NEW ENGLAND SOLAR FARM

RESPONSE TO SUBMISSIONS

Prepared for UPC Renewables Australia Pty Ltd

June 2019

EMM
creating opportunities

New England Solar Farm

Response to Submissions Report

Report Number

J17300 RP1

Client

UPC Renewables Australia Pty Ltd

Date

4 June 2019

Version

v1 Final

Prepared by

David Richards
Environmental Scientist
4 June 2019

Approved by

Claire Burnes
Associate
4 June 2019

Executive Summary

ES1 Background

UPC Renewables Australia Pty Ltd (UPC) proposes to develop the New England Solar Farm; a significant grid-connected solar farm and battery energy storage system (BESS) along with associated infrastructure, approximately 6 kilometres (km) east of the township of Uralla, which lies approximately 19 km south of Armidale in the Uralla Shire local government area (LGA) (the project).

The project is classed as a State Significant Development (SSD) under the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). A development application (DA) and environmental impact statement (EIS) was submitted under Part 4, Division 4.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The DA and EIS for the project were publicly exhibited from 20 February to 20 March 2019.

Following the public exhibition of the DA and EIS, over 100 submissions were received by NSW Department of Planning and Environment (DPE), including submissions from government agencies and other organisations and public feedback. This response to submissions report (RTS) will be submitted to DPE to respond to the matters raised in these submissions.

ES2 Submissions received

Following the public exhibition of the DA and EIS, over 100 submissions were received by DPE, including submissions from government agencies and other organisations and public feedback. Of the submissions received from individual community members, approximately 21% (n=22) of the submissions were in support of the project, 65% (n=67) objected and 14% (n=14) provided comments.

The most commonly raised matters related to site suitability and development on agricultural land. Potential visual amenity impacts and potential negative impacts on tourism, property values and local businesses were also commonly raised.

ES3 Actions since EIS exhibition

ES3.1 Project refinements

As a result of ongoing discussions with the local community, project landholders and other stakeholders, UPC has made a number of further amendments to the development footprint that was the subject of the DA and EIS, including the removal of the southern array area. Subsequently, a separate amendment report (AR) has been prepared to outline the changes to the project that have been made since the public exhibition of the EIS and provide a summary of the impacts associated with the amended project. The AR will be submitted to DPE in conjunction with this RTS.

The development footprint no longer includes the southern array area. PV module technology is continuing to improve and the modules that are likely to be utilised for the project have a higher watt rating than was originally anticipated during the preliminary design stages of the project. In addition, UPC will maximise the extent of project infrastructure within the development footprint for the northern and central array areas, where practicable. As a result of these efficiencies, the project will be able to achieve the targeted generating capacity of up to 720 MW through development across the northern and central array footprints only.

In response to feedback received from neighbouring landholders, further revisions have been made to the extent of the northern array area to increase the distance between the development footprint and neighbouring residences and thereby minimise visibility of project infrastructure.

In addition to changes to the development footprint, there have also been revisions to:

- **Connection infrastructure between the northern and central array areas** – As part of the ongoing detailed design of the infrastructure layout within the development footprint, it may be necessary to utilise either underground or overhead cabling (or a combination of the two) to connect the two array areas.

- **Substation configuration** – UPC has confirmed that the grid substation will be adjacent to TransGrid's 330 kV transmission line in the northern array area. A solar array substation may still be required in the central array area to step the medium voltage up to high voltage.

- **Delivery of construction materials and infrastructure** – As part of ongoing design, UPC has been considering the potential use of the Main Northern Railway line for delivery of construction materials and project infrastructure. Utilising the Main Northern Railway line for deliveries would reduce the number of project-related heavy vehicles on the local and regional road network.

ES3.2 Stakeholder engagement

Stakeholder engagement on the New England Solar Farm has been comprehensive to date and reflects the importance UPC places on this aspect to its business. Since the submission of the EIS, UPC has continued to work with all stakeholders as the approval process for the project progresses.

Consultation has been, and will continue to be, undertaken with a range of stakeholders including various local and NSW Government agencies, the local community and neighbouring landholders.

Engagement with regulatory stakeholders has focussed primarily on the content of the submissions provided during their review of the EIS and the amendments to the project. Specifically, these amendments have been the subject of further engagement with DPE, Uralla Shire Council, NSW Roads and Maritime Services (RMS), NSW Office of Environment and Heritage (OEH), NSW Department of Primary Industries (DPI) and NSW Department of Industry – Lands and Water (DoI – Lands and Water).

During the EIS exhibition period, UPC held an additional community information and feedback session in an effort to facilitate further positive engagement with the local community. The additional session provided the local community and neighbouring landholders with an opportunity to ask questions about the project that may have arisen upon reading the EIS and supporting documents.

In addition to the community information and feedback session, more targeted engagement occurred with neighbouring landholders that reached out to UPC through one of their many available open lines of communication. More recently, the project's Facebook page has been used extensively to communicate project updates and engage with interested parties.

ES3.3 Additional technical assessments

Additional technical investigations have been undertaken in response to submissions received on the project after the public exhibition of the EIS and also as part of previous commitments by UPC to undertake further additional assessments during this period. The additional investigations included the following:

- Aboriginal cultural heritage – additional tree survey and management; scar tree verification and management; and archaeological test excavation.

- Visual amenity – three additional viewpoints have been considered and the results of the visual impact assessment (VIA) have been revised in consideration of the amendments to the development footprint.

- Biodiversity – completion of additional targeted surveys for Koala (*Phascolarctos cinereus*) (Spot Assessment Technique (SAT)) in the western portion of the central array area.

ES4 Evaluation and conclusion

A number of refinements have been made to the project since the public exhibition of the DA and EIS. The AR accompanies this RTS report and outlines the changes to the project that have been made since the public exhibition of the EIS and provides a summary of the impacts associated with the amended project.

Extensive work has also been undertaken to respond to the submissions received on the DA and EIS; however, no major changes to the northern and central array areas were required as a result of any of the submissions. The description of the project and the project evaluation and justification, as presented in the AR, are a true and accurate reflection of the project for which approval is sought.

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

- It is suitably located:
  - in a region with ideal climatic and physical conditions for large-scale solar energy generation that has been identified by the NSW Government as a priority Renewable Energy Zone;
  - within close proximity of existing infrastructure with adequate capacity to receive the energy proposed to be generated; and
  - adjacent to agricultural land uses that are compatible with large-scale solar energy generation.
- The design of the project has been an iterative design and environmental assessment process to ensure impacts have been avoided and minimised as much as possible. This has included refining the design in consultation with neighbouring landholders, local and NSW Government agencies, registered Aboriginal parties and the local community.
- The project will not result in significant biophysical, social or economic impacts, and the EIS and AR have identified that any residual impacts can be appropriately managed and/or offset in accordance with NSW Government policy.
- The benefits of the project are in the public interest and will provide renewable energy, increased energy security and direct and indirect economic benefits, through the creation of employment opportunities and benefits to the local and regional economy through income and expenditure during the life of the project.
- UPC is committed to the long-term environmental management of the land within the development footprint. At the end of the project's investment and operational life, the development footprint will be returned to its pre-existing agricultural land use or another land use as agreed by the project owner and the landholders at that time.

The project is in line with the objects of the EP&A Act and will enable the orderly and logical use of natural, physical and human resources existing within the local area and greater New England North West region. There will be economic investment and employment benefits both locally and regionally and a realised opportunity for renewable energy generation, while minimising potential environmental and social impacts. A suite of design, mitigation and management measures are proposed to avoid, minimise and manage the biophysical, social and economic impacts of the project.

The project is consistent with the principle of inter-generational equity. The project will contribute to the sustainable transition of electricity generation in NSW to a more reliable, more affordable and cleaner energy future. Once decommissioned, the land within the development footprint can be rehabilitated to its current use if required thereby allowing for either continuation of renewable energy generation or a return to agricultural production, both of which would provide benefits for future generations.

Table of Contents

Appendices

Tables

Figures

1 Introduction

1.1 Background

UPC Renewables Australia Pty Ltd (UPC) proposes to develop the New England Solar Farm; a significant grid-connected solar farm and battery energy storage system (BESS) along with associated infrastructure, approximately 6 kilometres (km) east of the township of Uralla, which lies approximately 19 km south of Armidale in the Uralla Shire local government area (LGA) (Figure 1.1) (the project).

The project will be developed across two separate arrays (northern and central) of photovoltaic (PV) modules (commonly referred to as 'solar panels'); incorporating transmission infrastructure between the two arrays and a grid-interfacing substation (grid substation) to enable connection into the existing electricity transmission network (refer Figure 1.1).

The project will have a targeted 'sent out' electricity generating capacity of up to 720 megawatts (MW) (AC) and up to 200 MW (AC) two-hour energy storage. Depending on its final size and design, the project will have an estimated capital investment value of up to $768 million AUD.

The project will represent a major injection of capital investment into the New England North West region and the Uralla Shire LGA. The regional economy will benefit from the project through the creation of employment opportunities and other indirect economic benefits. Direct employment opportunities generated by the project will include up to 700 full-time equivalents (FTEs) at the peak of construction and up to 15 FTEs during operations. The project will also result in a diversification of the income earned by the landholders involved in the project, most of whom will continue farming on their properties within the region.

1.2 Approval process

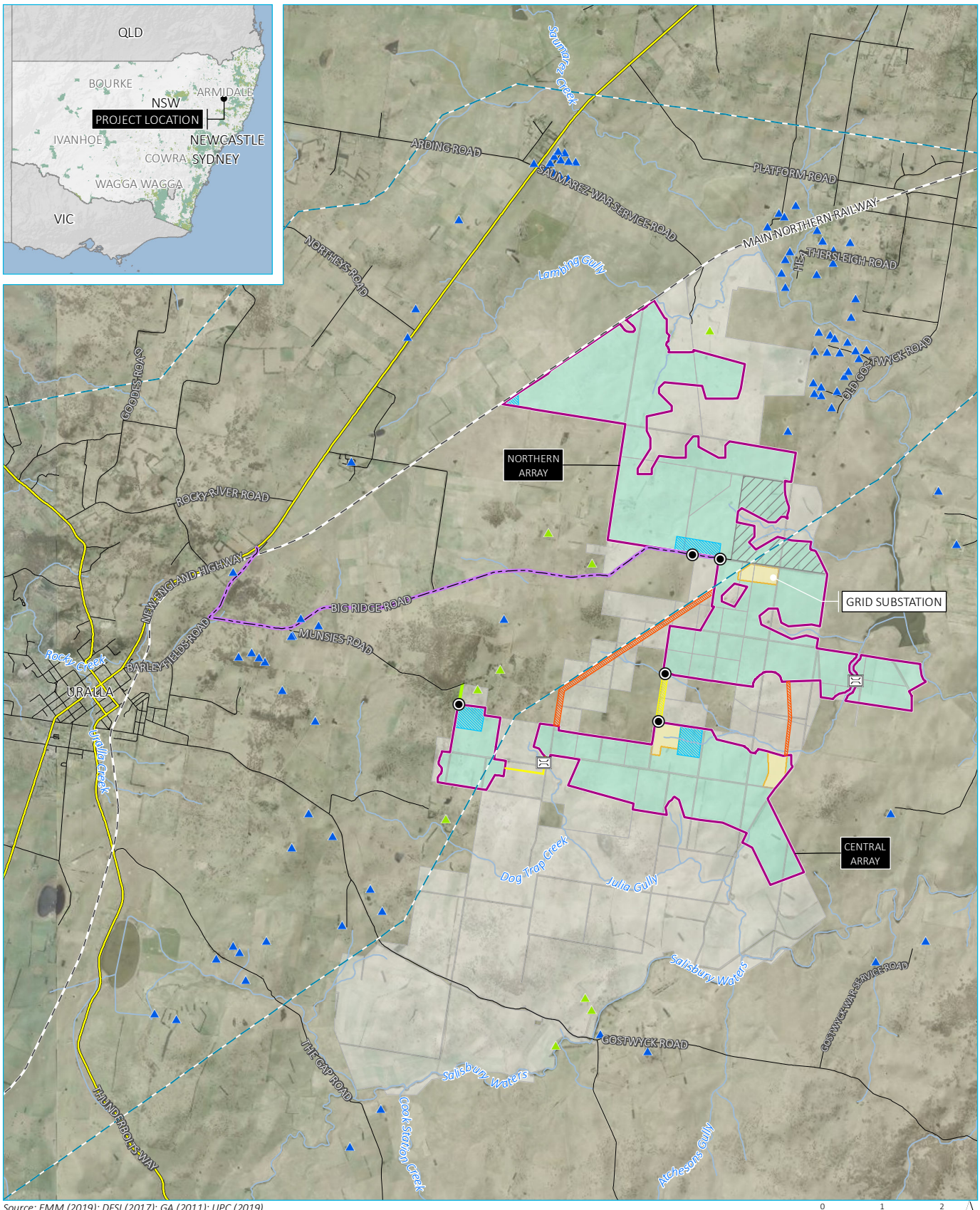
The project is classed as a State Significant Development (SSD) under the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). A development application (DA) and environmental impact statement (EIS) was submitted under Part 4, Division 4.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The DA and EIS for the project were publicly exhibited from 20 February to 20 March 2019.

Following the public exhibition of the DA and EIS, over 100 submissions were received by NSW Department of Planning and Environment (DPE), including submissions from government agencies and other organisations and public feedback. This response to submissions report (RTS) will be submitted to DPE to respond to the matters raised in these submissions.

As a result of ongoing discussions with the local community, project landholders and other stakeholders, UPC has made a number of further amendments to the development footprint that was the subject of the DA and EIS, including the removal of the southern array area. Subsequently, a separate amendment report (AR) has been prepared to outline the changes to the project that have been made since the public exhibition of the EIS and provide a summary of the impacts associated with the amended project. The AR will be submitted to DPE in conjunction with this RTS.

Following receipt of this RTS and the AR, DPE will prepare its assessment report considering the EIS, the AR, all submissions received during the exhibition process and this RTS. DPE's assessment report will then be forwarded to the consent authority for consideration before determining the DA.

The Independent Planning Commission (IPC) have been determined the consent authority for the project. DPE are still responsible for preparing the assessment report to the IPC about this DA. However, DPE's report will not be binding on the IPC.



Source: EMM (2019); DFSI (2017); GA (2011); UPC (2019)

0 1 2 km

GDA 1994 MGA Zone 56

N

\\emmsvr1\emm\Jobs\2017\J17300 - UPC NSW Solar Farm\GIS\02_Maps_AmendmentReport\AR004_NESFLocation_20190602_04.mxd 3/06/2019

KEY

- 330 kV transmission line
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Primary vehicle access route

Sensitive receptors

- Project-related
- Non-project related

- Project boundary

Development footprint

- Solar array
- Potential electrical cabling
- Potential site access corridor
- Potential site access/electrical cabling
- Potential laydown area/site compound
- Potential substation/BESS footprint
- Potential creek crossing
- Proposed primary site access point
- Potential site for construction accommodation village

Location of the New England Solar Farm

New England Solar Farm
Response to submissions
Figure 1.1

EMM
creating opportunities

1.3 Purpose of this report

This RTS responds to submissions received following the public exhibition of the EIS. This report will be submitted to the DPE who will distribute it to relevant government agencies and the IPC for consideration in the project's assessment and determination.

In responding to submissions received, the submissions have been categorised, grouped and addressed by issue, rather than on an individual or stakeholder basis. This approach is consistent with Guideline 5 of the *Draft Environmental Impact Assessment Guidance Series* (DPE 2017). A summary of the analysis of submissions is provided in Chapter 2.

This report also describes the additional stakeholder and community engagement activities that UPC carried out during the exhibition period, and which the company continues to undertake.

1.4 Document structure

This RTS consists of the main RTS document and supporting appendices and is structured as follows:

- Chapter 1 – Introduction

  Provides an introduction to the project, including an overview of the project, information about the project history, approval process, and the purpose and structure of this RTS.

- Chapter 2 – 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.

- Chapter 3 – 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.

- Chapter 4 – Agency responses

  Provides responses to matters raised by government agencies in their submissions on the EIS and technical studies undertaken for the project.

- Chapters 5-21 – Responses to public submissions

  Provides responses to matters raised in the submissions on the EIS and technical studies undertaken for the project.

- Chapter 22 – Other matters

  Provides responses to matters raised in the submissions not directly related to the specific content of the EIS or a supporting technical study.

- Chapter 23 – Revised summary of management and mitigation measures

  Provides an updated summary of management and mitigation measures.

- Chapter 24 – Project evaluation and conclusion

  Provides an updated project evaluation and conclusion.

- Appendices

  The appendices to the RTS, which support the main document:

  - Appendix A – Register of submitters; and
  - Appendix B - Stakeholder engagement materials.

  A copy of the updated mitigation measures table has been provided as Appendix B of the AR.

2 Analysis of submissions

2.1 Exhibition details

The New England Solar Farm EIS was publicly exhibited from 20 February to 20 March 2019 at the following locations:

- Uralla Shire Council Administration Centre and Council Chambers;
- Nature Conservation Council office (14/338 Pitt Street, Sydney) – electronic copy only; and
- NSW Service Centres (electronic copies only).

The EIS was also available for review on DPE's online Major Projects register, and an electronic copy was sent to NSW Office of Environment and Heritage (OEH) as nominated by DPE. In addition, copies of the EIS were provided to two individuals on request.

2.2 Overview of submissions received

Following the public exhibition of the EIS, over 100 submissions were received by DPE. The majority of submissions were unique community submissions from the general public. Submissions are available to view on DPE's website at:

- government, agency and other organisations: http://majorprojects.planning.nsw.gov.au/?action=list_submissions&job_id=9255&title=EIS%20-%20Website%20Submissions&type=2; and
- public feedback: http://majorprojects.planning.nsw.gov.au/?action=list_submissions&job_id=9255&title=EIS%20-%20Website%20Submissions&type=6.

A breakdown of the submissions received for the project is provided in Table 2.1.

Table 2.1 Summary of submissions received

Source/type	Object	Support	Comment	Total
Community (unique)**	67	22	14	**103**
Government	-	-	12*	**12**
Other	-	-	3	**3**
Total	**67**	**22**	**29**	**118**

Notes: *NSW Department of Industry provided one submission, which included commentary from the Water and Natural Resources Access Regulator, Crown Lands and Department of Primary Industries – Agriculture. This has been classified as one submission.
**It should be noted that during review of the community submissions, there were a number of duplicate submissions provided. For the purposes of the statistics presented in this chapter, these submissions have been counted individually.

The following NSW Government agencies provided submissions:

- DPE Division of Resources and Geoscience (DRG);
- NSW Department of Industry, including commentary from the Water and Natural Resources Access Regulator, Crown Lands and Department of Primary Industries – Agriculture;

- SafeWork NSW;
- NSW Fire and Rescue;
- NSW Environment Protection Authority (EPA);
- NSW Rural Fire Service (RFS);
- NSW Office of Environment and Heritage (OEH);
- NSW Health;
- NSW Roads and Maritime Services (RMS);
- Heritage Council of NSW;
- Transport for NSW (TfNSW); and
- Uralla Shire Council.

Submissions categorised as other in Table 2.1 included:

- Uralla Shire Business Chamber;
- Uralla-Walcha Community for Responsible Solar/Wind Action Group; and
- TransGrid.

2.3 Response methodology

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

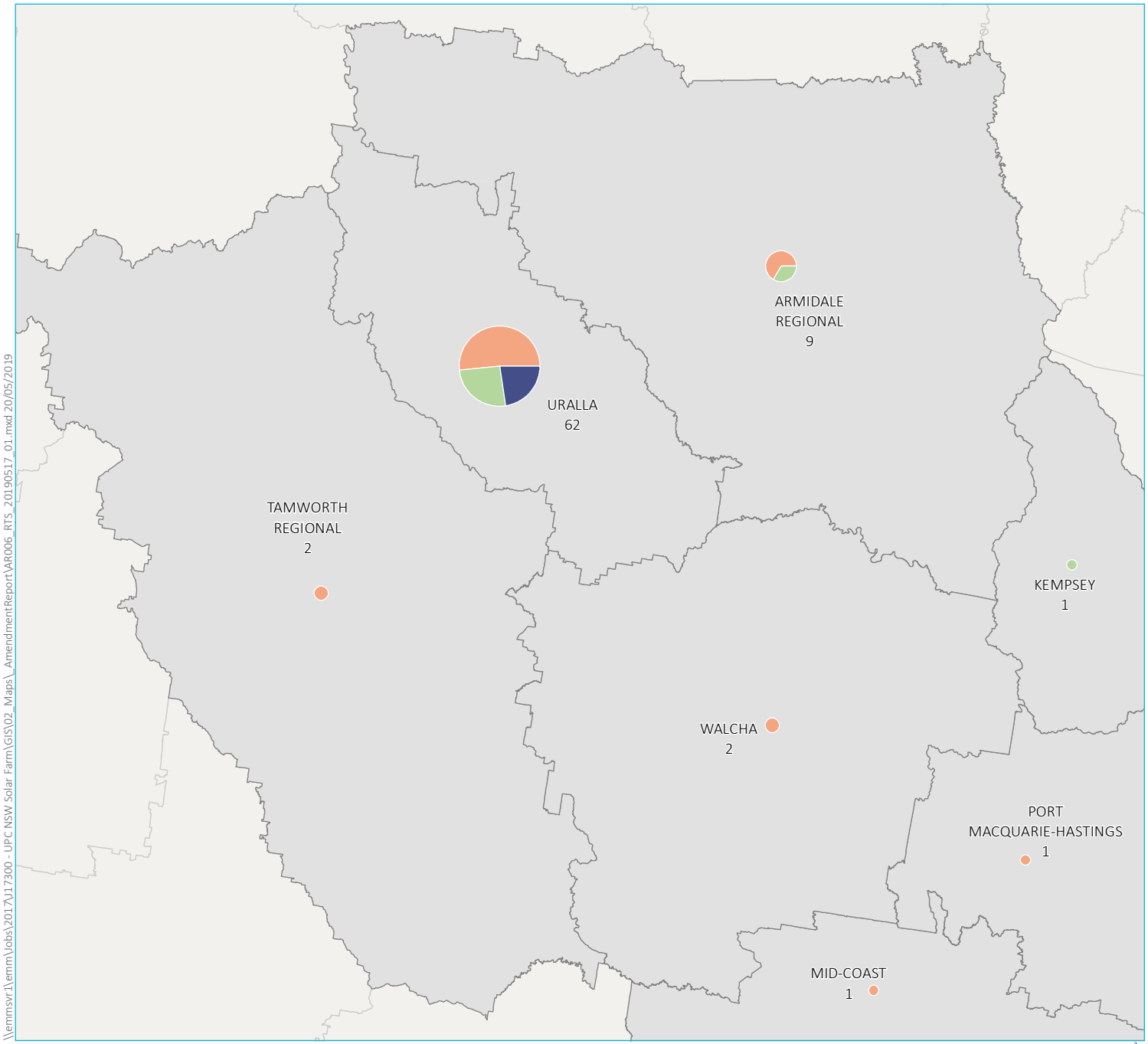
- government;
- other; and
- unique community submission.

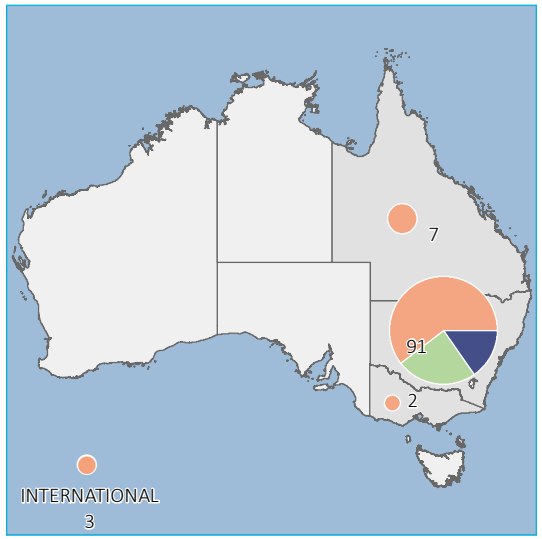
The submissions were reviewed, and the key issues raised in each submission identified.

Responses were prepared to each issue by EMM and UPC, with input from the technical specialists who prepared the relevant impact assessment for the EIS. The study team was the same team that prepared the EIS, with the addition of SCT Consulting, who has been engaged to assist UPC and EMM with additional investigations along the proposed primary vehicle access route to the northern and central array areas.

2.4 Origin of community submissions

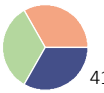
The source of community submissions by LGA, with a focus on the LGAs surrounding the development footprint is shown in Figure 2.1, indicating the number that objected and supported the project. Also shown is the number of submissions received from elsewhere in NSW, other Australian states and overseas.





KEY

Submission type



41 Total number of submissions in area

- Object
- Support
- Comment
- Local government area
- Submission provided

Source: EMM (2019); DFSI (2017); UPC (2019)

\\emmsvr1\emm\Jobs\2017\J17300 - UPC NSW Solar Farm\GIS\02_Maps_AmendmentReport\AR006_RTS_20190517_01.mxd 20/05/2019

Origins of community submissions

New England Solar Farm
Response to submissions
Figure 2.1

EMM
creating opportunities

The majority of community submissions came from the Uralla Shire LGA (60%), where the project is located. As shown in Figure 2.1, most of the community submissions (88%) came from NSW, with a small number from other states (9%). A small number of submissions (n=3) were received from overseas.

Approximately 21% of the community submissions were in support of the project, 65% objected and 14% provided comments. However, it should be noted that of these objections, 29 (43%) focused on the southern array and potential impacts to Salisbury Plains. As noted previously, the southern array has since been removed from the DA.

The majority of the community submissions from the Uralla Shire LGA (n=32 or 52%) opposed the project. However, it should be noted that of these objections, 14 (44%) focused on the southern array and potential impacts to Salisbury Plains.

As part of the preparation of this report and review of the submissions provided, there were at least two instances where a submission had been categorised as 'supports' by DPE, yet the content of the submission indicated that the community members were objecting to the project (refer submissions 317040 and 317605). DPE requested that these submissions be categorised consistent with the information displayed on their website (ie 'supports').

2.5 Summary of matters raised in community submissions

A list of the matters raised within the community submissions and the chapter of this report in which they have been considered is provided in Table 2.2.

Table 2.2 List of matters raised

Matter raised	Relevant RTS chapter
Impacts on Aboriginal cultural heritage	Aboriginal cultural heritage (Chapter 8)
Construction dust	Air quality (Chapter 19)
Biodiversity offsets Biosecurity Impacts on Koala habitat and populations Impacts on migratory birds Impacts on wildlife	Biodiversity (Chapter 7)
Availability of emergency services Bushfire impacts Emergency site access to and from neighbouring property	Bushfire (Chapter 16)
Cumulative impacts from other renewables developments	Cumulative impacts (Chapter 21)
Declining property values Impacts on local businesses Impacts on tourism	Economic (Chapter 18)
Scope and approach to community engagement Inadequate engagement with neighbouring landholders Community support and ongoing involvement	Engagement and community outreach (Chapter 6)

Table 2.2 List of matters raised

Matter raised	Relevant RTS chapter
Health impacts from proximity to infrastructure	Hazards and risks (Chapter 15)
Impacts on historic heritage	Historic heritage (Chapter 9)
Acid sulphate soils	Land (Chapter 10)
Potential for contamination	
Impacts on vegetation growth	
Compatibility of sheep grazing and project infrastructure	
Impacts on livestock	
Soil erosion	
Construction noise and vibration	Noise (Chapter 12)
Enough renewable energy projects to meet demand	Other matters (including project design) (Chapter 22)
Heat impacts from infrastructure	
Impacts on cost of electricity	
Inability for solar energy to meet needs of electricity market	
Inadequate EIS and assessment methodology and consideration of impacts	
Ownership model and structure	
Profits distributed to international corporations	
UPC developer credibility	
Battery storage	
Construction hours	
Grid connection	
Length of operational life	
Manufacturing of project infrastructure	
Panel productivity	
Responsibilities for decommissioning and disposal (cradle-to-grave)	
Accommodation and rental property availability	Social (Chapter 17)
Construction workforce behaviour	
Feedback/grievance process	
Mental health and stress	
Impacts on community services	
Impacts on lifestyle	
Lack of compensation for neighbouring landholders	
Security during construction and operations	

Table 2.2 List of matters raised

Matter raised	Relevant RTS chapter
Approval process and determining authority	Strategic and statutory context (Chapter 5)
Consistency with local and regional planning	
Appropriate development on agricultural land	
Council rates and land valuation	
Public interest	
Site suitability	
Alignment with local, regional and State planning	Notions of support (refer Section 2.5.2)
Cheaper electricity costs	
Combat global warming and climate change	
Community benefit sharing initiative (CBSI)	
Contributions to energy security	
Drought proofs the farm	
Dual land use	
Employment opportunities	
Future productivity of the land	
Income diversification	
Local and regional economic benefits	
Positive community engagement	
Positive tourism impacts	
Quality of the EIS	
Renewable energy generation	
Increased traffic volumes on Barleyfields Road, Big Ridge Road and Munsies Road	Traffic (Chapter 13)
Impacts on road infrastructure	
Road traffic noise and dust from vehicle movements	
Safety of road users	
Lighting	Visual (Chapter 11)
Proximity to residences and screening	
Reflectivity	
Visual impacts on drivers	
Selection of viewpoints	
General visual amenity impacts	

Table 2.2 List of matters raised

Matter raised	Relevant RTS chapter
Waste disposal and management	Waste (Chapter 20)
Compliance with Water Sharing Plan for the Macleay Unregulated and Alluvial Water Sources	Water (Chapter 14)
Flooding impacts and siting of infrastructure	
Impacts to groundwater	
Impacts on Oxley Wild Rivers National Park	
Source of water	
Surface water impacts	

2.5.1 Objections

A total of 65 different matters were raised within the community submissions objecting to the project. Where possible, these matters were assigned to the relevant chapters of this report. A summary of the most frequently raised matters in submissions objecting to the project is provided in Table 2.3. The table also shows the percentage of submissions in which each matter was raised. The sum of the percentage column is greater than 100% because almost all of the submissions raised more than one matter. The chapter of this RTS in which each matter has been addressed is provided in brackets.

Table 2.3 Summary of matters raised by objectors

Matter raised	Quantity	Percentage
Site suitability (Strategic and statutory context)	46	69%
Appropriate development on agricultural land (Strategic and statutory context)	45	67%
General visual amenity impacts (Visual)	39	58%
Impacts on tourism (Economic)	30	45%
Declining property values (Economic)	25	37%
Impacts on local businesses (Economic)	24	36%
Inadequate EIS assessment methodology and consideration of impacts (Other matters)	23	34%
Community support and ongoing involvement (Engagement and community outreach)	20	30%
Proximity to residences and screening (Visual)	17	25%
Impacts on lifestyle (Social)	15	22%
Inadequate engagement with neighbouring landholders (Engagement and community outreach)	14	21%
Flooding impacts and siting of infrastructure (Water)	14	21%
Impacts on wildlife (Biodiversity)	13	19%
Potential for contamination (Land)	12	18%
Lack of compensation for neighbouring landholders (Social)	12	18%
Cumulative impacts from other renewables developments (Cumulative impacts)	12	18%

Table 2.3 Summary of matters raised by objectors

Matter raised	Quantity	Percentage
Impacts on migratory birds (Biodiversity)	11	16%
Soil erosion (Land)	10	15%
Compatibility of sheep grazing and project infrastructure (Land)	10	15%
Biosecurity (Biodiversity)	10	15%

As shown in Table 2.3, the most commonly raised matters related to site suitability and development on agricultural land. Potential visual amenity impacts and potential negative impacts on tourism, property values and local businesses were also commonly raised.

Of note, concerns raised in relation to potential impacts to Sunhill Dairy Goats have been classified as 'impacts on local businesses' (n=17). The removal of the southern array area from the current DA has reduced potential for impacts to this business as a result of the construction and operation of the project.

2.5.2 Support

The individual community submissions received in support of the project predominantly raised the job creation and flow-on economic benefits associated with the project as reasons for support. In addition, the project's potential contributions to renewable energy generation were also identified frequently as a reason for support.

A summary of the most frequently raised matters in submissions supporting the project is provided in Table 2.4.

Table 2.4 Summary of matters raised by supporters

Matter raised	Quantity	Percentage
Local and regional economic benefits	19	86%
Employment opportunities	15	68%
Renewable energy generation	13	59%
Income diversification	9	41%
Combat global warming and climate change	8	36%
Drought proofs the farm	8	36%
Dual land use	6	27%
Positive community engagement	6	27%
Positive tourism impacts	4	18%
Quality of the EIS	4	18%
Community benefit sharing initiative	4	18%
Future productivity of the land	4	18%

2.5.3 Comments

As shown in Table 2.1, 14 individual community submissions provided comments and did not indicate that they objected to or supported the project. The matters raised in these submissions have been considered as part of this RTS with responses provided, where relevant to the amended project.

2.6 Project refinement

As noted in Section 1.2, as a result of ongoing discussions with the local community, project landholders and other stakeholders, UPC has made a number of further amendments to the development footprint that was the subject of the DA and EIS, including the removal of the southern array area.

Of the objections received as part of the community submissions, 29 or 43% focused on the southern array and potential impacts to Salisbury Plains. As the southern array has been removed from the DA, a number of the matters raised in these submissions are no longer relevant to the amended project.

The submission provided by the Uralla Shire Business Chamber focused on the southern array area in particular and is subsequently no longer relevant to the amended project.

3 Actions taken during and after EIS exhibition

3.1 Project refinements

As described within Section 1.4.2 of the EIS, the design and location of the development footprint has undergone a number of significant revisions in response to ongoing stakeholder engagement, environmental constraints identification and engineering assessment.

As noted in Section 1.2, as a result of ongoing discussions with the local community, project landholders and other stakeholders, UPC has performed a number of further revisions to the development footprint that was the subject of the DA and EIS. The evolution of the project from the project investigation area through to the amended development footprint is illustrated in Figure 1.2 and Table 1.1 of the AR.

The development footprint no longer includes the southern array area. PV module technology is continuing to improve and the modules that are likely to be utilised for the project have a higher watt rating than was originally anticipated during the preliminary design stages of the project. In addition, UPC will maximise the extent of project infrastructure within the development footprint for the northern and central array areas, where practicable. As a result of these efficiencies, the project will be able to achieve the targeted generating capacity of up to 720 MW through development across the northern and central array footprints only and consistent with the information presented in the EIS, the project will still produce enough clean renewable electricity to power the equivalent of approximately 250,000 homes.

In response to feedback received from neighbouring landholders (namely N4 and N5), revisions have been made to the northern extent of the northern array area to increase the distance between the development footprint and neighbouring residences and thereby minimise visibility of project infrastructure. As part of this refinement, an area of approximately 16 ha has been excluded from the development footprint for the northern array area.

In addition to changes to the development footprint, there have also been revisions to connection infrastructure between the northern and central array areas and substation configuration. UPC has also been investigating the potential to use the Main Northern Railway line to deliver construction materials and infrastructure.

A detailed description of the amendments to the project is provided in Section 1.2 and Chapter 2 of the AR.

3.2 Stakeholder engagement

Stakeholder engagement on the New England Solar Farm has been comprehensive to date and reflects the importance UPC places on this aspect to its business. Since the submission of the EIS, UPC has continued to work with all stakeholders as the approval process for the project progresses.

Consultation has been, and will continue to be, undertaken with a range of stakeholders including various local and NSW Government agencies, the local community and neighbouring landholders. Ongoing stakeholder engagement has been led by UPC with the support of EMM. Chapter 4 of the AR provides an overview of the engagement activities carried out as part of the preparation of the AR and includes:

- a summary of the objectives of consultation since the public exhibition of the EIS;
- a summary of the engagement activities performed with regulatory, community, industry and other stakeholders; and

- a record of media coverage following the amendments to the development footprint.

An overview of regulatory and community engagement during and after the exhibition of the EIS is provided in Section 3.2.1 and Section 3.2.2, respectively. In addition, engagement with the Action Group is summarised in Section 3.2.3.

3.2.1 Regulatory

Engagement with key regulatory stakeholders continued during the exhibition of the EIS.

In March 2019, representatives from UPC and EMM attended a meeting with Uralla Shire Council staff and elected councillors and provided a detailed update on the project, including information on stakeholder engagement, the EIS, the public exhibition and RTS process, the IPC and additional site investigations. Representatives from OEH also attended site inspections with EMM's Senior Archaeologist (author of the Aboriginal cultural heritage assessment report (ACHAR)) and Senior Ecologist (author of the biodiversity development assessment report (BDAR)) and representatives from UPC's project team. The inspection covered:

- a number of significant Aboriginal cultural heritage sites identified during archaeological survey;
- the test excavation program (which was being carried out within the development footprint as part of the additional assessment requirements outlined in the ACHAR); and
- a representative sample of the different plant community types (PCTs) referenced in the BDAR.

Following the exhibition of the EIS, engagement with key regulatory stakeholders has focused on the content of the submissions received from these stakeholders and the amendments to the project.

As described in Section 1.2, UPC has performed a number of further amendments to the development footprint that was the subject of the DA and EIS, including the removal of the southern array area. These amendments have been the subject of further engagement with DPE, Uralla Shire Council, RMS, OEH and DPI.

Representatives from UPC met with Uralla Shire Council's Mayor and General Manager in April 2019 to advise them of UPC's decision to remove the southern array from the current DA for the project. Uralla Shire Council's councillors and selected staff were also informed of this decision via email. A follow-up meeting was held with Uralla Shire Council staff in May 2019 to further discuss the amendments to the project and how these relate to Uralla Shire Council's submission on the DA and EIS. UPC's formal response to that submission and the matters raised within it are provided in Table 4.1.

Consultation with RMS, OEH and DPI in relation to the amendments to the project has focused on the subsequent change in potential impacts to regional roads, biodiversity and Aboriginal heritage, and agricultural production, respectively.

In addition, as part of the preparation of the RTS, UPC and EMM have engaged with DoI – Lands and Water in relation to the source of water during construction and operations and potential interactions with watercourses within and adjacent to the development footprint (refer Table 4.1 of this report and Appendix B).

UPC has also been engaging with JHR and TfNSW in relation to the proposed use of the Main Northern Railway line for delivery of construction materials and infrastructure (refer Appendix B of the RTS). During this engagement, it was confirmed that JHR are the agent/operator of the Main Northern Railway line at the proposed location and TfNSW are the owner and sole approver for any proposed works within the rail corridor. Evidence of UPC's dialogue with JHR and TfNSW in relation to the proposed activities within the rail corridor (ie development of a temporary hardstand and performing unloading operations for a limited period) is provided in Appendix B.

Consultation with JHR and TfNSW has also been undertaken in relation to the submission provided by these agencies during the public exhibition of the EIS. UPC's formal response to this submission and the matters raised within it are provided in Table 4.1.

3.2.2 Community

Extensive efforts have been made to involve the local community and neighbouring landholders and to obtain feedback on the project and potential impacts so that changes to the project design could be made before the EIS was submitted. Evidence of the extent of these efforts is available within the project's consultation register (refer Appendix B of the EIS and Appendix B of this report).

During the EIS exhibition period, UPC held an additional community information and feedback session in an effort to facilitate further positive engagement with the local community. A less formal approach was adopted for this session, which was held at UPC's Uralla Office, with information set up around the room to enable community members to look at the information they were most interested in and in their own time. At the session, staff from UPC and EMM were available to answer questions. The additional session provided the local community and neighbouring landholders with an opportunity to ask questions about the project that may have arisen upon reading the EIS and supporting documents. Attendees were also provided further instructions on how to lodge their submissions online through DPE's website.

In addition to the community information and feedback session, more targeted engagement occurred with neighbouring landholders that reached out to UPC through one of their many available open lines of communication, which include the following:

- New England Solar Farm website (www.newenglandsolarfarm.com.au);
- New England Solar Farm email address (info@newenglandsolarfarm.com.au); or
- New England Solar Farm community information line (1300 250 479).

Direct lines of communication were also made available to a number of neighbouring landholders and interested community members to get in touch with members of the project team.

Throughout both the preparation of the EIS and the public exhibition process, in those instances where a community member expressed their disappointment that they had not been contacted or heard more about the project sooner, UPC has responded positively, offering one-on-one meetings, property inspections, phone calls and/or exchanging emails.

More recently, the project's Facebook page (@newenglandsolarfarm) has been used extensively to communicate project updates and engage with interested parties.

Further information on community engagement undertaken as part of the amendments to the project is provided in Section 4.3.2 of the AR.

3.2.3 Uralla-Walcha Community for Responsible Solar/Wind Action Group

The Action Group is a special interest group comprised of members of the community that has been established to voice their concerns about large-scale wind and solar developments with the objective of ensuring these projects are responsibly integrated into the Uralla Shire and Walcha LGAs.

During the public exhibition of the EIS, representatives from UPC and EMM met with members of the Action Group on a number of occasions to discuss the content of the EIS and supporting technical assessments. Hard copies of the EIS were also provided to key members to assist with their review of the documentation. A record of this consultation is provided in Appendix B.

The Action Group provided a submission on the DA and EIS following the public exhibition period. The submission stated that the proposed southern array area was not considered by the Action Group to be responsible development within the objectives of their mandate. The submission also stated that the Action Group did not object to the development of the northern and central array areas.

A representative from UPC contacted members of the Action Group in April 2019 to advise them of UPC's decision to withdraw the southern array area from the current DA for the project. UPC has committed to further engagement with the Action Group prior to the submission of any future DA for development of a large-scale solar farm in the southern array area. The members of the Action Group that were informed supported UPC's decision to remove the southern array from the current DA and agreed to try to resolve the issues raised in their submission on the project prior to submitting any future DA for the southern array area.

As acknowledged within their submission on the DA and EIS, the Action Group do not object to the development of the northern and central array areas. Subsequently, due to the removal of the southern array from the current DA, UPC has not formally responded to this submission within this report.

3.3 Additional technical assessments

3.3.1 Aboriginal cultural heritage

The Aboriginal cultural heritage assessment report (ACHAR) (Appendix D of the EIS) included a number of commitments for additional assessments (refer Section 9.4 of the ACHAR). The additional Aboriginal cultural heritage assessments performed during and after the EIS exhibition period included:

- **Additional tree survey and management –** EMM identified that the survey undertaken in 2018 for the ACHA did not include inspection of every tree in the development footprint. Accordingly, further survey targeting all trees within the development footprint was recommended so that any newly identified Aboriginal scar trees could be assessed and have management measures ascribed prior to project determination.

- **Scar tree verification and management –** there were four scarred trees (NE45, NE61, NE47 and NE67) that had ambiguous features that could not be discerned between being natural scars or scars created by Aboriginal people. There were an additional two trees of the same nature identified during the additional tree survey in March 2019 (NE101 and NE102). These six trees were marked for expert verification to determine if the scars are natural or of Aboriginal origin so that they could be assessed and have management measures ascribed prior to project determination.

- **Archaeological test excavation –** UPC further investigated five sites with potential archaeological deposit (PAD) that were identified during archaeological survey to determine the significance of these sites and to establish appropriate project avoidance buffers, if warranted. Test excavation was conducted at sites NE15, NE27, NE33, NE70, and NE83 over 10 days from 8 to 18 March 2019.

An addendum report to the ACHAR has been included as Appendix E of the AR and includes the outcomes of the additional Aboriginal cultural heritage assessments and a summary of the Aboriginal cultural heritage impacts associated with the amended project.

3.3.2 Visual amenity

As noted in Section 3.1, the development footprint no longer includes the southern array area. Nine of the viewpoints (ie viewpoints, 1, 2, 3, 4, 7, 8, 9, 12 and 13) assessed as part of the visual impact assessment (VIA) (Appendix I of the EIS) were selected due to their proximity to the southern array area. Further, as noted in Section 3.1, in response to feedback received from neighbouring landholders (namely N4 and N5), revisions have also been made to the northern extent of the northern array area to increase the distance between the development footprint and neighbouring residences. These amendments to the development footprint will result in changes to the extent of project infrastructure visible from the assessed viewpoints and the surrounding environment.

In response to submissions received during the public exhibition of the EIS and ongoing community engagement, three additional viewpoints have been considered as part of the consideration of potential visual amenity impacts associated with the amended project. In addition to inclusion of three additional viewpoints, the following additional analyses have been undertaken as part of the preparation of the AR:

- reproduced the viewshed analysis figures for Viewpoint 5, Viewpoint 16 and Viewpoint 17 to assess potential for reduced visual amenity impacts from these locations;
- recalculated the number of sensitive receptors (ie dwellings) within 2 km of the development footprint and included consideration of potential visual impacts experienced from each receptor; and
- included consideration of potential visual amenity impacts from C8 (represented by Viewpoint 10), a residence identified within the VIA as project-related that is no longer involved in the project as a result of the amendments to the development footprint.

A summary of the visual amenity impacts associated with the amended project is provided in Section 5.6 of the AR.

3.3.3 Biodiversity

Targeted surveys for Koala (*Phascolarctos cinereus*) (Spot Assessment Technique (SAT)) as part of the preparation of the biodiversity development assessment report (BDAR) (refer Figure 5.2 of Appendix C of the EIS) were originally focused on the southern array area where the habitat and connectivity were considered most optimal. The removal of the southern array area as part of the amendments to the project led to a lack of SATs in the amended development footprint. However, it should be noted that given the initial investigations were conducted on the most optimal habitat across the development footprint presented as part of the EIS, the conclusion that the amended development footprint does not contain important koala habitat is still valid.

Anecdotal records of Koala were raised as part of stakeholder engagement with neighbouring landholders who own properties west of the central array. Subsequently, three additional SATs were conducted in the western portion of the central array area to address concerns from these landholders over potential impacts to local Koala populations as a result of the project's construction. The SAT locations were selected based on their relatively good connectivity to woodland areas to the west of the development footprint (refer to Figure 4.1 of Appendix D of the AR).

