

New England Solar Farm

State Significant Development Assessment (SSD 9255)

December 2019

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Cover photo

Solar panels. Source: Department of Planning and Environment Image Database https://www.images.planning.nsw.gov.au).

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UPC Renewables Australia Pty Ltd (UPC) proposes to develop a new 720 megawatt (MW) solar farm with 200 MW/400 MW hour (MWh) of battery storage located approximately 6 kilometres (km) east of Uralla and 8 km south of Armidale in the New England North West region of NSW.

The project site is located in a rural area, with the nearest non-associated residence located about 450 m from the development footprint at its closest point. All other non-associated residences are located at least 1 km from the development footprint. The site is located in close proximity to the New England Highway and the Main Northern Railway and has direct access to the electricity network via TransGrid transmission lines which traverse the site.

Engagement

The Department exhibited the Environmental Impact Statement (EIS) for the project and received 116 submissions, including 13 from government agencies, two from special interest groups (providing comments) and 101 from the general public (67 objections, 20 supporting and 14 comments).

The Department also consulted with Uralla Shire Council (Council) and the relevant government agencies on key issues and inspected the site and met with surrounding landowners on 26 June 2019.

Council supports the project and none of the agencies object to the project, subject to the implementation of appropriate mitigation and management measures.

In response to agency advice and submissions on the project, UPC amended the project by removing the southern array area and construction accommodation village, and by revising the proposed road upgrades and transport route.

The project amendments have led to better outcomes by avoiding impacts on agricultural land, watercourses, biodiversity and heritage items that were located in the southern array area. The amendments have also minimised visual impacts on surrounding residences and businesses, and led to better road safety outcomes by reducing the number of local roads used by project traffic.

Assessment

The Department has undertaken a comprehensive assessment of the merits of the project and considered all potential issues in accordance with the requirements of the *Environmental Planning and Assessment Act 1979*. The key assessment issues identified for the project are land use compatibility, potential impacts on visual amenity and construction traffic.

The project site is 3,362 ha and is currently used for agricultural purposes, including sheep and cattle grazing. The development footprint (2,061 hectares [ha]) is primarily located on soils classified as Class 4 or 5 under the *Land and Soil Capability Mapping in NSW* (OEH, 2017), meaning that the land requires active management to sustain cultivation on a rotational basis. However, approximately 100 ha of mapped Biophysical Strategic Agricultural Land (BSAL) would be impacted.

The Department considers that the project would not significantly reduce the overall agricultural productivity of the region and that the inherent agricultural capability of the site would not be affected, and is satisfied that the site could be returned to agricultural uses in the future following rehabilitation. The Department also notes that UPC intends to graze sheep on the site during operation of the project.

The solar farm is relatively low-lying (solar panels up to 4.3 m high) and the site and surrounds comprise low rolling hills and patches of vegetation. Intervening topography and vegetation provide natural screening from most residences. The Department supports UPC's amended layout which has removed panels in the north eastern area of the site to minimise visual impacts on the closest residences, and considers that there would be no significant visual impacts on these residences.

The potential traffic impacts would be relatively short-term, minor in nature and can be managed in accordance with Government policy. The site access route and road upgrades have been designed in consultation with Council and the Roads and Maritime Services and are suitable for the project. While Council asked for the last section of Big Ridge Road to be upgraded to Austroads Standards for a public road, the Department believes this is unnecessary as this section of road is currently an unformed track and paper road that is unlikely to ever play a meaningful role in the local road network. Further, this section of Big Ridge Road would essentially serve as a haul road for the project that is only used by host landowners and project traffic. Consequently, the Department considers UPC's proposal to upgrade the road to an unsealed road with a width of 8.7 m and maintain it for the life of the project is reasonable.

The project has been designed to largely avoid impacts on vegetation and threatened species in the locality and all unavoidable impacts (including 7.74 ha of native vegetation clearing) would be offset in accordance with Government policy, which is included as a requirement in the recommended conditions.

The project would employ up to 700 workers during the 40 month construction period. Council supports the removal of the construction accommodation village and the Department is satisfied that there is sufficient accommodation in nearby towns, such as Uralla, Armidale and Tamworth, and that the use of this accommodation would stimulate the local economy. However, the Department has recommended a condition requiring UPC to prepare and implement an accommodation and employment strategy to ensure there would be sufficient accommodation to house construction workers, and to prioritise the employment of local workers, in the unlikely event that the construction of the project occurs in conjunction with the construction of other major projects, resulting in cumulative impacts on the local housing market,.

Given the distance of the project from other approved and proposed projects in the region (including the approved Metz Solar Farm approximately 38 km from the site), with the proposed Salisbury Solar Farm located approximately 6 km south the site and the next closest solar farm (Oxley Solar Farm) located about 30 km from the site, there would be minimal localised cumulative impacts, including no visual or noise impacts and no cumulative impact on local roads along the project's transport route.

To address the residual impacts of the project, including Aboriginal cultural heritage, historic heritage, erosion, water, noise and hazards, the Department has recommended a range of detailed conditions, developed in conjunction with agencies and Council, to ensure these impacts are effectively minimised or offset.

Summary

Overall, the Department considers the site to be appropriate for a solar farm as it has good solar resources and available capacity on the existing electricity network and is consistent with the Department's Large-Scale Solar Energy Guideline.

The project is consistent with the Commonwealth's Renewable Energy Target and NSW's Climate Change Policy Framework and Renewable Energy Action Plan, as it would contribute 720 MW of renewable energy to the National Electricity Market, including a battery storage facility with a capacity of 200 MW/400 MWh. Importantly, the battery facility would enable the project to store solar energy for dispatch to the grid outside of daylight hours and/or during periods of peak demand, which has the potential to increase grid stability and energy security.

The project would also provide flow-on benefits to the local community, including up to 700 construction jobs and a capital investment of \$768 million.

The Department considers that the project would result in benefits to the State of NSW and the local community and is therefore in the public interest.



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1. Project

UPC Renewables Australia Pty Ltd (UPC) proposes to develop a new State significant 1. development solar farm approximately 6 kilometres (km) east of Uralla and 8 km south of Armidale, in the Uralla Shire local government area (LGA) (see Figure 1 and Figure 2)

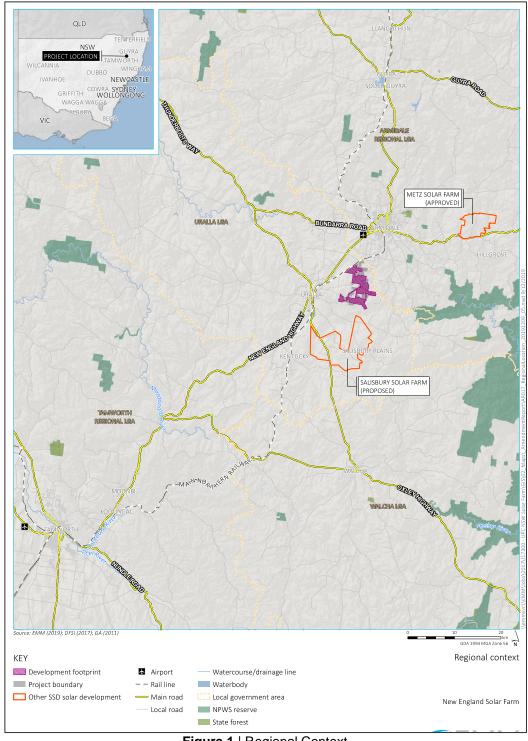


Figure 1 | Regional Context

- 2. The project involves the construction of a new solar farm with a generating capacity of approximately 720 megawatts (MW) and 200 MW/400 MW-hour (MWh) of battery storage. It also involves the upgrading and decommissioning of infrastructure and equipment in the future. While the capacity of the project may increase over time as technology improves, the footprint of the development would not increase.
- 3. The solar farm would consist of two solar array areas, being the northern and central array areas, connected by above and/or below ground cabling and an internal access road. The northern and central array areas would have generating capacities of about 500 MW and 220 MW, respectively. The solar farm would connect to TransGrid's existing 330 kilovolt (kV) transmission line that transects the development site.
- 4. The solar farm would be constructed in two stages over approximately 40 months. Construction of the northern array area and grid connection (stage 1) would commence first and would take about 29 months to complete. The central array area, internal substation and battery storage facilities (stage 2) would commence 14 months after stage 1 and would take about 24 months to complete.
- 5. The key components of the project are summarised in **Table 1**, depicted in **Figure 2** and described in the Amendment Report (see **Appendix F**), Submissions Report (see **Appendix D**) and additional information (see **Appendix G**).

Table 1 | Main Components of the Project

Aspect	Description			
Project summary	 The project includes: a generating capacity of approximately 720 MW, including about 500 MW generated by the northern arrays and 320 MW from the southern arrays; approximately 2.4 million single-axis tracking solar panels (up to 4.3 m high) and 150 power conversion units (PCU) (up to 2.7 m high); a grid substation in the northern array area and connection to TransGrid's 330 kV transmission line; an internal substation in the central array area at one of two locations; a lithium-ion battery storage facility (200 MW/400 MWh) located adjacent to one or both of the substations and within a number of small enclosures (up to 2.9 m high) or larger battery buildings (up to 5.5 m high); a train unloading area, internal access tracks, staff amenities, maintenance buildings (up to 8 m high), offices, laydown areas, car parking and security fencing; and subdivision of land within the site for the grid substation. 			
Project area	 Site: 3,362 ha Total development footprint: 2,061 ha Northern array footprint: 1,394 ha Central array footprint: 624 ha Electrical cabling and site access corridors: 43 ha 			
Access route	 All vehicles would access the site via the New England Highway, Barleyfields Road (north of Big Ridge Road) and Big Ridge Road. 			
Site entry and road upgrades	 Two new site entry points would be constructed on Big Ridge with a rural property access Type. Upgrades to the intersection of: the New England Highway and Barleyfields Road, including a Channelised Right Turn (CHR) treatment; and Barleyfields Road and Big Ridge Road, including a Basic Left Turn (BAL) treatment. Upgrades to: Barleyfields Road between the New England Highway and Big Ridge Road, including sealing to a width of 7.2 m and 1 m gravel shoulders; and Big Ridge Road including sealing sections to a width of 7.2 m and 1 m gravel shoulders, and upgrading a section with a gravel surface to a width of 8.7 m. 			
Rail transport	 Construction materials may be transported to the site via a combination of road and rail (average of 2 trains per week). A train unloading area and materials storage area would be constructed adjacent to the Main Northern Railway. Materials would be stored in shipping containers (up to 2.9 m high) until required on-site. 			
Construction	 The construction period would last for about 40 months. Construction hours limited to Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm. 			
Operation	 The expected operational life of the project is approximately 30 years. However, the project may involve infrastructure upgrades that could extend the operational life. 			
Decommissioning and rehabilitation	 The project also includes decommissioning at the end of the project life, which would involve removing all infrastructure. 			
Hours of operation	 Daily operations and maintenance would be undertaken Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm. 			
Subdivision	Subdivision of the lots on which the proposed grid substation would be located.			
Employment	Up to 700 construction jobs and 15 full-time operational jobs.			
Capital investment value	\$768 million			

