocol and long-term management of any artefacts.	Prior to construction
AH2	The Aboriginal site (Rosevale IF-01) within the development footprint for the project will be salvaged by a surface collection of visible artefacts. The recommended methodology for the salvage will be finalised after the approvals process has been completed in the ACHMP but will include the measures outlined in Section 9.3.1 of the ACHAR (**Appendix D**). The salvage works will include the mapping, analysis and collection of the surface artefact at the affected site. Results will be included in a brief report to preserve the data in a useable form and an Aboriginal	Prior to construction

ID	Management/mitigation measure	Timing
	Site Impact Recording Form (ASIRF) will be submitted to Aboriginal Heritage Information Management System (AHIMS).	
AH3	All land-disturbing activities will be confined to within the development footprint and associated tracks and/or crossings. Should the parameters of the proposed work extend beyond this, then further archaeological assessment may be required.	Construction
AH4	The addendum survey area would be included in the Aboriginal cultural heritage management plan (ACHMP), which will detail the processes for managing unanticipated Aboriginal heritage items or potential human remains encountered during the life of the project.	Prior to construction
	Historic heritage	
HH1	If items of historic heritage significance are uncovered during the project, then the Unanticipated Finds Protocol for Historic Heritage included in Appendix 5 of the Aboriginal cultural heritage and historic heritage assessment (**Appendix D**) will be enacted.	Construction
HH2	To avoid the potential for harm to historic objects on unassessed adjacent landforms, all ground surface disturbing activities will be confined to the development footprint.	Construction
HH3	An unanticipated finds protocol for historic heritage will be developed and implemented as required during construction.	Construction
HH4	The addendum survey area will be included in the Unanticipated Finds Protocol for Historic Heritage which will detail the processes for managing unanticipated historic heritage items during the life of the project.	Prior to construction
	Soils	
S1	Disturbed areas will be progressively stabilised and rehabilitated as construction is completed to minimise the extent of bare soil.	Construction
S2	The following measures will be implemented to manage the risk of contaminants and impacts on surrounding environments: • appropriate storage (including bunding) of all potential contaminants (i.e. chemicals and fuels) onsite to reduce risks of spills contaminating waterways and land • protocol for the discovery of contaminants in the study area during works, including requirements to stop work, remediate and dispose of contaminants as necessary	Prior to construction / prior to operation

ID	Management/mitigation measure	Timing
	• measures for mitigating soil contamination by fuels or other chemicals (including notification to EPA, emergency response requirements etc) • measures for the ongoing inspection and maintenance of machinery/vehicles to ensure that they remain in a clean condition free of fluid leaks.	
S3	The photovoltaic arrays will be designed to allow for enough space between rows of panels for establishment of groundcover and implementation of weed controls.	Detailed design
S4	A baseline soil survey of the development footprint will be undertaken prior to construction. The baseline soil survey will be undertaken in conjunction with a geotechnical assessment to identify any potential amelioration that is required so as to ensure erosion is minimised and plant growth establishment potential is maximised. The results of the baseline soil survey and geotechnical assessment will be used to inform the Decommissioning and Rehabilitation Plan and assist in recovering the development footprint to its original land and soil capability or better.	Prior to construction
	Land use	
LU1	Land management within the study area will include measures to minimise impacts to surrounding agricultural land use with reference to DPI's publication *Infrastructure proposals on rural land* (Kovac, M and Briggs, G, 2013). These measures will also be implemented during operation of the project and will include strategies to minimise impacts of aerial spraying. The land management measures will aim to minimise impacts on: • land and soil capability within the development footprint • biosecurity both at a local and regional level • soil erosion • surface water runoff • agricultural activities on neighbouring properties.	At all times
LU2	Biosecurity management will include: • measures to manage the impacts of weeds, disease and pest animals during construction, operation, and decommissioning activities • biosecurity response measures where impacts are identified • contingency measures in the event that existing measures are inadequate in managing the risk/impact.	At all times

ID	Management/mitigation measure	Timing
LU3	Consultation will be undertaken with Mid-Western Regional Council, DPIE and other relevant stakeholders including mining and exploration licence holders, and native title claimants where relevant in order to identify potential impacts on surrounding land uses and develop measures to address concerns.	Detailed design / prior to construction
LU4	Consultation will continue to be undertaken with participating landholders to minimise disruption to agricultural activities during construction and operation.	Detailed design / prior to construction
LU5	Options will be further investigated to consider the feasibility of grazing within the study area throughout operation, in consultation with landholders.	Detailed design / prior to operation
LU6	A decommissioning and rehabilitation plan will be prepared and submitted to Mid-Western Regional Council for approval within 5 years of the commencement of operation that outlines the rehabilitation objectives and strategies to return the study area to its pre-existing condition for agricultural land use. This will include but not be limited to: • rehabilitation objectives and strategies • describing the design criteria of the final land use and landform • performance indicators to be used to guide the return of the land back to agricultural production • expected timeline for the rehabilitation program. The plan will be reviewed every 5 years, so that it is readily available should operations cease earlier than planned.	Prior to decommissioning
	Landscape character and visual	
LCV1	The design will retain the existing roadside planting where possible along the eastern boundary of the site to reduce the overall visual impact.	Detailed design
LCV2	Consideration will be given to the colours of the PCUs, the battery facility enclosures, O&M buildings and the spare parts storage shed to try to help blend into the surrounding landscape to the extent practicable.	Detailed design
LCV3	Existing vegetation within the environmental exclusion zones will be retained and protected to maintain the existing level of screening.	Construction / operation
	Noise and vibration	
NV1	Construction noise and vibration management measures will be implemented consistent with recommendations contained within the Interim Construction Noise Guideline.	Construction

ID	Management/mitigation measure	Timing
	Traffic and Transport	
T1	UPC\AC will continue to consult with Mid-Western Regional Council to agree the appropriate treatment or upgrade requirements for the safe use of Blue Springs Road during construction and the process for undertaking any treatment or upgrade works in accordance with Development Consent conditions	Prior to construction

T2	A construction traffic management plan will be prepared in consultation with TfNSW and Mid-Western Regional Council, to the satisfaction of the Secretary. The plan will include:
	• details of:
	  ○ the transport route to be used for all project-related traffic
	  ○ the origin, number, size, frequency and final destination of vehicles accessing/exiting the site
	  ○ loads, weights and lengths of haulage and construction related vehicles and the number of movements of such vehicles
	  ○ existing and projected background traffic, peak hour volumes and types and their interaction with projected development related traffic
	  ○ local climate conditions that may affect road safety for vehicles used during construction, operation and decommissioning of the facility (e.g. fog, dust, wet weather).
	• details of any road upgrade works required by Development Consent
	• identification of the routes which are to be used to access the site
	• a protocol for undertaking independent dilapidation surveys to assess the existing condition of the proposed construction routes prior to construction, upgrading or decommissioning activities and the condition of the proposed construction routes following construction, upgrading or decommissioning activities
	• a protocol for the repair of the construction routes if dilapidation surveys identify these roads to be damaged during construction, upgrading or decommissioning works
	• details of the measures that will be implemented to minimise traffic impacts during construction, upgrading or decommissioning works, including:
	  ○ temporary traffic controls, including detours, temporary reduced speed limits and signage
	  ○ notifying the local community about project-related traffic impacts
	  ○ procedures for receiving and addressing complaints from the community about project related traffic
	  ○ minimising potential for conflict with school buses, other road users during peak hours and rail services as far as practicable (measures also required during operation of the project)
	  ○ minimising dirt tracked onto the public road network from project-related traffic
		Prior to construction

ID	Management/mitigation measure	Timing
	○ scheduling of haulage vehicle movements to minimise convoy length or platoons ○ responding to local climate conditions that may affect road safety such as fog, dust and wet weather ○ responding to any emergency repair or maintenance requirements ○ a traffic management system for managing over-dimensional vehicle trips to and from the project • a program to ensure drivers associated with the project receive suitable training on the Driver Code of Conduct and any other relevant obligations under the CTMP • a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding • controls for transport and use of dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, Australian Dangerous Goods Code and Australian Standard 4452 Storage and Handling of Toxic Substances. Following the Secretary's approval, UPC\AC will implement the construction traffic management plan.	
T3	The safe sight distance analysis undertaken at the Cope Road / Blue Springs Road intersection and at the proposed site access point options from Blue Springs Road will be ground-truthed to determine if vegetation trimming or speed limit reductions need to be applied to provide the required safe sight distance for all vehicle types expected to access the project. Ground-truthing of the analysis undertaken for the emergency-only access point proposed from Barneys Reef Road will also be undertaken, with appropriate measures to be put in place for the (unlikely) event of this access point being utilised.	Prior to construction
T4	Parking requirements for the project construction and operation workforce will be provide onsite and parking will not be provided on public roads adjacent to the site.	Prior to construction
T5	A full and detailed assessment will be undertaken by a suitably qualified bridge Engineer of the structural and load capacity of all bridges and culverts on any and all proposed access routes to be used by oversize/over mass vehicles. The assessment reports will be provided to Mid-Western Regional Council for approval prior to commencement of construction.	Prior to construction
T6	Pre and post dilapidation reports, with the exception where road upgrades are being undertaken by UPC\AC as part of the project, will be prepared for existing road assets along the proposed transport routes in consultation with Council for each phase of the development (construction, operation, decommissioning). Damage to existing road assets caused by the project would be repaired at the full cost of the proponent.	Prior to construction