Searches for Koala scats were based on the SAT Koala Survey Methodology (Phillips and Callaghan 2011) and were undertaken on 24 April 2019. No Koala scats were observed in any of the three SAT areas (90 trees searched), nor were any Koala or distinctive 'poc' marks recorded. Detailed discussion of the outcomes of the additional survey is provided in Appendix D of the AR. In summary, no important koala habitat is present in the amended development footprint based on lack of species occurrence and habitat assessment.

4 Agency responses

As noted in Section 2.2, the following NSW Government agencies provided submissions:

- OEH;
- NSW Health;
- Heritage Council of NSW;
- RFS;
- Uralla Shire Council;
- RMS;
- NSW Fire and Rescue;
- EPA;
- NSW Department of Industry, including commentary from the Water and Natural Resources Access Regulator, Crown Lands and Department of Primary Industries – Agriculture;
- TfNSW;
- SafeWork NSW; and
- DRG.

Each of the relevant matters raised by these agencies have been addressed in Table 4.1. Matters raised by TransGrid have also been addressed in Table 4.1.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
OEH	OEH_1	The OEH recommends that, prior to finalising the EIS, the applicant should: 1. Determine if areas of planted native vegetation on the development site were established with the assistance of public funds granted for any purpose other than forestry purposes.	As part of the consultation undertaken during preparation of the RTS, UPC contacted all landholders with native planted vegetation in the development footprint (referred to as the 'development site' in the BDAR) to determine which were established with assistance of public funds, granted for any purpose other than forestry. Through this process, some planted vegetation was identified as having been established with assistance of public funds. Where there was uncertainty regarding whether vegetation planting had received public funds, a conservative approach was undertaken, ie it was assumed that the planted vegetation had been publicly funded. This is considered in Section 3.1 of the addendum to the BDAR (Appendix D of the AR).
	OEH_2	2. For any areas of planted native vegetation not established with the assistance of public funds, revise the Biodiversity Development Assessment Report (BDAR) to exclude biodiversity values associated with the assessment of the impacts of clearing of planted native vegetation, other than the additional biodiversity impacts specified in clause 6.1 of the Biodiversity Conservation Regulation 2017.	All planted vegetation that was classified as being publicly funded was retained within the PCT 510_planted vegetation zone classification and assessed in accordance with the BAM. Conversely, areas which did not receive public funding were classified as Category 1 exempt land, which allows for vegetation clearing to occur without approval. Consequently, planted vegetation within the development footprint has been split into two zones: • Category 1 planted vegetation (9 ha), which is exempt from assessment; and • PCT 510 planted (1.6 ha), those areas where public funding assistance occurred. The BAM calculator was updated to reflect these changes, with PCT 510_planted generating 35 ecosystem credits. No further mitigation measures are proposed.
	OEH_3a	3. Revise the BDAR assessment of ecosystem credit species to: a) exclude consideration of areas of planted native vegetation identified in Recommendation 2 above and vegetation zones with a vegetation integrity score less than 15; and	
	OEH_3b	b) include swift parrot (*Lathamus discolour*) as a candidate ecosystem credit species for vegetation zone 4 (i.e. PCT 1174).	The Swift Parrot (*Lathamus discolour*) has been included as a candidate ecosystem credit species for vegetation zone 4 (PCT 1174). This did not affect the vegetation integrity score for the zone, as the species with the highest sensitivity drives the multiplier. Given that other ecosystem species with comparable sensitivity were included in the original BAM calculations there was no discernible effect. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	OEH_4	4. Revise the BDAR to detail the outcomes of sampling at the hawkweed (*Picric evae*) references sites and if the species was detected at the reference sites, describe how hawkweed was detected (e.g. vegetative material, fruit and/or flowers).	The approach taken to identify a suitable reference site for the Hawkweed is detailed in Section 5.3.5 of the BDAR (Appendix C of the EIS). The approach was provided to OEH on 11 September 2018 via email, with acceptance of the approach provided on 20 September 2018. It was concluded that no suitable reference sites occur within close proximity of the development footprint, with the closest likely to be in excess of 90 km, near Inverell (refer Figure 1.1 of the EIS). A high density of records exist from Bimbadeen Drive and Orchard Place in Inverell. These records are dated from 2006. This area was visited in September 2018 with the majority of the record location now part of residential developments, providing unsuitable reference sites. Given that the species can disperse widely, surrounding road verges were searched for the species, however none were detected. The location of a second reference site was provided by botanist Lachlan Copeland, from Eco Logical Australia. This reference site was near Swan Brook, Swan Vale (approximately 90 km north of the development footprint). The area was searched; however, it had been recently slashed and no evidence of Hawkweed was found. Targeted surveys for Hawkweed in the development footprint were conducted in late September 2018, which falls in the required survey season (ie September to February)). It is considered very unlikely that the species occurs within the development footprint, as discussed below. A substantial amount of survey effort has been undertaken within the development footprint and the wider study area, since the original consideration of candidate species credit species. This includes; • vegetation mapping and habitat mapping (18 days between January, March, April and August 2018); • targeted surveys for Bluegrass (*Dicanthium* setosum) which shares similar habitat requirements as Hawkweed, including a total of 124 km of transects in April 2018; and • targeted surveys for Hawkweed including a total of 86.3 km during late September 2018. In addition to an absence of any threatened species recorded, the coverage of the development footprint over a variety of seasons has enabled a reliable assessment of the habitat quality of the development footprint and the level of disturbance. The properties within the development footprint are primarily used for sheep grazing for production of wool and lambs, with some cattle grazing for beef production. Vegetation is highly modified by both historical and ongoing management practices including clearance of the original vegetation type, cropping, livestock grazing, addition of fertilisers, ploughing and weed invasion. No vegetation within the development footprint is considered intact. Grazing pressure has reduced grassland areas within the development footprint to a very low height, with very few forbs, either exotic or native. The
	OEH_5	5. If hawkweed was not detected at the reference sites at the time of targeted threatened species survey, then the accredited assessor should either: a) Assume the species is present in areas of potential habitat on the development site; or b) Undertake additional threatened species survey in accordance with Section 6.5 of the BAM; or c) Obtain an expert report in accordance with Subsection 6.5.2 of the BAM.	

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
			vegetation condition within the development footprint was verified by a representative from OEH who attended an inspection of the development footprint on 13 March 2019. Hawkweed is a tall annual species reaching up to 1.5 m in height and is reliant on successfully producing seed for reproduction and continued persistence within an area. Given the grazing pressure, it is very unlikely that this palatable species would be able to reach maturity and set seed. Furthermore, any seedlings would be highly susceptible to grazing. Therefore, as per Section 6.4.1.17 of the BAM (OEH 2017), habitat for Hawkweed is considered substantially degraded such that the species is unlikely to utilise the development footprint. Furthermore, the development footprint is approximately 90 km south of the species' core range of occurrence (noting that several outlier records occur). This candidate species credit species is therefore considered unlikely to occur in the development footprint and no further assessment is required. This approach was considered in consultation with a representative from OEH (Don Owner pers. com. 19 April 2019) and was considered appropriate. No further mitigation measures are proposed.
	OEH_6	6. Amend the BDAR to include: a) An unexpected finds procedure for threatened species; and b) A requirement to prepare a Biodiversity Management Plan as part of the Construction Environmental Management Plan, which provides detailed procedures for implementing each proposed biodiversity management and mitigation measure.	A biodiversity management plan (BMP) will be prepared as part of the project's construction environmental management plan (CEMP) prior to commencement of construction works and will include advice regarding the effective implementation of each of the biodiversity management and mitigation measures listed in Table 6.1 of the BDAR. An unexpected finds procedure for threatened species will be provided in the CBMP. This will include advice and photographs of key species with the potential to occur within the development footprint. If a threatened species or suspected threatened species is found during construction or operation of the project the following actions are recommended: • stop work within the vicinity of the species; • cordon-off the area in question with an appropriate buffer; • inform the management team; • seek advice from an ecologist or species expert to confirm identification; and • if a threatened species is confirmed, consult with the relevant agencies to determine appropriate management, mitigation measures and additional approvals (if required). **A new mitigation measure has been proposed.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	OEH_7	7. Retain and protect all [standing]* Aboriginal scar trees and quarry sites on the subject land. **Text in [ ] verified during follow-up consultation with OEH archaeologist.*	Aboriginal scar tree management proposed for the project is outlined in Section 7.2.4 of the Addendum to the Aboriginal cultural heritage assessment report (AHCAR) included as Appendix E to the AR. As part of the proposed management, UPC has committed to avoidance of all identified standing Aboriginal scar trees located within the development footprint, which will receive the same general avoidance methods as described in in Section 9.2.3 of the ACHAR (Appendix D of the EIS). As outlined in the addendum to the ACHAR, the project's Aboriginal heritage management plan (AHMP) will detail long-term preservation options for the trees, which will be developed in consultation with RAPs, the project archaeologist and OEH. The duration of UPC's management commitments for the trees would be limited to the estimated 25-30 years of the project prior to decommissioning. Four quarry/artefact scatter/PAD sites have been identified as part of the ACHAR (NE14, NE21, NE22, and NE43), impacts to all of which will be avoided as outlined in Section 7.2 of the Addendum to the ACHAR. **A mitigation measure has been revised.**
	OEH_8	8. Engage a qualified arborist to assess the nature of tree scars and determine which trees are Aboriginal objects.	Scar tree expert and consultant Andrew Long was engaged as part of the RTS process to assess the nature of six tree scars that were previously unverified. This assessment determined four sites to be probable Aboriginal scar trees (NE45, NE47, NE67 and NE102), with two sites (NE61 and NE101) determined as not Aboriginal scar trees. Section 3 of the Addendum to the ACHAR (refer Appendix E of the AR) outlines the scar tree survey and verification process undertaken, and Section 7.2.4 outlines scar tree management commitments. **A mitigation measure has been revised.**
	OEH_9	9. Ensure that the management of both immediate harm and long-term preservation of Aboriginal scar trees, either in-situ or off-site, is determined by the project Registered Aboriginal Parties in consultation with the project archaeologist and OEH.	As outlined in the Addendum to the ACHAR, all standing Aboriginal scar trees will be avoided and managed in-situ, except for NE65 which is in the now-removed southern array area and will not be managed as part of the project. One site, NE49, is a felled tree and will be salvaged and managed off-site. **A mitigation measure has been revised.**
	OEH_10	10. Amend the Aboriginal Cultural Heritage Management Plan to incorporate the applicant's commitment to provide ongoing management opportunities and access for Aboriginal people to Site NE09, and access to NE68 following project construction.	UPC are committed to incorporating Aboriginal community access arrangements into the proposed Aboriginal Heritage Management Plan (AHMP) which will be prepared post-project approval. This commitment is presented in Section 9.3.2 of the ACHAR (Appendix D of the EIS) and in the table of updated mitigation measures included as Appendix B of the AR. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
NSW Health	NSW Health_1	ES5.8 Water The Exhibited Environmental Impact Statement states that, "Water demands during construction and operation will be satisfied by potable water imported (trucked in) to site". The selected option for the provision of a private potable water supply is likely to require a Quality Assurance Program in accordance with the provisions of the Public Health Act 2010. Again, the proponent is encouraged to contact Hunter New England Local Health District with respect to developing a Quality Assurance Program. Additional information can also be accessed through the NSW Health website via the following link: https://www.health.nsw.gov.au/environment/water/Pages/private-supplies.aspx Water carters providing drinking water for human consumption should take water from a supply that meets the Australian Drinking Water Guidelines (potable water supplies). Appropriate sources include town drinking water supplies, or directly from a bulk water supplier at the point of water treatment.	UPC will ensure that the selected potable water supply option satisfies the requirements of the NSW *Public Health Act 2010*, including any requirement for a Quality Assurance Program. Any potable water sourced for human consumption will be sourced from an appropriate 'supplier of drinking water' consistent with the requirements of the NSW *Public Health Act 2010*. The CEMP to be prepared for the project prior to commencement of construction will include requirement to identify the selected potable water supply option and associated regulatory requirements in consultation with NSW Health. **A new mitigation measure has been proposed.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
Heritage Council of NSW	HC_1	The assessment identified and assessed existing local and State significant archaeological sites. Impacts on the known sites, Shepherd's Hut (HNE17) and House Site (HNE19) have been mitigated through revisions of the development footprint for the central and norther array areas, thereby enabling their continued preservation. A survey of the third known site, the Stockyard (former) (HNE26), dating to approximately c1967, revels no physical evidence at the site. Should archaeological remains be uncovered during the project work the assessment indicated they would likely consist of post holes, nails and timber fragments. The assessment of impacts to this site is considered to be moderate, with no test excavation proposed as the significance of the site does not warrant this type of investigation. It is noted however, that if evidence of the Stockyard is located during Aboriginal test excavation, any archaeological remains will be archivally recorded. It is further noted that this investigation would be completed either through the public exhibition of the EIS or in preparation of the RtS report.	Test excavation at the site of HNE26 was undertaken as part of the Aboriginal archaeological excavation undertaken between 8 to 18 March 2019, with negative results. Further, as a result of the amendments to the project, HNE26 is no longer within the development footprint. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	HC_2	Management measures include the provision of an unanticipated finds protocol in the HHMP in the event that objects including bonded bricks, timber or stones in formation indicating a wall or floor are found, or if soil with artefact concentrations are excavated. Should the materiality threshold as defined in the HHMP be met, work will cease and an archaeologist will be contacted to assess the nature of the find. Should the find be determined to be a relic the Heritage Council will be notified through a s146 application.	An unanticipated finds protocol will be refined in the HHMP to provide guidance to construction personnel should works uncover objects and fabric that may indicate relics. Details of the protocol have been included in Section 5.4.4 of the AR. Work will stop if objects such as bonded bricks, timber or stones appearing in formation indicating a wall or floor are found, or if soil with artefacts concentrations, is excavated. A detailed materiality threshold will be determined prior to construction as part of the HHMP and staff involved in excavation work will be informed about how to apply it. The unanticipated finds protocol will include actions such as: • if the find meets the materiality threshold defined in the HHMP, work will immediately but temporarily cease within 5 m of the find and the site supervisor or appropriate responsible person will be informed; • an archaeologist will be contacted to assess the find, where relevant, and determine if it is clearly a relic or has moderate to high potential to be a relic (this may require additional research); • if the find is determined to be a relic, a s146 (of the Heritage Act) is to be forwarded to the Heritage Council who will be consulted on the appropriate management measure; and • if the find is assessed and is not a relic, work inside the area that was made a no-go area can re-commence. Appropriate management measures range from do nothing to archaeological excavation. **A mitigation measure has been revised.**
RFS	RFS_1	1. The proposed Bush Fire measures contained in: • Annexure M Bushfire Hazard assessment, Section 5 Mitigation Measures; • Annexure M Bushfire Hazard Assessment, Preliminary Bushfire Report for the Temporary Construction Workforce Accommodation Village of the Environmental Impact Statement (EIS), dated February 2019 are supported.	Noted. No further mitigation measures are proposed.
	RFS_2	The proposed Fire Management Plan shall be done in consultation with the New England Fire Control Centre.	The CEMP to be prepared for the project prior to commencement of on-site construction works will include requirement to prepare a fire management plan in consultation with the New England Fire Control Centre. **A mitigation measure has been revised.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
Uralla Shire Council	Council_1	Council resolve to make a submission to the Department of Planning and Environment in relation to the proposed New England Solar Farm stating that Council endorses sustainable development within the Shire, and expects the Development Application to be considered in the context of our Community Strategic Plan, particularly the following stated goals: • To preserve, protect and renew our beautiful natural environment. • Maintain a healthy balance between development and the environment. • An attractive environment for business, tourism and industry. • Growing and diversified employment, education and tourism opportunities.	Council's *Community Strategic Plan 2017-2027* identifies 15 community goals, of which four are highlighted in Council's submission. Associated with each goal identified in the plan are a number of specific strategies that have been developed to support the achievement of the stated goals. Each of the strategies of relevance to the project are addressed below. • To preserve, protect and renew our beautiful natural environment: 1) Record and promote the region's heritage in partnership with the community 2) Protect the Shire's historic buildings and site, recognising their value to the community 3) Protect and maintain a healthy catchment and waterways 4) Raise community awareness of environmental and biodiversity issues A comprehensive assessment of the historic heritage of the local area and broader region has been undertaken as part of the assessment of the project (refer Appendix E to the EIS). As outlined in the EIS, consideration of potential historic heritage impacts resulting from the project were an important factor in UPC undertaking significant refinements to the project during preliminary investigations and preparation of the EIS. In particular, the following avoidance measures were adopted: • avoidance of built heritage items identified in the Uralla Local Environmental Plan 2012 (Uralla LEP), including Gostwyck Memorial Chapel and Precinct (I10) and Deeargee Woolshed (I11); • reduction to the extent of the southern and central array areas within the modern extent of Gostwyck Station; and • avoidance of impacts to numerous sites identified during field assessments as part of the preparation of the historic heritage assessment (HHA) and Statement of Heritage Impact (SoHI). As a result of the careful site selection and project refinement processes that incorporated comprehensive consideration and assessment of historic heritage, the EIS concluded that the project would have a minor negative effect on the historical heritage significance of the rural character of the region and a moderate effect within the development footprint, predominantly by obscuring the cultural landscape rather than destroying it. Further, as detailed in Section 5.4 of the AR, amendments to the project undertaken since exhibition of the EIS will avoid potential impacts to two identified heritage sites and further reduce impacts to the cultural landscape of the region. In addition, a range of mitigation measures are proposed to be implemented for specific heritage sites within the amended development footprint that will further reduce potential impacts to archaeological sites.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
			The project will not have a significant impact on any known significant archaeological sites as these have all be excised from the development footprint. In undertaking the HHA for the project, there has been an opportunity, which would otherwise not have existed, to assess the early squatting runs in the field, and which will provide a substantial amount of information that can be put to use to open up areas of investigation that were not available previously. The HHA has considered and consolidated a vast data set into a publicly accessible report that provides significant contribution to the knowledge and understanding of the history and historic values of the area. In addition, the proposed mitigative measures include undertaking detailed digital photographic recording of a number of identified archaeological items within the development footprint, along with the cultural landscape and views within the development footprint and immediate surrounds. The majority of the historic sites and views identified are not accessible to the general public as they are located on private landholdings that form part of the project boundary, and therefore photographic recording of these items that will become publicly available, provides improved public access to this information that would otherwise not have existed. Similarly, the Aboriginal cultural heritage assessment (ACHA) that has been undertaken as part of the assessment of the project (refer Appendix D to the EIS) guided UPC in undertaking significant refinements to the project in order to avoid potential impacts to Aboriginal cultural heritage, including: • avoidance of Aboriginal Heritage Information Management Information System (AHIMS) listed sites; • establishment of significant set-backs from higher order watercourses and water bodies which have high levels of archaeological and cultural significance; and • avoidance of sites of high and moderate significance that have been identified as part of the archaeological field survey. Further, as detailed in Section 5.3 of the AR, amendments to the project undertaken since exhibition of the EIS will avoid potential impacts to numerous sites that are no longer within the development footprint. Additional scar tree verification work has been undertaken, with UPC committed to avoidance of all verified still-standing Aboriginal scar trees identified within the development footprint. In addition to avoidance mechanisms, a range of additional mitigative measures will be implemented during construction, operation and decommissioning of the project to effectively manage potential impacts to Aboriginal cultural heritage, which will be detailed in an Aboriginal heritage management plan (AHMP) to be prepared prior to commencement of construction of the project. This will include the collection of all surface artefacts to be impacted by the project for ongoing care within a keeping place, along with commitment for provision of ongoing management opportunities and access for Aboriginal people to NE09 and NE68, two significant grinding groove sites identified in the northern array area, impacts to which will be avoided.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
			The AHCAR (Appendix D of the EIS) provides a significant contribution to the knowledge and understanding of Aboriginal cultural heritage values of the area, and UPC's commitment to avoidance, salvage and ongoing engagement with the Aboriginal community provide educational opportunities for Aboriginal people and the broader community. The EIS provides a comprehensive assessment of environmental features in and surrounding the project. The project has provided an opportunity to engage with the local community on environmental issues, has raised community awareness of the environmental values of the area, and provides opportunity for further learning and research through the body of publicly available work that has been produced in support of the EIS. The project has been designed to preserve and protect the significant environmental values across the site and commits to actively manage potential environmental impacts through ongoing project design and during construction, operation and decommissioning of the project. • Maintain a healthy balance between development and the environment. 1) Retain open space and greenbelts that are accessible to everyone 2) Educate the community about sustainable practices in the home, at work and in public places 3) Ensure that Uralla Shire is sufficiently prepared to deal with natural disasters including bushfires, major storms and flood events The project is located on privately owned land and does not impact on public open space or publicly accessible greenbelts. The development footprint contains very little remnant vegetation, and that which does exist is generally of low biodiversity value. As outlined in the EIS, substantial effort has been put into designing and refining the project during the assessment process to avoid removal/impact to native vegetation. Community engagement undertaken as part of preparation of the EIS and supporting technical assessments, and development of the project's community benefit sharing initiative (CBSI – refer to Section 4.6 of the EIS) has provided opportunity for community access to environmental professionals, increased knowledge and awareness of environmental values across the community, and opportunity to share thoughts and ideas on the community's key concerns and potential opportunities regarding environmental issues. As outlined in Section 4.6 of the EIS, UPC is committed to contribute funds to the local community each year over a period of 25 years through the project's CBSI. These funds could contribute to community education initiatives focussed on sustainable practices. As part of the work undertaken to date in developing the CBSI, community education regarding energy, has already been identified as a recommended activity under the CBSI framework, and other similar educational opportunities could be identified during subsequent design and implementation of the CBSI post approval.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
			As outlined in the EIS, the project has been designed in consideration of potential impacts, hazards and risks associated with bushfires, storms and flood events, and will be constructed and operated so as to prevent any significant negative impacts on such events. • An attractive environment for business, tourism and industry. 1) Promote the Uralla Shire and the region as a wonderful place to live, work, visit and invest 2) Promote the Uralla Shire to business and industry and increase recognition of the area's strategic advantages 3) Implement tools to simplify development processes and encourage quality commercial, industrial and residential development As a state significant renewable energy project and the first proposed for the Uralla Shire LGA, the project provides an opportunity to promote the region for its potential commercial opportunities relating to sustainable energy developments that are aligned with the region's strategic land use and development plans, and which can contribute to positive economic and community outcomes. The region has been identified as being highly suited to becoming a "renewable energy zone" and the project is the first to reach the planning assessment stage, potentially paving the way for other sustainable energy developments. Similarly, Council's involvement in the approval processes for the project provides learning opportunities that can be applied to potential future significant development opportunities on which the region can capitalise. • Growing and diversified employment, education and tourism opportunities. 1) Support and encourage existing business and industry to develop and grow 2) Support the attraction of new business, including sustainable employment generating projects 3) Facilitate major social and cultural events being staged in our Shire and our region As outlined in the Economic Impact Assessment (refer Appendix O of the EIS), the project will generate employment opportunities and other indirect economic benefits. Direct employment opportunities generated by the project will include up to 700 full-time equivalents (FTEs) at the peak of construction and up to 15 FTEs during operations. The project will also result in a diversification of the income earned by the landholders involved in the project, most of whom will continue farming on their properties within the region. During construction, there will be a preference for employment of local and regional residents where they are able to demonstrate relevant skills and experience and a cultural fit with UPC and the EPC contractor. UPC is already in the process of compiling a database of local contractors and individuals who are interested in

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
			employment and subcontracting opportunities, to better facilitate introduction to the lead EPC contractor selected for the construction phase. A range of general economic impact management measures are proposed, which will assist to maximise the local community's opportunities to access and benefit from the project, including: • ensuring regional residents are made aware of employment opportunities and lead contractors are encouraged to hire regional residents where they have the required skills and experience and are able to demonstrate a cultural fit with the organisation; • participation in business group meetings, events or programs in the regional community designed to make regional businesses aware of upcoming contracting opportunities and requirements; • encouraging lead contractors to purchase local non-labour inputs to production, where local producers can be cost and quality competitive, to support local industries; and • project design to enable continued sheep grazing within the array areas will reduce level of agricultural impacts throughout project operations. In addition, UPC and the Registered Aboriginal Parties (RAPs) are in ongoing discussions about the potential for employment opportunities associated with the construction and operational stages of the project. UPC is committed to establishing a positive, long-term connection with the local community, and through implementation of the CBSI can provide opportunities for support of regional education and training programmes, social and cultural events, or other community-focussed activities and initiatives through provision of a revolving loan, community coordinator, and/or grant program. The project has been designed in consideration of, and in response to, the environmental values across the site, and as outlined above, has the potential to directly or indirectly contribute to achieving many of the stated goals of the Community Strategic Plan.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	Council_2	• A 'cradle to grave' approach should be taken to ensure the project is environmentally sustainable during construction, operation, and decommissioning through appropriate bonding arrangements with the NSW Government	As outlined in Section 2.7 of the EIS, the project infrastructure will be decommissioned and the development footprint returned to its pre-existing land use, namely suitable for grazing of sheep and cattle, or another land use as agreed by the project owner and the landholder at that time. Consistent with contemporary consent conditions issued for large scale solar farm developments in NSW, it is anticipated that any consent for the project will include conditions requiring that the development be decommissioned and site rehabilitated within a specific period and to the satisfaction of the Secretary of DPE. Assuming the project is approved, a project decommissioning and rehabilitation plan will be prepared in accordance with any relevant conditions of consent. The plan will outline the rehabilitation objectives and strategies for returning the development footprint to agricultural production or alternative uses as has been agreed with the project landholders. As part of the decommissioning and rehabilitation, UPC would remove any underground cabling within 0-500 mm of the ground surface, and will attempt to reuse, resell or recycle all dismantled and decommissioned infrastructure and equipment, where possible. Structures and equipment that cannot be reused or recycled will be disposed of at an approved waste management facility. No further mitigation measures are proposed.
	Council_3	• Operation of the worker's village should be 'best practice' with regard to environmental impacts	Siting of the proposed construction accommodation village has considered a range of environmental constraints and issues identified and informed by field survey and assessment work undertaken to date in support of preparation of the EIS. Further work in determining placement and design of the facility will include consideration of key environmental aspects as outlined in Section 2.3.5 of the EIS, and in consultation with Council and other relevant agencies as required. Design and operation of supporting infrastructure associated with the construction accommodation village, including a sewerage treatment plant (STP), water treatment plant, waste management and power generation components will be undertaken in accordance with relevant 'best practice' design standards and regulatory requirements, and in consultation with Council and other relevant agencies as required as outlined in Section 2.3.5 of the EIS. UPC will put in place appropriate procurement processes to ensure that the construction accommodation village will be managed by an experienced operator (most likely to be a contractor to the lead EPC contractor appointed for the construction of the project). A range of mitigation measures are proposed for the design and operation of the construction accommodation village which will be incorporated in the Construction workforce management plan (CWMP) as summarised in the AR. Implementation of these measures will ensure that that facility is designed and operated to 'best practice' standards, with processes in place to facilitate ongoing consultation and feedback mechanisms with Council and the local community during operation of the facility. The construction accommodation village is expected to be dismantled and its footprint rehabilitated once the project is built and it moves into the operational stage. **A mitigation measure has been revised.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	Council_4	• That local employment be preferred	UPC has a genuine intention to establish positive, long-term connection with the local community, which has been demonstrated through the project design and refinement process, commitments outlined throughout the EIS, and community engagement undertaken to date, which will continue throughout the subsequent phases of the project. As committed in the EIS (refer EIS Section 5.12.4 and Table 6.1) and communicated via the community information sessions, local media and the project webpage (https://www.newenglandsolarfarm.com.au/faq), UPC has committed that wherever possible, local residents and businesses will be prioritised for jobs, contracting and procurement of materials for the solar farm, so that benefits to the local economy and community can be maximised. Lead EPC contractors that are typically engaged in the large scale solar industry in Australia tend to hire the majority of the labour force for each solar farm on a project by project basis, using subcontractors. This has the dual advantages of being a) cost-effective, since the lead contractors do not need to carry large numbers of workers on their books; and b) better from the point of view of ensuring that locals will be able to apply for construction phase jobs. It is more cost effective for the lead contractor and subcontractors to hire as many people from the region as possible, since they will tend to have their own transport and accommodation. Similarly, if the same standard of goods and services are available at competitive prices there is no logical reason to procure them from further afield. This will favour local businesses in any services or goods where reduced transport costs offer a competitive advantage or where costs are comparable with non-locally sourced goods and services. Community engagement activities undertaken throughout the assessment and approval process have actively encouraged local residents and businesses to register their interest in employment or contracting opportunities via a contractor enquiry form on the project website (https://www.newenglandsolarfarm.com.au/enquiry). UPC has setup and is maintaining a database of contact details for those who have registered their interest and will continue to utilise this database to provide project updates and support future procurement processes. As the development progresses and the lead contractor(s) for the project's construction phase are selected, UPC will hold information and introduction sessions for local businesses and residents to provide further details on employment and contracting opportunities. In addition, if required, a community advisory group (similar to the Community Reference Group), which includes representatives from Uralla Shire Council, local business owners and key stakeholders could be established to meet on an as needs basis to discuss construction and workforce-related issues during the construction stage of the project. This will allow UPC and/or the EPC contractor to communicate the timing of upcoming construction activities, provide local businesses with advance notice of resource needs and allow the businesses to plan for material needs and peaks and troughs in demand. It could also provide community representatives with a forum for voicing concerns. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	Council_5	• Systems be put in place to preserve environmental values	The project has been designed to avoid and minimise environmental impacts wherever possible. During the preparation of the EIS, the development footprint within the project boundary has been refined on the basis of environmental constraints identification, stakeholder engagement, community consultation and design of project infrastructure with the objective of developing an efficient project that avoids and minimises environmental impacts (refer Section 1.4.2 of the EIS). In those instances where potential impacts cannot be avoided, UPC'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. As outlined in Sections 2.8 and 6.2 of the EIS, UPC will prepare and implement an environmental management strategy (EMS) to 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. The strategy will: • incorporate project environmental management plans (EMP) for both construction and operational phases, all other required plans, protocols, management and mitigation measures proposed in the EIS (as amended in this report and the accompanying AR). Chapter 6 of the EIS and Appendix B of the AR provide a consolidated summary of the specific management measures that will be implemented for each of the key environmental aspects considered as part of the EIS as part of the EMP and its associated sub-plans; • identify all relevant statutory approvals; • establish roles, responsibility, authority and accountability of all key personnel involved in the environmental management of the project; • establish procedures for consulting with the local community and relevant agencies about the operation and environmental performance of the development; and • establish procedures for handling of complaints, disputes, non-compliances and emergency response. The EMS will be prepared in consultation with Council as required, and to the satisfaction of the Secretary of DPE. **A mitigation measure has been revised.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	Council_6	• Any upgrades and maintenance to Council Infrastructure to service the construction and/or operation of the development should be at the developer's expense	All project-related infrastructure as described in Section 2.3 of the EIS, including supporting infrastructure and the construction accommodation village if required, will be constructed and maintained by UPC, its appointed lead EPC contractor(s) or its delegates (subcontractors)). The construction accommodation village is proposed as a standalone facility that will not require provision or upgrade of Council infrastructure as it will include STP, water treatment plant, waste management and power generation components that will be designed and managed in accordance with regulatory requirements. Council water and sewer infrastructure is not proposed for use during either construction or operation of the project. Some Council-owned roads will require upgrade as part of construction of the project, which is subject to ongoing consultation with Council with a view to agreeing to a suitable schedule of road upgrade works with Council prior to determination of the project. Refer response to Item 'Council_9a' below for further discussion. No further mitigation measures are proposed.
	Council_7	• No Council infrastructure should be negatively impacted by the solar farm construction and or operation	It is not anticipated that damage to any other Council infrastructure would occur as a result of construction or operation of the project. UPC or its appointed EPC contractor will undertake a dilapidation survey of local roads along the proposed access routes and to restore any damage to the road reserve to the satisfaction of Council, the framework for which is part of ongoing work and consultation with Council. Refer response to Item 'Council_9a' below for further discussion. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	Council_8	• Protection of the amenity of residents surrounding the solar farm and along transport routes should be the paramount consideration in the decision making process	As described in Section 1.4.2 of the EIS, the design and location of the development footprint within the site boundary has undergone a number of significant revisions. Throughout this refinement process, potential amenity impacts to nearby residents has been a key consideration in decision-making. In particular, identified potential amenity impacts for residents along The Gap Road was the reason for a substantial reduction in the development footprint of the southern array as presented in the EIS (refer EIS Figure 1.3). It is also noted that the southern array has subsequently been removed from the development footprint associated with this DA), partly in response to amenity issues which are to be given further consideration by UPC in consultation with residents outside of the current development application. Similarly, proximity to residences along Heathersleigh Road, Corey Road, Burns Road and Hariet Gully Road; the results of a preliminary viewshed analysis; and targeted engagement with the property owner at N1, resulted in significant revisions to the northern extent of the northern array area to increase the distance between the development footprint and neighbouring residences. This included exclusion of an area of approximately 315 ha from the development footprint for the northern array area (refer EIS Figure 1.3). Since exhibition of the EIS, the development footprint of the northern array has been refined again within proximity of Hariet Gully to reduce potential visual impacts on N4 and N5 to the east of the project (refer Section 5.6 of the AR). UPC's commitment to such considerations has been demonstrated through the community consultation and project refinement activities undertaken to date. This will continue through the subsequent phases of the project, for which UPC has committed to preparation and implementation of an environmental management plan and associated sub-plans for key issues, including traffic, noise, dust and visual impacts (refer EIS Section 6.2). These plans will be developed in consultation with neighbouring landholders, the broader local community and relevant agencies as required, to ensure that local amenity issues are identified and effectively managed to reduce potential impacts, particularly during construction of the project. No further mitigation measures are proposed.
	Council_9a	Council resolve to make a technical submission on infrastructure to the Department of Planning and Environment in relation to the proposed New England Solar Farm with the following recommended conditions of consent: Roads • A Traffic Management Plan prepared by an accredited certifier with detail commensurate with the scale of the solar farm is to be submitted to Council and approved before any works are	As committed in the EIS (refer Table 6.1), a traffic management plan (TMP) will be prepared by a suitably qualified professional to address all identified project related traffic issues requiring management. The TMP will be prepared prior to commencement of on-site construction works in consultation with Council and RMS and to the satisfaction of DPE. In advance of preparation of the TMP, as part of ongoing project design and planning work and in consideration of the project amendments and associated traffic-related impacts as outlined in the AR, UPC has engaged an experienced traffic consultant to further quantify and assess potential impacts to local roads and intersections and prepare concept designs for proposed road and intersection upgrades, with a view to agreeing with Council prior to determination of the project, a suitable schedule of upgrade works and set of mitigation measures to address the 'roads' related items identified in Council's submission. This work includes further consideration of the most appropriate mitigation measures to be adopted for dust suppression purposes, which may include localised sealing of gravel roads in the vicinity of residences along Munsies and

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		undertaken. The Traffic Management Plan is to detail specific routes for heavy vehicles and dust suppression maintenance standards. • The Traffic Management Plan is to be developed for each road prior to it being utilised by the developer. • Any roads to be used for B Doubles are to be assessed using the RMS B double route assessment guidelines and, if upgrading is required, this work is to be undertaken by the developer. • Roads to be used for Oversized/Overweight movements are to be assessed as per National Heavy Vehicle Regulator assessment. • That gravel roads in front of residences be sealed for a length of 200m for dust suppression purposes. • All roads need to be upgraded as per the standards set out in Table 4.2, Appendix K (of the EIS), as per future daily traffic assessment for project peak construction traffic by the developer prior to commencement of site works for each stage. • Project-related heavy vehicles are not to traverse any roads not specifically identified in the approved Traffic Management Plan. • Any damage to Council's road infrastructure is to be immediately rectified by the developer or operator, at their cost, to the satisfaction of Councils General Manager or nominee.	Big Ridge Roads. As part of consultation undertaken in support of the preparation of this RTS, this approach (including consideration of scope and timing) was discussed with and supported by Council. UPC is continuing work on the further assessment and design package, and has committed to continue engagement with Council, RMS, DPE and neighbouring landholders during this process.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		• Local roads proposed to be used for project-related traffic are to be constructed, at the cost of the developer, to meet the current Austroads design standard at the time of construction, based on peak predicted traffic volumes outlined in the EIS prepared by EMM Consulting dated 16 November 2018. • The subject roads are to be maintained to this standard, at the developers cost, until the completion of construction and issue of an Occupation Certificate.	
	Council_9b	Services Any provision of normal municipal services by Council to the developer will be at Councils discretion. A Waste Management Plan with detail commensurate with the scale of the solar farm is to be submitted to Council and approved before any works are undertaken. Comingled recycling or any other waste products will not be accepted at the Uralla landfill without formal agreement. A Water and Wastewater Management Plan with detail commensurate with the scale of the solar farm and workers village is to be submitted to Council and approved before any works are undertaken. Adequate wash bays are provided and used.	It is anticipated that there will be no requirement for provision of municipal services to the project. Water, sewer, power and waste will be managed by UPC. As committed in the EIS (refer Table 6.1), a waste management plan (WMP) will be prepared prior to commencement of construction in consultation with Council as required. As part of preparation of the WMP, anticipated waste streams and quantities will be identified, along with requirements (including waste separation requirements or comingling limitations for example) and capacity of nearby waste management facilities to accept the project's waste. Appropriate waste management measures will be put in place to ensure that waste is effectively managed in accordance with the relevant legislative requirements and guidelines. A soil and water management plan (SWMP) will be prepared prior to commencement of construction in consultation with Council as required. The key water-related issue associated with construction of the project is erosion and sediment control. The SWMP will set out the framework for preparation and implementation of progressive erosion and sediment control plans (ESCPs) that will be prepared for site or activity specific measures. The SWMP will also incorporate the other water-related commitments outlined in Table 6.1 of the EIS and Appendix B of the AR, including measures to prevent vehicles tracking material off-site (for example use of wash bays). If required, the STP to service the construction accommodation village would be designed and installed by the lead contractor in accordance with the relevant design standards and regulatory requirements, and in consultation with DPE, Council, the EPA, DoI Lands and Water and OEH. Any required licence to operate would also be obtained. These requirements, along with any ongoing management requirements, would be outlined within the SWMP. **A mitigation measure has been revised.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	Council_9c	Assets • Location of any project related assets on Council controlled land will require approval of Council by resolution.	Noted.
	Council_9d	Rehabilitation • All infrastructure and equipment, including underground cabling above 500mm depth, is to be removed from the site during decommissioning. • Rehabilitation of the workers accommodation site must be done prior to the issue of the occupation certificate.	As outlined in Section 2.7 of the EIS, project infrastructure will be decommissioned, during which all above ground facilities and underground equipment including medium voltage cabling up to 500 mm in depth will be removed from the development footprint. As outlined in Section 2.3.5 (iii) of the EIS, the construction accommodation village is expected to be dismantled and its footprint rehabilitated once the project is built and it moves into the operational stage. The site of the construction accommodation village may be utilised for PV modules and ancillary infrastructure once the village is removed. Rehabilitation objectives and requirements will be detailed in the environmental management plan to be prepared for the project. Any requirements specific to the construction accommodation village will be incorporated in the CWMP. **A mitigation measure has been revised.**
	Council_9e	Environmental • An environmental monitoring plan be developed and implemented to include: – On and off site pollution by heavy metals – Monitoring the impact of the panels on migratory birds	The PV modules will most likely use polycrystalline or monocrystalline technology. Modern crystalline solar panels of the type that will be used for the project do not contain heavy metals. All of the monocrystalline or polycrystalline PV panels being considered by UPC for the project are manufactured by tier 1 suppliers which make products meeting all the relevant international and domestic standards. The solar farm construction will be undertaken by a leading EPC contractor using modern tier 1 PV panels that have passed the due diligence of UPC and its financiers. Solar panel production, installation and performance will be closely monitored. There is therefore no risk of any heavy metal pollution from the solar PV modules themselves. The grid connection and array collector substations and batteries within the BESS may contain some heavy metals (e.g. nickel, manganese, cobalt, iron, copper). Similar to the PV panels, this equipment will be manufactured by reputable manufacturers meeting all relevant international and domestic standards. The substation and BESS facilities will be designed and constructed by tier 1 contractors and will incorporate sufficient bunding/storage capacity to contain spills. In relation to the BESS, there are appropriate measures in place to ensure the chemicals within the battery cells are contained and will not contaminate the surrounding environment. These measures include: • an energy management system, which monitors the health of the BESS down to a cell level, ensuring the system is operated in a safe manner;

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
			• gas and temperature sensors, which monitor the enclosures and will detect any abnormalities; • fire suppression systems as part of the enclosures; and • multiple levels of physical separation between chemicals within the cells and the environment (ie the cells will be housed within a module, which will likely be stacked in an enclosure). Appropriate spill prevention and management measures will be developed as part of the EMP, which will include spill clean-up procedures which would be implemented during construction and throughout the project's operations. An assessment of potential impacts to migratory species was undertaken as part of the BDAR (refer Appendix C of the EIS), which has subsequently been updated in an addendum to the BDAR included as Appendix D to the AR, to reflect project amendments undertaken post EIS exhibition. Thirteen migratory species have been recorded or are predicted to occur within the wider locality. However, the development footprint does not provide important habitat for an ecologically significant proportion of any of these species. The project is within an over-cleared landscape of agricultural land. Treed areas are limited to small patches and there are no connectivity features present within or adjacent to the development footprint. There is also a lack of significant geological features, such as ridgelines, valleys and large watercourses that may be used as flight corridors for migratory species across the development footprint. The assessment was undertaken in accordance with applicable legislative requirements, which included assessments of significance for two migratory species; White-throated Needletail and Fork-tailed Swift (refer Appendix F of the BDAR). The assessment concluded that no significant impacts on these species are predicted to result from the project. Based on the outcomes of the BDAR, it is not considered that monitoring of migratory birds is warranted. It is further noted that in Council's consideration of the potential impact on migratory birds, a particular concern raised in the council meeting was due to the relative proximity of Dangar's Lagoon to the southern array area. This area of the development footprint has since been removed from the current development application. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
RMS	RMS_1	The Traffic Impact Assessment (TIA) did not provide sufficient details quantifying the proposed traffic management arrangements. Detail such as concept designs for the recommended intersection improvements which should include an assessment of sight distances, swept paths and access treatment arrangements.	Noted. The TIA identified the need for such details and proposed that this be further addressed as part of the post-approval phase of the project during preparation of a TMP prior to commencement of on-site construction works. UPC has undertaken further consultation with RMS during preparation of this RTS to confirm RMS requirements for further design and traffic management arrangements, including the timing for undertaking this work. As part of this consultation, RMS was also made aware of the amendments to the project, incorporating removal of the southern array from the DA, which has consolidated the number of haulage routes required for the project and reduced the number of intersections proposed to be utilised by heavy vehicles. As a result of the amendments to the project, intersection improvements on roads under RMS jurisdiction are now limited to the following: • New England Highway/Barleyfields Road (north); and • New England Highway/Barleyfields Road (south). The recommended intersection improvements for these intersections are described in Section 5.8.3 of the AR. As committed in the EIS and agreed with RMS, a TMP and Driver Code of Conduct will be prepared prior to commencement of construction and in consultation with Council and RMS and will include concept designs for the recommended intersection improvements for the two above-mentioned intersections, incorporating assessment of sight distances, swept paths and access treatment arrangements. UPC (and/or the EPC contractor) will continue to liaise with RMS and Council as further details are available in relation to the required intersection improvements. **A mitigation measure has been revised.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	RMS_2	Roads and Maritime is planning to undertake changes to the intersection of the New England Highway and North Barleyfields Road. It is recommended the New England Solar Farms proposed road works on the highway should be co-ordinated with Roads and Maritime to achieve safe and efficient outcome.	Noted. As outlined above in response to item 'RMS_1', UPC has undertaken further consultation with RMS during preparation of this RTS, which has included discussion regarding approach to upgrades of the New England Highway/Barleyfields Road (north) intersection. RMS propose the construction of a left turn lane to Barleyfields Road from the New England Highway. This decision was based on the traffic data available under the current use of this intersection. It was noted that as part of this work, RMS will ensure that the intersection of Barleyfields Road and the New England Highway will be suitable for conversion to a CH(R) layout without significant construction work (ie implementation of a right-turn lane for traffic turning right into Barleyfields Road (north) from the New England Highway), which will satisfy the future peak hourly traffic volumes associated with the project. UPC (and/or the EPC contractor) will continue to liaise with RMS and Council as further details are available in relation to the required intersection improvements. No further mitigation measures are proposed.
	RMS_3	A Construction and Operational Traffic Management Plan (COTMP) should be developed in consultation with Uralla Shire Council and Roads and Maritime. It should at least contain details of traffic management treatments, Traffic Control Plans (TCP), Drivers Code of Conduct and measures to limit the impact on school bus routes.	As committed in the EIS, a TMP and Driver Code of Conduct will be prepared prior to commencement of on-site construction works and in consultation with Council and RMS, and will incorporate details of traffic management treatments and traffic control plans (TCPs) as required, along with consideration of measures to limit the impact on school bus routes and safety initiatives for transport through residential areas and/or school zones. **A mitigation measure has been revised.**
	RMS_4	Where possible, haulage routes should be consolidated to reduce the impacts on the community, road network, intersections and the need for road works.	As discussed in detail in Section 5.8 of the AR, amendments to the project have resulted in the consolidation of proposed haulage routes, with a number of traffic routes identified in the TIA no longer required for project related vehicle movements. This will reduce the number of local roads that will be used by project-related light and heavy vehicles, thereby reducing potential impacts on the community and the need for road and intersection upgrade works. The proposed vehicle routes now incorporate the following: • two access points to the northern array area via Barleyfields Road (north and south), then onto Big Ridge Road; and • one access point to the central array area via Barleyfields Road (north and south), then onto Big Ridge Road and turning right onto Munsies Road. Assessment of potential traffic impacts associated with the amended project has been undertaken as outlined in the AR, which also includes revised mitigation measures, including proposed intersection improvements and road maintenance requirements. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	RMS_5	Dilapidation Surveys should be undertaken with the relevant road maintenance authorities prior to and post construction works.	As committed in the EIS, a TMP and Driver Code of Conduct will be prepared prior to commencement of on-site construction works and in consultation with Council and RMS, which will include requirement for a dilapidation survey to be conducted to assess condition of the proposed vehicle routes. No further mitigation measures are proposed.
	RMS_6	Regulatory signs and devices will require the endorsement of the Local Traffic Committee prior to Council approval.	Noted. Any such measures would be detailed in TCPs, which will be prepared under the framework of the TMP and be subject to endorsement of the Local Traffic Committee (consisting of representatives from Council, the Police, RMS and the Local State Member of Parliament or their nominee) and Council approval. **A mitigation measure has been revised.**
	RMS_7	All works on the classified roads will need to be designed and constructed in accordance with the current Austroads Guidelines, Australian Standards and Roads and Maritime Supplements.	As outlined above in response to item 'RMS_1', as a result of the amendments to the project, works on classified roads under RMS jurisdiction are now limited to the following intersection improvements: • New England Highway/Barleyfields Road (north); and • New England Highway/Barleyfields Road (south). Design and construction requirements for proposed intersection improvement works will be detailed in the TMP, which will be prepared in accordance with relevant guidelines, standards and RMS requirements, and in consultation with Council and RMS. No further mitigation measures are proposed.
	RMS_8	The developer will be required to enter into a Works Authorisation Deed (WAD) with Roads and Maritime for any works deemed necessary on the classified (State) road. The developer will be responsible for all costs associated with the works and administration for the WAD.	Noted. No further mitigation measures are proposed.
NSW Fire & Rescue	F&R_1	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 2000 (the Regulation),	As committed in the EIS, an emergency response plan (ERP) will be prepared for the project and will incorporate all relevant safety procedures and normative management recommendations detailed in the relevant acts, regulations and Australian Standards. The ERP will address the recommendations outlined in points 2-6 of FRNSW's submission. **A mitigation measure has been revised.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		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). 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. 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	