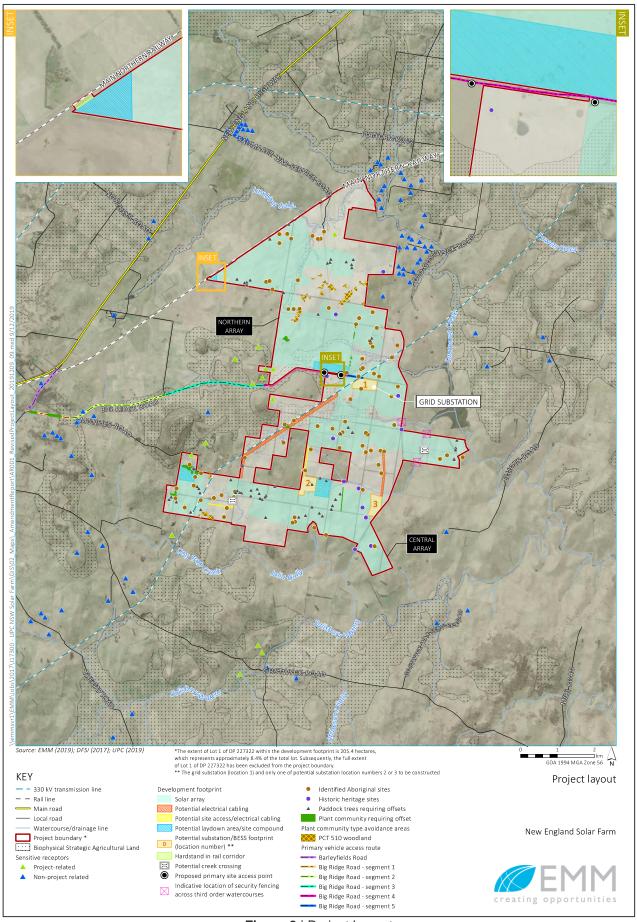


Figure 2 | Project Layout



2.1 Site and Surrounds

- 7. The project is located on an approximately 3,362 hectare (ha) site within the New England North West region of NSW. The site is zoned RU1 Primary Production under the *Uralla Shire Council Local Environment Plan 2012* (Uralla LEP) and is used for agricultural purposes, including sheep and cattle grazing. The site is not currently used for cropping.
- 8. The soils within the site are primarily classified as Class 4 or 5 under the *Land and Soil Capability Mapping in NSW* (OEH, 2017), meaning that the land requires active management to sustain cultivation on a rotational basis. However, approximately 272 ha of mapped Biophysical Strategic Agricultural Land (BSAL) occurs within the site.
- 9. Land within the site comprises low rolling hills intersected by numerous ephemeral drainage lines and watercourses. Patches of native vegetation and planted windbreaks are scattered throughout the site, as well as numerous Aboriginal cultural heritage and historic heritage sites.
- 10. The proposed development footprint is 2,061 ha and was designed to avoid site constraints, including 172 ha of BSAL, watercourses, flooding, native vegetation, Aboriginal and historic heritage items, as well as nearby residences (see **Figure 2**).
- 11. Land surrounding the site is primarily zoned RU1 and is used for agricultural purposes (cropping and grazing), the exception being an area of land zoned RU4 Primary Production Small Lots, which abuts a section of the north-eastern site boundary. The Main Northern Railway line abuts a section of the north-western site boundary and the New England Highway is located around 2 km west of the site (at its closest point). TransGrid's 330 kV transmission line traverses the site.
- 12. The landscape is valued for its scenic and cultural heritage. Gostwyck Road and Thunderbolts Way scenic drives are located to the south of the site, and several locally listed heritage sites are spread through the local area, including Gostwyck Chapel and Precinct and Deeagree Woolshed.
- 13. Thirty-three residences are located within 2 km of the proposed development footprint, six of these are associated with the project. The majority of residences (23) are clustered in a rural residential area located northeast of the site (see **Figure 2**). The closest non-associated residence (N1) is located about 450 m north of the development footprint (at its closest point) and would have limited views of the site that are partially screened by existing vegetation and topography. All other residences are located around 1 km or more from the development footprint.

2.2 Other Solar Farms

- 14. The New England region has attracted considerable interest from solar developers given the presence of major transmission lines and existing electricity substations. There is one approved and three proposed State significant development solar farms within approximately 40 km of the project site (see **Table 2** and **Figure 3**). While there are another six solar farms in the region, they are located significant distance to the proposed project (i.e. between 90 km and 120 km from the site).
- 15. The proposed Salisbury Solar Farm (located approximately 6 km south of the site) is in the early stages of the application process, and if approved, it would be the closest solar farm to the project.
- 16. Given the distance of the New England Solar Farm from all approved and proposed projects in the region, including the Salisbury Solar Farm, and the surrounding topography, there would be no significant cumulative visual or noise impacts. In addition, while the surrounding regional road network may experience an increase in traffic numbers, there would be no significant cumulative impact on the local roads along the proposed transport route from these projects, as discussed further in section 5.3.

Table 2 | Nearby solar farms

Project	Capacity (MW)	Status	Approximate distance from the project (km)
Salisbury Solar Farm	600	Proposed	6
Oxley Solar Farm	300	Proposed	30
Tilbuster Solar Farm	120	Proposed	36
Metz Solar Farm	100	Construction	38

- 17. Other potential cumulative impacts at a regional level relate to agricultural land and workforce accommodation.
- 18. The potential cumulative impact on agricultural land in the region is discussed further in **section 5.1**.
- 19. In regard to workforce accommodation, Metz Solar Farm is already under construction and there would be no overlap in construction periods.
- 20. Tamworth Solar Farm, Orange Grove Solar Farm and Gunnedah Solar Farm are located over 90 km west of the site and closer to Gunnedah, and do not have potential for any significant cumulative impacts. Similarly, Sundown Solar Farm, White Rock Solar Farm and Sapphire Solar Farm are located over 95 km north of the site and closer to Glen Innes and Inverell, and do not have potential for any significant cumulative impacts.
- 21. However, there is the potential for construction of the project to overlap with the construction of the proposed Salisbury Solar Farm, Oxley Solar Farm and Tilbuster Solar Farm (if approved). Workforce accommodation for these solar projects would likely be sourced from the local and wider region, including neighbouring towns (Uralla, Tamworth, Armidale and Glen Innes) and LGAs, as discussed further in section 5.4.

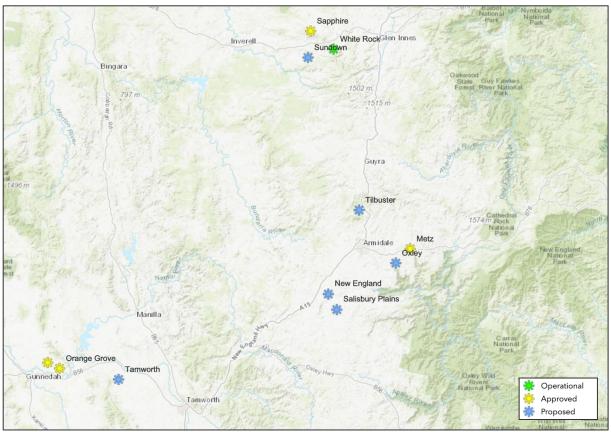


Figure 3 | Nearby Solar Farms

2.3 Energy Context

- 22. In 2018, NSW derived approximately 17.4% of its energy from renewable sources. The rest was derived from fossil fuels, including 79% from coal and 3.1% from gas. However, there are currently no plans for the development of new coal power stations in NSW, and the development of renewable energy sources, like wind and solar farms, is experiencing rapid growth.
- 23. This is highlighted in the 2017 *Independent Review into the Future Security of the National Electricity Market* (the Finkel Review), which outlines a strategic approach to ensuring an orderly transition from traditional coal and gas fired power generation to generation with lower emissions. It notes that Australia is heading towards zero emissions in the second half of the century.
- 24. The *United Nations Framework Convention on Climate Change* has adopted the Paris Agreement, which aims to limit global warming to well below 2°C, with an aspirational goal of 1.5°C. Australia's contribution towards this target is a commitment to reduce greenhouse gas emissions by 26% to 28% below 2005 levels by 2030.
- 25. One of the key initiatives to deliver on this commitment is the Commonwealth Government's Renewable Energy Target. Under this target, more than 20% of Australia's electricity would come from renewable energy by 2020.
- 26. The NSW Climate Change Policy Framework, released in November 2016, sets an aspirational objective for NSW to achieve net zero emissions by 2050. The NSW Government also has a Renewable Energy Action Plan, which promotes the development of renewable energy in NSW.

- 27. The Department released the *Large-Scale Solar Energy Guideline* in December 2018 to provide the community, industry and regulators with guidance on the planning framework for the assessment of large-scale solar projects, and identify the key planning considerations relevant to solar energy development in NSW.
- 28. The Guideline aims to support the growth of the solar industry, whilst ensuring that impacts are adequately assessed, effective stakeholder engagement is undertaken, and that attracting investment is balanced with considering the interests of the community. UPC submitted its EIS in February 2019 and its assessment is consistent with the principles of the Guideline.
- 29. The Guideline also acknowledges that large scale solar projects could help to reduce reliance on fossil fuels, thereby contributing to reductions in air pollution and greenhouse gas emissions, whilst also supporting regional NSW through job creation and investment in communities that may not have similar opportunities from other industries.
- 30. NSW is one of the nation's leaders in large-scale solar, with nine major operational projects and nine under construction or planned to be under construction.
- 31. In March 2018, the NSW Government identified 10 potential Energy Zones across three broad regional areas, including the New England, Central West and South West regions of NSW. The identified energy zones are aimed at encouraging "investment in new electricity infrastructure and unlocking additional generation capacity in order to ensure secure and reliable energy in NSW".
- 32. The project would be located within New England Energy Zone and would have access to the electrical grid at a location with available network capacity. With a capacity of 720 MW, the project would generate enough electricity to power over 269,300 homes, and is therefore consistent with both the Commonwealth's *Renewable Energy Target* and NSW's *Renewable Energy Action Plan*.



3.1 State Significant Development

- 33. The project is classified as State significant development under Section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This is because it triggers the criteria in Clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP), as it is development for the purpose of electricity generating works with a capital investment value of more than \$30 million.
- 34. Under Section 4.5 (a) of the EP&A Act and clause 8A of the SRD SEPP, the Independent Planning Commission (the Commission) is the consent authority for the development as UPC has disclosed a reportable political donation under section 10.4 of the EP&A Act and the project has received more than 25 public submissions by way of objection.

3.2 Amended Application

- 35. In accordance with Clause 55 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulations), a development application can be amended at any time before the application is determined. Accordingly, UPC has sought to amend its application.
- 36. The Department considers that the Commission can accept UPC's amended application for the following reasons:
 - the project amendments have reduced the impacts of the project as a whole;
 - the amended application directly responds to the key issues raised in submissions received by the Department during the exhibition of the original application;
 - UPC assessed the impacts of the amended project (see **Appendix F** and **G**);
 - the Department made the additional information available online and sent it to the relevant agencies for comment; and
 - no representations have been made by the community or special interest groups opposing the amended application.

The project amendments are summarised in **section 4.3** of this report.

3.3 Permissibility

- 37. The site is located wholly within land zoned RU1 Primary Production under the Uralla LEP. The RU1 zone includes various land uses that are both permitted with and without consent. Electricity generating works are permitted with consent on land zoned RU1 under the LEP.
- 38. Under the State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP), electricity generating works are permissible on any land in a prescribed rural, industrial or special use zone. Land zoned RU1 Primary Production is a prescribed rural zone pursuant to the Infrastructure SEPP. Consequently, the project is also permissible with development consent under the Infrastructure SEPP.

3.4 Other Approvals

- 39. Under Section 4.41 of the EP&A Act, a number of other approvals are integrated into the State significant development approval process, and therefore are not required to be separately obtained for the proposal.
- 40. Under Section 4.42 of the EP&A Act, a number of further approvals are required, but must be substantially consistent with any development consent for the proposal (e.g. approvals for any works under the *Roads Act 1993*).
- 41. The Department has consulted with the relevant government agencies responsible for the integrated and other approvals, considered their advice in its assessment of the project, and included suitable conditions in the recommended conditions of consent to address these matters (see **Appendix I**).

3.5 Mandatory Matters for Consideration

- 42. Section 4.15 of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters are summarised as:
 - the provisions of environmental planning instruments (including draft instruments),
 development control plans, planning agreements, and the EP&A Regulations;
 - the environmental, social and economic impacts of the development;
 - the suitability of the site;
 - · any submissions; and
 - the public interest, including the objects in the EP&A Act and the encouragement of ecologically sustainable development (ESD).
- 43. The Department has considered all of these matters in its assessment of the project, as well as UPC's consideration of environmental planning instruments in its EIS, as summarised in **section** 5 of this report. The Department has considered relevant provisions of the environmental planning instruments in **Appendix H.**



4.1 Department's Engagement

- 44. The Department publicly exhibited the EIS from 20 February 2019 until 20 March 2019, and advertised the exhibition in the *Armidale Express* and *Armidale Express Extra*, and notified adjoining landowners adjacent to the project boundary.
- 45. The Department consulted with Council and the relevant government agencies throughout the assessment. The Department also inspected the site on 26 June 2019 and visited surrounding landowners (including N1) and the Sunhill Dairy Goats Farm to further understand their concerns.
- 46. The Department notified and sought comment from TransGrid, the Roads and Maritime Services (RMS) and Transport for NSW (TfNSW) in accordance with the Infrastructure SEPP, as discussed further in **section 4.2** of this report.

4.2 Submissions and Submissions Report

- 47. During the exhibition period of the EIS, the Department received 116 submissions, including:
 - advice from 13 from government agencies, including Uralla Shire Council;
 - 101 public submissions (67 objections, 20 supporting and 14 comments); and
 - submissions from two special interest groups (both providing comments).
- 48. Full copies of the agency advice are attached in **Appendix C**.
- 49. UPC provided a response to all matters raised in submissions on the project (see **Appendix D**).

4.3 Amended Application

- 50. Following consideration of submissions on the project, UPC removed the southern array area from the project and amended its application through an Amendment Report (see **Appendix F**).
- 51. In addition to removing the southern array area, the amended application also includes:
 - reducing the extent of the northern array area to increase the distance between the development footprint and neighbouring residences to the northeast;
 - removing one of the internal substation location options;
 - adding the option for underground transmission lines (in addition to overhead) between the northern and central array areas; and
 - potential use of the Main Northern Railway line to deliver construction materials and project infrastructure.
- 52. The generating capacity and energy storage capacity of the project would remain the same as UPC intends to use higher capacity solar panels within the reduced development footprint.
- 53. The Department provided the Amendment Report to government agencies for review and comment and made it available on the Department's website. As the project amendments would reduce the impacts of the project as a whole the Department did not exhibit the Amendment Report. Following advice received from the Department and government agencies on the amended application, UPC further refined the project, including removing the construction accommodation village and revising the site access route (see **Appendix G**).
- 54. The amendments to the project are summarised in Table 3, and depicted in Figure 4.