ID	Management/mitigation measure	Timing
T7	Prior to the commencement of the relevant construction work involving heavy vehicle movements to site, 'Advance truck warning signs' (W5-22 Size B) with distance plates (W8-5 Size B), will be erected adjacent to Cope Road, 250 metres from its intersection with Blue Springs Road. The signs will be removed at completion of construction.	Prior to construction
T8	Relevant approvals from the National Heavy Vehicle Regulator and TfNSW will be obtained by the proponent prior to the transportation of any oversize/over mass loads on public roads.	Prior to construction
T9	UPC\AC and/or its selected Engineer Procure and Construct (EPC) contractor will work towards a full detailed design for the proposed Blue Springs Road upgrade prior to commencing construction. The full detailed design will be prepared in consultation with Mid-Western Regional Council and Transport for NSW and any other relevant public agencies as part of a Traffic Management Plan and relevant Development Consent conditions.	Prior to construction
T10	The following traffic management measures will be implemented during construction of the Blue Springs Road upgrade to improve safety of road users along the section of road: • implement a temporary lowered sign posted speed limit from 100 kilometres per hour (existing) to 80 kilometres per hour during construction • restrict heavy vehicle operation on Blue Springs Road during school bus operation times where possible.	During construction
T11	Consultation with Mid-Western Regional Council will be ongoing regarding the use of the existing cleared area located at the north-western corner of the Cope Road and Blue Springs Road intersection as a potential laydown area/stockpile location during construction of the Blue Springs Road upgrade.	Prior to construction / construction
T12	UPC\AC will apply for a s138(2) application (under the Roads Act) for the Blue Springs road upgrade with Mid-Western Regional Council, who will refer to Transport for NSW to obtain concurrence prior to the commencement of works.	Prior to construction
T13	UPC\AC would undertake consultation with landholders affected by the Blue Springs Road upgrade where proposed upgrades impact on land outside of the road reserve. Affected landholders' consent would also be required to continue with the SSD process.	Prior to construction
T14	UPC\AC commits to preparing a Concept Design for the Blue Springs Road upgrade on the basis of a topographic survey (April/May 2021).	Detailed design

ID	Management/mitigation measure	Timing
T15	UPC\AC will work in consultation with Mid-Western Regional Council and affected landholders to re-align the road reserve where it does not match the proposed upgrade section.	Prior to construction / construction
T16	UPC\AC will continue to consult with State Forestry Commission of NSW throughout development of the proposed Blue Springs Road upgrade. All works in the State Forest area for the proposed Blue Springs Road upgrade would be undertaken in accordance with a forest permit issue by Forestry Corporation of NSW as per section 60 Forestry Act 2012. State Forestry Corporation of NSW has provided its consent to lodge the application.	Prior to construction / construction
	Water	
W1	Infrastructure with the potential to cause pollution to waterways in the event of flooding, such as inverters and battery storage will be located with a minimum 300 mm freeboard above the maximum 1% annual exceedance probability (AEP) flood level.	Detailed design
W2	Solar panels will be designed to provide a minimum of 300 mm freeboard for the lowest edge above the maximum 1% AEP flood level.	Detailed design
W3	The panel structure will be designed to withstand the flood velocities expected at the site.	Detailed design
W4	No infrastructure will be placed within 20 m of any Strahler 3 or above order streams.	Detailed design
W5	All waterway crossings will be designed and constructed in compliance with the Department of Primary Industries, Office of Water, Guidelines for riparian corridors on waterfront land and Guidelines for watercourse crossings on waterfront land.	Detailed design
W6	Further flood investigations and hydrological and hydraulic modelling will be carried out where required during detailed design to ensure the flood immunity objectives and design criteria for the project are met. The modelling will be used to define the nature of both main stream flooding and major overland flow across the development footprint under pre- and post- project conditions and to define the full extent of any impact that the project will have on patterns of both main stream flooding and major overland flow.	Detailed design
W7	A construction soil and water management plan (CSWMP) will be prepared to outline measures to manage soil and water impacts associated with the construction works, including contaminated land. The CSWMP will provide:	Prior to construction

ID	Management/mitigation measure	Timing

	• measures to minimise/manage erosion and sediment transport both within the construction footprint and offsite including requirements for the preparation of erosion and sediment control plans (ESCP) for all progressive stages of construction Measures to manage waste including the classification and handling of spoil
	• procedures to manage unexpected contaminated finds
	• measures to manage stockpiles including locations, separation of waste types, sediment controls and stabilisation
	• measures to manage accidental spills including the requirement to maintain materials such as spill kits
	• controls for receiving waterways which may include:
	  ○ Designation of 'no go' zones for construction plant and equipment
	  ○ Creation of catch/diversion drains and sediment fences at the downstream boundary of construction activities where practicable to ensure containment of sediment-laden runoff
	• erosion and sediment control measures will be implemented and maintained at all work sites in accordance with the principles and requirements in Managing Urban Stormwater – Soils and Construction, Volume 1 (Landcom 2004) and Volume 2D (NSW Department of Environment, Climate Change and Water 2008b), commonly referred to as the "Blue Book".	

W8	The use of any farms dams during construction will be agreed with the landholder and the estimated maximum harvestable right dam capacity will not be exceeded.	Construction
W9	No artificial structures planned to be installed in the creek in the central environmental exclusion zone except for two waterway road and cable crossings. The waterway road and cable crossings would be designed and constructed in compliance with the *Guidelines for Controlled Activities on Waterfront Land (NRAR 2018)*.	At all times
	Hazards and risks	
H1	A Construction Bushfire Management Plan (BMP) will be prepared in consultation with the Rural Fire Service, and to the satisfaction of the Secretary. The BMP will include the management and mitigation measures described in **Section 4.14.1**.	Prior to construction
H2	An Operation BMP will be prepared in consultation with the Rural Fire Service, and to the satisfaction of the Secretary. The BMP will include the management and mitigation measures described in **Section 15.3.3** of the EIS.	Prior to operation

ID	Management/mitigation measure	Timing
H3	A Bush Fire Emergency Management and Evacuation Plan will be prepared consistent with 'Development Planning A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan (NSW RFS, 2014) and Australian Standard AS3745 2010 'Planning for Emergencies in Facilities'. The plan will include: • detailed measures to prevent or mitigate fires igniting; • work that should not be carried out during total fire bans; • availability of fire-suppression equipment, • access and water; • storage and maintenance of fuels and other flammable materials; • notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and • appropriate bush fire emergency management planning. A copy of the plan will be displayed and available for review in a prominent location directly adjacent to the site's main entry point/s.	Prior to construction / prior to operation
H4	The operator will contact Mid-Western Local Emergency Management Committee (LEMC) to discuss how the site will be considered under the Mid-Western Local Disaster Plan (DISPLAN).	Prior to operation
H5	Prior to construction, a Fire Safety Study will be prepared by a suitably qualified bushfire expert providing full details of the required water storage for fire-fighting requirements. The report will include location and capacity of tanks, methods of pumping to provide sufficient pressures, and details of any proposed internal reticulation or hydrant network.	Prior to construction
H6	From the start of building works, the property around all buildings will be managed as an inner protection area for a distance of 50 metres in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019. Road access to the site, power transmission, fencing and any other services to the site are excluded from this requirement. The following requirements will apply when establishing and maintaining an inner protection area: • tree canopy cover should be less than 15% at maturity • trees at maturity should not touch or overhang the building • lower limbs should be removed up to a height of 2 metres above the ground • tree canopies should be separated by 2 to 5 metres • preference should be given to smooth barked and evergreen trees	During construction and operations

ID	Management/mitigation measure	Timing
	• large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings • shrubs should not be located under trees • shrubs should not form more than 10% ground cover • clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation • grass should be kept mown (as a guide grass should be kept to no more than 100mm in height) • leaves and vegetation debris should be removed.	
H7	UPC\AC will prepare a Fire Safety Study (FSS) for the battery energy storage system in consultation with Fire and Rescue NSW as required under the development consent for the project. The FSS would be prepared prior to construction of the battery energy storage system.	Prior to construction
H8	The principles from NFPA 855, AS 5139, IEC 62897, UL 9540, UL 9540A and the FM Global's *Development of Sprinkler Protection Guidance for Lithium Ion Based Energy Storage Systems* will be considered during detailed design of the BESS, where they are appropriate for the project and feasible.	Detailed design/ prior to construction
	Socio-economic	
SIA1	An Accommodation and Employment Strategy will be developed and implemented for the project in consultation with Mid-Western Regional Council. This strategy will: • consider various workforce scenarios assuming the construction period overlaps with other major projects and considering peak tourism activity • propose measures to manage workforce accommodation to minimise the effects of non-local hires during construction on short-term accommodation availability and the local housing market • include a code of conduct for the projects workforce, particularly to avoid anti-social behaviour at peak construction and align with Mid-Western Regional Council's existing industry agreements • to the extent possible and within UPC\AC's control, consider the cumulative impacts associated with other State significant development projects in the area, including nearby mines • investigate options for prioritising the employment of local workers for the construction and operation of the project, where feasible and appropriate given the required skills and experience	Prior to construction