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		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 LEML can be obtained from the relevant local council.	
	F&R_2	7. As a Condition of Consent that a Fire Safety Study (FSS) be prepared for the site and submitted to FRNSW for review and determination. The FSS should be developed in consultation with and to the satisfaction of FRNSW.	Fire hazards have been considered in detail in the hazard and risk and bushfire hazard assessments undertaken as part of the EIS (refer Appendices L and M of the EIS respectively), which includes identification of fire hazards, consequences and control mechanisms built into the current project design and committed mitigation measures. Ongoing project design work will incorporate the controls identified in the hazard and risk assessment, and as committed in the EIS, prior to commencement of onsite construction works, UPC will prepare an emergency response plan (ERP), which will incorporate specific fire management planning requirements, and will be prepared in consultation with FRNSW as committed in response to item 'F&R_1' above. No further mitigation measures are proposed.
EPA	EPA_1	The EPA has responsibilities for pollution control and environmental management for scheduled activities under the Protection of the Environment Operations Act 1977("the Act"). Based on the information provided the proposed development is not a scheduled activity under the Act and the solar farm does not required an Environment Protection Licence ("EPL"). Under the Act Uralla Shire Council will be the Appropriate Regulatory Authority for pollution control and environmental management issues for this proposal, should consent be granted. As such the EPA has not reviewed the EIS and has not provided any recommended	Noted. Ancillary works associated with the project with potential to be classified as scheduled activities under Schedule 1 of the NSW *Protection of the Environment Operations Act 1977* (PEOE Act) include: • use or onsite storage of chemicals, including prescribed waste, dangerous goods or toxic substances, in quantities in excess of the criteria (Schedule 1, clause 8 Chemical production and clause 9 Chemical storage); • operation of an onsite sewage treatment facility (associated with the construction workforce accommodation village if required) with a processing capacity in excess of the criteria (Schedule 1, clause 36 Sewage treatment); and • transportation of waste classified as 'trackable waste' in quantities in excess of the criteria (Schedule 1, clause 48 Transportation of trackable waste); Based on current project information as presented in the EIS and the AR and a preliminary review of Schedule 1 criteria, it is considered highly unlikely that any ancillary works associated with the project will trigger the criteria/thresholds for each of these activities to be considered scheduled activities and therefore require an EPL.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		conditions of approval for this development. However, the EPA recommends that the applicant review Schedule 1 of the Act to determine if an ancillary works associated with the New England Solar Farm may be scheduled and require an EPL. For example, 'extractive activities.	Potential licencing requirements for the project will be further considered post-approval during preparation of construction and operational management plans. Should it be identified that any associated ancillary activities have potential to trigger the relevant Schedule 1 criteria, UPC or the appointed EPC contractor for the project would ensure that appropriate EPL(s) are obtained. No further mitigation measures are proposed.
TransGrid	TG_1	TransGrid is working closely with UPC Renewables in relation to the Solar Farm connection. TransGrid has already undertaken a formal connection enquiry response and has entered into a formal Connection Process Agreement with UPC Renewables to complete a detailed scoping study and designs, with a view to enter into a formal project and connection agreements for the generation connection.	Noted. UPC continues to work with TransGrid in relation to the connection agreements that are proposed to be put in place for the project. No further mitigation measures are proposed.
	TG_2	Please find attached TransGrid's easement Guidelines, Fencing Guidelines and Work Near Overhead Power Lines Code of Practice for your review.	Ongoing project planning and design work will ensure that the development footprint, project layout and construction activities satisfy TransGrid's easement guidelines, fencing guidelines and work near overhead power lines code of practice. No further mitigation measures are proposed.
Department of Industry – Water and Natural Resources Access Regulator	DoI WNRAR_1	Prior to Project Determination: • The proponent should confirm the ability to obtain the necessary water volumes from a viable source, via an indication of an agreement from a water supplier, confirmed availability of sources on-site or access to alternate authorised sources	Water demand for construction and operation of the project has been estimated as outlined in Section 5.9.3 of the EIS. It is anticipated that construction and operational water demands will be satisfied through the importation of water to site (ie trucked in). Where feasible, and in accordance with harvestable rights provisions, any water contained within dams to be removed may be used for non-potable construction purposes to minimise wastage and use of imported water. The details of water supply requirements and options, including identification of appropriate water supplier(s), will be further considered by UPC and/or its appointed lead contractor(s) during post-approval works as part of ongoing project design and planning work and preparation of the CEMP and OEMP. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	DoI WNRAR_2	• The proponent should commit to designing the site infrastructure and compound areas to mitigate impacts to watercourses that may occur during flood events	As outlined in Section 5.9 of the EIS, preliminary design has considered flooding constraints and makes appropriate responses in terms of locating flood-sensitive facilities (eg substations and BESSs) away from watercourses and areas of high hazard flooding. Array areas have also adopted appropriate setbacks from mainstream flooding and higher order watercourses. As committed in the EIS, adverse flooding impacts within and downstream of the development footprint for the two array areas will be avoided as part of the detailed design of the project, which will avoid placement of permanent works in areas that could obstruct and divert floodwaters. No further mitigation measures are proposed.
	DoI WNRAR_3	• The EIS states that watercourse crossings of 1st and 2nd order streams for internal access tracks and electrical cabling will be minimised to the extent practicable. The proponent should prepare these crossings in accordance with the Guidelines for watercourse crossings on waterfront land (NRAR 2018).	The intent of this point was clarified with representatives of the NRAR, who confirmed that this comment had been included as a guide, noting that, consistent with the assessment outlined in the EIS and surface water assessment (SWA) (Appendix H of the EIS), the proposed crossings not located within waterfront land (in accordance with the WM Act) do not need further approvals from the department, but that the guidelines should still be considered when designing these crossings. As noted in the SWA, the majority of the mapped lower order watercourses do not have a discernible channel and therefore are considered unlikely to satisfy the definition of 'waterfront land' established within the NSW *Water Management Act 2000* (WM Act). Furthermore, riparian zones and associated vegetation adjacent to the 1st and 2nd order watercourses that traverse the development footprint have been modified and degraded by historical land use practices and past disturbances associated with land clearing, cropping and intensive livestock grazing. Several of these lower order watercourses have been modified or flows diverted altogether by project landholders through the construction of contour banks. For those 1st and 2nd order watercourses within the development footprint that do not satisfy the definition of 'waterfront' land, it is not considered appropriate to require compliance with the guidelines for watercourse crossings on waterfront land. No further mitigation measures are proposed.
	DoI WNRAR_4	• The proponent should install a sewerage treatment plans (STP) for the construction accommodation village which may also service any nearby facilities. The Department requests that the location of the STP is not to be located with *Waterfront Land* as per the *Water Management Act 2000*.	As committed in Table 6.1 of the EIS, if the construction accommodation village is required, a STP to service the construction accommodation village would be designed and installed by the lead contractor or a suitably qualified specialist subcontractor in accordance with the relevant design standards and regulatory requirements, and in consultation with DPE, Uralla Shire Council, the EPA, DoI Lands and Water and OEH. Any required licence to operate would also be obtained. If an STP is required, it will not be located within waterfront land as defined by the WM Act. **A mitigation measure has been revised.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	DoI WNRAR_5	Post Project Determination: • The proponent should obtain relevant approvals and licenses under the Water Management Act 2000 before commencing any works which intercept or extract groundwater or surface water (including from on-site dams where necessary) or for any works which have the potential to alter the flow of floodwaters.	Noted. Potential licencing requirements for the project will be further considered post-approval during preparation of construction and operational management plans. Should it be identified that any licences or other approvals are required, UPC (or the EPC contractor) would ensure that these are obtained in accordance with relevant legislative requirements. No further mitigation measures are proposed.
	DoI WNRAR_6	• The proponent must prepare a Construction Environmental Management Plan (incorporating an Erosion and Sediment Control Plan) prior to commencement of activities. It is requested that this be undertaken in consultation with the Department of Industry – Lands and Water.	As committed in Table 6.1 of the EIS, a construction environmental management plan (CEMP) will be prepared prior to commencement of on-site construction works. The project will adopt a two-level hierarchical system for erosion and sediment control management and mitigation, consisting of a SWMP supported by a set of progressive erosion and sediment control plans (ESCPs) for each section of the construction site. ESCPs may also be used in conjunction with site or activity specific environmental work method statements (EWMSs) or similar to provide more detailed site-specific environmental mitigation measures. The SWMP will be included as part of the CEMP and will be prepared in consultation with DoI – Lands and Water. It will provide detailed background information, erosion hazard assessments including erosion hazard mapping and soil loss calculations for all disturbed areas, overall drainage, erosion and sediment control approach, design standards and management strategies and approach for progressive rehabilitation and stabilisation of disturbed land. **A mitigation measure has been revised.**
	DoI WNRAR_7	• The proponent should ensure that watercourse crossing plans detail the design of proposed crossings of any higher order stream (ie 3rd order and above). Please prepare these in consultation with Department of Industry – Lands and Water prior to commencement of construction.	As committed in Table 6.1 of the EIS, watercourse crossing plans detailing the design of proposed crossings of any higher order stream (ie 3rd order and above) will be prepared consistent with relevant guidelines and in consultation with DoI Lands and Water prior to commencement of construction. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	DoI WNRAR_8	• The proponent needs to mitigate the potential for erosion within first and second order watercourses during construction and operation of the project.	The development footprint has been designed to avoid and minimise impacts on watercourses within the array areas and their surrounds. The majority of first and second order watercourses within the development footprint are ephemeral, have no discernible channel and have been extensively modified by the construction of dams and retentions banks. Nonetheless, as committed in the EIS, the placement of project infrastructure within the development footprint will avoid first and second order streams, where possible. Management for erosion potential as well as rehabilitation will be incorporated as part of the standard erosion and sediment control management practices during construction and operations and will be detailed within the construction and operational EMPs to be prepared for the project. The construction period poses the greatest risk for potential increased levels of soil erosion, primarily during ground disturbance. The project has been designed to utilise the existing topography where practical, to minimise the need for extensive land reshaping during construction and to minimise the potential for soil erosion. As committed in the EIS and outlined in response to item 'DoI WNRAR_6' above, the construction EMP will incorporate a SWMP supported by a set of progressive ESCPs for each section of the construction site. Where particular sensitivities or erosion risks are identified, ESCPs may be used in conjunction with site or activity specific EQMSs or similar to provide more detailed site-specific mitigation measures. In addition, as committed in the EIS, ongoing monitoring of watercourse condition and vegetated riparian zone (VRZ) condition will be undertaken during operations for all retained watercourses that meet the definition of 'waterfront' land in accordance with the WM Act and where these run through or immediately adjacent to the development footprint. Maintenance will be undertaken as required to minimise scouring and erosion and ensure waterway health and stability. **A mitigation measure has been revised.**
Department of Industry – Crown Lands	DoI Crown_1	The EIS refers to consultation of the *Crown Lands Act 1989*. This Act has been replaced by the *Crown Land Management Act 2016*, and any decisions made by the proponent based on reference to the old Act should be reviewed.	Noted. No further mitigation measures are proposed.
	DoI Crown_2	Any activity which impacts upon Crown land, including Crown roads, must not be undertaken by the proponent without the prior written consent of the department. An application to close a Crown road does not provide permission to undertake any works	Noted. As outlined in the AR, impacts to Crown roads within the development footprint will be limited to the ground disturbance activities described In Section 5.5.3 (i) of the EIS. Impacts to Crown roads outside of the development footprint but within the project boundary will be limited to installation of security fencing and creek crossings (should they be required).

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		upon a Crown road, and the making of an application is not a guarantee that the application will be successful. Whilst a Crown road remains the property of the Crown it retains a right of public access. It is strongly suggested that the proponent contact the Crown Roads Project Team on roads.newcastle@crownland.nsw.gov.au in order to discuss potential challenges and options relating to the closure of Crown roads. More information is available on the process of purchasing Crown roads at http://www.industry.nsw.gov.au/lands/access/roads.	UPC is currently in contact with the Crown Roads Project Team as part of ongoing project design and planning work to discuss potential challenges and options relating to the closure of Crown roads that are located in the project boundary and is in the process of lodging license applications. No further mitigation measures are proposed.
Department of Industry – Agriculture	DoI Ag_1	All below ground cabling and infrastructure on Biophysical Strategic Agricultural Land (BSAL) should be removed by the proponent at the end of the project. This position is not reflected in the New England Solar Farm EA (Section 5.5.4 Mitigation measures iv. Decommissioning p. 142) stating that "any underground cabling below 500 mm will remain in-situ following project decommissioning".	As outlined in the AR, amendments to the development footprint have reduced the amount of land mapped as BSAL within the array areas to approximately 87.7 ha (northern array area only), which largely follows the alignment of a number of lower order watercourses (refer Figure 5.5 of the AR). In addition, approximately 12 ha of land mapped as BSAL intersects with the proposed electrical cabling corridor between the northern and central array areas. This represents less than 5% of the development footprint and approximately 0.0036% of the total land area mapped as BSAL in NSW. As outlined in the AR, the quality of the land within the development footprint is generally poor, with soil capability class ranging between Class 3 (moderate limitations) to Class 6 (very severe limitations) (refer Figure 5.5 of the AR). Assuming the project is approved, a project decommissioning and rehabilitation plan will be prepared in accordance with any relevant conditions of consent. The plan will outline the rehabilitation objectives and strategies for returning the development footprint to agricultural production or alternative uses as has been agreed with the project landholders. As part of the decommissioning and rehabilitation, UPC would remove any underground cabling within 0-500 mm of the ground surface, and will attempt to reuse, resell or recycle all dismantled and decommissioned infrastructure and equipment, where possible. Structures and equipment that cannot be reused or recycled will be disposed of at an approved waste management facility. UPC continues to liaise with DPI in relation to this matter. A copy of the latest correspondence with DPI is provided in Appendix B. **A mitigation measure has been revised.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
TfNSW	TfNSW_1	Excavation in, above, below or adjacent to rail corridors <u>Comment</u> Clause 86 of ISEPP stipulates that the consent authority must not grant consent without consulting with the rail authority and obtaining concurrence consistent with clauses 86(2) – (5) in the event that the development involves the penetration of ground to a depth of at least 2m below ground level on land within 25m of a rail corridor. It is noted that the EIS does not contain details of excavation of the Proposal <u>Recommendation</u> The Response to Submissions (RtS) should outlined any proposed excavation in proximity to the rail corridor. If there is any such excavation, the proponent should undertake further analysis including a geotechnical and structural engineering assessment outlining the risks and mitigation strategies for all phases of the project (construction, operations and decommissioning) demonstrating that there will be no adverse impact on the stability and integrity of the rail corridor land and rail infrastructure. Note: If there is any such excavation, TfNSW will suggest a condition following the review of any material prepared as part of the RtS.	As part of the preparation of the AR and RTS, UPC and EMM has engaged in consultation with TfNSW and JHR. TfNSW indicated as part of this consultation that references to the 'rail corridor' in the TfNSW submission is taken to mean 'rail land'. In relation to TfNSW's comment, the rail land under consideration is identified as Lot 2 DP 982376, which is the adjacent land parcel that extends along the boundary of the northern array area. As part of this consultation, UPC provided addition detail to JHR in relation to proposed construction activities within the northern array area of the development footprint, which will extend to within 25 m of the rail corridor, specifically regarding: • the dimension of the material being driven (steel "piles" or "posts" which are the uprights which support the rows of panels); • the equipment being used to drive the posts in (pile driving machines); • the distribution of the posts within the area relevant to the rail corridor; and • the proposed location of boundary fencing. This information was considered by JHR's principal track and civil engineer, and JHR subsequently confirmed that the proposed piling at an offset of 10 m from the rail corridor boundary would be acceptable, and that there were no concerns regarding potential impact on rail operations associated with works being undertaken at this 10 m offset. JHR noted that suitable protection arrangements would be required for the construction of the boundary fence, and that JHR's review of the proposed fencing design will be required to ensure that it meets JHR's minimum standard. **A new mitigation measure has been proposed.**

TfNSW_2	Cranes Comment Clause 85 of the ISEPP 2007 states that if the development involves the use of a crane in the air space above the rail corridor, the consent authority must take into consideration any response from the rail authority. Furthermore, the Guideline provides that a crane, concrete pump or other equipment (Equipment) must not be used in airspace over the rail corridor without approval in writing from the rail authority. It is noted the EIS does not provide details of whether the development will involve the use of cranes in the air space above the corridor. Recommendation The RtS should outline whether the development involves the use of a crane in the air space above the rail corridor. In the event that cranes are required to be used in air space above the rail corridor, the Proponent should provide a safety assessment of the works necessary for the Proposal assessing any potential impact or intrusion on the Danger Zone (as defined in the JHR Network Rules and Procedures http://www.jhrcrn.com.au/what-we-do/network-operations-access/network-rules-procedures-forms). It is noted than any works must be undertaken by a qualified Protection Officer (as defined in the JHR Network Rules and Procedures http://www.jhrcrn.com.au/what-we-do/network-operations-access/network-rules-procedures-forms). Also, the use of Equipment must be in accordance with the AS 2550 series of Australian Standards, *Cranes, Hoist and Winches, including AS2550 15-1994 Cranes – Safe Use – Concrete Placing Equipment*.	No cranes are proposed to be used in the air space above the rail corridor for the purpose of construction of the project. However, as described in Section 2.4.4 of the AR, UPC is considering the potential use of the Main Northern Railway line for delivery of construction materials and project infrastructure. If this option proceeds, UPC would unload the trains using a mobile forklift within the temporary hardstand area and transport the shipping containers (or similar) to a temporary laydown area within the development footprint for the northern array area (refer Figure 2.3 of the AR). UPC has been engaging with JHR and TfNSW in relation to the proposed use of the rail line (refer Appendix B), which has included a site inspection of the areas identified in Figure 2.3, Photograph 2.1 and Photograph 2.2 of the AR. During this consultation, JHR was confirmed as the agent/operator of the Main Northern Railway line at the proposed location and TfNSW as the owner and sole approver for any proposed works within the rail corridor. To allow for the development of the hardstand and unloading operations (ie activities outside of the development footprint), a licence from TfNSW is required. As noted during consultation with DPE, this is a separate approval process and will be undertaken in consultation with JHR and TfNSW. No works will be undertaken within the rail corridor without the appropriate licence(s) in place. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		Note: If there is use of cranes above the rail corridor's airspace, TfNSW will suggest a condition following the review of any material prepared as part of the RtS.	
	TfNSW_3	Stormwater management <u>Comment</u> The Guideline provides that discharge of stormwater from a development during and after construction should be designed to ensure that no adverse effects will be had on the existing watercourse and drain infrastructure system. <u>Recommendation</u> The RtS should confirm that the Proposal including construction, operation and decommission of the project will have no adverse effect on the existing watercourse.	Section 5.5 of the referenced guideline identifies that discharge of stormwater from a development can potentially impact on road or rail infrastructure and may affect existing watercourses and drainage infrastructure and change run-off behaviour. As illustrated on Figure 4.2 of the SWA (Appendix H of the EIS), there are no mapped watercourses within the development footprint that discharge towards the rail corridor in the vicinity of the northern array area. Within the northern array area, the closest mapped watercourse to the rail corridor is a first order watercourse that discharges to Lambing Gully (a third order watercourse) downstream of the rail corridor. Adverse flooding impacts within and downstream of the development footprint will be avoided as part of the detailed design of the project, which will avoid placement of permanent works in areas that could obstruct and divert floodwaters. Further, as outlined in Section 5.9.3 of the EIS, the potential for surface water impacts associated with hydrologic changes due to increased runoff rates from PV modules is considered negligible because PV modules shed runoff directly to the ground, which will be stabilised and vegetated to promote retention and infiltration. It is noted that single axis tracking technology would allow for approximately 60-70% of the available land within the array areas to remain free of project infrastructure. As a result, no adverse impacts to watercourses or changes to runoff behaviour in the vicinity of the rail corridor are anticipated, nor to road or rail infrastructure as a result of stormwater or flooding impacts resulting from the project. No further mitigation measures are proposed.
	TfNSW_4	Noise, vibration & air quality <u>Comment</u> The Guideline provides that for development that is in or immediately adjacent to a rail corridor the consent authority must be satisfied that the development would not be adversely affected by rail noise, vibration or air quality due to the volume of traffic the rail line carries. <u>Recommendation</u> As the Land is immediately adjacent to the rail corridor, the response to submissions	There is unlikely to be any adverse effects experienced by project infrastructure or the safe operation of the proposed development as a result of existing rail noise, vibration and air quality. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		must confirm the Proposal will not be adversely affected by rail noise, vibration and air quality due to the volume and frequency of rail traffic.	
	TfNSW_5	Demolition and Construction impacts Issue The northern array area is immediately adjacent to the rail corridor which contains the railway line currently in operation. It is vital for both TfNSW and JHR to be satisfied that the Proposal does not have any adverse impact on safe operation of the rail corridor and the existing rail infrastructure during construction and operation. In addition, the Environmental Impact Statement (EIS) states that once the project reaches the end of its investment and operational life, the project infrastructure will be decommissioned and all above ground facilities will be removed only during decommissioning. Recommended Condition The Proponent must to submit to TfNSW, or its agent JHR, a Risk Assessment/Management Plan and Safe Work Method Statements detailing any impact on the rail corridor for each stage including construction, operation and decommissioning.	As committed in the EIS, the lead contractor appointed by UPC will prepare a CEMP and OEMP for the project, which will be prepared in consultation with TfNSW (or its agent) to ensure that any potential impacts or risks on the rail corridor during construction, operation or decommissioning are identified and appropriate mitigation measures put in place to adequately manage the identified risks. **A mitigation measure has been revised.**

TfNSW_6	Traffic Management <u>Issue</u> The EIS demonstrates that the Proponent had previously discussed with JHR regarding consequential impacts of the Proposal on the level crossings as part of preparation of TIA and had subsequently obtained relevant advice from JHR. However, the EIS contains statements regarding JHR's previous advice which appear to be contradictory as Table 4.12 of the EIS seems to indicate that JHR advised of potential upgrades to the level crossings while Page 193 of the EIS states that JHR required no alterations to any of the level crossings. Please note that there are three (3) existing level crossings, two of which are identified as active level crossings with flashing lights at Barleyfields Road and Thunderbolts Way, one of which at Gostwyck Road is identified as a passive crossing with stop signs in the vicinity of the Land. In addition, the EIS indicates that the Proposal will result in the use of heavy construction machinery during the construction phase, which may also impact the level crossings. <u>Recommended Condition</u> The Proponent must bear the costs of upgrading the passive level crossing (or implement appropriate risk mitigation e.g. engagement of protection officers during the construction phase) at Gostwyck Road if TfNSW and JHR are of the view that it is necessary to upgrade the passive level crossing to accommodate the increased traffic during construction and/or operation. The Proponent must prepare and provide JHR with an assessment based upon the Australian Level Crossing Assessment Model in order to identify key potential risks regarding the level crossings at Barleyfields	As outlined in Section 5.8 of the AR, amendments to the development footprint have consolidated the proposed vehicle routes to the site, which now incorporate: two access points to the northern array area via Barleyfields Road (north and south), then onto Big Ridge Road; and one access point to the central array area via Barleyfields Road (north and south), then onto Big Ridge Road and turning right onto Munsies Road. As a result of these amendments, project related traffic is no longer proposed along Thunderbolts Way or Gostwyck Road, and therefore the existing level crossings on these roads will no longer be impacted by the project. As outlined in response to item 'Council_9' above, as part of ongoing project design and planning work and in consideration of the project amendments and associated traffic-related impacts as outlined in the AR, UPC has engaged an experienced traffic consultant to further quantify and assess potential impacts to local roads and intersections, including further consideration of potential impacts of construction traffic on the existing grade railway crossing on Barleyfields Road (north). Upon completion of this further work, and prior to commencement of on-site construction work, UPC will consult with TfNSW to confirm requirements for further assessment in consideration of the Australian Level Crossing Assessment Model. **A new mitigation measure has been proposed.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		Road, Thunderbolt Way and Gostwyck Road, as a result of the increased use of the heavy machinery. In the event that such assessment finds that there will be significant increases in their use, Uralla Shire Council will also be requested to update the current Road Rail Interface Agreement to reflect the change to those level crossings in accordance with the Rail Safety National Law 2012.	
	TfNSW_7	Fencing <u>Issue</u> The EIS states that the exact alignment of security fencing with respect to the development footprint will be determined by the Proponent in close consultation with each of the project landholders. As the northern array area is immediately adjacent to the rail corridor, the security of fencing along the rail corridor is essential to prevent unauthorised entry. <u>Recommended Condition</u> The boundary fences along the rail corridor should be installed and remain installed during construction and operation of the facility in accordance with JHR's engineering standards which is available at http://jhrcrn.com.au/media/2071/crn-cp-511-v1-1.pdf. The Proponent must submit an application to access the rail corridor in order to install the boundary fences to JHR for its endorsement and for TfNSW's approval / approval with conditions. Please refer the Proponent to JHR website http://www.jhrcrn.com.au/what-wedo/ property-services/third-party-work-enquiries/.	Boundary fences within the northern array area adjacent to the rail corridor will be installed and remain installed during construction and operation of the facility in accordance with JHR's engineering standards. Any requirement for work access to the rail corridor would only be undertaken following assessment and endorsement by JHR for the proposed access and would be undertaken in accordance with the relevant JHR rules and procedures. During consultation with JHR, it was confirmed that all land within Lot 2 of DP 982376 is classified as rail land and therefore forms part of the rail corridor. A copy of this consultation is provided in Appendix B **A new mitigation measure has been proposed.**

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		The Proponent must obtain approval for a track possession in order to install the boundary fences.	
	TfNSW_8	Access to the rail corridor and Work Access & Possessions Issue As mentioned above, the development would require work access to the rail corridor. Recommended Condition Approval to work, access and track possession of the railway corridor or part thereof (or air space) must be assessed and endorsed by JHR prior to the actual proposed access in accordance with JHR's Network Rules and Procedures and the JHR Possession Manual. This information can be found at http://jhrcrn.com.au/what-we-do/network-operationsaccess/network-access-planning-performance/ Once assessed and endorsed, JHR will submit the approval sought by the Proponent for TfNSW's approval / approval with conditions or no approval.	As outlined above, any requirement for work access to the rail corridor would only be undertaken following assessment and endorsement by JHR for the proposed access and would be undertaken in accordance with the relevant JHR rules and procedures. **A new mitigation measure has been proposed.**
	TfNSW_9	Visual Impacts Issue It is noted that Visual Impact Assessment (VIA) was undertaken to consider the likely impacts of the Proposal on surroundings including residences, heritage items, air traffic and road corridors and to consider any mitigation measures. However, the VIA does not contain information regarding any potential impact of the Proposal on the rail operation.	As outlined in Section 5.6.3 of the EIS, the potential for glare associated with non-concentrating PV solar systems is relatively limited, and typically, as little as 2% of the light received is reflected by PV modules. PV modules will not generally create noticeable glare when compared with an existing roof or building surface, with PV modules being designed to absorb solar energy and convert it to electrical energy, not to reflect solar energy. Consistent with the outcomes of consideration of potential for low angled reflected sunlight to cause a distraction to drivers travelling along the local and regional road network, the PV modules are not expected to cause a distraction to nor blind train drivers travelling along the adjacent rail corridor due to the low level of reflectivity of PV modules. It is noted that solar PV plants have been installed in close proximity to train lines in many locations around the world, including in Australia. Moree Solar Farm for example, is located less than 2 km east of the railway line. In several countries in Europe and in Japan for example, solar PV plants are often built immediately adjacent to

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		Recommended Condition The Proponent must prepare and provide to JHR a statement confirming that the level of reflectivity and glare produced by any materials, lighting and external finishes of infrastructure necessarily required for the Proposal will not blind or cause distraction to train drivers for NP 24 services (up trains). The Proponent must avoid the use of red and green lights in all signs, lighting building colour schemes on any part of a building which will face the rail corridor.	railway lines on the outskirts of urban areas due to the lower availability of suitable agricultural land. There are no known instances of any solar PV plants causing impacts on rail safety. Further, as outlined in the EIS, the materials, lighting and external finishes of infrastructure will also be chosen to minimise visual impacts, wherever practicable. Buildings and materials will be designed to blend in with the local rural/farming landscape and will not be significantly dissimilar to existing dwellings, modern farm sheds or other agricultural infrastructure in the area surrounding the arrays. No further mitigation measures are proposed.
	TfNSW_10	Derailment protection and other potential impacts of adjacent development on railway Issue The Guideline provides information regarding the potential risks from a possible derailment in the context of design of buildings and structure. Recommended Condition The Proponent must provide JHR with a risk assessment addressing the potential risks of the derailment including considerations of the characteristics of the site, the type of structure to be erected and track speed and whether this represents a risk to the integrity of the structure and demonstrating compliance with JHR Engineering Standards being CRN CS 320, which then references AS 5100 which is available at http://www.jhrcrn.com.au/what-wedo/engineering-standards/civil-standards/.	The rail corridor adjacent to the site boundary in the vicinity of the norther array area is 25 m in width, and project infrastructure will be setback from the site boundary by a further 10 m, therefore it is not considered that there is any significant derailment risk for structures proposed on land adjacent to the rail corridor in the northern array area. The solar PV plant will be built by a tier 1 reputable contractor, with all engineering designs meeting the relevant Australian standards and appropriate insurances will be put in place prior to the commencement of construction works. UPC will have to demonstrate to the satisfaction of its financiers that all relevant project risks have been taken into account prior to securing finance for the construction phase. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
	TfNSW_11	Access to the Land Issue It is noted that there are several access points to each array via local roads. The Minister for Planning is requested to ensure that access to the rail corridor is strictly prohibited unless otherwise permitted in writing. In the meantime, the EIS states that the locations of emergency access points will be determined during detailed design. Recommended Condition The Proponent must consult with JHR and TfNSW in respect of the prospective locations of emergency access points to consider any potential impacts on the operations of the current and future rail operations.	Access to the rail corridor is not anticipated as being required and would only be undertaken in accordance with the written permission of TfNSW. As outlined in the EIS, in addition to the identified primary site access points, emergency access points may be required and will be identified as part the project's ERP, which will be prepared post-approval. UPC or the appointed lead EPC contractor(s) for the construction phase will consult with JHR and TfNSW in relation to locations of emergency access points during preparation of the ERP. **A mitigation measure has been revised.**
SafeWork NSW	SWNSW_1	SafeWork NSW has no objection or further advice regarding conditions of consent based on the information provided other than compliance to existing Work Health & Safety legislation.	The project will be designed, constructed, operated and decommissioned in accordance with relevant work health and safety legislation. No further mitigation measures are proposed.
DRG	DRG_1	The SEARS issued for the proposal includes the requirement for consultation during the preparation of the EIS with exploration licence holders, quarry operators and mineral title holders. The Division specifically required the proponent to address the project's potential impacts on existing land uses including mining, mineral and petroleum rights. The Division requested the proponent consult with the Geological Survey of NSW (GNSW, within the Division) regarding an area of identified high mineral potential, and any biodiversity offset site.	Noted. No further mitigation measures are proposed.

Table 4.1 Agency responses

Agency	Reference No.	Submission	Response
		The EIS includes a titles search, demonstrating there are no mining or exploration titles over the site. The proponent has consulted with GSNSW regarding the area of higher mineral significance. Potential impacts on exploration have been avoided through project refinement, by removing the area of higher mineral significance from the southern array area. The EIS has addressed the requirements relating to mineral resources and land use compatibility. DRG note site-specific biodiversity offsets have not been identified. DRG has no residual issues for the proponent to address.	

5 Strategic and statutory context

5.1 Approval process and determining authority

The regulatory context for this project is described in Section 3.2 of the EIS and summarised in Section 3.2 of the AR.

The EIS for the project and this RTS have been prepared in accordance with the EP&A Act and the NSW Environmental Planning and Assessment Regulation 2000 (EP&A Regulation), which provide the framework for environmental planning and assessment of SSD in NSW. The EP&A Act outlines the approval process and the determining authority.

As noted in Section 1.2, the IPC have been determined the consent authority for the project. DPE are still responsible for preparing the assessment report to the IPC about this DA. However, DPE's report will not be binding on the IPC.

UPC acknowledge that there is a lack of specific planning legislation for the development of large-scale solar facilities. The *Large Scale Solar Energy Guideline for State Significant Developments* was published by DPE in December 2018, after the submission of the EIS; however draft versions of the guideline were considered when preparing the EIS, and the EIS conforms with the principles of this guideline.

5.2 Consistency with local and regional planning

The regulatory context for this project is described in Section 3.2 of the EIS and summarised in Section 3.2 of the AR.

The project is consistent with local, regional and state planning regimes.

The land on which the project is proposed is zoned RU1 (primary production) under the Uralla Local Environmental Plan 2012 (Uralla LEP), which permits development with consent for the purpose of electricity generation. Part 3, Division 4 of the Uralla LEP specifies that development of a solar energy system may be carried out by any person with consent on any land (with the exception of systems greater than 100 kW in land zoned as R1 through R5 and RU5).

The objectives of the RU1 zone include the diversification of primary industry enterprises and to encourage sustainable primary industry production. The development is proposed on land that is currently used for agriculture. Development of a solar power generation project on the land (with or without co-existent sheep grazing) would achieve these objectives through the following aspects:

- the project will encourage diversity in the LGA's land use;
- the project will provide economic stimulus and support to rural communities reliant on agriculture;
- the project will result in a diversification of income earned by the project landholders, most of whom will continue farming on their properties (both directly within and adjacent to the project boundary);
- sheep grazing within the arrays will maintain a multi-purpose diversified land use throughout the life of the project; and
- existing agricultural operations on surrounding landholdings will be able to continue.

5.3 Site suitability

Site suitability and the rationale for choosing and refining the site are described in Sections 1.4.1, 1.5.3, 3.1, 5.5, 7.2 and 7.7 of the EIS, and Section 1.2 of the AR.

The project is consistent with local, regional and state planning regimes as a suitable development for its location.

The suitability of a site for a project development is a matter for the consent authority in accordance with Section 4.15 of the EP&A Act when assessing a development application. Therefore, the ultimate decision on site suitability will be made by the consent authority.

The project location was selected based on its high level of solar irradiance, proximity to TransGrid's 330 kV transmission line and favourable topography. The proposed project area was then refined to avoid or minimise the impacts on environmental features such as remnant vegetation or significant surface water features, agricultural land mapped as Biophysical Strategic Agricultural Land (BSAL) and clusters of residential dwellings. Alternative locations in the region were considered but were determined to be less suitable for the project as those locations would result in a greater impact on the environment or land use conflicts or would have significantly less favourable conditions for solar generation or electricity transmission.

The project is located within the New England region of northern NSW, an area covered by the *New England North West Regional Plan 2036* (NSW Government 2017a) which states its vision for accelerated renewable energy development in the region. One of the primary goals of the plan is to grow New England's North West as the renewable energy hub of NSW. Actions within the plan include the diversification of the energy sector by identifying renewable energy precincts, and the facilitation of renewable energy projects, including solar. The plan establishes priorities for local councils within the New England North West Region to help achieve its goals. One of the priorities identified for Uralla Shire Council is to investigate the potential for wind and solar production and encourage renewable energy opportunities.

This area has also been identified by the Australian Energy Market Operator (AEMO) as a potential Renewable Energy Zone (REZ), one of three potential REZs across NSW. New England was selected based on its moderate to strong solar capacity, strategic location between NSW and Queensland and its well-connected energy network. The NSW Government's submission on AEMO's *Integrated System Plan Consultation* (AEMO 2017) emphasised the New England region's suitability as a REZ given the availability of outstanding energy resources within the region, reduced environmental and planning constraints and proximity to existing transmission and distribution infrastructure and load centres.

If the project comes online on schedule in 2021-2022, most of the output of the solar farm will flow into TransGrid's transmission network and the National Energy Market in time to replace the output from several coal and gas fired power stations that are due to close in the next decade.

5.4 Appropriate development on agricultural land

The regulatory context of the development is described in Section 3.2 of the EIS and the AR. Land use is described in Section 5.5 of both the EIS and the AR. The geology, soils and land capability of the development footprint is described in Section 5.5 of the EIS and AR.

The project is consistent with local, regional and state planning regimes.

The majority of land in the northern and central arrays has a land and soil capability (LSC) class of between four (moderate capability land with moderate to high limitations for land use) and six (low capability land with very high limitations for land use). There are some isolated pockets of LSC class three, which is also mapped as BSAL as defined by Strategic Agricultural Land Map – New England North West regional mapping presented in State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (the Mining SEPP).

The majority of the land in the development footprint is not suitable for high-impact land uses such as cultivated cropping or intensive grazing, and therefore the use of the land for a solar farm (with or without co-existent grazing) would not remove significant amounts of land from intensive primary production. It should also be noted that single axis tracking technology will allow for approximately 60-70% of the available land within the array areas to remain free of project infrastructure, and available for sheep grazing, therefore allowing for a continuation of the land's current use.

The location of the New England Solar Farm on grazing land and the design of the PV modules to allow unimpeded sheep grazing encourages the co-existence of both agriculture and electricity generation. This co-existence enables landholders to diversify their income streams during times of climatic and economic uncertainty, creating a stronger and more sustainable local and regional economy.

The amendments to the development footprint have reduced the amount of land mapped as BSAL within the array areas to approximately 87.7 ha, which represents 0.0036% of the total land area mapped as BSAL in NSW. Therefore, the impacts to the agricultural output of NSW will be temporary and negligible.

Configuration of the PV modules within the array areas (ie single-axis tracking technology) will allow for approximately 60-70% of the available land within the array areas to remain free of project infrastructure, and available for sheep grazing.

The project's potential impacts on the agricultural industry arise from the occupation of agricultural land by a non-agricultural facility. This is limited to the land on which project infrastructure is located, with no anticipated constraints on the current or potential agricultural uses of nearby land. Further, potential impacts to land within the development footprint will be mitigated in part by the project layout and designing to allow for sheep grazing to continue on land on which the PV modules are located.

As described in the Land Use Conflict Risk Assessment (Appendix F of the EIS and Appendix G of the AR), the project is a temporary and reversible change of land use, and the land within the development footprint can be returned to its former use (ie grazing) following decommissioning. The development footprint will require minimal site preparation, and no large areas of excavation or earthworks are expected for the PV modules, therefore the integrity of the land and soil capability will be retained through the project operation period.

5.5 Council rates and land valuation

The project is not expected to impact land valuation or council rates.

Council rates are based on land valuation undertaken by the NSW Valuer General and Property NSW. The land value only covers the value of the land itself and does not include the value of the home or any other structures and improvements. It also does not consider off-site uses. Under Section 6A(1) of the NSW *Valuation of Land Act 1916* the land being valued is assumed to be vacant and is valued on its 'highest and best permitted use'. In most cases this is based on the current zoning and planning restrictions. Therefore, the presence of the solar farm will not impact land valuations or council rates within or adjacent to the development footprint.

5.6 Public interest

The regulatory context of the development is described in Section 3.2 of the EIS. The justification and argument that the project is in the public interest is presented in Section 7.7 of the EIS.

The determination of public interest is made by the consent authority. In this case, the consent authority will be the IPC.

To assist the consent authority in determining whether the project is in the public interest, the EIS provides a justification for the project, taking into consideration its potential environmental impacts, and the suitability of the development footprint for project infrastructure. It also considers the project against the principles of ecologically sustainable development (ESD). The consent authority will also be required to consider all submissions received during the public exhibition of the EIS.

The benefits of the project are considered to be in the public interest due to the provision of renewable energy, increased energy security and direct and indirect economic benefits to the local, regional and state economy through income and expenditure during the life of the project.

6 Engagement and community outreach

6.1 Scope and approach to community engagement

Stakeholder engagement on the New England Solar Farm has been comprehensive to date and reflects the importance UPC places on this aspect of development. Stakeholder engagement, including activities carried out before and during the preparation of the EIS, is described extensively in Chapter 4 and Appendix B of the EIS. In addition, this RTS (refer Section 3.2) and the AR (refer Chapter 4), both provide summaries of the additional stakeholder engagement activities that have been undertaken by UPC both during and after the public exhibition of the EIS.

As noted in Section 4.3 of the EIS, expectations from both regulators and community for meaningful stakeholder engagement have increased in recent years. In response to this, EMM and UPC developed a stakeholder engagement strategy for the project in February 2018 (refer Appendix B of the EIS). The purpose of this strategy was to:

- identify stakeholders relevant to the project;
- describe the overall objective for consultation with each stakeholder (or stakeholder group);
- recommend timing, methods, and key matters to be discussed/resolved with each stakeholder; and
- consider the potential impacts on the stakeholder engagement strategy of the *Draft Community and Stakeholder Engagement Guidelines*, which form part of the draft environmental impact assessment (EIA) guidance series being developed by DPE as part of the EIA improvement project, as well as the *Draft Large-Scale Solar Energy Guideline* (DPE 2017b) (Draft Solar Guideline), which was subsequently published in December 2018.

Both the Draft Solar Guideline (DPE 2017) and the *Draft Community and Stakeholder Engagement Guidelines* recommended significant upfront focus and effort with regards to consultation with key stakeholders (including the local community) during preparation of the preliminary environmental assessment (PEA) and this model was subsequently adopted by EMM and UPC (refer Section 4.4 of the EIS).

The extent of community engagement undertaken before and during the preparation of the EIS is described in Section 4.4.2 of the EIS. Methods for consultation with the local community and neighbouring landholders has included:

- face-to-face meetings;
- telephone conversations and email responses to questions;
- property inspections for the purposes of assessing potential impacts;
- community information and feedback sessions;
- distribution of community fact sheets and project updates via letters, mail outs and emails;
- establishment of a dedicated project website, email address, online feedback form, Facebook page and community information line; and
- opening a UPC office in Uralla.

In addition, the project has been the subject of media coverage, including newspaper articles within the Armidale Express and Uralla Wordsworth and stories from local television news providers, including PRIME7 and NBN News.

Since the establishment of the stakeholder engagement strategy, over fifty individual meetings have been held with community members, as well as five community information and drop in sessions. Community engagement, including inputs from neighbouring landholders and the local community more generally, played a pivotal role in the ongoing refinement of the development footprint within the project boundary.

A number of the public submissions commented on UPC's approach to community engagement with feedback a mix of both positive and negative remarks. It should be noted that a large proportion of the negative feedback received within public submissions related directly to neighbouring landholders within proximity of the southern array area. Adequacy of engagement with neighbouring landholders is addressed in Section 6.2 below.

Positive feedback on UPC's approach to community engagement made reference to the professional and diligent approach upheld by the project team during engagement activities with the local community and commended the amount of time taken to listen to the feedback received and incorporate this feedback into continued project refinements and ongoing project design. Comments were also made on UPC's transparency and continued attempts to collaborate with neighbouring landholders from an early stage in the project's development. This feedback is further supported by the extensive record of stakeholder engagement provided in the project's consultation register (refer Appendix B of the EIS and Appendix B of this report).

As part of the amendments to the project and preparation of the AR, consultation has been, and will continue to be, undertaken with the local community and neighbouring landholders (refer Section 4.3.2 of the AR). UPC intends to maintain open lines of communication with the local community throughout the assessment process, which will include:

- distribution of updates via the project mailing list, project Facebook page, the project website and local print and electronic media (including Armidale Express and Uralla Wordsworth); and
- additional community information and feedback sessions to provide further project updates to the local community (likely after the AR and RTS report have been submitted to DPE).

6.2 Inadequate engagement with neighbouring landholders

Stakeholder engagement, including activities carried out before and during the preparation of the EIS, is described extensively in Chapter 4 and Appendix B of the EIS. In addition, this RTS (refer Section 3.2) and the AR (refer Chapter 4), both provide summaries of the additional stakeholder engagement activities that have been undertaken by UPC both during and after the public exhibition of the EIS.

Extensive efforts have been made to involve the local community and neighbouring landholders and to obtain feedback on the project and potential impacts so that changes to the project design could be made before the EIS was submitted. Evidence of the extent of these efforts is available within the project's consultation register (refer Appendix B of the EIS and Appendix B of this report).