Table 3 | Amendments to the project during the assessment process

Aspect	Environmental Impact Statement (February 2019)	Final Proposed Project		
Project area (ha)	5,515	3,362		
Development footprint (ha)	Total – 2,787 Northern – 1,418 Central – 625 Southern – 653 Road and cable corridors - 91	Total – 2,081 Northern – 1,394 Central – 624 Road and cable corridors - 43		
Solar panels	2.6 million	2.4 million		
PCUs	180	150		
Internal substations	Three potential locations in central array area	Two potential locations in central array area		
Transmission lines	Above ground	Above and/or below ground		
Haulage route	New England Highway, Gostwyck Road, Hillview Road and Salisbury Plains Road; or New England Highway, Barleyfields Road, Big Ridge Road and Munsies Road.	New England Highway, Barleyfields Road (north of Big Ridge Road) and Big Ridge Road.		

Aspect	Environmental Impact Statement (February 2019)	Final Proposed Project	
Site entry	Entry points on Salisbury Plains Road, two entry points on The Gap Road, Hillview Road, Big Ridge Road and Munsies Road.	Two entry points on Big Ridge Road.	
		The Main Northern Railway may be used transport construction materials to the site	
Rail	Not proposed	A train unloading and storage area would be constructed within and adjacent to the rail corridor.	

4.4 Key Issues – Government Agencies

- 55. **Uralla Shire Council** supports the project, but made recommendations relating to project sustainability, workers accommodation, preference for local workers, road upgrades and maintenance, impacts on council infrastructure and services, including waste and water, amenity of residents, biodiversity (migratory birds) and decommissioning. Council also requested consideration of the project in the context of its Community Strategic Plan.
- 56. UPC addressed these matters in its Submissions Report and additional informational provided during the Department's assessment. Council confirmed its support for the removal of the previously proposed construction accommodation village but had residual concerns about the proposed road upgrades and requested additional upgrades for about 2.2 km of the access road adjacent to the site and 0.5 km within the site. This is addressed further in **section 5.3**. The Department has recommended a range of conditions of consent to address Council's concerns, which are discussed in **section 5**.
- 57. The **Department's Water Group** (DPIE Water) requested additional information and made a number of recommendations about matters relating to watercourses, watercourse crossings, flooding, water sources and erosion and sediment control. The **Department's Primary Industries Group** (DPIE Primary Industries) recommended that all below ground infrastructure and cabling be removed from areas of BSAL, and that the land be returned to agricultural uses following decommissioning and rehabilitation of the project. The **Department's Crown Lands Group** (DPIE Crown Lands) recommended that UPC consult with DPIE Crown Lands regarding the purchase and closure of Crown land and roads within the site. UPC responded these requests and recommendations in its Submissions Report and in additional information received during the Department's assessment, and these agencies advised that they have no objection to the project subject to recommended conditions of consent. These matters are discussed further in **section 5.4**.

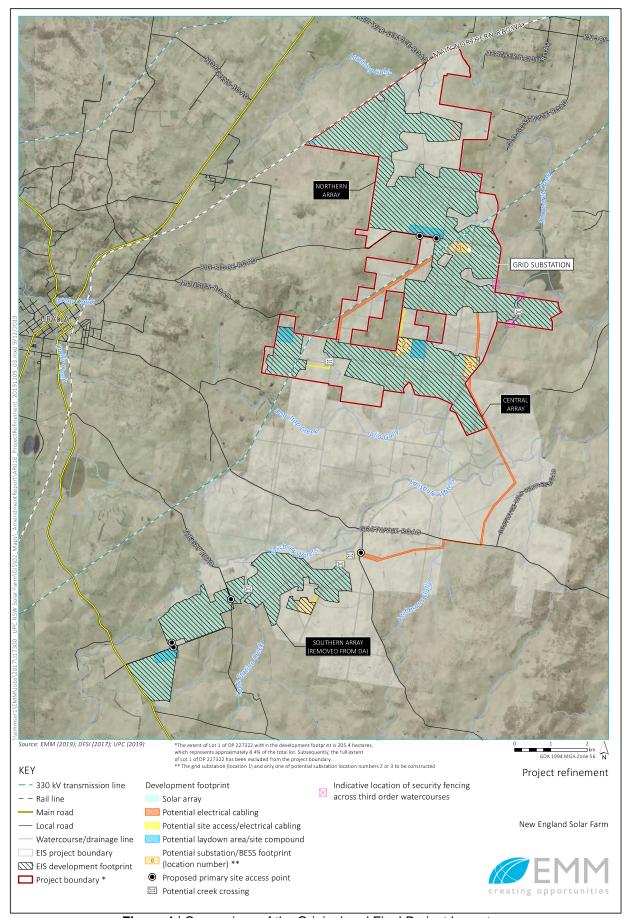


Figure 4 | Comparison of the Original and Final Project Layouts

- The **Department's Biodiversity Conservation Division** (formerly the Office of Environment and Heritage, BCD) requested clarification regarding the location of planted native vegetation, ecosystem credit requirements and site surveys of threatened species, and requested that UPC revise its Biodiversity Assessment Report (BDAR) accordingly. BCD also recommended that UPC retain and protect all Aboriginal scar trees and quarry sites, and provide ongoing management opportunities and access for Aboriginal people to two sites of high significance over the life of the project. UPC revised its BDAR and Aboriginal Cultural Heritage Assessment Report for the project to address these matters, and BCD advised that it has no objection to the project subject to the recommended conditions of consent. These matters are discussed further in **section 5.4**.
- 59. Roads and Maritime Services (RMS) recommended that UPC prepare a comprehensive Traffic Management Plan and undertake the relevant road upgrades prior to construction. RMS also noted that it has pre-existing plans for works at the New England Highway and Barleyfields Road (North) intersection, and advised that UPC would be responsible for the cost and construction of all works associated with accommodating project related traffic at this intersection. These recommendations have been incorporated into the recommended conditions of consent, which are supported by RMS, and discussed in section 5.3.
- 60. Transport for NSW (TfNSW) advised that John Holland Rail manages the Main Northern Railway Line located adjacent to the site, and requested additional information about the project's potential impact on existing rail traffic, the rail corridor and level crossings, particularly relating to risk management, access arrangements, stormwater, visual, road traffic, fencing and construction impacts. UPC provided this information in its Submissions Report, Amendment Report and through additional information received during the Department's assessment. TfNSW has confirmed that neither agency objects to the project, subject to ongoing consultation and to the implementation of appropriate design, mitigation and management measures, which UPC has committed to do, as discussed in section 5.3.
- 61. The **Heritage Council of NSW** (Heritage Council) noted the presence of existing and newly identified sites of historic heritage significance, but raised no concerns subject to UPC implementing management measures, including a Heritage Management Plan, photographic archival recording of all items potentially impacted by the project and an unexpected finds protocol. These recommendations have been incorporated into the recommended conditions of consent and are discussed in **section 5.4**.
- 62. The **Rural Fire Service** (RFS) and **Fire & Rescue NSW** recommended fire and emergency response plan conditions, which have been incorporated into the recommended conditions of consent.
- 63. The **Division of Resources and Geoscience** (DRG) advised that mining and exploration land uses were adequately addressed in the EIS. DRG also confirmed that UPC consulted with Geological Survey of NSW regarding an area of higher mineral significance (located southwest of the site) and noted that the project was designed to avoid this area. DRG has no residual concerns.

- 64. **NSW Health** raised no concerns, but advised that the importation of potable water to the site may require a Quality Assurance Program in accordance with the provisions of the *Public Health Act* 2010.
- 65. The **Environment Protection Authority** (EPA), **TransGrid** and **SafeWork NSW** raised no concerns and made no recommendations.

4.5 Key Issues - Community

- 66. Of the 101 submissions received from the public, 67 objected, 20 supported and 14 provided comments on the project. A summary of all submissions received from the public is provided in **Table 4**.
- 67. Of the 67 objections, around half (51%) were received from residents located within 10 km of the site, 10% were from residents located between 10 km and 50 km from the site and 37% were from residents located more than 50 km away. Regardless of proximity to the site, all submissions objecting to the project typically focused on local impacts and matters relevant to the local community.
- 68. The majority of supporting submissions (65%) were received from residents located within 10 km of the site, 20% were from residents between 10 km and 50 km from the site, and only 10% were from residents located more than 50 km away. All submissions providing comments were from residents located within 10 km of the site.

Table 4 | Summary of Community Submissions

Submitters	Object	Support	Comment	Total
< 5 km	14	6	9	29
5 – 10 km	20	7	5	32
10 – 50 km	7	4	0	11
> 50 km	25	2	0	27
Undefined	1	1	0	2
TOTAL	67	20	14	101

- 69. The key issues raised in the public submissions are summarised in **Figure 5**. The most common matters raised in submissions objecting to or commenting on the project include the following:
 - visual impacts on the surrounding landscape, residences and local roads (57% of objections and comments);
 - land use compatibility, specifically regarding the use of prime agricultural land, with some submissions also raising concerns about potential impacts on surrounding agricultural activities (54% of objections and comments); and
 - impacts on local businesses, particularly those located in close proximity to the site (46% of objections and comments).

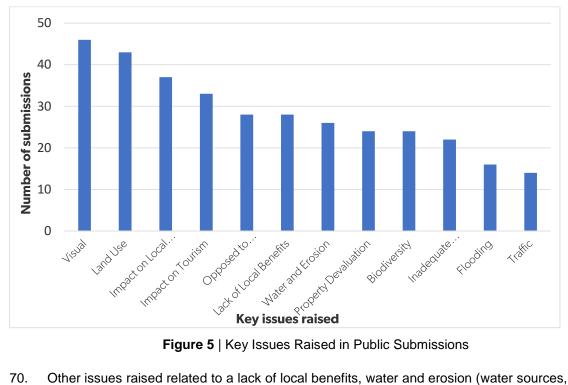


Figure 5 | Key Issues Raised in Public Submissions

- 70. Other issues raised related to a lack of local benefits, water and erosion (water sources, potential pollution of nearby water bodies, groundwater and soil contamination, soil erosion, and spread of weeds), property devaluation, biodiversity (particularly relating to migratory birds and Koala), flooding, traffic, decommissioning, hazards (fire, radiation), cumulative (other solar farms), heritage and amenity (noise, dust).
- 71. Concerns were also raised regarding insufficient consultation undertaken by UPC with the local community. Most of these submissions (approximately 82%) were received from people within 10 km of the project site. The Department notes that UPC undertook engagement with the surrounding community as detailed in the EIS, including newspaper advertisements, community meetings and information sessions, individual meetings with adjacent landowners and made information about the proposal available via a project newsletter and its website. UPC also undertook consultation with the Department and relevant government agencies during the assessment process.
- 72. Some submissions also called for a strategic approach to solar development in NSW, which is discussed in **section 2** of this report.
- 73. A further breakdown and summary of key issues raised by the public is summarised in Appendix E. Section 5 of the assessment report provides a summary of the Department's consideration of these matters and recommended conditions.

Southern Array

74. Removal of the southern array via the amended application has directly addressed concerns raised in 28 submissions that specifically objected to the southern array area. Submissions typically argued that the southern array area would have significant visual impacts on Salisbury Plains, surrounding residences and local businesses (including Sunhill Dairy Goats Farm located adjacent to the previously proposed southern array development footprint). These submissions also cited impacts on high quality agricultural land and mapped BSAL, Salisbury Waters (a sixth order watercourse), flooding, biodiversity and heritage. Further, these submissions argued that the southern array area would have a particularly negative impact on tourism due to its close proximity to key tourist drives (Thunderbolts Way and Gostwyck Road), Sunhill Dairy Goats Farm (open to tourists) and the scenic quality of Salisbury Plains.

4.6 Key Issues - Special Interest Groups

- 75. The **Uralla Shire Business Chamber** represents business owners and operators in the Uralla Shire LGA. The submission provided comments on the project, which acknowledged the benefits of the project through the provision of renewable energy and financial benefits to the local community. However, it raised concerns about visual amenity, and recommended buffer zones and neighbour agreements. It also supported the removal of the southern array as a means to address community concerns about the project.
- 76. The Uralla Walcha Community for Responsible Solar / Wind Action Group provided comments on the project on behalf of Uralla and Walcha community members. The Action Group supports the transition from fossil fuel to a renewable energy economy, subject to this transition being supported by strategic planning and the principles of ESD. The group advocated for the removal of the southern array area on the basis that it would be inconsistent with the principles of ESD. In particular, the submissions also raised concerns about impacts on agricultural land, tourism, water resources and biodiversity, as well as visual impacts, the cumulative impact of solar farms on Salisbury Plains, hazard management and UPC's conclusions regarding the social and economic impacts and benefits of the project.