ID	Management/mitigation measure	Timing
	• include a program to report measures undertaken or implemented in line with the strategy include a program to monitor and review the effectiveness of the strategy over the life of the project, including regular monitoring and review during construction • include detailed information regarding the number of beds and types of accommodation to be-utilised monthly for the period of construction. The strategy will be approved by Mid-Western Regional Council prior to commencement of construction.	
SAI2	UPC\AC will develop initiatives for sharing of benefits with the local community. Funding need will be identified and prioritised based on potential project impacts and in collaboration with the local community centered around Gulgong and surrounds, Mid-Western Regional Council and the NSW Government. Opportunities may include sponsorship, grant assistance, strategic community partnerships or co-ownership schemes.	Prior to construction
SIA3	Investigation will be undertaken into the value of investment in local tertiary training institutions to address skills shortages where identified during the development of the Accommodation and Employment Strategy. Where value is identified and a strategy is defined, investment will be targeted through the community benefit share fund.	Prior to construction
SIA4	During development of the Accommodation and Employment Strategy, further consultation with local short-term accommodation providers will be undertaken to identify and where appropriate secure, accommodation for the non-local portion of the construction workforce.	Prior to construction
SIA5	During development of the Accommodation and Employment Strategy, further consultation with local employment service providers will be undertaken to identify and where appropriate secure, local hires.	Prior to construction
	Waste and resources	
WR1	A construction waste management plan will be prepared in consultation with Mid-Western Regional Council. The waste management plan will include: • details of the quantities of each waste type and the proposed reuse, recycling and disposal locations • details on how the waste will be transported to disposal locations during construction and decommissioning • details on measures to reduce the types and volumes of waste • measures to maximise reuse and recycling.	Prior to construction

ID	Management/mitigation measure	Timing
	UPC\AC will continue to consult with Mid-Western Regional Council around specific details of the waste management strategy throughout the life of the project.	
WR2	All waste generated from the project will be assessed, classified and managed in accordance with the *Waste Classification Guidelines* (EPA, 2014)	At all times
WR3	Wastes will be disposed of at suitable facilities permitted to accept the waste	At all times
WR4	Management of wastes will follow the resource management hierarchy principles in accordance with the WARR Act (i.e. avoid > reduce > reuse > recycle > recover > disposal)	At all times
WR5	Skip bins will be made available onsite to enable waste separation for recycling (e.g. separate skip bins for cardboard recycling, plastics and timber collection)	Construction / operation
WR6	General waste bins will be provided for disposal of materials that cannot be cost-effectively recycled	Construction / operation
WR7	The site septic system will be installed and operated in accordance with Council regulations	Construction / operation
WR8	All trucks transporting waste from the site will have covered loads to prevent spillage and other nuisances	Construction / operation
WR9	All materials will be removed from the site following decommissioning and the site will be left waste-free	Decommissioning
	Air quality	
AQ1	Protocols to minimise air quality impacts will be included in the CEMP	Prior to construction
AQ2	Water trucks will be used for dust suppression along internal, unsealed access roads and disturbed areas when required (i.e. if visible dust emissions are observed).	At all times
AQ3	The traffic management plan will include optimisation of vehicle movements onsite reducing wheel generated dust.	At all times
AQ4	Dust suppression measures will take into consideration weather, extended dry periods and Mid-Western Regional Council water restriction levels.	At all times
	Cumulative	
CU1	Develop and implement a community and stakeholder engagement plan that includes ongoing consultation with neighbouring operations to manage any cumulative impacts	Construction / operations

8. PROJECT EVALUATION AND CONCLUSION

8.1 Overview

This response to submissions report responds to submissions received on the Stubbo Solar Farm following the public exhibition of the EIS. Responses to matters raised have been prepared with input from relevant technical specialists who undertook assessments for the EIS.

At the conclusion of the exhibition period, the DPIE had received 17 submissions from the public, two submissions from interest groups and advice from 17 government agencies. Of the submissions received, approximately five per cent (two submissions) were in support of the project, 49 per cent (18 submissions) objected to the project and 46 per cent (17 submissions) provided comment. The most common matters raised in the submissions included concerns around socio-economic, traffic and transport, landscape character, land use and community consultation.

8.2 Project refinements

Following submission of the EIS, UPC\AC has made one amendment to the project, which involves a proposed upgrade of Blue Springs Road in response to a submission provided by Mid-Western Regional Council.

An amendment report has been prepared which describes in detail the proposed amendment and further assessments that have been undertaken following exhibition of the EIS. The amendment report also provides further clarification about the project where it has been sought during the exhibition period and through ongoing discussions with stakeholders, landholders and the local community. Clarifications include information on:

- additional non-associated property identified after lodgement of the environmental impact statement in December 2020
- clarification of the intended use of the proposed development footprint shown within the TransGrid easement
- configuration of potential battery energy storage system
- layout of proposed switchyard within the substation area for the purpose of subdivision.

A revised summary of management and mitigation measures has been provided to address the refinements made to the project and to address matters raised in the submissions.

8.3 UPC\AC project commitments

As a signatory to the Clean Energy Council's *Best Practice Charter for Renewable Energy Developments*, UPC\AC has demonstrated their intention to:

- engage respectfully with the communities in which they plan and operate projects
- be sensitive to environmental and cultural values
- make a positive contribution to the regions in which they operate.

Stakeholder engagement on the Stubbo Solar Farm has been comprehensive to date and reflects the importance UPC\AC places on this aspect of its business. UPC\AC will continue to work with all stakeholders as the approval process for the project progresses and detailed design and approval schedule for the project is better defined.

The environmental management strategy will govern the avoidance, minimisation and management of impacts during the construction and ongoing operation of the project and will be

set out to ensure the responsibilities and accountabilities for environmental performance are clear.

Throughout community engagement undertaken to date, UPC\AC has also demonstrated their intention to establish a positive, long-term connection with the local community. As part of this, UPC\AC has already committed to develop a community benefit sharing model with local community and stakeholders, including TAFE and local business groups.

8.4 Conclusion

The environmental assessment undertaken for the project as part of the EIS and the additional assessment undertaken for the subsequent amendments to the project as part of the amendment report, has determined that the project would not result in significant impacts to environmental, cultural, social and economic values and residual impacts can be managed with the management and mitigation measures in place. Furthermore, the project is consistent with the principles of ESD, and the objectives of the EP&A Act and therefore should be approved under the EP&A Act.

Throughout the project refinement process, UPC\AC has made considerable effort to avoid potential environmental impacts, where possible. In those instances where potential impacts cannot be avoided, UPC\AC's design principles have sought to minimise environmental impacts and/or implement mitigation measures to manage the extent and severity of any residual environmental impacts. During detailed design and prior to the commencement of construction, the placement of infrastructure and extent of construction activities would be further refined to ensure avoidance and minimisation objectives are met.

The project forms an important part of Australia's transition to renewable energy generation and would positively contribute in meeting Commonwealth and State targets. The project would enhance the reliability and security of electricity supply by contributing to the anticipated capacity gaps in the electricity market following the closure of major coal-fired power generators within NSW.

Should the project not proceed, the potential project benefits described within the EIS would not be realised. In addition, it will be more difficult in the short-term for the Commonwealth and NSW Government to achieve their respective renewable energy and greenhouse gas emission reduction targets.

9. REFERENCES

Australian Bureau of Statistics. (2020). *Employment in Renewable Energy Activities, Australia*. Retrieved from https://www.abs.gov.au/statistics/labour/employment-and-unemployment/employment-renewable-energy-activities-australia/latest-release

Australian Renewable Energy Agency. (2021). *Large-scale solar*. Retrieved from ARENA: https://arena.gov.au/renewable-energy/large-scale-solar/

Clean Energy Council. (2020). *Clean Energy at Work.*

Clean Energy Council. (2021). *Australian Guide to Agrisolar for Large-Scale Solar.*

Clean Energy Council. (2021, March 11). *New Guide Showcases the Potential of Agrisolar*. Retrieved from https://www.cleanenergycouncil.org.au/news/new-guide-showcases-the-potential-of-agrisolar

Department of Agriculture, Water and Environment. (2020). *National Waste Report 2020.*

DPI. (n.d.). *Policy and Guidelines for Fish Friendly Waterway Crossings.*

Kovac, M and Briggs, G. (2013). *Infrastructure proposals on rural land*. Retrieved from http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/359030/infrastructure-proposals-on-rural-land.pdf

Macdonald-Smith, A. (2021). Energy Australia commits to carbon-neutral gas plant. *Financial Review*.

NSW Department of Planning and Environment. (2017). *Responding to Submissions: Draft Environmental Impact Assessment Guidance Series.*

SMEC Australia Pty Ltd. (2021). *Waste Management Plan New England Solar Farm - Stage 1 2x200MW AC.*

World Nuclear Association. (2011). *Comparison of Lifecycle Greenhouse Gas Emissions of Various Electricity Generation Sources.*

APPENDIX 1
RESPONSE TO THE SUBMISSION FROM THE BIODIVERSITY CONSERVATION DIVISION

Suite 202, 24 Gordon Street
Coffs Harbour
NSW 2450
t: (02) 6651 5484

29 April 2021

Our ref: 15721

Mr Javier Canon
Senior Policy Officer
Resource Assessments
Department of Planning, Industry and Environment
javier.canon@planning.nsw.gov.au

Dear Javier,

Stubbo Solar Farm (SSD-10452) BDAR - Response to Submissions

Eco Logical Australia (ELA) were engaged by UPC\AC Renewables to prepare a Biodiversity Development Assessment Report (BDAR) for the Stubbo Solar Farm (the Project). The project includes the development of a Solar Farm near Stubbo, NSW, including panel arrays, substations, inverter units, and all associated infrastructure required to supply 400MW to the NSW energy grid.