UPC held community information and feedback sessions during the preparation of the EIS in a variety of formats, including both formal presentations and informal 'drop-in' style events at various locations within the township of Uralla. The aim of these sessions has been to reach out to the broader community and provide updates on the project's progress. These sessions were followed by formal and informal question and answer sessions where community members could speak directly to the project team on an individual level.

Each of the community information and feedback sessions were well advertised through advertisements in print media and placement of flyers in local businesses and community services (eg Uralla Library and Uralla Shire Council's offices). In addition, personal invitations for a number of these sessions were sent to neighbouring landholders with an established residence on their property. This included residences within the suburbs of Uralla, Salisbury Plains, Kellys Plains, Armidale, Dangarsleigh and Gostwyck.

It should be noted that UPC views doorknocking as a potentially counterproductive engagement 'tool'. Many properties surrounding the development footprint for the array areas are rural in nature and require entry onto land in order to door knock. It was therefore not identified as an appropriate engagement tool for the project.

In addition to the community information and feedback sessions, more targeted engagement occurred with neighbouring landholders that reached out to UPC through one of their many available open lines of communication, which include the following:

- New England Solar Farm website (www.newenglandsolarfarm.com.au);
- New England Solar Farm email address (info@newenglandsolarfarm.com.au); or
- New England Solar Farm community information line (1300 250 479).

Direct lines of communication were also made available to a number of neighbouring landholders and interested community members to get in touch with members of the project team.

During the EIS exhibition period, UPC held an additional community information and feedback session in an effort to facilitate further positive engagement with the local community. A less formal approach was adopted for this session, which was held at UPC's Uralla Office, with information set up around the room to enable community members to look at the information they were most interested in and in their own time. At the session, staff from UPC and EMM were available to answer questions. The additional session provided the local community and neighbouring landholders with an opportunity to ask questions about the project that may have arisen upon reading the EIS and supporting documents. Attendees were also provided further instructions on how to lodge their submissions online through DPE's website.

Throughout both the preparation of the EIS and the public exhibition process, in those instances where a community member expressed their disappointment that they had not been contacted or heard more about the project sooner, UPC has responded positively, offering one-on-one meetings, property inspections, phone calls and/or exchanging emails.

More recently, the project's Facebook page (@newenglandsolarfarm) has been used extensively to communicate project updates and engage with interested parties.

It is considered therefore, that contrary to some of the views put forward regarding the absence of consultation with various stakeholders, 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.

6.3 Community support and ongoing involvement

6.3.1 Funding for the local community

UPC is committed to being part of the Uralla and greater New England communities and to contribute to the future vitality and success of the region. UPC intend to own and operate the New England Solar Farm, and thus seek to establish a positive long-term connection to the area and be a good neighbour. During the course of developing the project, UPC has supported various community organisations and initiatives, including:

- Uralla United Cricket Club;
- Uralla United Football Club;
- Uralla Netball Club;
- Uralla Tennis Club;
- Uralla Tigers Rugby League Club;
- Z-Net;
- Uralla Neighbourhood Centre;
- Can-Assist Uralla; and
- Need for Feed.

6.3.2 Community Benefit Sharing Initiative

The Community Benefit Sharing Initiative (CBSI) is described in detail in Section 4.6 and Appendix B of the EIS.

UPC has demonstrated their commitment to maintaining a positive, long-term connection with the local community through the development of the CBSI. This initiative will contribute $50,000 to the community during construction, and $250 per MW installed per year (between $150,000 and $200,000 per year, based on 600 - 800 MW installation) for the life of the project. With an expected 25-year design life, this initiative will contribute between $3.75 million and $5 million over the life of the project.

After an extensive research and consultation period, Community Power Agency was contracted by UPC to design and facilitate a CBSI community engagement process that would seek to involve the community in the definition of the CBSI, including its general principles, geographic scope and the types of activities that should be eligible for funding.

The local community had the opportunity to contribute their ideas about the CBSI through a series of one-on-one meetings; a community workshop; and completion of an online feedback form. The Community Reference Group (CRG) was also established and deliberated over the ideas and inputs received from the broader community to produce a detailed options paper containing their recommendations for the CBSI.

Should the project receive approval, UPC will conduct a feasibility study of the recommendations of the CRG and finalise the design of the CBSI in preparation for its implementation when construction commences. Continual engagement with the community will be maintained and additional feedback will be sought during the feasibility and design periods. It is anticipated there will be a role for the community or its representatives in administering the CBSI.

In addition to monetary community benefits through the CBSI, the project will improve the diversity and resilience of the local economy and has potential to reduce energy costs for households, community groups and businesses over the long-term.

6.3.3 Maximising local participation during construction and operations

Employment opportunities and construction and operations workforce requirements are described in Section 2.4.6 (construction) and Section 2.6 (operations) of both the EIS and AR.

UPC will support local employment opportunities and this has been communicated to the local community at each of the community information and drop-in sessions and within media releases. There will be a preference for employment of local and regional residents where they are able to demonstrate relevant skills and experience and a cultural fit with UPC and the engineering, procurement and construction (EPC) contractor. Approximately 50% of the peak construction workforce is expected to originate from the Uralla, Tamworth and Armidale LGAs.

Locally-sourced employees are highly desirable where relevant skills are available, since these employees will avoid the costs associated with provision of transportation, meals and accommodation that are associated with a transient workforce. This applies to both the construction workforce with a peak number of up to 700 people, and the operation workforce of up to 15 people.

UPC will seek to maximise local participation in the construction and operation of the project, where practicable. UPC has encouraged local businesses and community members to express their interest to participate in the construction of the project via email and through a purpose-built form on the project website, which simplifies the application process and collects relevant details. Once the EPC contractor is appointed by UPC, the database will be shared with the EPC contractor for them to approach desired candidates. UPC will also organise a supplier's meeting, which will be run in conjunction with the EPC contractor. The purpose of the meeting will be to help local businesses and interested suppliers better understand how they can apply for work, the types of jobs that are available and the metrics that the construction contractor will consider.

UPC has also committed to supporting local employment opportunities by encouraging the EPC contractor to engage local businesses to supply goods and services to the construction accommodation village (should it be required), provided reliability, quality and financial competitiveness can be satisfied.

7 Biodiversity

7.1 Biosecurity

Biosecurity, including the impacts of weeds and feral pests, is described in Section 5.2, Section 5.5 and Appendix C of the EIS.

Impacts to biosecurity during construction and operation are not expected to be significant. Implementation of mitigation measures detailed in Section 5.5.4 of the EIS will further reduce impacts.

UPC will work with landholders and contractors to comply with the NSW *Biosecurity Act 2015* to prevent, eliminate and reduce biosecurity risks associated with the project. During construction and operations, land management and mitigation measures will be implemented to reduce the impact of the project on local and regional biosecurity. These will include measures such as restricting vehicle movements to formed access tracks and use of wash-down facilities and procedures.

Once the project is operational, potential sheep grazing under the PV modules would reduce the growth and spread of weeds and maintain a multi-purpose land-use throughout the life of the project. Management measures to reduce biosecurity risks, such as measures for the identification, management and ongoing monitoring of weeds on-site will be included in the project's construction environmental management plan (CEMP) and operational environmental management plan (OEMP).

If pest control is considered necessary, it will generally involve a routine baiting program in consultation with the project landholders and neighbouring landholders. Other control methods such as shooting or trapping may also be used if deemed necessary or appropriate.

7.2 Biodiversity offsets

Biodiversity offsets are described in Section 5.2 and Appendix C of the EIS, and Section 5.2 and Appendix D of the AR (an addendum to the biodiversity development assessment report (BDAR)).

The offset rules govern the types of offsets that can be used to meet an offset obligation under the Biodiversity Offsets Scheme (BOS). The offset rules are established through the NSW Biodiversity Conservation Regulation 2017. For this project, the offset rules permit the proponent (ie UPC) to meet their offset obligation by:

- retiring credits based on the like-for-like rules; or
- making a payment to the Biodiversity Conservation Trust (BCT), which is calculated using the offset payments calculator.

Retiring credits based on like-for-like rules includes establishment of a stewardship site or purchasing credits on the open market. Like-for-like vegetation can be achieved within the Interim Biogeographic Regionalisation for Australia (IBRA) subregion or the adjacent IBRA subregion.

Payment into the BCT is also a viable option for UPC and would ensure it can meet its offset obligations.

There is no requirement in the offset rules stating that a proponent should provide offsets near the development site (or in this case, the development footprint). Stewardship sites are typically selected based on several factors, including appropriate vegetation and presence of a large and regular extent, which increases management efficiency. Given the highly cleared landscape it is unlikely that vegetation within or adjacent to the development footprint and broader project boundary will provide suitable stewardship sites.

7.3 Impacts on wildlife

Impacts on biodiversity, including wildlife (fauna), are described in Section 5.2 and Appendix C of the EIS and Section 5.2 and Appendix D of the AR.

The assessment of the project's potential impacts on biodiversity included consideration of native vegetation and habitat mapping and targeted flora and fauna surveys. The field surveys were undertaken during 8–11 January 2018 (four days), 5–9 March 2018 (four days), 9–13 April 2018 (five days), 6–10 August 2018 (five days), 25–27 September 2018 (three days) and 24 April 2019 (one day).

Fauna typically inhabit native vegetation. The percentage of native vegetation cover within the development footprint is approximately 7%, as the project has been refined to avoid areas of native vegetation where practicable. Native vegetation in the development footprint is highly modified by both historical and ongoing agricultural management practices, and none of it is considered intact. The ground cover is heavily grazed, typically with a high coverage of non-native grasses. Fauna abundance across the development footprint is low, and there are no significant fauna movement corridors due to a high level of fragmentation and small patch size of native vegetation (where present).

UPC has committed to mitigation measures which will reduce the impacts of the project on wildlife. These include measures to limit the removal of trees (including dead trees which provide habitat for wildlife), reduced speed limits on-site (to avoid vehicle collisions with wildlife) and a creek-crossing management plan. A trained fauna handler will be present during clearing of hollow bearing trees to rescue and relocate displaced fauna, if found on–site.

7.4 Impacts on koala habitat and populations

Targeted surveys for koalas which examined scat and potential habitat were undertaken on 25 September 2018. These surveys were undertaken in the most optimal areas for koala habitat in the development footprint that was the subject of the EIS and did not reveal any evidence of koalas (refer Figure 5.2 of the BDAR – Appendix C of the EIS). In addition, as a result of the amendments to the development footprint, three additional targeted surveys for koalas were undertaken on 24 April 2019 to supplement the information provided in the BDAR (refer Figure 4.1 of Appendix D of the AR). These surveys did not reveal any signs of koalas, reinforcing the conclusion that koalas are unlikely to occur within the development footprint.

The area around Big Ridge Road/Munsies Road has reasonable connectivity to other larger areas of woodland, including woodland with several known records of Koala to the east of Uralla. This location to the east of Uralla includes areas of Box Gum woodland and preferred Koala feed trees such as the primary feed tree, Ribbon Gum (*Eucalyptus viminalis*).

In contrast, the central array is mostly cleared, with woodland largely limited to isolated, small patches of Box Gum woodland. These woodlands are not considered to provide viable habitat for Koala due to their small patch size and poor connectivity. The large area of woodland that is adjacent to the north-west of the central array is dominated by Silver-top Stringybark (*Eucalyptus laevopinea*). This is not a feed tree species for Koala and it is unlikely to provide important habitat for the species.

7.5 Impact on migratory birds

Impacts on biodiversity, including migratory birds, are described in Section 5.2 and Appendix C of the EIS.

A search using the Federal Government's EPBC Act Protected Matters Search reported that thirteen species of migratory birds have been recorded, or are predicted to occur, within the development footprint, including two threatened species. The development footprint does not provide important habitat for any migratory species and does not have any significant features that may be used as flight corridors for migratory species.

Migratory species were considered as part of the BDAR prepared for the EIS (Appendix C of the EIS). The impact assessment concluded that there were no significant impacts on migratory or threatened species predicted as a result of the project.

Dangar's Lagoon is located over 5 km from the amended development footprint. The lagoon, and any species (migratory or otherwise) that it supports, will not be impacted by the project.

8 Aboriginal cultural heritage

8.1 Impacts on Aboriginal cultural heritage

Aboriginal cultural heritage is described in Section 5.3 and Appendix D of the EIS, and Section 5.3 and Appendix E of the AR.

Avoidance of significant Aboriginal cultural heritage values has been a key aspect of the project refinement process, wherever possible. Subsequently, only one site of high significance (NE70) will experience peripheral impacts, and should this occur, it will be in an area of low to negligible archaeological potential.

Two sites of moderate significance (NE27 and NE49) are currently designated for impact by the project. Similar to NE70, NE27 will only experience peripheral impacts, and should this occur, it will be in an area of low to negligible archaeological potential. NE49 is a felled scar tree and will be salvaged.

Avoidance of Aboriginal sites is a preferred management option as it ensures that Aboriginal sites, and their landscape information, will be preserved for future generations.

An Aboriginal Heritage Management Plan (AHMP) will be developed in consultation with DPE, OEH and registered Aboriginal parties (RAPs), and will provide details on the management of Aboriginal cultural heritage for the project.

All surface artefact sites (artefact scatters and isolated finds) impacted by the project will be collected. The collection will be undertaken by qualified archaeologists and RAP representatives in accordance with the methodology provided in Section 9.2.4 of the Aboriginal cultural heritage assessment report (ACHAR) (Appendix D of the EIS).

RAPs have nominated that recovered objects should be kept at the Armidale and Region Aboriginal Cultural Centre and Keeping Place. UPC are committed to working with the RAPs to accommodate the requests for storage and curation of collected objects. It is noted that the final locations for specific objects and details of curation, storage, display and interpretation of recovered objects will be developed during consultation with the RAPs as part of the preparation of the AHMP. Storage of artefacts at the recently granted Uralla Aboriginal Artefact Cultural Display may be considered if this location is nominated by the RAPs.

9 Historic heritage

9.1 Impacts on historic heritage

Historic heritage is described in Section 5.4 and Appendix E of the EIS, and Section 5.4 of the AR.

Some impacts to heritage, largely to the visual aspect of the cultural landscape, are expected to occur. Managed carefully, these impacts will not be significant as all significant archaeological sites have been avoided through refinement of the development footprint. There will be no physical impacts to heritage sites listed under the Uralla LEP.

As a result of the amendments to the development footprint, it is unlikely that project infrastructure will be visible from Gostwyck Memorial Chapel and Precinct (Viewpoint 7), Deeargee Woolshed (Viewpoint 8) or Salisbury Court (Viewpoint 13). At its closest point, the central array area is approximately 4 km north of Gostwyck Memorial Chapel and Precinct and Deeargee Woolshed, and 11 km north of Salisbury Court.

Consistent with the information presented in the historic heritage assessment (HHA) and statement of heritage impact (SoHI) (Appendix E of the EIS), prior to any changes to the landscape and specific heritage items that may result from project activities, a digital photographic archival record will be prepared. The photographic record will focus on the development footprint for the northern and central array areas.

Nine of the nineteen viewpoints selected for visual impact assessment were selected on the basis that they would be representative of views experienced by people visiting heritage locations (such as Gostwyck Memorial Chapel) or travelling along roads in the area. Therefore, the visual impact of the project on heritage listings and visitors to the area has been assessed as described in Section 5.6 and Appendix I of the EIS and Section 5.6 of the AR.

Further discussion of potential impacts on visual amenity and tourism are described in Chapter 10 and Chapter 17 of this RTS, respectively.

10 Land

10.1 Impacts on vegetation growth

The installation of project infrastructure within the development footprint is not expected to significantly impact the growth of vegetation, particularly under PV modules (the dominant project infrastructure).

Vegetation (typically grass) has been shown to successfully grow under PV modules. This is due in part to reduced temperatures when shaded and higher levels of soil moisture under PV modules. There are opportunities for efficiency in selecting appropriate varieties of grass if maximised vegetation growth is desired (Dupraz et al. 2011; Dinesh and Pearce 2016; Hassanpour Adeh et al. 2018). Conceptually, it is important to note that diffuse light still reaches the vegetation growing underneath the PV modules, even as the modules track the path of the sun.

One of the most costly activities involved in the ongoing maintenance of established solar farms is the mowing of grass under the rows of PV modules. Within Australia, there is an established market for mowing equipment specifically for solar farms (Fischer Australis 2019). If vegetation had not been found to grow under PV modules in an Australian setting, it is unlikely that this market would exist.

10.2 Compatibility of sheep grazing and project infrastructure

The successful co-existence of sheep grazing and solar farm infrastructure has been demonstrated in several examples both in Australia and internationally.

The following case studies are examples of successful co-existence of sheep grazing with solar farm infrastructure in Australia.

The University of Queensland (UQ) operates a solar research facility at its Gatton campus in the Lockyer Valley in south-east Queensland. The 3 MW solar farm came online in March 2015 and within a year the facility reduced grid electricity use at the neighbouring campus by approximately 40%. In 2016, UQ commenced a trial to graze sheep at the facility as a way of reducing vegetation maintenance costs. Initially, ten sheep were brought in to permanently graze an area of 4.5 ha. This area was expanded to 7 ha after the success of the initial trial. Following the trial, UQ's Manager of Energy and Sustainability, Andrew Wilson, stated, "there's great feed available for them and the fact that we have solar panels there it also provides really great shading opportunities for them — in really hot weather they can get out of the sun"(Sibson 2016).

Parkes Solar Farm is a 66 MW solar farm operated by Neoen in Parkes, NSW, and produces enough electricity annually to power 24,000 homes. A three-week trial was held over the summer of 2017/2018 as a joint exercise between local landholders and Neoen to demonstrate the use of sheep as a method of reducing grass fire hazards on solar farms. In this trial, 400 sheep grazed a 15 ha section of the solar farm for three weeks. Under normal circumstances in this region, farmers would usually place 1530 sheep in an area this size; however, for the purposes of the trial, a high number of sheep were used to facilitate a rapid reduction of dry grass within the trial area, while demonstrating safe and sustainable farming practices within solar farms. The sheep were monitored closely through the trial and were observed to be relaxed, eating and moving freely around the solar farm infrastructure. On completion of the trial, the grass had been eaten to a reasonable length (not less than 50 mm) and the hazard reduction was determined a success (Neoen 2018).

The White Rock Solar Farm is a 20 MW solar farm adjacent to a 175 MW wind farm near Glen Innes (approximately 100 km north of Uralla). A recent trial grazed 700 head of sheep in an enclosed 31 ha pasture which also housed 30,000 PV modules. The trial found that the sheep successfully grazed the pasture between December and February, and despite the heat and lack of rain during that period, there was sufficient soil moisture under the shade of the PV modules for grass to grow. The enclosed nature of the pasture excluded foxes, pigs and rabbits, and the PV modules provided protection to lambing ewes from eagles and ravens, as well as shade from the sun. In addition, the grazing sheep helped to control vegetation height, reducing the bushfire risk and the need for further vegetation management (Brown 2018).

Other similar trials have been or are currently being run at other existing solar farms, including the Royalla Solar Farm and Mugga Lane Solar Park, both located near Canberra.

Configuration of the PV modules at the New England Solar Farm to use single-axis tracking technology will allow for approximately 60-70% of the available land within the array areas to remain free of project infrastructure. This land will be available for sheep grazing.

10.3 Impacts on livestock

Noise impacts are described in Section 5.7 and Appendix J of the EIS and Section 5.7 of the AR. Air quality and dust impacts are described in Section 5.14 of the EIS and AR. The response to submissions on biosecurity is presented in Chapter 7 of this RTS.

During construction, there may be short-term noise and dust impacts on livestock at neighbouring properties. Noise and dust impacts are not expected to be significant. Implementation of the mitigation measures described in sections 5.7.4 and 5.14.4 of the EIS and summarised in Appendix B of the AR will further reduce impacts.

During construction, short-term noise impacts are expected; however, these are predicted to comply with relevant noise management levels (NMLs) at all locations following the implementation of the proposed noise mitigation measures, which include the implementation of buffer zones during out-of-hours periods to reduce potential construction noise impacts at five locations.

The highest predicted construction noise level of 45 dB is modelled to occur at assessment location N1. A noise level of 45 dB is the equivalent of a quiet suburban area (refer Appendix A of the noise and vibration impact assessment (NVIA)). Subsequently, noise levels experienced at neighbouring properties are not expected to be significantly different to noise levels currently experienced by livestock. Sheep have been found to adapt to increased noise levels of 60-90 dB(A), especially when these are relatively continuous (Hall et al. cited by Weeks 2008), and similarly cows (Grandin cited by Broucek 2014). Therefore, noise impacts on livestock during construction are expected to be negligible.

Noise sources during operations are anticipated to include: inverters with integrated transformers; tracker motors; substation transformers; BESS components; and light vehicle movements. Given the limited emissions during operations, noise levels are expected to satisfy the relevant noise trigger levels at all assessment locations, during the daytime, evening and night-time periods for the entirety of the project's operations. Further, livestock are likely to acclimatise to these noise sources or have the ability to move away from the noise source to other areas of the paddock.

The project's potential impacts on the agricultural industry arise from the occupation of agricultural land by a non-agricultural facility. This will be mitigated in part by the project layout and design to allow for sheep grazing to continue on land on which the PV modules are located. The income for the project landholders will also serve to drought-proof their ongoing farming operations for the next generation of farmers. There are not expected to be any constraints on the current or potential agricultural uses of neighbouring land. At the end of the project's operational life, project infrastructure will be decommissioned and the development footprint can be returned to its pre-existing condition suitable for agricultural land use.

Where project transport routes pass through unfenced properties adjacent to local roads (ie Munsies Road), UPC will continue to consult with the relevant landholders to reduce potential impacts to livestock.

10.4 Potential for contamination

Impacts relating to potential contamination are described in Section 5.5 (land), Section 5.9 (water) and Section 5.15 (waste) of the EIS and AR.

No potentially contaminative locations were identified within the development footprint. Potential impacts from poor handling of hazardous materials and waste include contamination of land and water. With the exception of vehicle fuels (diesel and/or gasoline), the project is not anticipated to require large inputs or storage of chemicals or liquids that pose a risk of contamination.

The CEMP and OEMP for the project will include procedures for the storage and handling of fuels and waste, as well as a spill management procedure. A project decommissioning and rehabilitation plan will be prepared prior to the end of the project's operational life and will include rehabilitation objectives and strategies for returning the development footprint to agricultural production.

The PV modules will most likely use polycrystalline or monocrystalline technology which do not contain heavy metals. Therefore, there is a negligible likelihood of the PV modules causing contamination.

In relation to the BESS, there are appropriate measures in place to ensure the chemicals within the battery cells are contained and will not contaminate the surrounding environment. These measures include:

- an energy management system, which monitors the health of the BESS down to a cell level, ensuring the system is operated in a safe manner;
- gas and temperature sensors, which monitor the enclosures and detect any abnormalities;
- fire suppression systems as part of the enclosures; and
- multiple levels of physical separation between chemicals within the cells and the environment (ie the cells will be housed within a module, which will likely be stacked in an enclosure).

10.5 Acid sulphate soils

Soils are described in Section 5.5 and Appendix G of the EIS and Section 5.5 of the AR.

The project is not expected to have any impacts on acid sulphate soils.

Acid sulphate soils typically occur in waterlogged soil such as coastal estuaries and wetlands, and as such, are very unlikely to be found in the development footprint. There are no acid sulphate soils mapped within the project boundary on OEH's dataset, Acid Sulphate Soils Risk. Further, geotechnical specialist advice to UPC considers acid sulphate soils not to be present as the development footprint sits well above the elevation of 5-10 m AHD that this soil is typically found in. Surface disturbance works for the project are therefore unlikely to intersect with potential acid sulphate soils or actual acid sulphate soils if they were present within the development footprint.

If acid sulphate soils are encountered during construction, they will be managed in accordance with the *NSW Acid Sulfate Soils Manual* (Stone, Ahern & Blunden 1998).

The site selection and design process will reduce the need for heavy earthworks as much as practicable by using the flatter areas of land which are mostly cleared of vegetation for infrastructure placement. Some civil works will be required to prepare the disturbance area for construction, including some cutting and filling in undulating areas, and for certain project infrastructure such as the laying of any underground cabling and the substation/BESS pads.

10.6 Soil erosion

Soils (including potential erosion and sedimentation impacts) are described in Section 5.5 (land), Section 5.9 (water) and Appendix G of the EIS and Section 5.5 (land) and Section 5.9 (water) of the AR.

The soil erosion assessment (SEA) for the project (Appendix G of the EIS) has been undertaken in accordance with *Managing Urban Stormwater: Soils and Construction* (Landcom 2004), as specified by the SEARs.

The SEA was based on several worst-case factors, including slope and vegetation clearance, that gave an overly conservative value for soil erosion hazard potential in the development footprint. This has been recalculated based on more realistic design parameters and with reference to the amended development footprint as described in the AR. Project infrastructure is unlikely to be constructed on slopes greater than 10% and surface disturbance activities will typically be limited to the following areas:

- substation/BESS areas (requiring concrete pad area);
- temporary laydown areas (required for placement of plant and equipment during construction);
- internal roads;
- trenches for electrical cabling; and
- cutting and filling (where required in undulating areas).

As a result of the amendments to the development footprint, the potential erosion hazard of the project has been reassessed as low (refer Section 5.5 of the AR). Nonetheless, ESC measures to be implemented during construction are listed in Appendix B of the AR and include measures to assist with the management of dispersive soils.

11 Visual

11.1 Lighting

The impact of night lighting is described in Section 5.6.3 and Appendix I of the EIS and Section 5.6.3 of the AR.

The project will require limited permanent night lighting, which will likely be limited to the operations and maintenance (O&M) buildings and substations or temporarily as part of the construction accommodation village (should it be required). Temporary, localised night lighting may be required during general maintenance activities conducted during ongoing operations. If required, lighting will be managed to minimise impacts on surrounding areas (including neighbouring residences).

All external lighting will be installed as low intensity lighting (except where required for safety or emergency purposes) and will comply with Australian Standard AS 4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting. In addition, all external lighting will not shine above the horizontal.

11.2 Proximity to residences and screening

Section 5.6 of the AR provides a summary of the visual amenity impacts associated with the amended project.

The development footprint has been amended since the public exhibition of the EIS. These amendments included the removal of the southern array area and further refinement of the northern array area to reduce potential visibility of project infrastructure from a number of sensitive receptors (including N1, N4 and N5 – refer Figure 5.6 of the AR).

Importantly, the amendments to the project have reduced the number of sensitive receptors (ie dwellings) within 2 km of the development footprint (refer Figure 5.6 and Table 5.12 of the AR).

The nearest residential dwelling to the amended development footprint is N1, which is located approximately 340 m from the northern array area (Figure 5.6 of the AR). Viewpoint 5 is representative of potential views from N1. The evaluation of significance for visual impacts experienced at Viewpoint 5 has been assessed as moderate (refer Table 5.11 of the AR).

Discussions between UPC and N1 are ongoing and include consideration of options for landscaping to address the potential visibility of project infrastructure from the southern aspect of the dwelling at Viewpoint 5, should it be required.

11.3 Reflectivity

Potential reflectivity of PV modules and other project infrastructure is described in Section 5.6.3 and Appendix I of the EIS.

PV modules are designed to absorb the greatest amount of light possible, which means they only reflect a small amount of sunlight. Modern PV modules with an anti-reflective coating will typically reflect around 2% of incoming sunlight (Guthrie 2018). The PV modules within the development footprint will also move throughout the day to maximise the sunlight they receive. This means that any locations from which reflected light is visible will only be affected for a short duration each day.

11.4 Visual impacts on drivers

Visual impacts on drivers, including glint and glare, are described in Section 5.6.3 and Appendix I of the EIS.

The potential impacts of reflectivity on receptors (including motorists) from PV modules are commonly referred to as “glint” and “glare”.

The northern and central array areas are not expected to be highly visible to passing motorists due to their distance from regional roads and the natural screening effect of the landscape. Further, due to the low level of reflectivity of PV modules, as well as the possibility of other features becoming more common in modern PV module designs, such as anti-reflective coatings, the PV modules are not expected to cause a distraction to any motorists travelling along the local and regional road network.

In addition, it should be noted that the number of local roads from which project infrastructure may be visible has reduced as a result of the amendments to the development footprint.

11.5 Selection of viewpoints

The methodology supporting the selection of viewpoints is described in Appendix I of the EIS and summarised in Section 5.6.1 of the AR. In response to the submissions received during the public exhibition of the EIS and ongoing stakeholder engagement with N4, N5 and C7, three additional viewpoints were included in the assessment of visual impacts provided as part of the AR (refer Section 5.6 of the AR). These viewpoints include:

- Viewpoint 20 – representative of a dwelling on Corey Road, N4, approximately 1 km from the development footprint for the northern array area;
- Viewpoint 21 – representative of a dwelling on Corey Road, N5, approximately 1.2 km from the development footprint for the northern array area; and
- Viewpoint 22 - representative of a dwelling on Big Ridge Road, C7, approximately 1.5 km and 2.8 km from the development footprint for the central and northern array areas, respectively.

All viewpoints presented as part of the visual impact assessment (VIA) in both the EIS and AR have been selected based on the following criteria:

- proximity to the development footprint;
- the location of receptors (ie residential dwellings);
- the positioning of regional and local roads and potential impacts on passing motorists;
- the location of items of local heritage significance listed within the Uralla LEP;
- local topography; and
- presence of remnant vegetation and wind breaks with potential to provide screening.

Table 5.11 of the AR includes a revised summary of the visual assessment from the 22 viewpoints considered as part of the VIA. In addition, Table 5.12 provides a summary of the predicted visual impact from the 28 non-project related residences identified within 2 km of the development footprint for the two array areas.

11.6 General visual amenity impacts

Potential visual amenity impacts are described in Section 5.6.3 and Appendix I of the EIS and Section 5.6.2 of the AR. In addition, Appendix H of the AR includes revised viewshed analyses from a number of the viewpoints considered as part of the VIA. The figures presented in Appendix H reflect the reduction in potential visibility of project infrastructure from a number of viewpoints as a result of the amendments to the extent of the northern array area.

As part of the project refinement process, the design and location of the development footprint within the project boundary has undergone a number of significant revisions in response to ongoing stakeholder engagement and environmental constraints identification. This has further reduced the extent of visual impacts.

The revised visual assessment undertaken for the AR determined that, of the viewpoints assessed, infrastructure may be visible to varying degrees from 13 of the 22 viewpoints, with moderate visual impacts experienced at two viewpoints (Viewpoint 5 (representative of views from N1) and Viewpoint 6 (representative of views from N40)) (refer Figure 5.6 of the AR).

Due to existing mature vegetation, variable elevation and undulation in the landscape, and the height of the dominant project infrastructure, namely the PV modules, infrastructure within the two array areas will be relatively shielded from view at the majority of the viewpoints assessed as part of the revised assessment.

The project design, development footprint and placement of the two array areas have progressively evolved to minimise or avoid visual impacts, where possible. This has included significant revisions to the extent of the northern array area. Nonetheless, the development of the project will result in some changes to the landscape. Visual impacts will occur during the construction and operational stages of the project and the visual landscape will be altered from its current state for the duration of the operational stage of the project. Nonetheless, the project is not anticipated to have any significant adverse visual impacts on the locality.

12 Noise

12.1 Construction noise and vibration

Noise and vibration impacts are discussed in Section 5.7 and Appendix J of the EIS.

Importantly, the amendments to the project have:

- reduced the number of sensitive receptors (ie dwellings) within 2 km of the development footprint; and
- reduced the number of local roads that will be used by project-related light and heavy vehicle movements.

Subsequently, Section 5.7 of the AR provides a summary of the noise and vibration impacts associated with the amended project.

During construction, short-term noise impacts are expected; however, these are predicted to comply with relevant noise management levels (NMLs) at all locations following the implementation of the proposed noise mitigation measures, which include the implementation of buffer zones during out-of-hours periods to reduce potential construction noise impacts at five locations.

The highest predicted construction noise level of 45 dB is modelled to occur at assessment location N1. A noise level of 45 dB is the equivalent of a quiet suburban area (refer Appendix A of the NVIA).

Vibration associated with the proposed construction works is not expected to generate impacts at the nearest assessment location. Traffic generated by the project is expected to comply with the relevant *Road Noise Policy* (RNP) (DECCW 2011) criteria at the majority of the assessment locations.

Operational noise levels are shown to satisfy the *Noise Policy for Industry* (NPfI) (EPA 2017) noise trigger levels at all assessment locations during the daytime, evening and night-time periods for the entirety of the project's operations.

Noise modelling for the purposes of the EIS and AR is based on a worst-case scenario prediction which assumes simultaneous operation of all plant and equipment with no mitigation measures at the nearest location within the development footprint to the relevant sensitive receptor. The noise modelling is hence considered to be highly conservative, and it is likely that actual construction noise levels will be less than that predicted as part of the NVIA (refer Appendix J of the EIS).

13 Transport

13.1 Road traffic noise and dust from vehicle movements

Construction noise and dust impacts from road traffic are discussed in both the EIS and AR in Section 5.7 (noise) and Section 5.14 (air quality), respectively. Other traffic impacts are discussed in Section 5.7 and Appendix K of the EIS and Section 5.7 of the AR. Importantly, the amendments to the project have:

- reduced the number of sensitive receptors (ie dwellings) within 2 km of the development footprint; and
- reduced the number of local roads that will be used by project-related light and heavy vehicle movements.

Traffic generated by the project during both construction and operation is expected to comply with the relevant RNP criteria at the majority of the assessment locations. Marginal exceedances of 2 dB during peak construction are predicted during the daytime period at the most affected residence on Big Ridge Road (refer Figure 5.3 of the AR). The road traffic noise assessment is based on peak construction traffic volumes and assumes concurrent construction of stages 1 and 2. The assessment at this location is therefore a worst-case scenario prediction. It is likely that actual road traffic noise levels will be less than the modelling predicts.

As per the NSW Government's (2018) *Voluntary Land Acquisition and Mitigation Policy*, a noise level of 2 dB above the relevant noise goal is considered to have negligible impacts and these exceedances would not be discernible by the average listener. As such, these impacts do not warrant additional treatments or controls.

Vehicle movements on unsealed roads are expected to generate dust impacts; however, these impacts will typically be limited to construction and will be short-term. Mitigation measures to limit potential dust generation from project-related vehicle movements are described in Section 5.14.4 of the EIS and are likely to include speed reduction along unsealed roads, use of water trucks for dust suppression and regular maintenance of unsealed road surfaces.

If dust issues on unsealed roads persist, UPC may consider localised sealing or treatment of unsealed roads with dust suppression polymers, particularly in areas adjacent to residential properties along Big Ridge Road and Munsies Road.

13.2 Impacts on road infrastructure

Impacts on road infrastructure are described in Section 5.8.3 of the EIS and AR and Appendix K of the EIS.

Impacts on road infrastructure are predominantly expected to be limited to construction and are not expected to be significant following the implementation of the intersection upgrades and mitigation measures detailed in Section 5.8.4 of the AR and Section 5.8.5 of the EIS.

In response to Uralla Shire Council's submission on the EIS, SCT Consulting has been engaged to assist UPC and EMM with additional investigations along the proposed primary vehicle access route to the northern and central array areas. UPC had already committed to the inclusion of a number of these items as part of the TMP, which will still be prepared prior to the commencement of construction in consultation with Uralla Shire Council, DPE and RMS. The works proposed by SCT Consulting will be carried out in consultation with Uralla Shire Council in the coming weeks.

As noted above, UPC has committed to ensuring that its contractors for the construction of the project prepare and implement a TMP and Driver Code of Conduct. UPC or its contractors will undertake dilapidation surveys of the proposed vehicle routes to assess the condition of the roads so that they are not left in a worse condition as a result of the project.

The lead EPC contractor(s) appointed by UPC will also implement a road maintenance program for the affected local roads during construction of the project. The program will be based around bi-monthly route inspections of all the affected roads and may include items such as:

- regrading of the road surface to repair potholes and road corrugations at regular intervals and in response to identified serviceability and safety concerns; and
- a commitment by UPC or its contractors to restore the road surfaces to their pre-construction condition at the completion of construction.

The road maintenance program will be prepared in consultation with Uralla Shire Council and its effectiveness will be reviewed during the construction period.

13.3 Increased traffic volumes on Barleyfields Road, Big Ridge Road and Munsies Road

The impacts of increased traffic volumes on the road network are described in Section 5.8.4 and Appendix K of the EIS and Section 5.8.3 of the AR.

Increased traffic volumes on Barleyfields Road, Big Ridge Road and Munsies Road are predicted to be significant; however, they will be temporary and are restricted primarily to construction. They should not have a significant long-term effect on the future traffic capacity, level of service or safety for these roads and fellow road users.

Implementation of the mitigation measures described in Section 5.8.5 of the EIS and Section 5.8.4 of the AR, including reduced speed limits, a TMP and Driver Code of Conduct developed in consultation with RMS, Uralla Shire Council and the affected residents along the relevant sections of these roads will reduce these impacts to acceptable levels.

13.4 Safety of road users

The impacts of the project on road safety are described in Section 5.8.4 and Appendix K of the EIS and Section 5.8.3 of the AR.

Increased traffic volumes on the local road network may have consequential impacts on road safety; however, increased traffic volumes will be temporary.

Implementation of the mitigation measures described in Section 5.8.5 of the EIS and Section 5.8.4 of the AR will reduce potential impacts to road safety. These include continued consultation with RMS, Uralla Shire Council and the local community, reduced speed limits along local roads and development of a TMP and Driver Code of Conduct in consultation with RMS and Uralla Shire Council.

The TMP will include specific safety initiatives for transport through residential areas and the scheduling of project deliveries to avoid peak hours and school bus times. The Driver Code of Conduct will also include safety-specific tips and guidelines.

14 Water

14.1 Flooding impacts and siting of infrastructure

The potential risks of flooding on the project are described in Section 5.9.3 and Appendix H of the EIS and Section 5.9.3 of the AR.

The project boundary is outside of the flood planning area as mapped under the Uralla LEP.

Flood modelling has been undertaken to inform project refinement by avoiding areas likely to be impacted to a depth of more than 300 mm in the case of a 1% annual exceedance probability (AEP) event (ie a 1 in 100 year flood). This modelling is based on available reliable data and provides a statistical probability of flood events.

The flood model didn't consider the potential for overland flow. Overland flow is water that runs across saturated land after rainfall, usually towards a watercourse. It often presents as shallow water covering low-lying areas. Overland flow was not included in the flood modelling as it is typically shallow levels of flooding that is unlikely to constrain development, such as, in the context of siting the solar farm infrastructure or cause damage to infrastructure. Similarly, the solar farm infrastructure is not likely to impact overland flow paths, since the majority of the infrastructure, including the PV modules, will be built up above the ground on steel piles. Therefore, overland flow has not been considered further.

Preliminary design has considered flooding constraints; consequently, areas that require heavier earthworks and flood-sensitive facilities (eg substations and BESSs) will be located away from watercourses and areas of high hazard flooding. In addition, during construction, temporary site works, compounds, storage areas and plant and equipment will be located outside of flood prone areas, where practicable.

The following named watercourses are no longer within or adjacent to the development footprint as a result of the removal of the southern array area and further refinements to the northern array area:

- Salisbury Waters (6th order stream);
- Cook Station Creek (5th order stream); and
- Hariet Gully (2nd order stream).

The northern and central array areas have been designed to incorporate appropriate setbacks from areas prone to flooding; this is in addition to avoidance of the 1% AEP flood extent. Adverse flooding impacts within and downstream of the development footprint for the array areas will be avoided through detailed design of the project, which will avoid placement of permanent works in areas that could obstruct and divert floodwaters.

Chain-link (or 'cyclone' style mesh) security fencing will be installed within the project boundary to a height of up to 2.4 m high. The specific location of the security fencing will be determined in consultation with the contractors selected for the construction of the project and project landholders. Fence design will need to take into consideration security, visual amenity and overland flow.

14.2 Impacts to groundwater

Impacts to water, including groundwater are described in Section 5.9 and Appendix H of the EIS and Section 5.9 of the AR.

The site selection and design process will reduce the need for heavy earthworks as much as practicable by using the flatter areas of land which are mostly cleared of vegetation for infrastructure placement. Some civil works will be required to prepare the disturbance area for construction and for certain project infrastructure such as the laying of any underground cabling and the substation/BESS pads.

The typical depth of installation for piles to support PV modules is anticipated to be approximately 1.5-3 m but may be greater depending on geotechnical conditions and specific tracker design. The depth of required ground preparation works for other project infrastructure and civil works are expected to be also within this range. It is noted that the medium voltage cables are typically buried to a depth of at least 600 mm.

Given depth to groundwater levels across the project boundary are on average approximately 20 m, to a minimum of approximately 3.5 m in selected areas, the project is unlikely to intersect nor impact groundwater during construction, operation and decommissioning.

The CEMP and OEMP for the project will include procedures for the storage and handling of hazardous materials, and a spill management procedure.

The project will not require a Water Access Licence under the NSW *Aquifer Interference Policy* (DPI 2012) given the nature of the construction methods for project infrastructure.

14.3 Compliance with the Water Sharing Plan for the Macleay Unregulated and Alluvial Water Sources

The EIS and surface water assessment (SWA) (Appendix H of the EIS) were prepared with consideration for the Water Sharing Plan for the Macleay Unregulated and Alluvial Water Sources.

The project will not directly:

- impound surface water;
- abstract surface water;
- intersect with or abstract groundwater; or
- significantly impact hydrology.

Therefore, there are no conditions of the Water Sharing Plan for the Macleay Unregulated and Alluvial Water Sources which are expected to be breached by the project.

14.4 Impacts on Oxley Wild Rivers National Park

Impacts relating to potential contamination are described in Section 5.5 (land), Section 5.9 (water) and Section 5.15 (waste) of the EIS and AR.

The Oxley Wild Rivers National Park is located approximately 8 km south-east of the closest point of the northern array area and approximately 16.5 km downstream of the closest point of the northern array area.

Potential impacts from poor handling of hazardous materials and waste within the development footprint include contamination of surface water, which could flow downstream into the Oxley Wild Rivers National Park.

As a result of the amendments to the development footprint, the potential erosion hazard of the project has been reassessed as low (refer Section 5.5 of the AR). This, combined with the erosion and sediment control (ESC) measures and avoidance of direct impacts to watercourses, means that the project is anticipated to have a negligible impact on the Oxley Wild Rivers National Park.

The CEMP and OEMP for the project will include procedures for the storage and handling of hazardous materials, spill management procedures and ESC measures to reduce the likelihood of contamination and sedimentation in neighbouring watercourses.

14.5 Source of water

Water usage is described in sections 2.5, 2.6, 5.9.3 and Appendix H of the EIS.

Water for use during both construction and operations will be trucked in from off-site sources. The source will be determined during the preparation of the CEMP prior to construction.

UPC will ensure that the selected potable water supply option satisfies the requirements of the NSW *Public Health Act 2010*, including any requirement for a Quality Assurance Program. Further details are provided in Table 4.1 (refer reference number NSW Health_1).

Potable water sourced for human consumption will be sourced from an appropriately licenced 'supplier of drinking water' consistent with the requirements of the NSW *Public Health Act 2010*.

14.6 Surface water impacts

Impacts on surface water are described in Section 5.9.3 and Appendix H of the EIS and Section 5.9.3 of the AR.

The development footprint has been refined to reduce impacts to water resources to the greatest extent practicable. This includes the exclusion of higher order streams (ie 3rd order and above) from the development footprint, reduction in the number of watercourse crossings needed and increasing setbacks from areas prone to flooding.

As noted above, a result of the amendments to the development footprint, the potential erosion hazard of the project has been reassessed as low (refer Section 5.5 of the AR).

Dangars Lagoon is located approximately 5 km south-west of the development footprint at its closest point and will not be impacted by the project.

The CEMP will include a soil and water management plan (SWMP), which will be prepared prior to commencement of construction. The SWMP will set out the framework for preparation and implementation of progressive erosion and sediment control plans (ESCPs) that will be prepared for site or activity-specific measures. The SWMP will also incorporate the other water-related commitments outlined in Table 6.1 of the EIS and Appendix B of the AR. An example would be the use of wash down facilities to prevent vehicles tracking material off-site.

The construction accommodation village (should it be required) will be constructed and managed as a standalone facility that will not use existing Uralla Shire Council infrastructure. The facility will include a STP, water treatment plant and waste management infrastructure that will be designed and managed in accordance with relevant 'best practice' design standards and regulatory requirements.

Uralla Shire Council water and sewer infrastructure is not proposed for use during the construction or ongoing operation of the project.

15 Hazards and risks

15.1 Health impacts from proximity to infrastructure

Radiation and electric and magnetic fields (EMFs) are described in Section 5.10.5 of the EIS and Chapter 6 of Appendix L (hazards and risks assessment).

The hazards and risks assessment undertaken for the EIS (Appendix L) determined that EMFs created from the project will not exceed the International Commission on Non-Ionising Radiation Protection (ICNIRP) refence level for exposure to the general public at any location within the development footprint and that the impact on stock and the general public (including neighbouring agricultural workers) in surrounding areas will be negligible.

The design and typical exposure levels to EMFs for the proposed project infrastructure has been assessed against the ICNIRP's (1998) *Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields*. Several controls to reduce the potential for EMFs have been identified and implemented in the project design, including standard solar PV plant characteristics such as inverters housed in shipping containers or steel cabinets.

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) summarises a paper by Tell et al. (2015), which states that the highest levels of EMFs within the assessed solar PV power-generating facilities were detected immediately adjacent to transformers and inverters, which were close to, but still below the ICNIRP's general public limit. However, at 30 cm from the transformer surface, the measured level dropped to five times lower than the ICNIRP's general public limit (Tell et al. 2015, cited by ARPANSA 2019).

16 Bushfire

16.1 Bushfire impacts

The potential impacts of fire are described in detail within Section 5.11 and Appendix M of the EIS.