- 77. The Department has undertaken a comprehensive assessment of the merits of the project. This report provides a detailed discussion of the five key issues, namely land use compatibility, visual amenity and construction traffic.
- 78. The key constraints for the project are shown in **Figure 2**. The Department has also considered the full range of potential impacts associated with the project and has included a summary of the conclusions in **section 5.4**. A list of the key documents that informed the Department's assessment is provided in **Appendix A**.

5.1 Compatibility of Proposed Land Use

Potential Impacts on Agricultural Land

79. The project is located within the New England North West region, one of the State's most fertile and productive agricultural areas. The region includes over 6.7 million ha of agricultural land and over 1.5 million ha of mapped Biophysical Strategic Agricultural Land (BSAL). The site (3,362 ha) is currently used for sheep and cattle grazing and includes 272 ha of BSAL (see **Figure 2**).

- 80. Concerns about the project's impact on agricultural land, including BSAL, were raised in the majority of community submissions objecting to the project.
- 81. Under the Land and Soil Capability Mapping in NSW (OEH, 2017), the majority (~90%) of land within the development footprint (2,081 ha) ranges from Class 4 (moderate limitations) through to Class 6 (very severe limitations), which typically requires active management to sustain cultivation on a rotational basis.
- 82. Approximately 100 ha of mapped BSAL occurs within the development footprint, which is also classified as Class 3 (high capability land) and is capable of sustaining cultivation on a rotational basis. However, BSAL within the development footprint is located in a series of linear strips rather than a consolidated patch of land that could be put to productive use (see **Figure 2**). Avoiding these areas of BSAL would make it difficult to locate the solar panels in an orderly way. However, to minimise the impact on BSAL, infrastructure requiring more intensive ground disturbance, including the substations, battery storage, laydown areas and construction compounds, would not be located in areas of mapped BSAL.
- 83. UPC also proposes to continue sheep grazing in areas of the project site without solar arrays and within the development footprint to manage ground cover.
- 84. Furthermore, the inherent agricultural capability of the land would not be affected by the project due to the relatively low scale of the development. To this end, the Department has included requirements to maintain the land capability of the site (including ground cover and maintaining grazing within the development footprint), and to return the land to agricultural use following decommissioning.
- 85. The Department notes that neither Council nor DPIE Primary Industries raised concerns that the operation of the project would compromise the long-term use of the land for agricultural purposes, subject to the removal of all project infrastructure at decommissioning, including all above and below ground infrastructure located on BSAL (requested by DPIE Primary Industries). Underground infrastructure located outside mapped BSAL would be removed to a depth of 0.5 m.
- 86. UPC proposes to return the land back to existing levels of agricultural capability and the Department has included rehabilitation objectives in the recommended conditions to maintain the productivity of the agricultural land during the construction and operation of the project, and to fully reinstate the agricultural capability of the land following decommissioning of the project, including the requirement to return mapped BSAL to at least Class 3 Land Capability.
- 87. Additionally, the Department has recommended strict land management conditions to control the growth of weeds, reducing the potential spread of weeds to neighbouring properties. In this regard, the Applicant would be required to restore the ground cover of the site following construction or upgrading, maintain the ground cover with appropriate perennial species and manage weeds within this ground cover.

- 88. Regarding potential cumulative impacts, the development footprint of the project combined with the other approved and/or operational SSD solar farms in the New England North West Region would be 4,171 ha. The loss of 4,171 ha of agricultural land represents a very small fraction (0.06%) of the 6.7 million ha of land being used for agricultural output in the New England North West region and would result in a negligible reduction in the overall productivity of the region.
- 89. The potential loss of a small area of cropping and grazing land in the region must be balanced against:
 - the broader strategic goals of the Commonwealth and NSW governments for the development of renewable energy into the future;
 - the environmental benefits of solar energy, particularly in relation to reducing greenhouse gas emissions;
 - the economic benefits of solar energy in an area with good solar resources and capacity in the existing electricity infrastructure; and
 - the benefits of dispatchable energy for grid stability and reliability.
- 90. Based on these considerations, the Department considers that the proposed solar farm represents an effective and compatible use of the land within the region.

Potential Impacts on Agricultural Activities

- 91. Concerns were raised in some submissions about potential impacts on neighbouring agricultural activities due to potential impacts on livestock and cropping from the spread of weeds, increased erosion and sediment, water pollution and dust and noise generated by the project.
- 92. Weeds would be controlled through strict land management measures to stablise the land within the site and to prevent the spread of weeds. The Department has recommended conditions requiring UPC to restore the ground cover with appropriate perennial species following ground disturbance, and to maintain ground cover and manage weeds. Additionally, UPC would be required to prepare and implement measures to control weeds and feral pests through a Biodiversity Management Plan.
- 93. Any erosion and sedimentation risks can be effectively managed using best practice construction techniques and UPC would be required to minimise any soil erosion associated with the construction, upgrading or decommissioning of the project in accordance with OEH's *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) manual. DPIE Water raised no concerns in this regard, subject to UPC preparing and implementing an Erosion and Sediment Control Plan, which it has committed to do.
- 94. Under Section 120 of the *Protection of the Environment Operations Act* 1997, UPC must ensure that the project does not cause any water pollution. To this end, UPC would store and handle all chemicals, fuels and oils used on-site in accordance with the requirements of all relevant Australian Standards, and the Department has recommended conditions requiring UPC to design, construct and maintain the project to reduce impacts on soil and water.

- 95. Noise during construction of the project is predicted to comply with the relevant criteria, as discussed further in **section 5.4.** UPC would also be required to minimise noise and dust generated by the project.
- 96. Noting the above, the Department considers that the project would not significantly impact neighbouring agricultural activities.
- 97. Impacts on the local landscape have been minimised through project design, including locating the solar farm in an area largely surrounded by rolling hills and existing vegetation. Further, the proposed infrastructure exclusion zone provides a significant buffer between the solar panels and residences located to the northeast of the site (see **Figure 6**).

Potential Impacts on tourism

- 98. A number of community submissions raised concerns about the potential impact of the project on tourism. These submissions typically cited visual impacts on the scenic quality of the landscape, impacts to key tourist drives (Thunderbolts Way and Gostwyck Road), listed heritage sites and tourism businesses, and increased traffic during construction.
- 99. While the project would have a material change to the local landscape, it would have a limited impact on the scenic quality of the landscape in the region. It would not be visible from Uralla or Armidale. Thunderbolts Way and Gostwyck Road tourist drives would be at least 2 km away and there would be no physical impacts to listed historic heritage sites. The Department has considered the potential visual impact of the project on the landscape, tourist drives and historic heritage sites in more detail in section 5.2 of this report.
- 100. Given the distance between the development footprint and surrounding residences, the Department considers the project would not prevent the potential future development of tourism businesses at dwellings surrounding the site, nor would the project reduce the viability of existing businesses.
- 101. The impact of construction traffic on the local road network would be relatively short lived and minor in nature, as discussed further in see **section 5.3**.
- 102. Noting the above, the Department considers that the project would not significantly impact local or regional tourism.

Potential impacts on other land uses

- 103. While the Uralla Shire LGA has traditionally relied upon agriculture, the introduction of solar energy generation would contribute to a more diverse local industry, thereby supporting the local economy and community. In addition, the proposed solar farm would encourage the growth and diversification of employment opportunities in the LGA, which is consistent with the *Uralla Shire Council Community Strategic Plan 2017-2027* (Community Strategic Plan).
- 104. The project is also consistent with the Department's New England North West Regional Plan 2036, which identifies the development of renewable energy generation as a future growth opportunity for the region.

- 105. The development would not fragment or alienate resource lands in the LGA as the land could be easily returned to agricultural land following decommissioning, and the inherent agricultural capability of the land would not be affected.
- 106. Finally, and most importantly, a solar farm is a permissible land use under the Uralla Shire LEP, and Council supports the project, subject to the implementation of appropriate environmental mitigation measures and subject to consideration of the project in the context of the following goals stated in its Community Strategic Plan:
 - grow and diversify employment opportunities;
 - create an attractive environment for business, tourism and industry;
 - maintain a healthy balance between development and the environment; and
 - preserve, protect and renew our beautiful natural environment.
- 107. The Department has considered these goals throughout section 5 of this report and has recommended conditions of consent to ensure that the project is not inconsistent with Council's Community Strategic Plan.

5.2 Visual

108. Concerns about visual impacts were raised in the majority of community submissions objecting to and commenting on the project. Most of these submissions cited impacts on the landscape and scenic quality of the area (including Salisbury Plains, tourist drives and historic heritage), around a quarter raised concerns about the proximity of the project to residences.

Visual Context

- 109. The site and surrounds comprise low rolling hills and patches of vegetation located throughout cleared agricultural land.
- 110. The closest non-associated residence (N1) is located about 450 m from the development footprint at its closest point. A further 26 residences are located between 1 km and 2 km of the development footprint, 22 of which are clustered in an area to the northeast of the site (see **Figure 6** and **Table 5**).
- 111. The landscape is valued for its scenic and cultural heritage. Gostwyck Road and Thunderbolts Way scenic drives are located to the south of the site, as are Deeargee Woolshed (VP8) and Gostwyck Chapel and Precinct (VP7), both locally listed heritage sites (see **Figure 6**).
- 112. The Main Northern Railway is adjacent to a section of the north western site boundary. The New England Highway and Gostwyck Road are located approximately 2 km west and southwest of the site (at their closest points respectively), and Big Ridge Road, Munsies Road, Elliots Road and Saumarez War Service Road extend up to, or within close proximity to, the site boundary.

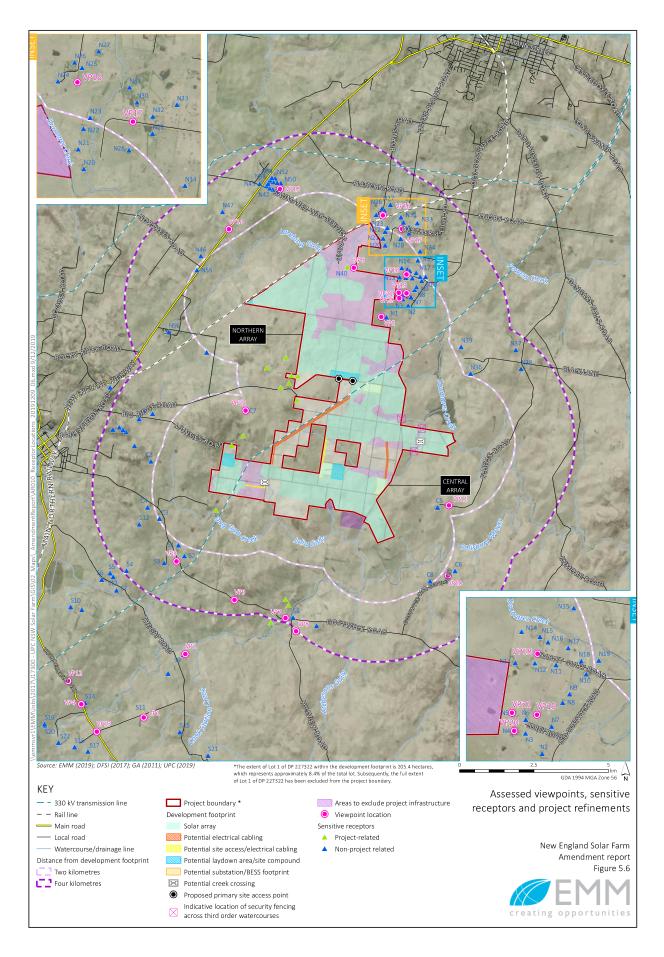


Figure 6 | Assessed Viewpoints

Table 5 | Visual Impacts at Surrounding Residences

Array	Viewpoint	Residence	Distance to site boundary (m)	Distance to development footprint (m)	Assigned Impact	Mitigating factors	
			340 (south)	450 (south)	Moderate	100 m exclusion zone	
	5	N1	680 (north west)	1000 (northwest)	Low/ negligible	Distance (340 ha exclusion zone) and topography	
	20	N2, N3, N4,	500, 280, 160	1060, 1160, 1150	Low		
	21	N5	120	1180			
Northern	18	N14	350	1400		Distance (340	
array	19	N6, N7	260, 540	1130, 1350		ha exclusion	
	18	N8, N9, N10, N11, N12, N13, N15, N16, N17, N18,	610, 670, 810, 490, 270, 60, 420, 460, 640, 750	1620, 1730, 1903, 1640, 1420, 1220, 1560, 1610, 1800, 1900	Negligible	zone), topography and existing vegetation	
	17	N20, N21, N22, N28	150, 130, 310, 700	1500, 1670, 1900, 1990			
	None	N35	880	2000			
	22	C7	1200	1520			
Central	11 C5	1740	1740	Low	Distance, topography and		
array	None	C3	1880	1970		existing vegetation	
	10	C8	1910	1910	Negligible		

Visual Mitigation

- 113. UPC has minimised potential visual impacts on surrounding residences (particularly N1) by designing the project with a 340 ha exclusion zone located east of the northern arrays, and a 100 m exclusion zone located to the south of N1.
- 114. With these exclusion zones, the development footprint would be about 1 km northwest and 450 m south of the closest residence (N1), and at least 1 km from all other residences located northeast of the site (see **Figure 6** and **Table 5**).