The exhibition of the Environmental Impact Statement (EIS), including the BDAR, concluded in 19 February 2021. The Biodiversity, Conservation and Science Directorate (BCS) of the Department of Planning, Industry and Environment (DPIE) undertook a review of the Stubbo Solar Farm BDAR.

Two recommendations were made, relating to:

1. Category 1-exempt land
2. Exclusion of *Euphrasia arguta* from candidate species list

The recommendations provided by BCS have been provided within this letter *verbatim*. Attached below is ELA's response to the BCS recommendations including:

- Additional evidence for Category 1-exempt land
- Revised mapping to include small areas of Category 2 Land
- Targeted survey of *Euphrasia arguta* in potential habitat

As a result of these recommendations and additional assessment undertaken, minor changes were made to the BAM-Calculator case. The overall project impact in terms of ecosystem and species credits remains unchanged.

Yours sincerely,

Tom Schmidt
Senior Ecologist - BAM Accredited Assessor

1. Category 1-exempt land

Recommendation from BCS:

> *"The accredited assessor should adequately justify the classification of Category 1-exempt as required by section 60H of the Local Land Services Act 2013. Multiple pieces of evidence should be provided in the justification."*

Response:

All areas currently containing woodland or scattered trees have been assessed as Category 2-regulated land within the submitted BDAR (ELA, 2020). The Category 1-exempt land classification was applied to cleared paddock areas of non-woody vegetation of the development site only.

As described in Section 1.4.2 of the BDAR, tree-less areas within the development site were assessed to be Category 1-exempt land where the area of land was consistent with all three lines of evidence provided below. The evidence provided in the BDAR included:

1. Modified pasture in the NSW Land Use Mapping (DPIE, 2017)
    - The majority of the development footprint is identified as "Grazing modified pastures" in the NSW Land Use Mapping (Figure 1). A small proportion of the development footprint is mapped as "Grazing native pastures"; however, in these areas there is evidence of ploughing in current and historical aerial imagery and these areas were observed to be in the same condition as the remainder of the site.
2. Evidence of pasture improvement and cropping
    - Aerial imagery reveals extensive cropping and ploughing over time from 1964 to current; including historic images and current imagery.
3. Current condition (recorded using BAM)
    - The current vegetation integrity (VI) score for the paddock zone within the development site is 5.2 out of a possible 100. This confirms the above assessment that these areas of the development site are in very low condition and would not require offsetting under the BAM.

Additional justification for the classification of Category 1-exempt land is provided below.

1.1. NSW Land Use Mapping (DPIE, 2017)

The NSW Land Use Mapping (DPIE 2017) was developed by the NSW Government in preparation of the Native Vegetation Regulatory Map, in accordance with the *Native Vegetation Regulatory map: Method Statement, Made under the Local Land Services Act 2013* (OEH, 2017). This method statement describes a detailed mapping method analysing a series of Landsat aerial images over a 26-year period from 1988 to 2013, to identify disturbance of non-woody vegetation based on fractional cover images (OEH 2017).

The algorithm described (by OEH, 2017), observed the following broad trends:

- Cultivated areas show significantly more variation in the level of cover and the relative proportions of green and non-green vegetation cover due to the cropping cycle.

- Pasture areas, in particular native pastures, are relatively stable over time, with a higher proportion of non-green vegetation cover at most times and less fluctuation in the level of green cover, when compared to cultivation.
- Modified pastures generally have a greater proportion of green cover when compared to native pastures.

Areas of 'Grazing modified pasture' and 'Cropping' determined by through the development of the NSW Land Use Mapping are considered to have disturbance from cropping, modified pastures (sown, over-sown, fertilised and ameliorant applied), or pastures or other non-woody vegetation displaying variability compared to the surrounding area, signalling the likelihood of agricultural disturbance.

Three Land Use categories from the NSW Land Use Mapping are present within the area classified as Category 1-exempt land in the BDAR (in accordance with Figure 7 of the *Native Vegetation Regulatory map: Method Statement, Made under the Local Land Services Act 2013*):

- 2.1.0 Grazing native pasture
- 3.2.0 Grazing modified pasture
- 3.3.0 Cropping

1.1.1. Grazing modified pasture and Cropping

Areas mapped as 'Grazing modified pasture' and 'Cropping' are classified as Category 1-exempt land based on the following evidence:

- NSW Land Use Mapping is derived from multiple imagery analysis over time to detect modified areas
- Current condition
    - Vegetation integrity scores from plots within paddock areas of the development site is 5.2 (threshold for requiring offsets is ≥15 for ecosystem credits, and ≥17 for species credits – Section 10.3 of the BAM)
    - Visible condition (as observed in 2020) is modified pasture dominated by exotic species, or cropland (Photograph 1 and Photograph 2)

Photograph 1: Category 1-exempt land typical of the development site in areas mapped in NSW Land Use Mapping as 'Grazing modified pasture'

Photograph 2: Category 1-exempt land typical of the development site in areas mapped in NSW Land Use Mapping as 'Grazing modified pasture'

1.1.2. Grazing native pasture

Areas identified in the NSW Land Use Mapping as 'Grazing native pasture' within the development site are also classified as Category 1-exempt land in the BDAR. The evidence for this classification includes:

- These areas are cleared of woody vegetation
- Evidence of pasture improvement or cropping
    - Aerial imagery (Plates 1-4 below)
    - Current on-site aerial imagery (Photograph 3)
- Current condition was observed to be similar to surrounding areas

Figure 1 presents the NSW Land Use Mapping (DPIE 2017) and reference frames for the corresponding screenshots in Plates 1-4 with evidence of pasture improvements.

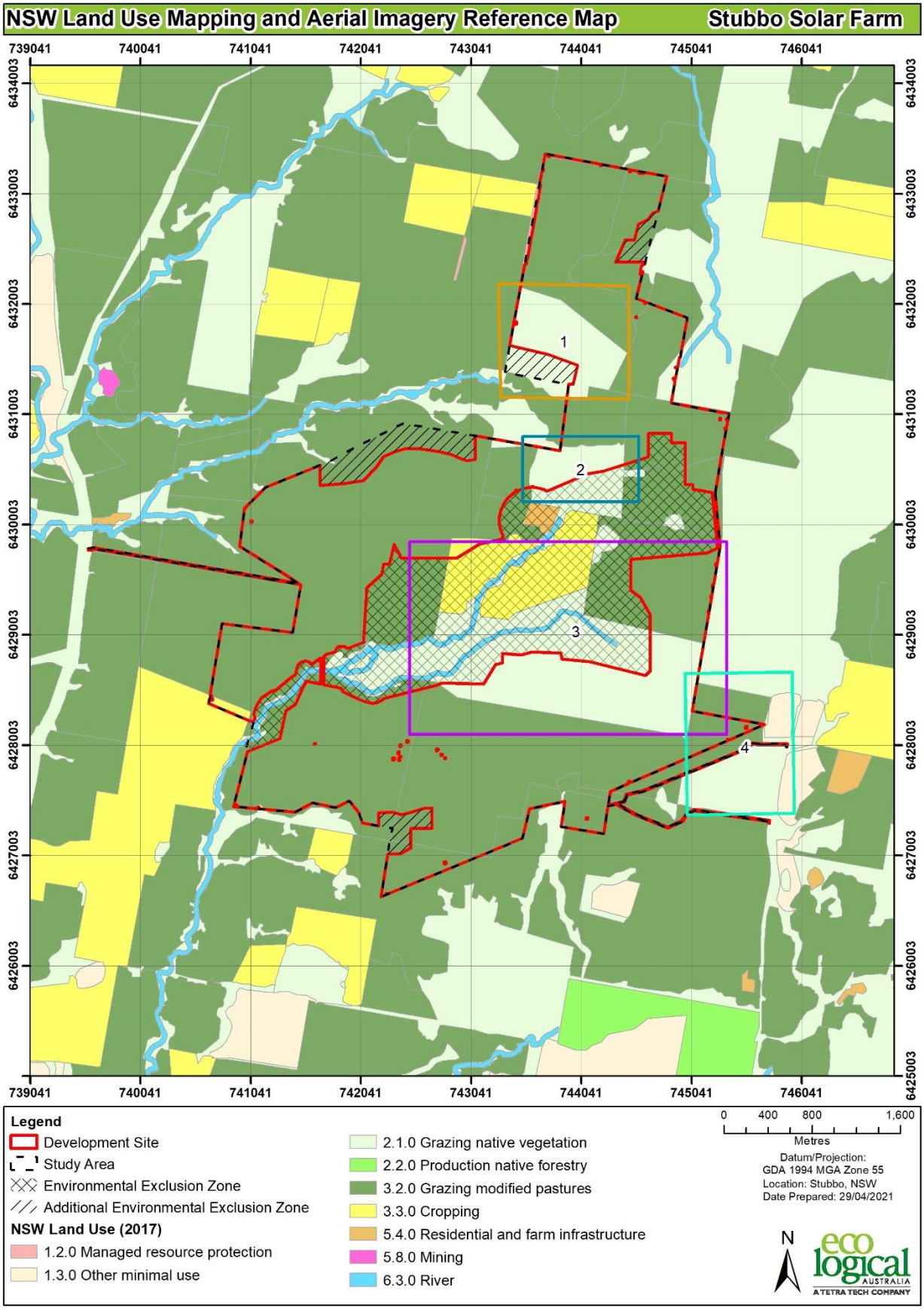


Figure 1: Land Use (DPIE 2017) and reference polygons for aerial imagery below

Photograph 3: Drone photograph from 2020 from area mapped as Grazing native pastures within the study area (in Plate 3) showing evidence of plough marks from pasture improvements

Plate 1: Cropping/ploughing in 1995 typical of Category 1-exempt land, in an area mapped as 'Grazing native pasture' in the NSW Land Use Mapping (Imagery Source: NSW Spatial Services).