PV modules are designed to absorb light rather than reflect or magnify it. The solar PV modules that will be used for the project are not the same technology as those used in concentrating solar power, also known as 'solar thermal', or concentrating PV, which uses mirrors to concentrate sunlight.

A fire management plan (FMP) and emergency response plan (ERP) will be prepared for the project in consultation with emergency service organisations such as RFS, the New England Fire Control Centre and Fire and Rescue NSW. The FMP will include provisions for location of hazardous materials as well as specific measures and procedures to prevent ignition from project activities. The ERP will incorporate all relevant safety procedures and management measures detailed in the relevant acts, regulations and Australian Standards.

The mitigation measures for bushfires and other emergencies detailed in Section 5.11.4 of the EIS and AR will reduce the risk of bushfire impacts.

PV modules do not pose a risk of ignition; however, there is a theoretical risk of ignition from other PV equipment from electrical faults such as arc faults or short circuits. These risks will be managed through proper installation and testing of equipment. All electrical components will be designed and managed to minimise the potential for ignition and installation of electrical equipment will be done in accordance with AS 3000:2007 Electrical installations and will be installed by trained personnel with the required qualifications.

16.2 Availability of emergency services

Impacts to emergency services are described in Sections 5.8.4, 5.11.4, 5.12.2 and 5.12.4 and Appendix M of the EIS. UPC will consult with emergency service providers (including RFS, the New England Fire Control Centre and Fire and Rescue NSW) and Uralla Shire Council before construction in order to finalise the TMP, FMP and ERP for the project.

General medical support will be provided within the construction accommodation village (should it be required), which will reduce the potential demand on medical services in Uralla.

16.3 Emergency site access to and from neighbouring properties

UPC will consult with emergency service providers (including RFS, the New England Fire Control Centre and Fire and Rescue NSW) and neighbouring landholders prior to the commencement of construction in order to finalise the TMP, FMP and ERP for the project. This consultation will ensure that all neighbouring properties will have safe emergency access routes.

17 Social

17.1 Construction workforce behaviour

The project will require a construction workforce made up of local and transient workers. The construction workforce requirements are described in Section 2.4.6 of the EIS and AR. The EIS and AR also include consideration of potential impacts associated with construction traffic (Section 5.8), as well as social (Section 5.12) and economic (Section 5.13) impacts during construction.

Construction workforce behaviour will be managed through the preparation and implementation of a construction workforce management plan (CWMP). This plan will include:

- local workforce numbers and locations;
- transient workforce accommodation locations;
- consultation mechanisms with Uralla Shire Council, Armidale Regional Council and other relevant regional councils, potentially including, for example, Tamworth Regional Council, to avert pressure on local resources and ensure a reasonable approach to planning transient worker housing;
- consultation frameworks with local providers to ensure fairness, open communication, forward planning, and grievance mechanisms;
- plans for medical and other needs to ensure appropriate spread of workforce needs across all local resources and to avoid heavy pressure on a small number of local GPs;
- a Code of Conduct for the project's workers (particularly to avoid anti-social behaviour at peak construction times); and
- how the CWMP will be managed and audited.

A key aim of the CWMP will be to achieve the best mix of benefits for the local community without placing pressure on accommodation and other local services.

In addition, to address concerns raised by surrounding landholders in relation to security during construction, the following measures will be implemented:

- a zero-tolerance policy on theft will be implemented on-site throughout the project's construction period;
- randomised drug and alcohol testing of staff;
- criminal background checks on all staff, contractors, sub-trades and security guards will be performed;
- surrounding landholders, project landholders and law enforcement will be provided with the primary contractor's contact information;
- surveillance cameras and signs will be implemented to deter vandalism and theft;
- the temporary construction site compound will be established in a fenced-off area within the development footprint;

- chain mesh security fencing will be installed within the project boundary around the perimeter of the array areas to control access; and
- should it be required, surveillance cameras and signs will be implemented at the construction accommodation village to deter vandalism and theft and security fencing will be installed around the construction accommodation village to control access.

17.2 Feedback/grievance process

Feedback and grievance processes are described in Section 5.12 of the EIS and Section 6.1.8 of the social impact assessment (SIA) (Appendix N of the EIS).

UPC has committed to creating a publicly accessible feedback system, including a website and telephone hotline, which will allow for any feedback, positive or negative, to be registered. This will be supported by a policy and mechanism by which legitimate grievances can be investigated and resolved.

UPC endeavours to make ongoing consultation as transparent as possible and is always receptive to feedback from local stakeholders. Feedback from landholders and other community members has been used extensively throughout the EIS as part of the project refinement process and will continue to do so.

17.3 Mental health and stress

UPC acknowledges that the planning and development stage of any major project can cause stress for local communities and landholders, especially associated with uncertainty over the project's potential impacts.

Studies have been undertaken relating to the stress and anxiety of major developments, especially coal mining and coal seam gas. These studies recognise that health and well-being impacts need to be considered at a community level. In a study of the health of Hunter Valley communities close to coal mining and power generation, where there is a significant concentration of such activities, Merritt et al. (2013) found that:

> There were no significant differences in management rates of mental health conditions in the Hunter Valley region compared with the rest of rural NSW. Management rates of depression and anxiety were not higher, nor were prescription rates of antidepressants.

This indicates similar levels of anxiety are experienced in the Hunter Valley region compared to rural NSW as a whole, although the causes of anxiety may vary between regions.

Section 5.12 of the EIS and Appendix N include discussion of both the negative impacts of the project as well as its positive benefits. This RTS document also addresses several issues related to the project, which should reduce uncertainty, and consequently, mental health and/or stress associated with the project.

The positive benefits of the project, including diversification of income streams, will help to reduce mental health stress on some members of the community by improving its resilience in times of climatic or economic uncertainty.

17.4 Impacts on community services

Potential impacts on community services such as school transport and healthcare facilities are described in Section 5.12.3 and Appendix N of the EIS. Potential impacts on emergency services are described in Sections 5.8.4, 5.11.4, 5.12.2 and 5.12.4 and Appendix M of the EIS, and in Section 16.2 of this RTS.

UPC has committed to safety initiatives for transport through residential areas and school zones and the project's construction material deliveries and other heavy vehicle movements will be scheduled to avoid peak hour and school bus times where practicable.

Importantly, the amendments to the project have reduced the number of local roads that will be used by project-related light and heavy vehicle movements. This includes Gostwyck Road, Salisbury Plains Road, Hillview Road, and The Gap Road. In addition, Thunderbolts Way may be utilised only by a proportion of the project's locally/regionally-based workforce during construction and operations to access the development footprint, with no construction heavy vehicles anticipated to travel along this road corridor.

Medical support for the construction workforce will be provided by UPC in the construction accommodation village (if required). This will reduce potential for impacts on local health services.

The transient workforce may reside in the construction accommodation village, if this is deemed to be required and their families are expected to remain at their usual place of residence. Therefore, impacts from transient workforce families on education and health services are not expected. Local workers are assumed to already be residing in the local area; therefore, their use of community services is already included in the baseline used for the SIA.

17.5 Impacts on lifestyle

Potential impacts to lifestyle are described in Section 5.12.3 and Appendix N of the EIS. Potential impacts to visual amenity are described in Section 5.6.3 and Appendix I of the EIS. Potential impacts to noise are described in Section 5.7.3 and Appendix J of the EIS. Potential impacts to air quality are described in Section 5.14.3 of the EIS.

As part of the project refinement process, the design and location of the development footprint within the project boundary has undergone several significant revisions in response to ongoing stakeholder engagement and environmental constraints identification (including proximity to residences).

Importantly, the amendments to the project have:

- reduced the number of sensitive receptors within 2 km of the development footprint; and

reduced the number of local roads that will be used by project-related light and heavy vehicle movements.

The AR includes consideration of potential for reduced impacts to lifestyle (Section 5.12), visual amenity (Section 5.6), local roads (Section 5.8), noise (Section 5.7) and air quality (Section 5.14) as a result of the amendments to the project.

No long-term impacts to lifestyle are expected from the project. However, UPC recognises that the community is concerned about loss of amenity due to the project's construction and ongoing operation, and how this will affect their rural lifestyle.

The traffic, noise and air quality impacts of the project will be temporary in nature as they will primarily occur during construction. The visual landscape will be altered from its current state for the duration of the operational stage of the project; however, no significant adverse visual impacts on the locality are predicted.

The majority of the development footprint cannot be accessed by the general public. The results of the VIA indicate that project infrastructure will not be highly visible from the local or regional road network and views of project infrastructure will be restricted to a small number of sensitive receptors (ie dwellings). Therefore, any loss of amenity during operations is considered to be low.

17.6 Lack of compensation for neighbouring landholders

The EIS assessed a range of potential impacts associated with the construction and ongoing operation of the project. Where significant impacts to neighbouring landholders have been identified, the project has been refined and/or management and mitigation measures have been proposed to further reduce potential impacts. This includes the introduction of setbacks from neighbouring residences to reduce potential views of project infrastructure, paying particular attention to the most valued views from affected residences.

Appendix B of the AR provides a summary of the management and mitigation measures that will be incorporated into the detailed design and construction of the project and into subsequent management plans during operations. Examples of management and mitigation measures included to further reduce potential impacts on neighbouring landholders include implementation of:

- buffer zones during construction works to minimise potential noise impacts at neighbouring residences;
- a TMP and Driver Code of Conduct to minimise potential impacts on the safety and serviceability of the local road network; and
- a CWMP to manage potential for adverse impacts to occur from the construction workforce.

As a result of ongoing refinements and commitments UPC has made to remove and/or reduce potential impacts, compensation for neighbouring landholders is not considered warranted.

Should the project be approved and following the commencement of construction, UPC will continue to engage with the local community and will endeavour to manage any unanticipated issues that may arise. A number of open lines of communication remain available for neighbouring landholders to reach out to UPC if their concerns about the project have not been adequately addressed. This includes the project Facebook page, website and community information line.

17.7 Security during construction and operations

Aspects of the project related to security are described throughout the EIS, including sections 2.6, 4.4 and 5.12, as well as the LUCRA, a revised copy of which is provided as Appendix G to the AR.

During construction, security will be managed through the following mitigation measures:

- a zero-tolerance policy on theft will be implemented on-site throughout the project's construction period;
- randomised drug and alcohol testing of staff;
- criminal background checks on all staff, contractors, sub-trades and security guards will be performed;
- surrounding landholders, project landholders and law enforcement will be provided with the primary contractor's contact information;
- surveillance cameras and signs will be implemented to deter vandalism and theft;
- the temporary construction site compound will be established in a fenced-off area within the development footprint;
- chain mesh security fencing will be installed within the project boundary around the perimeter of the array areas to control access; and
- should it be required, security fencing will be installed around the construction accommodation village to control access.

Chain-link (or 'cyclone' style mesh) security fencing will be installed within the project boundary to a height of up to 2.4 m high. The specific location of the security fencing will be determined in consultation with the contractors selected for the construction of the project and project landholders. Fencing will restrict public access to the development footprint. Where possible, fencing will be positioned to minimise disruption to ongoing agricultural operations on land adjacent to the development footprint.

During operations, the operational workforce will be responsible for ongoing security monitoring of the array areas and project infrastructure. Perimeter security cameras may be used to assist with monitoring the array areas.

17.8 Accommodation and rental property availability

Potential impacts to accommodation and rental property availability are described in Section 5.12.3 and Appendix N of the EIS.

Despite the staging of workforce numbers, there will be a greater demand for accommodation than can reasonably be met by local towns and regional centres.

If no alternative solutions can be found, a construction accommodation village may be constructed within the northern array area during the construction period. There may be a need to house approximately 250-500 workers on-site at the busiest periods. If constructed, it is anticipated that the construction accommodation village could be scaled up or down, depending on the need to absorb or shed surplus demand.

Accommodation on-site will be scaled to allow benefit to flow to local individuals and businesses with short term and long term accommodation available to rent, but to absorb accommodation demand once local vacancy rates reach the 2-3% range, which is generally considered a healthy range for rental property. The on-site accommodation might therefore conceivably only commence once local accommodation reaches a comfortable level, and then be expanded or reduced in scale as the size of the workforce builds and declines, including at times of high visitor numbers.

Regular engagement by UPC with the CRG (refer Section 4.6 of the EIS) or similar body will enable local communities to advise UPC of adjustments that may need to be made, for example, to accommodate more or less workers within the construction accommodation village (if required).

The use of workforce shuttle buses from nearby centres to the array areas will also make employment more accessible to people in Armidale and Tamworth, which will also help to distribute the use of temporary accommodation over a wider area and reduce the impact on smaller communities like Uralla and Walcha.

18 Economic

18.1 Declining property values

A wide range of factors affect property values over time, including factors at an individual property, local, regional and macroeconomic level. There is no significant research on the impact of solar farms on neighbouring property values in an Australian setting. The most relevant research available demonstrates that renewable energy facilities, such as wind farms and solar farms, have a negligible impact on property prices. This refutes the perception that the presence of wind farms and solar farms can reduce the value and saleability of neighbouring properties.

Research has been undertaken in the USA and Canada on the impact of solar farms (Al-Hamoodah et al. 2018; CohnReznick 2018) and wind farms (Hoen et al. 2009; Hoen et al. 2013; Vyn and McCullough 2014) on neighbouring property values. This studies of relevance to the project concluded that the impact of solar farms on neighbouring property values is negligible.

Al-Hamoodah et al. (2018) researched the impact of utility-scale solar installations on the value of nearby homes in the USA. They surveyed 37 property assessors in relevant locations on the potential impacts of utility-scale solar farms on property values within 3 miles (4.8 km) of the installation. The survey was designed to take into account installation size, distance from the solar installation, size and height of the PV modules and presence of fencing or visual barriers. The research indicated that proximity to a utility-scale solar installation had no impact on home values (Al-Hamoodah et al. 2018).

CohnReznick (2018), a valuation advisory service, undertook a property value impact study in the USA. This study analysed the impact of eight solar farms in Illinois, Indiana and Minnesota on the sales of adjoining properties, compared to the sales of comparable properties not located near a solar farm. This study found that there was little to no measurable and consistent difference in property values between those located adjacent to a solar farm and those not located near a solar farm. The study concluded that property values were not adversely affected by their proximity to a solar farm (CohnReznick 2018).

18.2 Impacts on local businesses

Potential impacts on local businesses and industry are described in Section 5.13.3 and Appendix O of the EIS.

No significant negative impacts on local businesses are expected from the project. The input of the project to the local and regional economy, particularly construction and subsequent technical services, will assist in the diversification and strengthening of the local and regional economic base.

UPC has genuine intention to establish positive, long-term connections with the local community, which has been demonstrated through the project design and refinement process, commitments outlined throughout the EIS, and community engagement undertaken to date, which will continue throughout the subsequent stages of the project.

UPC will prepare an Australian Industry Participation Plan following environmental approval, and before project procurement takes place. This is a legal requirement under the Commonwealth *Australian Jobs Act 2013* that ensures full, fair and reasonable opportunities for Australian industry to compete for work. This plan will provide the following details:

- expected opportunities to supply key goods and services to the project;
- how UPC will communicate project opportunities and requirements to Australian suppliers; and
- how UPC will assist suppliers to develop capability and integrate into global supply chains.

UPC has committed to ensuring that local businesses have the opportunity to be engaged to supply goods and services to the construction accommodation village (should it be required), provided reliability, quality and financial competitiveness can be satisfied. These goods and services will typically consist of laundry, cleaning and catering.

Local businesses will also benefit from sub-contracting opportunities during construction and operations (eg fencing installation and maintenance, vegetation management and pest control), as well as indirect economic benefits for service stations and local tradespeople (eg electricians and plumbers). This will also have multiplier effects for economic activity as local businesses contracting or servicing the demand generated by the project will themselves require secondary and support services.

As the development progresses and the lead EPC contractor(s) are selected, UPC will hold information/introduction sessions or distribute engagement materials and updates to local businesses and residents to provide further details on upcoming employment and contracting opportunities.

In addition, if required, a community advisory group (similar to the CRG), which includes representatives from Uralla Shire Council, local business owners and key stakeholders could be established to meet on an 'as needed' basis to discuss construction and workforce-related issues during the construction stage of the project.

This would allow UPC and/or the EPC contractor to communicate the timing of upcoming construction activities, provide local businesses with advanced notice of resource needs and allow the businesses to plan for material needs and peaks and troughs in demand. It could also provide community representatives with a forum for voicing concerns about the project.

18.3 Impacts on tourism

Potential impacts on tourism are considered in Section 5.12 and Appendix N of the EIS.

No significant negative impacts on tourism are expected from the project. Importantly, the amendments to the project have reduced the number of local roads that will be used by project-related light and heavy vehicle movements (including Gostwyck Road and Thunderbolts Way).

Based on outcomes of stakeholder engagement and submissions of support provided during the public exhibition period of the EIS, there may be opportunities for the project to act as a tourist attraction in the area.

Tourism is a key industry in Uralla Shire LGA, bringing in approximately 17,000 visitors and $6 million per year. Galleries and antique shops, food and wine, fossicking, cultural heritage and festivals are key attractions.

Within some community submissions, there is a perception that the presence of a solar farm will negatively impact tourist numbers and the amount of time tourists are likely to stay in the local area. While the future tastes and preferences of tourists are inherently difficult to predict, there is no tangible reason to conclude that there will be a net negative impact on local tourism as a result of the project. Importantly, it is noted that the majority of the development footprint cannot be accessed by the general public. Further, views of project infrastructure from publicly accessible vantage points are expected to be limited.

As a result of the amendments to the project, the distance between the development footprint and two of the Uralla Shire LGA's main tourist attractions, namely Gostwyck Chapel and Deeargee Woolshed, has increased significantly to approximately 4 km. As noted above, the main access route to these attractions (Gostwyck Road) will also be avoided by project-related light and heavy vehicle movements.

The Uralla Shire LGA snapshot for the *Northern Inland Regional Plan 2016-2019* (RDANI 2016) identifies the benefits of investment in local renewable energy technologies. This includes the opportunity of 'renewable energy tourism' as a driver for the local visitor economy and educational tours servicing schools from across the region.

The construction accommodation village (should it be required) would also ensure that there is no shortfall in accommodation capacity which could negatively impact tourism. Further consideration of the project's impacts on short-term accommodation is provided in Section 17.8.

There is not a significant amount of research available regarding the impacts of solar farms on tourism. However, research on the impacts of wind farms on tourism have been comprehensively studied in the United Kingdom (Aitchison 2012; BWEA 2006; Dinnie 2012) and found that wind farms have little or no adverse impacts on tourism.

There are several solar farms world-wide that are listed on Trip Advisor, a travel website, which consistently attain high ratings. There are also three case studies in Australia where renewable energy schemes have been incorporated into tourism opportunities.

The Desert Knowledge Australia Solar Centre (DKASC) is a demonstration facility in Alice Springs which demonstrates a variety of solar technologies and incorporates a circular walk around the facility in its setting in dry bushland. The centre is also used for research and education, as well as being used by commercial companies to develop, test and benchmark their products (DKASC 2019).

The South Australian Government promotes the Woakwine Range Wind Farm Tourist Drive, a tourist drive which passes the Woakwine Range Wind Farm, the largest wind farm in the southern hemisphere with a generating capacity of almost 300 MW. The drive also incorporates Lake Bonney, Tarantoola Caves and Canunda National Park, which demonstrates the potential for renewable energy developments to be incorporated in local tourism (South Australian Government 2019).

The South East Region of Renewable Energy Excellence (SERREE) promotes the Renewable Energy Trail, a self-guided trail that showcases the diversity of renewable energy infrastructure in south-east NSW and the ACT and includes solar PV, solar thermal, hydroelectric, wind and geothermal infrastructure. The trail demonstrates how renewable energy works, its advantages and its benefits and encourages public interest in renewable energy technologies (SERREE 2019).

19 Air quality

19.1 Construction dust

The potential impacts of construction dust on air quality are described in Section 5.14 of both the EIS and AR.

The site selection and design process has reduced the need for heavy earthworks as much as practicable by using flatter areas of land already cleared of vegetation for infrastructure placement. It is anticipated that some cutting and filling may be required in undulating areas within the development footprint; however, this will be avoided where practicable. Limiting the amount of heavy earthworks within the development footprint will reduce the amount of dust generated by construction activities.

Mitigation measures detailed in Section 5.14.4 of the EIS will limit potential dust generation from project-related construction activities and are likely to include speed reduction along unsealed roads, use of water trucks for dust suppression and regular maintenance of unsealed road surfaces.

If construction dust issues persist, UPC may consider localised sealing or treatment of unsealed roads with dust suppression polymers adjacent to residential properties along Big Ridge Road and Munsies Road.

20 Waste management

20.1 Waste disposal and management

Waste management is described in Section 5.15 of the EIS. Details of the waste management plan (WMP), which is proposed to be developed prior to construction, are provided in Section 5.15.3 of the EIS.

All waste produced by the project will be classified, stored and handled in accordance with the *Waste Classification Guidelines – Part 1: Classifying Waste* (EPA 2014).

The WMP will be prepared in consultation with DPE and local councils (Uralla, Armidale and Tamworth) and will detail estimated annual quantities, types/classifications of waste generated by the project, as well as management measures. A key aim of the WMP will be to ensure that use of local waste facilities does not disadvantage local businesses or the local community.

There is currently some potential for capacity at both the Uralla Landfill and Recycling Centre and within the Armidale Regional Council LGA. Discussions with Uralla Shire Council and Armidale Regional Council have taken place and concluded that due to the expected volumes it is likely that the waste will need to be managed by a commercial agreement between the EPC contractor(s) appointed by UPC for the construction of the project, a licenced waste management company and the relevant local councils.

Significant quantities of waste generated during construction, such as cardboard packaging and wooden pallets will be suitable for reuse, recycling or alternative use (eg chipping of pallets for mulch), which will reduce the volume of waste going into landfill. UPC is currently in discussions with several leading PV module suppliers to understand what they are doing to reduce the volume of plastic used in packaging (ie for shipping/transport of PV modules).

During decommissioning, dismantled and decommissioned infrastructure will be recycled, where possible. There are presently no dedicated recycling facilities for PV modules in Australia; however, these are expected to be established by the time the project is decommissioned as the industry will have had time to develop. Structures and equipment that cannot be recycled will be disposed of at an appropriately licensed waste management facility.

21 Cumulative impacts

21.1 Cumulative impacts from other renewables developments

The cumulative impacts of the project are described in Section 5.16 of both the EIS and AR, as well as supporting technical assessments. Section 5.16.1 of the EIS lists the developments within close proximity of the project that have been considered as part of the cumulative impact assessment.

Cumulative impact assessments take into account existing, approved and proposed projects or developments that may have similar environmental and social impacts. Cumulative impact assessments are based on the information that is publicly available at the time of writing and are only possible where there is sufficient information available to inform the assessment and the need for any additional mitigation measures. For SSD projects in NSW, this is generally following the placement of a preliminary environmental assessment (PEA) or similar on DPE's major projects website.

Large-scale developments that are announced by proponents in the media without any subsequent PEA or EIS cannot be considered from a cumulative impact perspective due to the lack of available credible information. Further, cumulative impact assessments can only include known projects at the time of submission of the EIS. Subsequent developments in the region and their associated environmental impact assessments will be required to consider the New England Solar Farm in their cumulative impact assessments.

22 Other matters

22.1 Inadequate EIS assessment methodology and consideration of impacts

The assessment methodology for each technical study is described in the relevant appendix of the EIS.

The EIS provides an assessment of the impacts of the project based on detailed environmental and socio-economic assessments prepared by technical specialists. The detailed technical assessments and subsequent EIS have been prepared to address the SEARS for the project.

As requested in the SEARs, the EIS includes an assessment of likely impacts of the development on the environment, including likely impacts at all stages of the development, cumulative impacts and specific issues identified in the SEARs, taking into account relevant legislation, planning instruments, guidelines, policies, plans and codes of practice.

22.2 Enough renewable energy projects to meet demand

The electricity sector accounts for approximately 50.3% of Australia's national greenhouse gas (GHG) emissions (Clean Energy Regulator 2019). Renewable energy accounts for a relatively low proportion of total energy generated in Australia with approximately 21% of Australia's energy needs in 2018 met by renewable energy sources (Clean Energy Council 2019). These statistics indicate that there still needs to be a radical change in Australia's energy mix to further reduce the country's GHG emissions.

Further, it should be noted that the driver for developing renewable energy projects is not only based on meeting State and Commonwealth renewable energy targets. There is also a strong economical case as these projects are now cost competitive with existing electricity generation infrastructure (eg coal-fired generators) and financial institutions are more likely to lend against renewable energy projects.

22.3 Heat impacts from infrastructure

PV solar farms have been theorised to cause a 'heat island' effect due to the way the PV modules alter the albedo (reflectivity) of incoming solar energy. It has been noted that this can cause a localised area of higher temperatures relative to the surrounding area.

There have been a number of international studies exploring the heat impact of PV solar farms. In an Australian context, Sustainable Energy Transformation (2018) prepared a report for the City of Greater Shepparton in relation to a number of proposed PV solar farm developments in Victoria. The report cited several investigations and recommended a condition that the PV solar arrays for each project be set back a distance of at least 50 m from the project boundaries. This recommendation was based on the proximity of project infrastructure to neighbouring temperature-sensitive agricultural operations (namely orchards). Given the distance between temperature-sensitive receivers (such as dwellings) and the development footprint, UPC do not anticipate that there will be a significant heat island impact from the construction and operation of the project.

Further, temperature variations often accompany changes in land use, such as changing from cropping to grazing (Vries & Birch 1961). Subsequently, any variations in temperature caused by the construction and operation of the project could be similar to temperature variations caused by other land use changes that may occur in the region.

22.4 Impacts on cost of electricity

Once operational, the project will dispatch low cost electricity into the National Electricity Market. Solar PV is now one of the lowest cost sources of energy in the world and in Australia (Brailsford 2018). The project's PV modules will capture the sun's rays and convert this into clean, renewable energy. To ensure the project is able to provide energy at a low cost to consumers, the project will utilise existing grid infrastructure as much as possible, thereby reducing any requirement to build additional infrastructure. Construction of additional infrastructure would add to the total cost to develop the project and ultimately the price of electricity.

22.5 Inability for solar energy to meet needs of electricity market

In NSW, collectively, AEMO and TransGrid assess applications for projects to connect to the electricity transmission network. As part of this process, the generator (ie UPC) proposes generator performance standards which consider the behaviour of the generator and look at a range of technical aspects, including network voltages; harmonics; ability to supply reactive power; frequency responses; plant behaviour during an electricity fault; and protection settings.

AEMO and TransGrid assess each of the proposed performance standards and determine whether the proposed standards are appropriate (ie they do not jeopardise the security or reliability of the grid). Once the project is constructed, these key performance standards will be monitored by AEMO, guaranteeing ongoing compliance.

To ensure the lowest capital expenditure for the project and increase utilisation of the existing network, the project will be connecting to existing TransGrid infrastructure.

22.6 Profits distributed to international corporations

Australia's modern and diversified economy depends on a mix of domestic and international sources of investment, including in the energy sector where major foreign investment has helped finance the construction of generation and transmission infrastructure since the NEM was created in the late 1990s.

The project will be developed by UPC Renewables Australia which is jointly owned by the UPC group and AC Energy, a subsidiary of Ayala Corporation (Ayala). UPC was founded in the late 1980s, originating from the United States with its current corporate headquarters in Hong Kong. UPC has invested in a wide range of countries around the world and set up operations in Australia in late 2016. Ayala is a publicly listed corporation in the Philippines with a history going back to 1834.

Both UPC and Ayala have a considerable amount of experience investing and operating in different markets and regulatory environments, including as these relate to foreign investment, taxation and repatriation of profits.

The regulation of foreign ownership and overseas investment in the Australian economy is a matter for the Federal Treasurer, while the levying of taxes on income sourced in Australia by foreign-based companies and repatriation of profits is governed by the corporate tax system and the Australian Tax Organisation.

The project will comply with the relevant requirements of State and Commonwealth legislation and regulations. The ownership model for the project is not considered relevant to DPE or the IPC's assessment of the project.

22.7 Ownership model and structure

UPC is the developer and owner of project and will engage a 'tier one' contractor(s) to carry out construction. UPC intends to continue holding ownership the project during construction and throughout operations.

In the energy sector, it is common for the mix of ownership to change over time as the cost of capital at the development stage varies considerably from construction and operations. Accordingly, the mix of capital may change over time; however, regardless of this, UPC intends to retain a stake and to remain 'hands-on' in the ongoing operation of the project.

UPC employs Australians to develop renewable energy projects across Australia. The company currently has four offices across Australia, situated in Hobart, Sydney, Melbourne and Uralla. UPC will continuing developing projects in Australia, investing directly in the Australian economy and contributing to the local economies in which its projects will operate through both the job creation that directly results from the construction of its projects and payments to contractors and third party suppliers for services and the provision of goods.

UPC intends to construct the project without the need for any State or Commonwealth government financial subsidies. The typical infrastructure financing structure for a project of this scale (referred to as 'project finance') will utilise a combination of funding sources, including both shareholder equity and debt provided by a mix of domestic and international banks.

22.8 UPC developer credibility

UPC has developed projects internationally for over 20 years and currently operates across 13 offices globally, delivering over 4.5 GW of operational wind and solar generating assets across five continents. The team assembled by UPC for its Australian operations is a highly experienced group of industry professionals. The executive team (ie Chief Executive Officer and Chief Operating Officer) have a history going back to several of the first wind farms developed in Australia and over 20 years of domestic and international experience. The wider management team (including Head of Solar Development and Head of Wind Development) and the solar development team have been actively involved in Australia's renewable energy industry for many years, developing a number of operational large-scale renewable energy projects.

22.9 Battery storage

UPC has included plans to integrate the project with a BESS as part of the EIS. Adding more generation to Australia's energy market will inherently bolster the electricity network and support the penetration of low cost renewable energy in the electricity market.

Many forms of electricity generation contribute to the energy dispatched into the network, which includes gas turbines, coal fired power stations, wind farms, batteries and pumped hydro, among other technologies. In aggregate, the electricity demands of the network are constantly being matched with the generation sources available for dispatch by the market operator (ie AEMO).

22.10 Construction hours

The construction hours proposed in the EIS have been selected with consideration towards reducing the total construction period (and therefore temporary construction-related impacts) and utilising the mobilised workforce efficiently.

The EIS has considered noise impacts during construction and operation of the project and provides commentary on compliance with relevant criteria, which has varying limits based on the time of day.

Construction noise and vibration is discussed further in Section 12.1 of this report and Section 5.7 of the AR.

Noise impacts in relation to the construction and operation of the southern array are no longer relevant as this area has been removed from the development footprint.

22.11 Grid connection

TransGrid infrastructure is capable of absorbing the energy from the project without causing adverse system strength issues. This is supported by the technical studies completed by UPC and reviewed by AEMO and TransGrid.

AEMO and TransGrid have also completed system strength investigations in relation to the project and concluded that there will be no unacceptable adverse system strength issues associated with the proposed connection.

22.12 Length of operational life

As noted within the EIS, the operational lifespan of the project will be in the order of 30 years, unless the facility is re-powered at the end of the PV modules' technical life. The PV modules typically come with a performance warranty for 25 years from the manufacturer. The decision to re-power the plant will depend on the economics of solar PV technology and energy market conditions at that time. When seeking project finance for a solar farm, it is generally accepted that a project of this nature will continue generating for up to 30 years.

22.13 Manufacturing of project infrastructure

The factory location for the PV modules which will be procured for the project will largely depend on the module provider selected for the project. In most cases, the source of origin will be China given the superior economies of scale of modern Chinese PV manufacturing facilities compared with other smaller suppliers in other countries.

Through the enquiries made by UPC to several 'tier one' module suppliers as part of preparation for construction, it is understood that the factories within which the PV modules are constructed typically have their electricity needs satisfied with localised rooftop PV modules. These factories may also require electricity sourced from the local electricity grid.

22.14 Panel productivity

UPC utilises sophisticated tools that rely on satellite data and software modelling packages to calculate the expected production from a solar farm. These tools consider a proposed site's key attributes including elevation; topography; weather patterns (eg cloud cover), as well as longitude and latitude. While this provides sufficient certainty to proceed with a project, UPC has installed two solar monitoring systems to collect actual localised solar generation data. In addition to recording irradiance levels, the solar monitoring systems also record wind speed, wind direction, precipitation, and dust levels.

Two key attributes of the region which make it a favourable location for a solar farm are the relatively cool climate and high altitude. These attributes contribute towards lower generation losses by reducing the resistance in the DC power cables and improving the conversion efficiency in the PV modules.

22.15 Responsibilities for decommissioning and disposal

UPC will be responsible for decommissioning and rehabilitating the land within the development footprint. No cost is expected to be borne by Uralla Shire Council or the local community in this process. UPC has entered into agreements with project landholders, which include appropriate measures to ensure sufficient funds are available for decommissioning and rehabilitation.

At the end of the project's operational life, the PV modules will either be reused or recycled. UPC anticipates that at the time of decommissioning, there will be significantly more recycling options available within Australia. In 2016, the International Renewable Energy Agency (IRENA) reported that up to 85% of the material within PV modules is able to be recycled (IRENA 2016). There may also be opportunities to reuse the PV modules. In lieu of an Australian-based solution, the PV modules will be sent overseas for disposal through one of many established PV module recycling programs.

The project will have suitable insurances in place to rehabilitate or repower the facility should a natural disaster occur and cause extensive damage to project infrastructure.

23 Revised summary of management and mitigation measures

As described in Chapter 6 of the EIS, an environmental management strategy will be implemented to provide the strategic framework for environmental management of the project. The strategy will:

- incorporate the EMP, all other required plans, protocols, management and mitigation measures proposed in the EIS and this AR;
- identify all relevant statutory approvals;
- establish roles, responsibility, authority and accountability of all key personnel involved in the environmental management of the project;
- establish procedures for consulting with neighbouring landholders, the local community and relevant agencies, including Uralla Shire Council, about the operation and environmental performance of the project; and
- establish procedures for handling of complaints, disputes, non-compliances and emergency response.

The mitigation measures outlined in the EIS and AR will be incorporated into the detailed design and construction of the project and into the EMP or sub-plans as relevant.

An updated list of mitigation measures for the amended project (including revised mitigation measures to address submissions provided during the public exhibition of the EIS) is provided in Appendix B of the AR.

24 Project evaluation and conclusion

24.1 Overview

This RTS report responds to submissions received on the New England Solar Farm following the public exhibition of the EIS. The submissions received by UPC in response to the EIS have been reviewed. Responses to matters raised have been prepared by EMM and UPC, with input from relevant technical specialists who undertook assessments for the EIS.

Following the public exhibition of the DA and EIS, over 100 submissions were received by DPE, including submissions from government agencies and other organisations and public feedback. Of the submissions received from individual community members, approximately 21% (n=22) of the submissions were in support of the project, 65% (n=67) objected and 14% (n=14) provided comments.

The most commonly raised matters related to site suitability and development on agricultural land. Potential visual amenity impacts and potential negative impacts on tourism, property values and local businesses were also commonly raised.

24.2 Project refinements

As a result of ongoing discussions with the local community, project landholders and other stakeholders, UPC has made a number of further revisions to the development footprint that was the subject of the DA and EIS.

The development footprint no longer includes the southern array area. PV module technology is continuing to improve and the modules that are likely to be utilised for the project have a higher watt rating than was originally anticipated during the preliminary design stages of the project. In addition, UPC will maximise the extent of project infrastructure within the development footprint for the northern and central array areas, where practicable. As a result of these efficiencies, the project will be able to achieve the targeted generating capacity of up to 720 MW through development across the northern and central array footprints only.

In response to feedback received from neighbouring landholders, further revisions have been made to the extent of the northern array area to increase the distance between the development footprint and neighbouring residences and thereby minimise visibility of project infrastructure.

In addition to changes to the development footprint, there have also been revisions to:

- **Connection infrastructure between the northern and central array areas** – As part of the ongoing detailed design of the infrastructure layout within the development footprint, it may be necessary to utilise either underground or overhead cabling (or a combination of the two) to connect the two array areas. No changes to the alignment or extent of the three potential connection corridors between the northern and central array areas are required. The only change will be that, where previously, new overhead electricity transmission lines (ETLs) were proposed exclusively to transport electricity between the array areas, underground cabling may be installed in their place. Subsequently, no additional impact assessments are considered necessary.

- **Substation configuration** – UPC has confirmed that the grid substation will be adjacent to TransGrid's 330 kV transmission line in the northern array area. At the grid substation, the electricity generated by the two solar arrays will be stepped up to 330 kV and injected into the electricity grid. A solar array substation may still be required in the central array area to step the medium voltage up to high voltage. Two parcels of land are currently under consideration for the placement of the solar array substation.

- **Delivery of construction materials and infrastructure** – As part of ongoing design, UPC has been considering the potential use of the Main Northern Railway line for delivery of construction materials and project infrastructure. The final decision by UPC on whether the Main Northern Railway line will be used will depend on a number of factors, including timing and logistics; sequencing of works; cost and safety considerations; and EPC contractor acceptance of this alternative to using the road network. Utilising the Main Northern Railway line for deliveries would reduce the number of project-related heavy vehicles on the local and regional road network.

24.3 Project justification and evaluation

As described in Section 24.2, a number of refinements have been made to the project since the public exhibition of the DA and EIS. The AR accompanies this RTS report and outlines the changes to the project that have been made since the public exhibition of the EIS and provides a summary of the impacts associated with the amended project.

Extensive work has also been undertaken to respond to the submissions received on the DA and EIS; however, no major changes to the northern and central array areas were required as a result of any of the submissions. Therefore, the description of the project, and the project evaluation and justification, as presented in the EIS, remains a largely true and accurate reflection of the project for which approval is sought.

Notwithstanding, the justification and evaluation of the project is re-presented below.

24.3.1 Strategic need

As demonstrated in detail in Section 3.1 of the EIS, the development of the project is consistent with Commonwealth and NSW Government strategic planning and policy objectives, initiatives and regional plans, the priorities of the AEMO in planning for the future energy mix, as well as international agreements to which Australia is a signatory.

The project will support the Commonwealth and NSW governments to achieve their respective renewable energy and GHG emission reduction targets. The production of renewable energy directly aligns with the objectives of the NSW Government's REAP and the project will contribute to increased energy security through valuable contributions to a more diverse energy mix.

The development of the project, in conjunction with other large-scale renewable energy projects, has potential to fill the need for replacement power as ageing coal-fired generators face closure and continue to encounter failures. The construction of the project will also contribute to the future development of the New England region as a REZ as identified by TransGrid, the NSW Government and AEMO.

The properties within the project boundary are currently primarily used for sheep grazing for production of wool and lambs, with some cattle grazing for beef production. The project is permissible with development consent and is consistent with the objectives of the RU1 zone. The project will harness a natural resource, namely solar energy. While the development of this project will impact the availability of land for other primary production, it will allow for and encourage diversity in the area's land use and will provide economic stimulus and support to rural communities. The project will not fragment or alienate any resource lands during its operation and could be easily returned to agricultural land following decommissioning. Further, sheep grazing for vegetation management may occur during operations. Co-existence with sheep grazing activities would reduce the project's impact on primary production and maintain a multi-purpose land use throughout the life of the project.

The values of the community within the Uralla Shire LGA include references to job opportunities for a wide range of skills and aptitudes, a diverse economy and sustainability. The project will provide a number of direct and indirect social, economic and environmental benefits that align with these values, including the creation of employment opportunities, diversification of revenue streams and significant reductions in GHG emissions. UPC has engaged with key stakeholders including DPE, the NSW Renewable Energy Advocate (REA) and Uralla Shire Council regarding the project with the objective of integrating appropriate standards and guidelines into the development, construction and operation of the project.

Should the project not proceed (ie the 'do nothing' scenario), the potential project benefits described within the EIS will 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 GHG emission reduction targets.

The construction of several major renewable energy projects will be necessary to replace the output lost from the retirement of ageing coal plants in NSW in the next five to ten years.

24.3.2 Design development and assessment principles

The project has been designed to avoid and minimise impacts where possible. During the preparation of the EIS, the development footprint within the project boundary has been refined on the basis of environmental constraints identification, stakeholder engagement, community consultation and design of project infrastructure with the objective of developing an efficient project that avoids and minimises environmental impacts.

Throughout the project refinement process, UPC has made considerable effort to avoid potential environmental impacts, where possible. In those instances where potential impacts cannot be avoided, UPC'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. The proposed mitigation measures that will be implemented for each of the key environmental matters assessed in the EIS and AR are summarised in Appendix B of the AR.

The development footprint reflects the most appropriate area for the project infrastructure based on inputs provided during consultation activities with regulatory, community, industry and other stakeholders, environmental assessments undertaken to date and the functional requirements of project infrastructure. In a number of instances, the irregular shape of the array areas is a result of avoidance of identified impacts.

During detailed design and prior to the commencement of construction, it is anticipated that the placement of infrastructure and extent of construction activities will be further refined to ensure avoidance and minimisation objectives are met.

24.3.3 Biophysical, social and economic impacts

i Biophysical

Biophysical impacts of the project include:

- Biodiversity – removal of native vegetation within the development footprint and other indirect biodiversity impacts (including risk of encroachment of weeds and temporary noise impacts). The project has been designed to avoid and minimise impacts to biodiversity. To compensate for unavoidable disturbance of native vegetation, biodiversity offsets are proposed.

- Aboriginal cultural heritage –102 sites were identified during archaeological survey effort as part of the ACHA. Avoidance of significant Aboriginal cultural heritage values has been a key aspect of the project refinement process, wherever possible. Subsequently, only one site of high significance (NE70) will experience peripheral impacts, and should this occur, it will be in an area of low to negligible archaeological potential. Two sites of moderate significance (NE27 and NE49) are currently designated for impact by the project. Similar to NE70, NE27 will only experience peripheral impacts, and should this occur, it will be in an area of low to negligible archaeological potential. NE49 is a felled scar tree and will be salvaged. The remaining sites currently designated for impact by the project are all of low scientific significance. Impacts to sites within the amended development footprint will be managed as part of the AHMP.

- Historic heritage – impacts to heritage, largely to the visual aspect of the cultural landscape, will occur. The amendments to the project have reduced the extent of the development footprint and the number of identified heritage sites that will be impacted by the project. There has also been a subsequent reduction to the level of impact to the cultural landscape. If managed carefully, impacts will not be significant as all known significant archaeological sites have been excised from the development footprint. A HHMP will be prepared to guide the conservation of heritage items, including site specific management measures, along with general measures, including an unexpected finds protocol.

- Land – temporary change of land use for land within the development footprint, currently primarily used for sheep grazing with some cattle grazing. Land management will include consideration of the viability of sheep grazing throughout the life of the project. Land management practises will avoid or minimise potential impacts to neighbouring agricultural operations and ensure that the development footprint is not precluded from being returned to a productive agricultural use at the end of operations.

- Visual – the project is not anticipated to have any significant adverse visual impacts on the locality. As a result of the amendments to the project, the number of non-project related residences within 2 km of the development footprint has been significantly reduced from 41 to 28, with 3 residences within 1 km of the development footprint. Of these three residences, uninterrupted views of the amended development footprint are unlikely.

- Water – the development footprint includes a number of mapped 1st and 2nd order watercourses. The majority of these watercourses do not have a discernible channel and riparian zones and associated vegetation have been modified and degraded by historical land use practices. Placement of PV modules and ancillary infrastructure within 1st and 2nd order watercourses within the development footprint will be minimised to the extent practicable. Watercourse crossing plans detailing the design of proposed crossings of higher order watercourses (ie 3rd order and above) outside of the development footprint will be prepared in consultation with DoI Lands and Water.

ii Social

The project is justified on social grounds for three principal reasons:

- it is broadly supported by the local community;

- it will contribute to the local and regional economy; and

- it will provide indirect benefits through the use of services and facilities both locally and regionally.

Subject to their availability, the project is likely to utilise existing community services and facilities. An influx of a significant number of workers during the project's construction period has the potential to impact social characteristics within the local community such as accommodation, local infrastructure and local businesses, including community services and facilities.

Construction staging is intended to spread the workforce demand and reduce the aggregate peak construction workforce. Should it be required, the construction accommodation village will be scalable and flexible to ensure that it can respond to demand.

During construction, the project will have potential to cause impacts relating to noise and vibration, traffic, and visual amenity. Where potential impacts or exceedances of relevant assessment criteria have been identified, mitigation measures have been proposed to manage identified impacts (refer Appendix B of the AR). Consultation with affected residents will be undertaken prior to commencement of construction to discuss the proposed mitigation measures.

The potential traffic impacts will be largely short-term (during project construction) and can be managed in accordance with conditions for requiring adherence to specific construction hours, maintenance of local roads and implementation of a comprehensive TMP.

Public safety risks, including bushfire, hazards and risks associated with project infrastructure, and emergency access and evacuation will be mitigated through design of buildings, construction areas and other assets to include appropriate bushfire protection standards and emergency access and evacuation protocols will be developed as part of the emergency response plan.

24.3.4 Economic

The project is justified economically due to the economic benefits and stimulus it will provide to the local region.

The peak construction year (Year 2) of the project is estimated to make up to the following total contribution to the regional economy:

- $425 million in annual direct and indirect output;
- $169 million in annual direct and indirect value added;
- $92 million in annual direct and indirect household income; and
- 1,155 direct and indirect jobs.

Throughout operations, the project is estimated to make up to the following total annual contribution to the regional economy:

- $86 million in annual direct and indirect output;
- $26 million in annual direct and indirect value added;
- $3 million in annual direct and indirect household income; and
- 39 direct and indirect jobs.

UPC will work in partnership with Uralla Shire Council and the local community to ensure that, as far as possible, the benefits of the projected economic growth in the region are maximised and impacts minimised.

24.3.5 Objects of the EP&A Act

The project's consistency with the relevant objects of the EP&A Act is considered below. The overall conclusion is that the project is consistent with the objects of the EP&A Act either wholly or in the majority.

i To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources

Resources within the project boundary and, more specifically, the development footprint, include land that is being used for agricultural production and land which has biodiversity, Aboriginal cultural and historic heritage values. This constitutes the 'natural resources', which must be properly managed, developed or conserved.