Landscape

- 115. The solar farm is located in an area largely surrounded by rolling hills and existing vegetation. The Department recognises that the introduction of the proposed solar farm to a rural landscape would result in a material change to the local landscape, but considers it would have a limited impact on the region, and it would not be visible from Uralla (6 km east of the site) or Armidale (8 km north of the site).
- 116. Impacts on the local landscape have been minimised through project design, including the proposed infrastructure exclusion zone providing a significant buffer between the solar panels and residences located to the northeast of the site (see **Figure 6**).
- 117. Gostwyck Road and Thunderbolts Way scenic drives would be at least 2 km south of the site, and Gostwyck Memorial Chapel (VP7) and Deeargee Woolshed (VP8) would be 3.8 km and 4 km south of the site. Consequently, distance, intervening topography and existing vegetation would reduce or block views of the project from these locations.
- 118. Regarding the precinct associated with the Gostwyck Memorial Chapel, a small section is located within the southeastern corner of the site. As the Precinct is representative of the views typical of the historic cultural landscape, the project is expected to have a low to moderate impact on a small section of the Precinct. The Department considers this impact to be acceptable, as the chapel itself is not impacted and the small section of the precinct is at the furthest location from the chapel.
- 119. Additionally, UPC proposes to undertake photographic archival recording of key heritage sites and the landscape within and immediately surrounding the site.

Residences

- 120. The EIS and Amendment Report include a comprehensive visual impact assessment (VIA) based on 22 representative viewpoints, including photomontages and a viewshed analysis (see **Figure 6** and **Figure 7**).
- 121. With the exception of N1 (discussed below) the visual impact for all residences surrounding the site is expected to be low or negligible as distance (including the 340 ha exclusion zone), topography (low rolling hills) and patches of existing vegetation would reduce or block views of the project (see **Table 5**).
- 122. The nature of the proposed development would also serve to minimise its visibility from surrounding residences as the solar panels would be relatively low lying (up to 4.3 m high) and the maintenance buildings, PCUs, energy storage facilities and substations would also be a similar size to agricultural sheds commonly used in the area. UPC has committed to design and paint buildings to blend in with the local landscape and the Department has recommended conditions to ensure this occurs.
- 123. The photovoltaic panels are designed to absorb rather than reflect sunlight, and the Department is satisfied that the project would not cause noticeable glint or glare compared to other building surfaces.

- 124. Regarding the closest residence (N1), representatives of the Department met with the landowner, and UPC consulted with the landowner throughout its assessment, to the determine that the most valued aspects from their residence are to the west, northwest and north. Accordingly, UPC removed panels from the northeast corner of the site to minimise the visual impact at N1 (i.e. the 340 ha exclusion zone).
- 125. The Department considers that the visual impact for the primary views to the northwest from this residence would be low as only a small section of panels (if at all) would be visible looking northwest due to distance (1 km) and intervening topography. The Department recognises that the exclusion zone has reduced the impact at this location and removed solar panels from this viewshed, with the closest part of the footprint increased from 700 m to 1 km from the residence (see **Figure 7** and **Table 5**).
- 126. The Department also recognises that the solar arrays closer to the residence are to the south (450 m) and that the VIA considered views in this direction from the residence would have a moderate visual impact. However, given the primary views from the residence are to the northwest, the Department considers that the visual impact from N1 as a whole would be less significant (i.e. low).



Figure 7 | Photomontage – View from N1 to the northwest (red arrows indicate location of solar panels)

Conclusion

- 127. The Department has recommended conditions requiring UPC to:
 - minimise the off-site visual impacts of the development, including the potential for any glare or reflection;
 - ensure the visual appearance of all ancillary infrastructure (including paint colours) blends in as far as possible with the surrounding landscape, and not mount any advertising signs or logos on site, except where this is required for identification or safety purposes; and

- minimise the off-site lighting impacts of the development, and ensure that any external lighting is installed as low intensity lighting (except where required for safety or emergency purposes), does not shine above the horizontal and complies with Australian Standard AS4282 (INT) 1997 Control of Obtrusive Effects of Outdoor Lighting.
- 128. Subject to the proposed exclusion zones and the implementation of the recommended conditions, the Department considers that there would be no significant visual impacts on surrounding residences, and the rural character and visual quality of the area would be preserved as far as practicable.

5.3 Transport

129. UPC is proposing to transport project infrastructure and construction materials to the site via road, with the option to also use rail. The final decision on whether to use rail transport would depend on a number of factors, including timing and logistics, sequencing of works, and cost and safety considerations. Consequently, UPC considered a worst case road traffic assessment (i.e. no rail). If rail transport is used, it would minimise the number of project-related heavy vehicles using the local and regional road network.

Road Traffic Volumes

- 130. The main increase in project related traffic would occur during the 40 month construction period, with two peak periods of four months. The estimated peak daily vehicle movements would be 56 heavy vehicles (including 10 coaches/buses) and 220 light vehicles (including 20 shuttle busses). Additionally, there would be a total of 6 over-dimensional vehicles during construction.
- 131. Traffic generation during operations would be negligible (i.e. up to 15 light vehicles and 5 heavy vehicles per day).

Transport Routes and Site Access

- 132. All development related vehicles would access the site via the New England Highway, Barleyfields Road (north of Big Ridge Road), Big Ridge Road and two new access points off Big Ridge Road (see **Figure 8**).
- 133. The New England Highway is a State road that serves as a key north-south transport route for traffic travelling to local, regional and interstate locations.
- 134. Barleyfields Road and Big Ridge Road are both local roads with a speed limit of 100 km per hour. Barleyfields Road is sealed to a width of 5.8 m and includes a railway level crossing just southwest of its intersection with the New England Highway. Big Ridge Road varies in width (3.1 m to 7.1 m wide) and formation (sealed, unsealed and paper road) (see **Figure 8**).
- 135. Some submissions from the community raised concerns about the proposed transport route and the project's potential to increase dust on local roads and impact road safety, particularly for school buses, pedestrians and cyclists. In addition to the required road upgrades (discussed in detailed below), the Department has recommended conditions requiring UPC to minimise potential conflicts with other roads users and to ensure vehicles leave the site in a clean condition to minimise dirt being tracked onto roads.

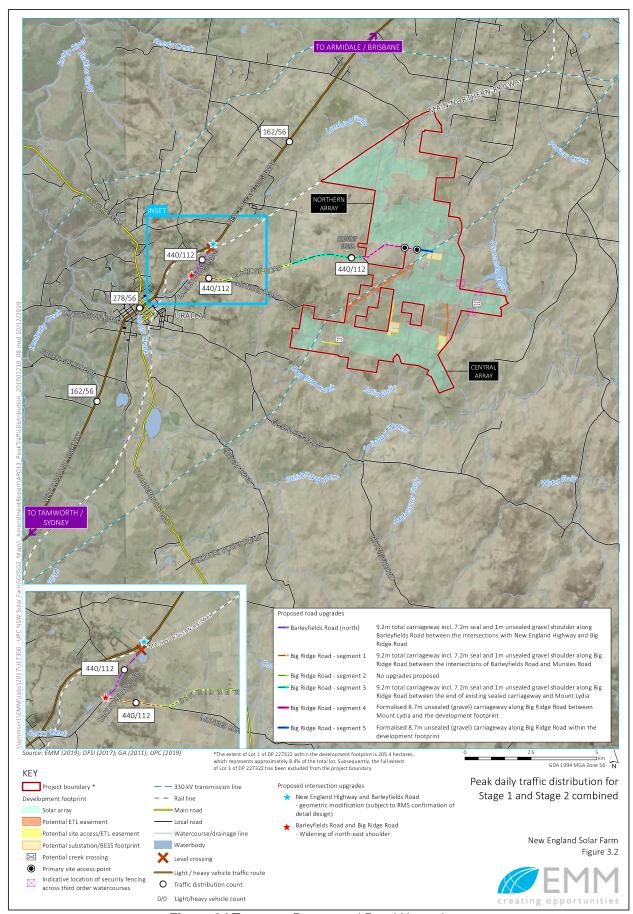


Figure 8 | Transport Routes and Road Upgrades

Upgrades

- 136. The RMS and Council support the proposed transport routes, provided the required road upgrades are undertaken to support the increased traffic during construction. These include the following:
 - upgrade the intersection of the New England Highway and Barleyfields Road (north) with a
 Channelised Right Turn (CHR) treatment, to cater for the largest vehicle accessing the site;
 - upgrade Barleyfields Road between the New England Highway and Big Ridge Road, including sealing to a width of 7.2 m with 1 m unsealed shoulders (total carriageway of 9.2 m);
 - upgrade the intersection of Barleyfields Road and Big Ridge Road with a Basic Left Turn
 (BAL) treatment, to cater for the largest vehicle accessing the site; and
 - design the site access points off Big Ridge Road with a Rural Property Access type treatment to cater for the largest vehicle accessing the site.
- 137. Regarding Big Ridge Road, Council requested that it be upgraded between Barleyfields Road and the proposed grid substation (identified as segments 1 to 5 on **Figure 8**), including sealing to a width of 7.2 m with 1 m unsealed shoulders (total carriageway of 9.2 m). This recommendation is consistent with the standards set out in the *Austroads Guide to Road Design* (as amended by RMS supplements) for the estimated peak daily vehicle movements during construction.
- 138. UPC has agreed to upgrade segments 1 and 3 of Big Ridge Road in accordance with Council's request, but considers that the existing condition of segment 2 could accommodate construction traffic, and that segments 4 and 5 should be upgraded to lesser standard (i.e. unsealed gravel carriageway to a width of 8.7 m).
- 139. In considering this issue, the Department notes that:
 - Big Ridge Road is a no through road and segments 4 and 5 are typically used by a small number of associated landholders to access their properties;
 - segment 2 is already sealed to a width of 7.1 m which could adequately accommodate the proposed construction traffic;
 - segment 4 is currently an unformed farm track and would be located adjacent to the site boundary;
 - segment 5 is currently a paper road that would be located within the site; and
 - UPC proposes to maintain segments 4 and 5 for the life of the project, provided the proposed gravel upgrade is accepted.
- 140. While Council asked for the last section of Big Ridge Road to be upgraded to Austroads Standards for a public road, the Department believes this is unnecessary as this section of road is currently an unformed track and paper road that is unlikely to ever play a meaningful role in the local road network. Further, this section of Big Ridge Road would essentially serve as a haul road for the project that is only used by host landowners and project traffic. Consequently, the Department considers UPC's proposal to upgrade the road to an unsealed road with a width of 8.7 m and maintain it for the life of the project is reasonable.

141. While the Department recognises that Council maintains its concern about the proposed upgrades for segments 2, 4 and 5, the Department considers that potential safety impacts could be appropriately managed through UPC's proposed upgrades and through detailed road safety measures developed and implemented through a Transport Management Plan, developed in consultation with Council. Consequently, the Department and has recommended conditions requiring UPC to upgrade segments 4 and 5 with an unsealed gravel carriageway to a width of 8.7 m, to maintain this section of road for the life of the project, and to prepared Transport Management Plan in consultation with Council.

Rail Transport

- 142. During the construction period, an average of two trains per week would deliver project infrastructure and construction materials to the site via the Main Northern Railway. The rail corridor abuts the northwestern site boundary and a train unloading and storage area would be constructed within and adjacent to the rail corridor (see **Figure 2**). Unloading activities are expected to take about four hours per train.
- 143. TfNSW raised no concerns about the use of the Main Northern Railway, subject to appropriate design measures, and the implementation of appropriate mitigation and management measures, as well as ongoing consultation with John Holland Rail (JHR) regarding access to the rail corridor and use of the railway line.
- 144. UPC has committed to implement all measures recommended by TfNSW, and TfNSW has confirmed it has no residual concerns.

Recommended Conditions

- 145. The Department has recommended conditions of consent requiring UPC to:
 - undertake the relevant road upgrades prior to the commencement of construction;
 - restrict the number of vehicles during construction, upgrading and decommissioning to the peak volumes identified above;
 - ensure the length of vehicles (excluding over-dimensional vehicles) does not exceed 26 m;
 and
 - prepare a Traffic Management Plan in consultation with RMS and Council, including
 provisions for dilapidation surveys, details of the measures that would be implemented to
 address road safety, including consideration of school buses, other motorist, road users and
 rail services.
- 146. Subject to the recommended conditions, the Department and RMS are satisfied that the project would not result in significant impacts on road network capacity, efficiency or safety. The Department considers that UPC's position for segments 4 and 5 achieves a balance between upgrades for construction and ongoing maintenance, and with the implementation of a Traffic Management Plan, addresses Council's safety concerns.