Plate 2: Cropping/ploughing in 2015 typical of Category 1-exempt land, in an area mapped as 'Grazing native pasture' in the NSW Land Use Mapping (Imagery Source: Google Earth).

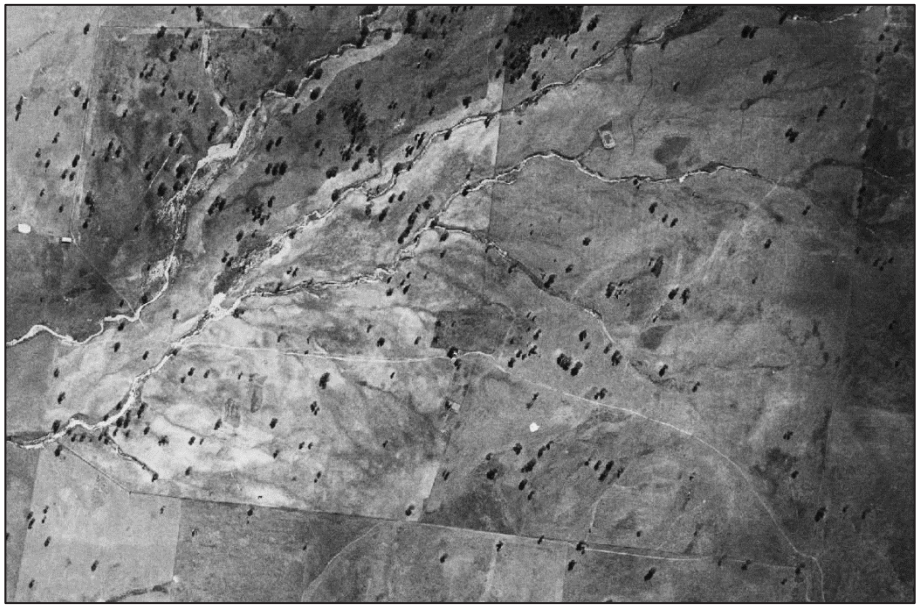


Plate 3: Cropping/ploughing in 1971 typical of Category 1-exempt land, in an area mapped as 'Grazing native pasture' in the NSW Land Use Mapping (Imagery Source: NSW Spatial Services).

Plate 4: Cropping/ploughing in 1988 typical of Category 1-exempt land, in an area mapped as 'Grazing native pasture' in the NSW Land Use Mapping (Imagery Source: NSW Spatial Services).

1.2. Category 2 - Land

A review of published layers of the Native Vegetation Regulatory Map has identified that some small areas of Category 2 Land are present within the development site in areas that were mapped as Category 1-exempt land in the original BDAR. The Category 2 land is associated with the Stubbo Creek and Gum Creek drainage lines. The development site bisects Category 2 land in five locations (Figure 2):

- Western cable crossing of Stubbo Creek
- Eastern cable crossing of Stubbo Creek
- Eastern access option crossing of Gum Creek
- Eastern access road crossing of Gum Creek
- A small area of the main development site associated with Gum Creek

The total area of Category 2 land within the development site is 1.85 ha. The areas of Category 2 Land within the development site are cleared drainage lines dominated by exotic pasture species with a history of intensive grazing and cropping/pasture improvement (Photograph 4). These areas no longer correspond to a native Plant Community Types (PCT) and are considered non-native vegetation/exotic grassland.

Evidence that Category 2 Land is not representative of a native PCT is available from floristic plot data (Appendix B of the BDAR). Two vegetation integrity plots were completed within Category 2 Land within the development site (Plot 4 and Plot 28 from the original BDAR). The most likely original PCT for these areas is *PCT 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion* which is the predominant PCT across the development site and occurs along drainage lines in the area. Based on this plot data, the vegetation integrity score for the Category 2 Land is 4.1 out of 100.

In accordance with Section 10.3 of the BAM, no offsets are required for areas with a vegetation integrity score of less than 15.

Photograph 4: Category 2 Land at crossing of south-eastern access road option, showing drainage line dominated by exotic species such as *Lolium* sp. in bright green, and adjoining cropland.

Updated GIS shapefiles reflecting the changes to Category 1 and Category 2 Land are attached separately.

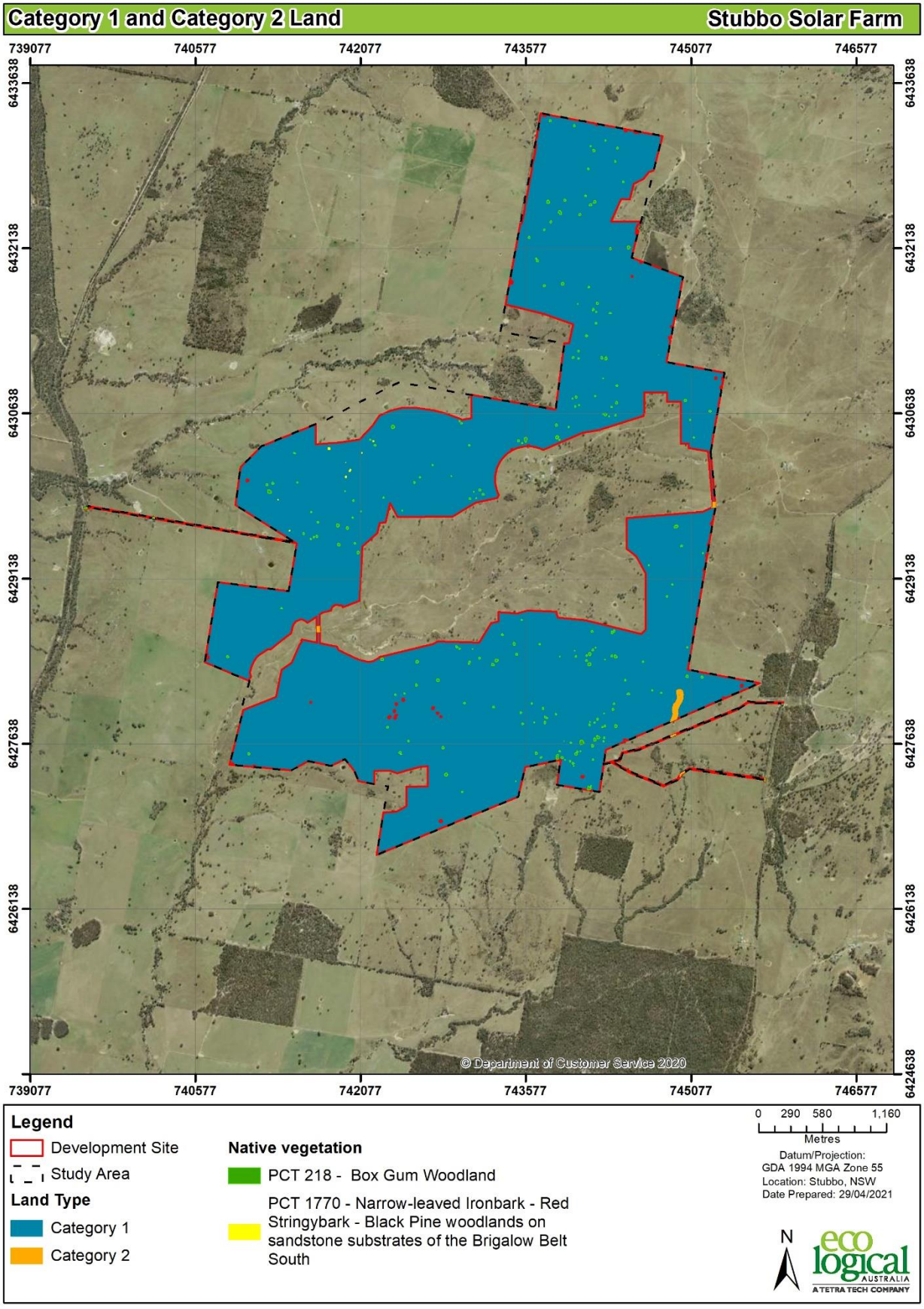


Figure 2: Category 1 Land and Category 2 Land

2. Additional information for the candidate species *Euphrasia arguta*

Recommendation from BCS:

> *"2.1 In order to exclude Euphrasia arguta from the candidate list based on the absence or degradation of habitat constraints not listed in the TBDC the assessor must provide adequate justification in the BDAR. As a minimum, the justification must include;*
>
> - *the specific habitat constraint(s) or microhabitat missing on the subject land; and*
> - *a description of the field technique used to assess the presence of or degradation of the constraint or microhabitat and any other data or information used to make the decision"*

Response:

Although *Euphrasia arguta* was considered unlikely to occur based on the known records and condition of habitat in the study area, the species is poorly known with recent records from higher elevations and swamps. The majority of the development site is considered too degraded due to historical clearing and ongoing cropping and grazing pressures. Known populations near Nundle, have been observed to decline at sites that had been disturbed twice within three years, in contrast with sites that were only disturbed once (DPIE 2021). As such, regular or ongoing disturbance is considered to result in unsuitable habitat.

Areas of native vegetation from zone PCT 218 Mod-good, were re-assessed as constituting potential habitat and a targeted survey for *Euphrasia arguta* was undertaken in March 2021 (Figure 3). March is a suitable survey time for the species as identified in the BAM-C and BioNet, and high rainfall over Summer 2020/21 has resulted in a suitable survey season for the species. Targeted survey utilised 5m parallel transects in potential habitat, in accordance with the NSW BAM *Guidelines for surveying threatened plants and their habitats* (DPIE 2020). *Euphrasia arguta* was not recorded. Targeted survey tracks (GIS shapefiles) are attached separately.

As this species has now been adequately surveyed and has not been identified by the assessor as known or likely within the development site, the BAM-C case for the Stubbo Solar Farm BDAR has been updated to indicate targeted survey was undertaken in March for *Euphrasia arguta*, and the species was not recorded. No further assessment is required.

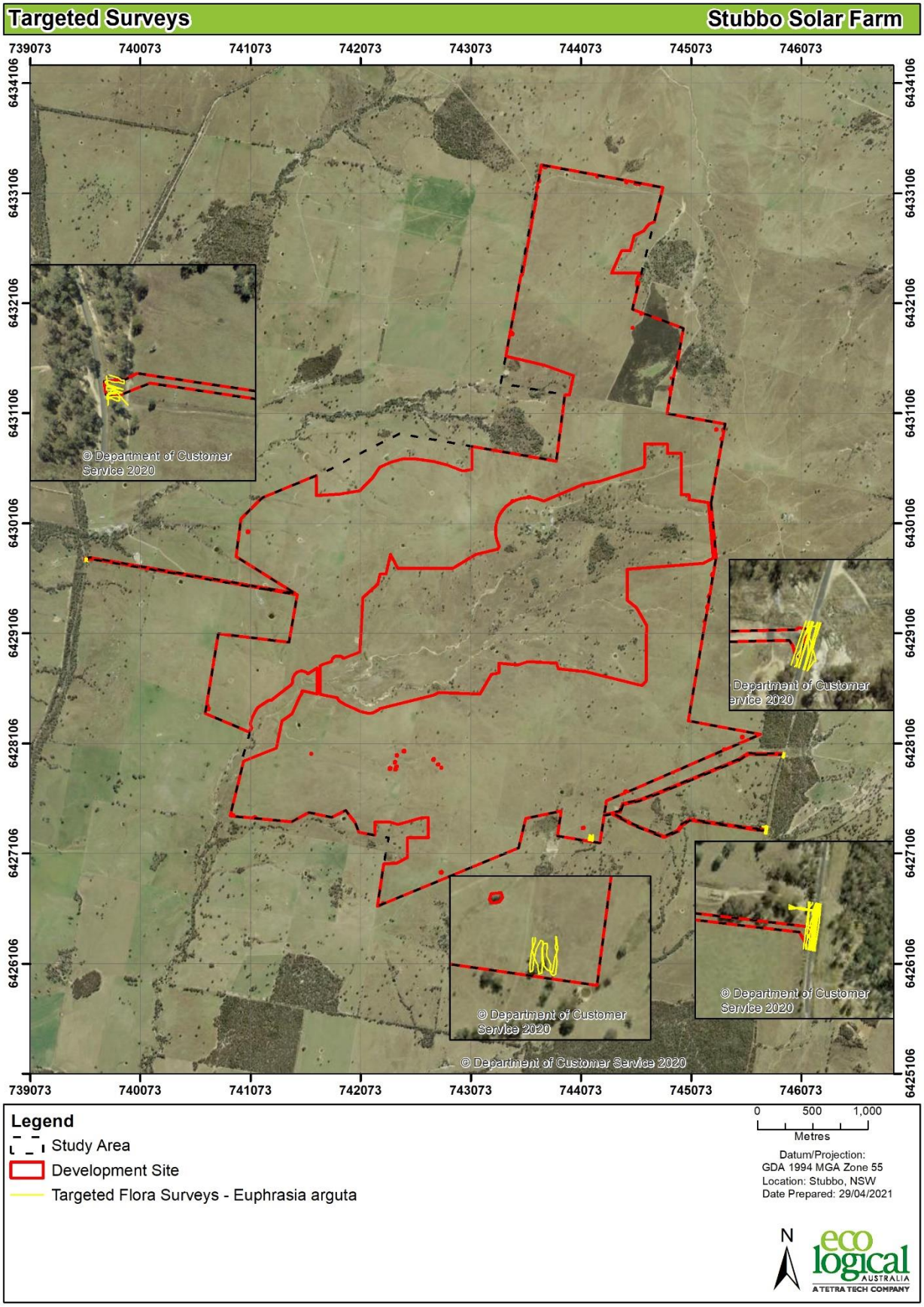


Figure 3: Targeted survey for *Euphrasia arguta* in March 2021

2.1. Updates to the BAM-Calculator

Euphrasia arguta was marked as 'surveyed – species not present', with survey undertaken during the specified season in March. No species credits are required for this species.

3. Summary of project impacts

Following the above, the overall impact of the proposed development remains unchanged in terms of biodiversity credits. The number of ecosystem and species credits required for the development are outlined in Tables 1 and 2.

A biodiversity credit report is included in Appendix D of the BDAR.

Table 1: Ecosystem credits required

PCT ID	PCT Name	Vegetation Formation	Direct impact (ha)	Credits required
281	Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	Grassy Woodlands	5.29 ha	85
1770	Narrow-leaved Ironbark - Red Stringybark - Black Pine woodlands on sandstone substrates of the Brigalow Belt South	Dry Sclerophyll Forests (Shrubby sub-formation)	0.24ha	2

Table 2: Species credit summary

Species	Common name	Vegetation zone	Direct impact number of individuals / habitat (ha)	Credits required
Ninox connivens	Barking Owl	281 Low	4.2	64
Ninox connivens	Barking Owl	1770 Low	0.2	2

References

Department of Planning, Industry and Environment (DPIE) 2021. *BioNet Threatened Species Profile Database*. www.BioNet.nsw.gov.au. State of NSW Department of Planning, Industry and Environment, Sydney.

Department of Planning, Industry and Environment (DPIE) 2020. *Surveying threatened plants and their habitats. NSW Guide for the Biodiversity Assessment Method.* State of NSW Department of Planning, Industry and Environment, Sydney.

Google Earth 2021. Various images. DigitalGlobe. https://www.google.com/earth/.

NSW Spatial Services (2021) *Historical Imagery Viewer – Online Portal.* https://portal.spatial.nsw.gov.au/portal/apps/webappviewer/index.html?id=f7c215b873864d44bccddda8075238cb. State of NSW Department of Customer Service, Sydney.

NSW Office of Environment and Heritage (OEH) 2017. *Native vegetation regulatory map: method statement*. State of NSW Office of Environment and Heritage, Sydney.

Appendix A – BCS Comments

Our ref: DOC20/1051295
Your ref: SSD 10452

Mr Javier Canon
Senior Policy Officer
Resource Assessments
Department of Planning, Industry and Environment
javier.canon@planning.nsw.gov.au

Dear Mr Canon

Stubbo Solar Farm – Exhibition of Environmental Impact Statement

Thank you for your email dated 18 December 2020 to the Biodiversity, Conservation and Science Directorate (BCS) of the Department of Planning, Industry and Environment (formerly the Office of Environment and Heritage) inviting comments on the Environmental Impact Statement (EIS) for the Stubbo Solar Farm.

BCS has reviewed the Biodiversity Development Assessment Report (BDAR) and our biodiversity recommendations are provided in **Attachment A,** with detailed comments provided in **Attachment B**.

If you require any further information regarding this matter, please contact Michelle Howarth, Senior Conservation Planning Officer, via michelle.howarth@environment.nsw.gov.au or (02) 6883 5339.

Yours sincerely

Renee Shepherd

Renee Shepherd
Acting Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorate

29 January 2021

Attachment A – BCS's Recommendations

Attachment B – BCS's Detailed Comments

Attachment A

BCS's recommendations

Proposal name – Environmental Impact Statement

Recommendations

1.1. The accredited assessor should adequately justify the classification of Category 1-exempt as required by section 60H of the *Local Land Services Act 2013.* Multiple pieces of evidence should be provided in the justification.

2.1 In order to exclude *Euphrasia arguta* from the candidate list based on the absence or degradation of habitat constraints not listed in the TBDC the assessor must provide adequate justification in the BDAR. As a minimum, the justification must include;

i. the specific habitat constraint(s) or microhabitat missing on the subject land; **and**

ii. a description of the field technique used to assess the presence of or degradation of the constraint or microhabitat and any other data or information used to make the decision

Attachment B

BCS's detailed comments

Stubbo Solar Farm – Environmental Impact Statement

1. The BDAR must adequately demonstrate a Category 1-exempt land designation

BCS notes that a large portion of the development site has been designated as Category 1-exempt land by the accredited assessor. BCS acknowledges that the development site is predominately disturbed, and that some justification has been provided for the categorisation given to the site. However, multiple pieces of evidence should be provided to demonstrate the Category 1-exempt designation. The accredited assessor must adequately demonstrate that this portion of the site that has been designated as Category 1-exempt meets the criteria as set out in section 60H of the *Local Land Services Act 2013* (LLS Act). This might include;

- aerial photography showing the land was cleared of native vegetation as at 1 January 1990
- publicly available spatial datasets highlighting the disturbed nature of the site
- evidence the land has been lawfully cleared of native vegetation since 1 January 1990
- determining the site to be low conservation grasslands or low conservation groundcover (not grasslands) under the *Interim Grasslands and other Groundcover Assessment Method 2017.*

BCS recommends that the published layers of the Native Vegetation Regulatory Map are reviewed to determine whether any of the published categories (Category 2-vulnerable regulated, Category 2-sensitive regulated, excluded land) apply to the project site.

The designation of final land categories should be precautionary. Where in doubt, or where data are conflicting, land should be mapped as Category 2-regulated land.

Recommendation:

1.1 The accredited assessor should adequately justify the classification of Category 1-exempt as required by section 60H of the *Local Land Services Act 2013.* Multiple pieces of evidence should be provided in the justification.

2. Removal of species from candidate list must be adequately justified

Table 19 on page 41 of the BDAR states that the species *Euphrasia arguta* has been excluded from further assessment due to habitat that has been *'too degraded'*. This is not an adequate justification for the removal of the species. The removal of this species must be consistent with the assessment requirements set out in steps 2 and 3 of chapter 6 of the BAM. A species can only be removed from the list if the species:

a. has habitat constraints listed in the TBDC and none of these constraints are present on the site. Documentation in the BDAR should reflect the TBDC information and evidence that the features are not present (field data); or
b. where habitat constraints are not listed in the TBDC and the assessor proposes to remove the species based on absence of habitat constraints or known microhabitats that the species requires to persist, the assessor must provide adequate justification in the BDAR. As a minimum, the justification must include;
    i. the specific habitat constraint(s) or microhabitat missing on the subject land; and

ii. a description of the field technique used to assess the presence of the constraint or microhabitat (eg the survey effort and technique used to assess hollow-bearing trees) and any other data or information used to make the decision

c. has geographic limitations listed in the species' NSW profile and the site is outside of the defined geographic area (note listed geographic limitations may be specific to IBRA sub regions); or

d. is vagrant to the area. Vagrancy is taken as the record being well outside the species range or natural distribution. The suspect record will need to be reviewed against the species known distribution and the assessor will need to confirm with species experts that it is likely to be a vagrant. If agreed by experts the assessor should contact BCS to have the record quarantined from BioNet Atlas and re-labelled as vagrant. The BDAR will need to contain supporting information such as who was contacted, when, their credentials and the resultant response from BCS; or

e. the habitat constraints listed in the TBDC or known microhabitats that the species requires to persist are degraded to the point where the species will no longer be present. Evidence in the BDAR could include reference to the attribute scores for the vegetation integrity assessment to illustrate the poor condition of the site. Other information sources include peer-reviewed or other published information relating to the microhabitats used by the species, photographic evidence and maps etc that illustrate these features are significantly degraded.

Euphrasia arguta does not have habitat constraints or geographic limitations listed in the TBDC or NSW profile and is not considered vagrant. As a result, if the assessor proposes to exclude this species adequate justification must be provided in the BDAR (see point b and e above);

Recommendation:

2.1. In order to exclude *Euphrasia arguta* from the candidate list based on the absence or degradation of habitat constraints not listed in the TBDC the assessor must provide adequate justification in the BDAR. As a minimum, the justification must include;

iii. the specific habitat constraint(s) or microhabitat missing on the subject land; **and**

iv. a description of the field technique used to assess the presence of or degradation of the constraint or microhabitat and any other data or information used to make the decision.

APPENDIX 2
AGRICULTURAL RESOURCE ASSESSMENT

26th May 2021

SLR Ref: Stubbo Solar Farm Agricultural Resource Letter Report

Stubbo Solar Agricultural Resource Assessment

SLR Consulting was engaged by Ramboll Australia to determine the agricultural economic potential for the area to be developed as part of the Stubbo Solar Farm. The following provides detail of suitable land uses and their economic potential.

Land and Soil Capability Classification

The Land and Soil Capability (LSC) classification identified for the Stubbo Solar Farm Study Area (the study area) was in accordance with the guideline *The Land and Soil Capability Assessment Scheme; Second Approximation* (OEH, 2013). This scheme uses the biophysical features of the land and soil to derive detailed rating tables for a range of land and soil hazards. The scheme consists of eight classes, which classify the land based on the severity of long-term limitations. The LSC classes are described in **Table 1** and their definition has been based on two considerations:

- The biophysical features of the land to derive the LSC classes associated with various hazards; and
- The management of the hazards including the level of inputs, expertise and investment required to manage the land sustainably.

Table 1 Land and Soil Capability Classification

Class	Land and Soil Capability
Land capable of a wide variety of land uses (cropping, grazing, horticulture, forestry, conservation)	
1	**Extremely high capability land**: Land has no limitations. No special land management practices required. Land capable of all rural land uses and land management practices.
2	**Very high capability land**: Land has slight limitations. These can be managed by readily available, easily implemented management practices. Land is capable of most land uses and land management practices, including intensive cropping with cultivation.
3	**High capability land**: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.
Land capable of a variety of land uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation)	
4	**Moderate capability land**: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.
5	**Moderate–low capability land**: Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.
Land capable for a limited set of land uses (grazing, forestry and nature conservation, some horticulture)	
6	**Low capability land**: Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.

Class	Land and Soil Capability
Land generally incapable of agricultural land use (selective forestry and nature conservation)	
7	**Very low capability land**: Land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and off-site impacts of land management practices can be extremely severe if limitations not managed. There should be minimal disturbance of native vegetation.
8	**Extremely low capability land**: Limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation. There should be no disturbance of native vegetation.

The LSC for the study area has been digitally mapped by the Department of Planning, Industry and Environment (DPIE) and is summarised in **Table 2**. The study area is 1,772 hectares, whilst the area which will be developed for the project (the development footprint) is 1,243 hectares. The limitations associated with LSC Class 5 land are discussed below.

The entire Study Area has also been mapped by the DPIE as having moderately low Inherent Fertility.

Table 2 Land and Soil Capability

LSC Class	Agricultural Capability Rating	Development Footprint	Study Area
5	Moderately Low	1,243 hectares	1,772 hectares

LSC Class 5 Land

Class 5 land is often associated with the Australian Soil Classification (ASC) soil group Sodosols, which are a soil type which has sodic and dispersive B horizons. The scheme describes Class 5 land as generally sloping (10 to 20 per cent) with highly erodible soils, significant existing erosion, or susceptibility to wind erosion if left bare. As a result, soil erosion can be severe if topsoil is lost. Sodosols are not suited to continuous cultivation or cropping given the low clay content in the topsoil, as it will result in soil structure decline and consequently lower production. Class 5 land can be occasionally cultivated for fodder crops and pasture, and it is important to minimise soil disturbance and maintain cover. Salinity can be a severe hazard in Class 5 land, along with acidification.

This classification indicates a moderate to low land capability, with severe limitations to high impact land management uses such as cropping. This land is generally more suitable for grazing with some limitations, or very occasional cultivation for pasture establishment.

There is no Class 1, 2 or 3 land within or adjacent to the study area. These three LSC Classes are generally considered by the Department of Primary Industry – Agriculture (DPI Agriculture) as 'Important Agriculture Land", given their agricultural capability is rated as high (Class 3) to extremely high (Class 1). As such, there will be no impact to "Important Agricultural Land" as a result of the project.

Mid-Western Regional Council noted during consultation that although the study area may be mapped as Class 5, this constitutes one of the higher value classes within the local government area (LGA) and therefore is considered to be valuable agricultural land.

The project will not change intrinsic soil or LSC characteristics. Soil type, LSC class and potential land use will be the same upon completion of the project and rehabilitation of the site.

Potential Agricultural Production Value of the Study Area

Potential agricultural productivity was determined using NSW Department of Primary Industries gross margin productivity data for agricultural enterprises suitable for LSC Class 5 land. This analysis has been undertaken on the potential capability of the land rather than current land use. If potential agricultural production values were to be pursued, significant investment in land management and agricultural infrastructure would be required. However, this information can be used to approximate potential farm incomes.

The *Beef Cattle Gross Margin Budget Inland Store Weaners* (NSW DPI – Agriculture, 2019) has been applied to this assessment to determine potential agricultural income for the development footprint. The *NSW Department of Primary Industries Beef Stocking Rates & Farm Size* (DPI – Agriculture, 2006) was used to determine stocking rates in Dry Sheep Equivalents (DSE) for the mapped Class 5 land within the development footprint. DSE was then converted to cow and calf equivalent to determine potential gross margin for beef cattle production. Full agricultural gross margin information is contained in **Appendix A**.

Table 3 summarises the potential gross margin and variable costs for beef cattle grazing Class 5 land, having the potential to generate approximately $174 per hectare per annum.

Table 3 Gross Margin Per Hectare

LSC	Stocking Rate	Cow & Calf Equivalent	Revenue	Variable Costs	Gross Margin
Class	DSE	Per Hectare	Per Hectare	Per Hectare	Per Hectare
5	6	0.36	$216	$42	$174

Based on the nominated gross margin, and assuming the required agricultural capital costs and fixed costs are outlaid (not included in the calculations in **Table 3**), the development footprint has the capacity to generate an estimated gross margin of $216,282 per annum (**Table 4**), with total variable costs of $52,206. The Study Area has the potential to generate an estimated gross margin of $308,328 per annum, with total variable coasts of $74,424. It is important to note that these figures are derived from the optimum potential land uses and are likely to be higher than the incomes being achieved from the area under actual production.

Table 4 Annual Gross Margin

LSC	Gross Margin	Development Footprint		Study Area	
Class	Per Hectare	Hectares	Gross Margin	Hectares	Gross Margin
5	$174	1,243	$216,282	1,772	$308,328

Whilst most of the development footprint is likely to be available for grazing during the life of the Project there is expected to be some reduction in the actual area available for beef cattle grazing. The development footprint is likely to continue to be used for grazing and **Table 5** shows the potential gross margins for three scenarios, a 5%, 10% and 20% reduction in actual area available for grazing and its potential impact on gross margin, calculated at $174 per hectare as per **Table 4**.

A 20% reduction scenario is considered to be the worst-case potential reduction scenario based on other solar farm projects. However, according to the Clean Energy Council's *Australian Guide to Agrisolar for Large-Scale Solar* (Clean Energy Council, 2020), an actual reduction in stocking rate during the operation of the solar farm is unlikely, and may actually be increased.

Table 5 Potential Gross Margin Reduction

Hectares	1,243	1,181	1,119	994	Nil
Potential Reduction Scenario	Nil	5%	10%	20%	100%
Gross Margin	$216,282	$205,320	$194,706	$172,956	$0
Potential Reduction Per Annum	$0	$10,962	$21,576	$43,326	$216,282

As can been seen from **Table 5**, even in the worst case scenario of a 20% reduction in the grazing area this only results in a potential loss of $43,326 per annum, which is the approximate base salary (excluding overtime and holiday rates) of one full time employee equivalent based on a Level 1 farm and livestock hand wage of $753.80 per week (Australian Government Fair Work Ombudsman, 2020). Given the value of agricultural production for the Mid-Western Region is $145 million per annum (Mid-Western Region, 2020), a 20% reduction in the grazing area represents an overall reduction in regional agricultural production of 0.03% per annum during the life of the project.

The development footprint will continue to be utilised for grazing during the life of the project. Whilst there may be some reduction in potential grazing area there will be additional income from leasing the land for the solar project. The overall gross margin from the land will be higher than what it would be for cattle grazing only. Grazing is the main current land use.

The integration of solar energy and grazing "solar grazing" provides opportunity for the solar farm operator and graziers to work in partnership to maximise the productive use of rural land and reduce operating costs for all involved parties. Benefits of "solar grazing" as outlined in the *Australian Guide to Agrisolar for Large-Scale Solar* (Clean Energy Council, March 2021) include:

- Increased health and wellbeing of livestock due to protection from the elements.
- Less water consumption by livestock.
- Safety from predators due to secure fencing.
- Access to greener pasture, particularly during dry conditions or drought.

Condensation on the solar panels and reduced evaporation potential could also increase pasture growth and stocking rates during drier times by providing increased soil moisture.

Key Findings

The purpose of this letter report is to assess and report on the agricultural potential and financial impacts on agricultural resources within and the development footprint. The key findings are listed below:

- The entire development footprint is mapped as LSC Class 5, which is considered to have moderately low agricultural capability.
- The LSC Class, soil type, land use and agricultural economic potential of the development footprint are all expected to be the same or similar to pre-development potential following rehabilitation.
- The development footprint has a potential annual gross margin of $216,282, calculated at $174 per hectare.
- The entire Study Area has a potential gross margin of $308,328.
- The project may have up to a 20% reduction on outputs reducing the annual gross margin by $43,326 to $172,956.
- Any agricultural impacts resulting from the project are expected to be minor and temporary, and can be managed through application of appropriate mitigation measures and management strategies.
- As a result of any impacts being minor, any cumulative impacts on agricultural resources and enterprises are also expected to be minor, and can be managed through application of appropriate mitigation measures and management strategies.

In summary, the project will provide considerable economic benefits to the region whilst having negligible temporary impact on agricultural resources, enterprises or related industries.

Regards,

Murray Fraser
Principal Agronomist Soil Science

References

Australian Government Fair Work Ombudsman (2020) *Pay Guide – Pastoral Award* (MA000035) November 2020

Clean Energy Council (2021) *Australian Guide to Agrisolar for Large-Scale Solar*

Mid-Western Region (2020) *Economic and Business Profile for the Mid-Western Region*

NSW Department of Primary Industries (2006), *Beef Stocking Rates& Farm Size – Hunter Region 2006*

NSW Department of Primary Industries (2019), *Beef Cattle Gross Margin Budget Coastal Weaners Improved Pasture*

NSW Office of Environment & Heritage (2013) *Land and Soil Capability Assessment Scheme 2nd Approximation*

Appendix A

Agricultural Productivity Gross Margin Data

NSW GOVERNMENT | Department of Primary Industries

BEEF CATTLE GROSS MARGIN BUDGET

Farm enterprise Budget Series: April 2019

Enterprise: **Inland store weaners**

Enterprise Unit: **100 cows**

Pasture: **Native pasture**

INCOME:			**Standard Budget**	**Your Budget**
42	steer weaners @	$725 /hd	$30,467	
21	heifer weaners @	$463 /hd	$9,727	
1	CFA Bull @	$1,554 /hd	$1,554	
6	CFA cows @	$963 /hd	$5,779	
0	Dry cows @	$963 /hd	$0	
13	Other culls @	$963 /hd	$12,522	
83				
	A. Total Income:		**$60,049**	

VARIABLE COSTS:						
Replacements	1	Bull @	$3,500	/hd	$3,500	
Livestock and vet costs: see section titled beef health costs for details.					$1,244	
Hay & Grain or silage. Low level supplementary feeding for 3 months					$2,250	
Drought feeding costs.					$0	
Pasture maintenence (372 Ha of native pasture)					$0	
Livestock selling cost (see assumptions on next page)					$4,776	
		B. Total Variable Costs:			**$11,770**	

GROSS MARGIN (A-B)	**$48,279**
GROSS MARGIN/COW	**$482.79**
GROSS MARGIN/DSE*	**$32.45**
GROSS MARGIN/HA	**$129.78**

Change in gross margin ($/cow) for change in price &/or the weight of sale stock

(Note: Table assumes that the price and weight of other stock changes in the same proportion as steers. As an example if steer sale price falls to 269c/kg and steer weight to 240 kg, gross margin would fall to $419 per cow. This assumes that price and weight of all other sale stock falls by the same percentage.

Liveweight (kg's) of Stock sold		**Steer sale price cents/kg live**				
		259	**269**	**279**	**289**	**299**
Steer wt.						
-40 kgs	**220**	358	375	393	411	429
-20 kgs	**240**	399	419	438	457	477
0	**260**	441	462	483	504	525
+20 kgs	**280**	483	505	528	550	572
+40 kgs	**300**	524	548	572	596	620

GM $ per Cow

An increase of 5% in weaning percentage increases gross margin per cow by $27.08

Assumptions **Inland store weaners**

Enterprise unit is 100 cows weighing on average 480 kg
Weaning rate: 84% - conception rate 90%

Sales

Steers sold at 9 months	260 kg	@279c/kg	live weight
Heifers sold at 9 months	230 kg	@201c/kg	live weight
21 heifers retained for replacement.			
Cull cows cast for age at 10 years	240 kg	@401c/kg	dressed weight
100% of preg tested empty cows culled	"	"	"
4% cows culled for other reasons	"	"	"
Bulls run at 3% & sold after 4 years use	420 kg	@370c/kg	dressed weight

Selling costs include: Commission 4%; yard dues $8.00/hd; MLA levy $5/hd; average freight cost to saleyards $12/hd; NLIS tags $3.60

Cows: age at first calf : 24 months

Mortality rate of adult stock: 2%

The average feed requirement of a cow + followers is rated at 2.21 LSU or 15.25 dse's. This is an average figure and will vary during the year.
.
.

Age structure

Age	Number
2	21
3	18
4	15
5	13
6	11
7	9
8	7
9	6
Total Joined	**100**
10	6

Marketing Information:
Mainly sold to grass back-grounders for growing out.
Steers likely to end up in feedlots after further weight gain on grass.
Following sale, heifers either grown out to become breeders or fattened for the local trade market.

Production Information:
Mixed sex weaners sold from March to June from lighter country or at heavier stocking rates than for vealers. Common on unimproved areas with some supplementary feed in normal years.
This enterprise is the most drought susceptible.