It is acknowledged that the development of the project will reduce the utilisation of the land within the development footprint for agricultural production; however, this impact will be mitigated by a number of factors including:

- choice of PV module technology – the anticipated use of single axis tracking PV modules involves a typical row spacing of 5-8 m, which would leave a significant area of land (typically 60% or more within the fence line) that could still be utilised for sheep grazing during the project's operations;
- site selection – the array areas have been strategically placed so that primary production can continue within the immediate surrounds and to reduce potential impacts on the use of neighbouring farmlands for primary production purposes; and
- return to agricultural land – the development footprint can be returned to agricultural land use at the completion of the project's operations.

Land management practises will avoid or minimise potential impacts to neighbouring agricultural operations that have been identified during engagement with the local community and as part of the LUCRA (refer Appendix G of the AR).

The biodiversity values and Aboriginal cultural and historic heritage resources that will be impacted by the project will be mitigated or offset.

For the reasons given above, the project will maintain 'social and economic welfare' and achieve 'a better environment'.

ii To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment

Under Section 516A of the EPBC Act, Commonwealth organisations have a statutory requirement to report on their environmental performance and how they accord with, and advance, the principles of ESD.

Australia's *National Strategy for Ecologically Sustainable Development* (1992), which was prepared by the ESD Steering Committee, defines ESD as: "using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased".

The principles of ESD, for the purposes of the EP&A Act, are provided in Clause 7(4) of Schedule 2 of the EP&A Regulation. The four principles of ESD are:

- **Precautionary principle.** The precautionary principle states that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
- **Inter-generational equity.** The principle of inter-generational equity is that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

- **Conservation of biological diversity and maintenance of ecological integrity.** The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

- I**mproved valuation and pricing of environmental resources.** Improved valuation, pricing and incentive mechanisms should be promoted.

The project has been designed to avoid impacts where possible. This includes additional amendments to the project since the public exhibition of the EIS. Where impacts are unavoidable, the project has been designed to reduce the impacts to a level which is as low as is reasonably practicable. This includes consideration of site suitability based on design needs, existing infrastructure and environmental conditions. Appropriate management measures have been identified to mitigate any residual impacts (refer Appendix B of the AR).

The project is consistent with the principle of inter-generational equity. The project will contribute to the sustainable transition of electricity generation in NSW to a more reliable, more affordable and cleaner energy future. Once decommissioned, the land within the development footprint can be rehabilitated to its current use if required thereby allowing for either continuation of renewable energy generation or a return to agricultural production, both of which would provide benefits for future generations.

iii To promote the orderly and economic use and development of land

The project provides an opportunity for orderly and economic use and development of land with benefits to the local region. The project's planning and design process, including site selection and project refinement (refer Section 1.2 of the AR), has taken into account potential impacts associated with the construction and ongoing operation of the project and incorporates measures to avoid, minimise, manage or offset these impacts. Thus, it will be an orderly development undertaken in accordance with further detailed design processes, conditions of consent and strict parameters as set out in management plans and operating procedures.

iv To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats

Measures to avoid and minimise impacts to vegetation were considered during the initial design stages of the project, resulting in avoidance of significant biodiversity values and minimisation of impacts on other areas of native vegetation. Particular efforts were made to avoid those woodland areas with larger patch size and greater connectivity to other areas of habitat outside of the development footprint.

All unavoidable impacts will be offset in accordance with NSW Government policy. Establishing offsets would enhance biodiversity values in the medium to short term.

v To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)

Measures to avoid and minimise impacts to built and cultural heritage were considered during the initial design stages of the project and as part of the project refinement process described in Section 1.4.2 of the EIS and Section 1.2 of the AR. In a number of instances, the irregular shape of the array areas is a result of avoidance of identified built and cultural heritage sites.

Through the project refinement process, most archaeological sites of high and moderate significance identified as part of the ACHA have been avoided. Impacts to sites within the development footprint will be managed as part of the AHMP. Specific management measures for built and cultural heritage sites within the development footprint are described in Section 5.3 (Aboriginal cultural heritage) and Section 5.4 (historic heritage) of the AR.

vi To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants

Public safety risks, including bushfire, hazards and risks associated with project infrastructure, and emergency access and evacuation will be mitigated through design of buildings, construction areas and other assets to include appropriate bushfire protection standards and emergency access and evacuation protocols will be developed as part of the emergency response plan.

Should it be required, the construction accommodation village will be designed, constructed and maintained in accordance with relevant Australian Standards. Detailed plans for the construction accommodation village will be prepared in consultation with Uralla Shire Council and DPE.

vii To promote the sharing of responsibility for environmental planning and assessment between the different levels of government in the State

The project is declared to be classed as SSD under the SRD SEPP. The IPC have been determined the consent authority for the project. DPE are still responsible for preparing the assessment report to the IPC about this DA. However, DPE's report will not be binding on the IPC.

The EIS has been prepared in consultation with key regulatory stakeholders and with input from various levels of government, including Uralla Shire Council, DPE and other State government agencies (eg OEH, DPI and DoI Lands and Water).

viii To provide increased opportunity for community participation in environmental planning and assessment

UPC has actively sought to involve the community in the planning and assessment process (refer to Section 3.2.2).

Feedback from neighbouring landholders and the local community contributed to the project refinement process and inputs provided during engagement with these stakeholders has informed the selection of the development footprint.

Engagement activities undertaken to date include multiple community information and feedback sessions, face-to-face meetings, phone calls, email correspondence, Facebook posts on the project's page, advertisements in the local newsletter and newspaper, mail outs and informal discussions, thus providing opportunity for public involvement and participation in environmental planning and assessment.

24.4 Conclusion

The project has been designed to avoid and minimise adverse biophysical, social and economic impacts where possible. The residual impacts have been identified and assessed. While there are some unavoidable impacts, principally during the project's construction period, a suite of design, mitigation and management measures have been proposed to address these. The project will provide a number of longer-term benefits to the local community, New England region and State.

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

- It is suitably located:
  - in a region with ideal climatic and physical conditions for large-scale solar energy generation that has been identified by the NSW Government as a priority Renewable Energy Zone;
  - within close proximity of existing infrastructure with adequate capacity to receive the energy proposed to be generated; and

- adjacent to agricultural land uses that are compatible with large-scale solar energy generation.

- The design of the project has been an iterative design and environmental assessment process to ensure impacts have been avoided and minimised as much as possible. This has included refining the design in consultation with neighbouring landholders, local and NSW Government agencies, registered Aboriginal parties and the local community.

- The project will not result in significant biophysical, social or economic impacts, and the EIS and AR have identified that any residual impacts can be appropriately managed and/or offset in accordance with NSW Government policy.

- The benefits of the project are in the public interest and will provide renewable energy, increased energy security and direct and indirect economic benefits, through the creation of employment opportunities and benefits to the local and regional economy through income and expenditure during the life of the project.

- UPC is committed to the long-term environmental management of the land within the development footprint. At the end of the project's investment and operational life, the development footprint will be returned to its pre-existing agricultural land use or another land use as agreed by the project owner and the landholders at that time.

The project is in line with the objects of the EP&A Act and will enable the orderly and logical use of natural, physical and human resources existing within the local area and greater New England North West region. There will be economic investment and employment benefits both locally and regionally and a realised opportunity for renewable energy generation, while minimising potential environmental and social impacts. A suite of design, mitigation and management measures are proposed to avoid, minimise and manage the biophysical, social and economic impacts of the project.

The project is consistent with the principle of inter-generational equity. The project will contribute to the sustainable transition of electricity generation in NSW to a more reliable, more affordable and cleaner energy future. Once decommissioned, the land within the development footprint can be rehabilitated to its current use if required thereby allowing for either continuation of renewable energy generation or a return to agricultural production, both of which would provide benefits for future generations.

Abbreviations

AC	alternating current
ACHAR	Aboriginal cultural heritage assessment report
AEMO	Australian Energy Market Operator
AEP	annual exceedance probability
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHMP	Aboriginal heritage management plan
AR	amendment report
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
BAM	biodiversity assessment method
BC Act	NSW *Biodiversity Conservation Act 2016*
BDAR	biodiversity development assessment report
BESS	battery and energy storage system
BHA	bushfire hazard assessment
BSAL	biophysical strategic agricultural land
CBSI	community benefit sharing initiative
CEMP	construction environmental management plan
CL Act	NSW *Crown Land Act 1989*
CWMP	construction workforce management plan
DA	development application
DC	direct current
DoEE	Commonwealth Department of Environment and Energy
DoI Land and Water	Department of Industry - Lands and Water Division
DPE	NSW Department of Planning and Environment
DPI	NSW Department of Primary Industries
DRG	NSW Department of Planning and Environment – Division of Resources and Geoscience

DRE	NSW Department Planning and Environment – Division of Resources and Energy
EIA	economic impact assessment
EIS	environmental impact statement
EMF	electric and magnetic fields
EMM	EMM Consulting Pty Limited
EMP	environmental management plan
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EP&A Regulation	NSW Environmental Planning and Assessment Regulation 2000
EPA	NSW Environment Protection Authority
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
EPC	engineering, procurement and construction
EPL	environment protection licence
ERP	emergency response plan
ESCP	erosion and sediment control plan
ESD	ecologically sustainable development
ETL	electricity transmission line
EWMSs	environmental work method statements
FMP	fire management plan
FTE	full-time equivalent
GHG	greenhouse gas
GSNSW	Geological Survey of NSW
GW	gigawatt
ha	hectares
Heritage Act	NSW *Heritage Act 1977*
HHA	historic heritage assessment
HHMP	historic heritage management plan
HV	high voltage
IBRA	Interim Biogeographic Regionalisation for Australia
ICNG	Interim Construction Noise Guideline

ICNIRP	International Commission on Non-Ionising Radiation Protection
Infrastructure SEPP	State Environmental Planning Policy (Infrastructure) 2007
JHR	John Holland Country Regional Network
km	kilometre
kW	kilowatt
LGA	local government area
LUCRA	land use conflict risk assessment
Mining SEPP	State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.
MNES	matters of national environmental significance
MV	medium voltage
MW	megawatt
MWh	megawatt hours
NEM	National Electricity Market
NMLs	noise management levels
NPfI	*Noise Policy for Industry*
NPW Act	NSW *National Parks and Wildlife Act 1974*
NSW	New South Wales
NVIA	noise and vibration impact assessment
OEH	NSW Office of Environment and Heritage
OEMP	operational environmental management plan
OOH	out of hours
O&M	operations and maintenance
PADs	potential archaeological deposits
PBP	Planning for Bushfire Protection
PCT	plant community type
PCU	power conversion unit
PEA	preliminary environmental assessment
PV	photovoltaic

RAP	registered Aboriginal party
RBL	rating background noise level
REA	Renewable Energy Advocate
REAP	Renewable Energy Action Plan
REZ	renewable energy zone
RF Act	NSW *Rural Fires Act 1997*
RFS	NSW Rural Fire Service
RMS	NSW Roads and Maritime Services
RNP	Road Noise Policy
RTS	response to submissions
SEA	soil erosion assessment
SEARs	Secretary's environmental assessment requirements
SIA	social impact assessment
SoHI	statement of heritage impact
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State significant development
STP	sewage treatment plant
SWA	surface water assessment
SWMP	soil and water management plan
TfNSW	Transport for NSW
TIA	traffic impact assessment
TMP	traffic management plan
UPC	UPC Renewables Australia Pty Ltd
Uralla LEP	Uralla Local Environmental Plan 2012
VIA	visual impact assessment
VRZ	vegetated riparian zone
WMP	waste management plan

References

Aitchison, C 2012, *Tourism impact of wind farms*, submitted to Renewables Inquiry Scottish Government, The University of Edinburgh, retrieved 29 April 2019 from http://www.parliament.scot/S4_EconomyEnergyandTourismCommittee/Inquiries/20120426_uni_of_ed.pdf.

Al-Hamoodah, L, Koppa, K, Schieve, E, Reeves, C, Hoen, B, Seel, J and Rai, V 2018, *An exploration of property-value impacts near utility-scale solar installations*, LBJ School of Public Affairs, University of Texas, retrieved 26 April 2019 from https://emp.lbl.gov/sites/default/files/property-value_impacts_near_utility-scale_solar_installations.pdf.

Australian Energy Market Operator (AEMO) 2017, *Integrated system plan consultation for the national electricity market*.

Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) 2019, *Electromagnetic Fields Associated with Commercial Solar Photovoltaic Electric Power Generating Facilities*, viewed 29 April 2019, https://www.arpansa.gov.au/electromagnetic-fields-associated-commercial-solar-photovoltaic-electric-power-generating-facilities.

Brailsford, L 2018, New wind and solar now as cheap as existing coal, Climate Council, 6 December, retrieved 31 May 2019 from https://www.climatecouncil.org.au/new-wind-and-solar-now-as-cheap-as-existing-coal/.

British Wind Energy Agency (BWEA) 2006, *The impact of wind farms on the tourist industry in the UK*, London, British Wind Energy Association.

Broucek, J 2014, Effect of Noise on Performance, Stress, and Behaviour of Animals, *Slovak J. Anim. Sci.*, 47, 2014(2): pp. 111-123.

Brown, J 2018, Solar farm offers dual purpose land use, *The Land*, 20 March, retrieved 29 April 2019 from https://www.theland.com.au/story/5256360/can-a-solar-farm-be-a-lambing-paddock/.

Clean Energy Council 2019, *Clean Energy Australia Report 2019*.

Clean Energy Regulator 2019, 2017-18 published data highlights, Australian Government, viewed 29 April 2019, http://www.cleanenergyregulator.gov.au/NGER/Pages/Published%20information/Data%20highlights/2017%E2%80%9318-published-data-highlights.aspx.

CohnReznick 2018, *Adjacent property values solar farm impact study: A study of nine existing solar farms.* Report prepared by CohnReznick on behalf of Sunvest Solar Inc, retrieved 26 April 2019 from http://www.oglecounty.org/document_center/planning%20&%20zoning/Solar%20Ad%20Hoc%20Committee/PV%20Impact%20Studies/CR%20-%20SunVest%20Solar%20-%20Solar%20Farm%20Impact%20Study%20(Report%20Date%205-30-2018).pdf.

Desert Knowledge Australia (DKA) Solar Centre 2019, *DKASC Alice Springs*, viewed 29 April 2019, http://dkasolarcentre.com.au/locations/alice-springs.

Dinesh, H & Pearce, JM 2016, The potential of agrivoltaic systems, *Renewable and Sustainable Energy Reviews* 54, pp. 299– 308.

Dinnie, E 2012, *The impact of wind farms on Scottish tourism,* The James Hutton Institute on behalf of ClimateXChange, retrieved 19 April 2019 from https://www.researchgate.net/publication/257761967_The_Impact_of_Wind_Farms_on_Scottish_Tourism.

Dupraz, C, Marrou, H, Talbot, G, Dufour, L, Nogier, A & Ferard, Y 2011, Combining solar photovoltaic panels and food crops for optimising land use: Towards new agrivoltaic schemes*, Renewable Energy* 36(10), pp. 2725– 2732.

Fthenakis, VM 2003, Life cycle impact analysis of cadmium in CdTe PV production, *Renewable and Sustainable Energy* Reviews 8(4), pp. 303-334.

Fischer Australis Pty Ltd 2019, *Mowers for solar farms,* viewed 30 April 2019, https://www.fischeraustralis.com.au/mowers-for-solar-farms/.

Hassanpour Adeh E, Selker, JS & Higgins, CW 2018, Remarkable agrivoltaic influence on soil moisture, micrometeorology and water-use efficiency. *PLoS ONE*, 13(11.

Hoen, B, Wiser, R, Cappers, P, Thayer, M & Sethi, G 2009, *The impact of wind power projects on residential property values in the United States: A multi-site hedonic analysis*, Berkeley Lab, viewed 29 April 2019, https://emp.lbl.gov/publications/impact-wind-power-projects.

Hoen, B, Brown, JP, Jackson, T, Wiser, R, Thayer, M & Cappers, P 2013, *A spatial hedonic analysis of the effects of wind energy facilities on surrounding property values in the United States,* Ernest Orlando Lawrence Berkeley National Laboratory, retrieved 29 April 2019 from https://emp.lbl.gov/sites/all/files/lbnl-6362e.pdf.

International Commission on Non-Ionising Radiation Protection (ICNIRP) 1998, *Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz).*

International Renewable Energy Agency (IRENA) 2016, *End-of-life Management – Solar Photovoltaic Panels.*

Loch, RJ, Slater, BK and Devoil, C, Soil erodibility (Km) values for some Australian soils, *Australian Journal of Soil Research*, 36(6), pp. 1045-1056.

Merritt, T, Cretikos, MA, Smith, W & Durrheim, DN 2013, The health of Hunter Valley communities in proximity to coal mining and power generation, general practice data, 1998-2010, NSW Health.

Neoen 2018, *Neoen and Bouygues sheep trial at Parkes Solar Farm in NSW*, retrieved 29 April 2019 from https://crystalbrookenergypark.com.au/wp-content/uploads/2019/01/Attachment-F-Sheep-Trial-Parkes-1.pdf.

NSW Department of Environment, Climate Change and Water (DECCW) 2011, *NSW Road Noise Policy*.

NSW Department of Planning and Environment (DPE) 2017a, *New England North West Regional Plan 2036.*

- 2017b, *Draft Large-Scale Solar Energy Guideline*.

NSW Department of Primary Industries (DPI) 2012, *NSW Aquifer Interference Policy: NSW Government policy for the licensing and assessment of aquifer interference activities.*

NSW Environment Protection Authority (EPA) 2017, *Noise Policy for Industry*.

- 2014, *Waste Classification Guidelines – Part 1: Classifying Waste*.

NSW Government 2018, *Voluntary Land Acquisition and mitigation policy for State Significant Mining, Petroleum and Extractive Industry Developments*.

Phillips, S & Callaghan, J 2011, 'The spot assessment technique: a tool for determining localised levels of habitat use by Koalas *Phacolarctos cinereus, Australian Zoologist*, 35(3) pp. 774-780.

Regional Development Australia Northern Inland NSW (RDANI) 2016, *Regional Plan 2016-2019 and Annexure 1: Regional Profile – Northern Inland NSW*.

Sibson, E 2016, Hungry sheep help save money at University of Queensland solar research farm, *Australia Broadcasting Corporation*, 15 August 2016, retrieved 29 April 219 from https://www.abc.net.au/news/2016-08-15/uq-uses-sheep-to-cut-grass-at-gatton-solar-research-farm/7734770.

South Australian Government 2019, *Woakwine Range wind farm tourist drive*, retrieved 29 April 2019 from https://southaustralia.com/products/limestone-coast/attraction/woakwine-range-wind-farm-tourist-drive.

South East Region of Renewable Energy Excellence (SERREE) 2019, *Renewable Energy Trail*, retrieved 29 April 2019 from https://www.serree.org.au/projects/renewable-energy-trail/.

Stone, Y, Ahern CR, & Blunden, B 1998, Acid Sulfate Soils Manual 1998, Acid Sulfate Soil Management Advisory Committee, Wollongbar, NSW, Australia.

Sustainable Energy Transformation 2018, *Expert witness report, for solar farms at Tatura East, Tallygaroopna, Lemnos and Congupna,* prepared for City of Greater Shepparton, retrieved 8 May 2019 from https://www.planning.vic.gov.au/__data/assets/pdf_file/0020/126551/Council-Guthrie-Planning-Panel-Report-20180507.PDF.

Tell, RA, Hooper, HC, Sias, GG, Mezei, G, Hung, P & Kavet, R 2015, Electromagnetic fields associated with commercial solar photovoltaic electric power generating facilities, *Journal of Occupational and Environmental Hygiene,* 12 (11), pp. 795-803.

Vries, DA & Birch, JW 1961, The modification of climate near the ground by irrigation for pastures on the Riverine plain, *Australian Journal of Agricultural Research*, 12(2), pp. 260-272.

Vyn, RJ & McCullough, RM 2014, The effects of wind turbines on property values in Ontario: does public perception match empirical evidence? *Canadian Journal of Agricultural Economics*, 62(3), pp. 365-392.

Weeks, CA 2008, A review of welfare in cattle, sheep and pig lairages, with emphasis on stocking rates, ventilation and noise, *Animal Welfare* 17(3), pp. 275-284.

Appendix A

Register of submitters

DPE Identification Number	Submitter	Objects/Supports/Comments	Focus on southern array/Salisbury Plains	Aboriginal cultural heritage	Air quality	Biodiversity	Bushfire	Cumulative impacts	Economic	Engagement and community outreach	Hazards	Historical heritage	Land	No comments	Noise	Other	Social	Strategic and statutory context	Notions of support	Traffic	Visual	Waste	Water
314072	Individual	Supports	No																✓				
314132	Individual	Objects	No															✓					
314626	Individual	Objects	Yes			✓		✓	✓								✓	✓			✓		✓
314630	Individual	Comments	No			✓											✓	✓		✓			
314849	Individual	Objects	No							✓						✓		✓					
314924	Individual	Objects	No				✓		✓	✓						✓		✓					✓
315087	Individual	Objects	No			✓			✓								✓	✓			✓		
315551	Individual	Objects	Yes						✓								✓						
315805	Individual	Objects	No					✓	✓	✓						✓	✓	✓			✓	✓	✓
315849	Individual	Objects	Yes			✓			✓	✓		✓					✓	✓					
315851	Individual	Objects	Yes			✓			✓	✓							✓				✓		
315853	Individual	Objects	No			✓							✓			✓		✓			✓	✓	
316105	Individual	Objects	Yes						✓								✓	✓			✓		
316289	Individual	Objects	No			✓		✓	✓	✓			✓			✓	✓	✓			✓	✓	✓
316351	Individual	Objects	No													✓							
316353	Individual	Objects	No													✓							
316544	Individual	Objects	No							✓						✓	✓						
316813	Individual	Objects	No						✓							✓	✓	✓			✓		
316933	Individual	Objects	No			✓		✓	✓	✓	✓		✓			✓	✓	✓			✓		✓
317040	Individual	Supports	Yes			✓														✓	✓		
317068	Individual	Objects	No						✓								✓				✓		
317113	Individual	Objects	Yes		✓	✓			✓	✓					✓	✓	✓	✓		✓	✓		✓
317151	Individual	Objects	No										✓			✓		✓					✓
317178	Individual	Supports	No																✓				
317182	Individual	Supports	No																✓				
317184	Individual	Objects	No															✓			✓		
317186	Individual	Objects	No															✓			✓		
317296	Individual	Objects	Yes			✓							✓			✓		✓			✓		
317390	Individual	Objects	No		✓	✓			✓	✓			✓			✓	✓	✓		✓	✓	✓	✓
317605	Individual	Supports	Yes							✓											✓		
317675	Individual	Objects	Yes						✓								✓						
317718	Individual	Objects	No			✓			✓								✓	✓					
317753	Individual	Objects	Yes			✓	✓						✓			✓		✓			✓		✓
317814	Individual	Objects	Yes		✓	✓			✓	✓					✓	✓	✓	✓			✓		
317824	Individual	Objects	Yes				✓	✓	✓	✓	✓		✓			✓	✓	✓			✓		✓
317862	Individual	Objects	Yes					✓	✓	✓						✓		✓			✓		✓
317868	Individual	Comments	No				✓								✓								
317872	Individual	Objects	Yes					✓	✓	✓	✓		✓			✓	✓	✓			✓		✓
317884	Individual	Objects	No						✓								✓	✓					
317886	Individual	Comments	No			✓							✓							✓			✓
317952	Individual	Objects	No			✓			✓			✓					✓	✓			✓		✓
317985	Individual	Supports	No																✓				
317987	Individual	Supports	No																✓				
318002	Individual	Objects	Yes						✓							✓	✓	✓			✓		✓
318082	Individual	Comments	No										✓			✓	✓						
318092	Individual	Objects	No															✓			✓		
318098	Individual	Objects	No							✓						✓	✓	✓		✓			
318100	Individual	Objects	Yes						✓							✓	✓	✓			✓		
318146	Individual	Supports	No																✓				

DPE Identification Number	Submitter	Objects/Supports/Comments	Focus on southern array/Salisbury Plains	Aboriginal cultural heritage	Air quality	Biodiversity	Bushfire	Cumulative impacts	Economic	Engagement and community outreach	Hazards	Historical heritage	Land	No comments	Noise	Other	Social	Strategic and statutory context	Notions of support	Traffic	Visual	Waste	Water
318149	Individual	Supports	No																✓				
318163	Individual	Objects	Yes			✓		✓	✓	✓	✓		✓		✓	✓	✓	✓			✓		✓
318191	Individual	Objects	No					✓										✓					
318203	Individual	Objects	No						✓	✓							✓	✓			✓		
318207	Individual	Comments	Yes														✓	✓	✓		✓		
318213	Individual	Comments	No			✓	✓		✓	✓	✓		✓			✓	✓	✓		✓	✓	✓	✓
318246	Individual	Comments	No	✓	✓	✓	✓			✓			✓			✓	✓	✓		✓	✓	✓	✓
318253	Individual	Objects	No							✓						✓	✓	✓			✓	✓	✓
318280	Individual	Objects	Yes			✓	✓	✓	✓	✓	✓		✓			✓	✓	✓			✓		✓
318282	Individual	Objects	No			✓										✓							
318284	Individual	Objects	No														✓	✓			✓		
318287	Individual	Objects	Yes		✓	✓		✓	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓		✓
318299	Individual	Objects	No			✓			✓	✓						✓	✓	✓			✓		✓
318301	Individual	Objects	No										✓					✓		✓	✓		
318303	Individual	Objects	Yes					✓		✓						✓		✓					✓
318305	Individual	Comments	No				✓		✓							✓		✓		✓			
318307	Individual	Comments	No				✓		✓							✓		✓		✓			
318309	Individual	Objects	Yes						✓								✓						
318311	Individual	Objects	No			✓			✓				✓			✓	✓	✓		✓	✓		✓
318315	Individual	Objects	Yes						✓								✓	✓			✓		
318321	Individual	Objects	Yes						✓								✓						
318323	Individual	Comments	No		✓	✓	✓		✓						✓	✓	✓	✓			✓		✓
318325	Individual	Comments	Yes						✓									✓			✓		
318330	Individual	Supports	No																✓				
318336	Individual	Comments	No		✓	✓			✓	✓			✓			✓		✓		✓			✓
318338	Individual	Objects	Yes						✓								✓						
318342	Individual	Supports	No																✓				
318346	Individual	Objects	Yes															✓					
318384	Individual	Objects	Yes							✓						✓		✓					
318411	Individual	Supports	No							✓							✓	✓					
318461	Individual	Supports	No			✓			✓							✓	✓		✓	✓	✓	✓	
318469	Individual	Objects	No											✓									
318480	Individual	Objects	No															✓					
318484	Individual	Supports	No																✓				
318486	Individual	Objects	No									✓	✓					✓			✓		
318490	Individual	Objects	Yes										✓			✓		✓			✓		✓
318493	Individual	Objects	No		✓	✓	✓		✓				✓		✓	✓	✓	✓			✓		
318495	Individual	Supports	No																✓	✓	✓		
318501	Individual	Supports	No																✓				
318505	Individual	Objects	No						✓							✓	✓	✓					
318509	Individual	Supports	No																✓				
318511	Individual	Objects	Yes														✓	✓			✓		
318515	Individual	Objects	Yes															✓			✓		
318517	Individual	Comments	No							✓						✓	✓			✓			
318519	Individual	Comments	No						✓	✓						✓	✓			✓			
318525	Individual	Supports	No																✓				
318527	Individual	Objects	Yes							✓											✓		
318533	Individual	Supports	No																✓				
318537	Individual	Objects	No			✓				✓			✓			✓		✓		✓		✓	✓

DPE Identification Number	Submitter	Objects/Supports/Comments	Focus on southern array/Salisbury Plains	Aboriginal cultural heritage	Air quality	Biodiversity	Bushfire	Cumulative impacts	Economic	Engagement and community outreach	Hazards	Historical heritage	Land	No comments	Noise	Other	Social	Strategic and statutory context	Notions of support	Traffic	Visual	Waste	Water
318539	Individual	Supports	No																✓				
321457	Individual	Supports	No																✓				
321459	Individual	Supports	No																✓				
321461	Individual	Objects	No			✓			✓	✓	✓		✓			✓	✓	✓			✓		
D Adams	Individual	Objects	No		✓	✓			✓				✓			✓		✓		✓			

Appendix B

Stakeholder engagement materials

Summary of the consultation register (following EIS submission)

Note: Outcomes of consultation, including meeting minutes have been kept confidential, but can be made available on request and subject to consent from the stakeholders involved.

Agency/stakeholder	Date	Form of consultation	Purpose/content
Community member	Thursday, 7 February 2019	Email	Raised concerns about the project location and traffic.
Multiple	Monday, 18 February 2019	Email	Advise of public exhibition and Facebook page.
N1	Monday, 18 February 2019	Email	Advise of public exhibition and how to access EIS.
S9	Monday, 18 February 2019	Email	Advise of public exhibition and how to access EIS.
Local community (near neighbours)	Wednesday, 20 February, 2019	Letter	Advise of public exhibition and Facebook page.
S12	Wednesday, 20 February, 2019	Face to face	Project update.
S3	Wednesday, 20 February, 2019	Face to face	Project update.
S12	Wednesday, 20 February, 2019	Face to face	Project update.
S17	Wednesday, 20 February, 2019	Face to face	Project update.
C2	Thursday, 21 February, 2019	Face to face	Project update and discuss concerns.
S11	Thursday, 21 February, 2019	Face to face	Project update and discuss concerns.
S14	Thursday, 21 February, 2019	Face to face	Project update.
USC Councillor	Thursday, 21 February, 2019	Email Phone call	Provide further information on assessment of potential visual impacts.
Adam Marshall (Member for Northern Tablelands)	Thursday, 21 February, 2019	Email Phone call	Project update.
Community member	Friday, 22 February 2019	Email	Response to concerns about the project location and traffic.
Community member	Friday, 22 February 2019	Email	Expression of interest for upcoming work.
Secretary (DPE)	Monday, 25 February 2019	Email Letter	Introduce the project.
S9	Monday, 25 February 2019	Email	Address concerns about potential impacts on birdlife.
Secretary (DPE)	Monday, 25 February 2019	Email Letter	Introduce the project.
Minister for Planning	Tuesday, 26 February 2019	Email Letter	Introduce the project and provide a copy of the fact sheet and media release.
Community member	Wednesday, 27 February 2019	Phone call	Project update.
Community member	Wednesday, 27 February 2019	Phone call	Project update.
S18	Thursday, 28 February 2019	Email	Request an opportunity to discuss the project.
S18	Thursday, 28 February 2019	Email	Response to enquiry.
Action Group Representative	Friday, 1 March 2019	Meeting	Discuss the methodology utilised in technical assessments as part of the EIS.
S18	Tuesday, 5 March 2019	Email	Response to enquiry.
Action Group	Wednesday, 6 March 2019	Meeting	Discuss the Action Group's key concerns with the southern array area (following review of the EIS)
Local community (mailing list)	Thursday, 7 March 2019	Email	Advise of upcoming drop in session.
Local community (near neighbours)	Thursday, 7 March 2019	Letter	Advise of upcoming drop in session.
LLS	Thursday, 7 March 2019	Phone call Email	Project introduction and offer to meet.
Uralla Shire Council - Elected councillors	Monday, 11 March 2019	Email	Advise of upcoming drop in session.
Community member	Monday, 11 March 2019	Phone call	Project introduction.
Community member	Monday, 11 March 2019	Phone call	Coordinate a meeting.
S14	Monday, 11 March 2019	Email	Provide photomontage.
DPE	Tuesday, 12 March 2019	Phone call	Project update.
Uralla Shire Council - Elected councillors - March meeting	Tuesday, 12 March 2019	Presentation	Project update.
OEH	Wednesday, 13 March 2019	Site inspection	Inspect areas of interest within the development footprint to inform review of technical assessments.
S18	Wednesday, 13 March 2019	Meeting	Project update.
C7	Thursday, 14 March 2019	Meeting	Project update and discuss concerns.
Uralla Neighbourhood Centre	Thursday, 14 March 2019	Meeting	Request input in current and proposed programmes.
Community member	Thursday, 14 March 2019	Drop-in session	Project update and discuss concerns.
N4	Thursday, 14 March 2019	Drop-in session	Project update and discuss concerns.
USC Councillor	Thursday, 14 March 2019	Drop-in session	Project update and discuss concerns.
N35	Thursday, 14 March 2019	Drop-in session	Project update and discuss concerns.
Community member	Thursday, 14 March 2019	Drop-in session	Project update and discuss concerns.
S17	Thursday, 14 March 2019	Drop-in session	Project update and discuss concerns.
Community member	Thursday, 14 March 2019	Drop-in session	Project update and discuss concerns.
USC Councillor	Tuesday, 19 March 2019	Email	Provide a copy of comments within submission on EIS.
N4 and N5	Tuesday, 19 March 2019	Meeting Property inspection	Follow-up discussions following drop in session and inspection of property.
Uralla Neighbourhood Centre	Monday, 1 April 2019	Meeting	Update on funding support.
Community member	Monday, 1 April 2019	Email Phone call Meeting	Project introduction.

C7	Monday, 1 April 2019	Email Meeting	Project update.
N4 and N5	Tuesday, 2 April 2019	Meeting	Project update - refinement to the northern array.
LLS	Tuesday, 2 April 2019	Meeting	Project update.
Department of Industry - Lands & Water	Friday, 5 April 2019	Email	Request clarification on DoI Land and Water submission on EIS/SWA (particularly in relation to watercourse crossings)
DPE	Monday, 8 April 2019	Email	Provide supplementary information for Sunhill Dairy Goats submission
TfNSW / JHR	Monday, 8 April 2019	Email	Clarification of definition of the rail corridor
DPE	Tuesday, 9 April 2019	Face to face	Project update, discuss proposed amendments and approach to response to submissions.
Department of Industry - Lands & Water	Wednesday, 10 April 2019	Email	Request clarification on DoI Land and Water submission on EIS/SWA (particularly in relation to watercourse crossings)
Uralla Shire Council	Thursday, 11 April 2019	Face to face	Project amendments - removal of southern array.
Adam Marshall (Member for Northern Tablelands)	Thursday, 11 April 2019	Phone call	Project amendments - removal of southern array.
Project landholders (southern array)	Thursday, 11 April 2019	Face to face	Project amendments - removal of southern array.
DPI	Thursday, 11 April 2019	Phone call Email	Removal of buried infrastructure from land mapped as BSAL.
Action Group	Friday, 12 April 2019	Phone call	Project amendments - removal of southern array.
Federal Wind Farm Commissioner	Friday, 12 April 2019	Phone call	Project amendments - removal of southern array.
TfNSW / JHR	Friday, 12 April 2019	Email	Clarification of definition of the rail corridor
Uralla Shire Council	Friday, 12 April 2019	Email	Project amendments - removal of southern array.
RMS	Friday, 12 April 2019	Phone call Email	Project update and discuss the submission provided by RMS on the EIS.
Local community (mailing list)	Friday, 12 April 2019	Email	Project amendments - removal of southern array.
RMS	Monday, 15 April 2019	Email	Project update and discuss the submission provided by RMS on the EIS.
DPI	Tuesday, 16 April 2019	Email	Removal of buried infrastructure from land mapped as BSAL.
Department of Industry - Lands and Water (Crown)	Wednesday, 17 April 2019	Email	Crown roads within the northern and central array areas.
John Holland - Country Regional Network	Thursday, 18 April 2019	Email	Potential interactions within/adjacent to the rail corridor
Department of Industry - Lands & Water	Thursday, 18 April 2019	Phone call Email	Request clarification on DoI Land and Water submission on EIS/SWA (particularly in relation to watercourse crossings).
DPE	Friday, 26 April 2019	Email	Provide supplementary information for UWG submission.
C8	Wednesday, 1 May 2019	Phone call	Project amendments - removal of southern array.
DPE	Thursday, 2 May 2019	Email	Provide a copy of the draft amendment report guideline.
John Holland - Country Regional Network	Thursday, 2 May 2019	Email	Potential interactions within/adjacent to the rail corridor
DPE	Friday, 3 May 2019	Phone call	Project update and discuss potential use of the Main Northern Rail Line for construction deliveries
DPE	Sunday, 5 May 2019	Email	Potential use of the Main Northern Rail Line for construction deliveries
DPE	Monday, 6 May 2019	Email	Potential use of the Main Northern Rail Line for construction deliveries
RMS	Tuesday, 7 May 2019	Email	Road works/upgrades on the New England Highway.
Uralla Shire Council	Tuesday, 7 May 2019	Face to face	Project amendments - removal of southern array and TIA additional assessments.
RMS	Tuesday, 7 May 2019	Email	Road works/upgrades on the New England Highway.
Uralla Shire Council	Wednesday, 8 May 2019	Email	Project amendments - removal of southern array and TIA additional assessments.
DPE	Wednesday, 8 May 2019	Email	Additional submission for inclusion in RMS
DPE	Wednesday, 8 May 2019	Email	Potential use of the Main Northern Rail Line for construction deliveries
Community member	Wednesday, 8 May 2019	Phone call Email	Provide contact details for agronomist.
N1	Friday, 10 May 2019	Email	Project update - refinement to the northern array.
N1	Monday, 13 May 2019	Email	Project update - refinement to the northern array.
John Holland - Country Regional Network	Monday, 13 May 2019	Email	Potential interactions within/adjacent to the rail corridor
John Holland - Country Regional Network	Tuesday, 14 May 2019	Phone call Email	Potential interactions within/adjacent to the rail corridor.
Uralla Shire Council	Wednesday, 15 May 2019	Email	Subdivision of land for the grid substation.
Community member	Wednesday, 15 May 2019	Phone call	Discuss potential involvement in the project.
John Holland - Country Regional Network	Thursday, 16 May 2019	Email	Potential interactions within/adjacent to the rail corridor
John Holland - Country Regional Network	Thursday, 16 May 2019	Email	Potential interactions within/adjacent to the rail corridor
John Holland - Country Regional Network	Thursday, 16 May 2019	Email	Potential interactions within/adjacent to the rail corridor
DPI	Tuesday, 28 May 2019	Email	Removal of buried infrastructure from land mapped as BSAL.

Copies of government and regulatory agencies consultation

David Richards

From: Bryson Lashbrook [bryson.lashbrook@nrar.nsw.gov.au]
Sent: Thursday, 18 April 2019 4:23 PM
To: David Richards
Subject: Re: J17300 - New England Solar Farm - Interactions with watercourses

D'day David,
As discussed earlier;

In regards to the first point - *The proponent should confirm the ability to obtain the necessary water volumes from a viable source, via an indication of an agreement from a water supplier, confirmed availability of sources on-site or access to alternate authorised sources.* A response from a water supplier is required prior to project determination, a letter or email from the supplier should state that the volumes required are available for use for the proposal.

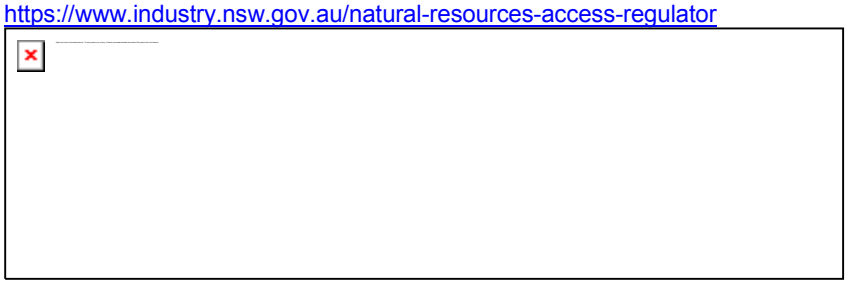
The requirement for the consideration of *watercourse crossings of 1st and 2nd order streams to be undertaken in accordance with the Guidelines for watercourse crossings on waterfront land (NRAR 2018)* has been included as a guide. As it has been discussed within the EIS, the proposed crossings not located within waterfront land (in accordance with the WM Act) do not need further approvals from the department, however the guidelines should still be considered when designing these crossing.

If you have any further questions or comments I would be happy to discuss.

Cheers,
Bryson.

Bryson Lashbrook | Water Regulation Officer | Licencing and Approvals
Natural Resources Access Regulator | West
26-28 Johnston Street | Wagga Wagga NSW 2650
T: 02 6937 2708 M
: 0448 917 414
E: bryson.lashbrook@nrar.nsw.gov.au

W:
https://www.industry.nsw.gov.au/natural-resources-access-regulator



On Tue, 16 Apr 2019 at 13:50, Landuse Enquiries <landuse.enquiries@dpi.nsw.gov.au> wrote:
Hi Bryson and Rachel

Is there someone in your team who can deal with this please (in Tim's absence)?

Cheers, Simon

On Wed, 10 Apr 2019 at 13:53, David Richards <drichards@emmconsulting.com.au> wrote:

Hi Tim,

Just confirming receipt of the email below in relation to the Department of Industry's submission on the New England Solar Farm EIS?

It would be great if we could arrange a time to discuss this further.

Many thanks and kind regards,

David

David Richards
Environmental Scientist

EMM
creating opportunities

T 02 4907 4800
M 0405 593 675
D 02 4907 4803
Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

From: David Richards
Sent: Friday, 5 April, 2019 3:33 PM
To: tim.baker@dpi.nsw.gov.au
Cc: landuse.enquiries@dpi.nsw.gov.au; cburnes@emmconsulting.com.au; simon.francis@dpi.nsw.gov.au
Subject: J17300 - New England Solar Farm - Interactions with watercourses

Hi Tim,

Hope you're well.

We received the Department of Industry's response to the public exhibition of the New England Solar Farm EIS (OUT19/2305), which is available at the link below:

https://majorprojects.accelo.com/public/430c7bd5927b45d579fa8112779d6634/321433_New%20England%20Solar_%20DoI%20L&W%20submission_2019Mar29_1729.pdf

Within the submission, there are two comments made in relation to watercourse crossings.

The first falls under *Prior to Project Determination* and reads:

The EIS states that watercourse crossings of 1st and 2nd order streams for internal access tracks and electrical cabling will be minimised to the extent practicable. The proponent should prepare these crossings in accordance with the Guidelines for watercourse crossings on waterfront land (NRAR 2018).

The second falls under *Post Project Determination* and reads:

The proponent should ensure that watercourse crossing plans detail the design of proposed crossings of any higher order stream (ie 3rd order and above). Please prepare these in consultation with Department of Industry - Lands and Water prior to commencement of construction.

The second comment is understood and is consistent with the messaging and discussions with the Department of Industry in September 2018; however, the first comment is not in line with previous discussions or the findings presented in the EIS.

As noted in the surface water impact assessment, the majority of the mapped lower order watercourses do not have a discernible channel and therefore are considered unlikely to satisfy the definition of 'waterfront land' established within the WM Act. Furthermore, riparian zones and associated vegetation adjacent to the 1st and 2nd order watercourses that traverse the development footprint have been modified and degraded by historical land use practices and past disturbances associated with land clearing, cropping and intensive livestock grazing. Several of these lower order watercourses have been modified or flows diverted altogether by project landholders through the construction of contour banks.

Would it be possible to speak with either yourself or another representative from the Department in regards to the first comment? Where there is no discernible channel and a mapped watercourse is unlikely to satisfy the definition of 'waterfront land' established within the WM Act, we do not believe that a crossing should need to be in accordance with the guidelines referenced above.

I look forward to hearing from you soon.

Many thanks and kind regards,

David

David Richards
Environmental Scientist

EMM
creating opportunities

T 02 4907 4800

M 0405 593 675

D 02 4907 4803

Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

--

Alistair Drew I Policy Officer Assessments

NSW Department of Industry **I** Lands & Water **I** Strategic Relations

Level 3 | 26 Honeysuckle Drive | Newcastle | NSW 2300

M: 0417 626 567

E: landuse.enquiries@dpi.nsw.gov.au

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender. Views expressed in this message are those of the individual sender, and are not necessarily the views of their organisation.

David Richards

From: Tim Kirk [tim.kirk@upcrenewables.com]
Sent: Tuesday, 28 May 2019 10:50 AM
To: andrew.scott@dpi.nsw.gov.au
Cc: David Richards
Subject: New England Solar Farm - proposed EIS condition
Attachments: 321433_New England Solar_ DoI L&W submission_2019Mar29_1729[1].pdf; EIS - Figure 5.5 - EIS015_LandandSoilCapability_20181024_05[1].pdf

Hi Andy,

Hope you are well.

I am following up on a phone call I had with you on the 17th April 20149 where we discussed DPI-Agriculture's submission on UPC's New England Solar Farm. This conversation was subsequent to the correspondence you had with David Richards throughout the EIS process.

Just for clarity's sake, I have copied in your condition below, which can also be found in the attached submission from DPI.

DPI – Agriculture

- All below ground cabling and infrastructure on Biophysical Strategic Agricultural Land (BSAL) should be removed by the proponent at the end of the project. This position is not reflected in the New England Solar Farm EA (Section 5.5.4 Mitigation measures iv. Decommissioning p. 142) stating that "any underground cabling below 500 mm will remain in-situ following project decommissioning".

As we discussed, I have outlined below several reasons for why I do not think the condition of consent proposed by DPI Agriculture is appropriate for the New England Solar Farm. In short, the project site is of low agricultural quality and the shape of the limited areas of land mapped BSAL would likely require full excavation of the BSAL land to a depth of one meter to enable removal of underground cables.

UPC has made a conscious decision to reduce the project's impact on BSAL land as far as viable for the project. This is demonstrated by the removal of large areas of land mapped BSAL, which align with creeks and streams, as well as the removal of the southern array (which contained more than 85% of the land mapped BSAL that was identified within the development footprint described in the EIS).

Although identified as BSAL, the quality of the land within the amended development footprint is poor and vegetation has been degraded from generations of grazing. This is supported in the EIS, which describes the land and soil capability class between Class 3 (moderate limitations) through to Class 6 (very severe limitations).