5.4 Other Issues

147. The Department's consideration of other issues is summarised in **Table 6**.

Table 6 | Summary of other issues raised

Issue	Findings	Recommended Condition
Biodiversity	 The site is mostly comprised of cleared agricultural land with patches of high quality native vegetation throughout the site and along Barleyfields Road and Big Ridge Road. UPC has designed the project to avoid approximately 21 ha of high quality native vegetation (see Figure 2). UPC also designed the road upgrades to minimise vegetation clearing within the road reserve. The project would disturb about 1,028 ha of native vegetation (43 ha of woodland and 985 ha of grassland). However, only 7.74 ha of native vegetation (and 71 paddock trees) is of a quality requiring offsets, of which only 0.27 ha is listed as White Box Yellow Box Blakely's Red Gum Woodland Endangered Ecological Community (EEC) under the Biodiversity Conservation Act 2016 (BC Act). Thirty threatened fauna species listed under the BC Act are predicted to use habitat on the site or within the road reserve. No threatened species were identified within the site. However, seasonal conditions prevented confirmation of six fauna species and four flora species that may use habitat in the road reserve. It was therefore assumed that these species would be impacted. Some submissions on the project raised concerns about potential impacts on the Koala and migratory birds. While Uralla Shire Council is listed under SEPP No. 44 – Koala Habitat Protection (SEPP 44), UPC's assessment concluded that the vegetation within the site is not considered potential Koala habitat. The site also lacks suitable wetland and aquatic habitat, and does not provides any significant features (ridgelines, valleys and large watercourses) that may be used as flight corridors for migratory species. The impact on native vegetation and native species would generate 178 ecosystem credits and 125 species credits under the BC Act, including the credits for the species that were assumed to be present within the road reserve. The final credit requirement would be retired in accordance with the NSW Biodiversity Offset Scheme. Wit	 Retire the applicable biodiversity offset credits in accordance with the <i>Biodiversity Offsets Scheme</i>. Prepare and implement a Biodiversity Management Plan in consultation with BCD, including measures to protect and manage vegetation and fauna habitat outside the approved disturbance area.
Aboriginal heritage	 Surveys identified 82 Aboriginal heritage sites, including six sites of high significance, 29 sites of moderate significance and 47 sites of low significance. The project has been designed to avoid all known sites of high significance (five completely avoided, one partially avoided) and most known sites (27) of moderate significance (26 completely avoided, one partially avoided). 	 Ensure the development does not cause any direct or indirect impacts on any items located within exclusion zones or outside the approved development footprint.

Issue

Findings

- Of the 33 sites to be impacted, 31 are of low significance and two are of moderate significance. UPC has committed to salvage and relocate all impacted items to suitable alternative locations (including items from the two partially impacted sites).
- Consultation with Registered Aboriginal Parties (RAPs) informed the project design and management measures. UPC has committed to provide ongoing management opportunities and access for Aboriginal people to two significant sites and to address any future recommendations from RAPs through a Heritage Management Plan.
- If Aboriginal artefacts or skeletal material are identified during construction of the project all work would cease and an unexpected finds procedure would be implemented.
- With these measures, the Department and BCD consider that the project would not significantly impact the heritage values of the locality.

Recommended Condition

- Salvage and relocate Aboriginal items to suitable alternative locations.
- Undertake consultation with Aboriginal stakeholders, prior to construction.
- Prepare and implement a Heritage Management Plan, including procedures for unexpected finds, and ongoing access to for Aboriginal people to two grinding groove sites.

Historic heritage

- No heritage items listed on Commonwealth, National or State registers are located within the site.
- While a small section of the Gostwyck Memorial Chapel and Precinct (listed under the Uralla LEP) is located within the southeastern corner of the site, there would be no physical impact to the Chapel (located 3.8 km south of the site). Potential visual impacts of the project on the historic cultural landscape of the Precinct are discussed in **Section 5.2** of this report.
- Surveys identified 12 new sites within or near the development footprint.
- The project has been designed to avoid all sites (7) of high significance or value, but would impact five sites of low significance or value, including sections of Old Gostwyck Road, remnant fence lines, rows of poplars and former stockvard.
- UPC proposes to undertake photographic archival recording for a number of sites and the surrounding landscape.
- The Heritage Council raised no concerns about the project, subject to UPC implementing the proposed management measure and an unexpected finds protocol.
- With these measures, the Department and the Heritage Council consider that the project would not significantly impact the heritage values of the locality.

- Ensure the development does not cause any direct or indirect impacts on any items located within exclusion zones or outside the approved development footprint.
- Prepare and implement a Heritage Management Plan, including procedures for unexpected finds and detailed photographic archival records.

Water

- Five ephemeral third order watercourses traverse the site (see Figure 2). The project has largely been designed to avoid these watercourses and UPC has committed to implement buffer zones consistent with the Guidelines for Controlled Activities on Waterfront Land. However, crossings of three third order watercourses would be required for internal access tracks, electrical cabling and security fencing.
- DPIE Water requested that UPC prepare watercourse crossing plans for third order watercourses prior to construction, which UPC has committed to do in consultation with DPIE Water, and UPC has committed to design and install fencing that would allow water to flow through its natural course (i.e. drop-down fencing).
- Minimise the siting of solar panels and ancillary infrastructure (including security fencing) within watercourses.
- Design, construct and maintain the project reduce impacts on surface water and flooding at the site.

Issue

Findings

- Numerous ephemeral first and second order watercourses traverse the site, the majority of which have no discernible channel and little intact riparian vegetation. UPC would minimise the placement of solar panels, ancillary infrastructure and watercourse crossings within first and second order watercourses, and DPIE Water has raised no concerns.
- Any erosion and sedimentation risks associated with the project can be effectively managed using best practice construction techniques.
- Fuels and chemicals would be stored to prevent water pollution.
- The project is not expected to affect groundwater resources.
- The site is not mapped as flood prone land under the Uralla LEP. Flood modelling for a 1% AEP event indicates that floodwaters would generally follow the alignment watercourses within the site. UPC would avoid potential impacts on flooding by locating heavy earthworks (construction compounds, storage areas, plant/equipment) and flood sensitive infrastructure (substations and batteries) away from watercourses and flood zones.
- The project would require around 220 megalitres (ML) of water during construction (mainly for dust suppression) and around 5 ML of water annually during operation (mainly for cleaning panels). A static water supply (45,000 litres) would be established and maintained for fire protection.
- Water would be sourced from on-site farm dams in accordance with harvestable rights and trucked to the site via a local water cartage service. UPC provided confirmation of these sources and DPIE Water raised no further concerns about water supply.
- Subject to the recommended conditions, the Department and DPIE Water consider that the project would not result in significant impacts on water resources.

- **Recommended Condition**
- Minimise any soil
 erosion in accordance
 with OEH's Managing
 Urban Stormwater:
 Soils and Construction
 (Landcom, 2004)
 manual and ensure
 solar the project is
 constructed and
 maintained to avoid
 causing erosion on
 site.
- Unless DPIE Water agrees otherwise, ensure all works are undertaken in accordance with Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018) and Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (2004).
- Prepare a Water
 Management Plan in consultation with DPIE
 Water.

Noise

- Noise generated by the proposed construction, upgrading and decommissioning activities would comply with the relevant criterion of 45 dB(A) in the EPA's *Interim* Construction Noise Guideline (ICNG) for standard daytime construction hours at all residences.
- To reduce the length of the construction period from 40 to 36 months, UPC has proposes to construct the project between 6 am and 6 pm Monday to Sunday (i.e. outside of standard hours), and to implement buffers zones around the potentially impacted residences during non-standard hours.
- The Department considers that construction should be limited to standard hours in accordance with the ICNG. However, the Departments' standard conditions (for wind and solar projects) permit some works to occur outside of standard hours if they are inaudible at surrounding residences.
- UPC has committed to implement the noise mitigation work practices set out in the ICNG, including scheduling activities to minimise noise, using quieter equipment, consulting with nearby landowners and establishing a complaint handling procedure.

- Minimise the noise generated by construction, upgrading or decommissioning activities on site in accordance with best practice requirements outlined in the ICNG.
- Restrict construction hours to Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm.

Recommended Issue **Findings** Condition Road traffic noise during construction of project would generally comply with the relevant criteria in the EPA's Road Noise Policy, with the exception being one residence located on Big Ridge Road where a 2 dB exceedance is expected during peak construction. As this exceedance would be short-term, only occur during the day and is relatively low, the Department considers that it is acceptable. Rail traffic associated with the project would be well below the EPA's Rail Infrastructure Noise Guideline (RING). There would be negligible noise during operation. Approximately 4% of the site is mapped as bushfire prone Ensure that the Hazards land under the Uralla LEP. UPC would be required to development complies maintain 10 m of defendable space around all project with the relevant asset infrastructure and manage the defendable space and solar protection requirements array areas as an Asset Protection Zone. UPC would also in the RFS's Planning be required to comply with the RFS's Planning for Bushfire for Bushfire Protection Protection 2006) and prepare a Fire Safety Study and 2006 Emergency Plan to manage the fire risk. Prepare a Fire Safety The project would comply with the International Study and an Commission on Non-Ionizing Radiation Protection Emergency Plan in (ICNIRP) guidelines for electric, magnetic and consultation with RFS electromagnetic fields. and Fire and Rescue NSW. UPC completed a preliminary risk screening for the project in accordance with SEPP No.33 - Hazardous and Store and handle all Offensive Development (SEPP 33) which concluded that liquid chemicals, fuels the storage and transport of hazardous materials for the and oils used on-site in project (including the risks associated with the battery accordance with all storage facility) would not exceed the relevant risk relevant Australian Standards and the screening thresholds and the project is not considered to be 'potentially hazardous'. EPA's Storing and UPC would implement a range of hazard prevention and Handling of Liquids: mitigation measures to manage potential risks associated Environmental Protection with the battery storage facility, including (but not limited Participants Handbook. to): a 10 m Asset Protection Zone (APZ) around the battery storage facility; automated monitoring and control systems, with alarm and shutdown capability; and appropriate separation between battery containers. Subject to the recommended conditions, the Department is satisfied that risks associated with the facility would be negligible. Some community submissions raised concerns about Include rehabilitation Decommissioning decommissioning, rehabilitation and the use of the land objectives requiring the and rehabilitation after its operational life. site to be rehabilitated within 18 months of The Department has developed standard conditions for cessation of solar farms to cover this stage of the project life cycle, including clear decommissioning triggers and rehabilitation operations. objections such as removing all above and below ground infrastructure and restoring land capability to its pre-

existing agricultural use.

Issue	Findings	Recommended Condition
	 With the implementation of these measures, the Department considers that the solar farm would be suitably decommissioned at the end of the project life, or within 18 months if operations cease unexpectedly, and that the site be would appropriately rehabilitated. 	
Subdivision	 UPC proposes to subdivide the lots on which the grid substation would be located. While the exact location of the substation has not been confirmed, UPC has nominated a 10 ha area within which the 4 ha substation would be constructed (including Lot B of DP 172594, Lot 83 of DP 755814 and Lot 84 of DP 755814). As the subdivided lots would be below the minimum lot size of 200 ha, the subdivision may be prohibited under a strict reading of the Uralla LEP. Notwithstanding, under Section 4.38(3) of the EP&A Act, development consent for the project as a whole can be granted despite the subdivision component of the application (potentially) being prohibited by the LEP. The Department is satisfied that the subdivision should be approved as it: is necessary for the operation of the substation; would not result in any additional dwelling entitlements on the subdivided lots; and is consistent with the key objectives of the RU1 zone as it would encourage diversity and primary industry enterprises and minimise conflict between land uses. Council has not objected to the proposed subdivision and the Department accepts that the exact location of the grid substation would be refined during the detailed design stage in consultation with TransGrid and Council. However, the Department requires UPC prepare and submit detailed subdivision plans to the Department for approval prior to subdividing the site. 	 Prior to subdividing the site, prepare and submit detailed subdivision plans to the Secretary for approval. Subdivide the proposed lots in accordance with requirements of section 157 of the Environmental Planning and Assessment Regulation 2000.
Workforce accommodation	 Some community submissions raised concerns about the potential social impacts of transient workers being accommodated on-site, including potential impacts on community services and security. UPC subsequently removed the construction accommodation village from the project. Council has confirmed it has no concerns in this regard, subject to workers being sourced from Uralla where possible. Up to 700 workers would be required during the construction period and UPC has committed to source workers from the local community where possible. The Department is satisfied that there is sufficient accommodation in nearby towns, such as Uralla, Armidale and Tamworth. There is the potential for construction of the project to overlap with the construction of the proposed Salisbury Solar Farm, Oxley Solar Farm and Tilbuster Solar Farm (if they are approved). Should this occur, up to 1,800 construction personnel may be required in the region. However, the Department considers that although possible, it is unlikely the entire construction periods of these four projects would evertage. 	Prepare an Accommodation and Employment Strategy for the project in consultation with Council, with consideration of the cumulative impacts associated with other State significant development projects in the area.

projects would overlap.