The remaining areas of BSAL across within the amended development footprint (refer attached figure) are now very limited, representing less than 5% of the development footprint and approximately 0.0036% of land mapped BSAL across NSW. The shape of the narrow 'fingers' of BSAL running across the site presents a challenge if the project were required to comply with the proposed condition referenced above for the following reasons:

- there will be hundreds of cables running across each of the 'narrow' areas of land mapped as BSAL rather than along the length of the mapped areas; and
- arguably, there will be significant disturbance required to excavate all BSAL land to approximately 1 meter to remove any previously installed underground power cables.

Please let me know if you have any questions, otherwise I look forward to hearing from you.

Kind Regards,

Tim Kirk | Project Development Manager
UPC Renewables Australia
A UPC Renewables and AC Energy Company

M: +61 403 857 079
E: tim.kirk@upcrenewables.com

Hobart: Suite 2, Level 2, 15 Castray Esplanade, Battery Point, TAS, 7004
Melbourne: Level 23, HWT Tower, 40 City Road, Southbank, VIC 3006
Sydney: Level 14, 77 King Street, Sydney, NSW 2000

Please note that the Sydney office has moved.

www.upcrenewables.com/australia

David Richards

From: David Richards
Sent: Monday, 15 April 2019 10:01 AM
To: 'SCIFFER Greg'
Subject: RE: J17300 - New England Solar Farm - RMS NTH18/00058

Thanks, Greg – hope you enjoyed your weekend!

Many thanks and kind regards,

David

David Richards
Environmental Scientist

EMM creating opportunities

T 02 4907 4800
M 0405 593 675
D 02 4907 4803
Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

From: SCIFFER Greg <Greg.SCIFFER@rms.nsw.gov.au>
Sent: Monday, 15 April, 2019 9:58 AM
To: David Richards <drichards@emmconsulting.com.au>
Subject: RE: J17300 - New England Solar Farm - RMS NTH18/00058

David

Discussions noted and recorded on file for future reference.

Regards
Greg Sciffer
Development Assessment Officer Northern

From: David Richards [mailto:drichards@emmconsulting.com.au]
Sent: Friday, 12 April 2019 11:08 AM
To: SCIFFER Greg
Cc: Tim Kirk; Development Northern
Subject: J17300 - New England Solar Farm - RMS NTH18/00058

Hi Greg,

Thanks for your time earlier this morning to discuss the submission provided by RMS on the New England Solar Farm.

As discussed, UPC has removed the southern array from the development application. This has consolidated the number of haulage routes required and will also reduce the number of intersections utilised by heavy vehicles.

The primary intersection requiring detailed investigation will be the intersection of the New England Highway and Barleyfields Road (North).

We note that RMS are interested in discussing potential improvements to this intersection and that the safety of motorists will be the governing factor in any future improvement works.

As discussed, concept designs for recommended intersection improvements to allow for the safe passage of light and heavy vehicles will be provided as part of a construction and operational traffic management plan (TMP).

The focus of any future improvement works will be on general construction heavy vehicles (ie semi-trailers) with any over-sized vehicle movements controlled through implementation of temporary traffic control measures.

We agree that the TMP will need to be an active document that responds to traffic-related matters throughout the construction and ongoing operation of the New England Solar Farm.

UPC or the preferred construction contractor will liaise directly with RMS once further details are available in relation to the required intersection improvements.

In the interim, as part of the response to submissions (RTS) report, we will make reference to this morning's call and include a commitment to prepare a TMP in consultation with Uralla Shire Council and RMS.

Please do not hesitate to contact me if you'd like to discuss this further.

Many thanks and kind regards,

David

David Richards
Environmental Scientist

EMM
creating opportunities

T 02 4907 4800
M 0405 593 675
D 02 4907 4803
Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

Memorandum

Level 1, 146 Hunter Street
Newcastle NSW 2300

T 02 4907 4800
E info@emmconsulting.com.au

www.emmconsulting.com.au

6 May 2019

Subject: J17300 - New England Solar Farm - Project amendments

1 Purpose

UPC Renewables Australia Pty Ltd (UPC) proposes to develop the New England Solar Farm; a significant grid-connected solar farm and battery energy storage system (BESS) along with associated infrastructure, approximately 6 kilometres (km) east of the township of Uralla, which lies approximately 19 km south of Armidale in the Uralla Shire local government area (LGA) (the project).

The purpose of this memorandum is to provide an update to Uralla Shire Council (Council) on the following:

- the proposed amendments to the project;
- a summary of the traffic impacts associated with the amended project; and
- proposed additional assessment works to be undertaken by UPC as part of the Response to Submissions (RTS) phase of works (in response to Council's submission on the Environmental Impact Statement (EIS)).

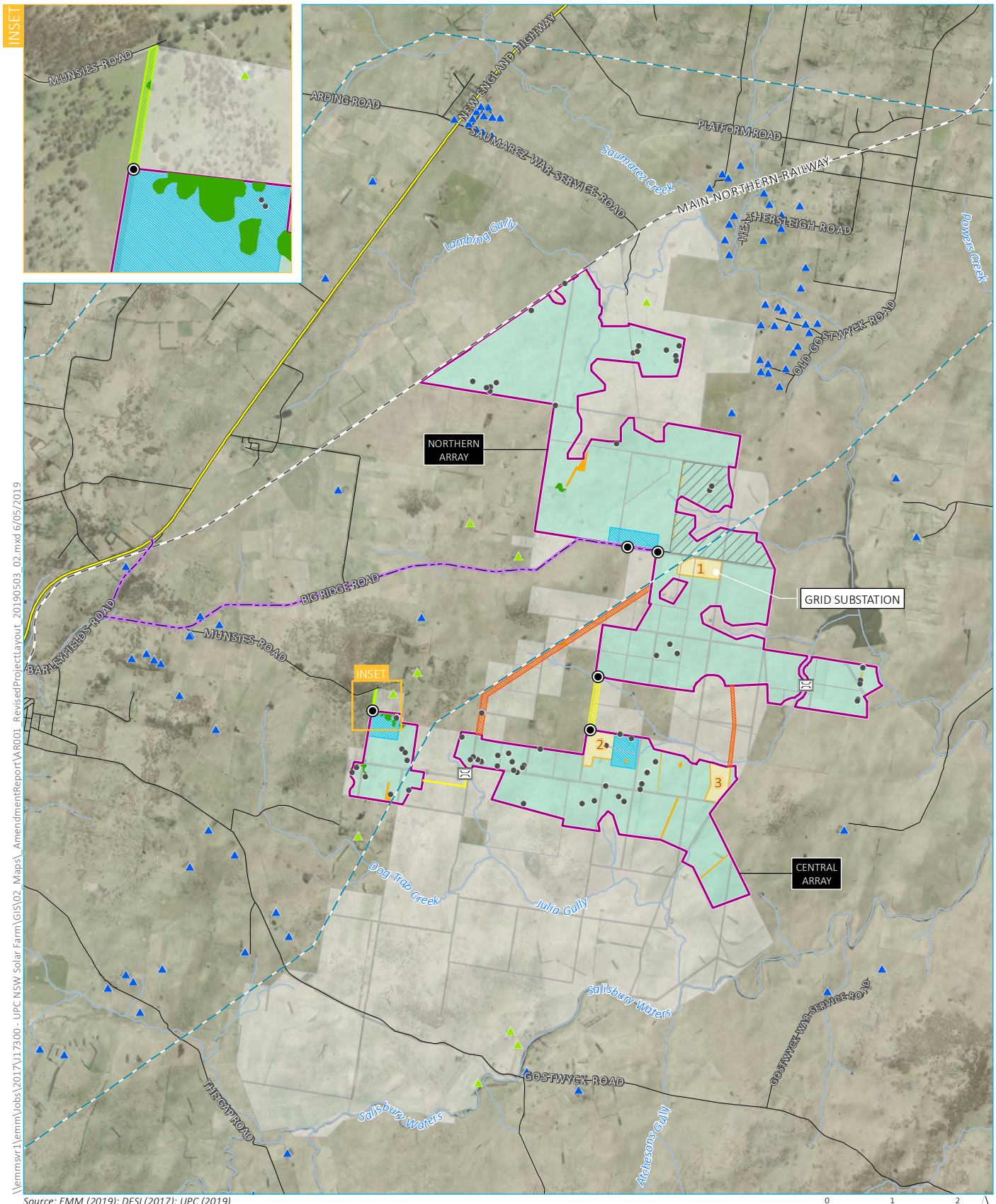
2 Project overview

As a result of ongoing discussions with the local community, project landholders and other stakeholders, UPC has performed a number of further amendments to the development footprint that was the subject of the development application (DA) and EIS, including the removal of the southern array area.

PV module technology is continuing to improve and the modules that are likely to be utilised for the project have a higher watt rating than was originally anticipated during the preliminary design stages of the project. In addition, UPC will maximise the extent of project infrastructure within the development footprint for the northern and central array areas, where practicable. As a result of these efficiencies, the project will be able to achieve the targeted generating capacity of up to 720 MW through development across the northern and central array footprints only and consistent with the information presented in the EIS, the project will still produce enough clean renewable electricity to power the equivalent of approximately 250,000 homes.

In addition to changes to the development footprint, there have also been revisions to connection infrastructure between the northern and central array areas and substation configuration. The amended project layout is shown on Figure 1.

UPC are currently preparing an amendment report (AR) to outline the changes to the project that have been made since the public exhibition of the EIS and provide a summary of the impacts associated with the amended project. This report will be submitted to NSW Department of Planning and Environment (DPE) in conjunction with the RTS report.



\\emmsvr1\emm\Jobs\2017\UJ17300 - UPC NSW Solar Farm\GIS\02_Maps_AmendmentReportVAR001_RevisedProjectLayout_20190503_02.mxd 6/05/2019

Source: EMM (2019); DFSI (2017); UPC (2019)

KEY

- 330 kV transmission line
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Primary vehicle access route

Sensitive receptors

- Project-related
- Non-project related

- Project boundary

Development footprint

- Solar array
- Potential electrical cabling
- Potential site access corridor
- Potential site access/electrical cabling
- Potential laydown area/site compound
- Potential substation/BESS footprint (location number)
- Potential creek crossing
- Proposed primary site access point
- Potential site for construction accommodation village

Plant community types requiring offsets

- PCT 510 planted
- PCT 1174 woodland
- Paddock trees requiring offsets

Amended project layout

New England Solar Farm
Figure 1

EMM
creating opportunities

3 Construction staging and duration

Construction of the project is still anticipated to take approximately 36 months from the commencement of site establishment works to commissioning of the two array areas. It is anticipated that the project will be constructed in two stages.

Stage 1 will include complete construction of the northern array area including the grid substation and is anticipated to take approximately 25 months to complete.

Stage 2 will include complete construction of the central array area and is anticipated to take approximately 20 months to complete. Stage 2 also includes the construction of the BESS, which is also anticipated to take approximately 20 months to complete.

Stage 2 will commence approximately 12 months after the commencement of site establishment works planned as part of Stage 1.

As noted within the EIS, the exact timing of each stage, including the commencement of Stage 1, the commencement of Stage 2, and the subsequent duration of the overlap between the two stages will be determined during the contracting, detailed design and financing stage of the project following project approval. Similarly, the overall duration of the project's construction will also be confirmed at this time once the preferred engineering, procurement and construction (EPC) contractor is selected and the detailed construction schedule is confirmed. The timeframes are indicative only and reflect a conservative upper limit of potential impacts from the project.

4 Traffic

4.1 Overview

The amendments to the project have reduced the number of local roads that will be used by project-related light and heavy vehicle movements. As a result of the amendment to the development footprint, the proposed vehicle routes to the access points identified on Figure 1 will be as follows:

- two access points to the northern array area via Barleyfields Road (north and south), then onto Big Ridge Road; and
- one access point to the central array area via Barleyfields Road (north and south), then onto Big Ridge Road and turning right onto Munsies Road.

4.2 Primary access routes

The Stage 1 and Stage 2 vehicle movement routes are described as follows:

- Stage 1:
  - Route A (1A): Barleyfields Road (north) turning onto Big Ridge Road and travelling to the primary site access points for the northern array. Light vehicles travelling south along the New England Highway from Armidale and all heavy vehicles from the north and south that require access to the northern array area will travel via Barleyfields Road (north); and
  - Route B (1B): Woods Street turning onto Barleyfields Road (south) and then onto Big Ridge Road and travelling on to the primary site access points for the northern array. Only light vehicles that require access to the northern array area travelling north along the New England Highway from Uralla will travel via Woods Street and Barleyfields Road (south).
- Stage 2:

- Route A (2A): Barleyfields Road (north) turning onto Big Ridge Road and then onto Munsies Road for access to the central array. Light vehicles travelling south along the New England Highway from Armidale and all heavy vehicles from the north and south that require access to the central array area will travel via Barleyfields Road (north);

- Route B (2B): Wood Street turning into Barleyfields Road (south) and then onto Big Ridge Road and Munsies Road for access to the central array. Only light vehicles that require access to the central array area travelling north along the New England Highway from Uralla will travel via Woods Street and Barleyfields Road (south); and

- Route C (2C): Vehicle movements via Barleyfields Road (north and south) will be the same as described above for Route A (1A) and Route B (1B). Vehicles will travel from the Big Ridge Road site access points for the northern array area to the central array via an internal site access road between the northern and central array areas (this route accounts for heavy vehicle deliveries for the BESS).

4.3 Construction traffic estimates

The forecast daily light and heavy vehicle movements using each route across the two stages of construction are shown in Table 1.

Table 1 Forecast daily light and heavy vehicle movements

Stage	Average daily light vehicle movements	Peak daily light vehicle movements	Average daily heavy vehicle movements	Peak daily heavy vehicle movements
1A	64	129	45	60
1B	86	171	0	0
2A	12	24	9	12
2B	18	36	0	0
2C	100	200	30	40

4.4 Assessment of impacts

4.4.1 Traffic impacts on roads

The New England Highway can accommodate the proposed daily traffic volumes including the peak construction stage traffic for the project. The inclusion of a construction accommodation village during the peak construction period will reduce the volume of light vehicles utilising the New England Highway north or south of Uralla. During the Stage 1 and Stage 2 construction overlap period, the additional average and peak daily traffic movements travelling on the rural sections of the New England Highway will be +154 and +269 vehicles, respectively. This represents an increase of +3.11% (average) and +5.43% (peak).

The amendments to the development footprint have reduced the number of local roads impacted by the project and, subsequently, potential impacts to local road users and neighbouring residents have also been reduced. Thunderbolts Way will have a reduced number of project-related light vehicles and no construction heavy vehicles are anticipated to travel along this road corridor. Gostwyck Road, Hillview Road, Salisbury Plains Road and The Gap Road will not require any project-related light or heavy vehicle movements during construction or operations (with the exception of any light vehicle movements from locally-based employees).

Daily traffic volumes during average and peak construction on Barleyfields Road will be:

- Barleyfields Road (south) - approximately +168 (+23%) during average construction and +338 (+45.68%) during peak construction; and

- Barleyfields Road (north) – approximately +196 (+30%) during average construction and +334 (+51.78%) during peak construction.

These additional traffic increases will be temporary and restrictions on heavy vehicles travelling south of Big Ridge Road will be implemented. All heavy vehicles requiring access to the northern and central array areas will be directed to use the northern end of Barleyfields Road with access direct from the New England Highway.

Throughout construction, traffic increases on Barleyfields Road (north) will not result in a change to the road's Austroads design standard. Additional light vehicle traffic will cause Barleyfields Road (south) to move into a higher band in the Austroads rural daily traffic volume classification system during the peak construction period (ie during months 13-16 and 22-25). However, during these periods, the daily vehicle volumes travelling south on Barleyfields Road will only marginally exceed the existing band level of 1,000 daily vehicles.

The proposed increase resulting from project construction traffic travelling on Big Ridge Road (east of Barleyfields Road) is approximately +208% during the average construction period (approximately 364 vehicle movements per day) and approximately +384% during the peak construction period (approximately 672 vehicle movements per day). The additional vehicle movements will cause this road to move into a higher band in the Austroads rural daily traffic volume capacity standards. However, the road itself is a low volume rural road and located away from the township of Uralla.

The proposed construction traffic volumes utilising Munsies Road will generate a high percentage increase in the traffic volumes during average (+156%) and peak (+288%) construction. Vehicle number increases will be minor at +39 and +72 daily vehicles during average and peak construction periods, respectively.

4.4.2 Traffic impacts at key intersections

As a result of the amendments to the development footprint, project-related vehicle movements will no longer need to use the intersection of Thunderbolts Way and Salisbury Plains Road.

The three relevant rural intersections in the locality of the two array areas are:

- New England Highway/Barleyfields Road (north);
- New England Highway/Barleyfields Road (south) including Wood Street; and
- Barleyfields Road/Big Ridge Road.

The future peak hourly traffic at the New England Highway/Barleyfields Road (north) intersection requires additional left and right-turn traffic lanes as the combination of major road and minor road peak hourly traffic volumes are within the range for the CHR/CHL type of intersection.

RMS propose the construction of a left turn lane to Barleyfields Road from the New England Highway. This decision was based on the traffic data available under the current use of this intersection. It was noted that as part of this work, RMS will ensure that the intersection of Barleyfields Road and the New England Highway will be suitable for conversion to a CH(R) layout without significant construction work (ie implementation of a right-turn lane for traffic turning right into Barleyfields Road (north) from the New England Highway).

The New England Highway/Barleyfields Road (south) and Wood Street intersection requires additional left and right turn traffic lanes (CHR/CHL) on the New England Highway, as the combination of major road and minor road peak hourly traffic volumes are within the range of this type of intersection.

The Barleyfields Road/Big Ridge Road intersection does not require additional left or right turn traffic lanes as the peak hourly traffic volumes will continue to satisfy the standard AUR/AUL intersection design requirements without additional left or right turn traffic lanes.

4.5 Additional assessment works

In response to Council's submission on the EIS, SCT Consulting has been engaged to assist UPC and EMM with additional investigations along the proposed primary vehicle access route to the northern and central array areas. It should be noted that UPC had already committed to the inclusion of these items as part of the traffic management plan (TMP), which will still be prepared prior to the commencement of construction in consultation with Council, DPE and RMS. The scope of the additional assessment works listed below will be detailed in the RTS report and the works will be carried out in consultation with Council in the coming weeks. The additional investigations include:

- intersection assessments at New England Highway/Barleyfields Road (north) and New England Highway/Barleyfields Road (south) including Wood Street, to assist with:
  - understanding the impact of alternate vehicle access paths and associated impacts on these intersections;
  - determination of the need and scope of any potential upgrades to these intersections to address capacity and safety requirements to accommodate the proposed construction traffic; and
  - understanding of the potential impact, with regards to queuing of construction vehicles on the existing rail crossing near the New England Highway/Barleyfields Road (north) intersection;
- intersection design at New England Highway/Barleyfields Road (north) and Barleyfields Road/Big Ridge Road, including:
  - a swept path assessment to determine the ability for construction vehicles to safely access the array areas utilising these intersections; and
  - preparation of strategic concept designs.

The technical memo used to present the results of the works described above will also include consideration of:

- performance of the existing railway crossing on Barleyfields Road (north);
- use of speed zone changes to manage potential impacts along construction vehicle routes;
- carriageway sealing requirements and end state operations for impacted roads compared against construction related traffic volumes and requirements; and
- dilapidation assessment methodologies.

5 Next steps

As noted in Section 4.5, the additional assessment works will be carried out in consultation Council and DPE in the coming weeks. The scope of works will be described in the RTS report; however, the results will form part of a separate technical memo to be presented to both Council and DPE. The additional assessment works will inform UPC's approach to intersection and road upgrades, which will be the subject of continued engagement with Council, RMS, DPE and neighbouring landholders.

New England Solar Farm
Uralla Shire Council
Project Update

12 March 2019

UPC Renewables

Overview

- New England Solar Farm Overview
  - Quick facts
  - Progress since the last Council Presentation
- Planning and Environmental Assessments
  - State Significant Development process
  - Impact assessment
    - bushfire hazard
    - traffic on local roads
- Construction Readiness
  - Employment opportunities
  - Pre-construction management plan

New England Solar Farm Overview

Project size:

- 720MW (AC) solar PV farm + battery storage system
- Up to 2,700 hectares in total

Solar resource:

- Elevation and cooler temperatures help efficiency
- Generator can achieve capacity factor of ~ 30%

Project Layout & Staging Approach:

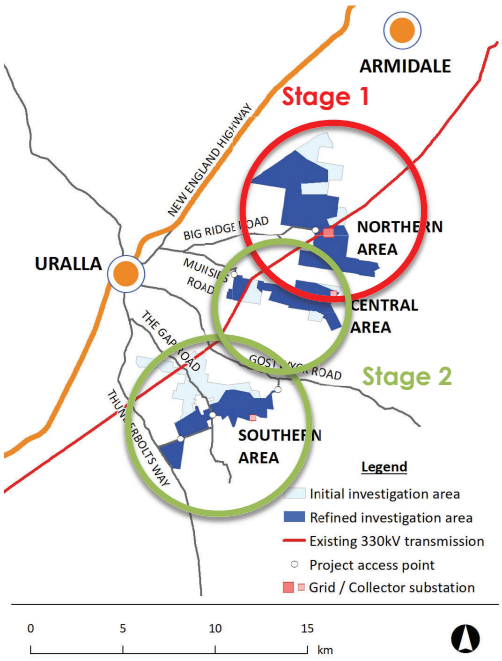
- Three distinct areas - Northern, Central, Southern
- Significant project refinements

Grid Connection:

- Cut-in on existing 330kV line form Armidale to Tamworth

Community Benefit Sharing Initiative:

- $250 per installed MW/year for 25 years equivalent to $180,000/year for 720MW. Minimum of $50,000 from the start of construction.



Progress since the last Council Presentation (30th October)

Planning:

- EIS is currently on public exhibition until 20 March
- Site investigations have continued, including Aboriginal cultural heritage

Resource and Engineering:

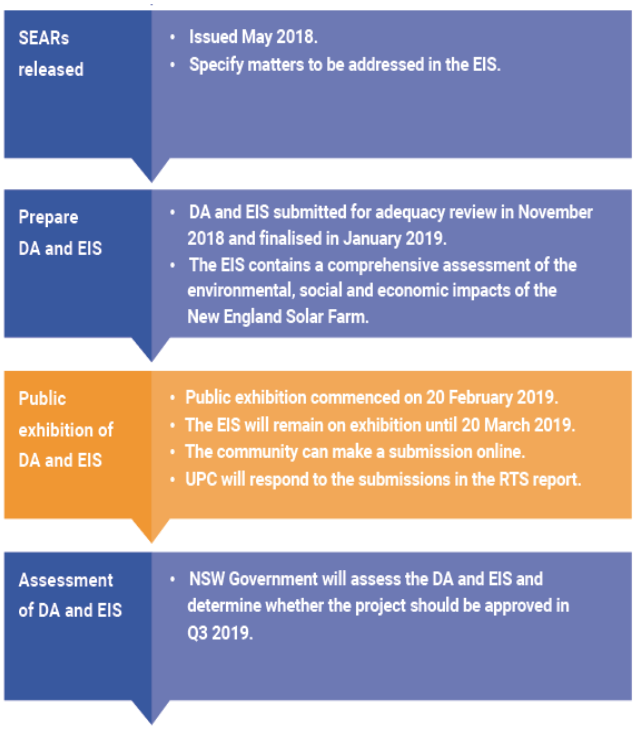
- First stage of geotechnical investigations completed
- Solar monitoring system installed

Stakeholder Engagement:

- Project Facebook page created
- Uralla office established – 96B Bridge Street
- Continuing to meet and discuss with members of the community
- Fifth community drop-in session will be held this Thursday 14th

Planning and Environmental Assessment

- The community and other stakeholders have the opportunity to provide comments on the EIS and supporting documents until 20 March.
- Submissions may comment on the content of the EIS or the methods used to assess the project's potential impacts.
- Matters raised as part of submissions on the EIS will be addressed in the Response to Submissions or RTS report.

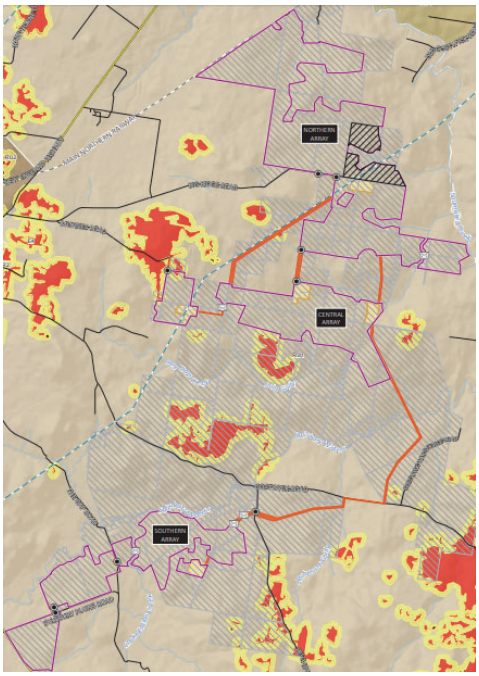


Planning and Environmental Assessment

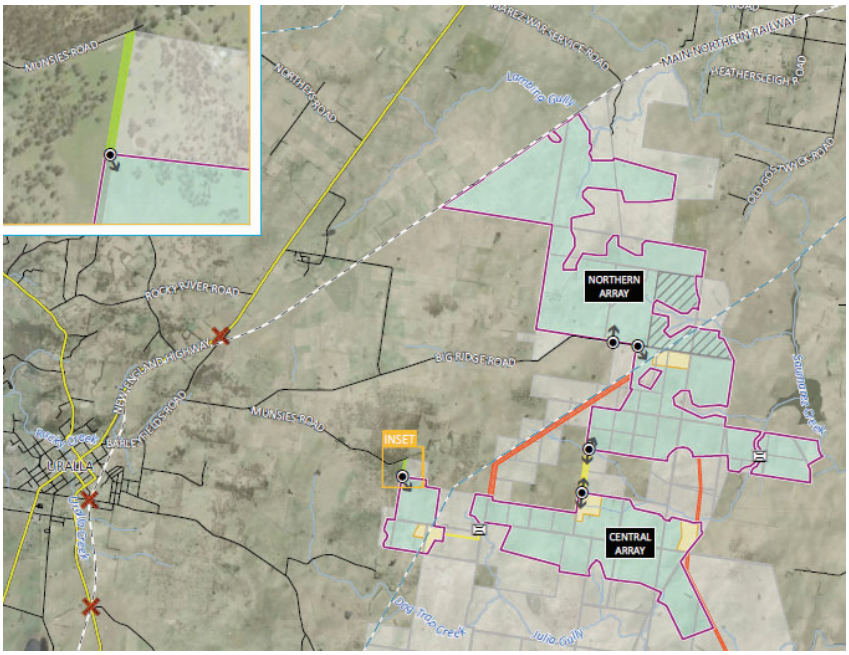
- DPE will review the RTS, prepare their assessment report and provide a recommendation to the Independent Planning Commission (IPC).
- The IPC plays an important role in strengthening transparency and independence in the decision-making processes for major projects in NSW.
- The IPC will review DPE's assessment report and may request that a public meeting is held to provide the public with an opportunity to present on their concerns about the project.
- The IPC will provide their determination.
- Following determination and prior to construction, UPC will be required to prepare a suite of management plans in consultation with relevant stakeholders (eg Council, NSW Roads and Maritime Services and NSW Rural Fire Service).

Impact assessment – bushfire hazard

- Approximately 0.4% of the development footprint is mapped bushfire prone.
- The project will be exposed to bushfire threat in the form of grassfire and has the potential to cause unplanned ignition of surrounding grassland.
- Bushfire risks associated with the project have been assessed in accordance with *Planning for Bushfire Protection* (PBP) (RFS 2006).
- Risks will be mitigated through implementation of appropriate bushfire protection standards and development of a emergency response plan (ERP) and fire management plan (FMP).



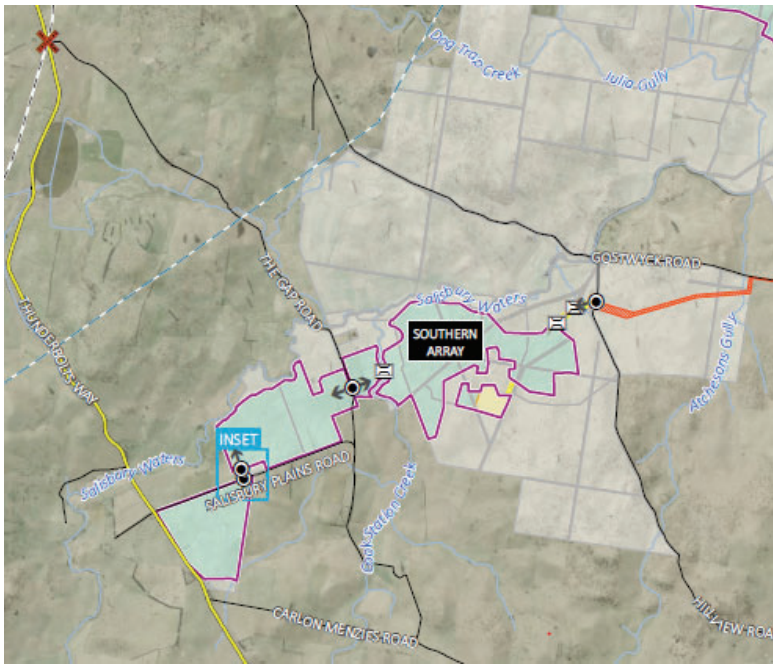
Impact assessment – traffic on local roads



Access to the northern and central array areas will be from the following local roads:

- Barleyfields Road and Big Ridge Road (northern array); or
- Barleyfields Road, Big Ridge Road and Munsies Road (central array).

Impact assessment – traffic on local roads



Access to the southern array area will be from the following local roads:

- Gostwyck Road and Hillview Road; or
- Thunderbolts Way, Salisbury Plains Road and The Gap Road.

Impact Assessment – traffic on local roads

- Project-related construction vehicle movements for will have a short-term impact on traffic conditions and usability.
- Impacts will be managed as part of the traffic management plan to be negotiated and agreed between UPC and Council. The TMP will include measures such as:
  - a road maintenance program;
  - safety initiatives in residential areas;
  - driver training and inductions;
  - dilapidation survey requirements;
  - intersection upgrades; and
  - temporary traffic control measures.

Construction Readiness

- Scheduling – continuing to refine the construction schedule based on new information
- Construction Market Engagement – has commenced, inspections of the project site continue to be undertaken
- Local Contractors and Local Employment opportunities
- Prior to commencement of construction, detailed management plans will be produced for approval –
  - Traffic management plan
  - Biodiversity management plan
  - Fire management plan and emergency response plan
  - Aboriginal heritage management plan
  - Historic heritage management plan
  - Construction environmental management plan
  - Construction workforce management plan
  - Waste management plan
  - Project decommissioning and rehabilitation plan

Thank you!

Contact us:
Website: newenglandsolarfarm.com.au
Email: info@newenglandsolarfarm.com.au
Phone: 1300 250 479
Facebook: @newenglandsolarfarm

NEW ENGLAND SOLAR FARM

UPC Renewables™

Memorandum

Level 1, 146 Hunter Street
Newcastle NSW 2300

T 02 4907 4800
E info@emmconsulting.com.au

www.emmconsulting.com.au

Subject: J17300 - New England Solar Farm - Meeting minutes 7-May-2019

Date and location

Tuesday 7 May 2019 at Uralla Shire Council Office

Attendees

Matt Clarkson (Council); Terry Seymour (Council); Tim Greenaway (UPC); Tim Kirk (UPC); Seamus Christley (SCT); David Richards (EMM)

Meeting minutes

i Project refinements

Utilising areas within the two array areas that were intended for avoidance previously (eg due to slope/gradient) and PV module technology updates will allow UPC to achieve a 720 MW project within the amended development footprint.

Discussed revisions to the electrical cabling and substation configuration.

Discussed refinement to the extent of the northern array area to minimise visibility of project infrastructure.

Also noted that the location of the CAV hasn't changed as a result of amendments to the project.

ii Construction staging

Stage one – Northern array – 25 months

Stage two – Central array – 20 months

Stage two likely to commence 12 months after commencement of stage one

Question: Is the intent to have stage one operational before commencement of stage two? No, refer to overlap of the two stages and overall 36 month timeframe.

iii Next steps

EMM and UPC preparing the AR and RTS report for lodgement with DPE in May.

DPE planning to meet with Council and other key stakeholders in May.

Question: Has the community been kept in the loop about the project amendments? Yes – emails, Facebook, Armidale Express and Uralla Wordsworth and looking to have another drop in session in the future to provide further project updates to the local community. This will be organised after the AR and RTS report have been submitted to DPE.

iv Amended traffic assessments and additional works

Amendments to the project have reduced the number of local roads that will be impacted during construction.

Identified the primary vehicle access route (including internal road between the two array areas).

SCT Consulting have been engaged to further quantify and assess impacts along BFR, BRR and, to a lesser extent, MR. This will include:

Concept designs and swept path analyses of key intersections

Quantifying impacts on the BFR level crossing

Discussion of dilapidation methodologies

Considering applicable road design standards in terms of sealing/carriageway

Proposing additional tube counts and intersection counts to inform this work and any future SIDRA analysis.

Terry noted general support for the scope. Terry will review the scope for the additional works and provide feedback on any additional assessments that may be required from Council's perspective.

Technical matters will not need to be communicated to Council as a whole (unlikely to have any further role in the project). These should instead be presented to the relevant Council staff – ie planning, engineering, infrastructure, etc.

Question: Will Council and other stakeholders have an opportunity to review/provide comments on the amendment report? Noted that the project will not be re-exhibited; however, DPE intend to meet with Council and key stakeholders later this month to discuss the project, including the amendments.

David Richards

From: Tim Greenaway [tim.greenaway@upcrenewables.com]
Sent: Friday, 31 May 2019 10:43 AM
To: David Richards
Cc: Tim Kirk
Subject: FW: Container dimensions

David

Please find below correspondence with JHG that outlines the approvals required for the operation and loading/unloading of the train for the project.

Regards

Tim

Tim Greenaway | NESF Project Director
UPC Renewables Australia

M: +61 413 625 097
E: tim.greenaway@upcrenewables.com

Hobart: Suite 2, Level 2, 13-17 Castray Esplanade, Battery Point, TAS, 7004
Melbourne: Level 23, HWT Tower, 40 City Road, Southbank, VIC 3006
Sydney: Level 14, 77 King Street, Sydney NSW, 2000

Please note that the Sydney office has moved.

www.upcrenewables.com

From: David Ginns <David.Ginns@jhg.com.au>
Date: Monday, 11 February 2019 at 8:35 am
To: Tim Greenaway <tim.greenaway@upcrenewables.com>
Subject: RE: Container dimensions

Two matters to cover FYI.

The first is the high degree of sensitivity the network owner (TfNSW) has toward potential delays to the Armidale passenger service. Some initial negativity toward the possibility of main line loading was received. These can be assuaged by ensuring that any rail operator is aware of operational restrictions that would be imposed. The network owner would expect significant consultation (via John Holland) with any rail operator planning the proposed services.

To allay these concerns, the following is worthy of consideration;

1. There will need to be consideration made during your discussions with potential rail service providers about maximum train lengths. To allay the passenger service concerns voiced by the network owner, the length of freight services may have to be limited to the crossing capacity available within West Tamworth yard. Subject to

confirmation, this would be 511 m (gross). I will be in Tamworth next Monday and will measure the exact siding capacity. Limiting services to this length will allow us to ensure a freight service can be locked away clear of the main line to cross a passenger service, if required. This wouldn't limit longer services running ex port. For example a 900 m service could be split at Werris Creek and run to Uralla in two lots.

2. Given there is an eight and 15 hour window between passenger services, it may be advisable to unload at night. That is, following the passenger service on the down run to Armidale, which runs through Uralla at 1900. Doing this could remove the need to run the ~500 m length restriction.
3. Given the multitude of options possible, we will do some graphing to take account of running times. But any potential rail operator would need to be aware of the restrictions imposed by short sidings and the passenger schedule.

Second is preparation for your **Third Party Works (TPW) applications**; which are likely to be;

A. A Licence to a defined area of the rail corridor (within which the hard stand will be located), allowing for access to the rail corridor.

B. Permission to construct the temporary hard stand.

C. A Licence to carry out the unloading / loading activities.

In the case of A) you will request from TPW a standard property Licence. This can be for a limited period. The Property department has been made aware of the potential for this to occur.

In the case of B), Carina, the manager of the TWP process, suggests you apply for construction permission, rather than apply for Approval in Principal. This is because the works will be minor in nature and are relatively non-intrusive. When you request an application from her, request the former, not the latter.

For the temporary hard stand construction application, the following will be information required.

- A survey of the site.
    - Note the surveyor will need to apply via TPW for access to the corridor. It may be appropriate to work with a surveyor experienced with the CRN. Mitchell Hanlon in Tamworth have done a lot of work on the CRN.
- Any Geotech information that is relevant.
    - The information gathered for the main construction should apply to the land within the corridor (your geotech could provide this advice).
- A design for the hard stand will need to be provided. This would be a detailed design, issued for construction.
    - A range of Standards are on the JH CRN web site. E.g. http://www.jhrcrn.com.au/media/2170/crn-cs-410-v1-1.pdf and http://www.jhrcrn.com.au/media/2172/crn-cs-330-v1-1.pdf
- Your design will need to be independently verified by a suitably qualified party who is not the designer. This is to ensure the design meets the relevant Standards.
- It is likely an approver will ask for a removal/restoration plan for the temporary hard stand. This would detail the method to be used for removal of the hard stand material and restoration of the site to original condition.
- With regard to environmental matters, it is likely that relevant sections of your EIS would be applicable. If possible, that information should be made available.
    - However, it may be argued by an approver that because the rail operation is not an ongoing component of the proposed development, and not part of the planning consent, some form of REF may be required for the loading operation.
- Insurances.
    - You will need public liability insurance for $250 million.

        - The insurance has to name both Transport for NSW and John Holland Rail as co-insured.
    - As there will be construction, you will also need $20 million professional indemnity.
- Construction methodologies, safe work method statements, etc. will need to be included in the application for construction.
    - You will also need to include the details of the rail protection officer(s) who will be managing rail safety during construction.

In the case of C), to undertake main line unloading / loading, you will also have to apply via TPW for an Infrastructure Licence with Permitted Loading/Unloading.

However, if your rail operator already has a Licence of this sort, you would not need to enter into a new Licence, the unloading/loading activities would be covered under their Licence. Currently only SSR have such a Licence. If you were to contract them to provide rail services, we would need to amend their licence to include container handling at the Uralla location.

Regards

David Ginns
Business Development Manager
Country Regional Network

JOHN HOLLAND

117-119 Maitland Rd Mayfield, NSW 2304
P. 02 40289416 | **M. 0417 14 72 26**

The information contained in this message is intended solely for the individual to whom it is specifically and originally addressed. This message and its contents may contain confidential or privileged information. If you are not the intended recipient, you are hereby notified that any disclosure or distribution, or taking any action in reliance on the contents of this information, is strictly prohibited.

David Richards

From: Joanne Cheoung [Joanne.Cheoung@jhg.com.au]
Sent: Thursday, 16 May 2019 1:24 PM
To: David Richards
Cc: David Ginns; Tim Kirk; tim.greenaway@upcrenewables.com; Teena Renes
Subject: RE: J17300 - New England Solar Farm - CD19/01755

Hi David,

I trust that you have received today's email from David Ginns of JHR as below.

I now recommend to state JHR's views on the issues discussed herein in your Response to Submission (RtS) and to forward it to Department of Planning and Environment (DP & E).

DP & E will then forward your RtS to JHR for further review.

Should you require any questions regarding the above, please contact the writer.

David – Thank you again for liaising with the proponent again.

Kind regards,

Joanne Cheoung
Commercial Property Analyst
Country Regional Network

JOHN HOLLAND

Level 1, 20 Smith St
Parramatta NSW 2150
P. +61 2 9685 5092
M.0499 800 752
W. johnholland.com.au

From: David Ginns <David.Ginns@jhg.com.au>
Sent: Thursday, 16 May 2019 12:48 PM
To: David Richards <drichards@emmconsulting.com.au>
Cc: Tim Kirk <tim.kirk@upcrenewables.com>; tim.greenaway@upcrenewables.com; Joanne Cheoung <Joanne.Cheoung@jhg.com.au>; Teena Renes <Teena.Renes@jhg.com.au>
Subject: RE: J17300 - New England Solar Farm - CD19/01755

David.

I had a discussion with Michael Wright, our principal track and civil engineer, about the content of your email, and forwarded the email to him for consideration. His response is as follows

I see no concern from my perspective for the proposed piles at an offset of 10m from the rail corridor boundary.

I also see no concern for the potential impact on rail operations at the offset they will be working.

They will require suitable protection arrangements for the construction of the new fence. We will also need to review their proposed fencing to ensure that it meets our minimum standard (which I am 100% confident it will)

Hopefully this should be sufficient assurance that the restrictions relating to excavation or pile driving within the nominated distance from the rail corridor should not apply, and that the activities proposed, based on the feedback noted above, do not concern the relevant internal stakeholders within John Holland.

I note your observation about the proposed boundary fence, and with reference to the comment made above by Michael, refer you to the attached Standard and section six.

Regards

David Ginns
Business Development Manager
Country Regional Network

JOHN HOLLAND

117-119 Maitland Rd Mayfield, NSW 2304
P. 02 40289416 | **M. 0417 14 72 26**

From: David Richards <drichards@emmconsulting.com.au>
Sent: Thursday, 16 May 2019 10:33 AM
To: David Ginns <David.Ginns@jhg.com.au>
Cc: Tim Kirk <tim.kirk@upcrenewables.com>; tim.greenaway@upcrenewables.com; Joanne Cheoung <Joanne.Cheoung@jhg.com.au>; Teena Renes <Teena.Renes@jhg.com.au>
Subject: RE: J17300 - New England Solar Farm - CD19/01755

Hi David,

Thanks for your email.

Please refer below for additional information to assist with your conversations with Mr Wright. We'd be more than happy to provide any additional information as required or jump on a phone call to discuss further. I'm unavailable tomorrow, but in the office all of next week.

Describe the dimension of the material being driven (array uprights), the equipment being used to drive the posts in and the distribution of the posts within the area relevant to the rail corridor.

The pile dimensions will be subject to final geotechnical design. However, as a guide UPC used the following piles for the pile tests installed on site – 150UB14 and 150UC23 steel sections.

For ease of description, please find below photos of example piling equipment.

The distribution of piles will be subject to final layout design. As a guide, the solar modules will be installed on trackers that run directly north/south. Trackers will be located approximately 6 m apart (between 5.4 m and 6.5 m). UPC expect to have a 10 m setback from the site boundary, which includes a 4 m wide perimeter internal roadway. So the first piles will be located approximately 10 m from the rail corridor. Piles are spaced approximately 8 m apart along the length of the tracker.

The pile lengths are expected to be no more than 5 m. Therefore, in the unlikely event of an accident and machinery falling, or the uninstalled pile falling, they will fall wholly within the site.

<u>Location of boundary fencing</u>

UPC's preference is to construct the perimeter fencing on the lot /DP boundary. We note your comments regarding future access to the rail corridor. However, if UPC construct the fence within the site, this will leave a narrow corridor between the site boundary and the security fence which will be difficult to maintain. UPC are happy to discuss further with John Holland Country Rail Network to resolve.

Let me know if any further information is required.

Many thanks and kind regards,

David

David Richards
Environmental Scientist

EMM creating opportunities

T 02 4907 4800
M 0405 593 675
D 02 4907 4803
Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

From: David Ginns <David.Ginns@jhg.com.au>
Sent: Tuesday, 14 May, 2019 12:36 PM
To: David Richards <drichards@emmconsulting.com.au>
Cc: Tim Kirk <tim.kirk@upcrenewables.com>; tim.greenaway@upcrenewables.com; Joanne Cheoung <Joanne.Cheoung@jhg.com.au>; Teena Renes <Teena.Renes@jhg.com.au>
Subject: RE: J17300 - New England Solar Farm - CD19/01755

David. Following our discussion, it would be appropriate to raise the matter of the penetration and the application of the 2 m within 25 m requirement with our principal track and civil engineer, Michael Wright, for his view.

Logically, some consideration should be given to the nature of the penetration, in particular the size/diameter of the material being driven into the ground, and the likelihood of an effect on the formation of the rail line. Noting that you are not proposing any excavation as described in the correspondence from TfNSW.

Perhaps if you can describe the dimension of the material being driven (array uprights), the equipment being used to drive the posts in and the distribution of the posts within the area relevant to the rail corridor, that will allow Mr Wright to assess the possible effects on the line.

With regard to cranes, operating in the airspace above the rail corridor would require a licence. Consideration should be given to the height of any crane operating adjacent to the corridor and the distance of the crane from the line. That is; if a crane operating adjacent to the corridor is tall enough to foul the line should it fall toward the corridor, a track possession will be required, unless the crane is located in a manner that would prevent it falling onto the track. A risk assessment of this hazard would be essential.

With regard to the fencing, a boundary fence already exists in that location. I would anticipate the new security fencing excluding people from the arrays would not need to be installed on the rail corridor boundary if its installed within the proponents property. Location of this fence away from the boundary will allow you to maintain the fence without having to enter the rail corridor.

I am happy to follow up with Mr Wright when you forward the abovementioned (and any other relevant) information.

Regards

David Ginns
Business Development Manager
Country Regional Network

JOHN HOLLAND

117-119 Maitland Rd Mayfield, NSW 2304
P. 02 40289416 | **M. 0417 14 72 26**

From: David Richards <drichards@emmconsulting.com.au>
Sent: Monday, 13 May 2019 5:01 PM
To: David Ginns <David.Ginns@jhg.com.au>
Cc: Tim Kirk <tim.kirk@upcrenewables.com>; tim.greenaway@upcrenewables.com; Joanne Cheoung <Joanne.Cheoung@jhg.com.au>
Subject: J17300 - New England Solar Farm - CD19/01755

Hi David,

Hope you had a great weekend!