Issue Findings Recommended Condition

 In addition to Uralla and other smaller towns such as Glen Innes, the regional centers of Armidale and Tamworth (approximately 8 km and 90 km from the site, respectively) would provide a source of workers and accommodation options.

- While the Department considers there to be sufficient
 workers accommodation available for this project, to
 manage the potential cumulative impacts associated with
 multiple projects in the region and to encourage locally
 sourced workers, UPC would be required to develop an
 Accommodation and Employment Strategy. The Strategy
 would require UPC to:
 - propose a strategy to ensure there is sufficient accommodation for the workforce associated with the project;
 - consider cumulative impacts with other projects in the area;
 - prioritise employment of local workers; and
 - monitor and review the effectiveness of the strategy, including regular monitoring during construction.

Economic

- Concerns were raised in submissions that the project would have negligible benefits to the local community and that there would be a lack of local employment opportunities.
- The project would generate direct and indirect benefits to the local community, including:
 - up to 700 jobs during the 40 month construction period and 15 jobs during operation of the project;
 - expenditure on accommodation and businesses in the local economy by workers who would reside in Uralla Shire LGA, or the adjoining Tamworth or Armidale Shire LGAs;
 - the procurement of goods and services by UPC and any associated contractors; and
 - upgrading of roads used by project related traffic.
- While UPC has advised that the project would utilise accommodation within the Uralla Shire LGA and source workers from the local region, the Department has recommended a condition requiring UPC to prepare an Accommodation and Employment Strategy (discussed above) to prioritise these matters.
- The Department has also considered the demand on public services and infrastructure in the Uralla Shire LGA and is satisfied that its recommended conditions address the only material impact of the project on these matters (i.e. roads).
- Nonetheless, UPC has committed to contribute \$50,000 to the community during construction of the project and \$250 per MW each year (i.e. \$175,000 based on 700 MW installation) for the life of the project. These payments would be administered in accordance with UPC's proposed Community Benefit Sharing Scheme detailed in the EIS for the project, which would be implemented in consultation with the local community.
- Noting the above, the Department considers that the project would provide economic benefits for the local community.

Prepare an
 Accommodation and
 Employment Strategy
 for the project in
 consultation with
 Council, with
 consideration to
 prioritising the
 employment of local
 workers.



6. Recommended Conditions

- 148. The Department has prepared recommended conditions of consent for the project (see **Appendix** I).
- 149. The Department consulted with UPC and the relevant agencies on the conditions for the project, particularly Council and RMS in regard to the road upgrades and maintenance requirements.
- 150. These conditions are required to:
 - prevent, minimise, and/or offset adverse impacts of the project;
 - ensure standards and performance measures for acceptable environmental performance;
 - ensure regular monitoring and reporting; and
 - provide for the ongoing environmental management of the project.
- 151. The recommended conditions use a risk-based approach that focuses on performance-based outcomes. This reflects current government policy and the fact that solar farms require relatively limited ongoing environmental management once the project has commenced operations.
- 152. In line with this approach, the Department has recommended operating conditions to minimise traffic, amenity, water, flooding, biodiversity, heritage and bushfire impacts, and required the following management plans be prepared and implemented:
 - Traffic Management Plan;
 - Biodiversity Management Plan;
 - · Heritage Management Plan; and
 - Emergency Plan.
- 153. The recommended conditions also require UPC to provide detailed final layout plans to the Department prior to construction.
- 154. Other key recommended conditions include:
 - roads requiring relevant road upgrades are undertaken prior to the commencement of construction;
 - biodiversity offsets retiring biodiversity offset credits in accordance with the NSW Biodiversity Offsets Scheme;
 - operating hours undertaking construction, upgrading or decommissioning activities on-site during standard construction hours, unless these activities that are inaudible at nonassociated receivers;
 - visual minimising the off-site visual and lighting impacts of the project, including the
 potential for any glare or reflection, and ensuring the visual appearance of all ancillary
 infrastructure (including paint colours) blends in as far as possible with the surrounding
 landscape;
 - water and flooding ensuring the solar panels and ancillary infrastructure (including security fencing) are designed, constructed and maintained to reduce impacts on surface water, flooding and groundwater at the site;

- *fire* ensure that the development complies with the relevant asset protection requirements in the RFS's *Planning for Bushfire Protection 2006*; and
- accommodation and employment requiring an accommodation and employment strategy
 be prepared and implemented to ensure there would be sufficient accommodation to house
 construction workers, and to prioritise the employment of local workers.



- 155. The Department has assessed the development application, EIS, submissions, Submissions Report, amended development application and additional information provided by UPC and advice received from relevant government agencies. The Department has also considered the objectives and relevant considerations under section 4.15 of the EP&A Act.
- 156. The project site is located in a rural area, with the nearest non-associated residence located about 450 km north of the development footprint at its closest point. All other non-associated residences are located at least 1 km from the development footprint. The site is located in close proximity to the New England Highway and the Main Northern Railway, and has direct access to the electricity network via TransGrid transmission lines which traverse the site.
- 157. The Department considers the site to be appropriate for a solar farm as it has good solar resources and available capacity on the existing electricity network.
- 158. The project has been designed to largely avoid key constraints, including nearby non-associated residences, BSAL, watercourses, remnant native vegetation and heritage sites. Any residual impacts would be relatively minor and can be managed through the recommended conditions of consent.
- 159. In response to agency advice and submissions on the project, UPC amended the project by removing the southern array area and the construction accommodation village, and by revising the proposed road upgrades and transport route.
- 160. By removing the southern array area, the potential visual impacts on the landscape and surrounding residences and businesses (particularly the Sunhill Dairy Goats Farm) have been significantly reduced. This amendment has also reduced impacts on agricultural land (including 570 ha of BSAL), watercourses (including Salisbury Waters), biodiversity and heritage items, and reduced the number of local roads to be used by project traffic.

- 161. Distance, intervening topography and vegetation would provide natural screening from most residences and roads. Subject to the implementation of buffer zones between residences located east and northeast of the site, the Department considers that there would be no significant visual impacts on the surrounding residences.
- 162. UPC revised its proposed road upgrades following advice from the Council, and this has led to better road safety outcomes and a reduction in the number local roads used to access the site, including Barleyfields Road (south of Big Ridge Road) and Munsies Road.
- 163. Given the distance of the project from other approved and proposed projects in the region, with the proposed Salisbury Solar Farm located approximately 6 km south the site and the next closest solar farm (Oxley Solar Farm) located about 30 km from the site, there would be minimal localised cumulative impacts, including no visual or noise impacts and no cumulative impact on local roads along the project's transport route.
- 164. Both the Department and Council consider a solar farm development to be a suitable land use for the site. The project would not result in any significant reduction in the overall agricultural productivity of the region. Additionally, UPC would manage ground cover within the site through sheep grazing, the site could be returned to agricultural uses after the project is decommissioned and the inherent agricultural capability of the land would not be affected.
- 165. To address the residual impacts of the project, the Department has recommended a range of detailed conditions, developed in conjunction with agencies and Council, to ensure these impacts are effectively minimised, managed and/or offset. UPC has reviewed the conditions and does not object to them.
- 166. Importantly, the project would assist in transitioning the electricity sector from coal and gas-fired power stations to low emissions sources. It would generate over 1,589,400 MWh of clean electricity annually, which is enough to power over 269,300 homes and save over 1,525,800 tonnes of greenhouse gas emissions per year. It is therefore consistent with the goals of the Commonwealth's *Renewable Energy Target* and NSW's *Renewable Energy Action Plan*.
- 167. Further, the project includes an energy storage facility, with a capacity of 200 MW/400 MWh, that would enable the project to store solar energy for dispatch to the grid outside of daylight hours and / or during periods of peak demand, which has the potential to contribute to increased grid stability and energy security.
- 168. The Department considers that the project achieves an appropriate balance between maximising the efficiency of the solar resource development and minimising the potential impacts on surrounding land users and the environment. The project would also stimulate economic investment in renewable energy and provide flow-on benefits to the local community, through job creation and capital investment.
- 169. On balance, the Department considers that the project is in the public interest and is approvable, subject to the recommended conditions of consent (see **Appendix I**).

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

19/12/19

Nicole Brewer

Director

Energy Assessments

DKitte 12/2019

David Kitto

Executive Director

Special Projects



Appendix A – List of Documents

New England Solar Farm Environmental Impact Statement, EMM Consulting Pty Ltd, February 2019

New England Solar Farm Amendment Report, EMM Consulting Pty Ltd, June 2019

New England Solar Farm Response to Submissions, EMM Consulting Pty Ltd, June 2019

New England Solar Farm Additional information package, EMM Consulting Pty Ltd, 31 October 2019

New England Solar Farm Additional information, EMM Consulting Pty Ltd, 10 December 2019

Appendix B – Environmental Impact Statement

See the Department's website at:

Appendix C – Submissions

See the Department's website at:

Appendix D – Submissions Report

See the Department's website at:

Appendix E – Consideration of Community Views

The Department exhibited the Environmental Impact Statement for the project from 20 February 2019 until 20 March 2019 (29 days) and received 101 submissions from the community (67 objections, 20 supporting and 14 comments) and two from special interest groups (providing comments).

The key issues raised by the community (including in submissions) and considered in the Department's Assessment Report include potential visual impacts, the use of agricultural land, potential impacts on local businesses and tourism, opposition to the southern array and economic impacts (including a lack of local benefits and property devaluation).

Other issues are addressed in detail in the Department's Assessment Report.

In response to submissions opposing the southern array area, UPC removed it from the proposed project. Consequently, many issues raised in submissions have been resolved or significantly reduced, in particular:

- visual impacts on residences located near the southern array area, particularly S9, is no longer an
 issue as these residences would not experience any significant visual impacts associated with the
 amended project;
- there would be no significant visual impacts on the landscape within and around the previously proposed southern array area, in particular Salisbury Plains, heritage sites and Salisbury Waters (a 6th order watercourse) would not experience any significant visual impacts;
- use of prime agricultural land 570 ha of Biophysical Strategic Agricultural Land (BSAL) located within the southern array area would not be impacted;
- Sunhill Dairy Goats Farm (S9) fourteen submissions raised concerns about the impacts on this
 local business. Sunhill Dairy Goats Farm is now located more than 5 km from the proposed
 development footprint and would not experience any significant impacts from the amended project;
- impacts on roads and tourist drives Gostwyck Road, Hillview Road and Salisbury Plains Road no longer form part of the proposed site access route, and tourist drives (Gostwyck Road and Thunderbolts Way) are more than 2 km from the amended development footprint and would not experience any significant impacts from the project; and
- impacts on watercourses and flooding Salisbury Waters and its associated floodplain no longer traverse the site and would not experience any significant impacts from the project.

Issue	Consideration
Visual Impacts Impacts on the surrounding landscape and residences	 Assessment The site would be located in a relatively isolated area that is largely contained within rolling hills. The site would not be visible from Uralla (6 km west) or Armidale (8 km north). The closest non-associated residence (N1) is located about 450 m from the development footprint at its closest point. A further 26 non-associated residences are located between 1 km and 2 km of the development footprint, 22 of which are clustered in an area to the northeast of the site. The project has been located and designed to minimise potential impacts on the surrounding landscape and residences, and includes a 340 ha exclusion zone located east of the northern arrays.

Consideration

- The solar panels would be relatively low lying (up to 4.3 m high) and the
 maintenance buildings, PCUs, energy storage facilities and substations would
 also be a similar size to agricultural sheds commonly used in the area.
- The photovoltaic panels are designed to absorb rather than reflect sunlight, and the Department is satisfied that the project would not cause noticeable glint or glare compared to other building surfaces.
- The visual impact at N1 for the primary views to the northwest would be low due to distance (1 km with the 340 ha exclusion zone) and existing topography. Views from N1 to the south would be moderate as the closest panels would be 450 m south. However, given that the primary views from the residence are to the northwest, the Department considers that the visual impact from N1 as a whole would be low.
- The visual impact for all other residences is expected to be low or negligible as distance, topography and vegetation would reduce or block views of the project.
- Deeargee Woolshed and Gostwyck Chapel would be 4 km and 3.8 km south
 of the site, respectively. A small section of the precinct associated with the
 Gostwyck Memorial Chapel is located within the southeastern corner of the
 site. The project is expected to have a low to moderate impact on a small
 section of the precinct. The Department considers this impact to be
 acceptable, as the chapel itself is not impacted and the small section of the
 precinct is at the furthest location from the chapel.
- The New England Highway and Gostwyck Road are located approximately 2 km west and southwest of the site at their closest points, respectively, and would not be significantly impacted by the project.
- The Department considers that subject to the implementation of proposed visual impact mitigation measures, including exclusions zones, the visual impacts of the project on the landscape and local residents would be acceptable.