Thanks again for taking the time out last week to discuss the approval process for the proposed activities for the New England Solar Farm.

We received a copy of the attached submission from Transport for NSW on the New England Solar Farm (Objective Reference CD19/01755) following their review of the EIS during the public exhibition period.

Within the submission there are a number of references to potential works within and adjacent to the rail corridor for the Main Northern Rail Line.

Would it be possible to further discuss the responses provided by another representative from JHR in the below email?

Ideally, now that UPC are liaising with JHR in relation to the potential use of the rail line, it would be good to cover off on all matters with the one point of contact.

Within the email below, it is noted that JHR will require clarification that piles will not penetrate more than 2m below ground level within 25 m of the rail corridor. If installation of piles does involve penetration of more than 2 m below ground level, a geotechnical and structural engineering assessment will be required. We'd like to clarify whether this activity would also need to be described in the license application or whether there has been some confusion around the actual level of disturbance required for the piles and therefore no further action is required.

I'd be happy to jump on a call to discuss further at a time that suits you.

Many thanks and kind regards,

David

David Richards
Environmental Scientist

T 02 4907 4800
M 0405 593 675
D 02 4907 4803
Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

From: Joanne Cheoung <Joanne.Cheoung@jhg.com.au>
Sent: Thursday, 2 May, 2019 11:37 AM
To: David Richards <drichards@emmconsulting.com.au>
Subject: RE: J17300 - New England Solar Farm - CD19/01755

Hi David,

I apologise for the late response to your email below.

Please see my response in red.

Kind regards,

Joanne Cheoung
Commercial Property Analyst
Country Regional Network

JOHN HOLLAND

Level 1, 20 Smith St
Parramatta NSW 2150
P. +61 2 9685 5092
M.0499 800 752
W. johnholland.com.au

From: David Richards <drichards@emmconsulting.com.au>
Sent: Tuesday, 30 April 2019 4:01 PM
To: Joanne Cheoung <Joanne.Cheoung@jhg.com.au>
Subject: FW: J17300 - New England Solar Farm - CD19/01755

Hi Joanne,

Just confirming receipt of the email below in relation to the New England Solar Farm?

Many thanks and kind regards,

David

David Richards
Environmental Scientist

T 02 4907 4800
M 0405 593 675
D 02 4907 4803
Connect with us

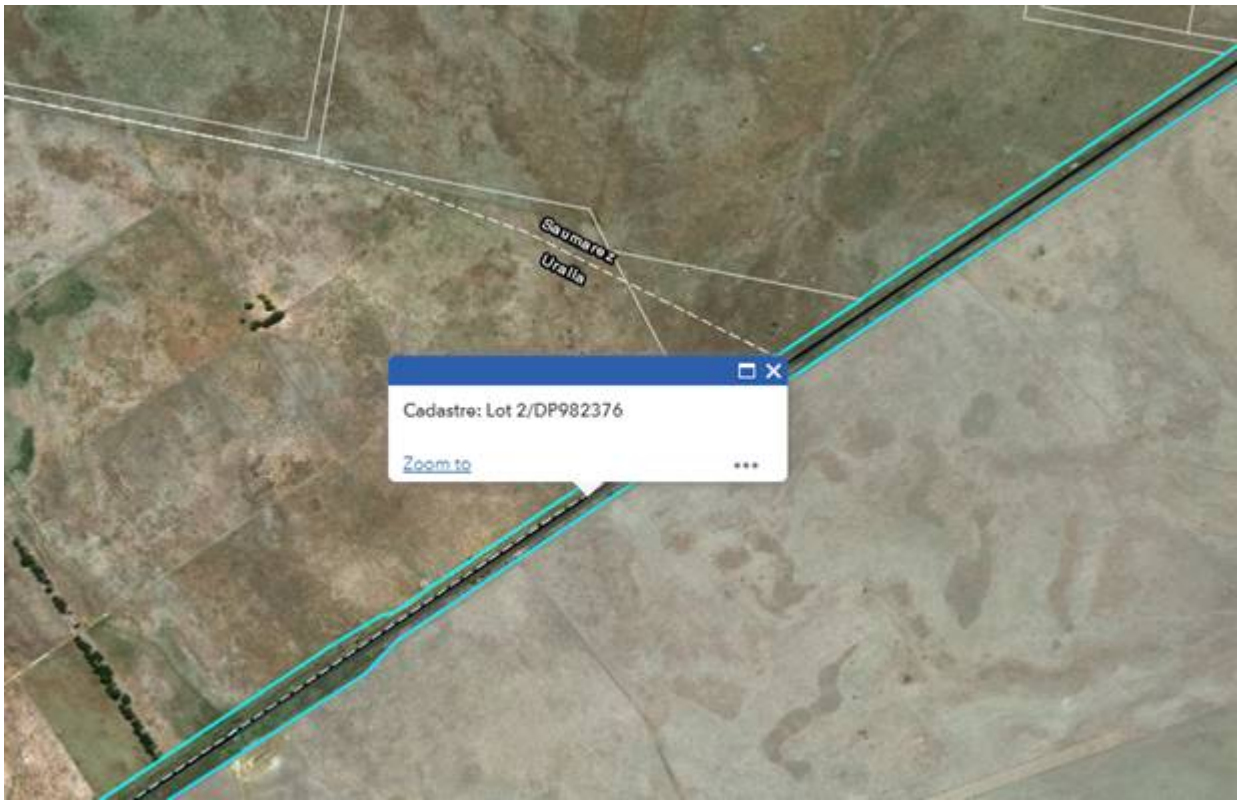
NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

From: David Richards
Sent: Thursday, 18 April, 2019 6:56 PM
To: Joanne Cheoung <Joanne.Cheoung@jhg.com.au>
Cc: Ansari, Halima <halima.ansari@transport.nsw.gov.au>; Tim Kirk <tim.kirk@upcrenewables.com>
Subject: RE: J17300 - New England Solar Farm - CD19/01755

Hi Joanne,

Further to Halima's email below, it would be great to get further clarification on the following:

- To clarify, the response provided in relation to the definition of the rail corridor indicates that all land within Lot 2 DP 982376 is classified as rail land and therefore forms part of the rail corridor. Is this correct? Correct



- If so, does the comment provided in relation to works on land within 25 m of the rail corridor apply to any ground penetration work performed within 25 m of the boundary of Lot 2 DP 982376? The comment is for the

works which involve the penetration of more than 2m below ground level in addition to being within 25 m of the rail corridor. Refer screenshot below where markers indicate a distance of 25 m

- Security fencing will be required around the perimeter of the solar farm including along the northern boundary of part of Lot 221 DP 755814, which is adjacent to Lot 2 DP 982376. From the security fencing, it is anticipated that there will be at least a 10 m defendable space to permit unobstructed vehicle access.

- It is not anticipated that any significant earthworks or excavation will be required within proximity of the rail corridor. Works within 25m of Lot 2 DP 982376 will likely include the installation of security fencing, forming a perimeter access road and installation of PV modules. The PV modules will be supported on mounting frames consisting of vertical posts ('piles') and horizontal rails ('tracking tubes'). Rows of piles will be driven or screwed into the ground, depending on the geotechnical conditions, and the supporting racking framework will be mounted on top. Pre-drilling and/or cementing of foundations will be avoided if allowed by the geotechnical conditions. Refer images provided below for an example of the piles required.

- Based on the description of works likely to occur within 25m of Lot 2 DP 982376, would concurrence from JHR be required? JHR will require your clarification that piles will not penetrate more than 2m below ground level prior to further assessment. If installation of piles does involve penetration of more than 2 m below ground level, a geotechnical and structural engineering assessment will be required. Please refer to a letter dated 28 March 2019 from TfNSW.

- Could you please also confirm which watercourse the comment in relation to stormwater management is referring to? Our records indicate that there are existing watercourses including Lambing Gully, Hariet Gully and Saumarez Creek in the and adjacent to the project land. However, JHR do not have records for unknown or unnamed watercourses.

Tim Kirk (UPC) and I would also be happy to jump on a call with you to discuss the project in further detail.

Enjoy your Easter break!

Many thanks and kind regards,

David

David Richards
Environmental Scientist

EMM
creating opportunities

T 02 4907 4800
M 0405 593 675
D 02 4907 4803
Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

From: Ansari, Halima <halima.ansari@transport.nsw.gov.au>
Sent: Friday, 12 April, 2019 11:01 AM
To: David Richards <drichards@emmconsulting.com.au>
Cc: Joanne Cheoung <Joanne.Cheoung@jhg.com.au>
Subject: RE: J17300 - New England Solar Farm - CD19/01755

Hi David,

Thanks for your email.

Rail corridor is a term commonly used in the rail industry to indicate ordinarily fence line to fence line or 15 metres from the outside rail where there are no fences.

Alternatively, rail corridor is also used broadly to indicate rail land. The references to rail corridor in the Transport for NSW (TfNSW) letter are made to give the latter meaning.

The rail land to which the project land (in particular, the north array area) is immediately adjacent to, is Lot 2 DP 982376.

As such, if the Proponent wishes to carry out any works requiring access to the rail land, the Proponent must contact John Holland Rail (JHR) first prior to commencement of any works.

Should you require any further clarification, please do not hesitate to contact our JHR contact, Joanne Cheoung, who is copied in this email.

Kind Regards,

Halima Ansari
Cadet
Land Use Planning & Development
Freight, Strategy & Planning
Transport for NSW

Level 26, 477 Pitt Street, Haymarket NSW 2008

From: David Richards [mailto:drichards@emmconsulting.com.au]
Sent: Monday, 8 April 2019 5:47 PM
To: Ho, Ken
Cc: Tim Kirk
Subject: J17300 - New England Solar Farm - CD19/01755

Hi Ken,

We received a copy of the submission from Transport for NSW on the New England Solar Farm (Objective Reference CD19/01755).

Within the submission there are a number of references to potential works within and adjacent to the rail corridor for the Main Northern Rail Line.

Would you be able to provide a clear definition for the rail corridor (ie what is the extent of the rail corridor from the edge of the rail itself)?

Happy to discuss further.

Many thanks and kind regards,

David

David Richards
Environmental Scientist

EMM creating opportunities

T 02 4907 4800
M 0405 593 675
D 02 4907 4803
Connect with us

NEWCASTLE | Level 1, 146 Hunter Street, Newcastle 2300

Selection of community consultation materials and media coverage

- Community facts sheets
- Email to the mailing list
- Posters
- Flyers
- Articles
- Example content from Facebook
- Uralla office location

NEW ENGLAND SOLAR FARM

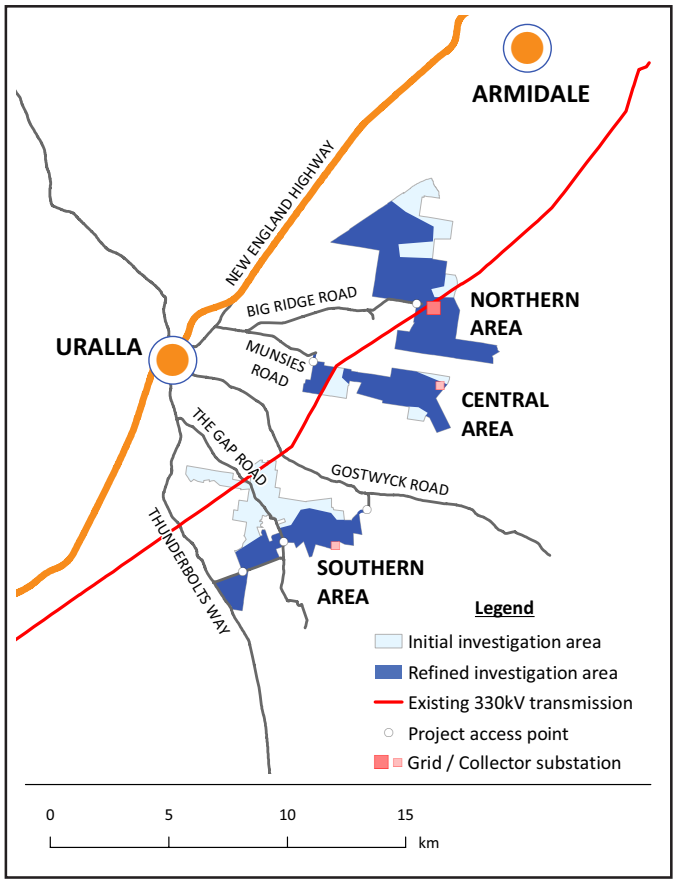
COMMUNITY FACTSHEET

UPC Renewables Australia is developing the New England Solar Farm, a major grid-connected solar farm within the Uralla Shire.

Proposed site

The New England Solar Farm is proposed on a site located approximately 6km east of the township of Uralla and will cover a development footprint of up to 2,700 hectares across three areas of land currently used for grazing. There is high potential for the continuation of sheep grazing within the development footprint of the New England Solar Farm.

The area under investigation has been refined in response to feedback from the local community and the results of a number of key assessments, including flooding, Aboriginal cultural heritage, historic heritage and biodiversity.

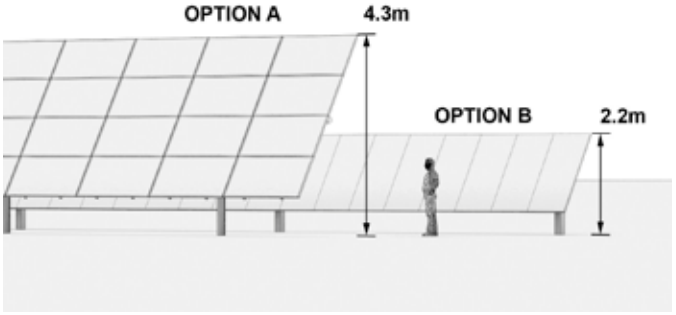


Project overview

The New England Solar Farm will utilise ground-mounted solar photovoltaic (PV) panels similar to those used on rooftops around Australia. Based on preliminary designs, the project will involve:

- three separate solar fields of PV modules, either on a fixed tilt or single axis tracking system, inverters and an underground cable network;
- new overhead transmission lines and a solar farm substation at each of the three solar fields;
- a grid substation to connect the project to TransGrid's electricity transmission network;
- access roads from the local road network and internal access tracks; and
- stock-proof security fencing around each of the solar fields.

UPC is also considering the integration of a battery energy storage system (BESS) as part of the project.



FEBRUARY 2019

Benefits of the project

The project will provide a number of benefits including:

- community benefit sharing contributions of $250 per megawatt per year for 25 years;
- direct and indirect business opportunities for the local and regional economy;
- employment opportunities for up to 700 employees during construction and up to 15 ongoing jobs during operations;
- helping meet the NSW and Commonwealth government renewable energy targets;
- annual reductions in greenhouse gas emissions and generation of enough clean renewable electricity to power more than 250,000 NSW homes; and
- increasing energy security by replacing ageing fossil fuel generators when they retire from service.

Assessment process

UPC has prepared a development application and environmental impact statement (EIS) for the project and this has been submitted to the NSW Department of Planning and Environment. The EIS contains a comprehensive assessment of the environmental, social and economic impacts of the New England Solar Farm.

The public can review the EIS from Wednesday the 20th of February at Uralla Shire Council Chambers (32 Salisbury Street, Uralla) or online via the link provided on the project website (refer below).

Smiths Falls Solar Farm, Canada

About UPC Renewables

Originating from the United States, UPC is a leading renewable energy development company that has been operating internationally since the 1990s and in Australia since 2016. To date, UPC has developed more than 3,500 MW of operating wind and solar projects in North America, Europe, Africa and Asia. UPC is focused on supplying renewable energy at the lowest possible price in a socially and environmentally responsible way.

MORE INFORMATION

For more information about the New England Solar Farm please visit:

www.newenglandsolarfarm.com.au

You can also visit our Facebook page to ask a question or make a comment:

@newenglandsolarfarm

Alternatively you can email us as at

info@newenglandsolarfarm.com.au

or contact us via phone on **1300 250 479**.

Local businesses can also use the email address to register their interest in upcoming contracting opportunities.

NEW ENGLAND SOLAR FARM

COMMUNITY BENEFIT SHARING INITIATIVE

UPC Renewables believes that the Uralla community should benefit from hosting solar developments.

To help guide its support for this principle, UPC commissioned the not for profit group Community Power Agency to lead the development of the New England Solar Farm Community Benefit Sharing Initiative.

The Community Power Agency gathered ideas and feedback on this plan via one on one meetings, a community workshop and online feedback. A Community Reference Group (CRG) reviewed and considered these ideas to develop a list of recommended projects for the Community Benefit Sharing Initiative to be included as part of the development application for the New England Solar Farm.

Projects would be open to applicants from the Uralla Shire and the Kelly's Plain and Dangarsleigh areas.

As part of its proposal, UPC will support community projects by providing funding of $250 for every megawatt of power generating capacity installed at the New England Solar Farm, or around $150,000 and $200,000 a year over the 25 year working life of the solar farm. The contribution will start at a baseline of $50,000 during construction and increase as the solar farm is installed and becomes operational.

The CRG recommended that if the solar farm is approved that a Discretionary Trust would be established to oversee the initiative and the long term delivery of the community projects.

The feasibility of each project will be investigated if the application for the New England Solar Farm is approved, with continual oversight from a local community representative group.

Vision

The community adjacent to the solar farm and the broader Uralla Shire community share in the benefits from the New England Solar Farm.

Principles

- Delivers a broad range of benefits to the local community
- Enhances the unique nature of Uralla Shire particularly its history and high levels of community involvement and connection
- Showcases Uralla region as a sustainable energy leader
- Delivers ongoing and lasting financial, social and environmental benefits to the community by:
  - Supporting community groups and initiatives
  - Helping to resource education and skill development
  - Supporting local business and local job creation
  - Building local sustainability and resilience such as climate change readiness
  - Seeking to address social equity issues such as youth opportunities and supporting indigenous culture; and
  - Reducing energy costs for households, community groups and local businesses.

NEW ENGLAND SOLAR FARM

COMMUNITY BENEFIT SHARING INITIATIVE

Proposed projects

The Community Reference Group recommended the following types of projects to be explored as part of the Community Benefit Sharing Initiative.

Revolving Loan Program

To fund no-interest loans for energy efficiency and solar fit outs, energy audits and advice.

A revolving fund of between $750,000 and $1.5 million would be built up over time to provide no-interest loans to local households, not-for-profit community groups, public buildings and businesses. The loans would be used for energy efficiency retrofitting, solar PV installation, solar hot water & water efficiency improvements. Loan re-payments are returned to the funding pool and new funding is allocated each year until it reaches the desired level. The loans would continue to be offered each year, even after the 25 year life of the solar farm.

The first year of the Revolving Loan Fund could prioritise solar PV for community buildings, in order to have the broadest and most immediate impact. This could include sporting clubs or community buildings like halls or preschools. The fund would also support energy education via energy audits and advice.

Grants Program

Funding for easy to access grants for local projects and activities that promote education, arts, sustainability, active lifestyles and community development. The program would focus on grants for:

- Schools particularly in STEM and creative and active learning.
- Scholarships that support local people undertaking apprenticeships, short-courses, workshops, TAFE diplomas and University degrees.
- General projects such as bush regeneration, sporting equipment for clubs, street tree planting, electric vehicle charging stations and more.

Community Program

The CRG has recommended that a part-time Community Coordinator be employed to administer the Community Benefit Sharing Initiative and coordinate activities for young people and other community members. For example, working with existing local clubs to arrange sporting activities such as tennis coaching or swimming program or support for after school activities.

The Community Coordinator would also publish a monthly community newsletter to showcase community news and events, help publicize funding opportunities and update the community on projects, the solar farm and energy education.

Next Steps

UPC is now considering the CRG's recommendations and will incorporate the outcomes of its work into the planning application for the New England Solar Farm to be submitted in November 2018.

From: New England Solar Farm <info@newenglandsolarfarm.com.au>
Sent: Friday, 12 April 2019 10:50
To: undisclosed-recipients:
Subject: Changes to the New England Solar Farm Proposal

Dear All,

We wanted to inform you that we will be making an important change to our New England Solar Farm proposal.

As a result of our ongoing discussions with our local neighbours, landowners and other stakeholders, we have decided to remove the southern section from our current application to the NSW Government for the New England Solar Farm.

We are confident that the solar farm can still produce enough clean renewable electricity to power around 250,000 homes. Solar PV technology is continuing to improve. The panels that we are likely to use for the project now have a higher watt rating and with greater use of the Northern and Central areas of the development footprint we are still targeting a generating capacity of around 700 MW.

We submitted our Environmental Impact Statement (EIS) and Development Application (DA) for the solar farm development to the NSW Government earlier this year. We are now preparing our response to submissions report, following an exhibition period for public submissions.

We are continuing with our plans to develop the Northern and Central arrays under the current EIS and DA and we hope to begin site works by the end of the year.

We will continue to discuss and refine our plans for the Southern Array with the community and we hope to submit a separate proposal for this section in the future if the issues can be resolved.

The New England Soar Farm will continue to make a major contribution to the local economy, helping to generate up to 700 jobs and inject millions of dollars into the local and regional economy.

It will also help provide a more secure and reliable energy supply for NSW and help our country meet its international climate change obligations.

We look forward to moving forward on the current DA for the Northern and Central arrays.

You can find more information about our **project on our website,** including a map of the revised area for our proposal.

Click here to access to our latest project fact sheet.

You can ask a question or stay up to date about our project on our Facebook Page @newenglandsolarfarm or email us info@newenglandsolarfarm.com.au

If you do not wish to receive any further correspondence in relation to the New England Solar Farm, please let me know via return email.

Kind regards,

Tim

New England Solar Farm

Ph: 1300 250 479

www.newenglandsolarfarm.com.au

- Only you can see this (https://www.powr.io/knowledge-base/139)
- Edit on Live Site
- Edit in Draft Mode
- View Form Submissions

You added paid features to your Form Builder.

Upgrade your plan to publish Form Builder with paid features.
Remove paid features to publish Form Builder for free.

Contractor Enquiries

New England Solar Farm encourages local contractors and service providers to tender for the supply of goods and services during construction and operation of the solar farm

*Company Name

*Contact Name

Email

Phone

Address

Street Address

Address line 2

City

State

Postal / Zip Code

Country

- Country -

Website

***Work type**

Other information such as distance to site and experience?

⚠ 0 out of 250 characters

How did you hear about the project?

⚠Please fill in required fields.
⚠Braintree doesn't recognize these keys.
⚠ You've already submitted a response
⚠ Please wait for your uploads to finish.
⚠ Payments have not been connected for this form. If you're testing this form, you may need to refresh the page.
⚠ Whoa! This form has detected unusual activity, which might be spam. Please contact support (https://powr-support.zendesk.com/hc/en-us/requests/new) for help if you continue to see this message.
Received. Thank you!

UPC Renewables™

Contact Us

We're here to answer questions you have.

Email: info@newenglandsolarfarm.com.au
Community Information Line: 1300 250 479
Facebook page: @newenglandsolarfarm

Subscribe For Updates

Email Address

Subscribe Now

NEW ENGLAND SOLAR FARM

Project development, planning and approval

What is an EIS?

The project is State Significant Development, and therefore UPC has prepared a Development Application (DA) and Environmental Impact Statement (EIS). The EIS assesses the project's potential impacts on the environment, including consideration of the following key matters:

- biodiversity
- Aboriginal cultural heritage
- historic heritage
- visual
- surrounding land uses
- noise
- transport
- surface water and flooding
- socio-economics
- soil erosion

The EIS was submitted to the NSW Department of Planning and Environment (DPE) in late 2018 and is currently on public exhibition.

Our engagement with the local community and our assessments and analyses have given us valuable insights and helped us produce a detailed and comprehensive EIS.

The project design presented in the EIS includes a number of significant improvements based on the feedback provided to us by the local community at four community briefings and more than forty one-on-one meetings.

Have your say

All members of the community will have the opportunity to provide comments on the EIS and supporting documents until Wednesday the 20th of March (inclusive).

The public can review the EIS at Uralla Shire Council Chambers (32 Salisbury Street, Uralla) or online via the link provided on the project website (www.newenglandsolarfarm.com.au).

Matters raised by the community as part of their submissions on the EIS will be addressed in the Response to Submissions or RTS report that UPC will start to prepare at the conclusion of the public exhibition period.

The RTS will be submitted to DPE in Q2 2019.

Preliminary environmental assessment	• Constraints analysis and site investigations commenced in 2017. • Preliminary environmental assessment submitted April 2018.
SEARs released	• Issued May 2018. • Specify matters to be addressed in the EIS.
Prepare DA and EIS	• DA and EIS submitted for adequacy review in November 2018 and finalised in January 2019. • The EIS contains a comprehensive assessment of the environmental, social and economic impacts of the New England Solar Farm.
Public exhibition of DA and EIS	• Public exhibition commenced on 20 February 2019. • The EIS will remain on exhibition until 20 March 2019. • The community can make a submission online. • UPC will respond to the submissions in the RTS report.
Assessment of DA and EIS	• NSW Government will assess the DA and EIS and determine whether the project should be approved in Q3 2019.
Grid connection with TransGrid	• An application has been submitted to TransGrid to allow the project to connect to the electricity network. An Offer to Connect is expected prior to the start of construction in 2019.
Financial close	• Financial institutions will complete a due diligence process to lend against the project. This is expected to conclude prior to the start of construction in 2019.

UPC Renewables™

NEW ENGLAND SOLAR FARM

COMMUNITY INFORMATION

We invite you to join us at our office in Uralla to find out more about the ***New England Solar Farm*** *(east of Uralla).*

The environmental impact statement (EIS) is currently on public exhibition and contains a comprehensive assessment of the environmental, social and economic impacts of the New England Solar Farm.

This session is an opportunity for you and other members of the community to meet with the project team, find out more about the project and discuss the content of the EIS.

COMMUNITY INFORMATION AND FEEDBACK SESSION

Call in on Thursday 14 March anytime from 3:00 pm – 8:00 pm

Venue: UPC's New Office Space – 96B Bridge Street, Uralla

MORE INFORMATION

More information about the **New England Solar Farm** is available at:

www.newenglandsolarfarm.com.au

@newenglandsolarfarm

If you can't make it to the session and you'd like to discuss the content of the EIS with a member of the project team:

info@newenglandsolarfarm.com.au

1300 250 479

NEW ENGLAND SOLAR FARM

Join the conversation

@newenglandsolarfarm

UPC Renewables™

*The **New England Solar Farm** will take the power of the sun and turn it into clean renewable electricity for more than 250,000 households throughout NSW.*

We've been talking to the Uralla community about this important local project for the past year, answering questions and listening to your ideas and feedback.

We have now created a Facebook page to help keep this conversation going so that we can become a good neighbour and a valued part of the Uralla community for many years to come.

Ask a question,
make a comment
or find out more information:
@newenglandsolarfarm

You can also reach us at
info@newenglandsolarfarm.com.au
or **1300 250 479**

February 21 2019 - 2:00PM

New England Solar Farm's environmental impact statement goes public

- 

Nicholas Fuller

LOOKING AHEAD: UPC Renewables' solar development head Killian Wentrup and landowner Richard Munsie. Photo: Nicholas Fuller

The public has a month to read and make submissions on the proposed New England Solar Farm, near Uralla.

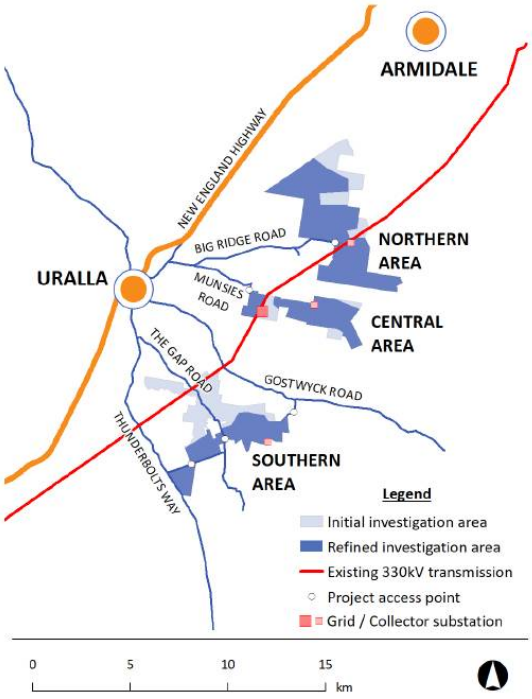
The NSW Department of Planning and Environment this week approved public exhibition of UPC Renewables Australia's development application and environmental impact statement (EIS), prepared by planning and environmental consultants EMM.

The solar farm is expected to help state and federal governments meet renewable energy and greenhouse gas emission reduction targets, and increase energy security.

The state Minister for Planning, Anthony Roberts, must approve the project for it to go ahead.

READ MORE: **New England Solar Farm: benefit to the region, or hidden costs?**

The 2700 hectare installation, spread across three arrays, would power 250,000 homes across NSW; create more than 500 jobs locally; and bring up to $200,000 into the community each year over its 25 to 30-year lifecycle.



UPC also plan to build one of the world's biggest battery energy storage systems on the arrays. It could provide up to 200 megawatts of capacity for two hours of stored renewable energy during peak demand times.

The EIS is on exhibition at DPE and the Solar Farm's websites until Wednesday, March 20, while the government seeks submissions from council, agencies, and the community.

UPC will hold a public meeting halfway through this period.

After March 20, UPC will consider and respond to submissions, before the Department of Planning and Environment makes its assessment report.

A planning hearing panel will consider this report before making a final determination.

UPC has operated in North America, Europe, Asia, and Africa since the 1990s. It is also developing the Robbins Island Wind Farm and Jim's Plain Wind Farm in Tasmania.

Community feedback

UPC's solar development head Killian Wentrup said the Uralla regional community had helped to improve the proposal.

“We’ve met with local residents, land owners, neighbours, and business and community leaders for the past nine months to hear their views on the solar farm.

"The feedback from the local community has helped us refine our plans, and make the solar farm the best it can be."

Richard Munsie is a keen supporter of the solar farm. He is one of fourteen landholders who would have solar panels on his land for a fee.

"Instead of farming sheep and cattle, we've given up a third of our property to farm the sun," he said.

The guaranteed income from UPC, Mr Munsie believes, would help drought-proof landowners, taking much stress and worry out of modern day farming.

"We're benefiting, but our benefit will also be the town's," Mr Munsie said. He expected the project to have an enormous flow-back into Uralla, as money would go directly back into the community. "We can plan ahead; we know we'll have money coming in."

Some locals, like the Uralla/Walcha Community Responsible Solar/Wind Action Group, worry it could have hidden costs, however.

Economic benefits

The solar farm project is expected to create 500 jobs during peak construction; 200 more if a battery energy storage system is installed; and 15 full-time ongoing jobs, including maintaining fencing, drains, and channels for managing weeds and pests.

“Economic modelling conducted as part of the EIS suggests the flow-on effects could be substantial," Mr Wentrup said.

Gillespie Economics estimate the solar farm will contribute $408 million in output; $159 million in value added; $88 million in household income; and 1071 jobs to the region's economy in the peak construction year (Year 2).

Proportionally less impact would be felt in the first and third years of the construction phase, according to the report.

"The money spent by workers during construction will boost household incomes in the region," Mr Wentrup said, "and this will continue over the life of the solar farm as a result of activities related to operations and maintenance.”

The operations phase, Gillespie Economics estimated, would contribute $86 million in regional output or business turnover; $26 million in regional value added; $3 million in household income; and 39 direct or indirect jobs each year for 30 years.

Refinements to project

UPC Renewables, Mr Wentrup said, had refined their original design to reduce noise and visibility of the solar farm, and avoid or mitigate environmental damage, based on independent studies and consultation with local residents.

They reduced the intended size of the solar farm by more than 35 per cent, from 4200 to 2700 hectares.

+5

Views of the northern array from Richard Munsie's farm

Photos: Nicholas Fuller

The southern array had been halved, based on feedback from residents in Gap Road and Gostwyck Road. This includes the north side of Salisbury Waters.

The central and northern arrays also shrank by 20 to 30 per cent, to avoid inconveniencing Kelly Plains residents.

Most of the solar farm will be based in cleared areas, with limited visibility from residences.

It would avoid important native vegetation like Blakely's Red Gum and Yellow Box grassy woodland.

The landscape, Mr Wentrup said, was heavily modified; most of the trees were planted European poplars used as windrows, while native gum trees had died off.

The project boundaries had also been revised to avoid streams and wetlands.

Four Aboriginal grinding grooves sites were found in the project areas.

UPC would work with local Aboriginal groups, the Department of Planning and Environment, and the NSW Office of Environment and Heritage to develop an Aboriginal heritage management plan.

UPC did not expect the project to affect rural heritage buildings like Gostwyck Memorial Chapel, Deeargee Woodshed, or Salisbury Court.

Construction

If UPC gets development consent, it will need a connection agreement (an offer to connect to the grid from TransGrid and the Australian Energy Market Operator); final contracts for construction; and final financing agreements with shareholders and lenders.

Mr Wentrup hopes to start construction by the fourth quarter of this year, and to finish within three years.

Work would start on the northern area first (Stage One), then on the central and southern array (Stage Two).

To avoid disrupting the community, UPC would start Stage Two before Stage Two was finished, and rollover workers.

Mr Wentrup expected employees and supplies to come from Armidale, Uralla, and towns as far south as Tamworth.

UPC are not proposing a mining-style development (flying in workers), but will seek approval for a temporary workers' village if necessary.

April 12 2019 - 2:20PM

Plans for New England Solar Farm revised as discussions continue

- **Steve Green**

DISCUSSIONS: Landowner Peter Munsie with UPC Renewables head of solar development Killian Wentrup and Jarrah Hicks from the Community Power Agency.

Any opponents of the New England Solar Farm being constructed about six kilometres east of Uralla had a slight win this week when UPC Renewables announced the southern section of the development was deferred from the current development application.

UPC submitted its Environmental Impact Statement (EIS) and Development Application (DA) for its 720 megawatt (MW) solar farm to the NSW Government earlier this year, proposing a project across three solar fields.

> We think it is the right thing to do by the community ...
>
> ***Killian Wentrup***

Head of solar development Killian Wentrup said the change would allow the rest of the project to progress, while further discussions with neighbouring land owners took place.

"We've been talking with the community for over a year now, and we've also recently had the public exhibition period for the EIS," he said.

"The feedback we've received has indicated that while the community, I would say, is broadly supportive of the project, the majority of the concerns that have been raised are in relation to the southern array.

ALSO READ:

- Walcha/Uralla community groups worried about solar farms
- New England Solar Farm EIS submitted goes public

"We think it is the right thing to do by the community to move forward with the northern and central array, and effectively take the southern array and put it on a different track."

Mr Wentrup said the company would continue to work with the community to try to allay its concerns, and if that was successful it would submit a new DA for a solar proposal in the southern area at a later time.

However, while it was talking to the community, UPC had a slight win too. Improvements during the last year saw solar panel output rise from 340 to 390 watts. So, even without the 400 hectare southern array, the farm will still target a generating capacity of about 700 MW which was very close to the original target.

Mr Wentrup said there had been a range of concerns raised.

"The most common concerns tend to be around proximity to nearby residences, potential impacts on property values and there have been concerns raised about visual impacts, along Thunderbolt's Way, for example," he said.

"In my experience with solar farms, the sorts of issues that we've just mentioned that have been raised tend to be limited to a small number of nearby residences.

"If you can work through those issue and find solutions such as set-backs and visual screening and so on, usually you can mitigate those issues."

Expressions of Interest

It's expected that up to 700 jobs will be generated from the New England Solar Farm during the three year construction period, and an additional 15 ongoing jobs during its 25 to 30 year life. There will also be a number of contracting opportunities for local businesses to help us prepare the site, install electrical and supporting equipment and deliver the important infrastructure to support the solar farm. Solar farms are generally low impact developments, however this is a large project that will require a sizeable workforce and support from sub-contractors.

It is our hope that many of these jobs can come from Uralla and the New England region. The income earned by workers and the money spent by local landholders who are directly involved in the project will boost the local economy and improve its resilience to drought and other climatic changes. The types of activities that will require local and regional workers, tradespeople and suppliers include fencing and civil contractors, solar PV panel installers, providers of vegetation management and pest control services, as well as catering and accommodation to service the broader workforce. The NSW Department of Planning and Environment is the process of assessing our application for the New England Solar Farm. However, local people and businesses can now let us know about their interest to participate in the project. This can be done by completing the form on the Contact Us page on our website www.newenglandsolarfarm.com.au/contact. Or you can find the form via our Facebook page @newenglandsolarfarm. We hope to begin work on the 700 megawatt solar farm towards the end of the year.

Killian Wentrup, Head of Solar Development
UPC Renewables Australia

2019 Candidates for the Federal Election in Ballot Paper Order

Natasha Ledger, Independent
Julie Collins, Christian Democratic Party (Fred Nile Group)
Yvonne Langenberg, Australian Labour Party
Barnaby Joyce, The Nationals
Tony Lonergan, Greens
Adam Blakester, Independent
Rob Taber, Independent
Cindy Anne Duncan, United Australia Party

Source- ABC Website :
https://www.abc.net.au/news/elections/federal/2019/guide/neng/

Federal Election is on Saturday 18th May
Early voting for the federal election is available at 122 Faulkner St, Armidale, check the AEC website below for opening times.
Source - AEC Website :
https://www.aec.gov.au/election/voting.htm#voting

NOTICE TO MEMBERS OF THE URALLA CLUB

The Uralla Club will be meeting in the usual place at the usual time

Changes to New England Solar Farm

The southern section of the proposed New England Solar Farm has now been deferred from the current development application to allow the rest of the project to progress while further discussions with neighbouring land owners take place. UPC Renewables Australia submitted its Environmental Impact Statement (EIS) and Development Application (DA) for the solar farm development to the NSW Government earlier this year, proposing a 720 megawatt (MW) solar farm across three solar fields about six kilometres east of Uralla. It is currently in the process of preparing its response to submissions report, following an exhibition period for public submissions, which ended last month.

UPC Renewables Australia Head of Solar Development Killian Wentrup said the NSW Department of Planning and Environment had been informed that the southern array – the smallest of the three sections - would be removed from the current development application. "UPC intends on being a long term investor and a good neighbour and we recognise that there are still some concerns from a small number of neighbouring land owners near the Southern Array," he said. "We will take the time to discuss the concerns relating to the Southern Array with the community and try to resolve the key issues.

"A separate application for a solar development involving the Southern Array area may be lodged at a future point in time once this has taken place."

"We are continuing with our plans to develop the Northern and Central arrays under the current EIS and DA and we hope to begin site works by the end of the year. "Solar PV technology is continuing to improve. The panels that we are likely to use for the project now have a higher watt rating and with greater use of the remaining areas within the project's development footprint we are still targeting a generating capacity of around 700 MW in the Northern and Central arrays."

Killian Wentrup, Head of Solar Development, UPC

Update from Z-NET Uralla on New England Solar Farm Proposal

Z-NET Uralla is a community group with the mission of assisting the people of the Uralla Shire transition to 100% renewable energy and to allow our community to confidently participate in the unfolding revolution in energy technologies.

The solar farm east of Uralla, proposed by UPC Renewables (UPC), is a State Significant Development under review by the State Planning and Heritage Department. Recently our community had the opportunity to give feedback on the project through public submissions that closed on 20 March 2019. There were over 100 submissions, principally from locals, however some from as far afield as Denver and Los Angeles. And there were 15 submissions from a diverse group of organisations, including Uralla Shire Council, Trans Grid and Uralla Business Chamber. All are publically available on the NSW Planning website (http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=9255)

The next step is for UPC to prepare a Response to the Submissions, where feedback will be grouped into common themes and UPC must outline how they propose to address the issues. As a result of this feedback, UPC has already made the decision to withdraw development in the Southern Array (the section accessed from Gostwyck Road and Thunderbolts Way).

The Department's assessment (covering the Northern and Central Arrays) will be referred to the Independent Planning Commission (IPC, https://www.ipcn.nsw.gov.au/our-processes) for a final decision, and this may involve public meetings. Z-NET Uralla will keep you posted over the next 4-5 months on the progress and if public meetings will be held.

Sandra Eady, President, ZNET Uralla

Please send any editorial, public notices, letters to the editor, community calendar entries or advertising to urallawordsworth@gmail.com by 5pm on the Thursday before the publication date of the next edition.

The next edition will be published on Tuesday 6th May, the deadline for contributions is

5pm on Thursday 2nd May

Past editions and advertising guidelines, including costs, is available at www.urallawordsworth.com.au


NEW ENGLAND
SOLAR FARM
UPC
Renewables
Liked
Following
Share
Send Message

New England Solar Farm
May 22 at 8:52 AM ·

A big thank you during National Volunteer Week to the hundreds of volunteers who help around Uralla's sporting fields, community centres, schools, events, at McCrossin's Mill Museum, in service organisations, aged and health care facilities and more. We're glad to provide our support ZNet Uralla, Can Assist Uralla, Uralla Tennis Club, Uralla Tigers Senior League 2019 #NVW2019

You and 10 others

New England Solar Farm shared a post.
May 8 at 1:35 PM ·

We're very happy to support local students develop an interest in STEM and renewable energy. Thank you ZNet Uralla for helping to make it happen.

ZNet Uralla
May 8 at 1:09 PM ·

Recently UPC Renewables heard of the work Z-NET Uralla is doing with local schools in energy education. They then generously donated some money for energy meter...
See More

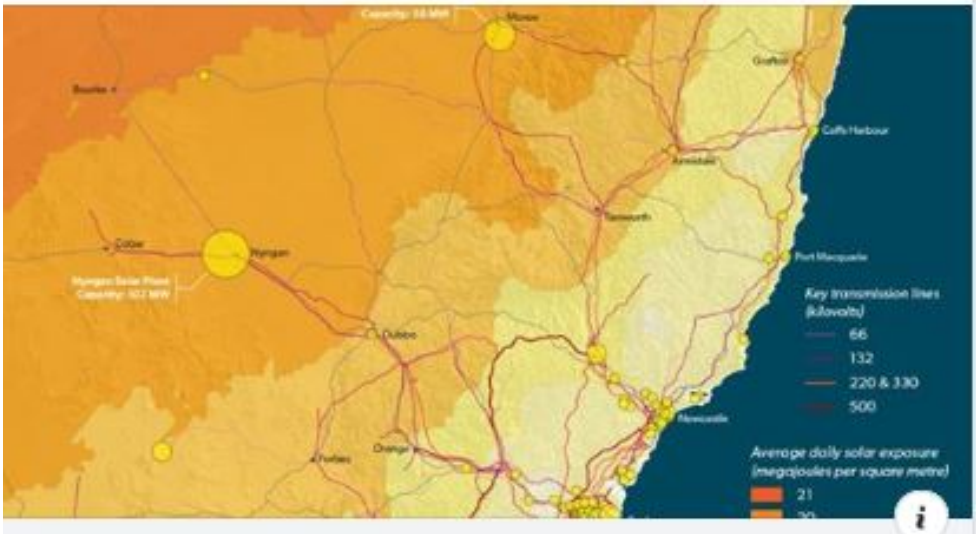
You, Anthony O'Brien and 5 others

New England Solar Farm
March 12 ·

What makes Uralla a great site for a solar farm?

1. High solar irradiance (1,830 kWh/m2)
2. 1000m above sea level which reduces heat losses and improves energy yield
3. Close to electricity transmission network and load centres of New England and Mid North Coast
4.Close to labour markets and contractors around Uralla, Armidale and Tamworth
5. Can co-exist with agricultural activity on already cleared land

Read more in the Environmental Impact Statement (EIS)



NEWENGLANDSOLARFARM.COM.AU

New England Solar Farm EIS released for public exhibition | newenglandsolarfarm

8 3 Shares

New England Solar Farm
30 May at 15:20 ·

Extensive research and assessment of the solar farm site turned up a number of findings related to past land use by squatters and farmers dating back to the mid-1880s. These include remnants of huts, stockyards and lengths of basalt wall. We'll be developing management plans that detail how we should avoid or protect heritage items such as these.

6

New England Solar Farm
March 11 ·

This short TED-Ed video from solar energy researcher Richard Komp provides a good overview of how solar panels convert the energy of the sun into clean, renewable electricity.

YOUTUBE.COM

How do solar panels work? - Richard Komp

View full lesson: https://ed.ted.com/lessons/how-do-solar-panels-work-richard-komp The Earth intercepts a lot of solar power: 173,000 terawatts. That's 10,00...

8

New England Solar Farm added an event.
March 7 ·

UPC Renewables™

THU, MAR 14

Community Information Session - New England Solar Farm

Interested

You like New England Solar Farm

You and 10 others

New England Solar Farm
May 17 at 6:00 AM ·

Native flowers are being encouraged to grow under solar farms in Minnesota. These flowers, along with the use of beehives, enable honey production while supporting bee and butterfly populations. Sweet!

ENSIA.COM

How land under solar panels can contribute to food security

In place of conventional turf grass or gravel, some solar farms are growing…

6 1 Share

New England Solar Farm
April 15 ·

Jobs Alert: Our solar farm will generate up to 700 jobs and work for contractors and suppliers. We would be looking for help in the following areas:
• civil works
• fencing installation
• internal access road construction
• site preparation... See More

NEWENGLANDSOLARFARM.COM.AU
Enquiry Form | newenglandsolarfarm

4 2 Comments


NEW ENGLAND
SOLAR FARM
Properties Uralla
6778 3384
Office Hours
Monday – Friday 9am–5pm
Saturday & Sunday
Inspection by Appointment
0419 511 625
NEW ENGLAND
SOLAR FARM
OFFICE

UPC Renewables

Level 14, 77 King Street

Sydney NSW, 2000

E info@newenglandsolarfarm.com.au

EMM Consulting

Ground floor, Suite 01, 20 Chandos Street

St Leonards NSW 2065

T 02 9493 9500

F 02 9493 9599

E info@emmconsulting.com.au