Conditions

- Ensure the visual appearance of all ancillary infrastructure (including paint colours) blends in as far as possible with the surrounding landscape, and not mount any advertising signs or logos on site, except where this is required for identification or safety purposes.
- Minimise the off-site visual impacts of the development, including the potential for any glare or reflection.
- Minimise the off-site lighting impacts of the development, and ensure that any
 external lighting is installed as low intensity lighting (except where required for
 safety or emergency purposes), does not shine above the horizontal and
 complies with Australian Standard AS4282 (INT) 1997 Control of Obtrusive
 Effects of Outdoor Lighting.

Compatibility of the proposed land use

- Use of agricultural land
- Impacts on neighboring agricultural activities
- Impacts on tourism and local businesses

Assessment

- The majority (~90%) of land within the development footprint ranges from Class 4 (moderate limitations) through to Class 6 (very severe limitations), which typically requires active management to sustain cultivation on a rotational basis.
- b 100 ha of BSAL would be impacted by the development footprint (2,081 ha). BSAL within the development footprint is located in a series of linear strips rather than a consolidated patch of land that could be put to productive use. Avoiding these areas would make it difficult to locate the solar panels in an orderly way.
- The cumulative loss of agricultural land associated with the project and other approved solar projects in the region represents a very small fraction (~0.06%) of the 6.7 million ha of land being used for agricultural output in the New

Consideration

- England North West region, therefore resulting in a negligible reduction in the overall productivity of the region.
- The site would be returned to agricultural use following decommissioning.
- The agricultural operations of neighbouring landholders would not be impacted
 as weeds would be controlled through strict land management measures,
 erosion and sedimentation risks can be effectively managed using best
 practice construction techniques, water pollution is not permitted, and noise
 and dust would not be significant and would be minimised.
- The project would not significantly impact tourism and as there would be no significant impacts on heritage sites, key tourist drives and tourism based businesses, and the project has been designed to minimise potential impacts on the scenic quality of the area.
- The project site is located on land zoned RU1 Primary Production under the Uralla LEP and is the project is permitted with consent within this zone.
- The project is consistent with the objectives of the Uralla Shire Council Community Strategic Plan 2017-2027 and New England North West Regional Plan 2036.

Conditions

- Restore land capability to pre-existing use (at least Class 3 Land Capability for areas of mapped BSAL)
- Restore the ground cover of the site following construction or upgrading, maintain the ground cover with appropriate perennial species and manage weeds within the ground cover.
- Minimise any soil erosion associated with the construction, upgrading or decommissioning of the development.
- Ensure that the development does not cause any water pollution, as defined under Section 120 of the POEO Act.
- Ensure the visual appearance of all ancillary infrastructure (including paint colours) blends in with the surrounding landscape, where reasonable and feasible.
- Ensure that noise associated with the construction, operation, upgrading and decommissioning of the project complies with the relevant noise criteria.
- Minimise dust generated by the development.

Economic

- Lack of local benefits
- Property devaluation

Assessment

- The project would generate direct and indirect benefits to the local community, including:
 - up to 700 jobs during the 40 month construction period and 15 jobs during operation of the project;
 - expenditure on accommodation and businesses in the local economy by workers who would reside in Uralla Shire LGA, or the adjoining Tamworth or Armidale Shire LGAs;
 - the procurement of goods and services by UPC and any associated contractors; and
 - upgrading of roads used by project related traffic.
- UPC has committed to contribute \$50,000 to the community during
 construction of the project and \$250 per MW each year (i.e. \$175,000 based on
 700 MW installation) for the life of the project. These payments would be
 administered in accordance with UPC's proposed Community Benefit Sharing
 Scheme detailed in the EIS for the project, which would be implemented in
 consultation with the local community.

Consideration

The project is permissible with consent the Uralla LEP and the Department's
assessment demonstrates the project would not result in any significant
amenity or environmental impacts. Accordingly, the Department considers the
project would not result in any significant or widespread reduction in land
values in the areas surrounding the project.

Conditions

 Prepare an Accommodation and Employment Strategy for the project in consultation with Council, with consideration to prioritising the use of local accommodation and the employment of local workers.

Visual Impacts

 Impacts on the surrounding landscape and residences

Assessment

- The site would be located in a relatively isolated area that is largely contained within rolling hills. The site would not be visible from Uralla (6 km west) or Armidale (8 km north).
- The closest non-associated residence (N1) is located about 450 m from the development footprint at its closest point. A further 26 non-associated residences are located between 1 km and 2 km of the development footprint, 22 of which are clustered in an area to the northeast of the site.
- The project has been located and designed to minimise potential impacts on the surrounding landscape and residences, and includes a 340 ha exclusion zone located east of the northern arrays.
- The solar panels would be relatively low lying (up to 4.3 m high) and the maintenance buildings, PCUs, energy storage facilities and substations would also be a similar size to agricultural sheds commonly used in the area.
- The photovoltaic panels are designed to absorb rather than reflect sunlight, and the Department is satisfied that the project would not cause noticeable glint or glare compared to other building surfaces.
- The visual impact at N1 for the primary views to the northwest would be low due to distance (1 km with the 340 ha exclusion zone) and existing topography. Views from N1 to the south would be moderate as the closest panels would be 450 m south. However, given that the primary views from the residence are to the northwest, the Department considers that the visual impact from N1 as a whole would be low.
- The visual impact for all other residences is expected to be low or negligible as distance, topography and vegetation would reduce or block views of the project.
- Deeargee Woolshed and Gostwyck Chapel would be 4 km and 3.8 km south of the site, respectively. A small section of the precinct associated with the Gostwyck Memorial Chapel is located within the southeastern corner of the site. The project is expected to have a low to moderate impact on a small section of the precinct. The Department considers this impact to be acceptable, as the chapel itself is not impacted and the small section of the precinct is at the furthest location from the chapel.
- The New England Highway and Gostwyck Road are located approximately 2 km west and southwest of the site at their closest points, respectively, and would not be significantly impacted by the project.
- The Department considers that subject to the implementation of proposed visual impact mitigation measures, including exclusions zones, the visual impacts of the project on the landscape and local residents would be acceptable.

Conditions

 Ensure the visual appearance of all ancillary infrastructure (including paint colours) blends in as far as possible with the surrounding landscape, and not mount any advertising signs or logos on site, except where this is required for identification or safety purposes. Issue

Consideration

- Minimise the off-site visual impacts of the development, including the potential for any glare or reflection.
 - Minimise the off-site lighting impacts of the development, and ensure that any external lighting is installed as low intensity lighting (except where required for safety or emergency purposes), does not shine above the horizontal and complies with Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting.

Compatibility of the proposed land use

- Use of agricultural land
- Impacts on neighboring agricultural activities
- Impacts on tourism and local businesses

Assessment

- The majority (~90%) of land within the development footprint ranges from Class 4 (moderate limitations) through to Class 6 (very severe limitations), which typically requires active management to sustain cultivation on a rotational basis.
- 100 ha of BSAL would be impacted by the development footprint (2,081 ha).
 BSAL within the development footprint is located in a series of linear strips
 rather than a consolidated patch of land that could be put to productive use.
 Avoiding these areas would make it difficult to locate the solar panels in an
 orderly way.
- The cumulative loss of agricultural land associated with the project and other
 approved solar projects in the region represents a very small fraction (~0.06%)
 of the 6.7 million ha of land being used for agricultural output in the New
 England North West region, therefore resulting in a negligible reduction in the
 overall productivity of the region.
- The site would be returned to agricultural use following decommissioning.
- The agricultural operations of neighbouring landholders would not be impacted
 as weeds would be controlled through strict land management measures,
 erosion and sedimentation risks can be effectively managed using best
 practice construction techniques, water pollution is not permitted, and noise
 and dust would not be significant and would be minimised.
- The project would not significantly impact tourism and as there would be no significant impacts on heritage sites, key tourist drives and tourism based businesses, and the project has been designed to minimise potential impacts on the scenic quality of the area.
- The project site is located on land zoned RU1 Primary Production under the Uralla LEP and is the project is permitted with consent within this zone.
- The project is consistent with the objectives of the Uralla Shire Council Community Strategic Plan 2017-2027 and New England North West Regional Plan 2036.

Conditions

- Restore land capability to pre-existing use (at least Class 3 Land Capability for areas of mapped BSAL)
- Restore the ground cover of the site following construction or upgrading, maintain the ground cover with appropriate perennial species and manage weeds within the ground cover.
- Minimise any soil erosion associated with the construction, upgrading or decommissioning of the development.
- Ensure that the development does not cause any water pollution, as defined under Section 120 of the POEO Act.
- Ensure the visual appearance of all ancillary infrastructure (including paint colours) blends in with the surrounding landscape, where reasonable and feasible.
- Ensure that noise associated with the construction, operation, upgrading and decommissioning of the project complies with the relevant noise criteria.
- Minimise dust generated by the development.

Appendix F – Amendment Report

See the Department's website at:

Appendix G – Additional Information

See the Department's website at:

Appendix H - Statutory Considerations

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

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

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

Aspect Summary

Objects of the EP&A
Act

The objects of most relevance to the Minister's decision on whether or not to approve the project are found in Section 1.3(a), (b), (c), (e) and (f) of the EP&A Act.

The Department is satisfied that the project encourages the proper development of natural resources (Object 1.3(a)) and the promotion of orderly and economic use of land (Object 5(c)), particularly as the project:

- is a permissible land use on the subject land;
- is located in a logical location for efficient solar energy development;
- is able to be managed such that the impacts of the project could be adequately minimised, managed, or at least compensated for, to an acceptable standard;
- would contribute to a more diverse local industry, thereby supporting the local economy and community;
- would not fragment or alienate resource lands in the LGA;
- is consistent with the goals of the Renewable Energy Action Plan and would assist in meeting Australia's renewable energy targets whilst reducing greenhouse gas emissions.

The Department has considered the encouragement of ESD (Object 1.3(b)) in its assessment of the project. This assessment integrates all significant socio-economic and environmental considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences.

In addition, the Department considers that appropriately designed SSD solar development, in itself, is consistent with many of the principles of ESD. UPC has also considered the project against the principles of ESD. Following its consideration, the Department considers that the project can be carried out in a manner that is consistent with the principles of ESD.

Consideration of environmental protection (Object 1.3(e)) is provided in **section 5.4** of this report. Following its consideration, the Department considers that the project is able to be undertaken in a manner that would improve or at least maintain the biodiversity values of the locality over the medium to long term and would not significantly impact threatened species and ecological communities of the locality. The Department is also satisfied that any residual biodiversity impacts can be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits.

Consideration of the sustainable management of built and cultural heritage (Object 1.3(f)) is provided in **section 5.4** of this report. Following its consideration, the Department considers the project would not significantly impact the built or cultural heritage of the locality.

State significant development

Under Section 4.36 of the EP&A Act the project is considered a State significant development.

Aspect Summary Under Section 4.5 (a) of the EP&A Act and clause 8A of the SRD SEPP the Independent Planning Commission is the consent authority for the development as UPC has disclosed a reportable political donation under section 10.4 of the EP&A Act and the project has received more than 25 public submissions by way of objection Environmental The Uralla Shire Council Local Environment Plan 2012 applies and is discussed in Planning Instruments sections 2.1, 3.2, 5.1, 5.4 and 5.6 of this report, particularly regarding permissibility, land use zoning, flooding, heritage, bushfire and subdivision. The project is permissible under the Infrastructure SEPP. In accordance with the Infrastructure SEPP, the Department has given written notice of the project to TransGrid, TfNSW and RMS. UPC completed a preliminary risk screening and preliminary hazard analysis in accordance with SEPP No. 33 - Hazardous and Offensive Development. The Department's consideration of this analysis is discussed in **section 5.4**. The Department has considered the provisions of the SEPP (Primary Production and Rural Development) 2019. Of relevance to the project, the SEPP aims to facilitate the orderly economic use and development of lands for primary production, to reduce land use conflict and sterilisation of rural land and to identify State significant agricultural land. While the location of State significant agricultural land has not been finalised, the Department has considered all of these matters in section 5.1 of this report. The Department has considered the provisions of SEPP No. 55 – Remediation of Land. A preliminary assessment of the land found no contaminated land within the project site, and the Department is satisfied the site is suitable for the development. Uralla Shire Council is listed under SEPP No. 44 - Koala Habitat Protection (SEPP 44). UPC's assessment concluded that the vegetation within the site is not considered

potential Koala habitat, the Department has considered this in section 5.4 of this

report.

Appendix I – Recommended Conditions of Consent

See the Department's website at: