



Submissions Report

BERYL SOLAR FARM



JULY 2017



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ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEMO	Australian Energy Market Operator
ARENA	Australian Renewable Energy Agency
BAR	Biodiversity Assessment Report
BOM	Australian Bureau of Meteorology
BOS	Biodiversity Offset Strategy (in BAR)
CCP	Community Consultation Plan
CdTe	Cadmium telluride
CEEC	Critically Endangered Ecological Community
CHMP	Cultural Heritage Management Plan
dB	Decibel
DECC	Refer to OEH
DECCW	Refer to OEH
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
DRG	NSW Division of Resources and Geoscience
EEC	Endangered ecological community – as defined under relevant law applying to the proposal
EIS	Environmental Impact Statement
EL	Exploration Licence
EMFs	Electromagnetic fields
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EPA	Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPC	Engineering Procurement Construction
ERP	Emergency Response Plan
FBA	Framework for Biodiversity Assessment
GHz	Gigahertz
ha	hectares
ICNG	NSW Interim Construction Noise Guideline
ICNIRP	International Commission on Non-Ionizing Radiation Protection
kL	kilolitre
km	kilometres
kV	kilovolts

LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
LGC	Largescale Generation Certificates
m	Metres
ML	Megalitres
MNES	Matters of National environmental significance under the EPBC Act (<i>c.f.</i>)
MW	Megawatt
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water
PCTs	Plant Community Types
PPA	Power Purchase Agreement
PV	Photovoltaic
RAP	Registered Aboriginal Parties
RET	Renewable Energy Target
RMS	Roads and Maritime Services
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy (NSW)
SSD	State Significant Development, as defined by section 89C of the EP&A Act (<i>c.f.</i>)
TMP	Traffic Management Plan
TSC Act	<i>Threatened Species Conservation Act 1995</i> (NSW)
UFP	Unexpected Finds Protocol
VIA	Visual Impact Assessment
V	Volts

1 INTRODUCTION

1.1 BACKGROUND

The Beryl Solar Farm is proposed to be constructed approximately 6km west of Gulgong and 80km east of Dubbo, within the locality of Beryl and the Mid-Western Local Government Area (LGA). The Beryl Solar Farm proposal includes the construction, operation and decommissioning of a photovoltaic (PV) solar farm and associated infrastructure that would produce up to 95 Megawatts of electricity.

The proposal requires development consent under Part 4 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*. The proposal is considered State Significant Development (SSD) as it is development for the purpose of electricity generating works with a capital cost of greater than \$30 million (clause 20, Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011*).

An Environmental Impact Statement (EIS) was prepared by NGH Environmental on behalf of First Solar (Australia) and was submitted to NSW Department of Planning and Environment (DPE). The EIS was placed on public exhibition from 26 April 2017 to 25 May 2017. During this period, submissions were sought from the local community, government agencies, interested parties and other stakeholders.

1.2 PURPOSE OF REPORT

This Submissions Report has been prepared by NGH Environmental on behalf of First Solar (Australia) to fulfill the requirements of Section 75H of the *Environmental Planning and Assessment Act 1979*. The purpose of the Submissions Report is to:

- Consider and respond to the issues raised in the public and agency submissions for the Beryl Solar Farm.
- Describe any changes to the proposal, including a revised set of proposed mitigation measures.

2 THE PROPOSAL

2.1 PROPOSAL AS EXHIBITED

The Beryl Solar Farm proposal is for the construction, operation and decommissioning of a PV solar farm that would produce up to 95 Megawatts (MW AC) of electricity. The Beryl Solar Farm proposal remains generally as per the detailed description provided in Section 3 of the EIS (NGH Environmental 2017). Indicative layout is shown in Figure 2-1.

2.2 PROPOSAL CHANGES SINCE EIS EXHIBITION

Several clarifications are made regarding the detailed description Section 3 of the EIS and sections within the EIS:

- The **overall capacity** of the plant has been reduced from 95 megawatts AC to 87 megawatts AC. This change is a result of the recent changes to the interpretation of Continuous Uninterrupted Operation by the Australian Energy Market Operator (AEMO).
- **Construction timing** in the EIS was noted as 12 months. A more accurate estimate is now provided as 8 months of onsite construction works. This is based on the reduced overall size of the plant, recent discussions with relevant EPC contractors and reflects the increased photovoltaic generator construction experience within the Australian industry. The overall program for the construction of the plant will be 12 months, which includes around three months of offsite detailed design and engineering and 1 month of post construction commissioning.
- **Construction traffic** in the EIS outlined an estimation of 20,303 one way movements. A more accurate estimate is now estimated as 13,860 one way movements (refer to breakdown and assumptions in Appendix F). The construction traffic estimate has been updated to reflect the reduced size of the plant required on site during the construction period. The updated estimate also reflects the correction of an error in the formula used to calculate the number of shipping containers required for the delivery of the mounting structure.

2.3 PROJECT BENEFITS

The benefits of the proposed Beryl Solar Farm would remain unchanged. The proposed Beryl SF would provide the following benefits, specific to Australia's environmental commitments:

- Reduction in greenhouse gas emissions required to meet our energy demands.
- Assisting the transition towards cleaner electricity generation.
- Direct contribution to help in meeting the Renewable Energy Target (RET).
- Attract and grow expertise in renewable energy.

Additionally, the proposal would allow for the provision of:

- Significant economic benefits to the region, through the creation of direct and indirect jobs, supporting small business and by developing skills in a growing industry. First Solar (Australia) Pty Ltd has a proven track record of hiring local, qualified labour for plant construction and long-term positions for the maintenance and monitoring of daily operations. This remains an important commitment by First Solar for the Beryl SF.
- Embedded electricity generation, to supply into the Australian grid closer to the consumption centres.

2.4 PROJECT JUSTIFICATION

The proposed Beryl Solar Farm will provide significant economic and environmental benefits, in addition to creating direct and indirect jobs and developing skills in a growing industry, and supporting small businesses.

On an annual basis, the proposed Beryl Solar Farm will provide enough clean, renewable energy for about 28,000 average NSW homes while displacing approximately 183,000 metric tons of carbon dioxide; the equivalent of taking about 49,000 cars off the road. When in operation, the Beryl Solar Farm will generate electricity with no water use, no air emissions, and no waste production, resulting in the smallest carbon footprint of any PV technology available.

The proposed Beryl Solar Farm supports Australia in its efforts toward providing 23.5 per cent of its energy from renewable resources by 2020, while further establishing regional NSW as a leader in renewable energy.

2.4.1 Supporting the NSW Government's renewable energy goals

The NSW Government's support for renewable energy has successfully bridged the commercialisation gap for large-scale solar and created a credible path to sustainable deployment in NSW without ongoing financial support. The successful delivery of regional projects, including Australia's flagship solar plants at Nyngan and Broken Hill in NSW, has provided significant economic and environmental benefits, in addition to creating jobs and developing skills in a growing industry, supporting small businesses, and providing clean energy to NSW. The lessons learnt from these projects continue to drive down costs and increase the commercial competitiveness of NSW solar energy. Given the unprecedented cost reduction achieved in large-scale solar in recent years and the current positive investment environment, there is no doubt that large-scale solar will contribute significantly to the state's renewable energy goals.

As NSW looks to continue this positive momentum and achieve its renewable energy objectives of accelerating advanced energy, it is imperative that NSW supports steady and repeated quality project deployment in NSW every year. Steady project deployment is the single strongest driver of solar electricity price cost reductions. It gives developers, construction companies and financiers the confidence to invest in NSW projects. This investment provides exposure to local civil, mechanical and electrical subcontractor construction labour force, electricity regulators and network service providers, planning authorities, and heavy industries that participate in the solar value chain which is crucial to optimise solar project costs in NSW.

The proposed Beryl Solar Farm strikes the ideal balance between a competitive levelised cost of energy and certainty of delivery. The unique combination of a quality project and experienced project participants will ensure the state's goals are met by lowering costs today, demonstrating a clear path to future cost reductions, and accelerating the NSW solar industry to economic and commercial sustainability.

2.4.2 Location

The Beryl Solar Farm is located approximately five kilometres west of Gulgong and will benefit directly from existing supply chains and operations and maintenance hubs, and validated NSW solar performance data resulting from NSW government support of the Nyngan and Broken Hill solar plants.

The proposed 332 hectare site for the Beryl Solar Farm is situated on Beryl Road and was selected based on its excellent solar resource, proximity to existing electrical infrastructure (avoiding the need to build new transmission lines), and low impact to existing land use and infrastructure. The site location is in a low population area and the project layout has been designed to minimise impact to the local community – the site displays predominantly clear flat land that is ideally positioned as the majority of the site is set back from sign posted roads. Furthermore, the site is on the western side of The Great Dividing Range, providing an increased level of irradiance, therefore improving the overall energy production of the plant. These factors make it an ideal location for a solar power plant.

2.4.3 Proving out international cost improvements

First Solar is active in all global solar markets, is the largest constructor of utility-scale solar in the world, and is one of the few current market participants that has successfully built utility-scale solar projects in NSW. This means it is uniquely positioned to bring cost improvements seen in other markets to Australia, and the learnings from these projects continue to contribute to industry knowledge sharing and cost reductions. First Solar is actively translating recent international cost reductions to Australia, by working to enable Engineering Procurement Construction (EPC) cost improvements. This will be achieved by supporting contractors to accurately price and model the deployment of advanced technologies, such as 1500V inverters, solar tracker technology, and higher efficiency thin film modules, to optimise capital expenditure and operational performance.

Similarly, First Solar is focused on translating international financing benchmarks to Australian lenders. This will ensure globally competitive debt terms. Given EPC and financing assumptions are the largest drivers of cost reduction in large-scale solar, it is critical that any project in this process can leverage both aspects in a replicable way.

The Beryl Solar Farm will drive down the cost of solar PV electricity in Australia and create a path to cost parity by demonstrating and localising international technology and validating the ability to secure commercial off-take and thus reducing financing cost hurdles. The intended commercial structure of the Beryl Solar Farm is totally replicable, utilising a Power Purchase Agreement (PPA) from a RET liable entity, commercial debt, a common developer/IPP model, and an EPC contractor with established presence in Australia without Australian Renewable Energy Agency's (ARENA) funding. This positions the NSW Government to leverage the resulting cost reductions to ensure periodic deployment of solar technology to fully realise cost parity with other generation technologies in NSW.

2.4.4 Connection Point and NSW Network

The Beryl Solar Farm makes use of existing electricity infrastructure to minimise impacts to the environment and the community. It will connect to the 66kV Section at the existing Beryl Substation that is owned and operated by TransGrid and is directly adjacent to the proposal site within the north western section. A short 66 kV overhead line will be constructed to facilitate connection to Beryl Solar Substation and the designated Network Connection Point is the TransGrid 66 kV section at Beryl Substation.

The site is well positioned to make use of existing transmission networks that are a familiar site feature. Three existing electricity transmission lines pass through the proposal site, mostly in a north-south direction and in alignment with the existing Beryl substation. The Beryl Substation is connected to the Wellington 330kV substation via a 132kV transmission line and to the Mount Piper 132KV substation by a 132kV line via Mudgee. It is further connected to Coonabarabran, Dunedoo, Gulgong and Ulan via five existing 66kV transmission lines.

The existing Beryl Substation provides an ideal location for a connection to the National Electricity Market as there is adequate existing local load consumed via the 66KV connections to utilise a large portion of the generation and the 132KV connections provide a direct link to the NSW 330kV backbone to enable low loss transmission of the remaining energy to end users.

The NSW transmission infrastructure generally runs in a north south direction along the east coast and is connected to both the Queensland and NSW networks via 330KV interconnectors. The Wellington Substation represents the most north west point of the 330KV network and provides a direct link into 500kV and 330KV NSW transmission infrastructure. TransGrid have advertised the existing capacity for generation in the 132kV network around the Wellington region as 500MW and the Beryl project is positioned to utilise this.

As electricity flows through the transmission and distribution networks, energy is lost due to electrical resistance and the heating of conductors. The impact of network losses on market spot prices is mathematically represented as transmission and distribution loss factors. The losses are equivalent to approximately 10% of the total electricity transported between power stations and market customers shared between these market participants.

Energy losses on the network must be factored in at all stages of electricity production and transport, to ensure the delivery of adequate supply to meet prevailing demand and maintain the power system in balance. In practical terms, this means more electricity must be generated than indicated in simple demand forecasts to allow for this loss during transportation.

Due to the retirement of existing coal fired generators in New South Wales, Victoria, and South Australia the amount of energy flowing from Queensland south via the interconnectors to service the southern stated demand has significantly increased. This has resulted in the NSW transmission corridor being heavily loaded in the north of the state and has resulted in high transmission loss factors being applied to generation located within the network north of Sydney. This has a direct impact on the financial viability of generation projects in the north of NSW, with losses of up to 12% borne solely by generators compared with 3-5 % seen historically. This loss factor is calculated each year by the Australian Energy Market Operator and is highly contingent on changes to demand and generation from other market participants. This introduces significant risk to the long term performance of the generator, often underappreciated in generator site selection. This will only be exacerbated by the planned retirement of the more baseload generation in NSW.

The Beryl site's central location in the network and proximity to the major load centre and market settlement node of Sydney significantly mitigates this transmission and distribution loss factor risk, representing an ideal location for a generator, allowing it to contribute to the ongoing security, reliability and affordability of NSW electricity supply.

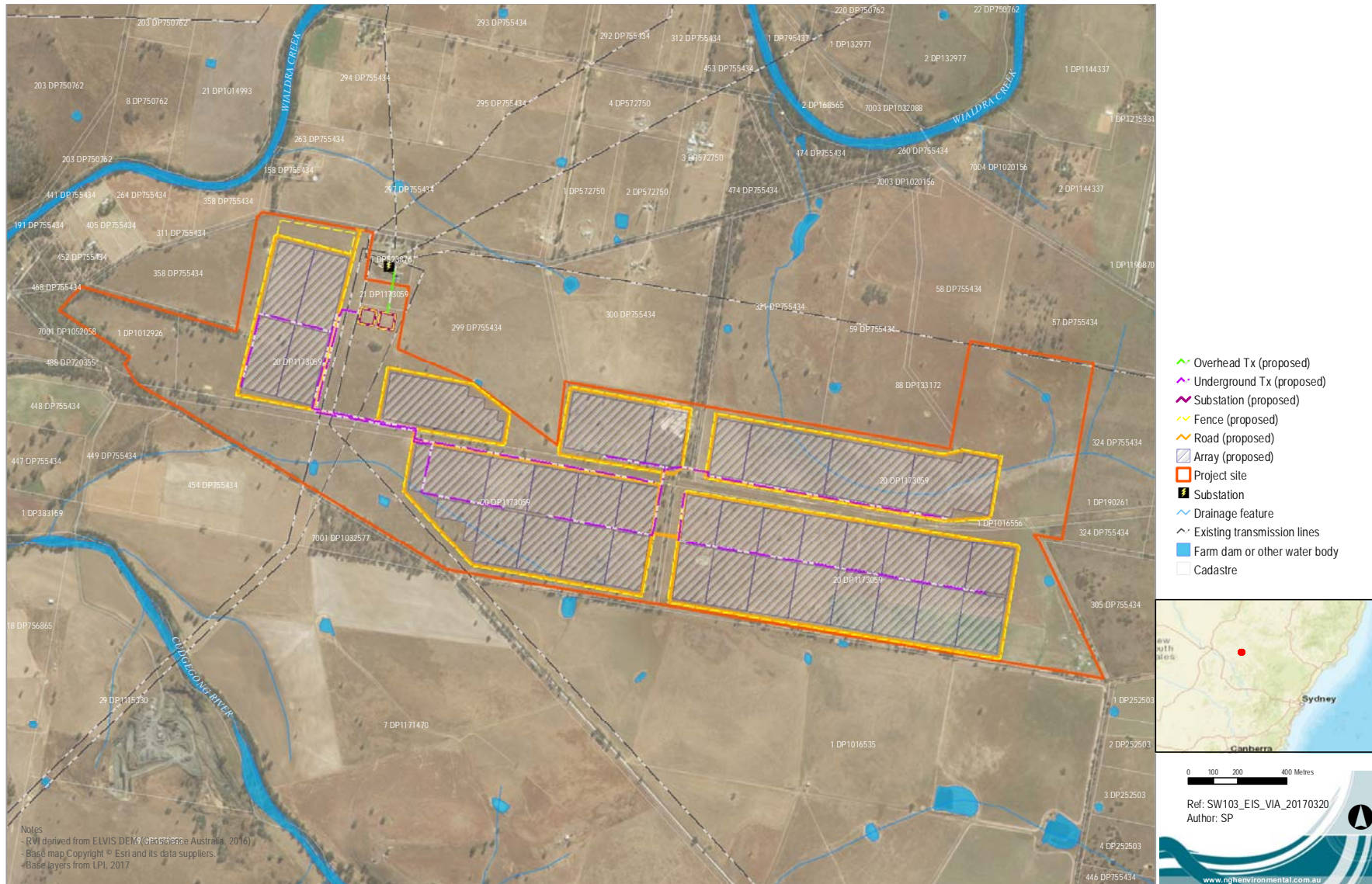


Figure 2-1 Indicative layout, as presented in the EIS.

3 CONSIDERATION OF SUBMISSIONS

3.1 EXHIBITION AND LOCATION

The Beryl Solar Farm EIS was on public exhibition from 26 April 2017 to 25 May 2017. Printed copies of the EIS were available at the following locations during the exhibition period:

- Mid-Western Regional Council, 86 Market Street, Mudgee
- Department of Planning and Environment, 320 Pitt Street, Sydney
- Nature Conservation Council, 14/338 Pitt Street, Sydney

Electronic copies of the EIS were also available online at the Major Projects section of the DPE website.

A letter from First Solar was sent to local residents within 2km of the site (dated the 28 of March 17), providing notification of the EIS submission and informed local residents that the EIS would be on exhibition via the DPE website within the coming month. DPE also mailed all the adjoining residents directly to notify them of the EIS submission and exhibition period and placed advertisements in the local and regional papers announcing the exhibition period.

3.2 SUBMISSIONS RECEIVED

DPE received a total of 40 submissions during the exhibition period. Twenty nine submissions were received from individual members of the public and nine submissions were received from government agencies. No submissions were received from special interest groups.

The key issues raised in each submission received by members of the community and by government agencies are summarised in this document (Sections 4 and 5, respectively). The full submissions can be found on the Major Projects website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8183

Table 3-1 Responses received

Category	Number of responses received
Total submissions	31
Individual members of the public who raised objections ¹	29
Individual members of the public who requested further information ²	3
Government agency submissions	9
1. Fire and Rescue NSW	
2. Nature Conservation Council of NSW	
3. Mid-Western Regional Council	
4. NSW Division of Resources and Geoscience	
5. NSW Department of Primary Industries	
6. NSW Environment Protection Authority	
7. NSW Office of Environment and Heritage	
8. NSW Transport, Roads and Maritime Services	
9. NSW Transport	
Total	40

¹ Two member of the public lodged multiple submissions.

² Three submissions were considered objections and requests for further information.

3.3 ADDITIONAL CONSULTATION

3.3.1 General community

First Solar Pty Ltd has undertaken consultation with the local community in developing the proposal, in line with the Australian Renewable Energy Agency's (ARENA's) *Establishing the social licence to operate large scale solar facilities in Australia: insights from social research for industry* (ARENA n.d.). Consultation activities were informed by a Community Consultation Plan.

As part of this consultation, First Solar provided feedback forms directly to neighbours through face to face meetings and to the public through mailouts and an open community day on 23rd February 2017. Feedback received during the preparation of the EIS was summarised and used to ensure that community values and local information informed the environmental assessment process. Since the lodgement of the EIS in April, First Solar has received a further 14 feedback forms. For completeness, these forms have been summarised and are included in Appendix D.

Following the lodgement of the EIS with DPE, First Solar sent a letter dated the 28 of March 17 to all residents within 2km of the site notifying them of the EIS submission and informed that the EIS would be on exhibition via the DPE website within the coming month. First Solar also arranged face to face meetings with a number of nearby residents during the EIS exhibition period and have continued to engage with the local community regarding the project.

3.3.2 Aboriginal community representatives

While the EIS was on public exhibition, the draft Aboriginal Cultural Heritage Assessment Report (ACHAR) was forwarded to the Registered Aboriginal Parties (RAPs) for comment, in accordance with clause 80C of the *National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010*. Consultation followed steps outlined in the *Aboriginal cultural heritage consultation requirements for proponents 2010* guide provided by Office of Environment and Heritage.

The report has now been finalised in consideration of the comments provided by the RAPs and is included as Appendix G.

3.3.3 Government agencies

First Solar have continued consultation with the Mid-Western Regional Council and are committed to working with the council to ensure the success of the project.

First Solar have also engaged with RMS to understand the additional information required by RMS to enable them to finalise their review of the EIS and provide comments.

4 PROPONENTS RESPONSE TO COMMUNITY SUBMISSIONS

This section considers the issues raised in the public submissions and provides a response to each issue, not to each submission.

In summary, the following issues were raised:

- Socio-economic and community impacts; 30
- Noise; 25
- Visual amenity; 21
- Traffic; 12
- Health and Safety; 4
- Land use and air quality impacts; 6
- Water use and water quality; 5
- Heritage; 8
- Biodiversity; 3
- Proposal and legislative requirements; 18
- Solar farms; 2

Issue	Submissions no.	Detail of issue	First Solar Response
4.1 SOCIO-ECONOMIC AND COMMUNITY IMPACTS			
Consultation with local residents and community 'Social licence to operate'	210187 210480 207453 207374 208654	Five respondents expressed disappointment about the amount and quality of community consultation undertaken. One respondent described the consultation as being vague and intermittent and resulting in feelings of unease among local residents. Other	First Solar undertook consultation, guided by the ARENA document <i>Establishing the social licence to operate large scale solar facilities in Australia</i> (ARENA n.d.), from the early planning stages of the project and plan to continue consultation during development and operation of the project, to ensure the local community is informed about the proposal. A Community Consultation Plan (CCP) was developed for the proposal. The aim of the CCP was to identify methods to inform the community about the Beryl

Issue	Submissions no.	Detail of issue	First Solar Response
		<p>responses and comments regarding consultation included:</p> <ul style="list-style-type: none"> • Not all residents received the mail out that provided information about the proposal. Other residents assumed the mail out was junk advertising therefore discarded it. • The community open day was undertaken on a week day during work hours, making it hard for some community members to be involved in the consultation process. • Clearer and ongoing consultation was suggested as being required. 	<p>Solar Farm and facilitate engagement with the community throughout all stages of the project. The CCP identified:</p> <ul style="list-style-type: none"> • Community stakeholders for the proposal. • Issues / risks related to the engagement of each stakeholder group. • A consultation strategy for each stakeholder group. • A set of activities against the proposal development timeline to facilitate consultation. <p>The following community consultation was undertaken in regards to the proposal leading up the lodgement of the EIS on 12 April 2017.</p> <ul style="list-style-type: none"> • Direct engagement with nearby neighbours through face to face meetings on 7 November 2016. • Mail out to all residents within 2km of the proposal site, notifying them of the proposal on 8 December 2016. • Project update, including Open day information and feedback form mailed out to adjacent neighbours, near neighbours (residents of Beryl locality), local businesses, special interest groups and the Gulgong Chamber of Commerce 6th February. • Power point slide advertising the open day provided to Gulgong Post office for inclusion in their digital notice board 10th February. • Flyer provided to local business for inclusion on notice board at the pub in the main street 10th February. • Advertisement in Mudgee Guardian outlining proposal, receipt of SEARs and open day details on the 14th and 21st of February 2017. • Community Open Day held by First Solar at the CWA Hall on 23rd February 2017 between 2pm and 6pm. • Direct engagement with nearby neighbours through face to face meetings on 23rd February 2017. • Advertisement in the Gulgong Gossip March edition setting out contact details and website for the project.

Issue	Submissions no.	Detail of issue	First Solar Response
			<ul style="list-style-type: none"> • Direct engagement with nearby neighbours through face to face meetings on 21st and 22nd March 2017. • Continued dialogue with local community through numerous telephone discussion throughout the exhibition period. • Development of a project website to provide information and updates (http://www.firstsolar.com/Resources/Projects/Beryl%20Solar%20Farm) • Establishment of dedicated email address for feedback (berylsolarfarm@firstsolar.com). <p>Section 5.4.4 of the EIS summarises the results of the community consultation. First Solar have used different vehicles to try to capture the broadest audience for consultation activities, as shown above, including advertisements, letter drops and open day events. They have followed up on queries and undertaken face to face meetings with numerous local landowners.</p> <p>Since the lodgement of the EIS in April 2017, First Solar has continued direct engagement with the local residents including phone calls and onsite meetings. The consultation has included updating them on the proposal and discussing any concerns. The consultation has been targeted to those identified as likely to be most impacted by the proposal.</p> <p>Additional feedback forms were provided to the local residents in the Beryl region following meetings on April 9th. As discussed in Section 3.3, a further 14 feedback forms have been received for the proposal since the lodgement of the EIS in April 2017. The issues raised are summarised in Appendix D and have already been considered in this report.</p> <p>First Solar is committed to ongoing consultation with the community including engagement during different phases of the project e.g. determination period, prior to construction and operation. Since lodging the application with DPE, First Solar have mailed two updates to all residents within 2km, undertaken face to face meetings with 12 nearby residents and continue to engage directly with the local community. First Solar's consultation register contains more than 150 entries with representations from over 45 local residents. The</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>community will continue to be engaged through direct meetings a project website, media releases, newsletters and open days.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<p>Marketability of adjoining properties and loss in land value</p>	<p>210470 207453 207112 206468 203696 206606 207166 210466 207477 207626 210187 208049</p>	<p>Twelve respondents noted concern over the marketability and value of adjoining properties once the solar farm had been constructed.</p> <p>Concerns stated there had been little investigation into the implications of devaluing properties and that there would be no compensation for this loss.</p>	<p>It is acknowledged by the proponent that there is a limited amount of information specifically regarding the effect of rural solar farms on local land values.</p> <p>The EIS considers this issue by investigating the key land value driver and the likely impacts on this. For the Beryl locality, the key driver of land value is and has been historically, the agricultural productivity of the area. Amenity values, such as views, rural lifestyle and proximity to a service centre like Gulgong, could also be considered to enhance land value.</p> <p>The majority of the proposal site and surrounding land is zoned RU1 Primary Production. The local economy also includes agriculture, specifically crops and cattle. The proposal would not impact on the ability of adjoining land to be used for agricultural production in any way, nor would it impact on the agricultural productivity of the land upon which the proposal may be constructed, in the longer term. That is, while infrastructure would affect the stock carrying capacity and area able to be cropped of the proposal site during the operational phase of the project, the development is considered highly reversible. The development involves relatively small areas of excavation for access tracks, driven piles(for the solar panels) cabling and footings for inverters. After the operational life of the project (expected to be around 30 years), the site can be returned to its existing agricultural capacity or an alternative land use. Project commitments include a Rehabilitation Plan, based on onsite soil testing and with input from an Agronomist to ensure the site is left stabilised and returned to pre solar farm land capability therefore maintaining agricultural values (refer to full list of commitments, Appendix A).</p> <p>Amenity values, such as views to rural landscapes have been assessed specifically for representative viewpoints close to the proposal site (detailed below). Access to service centres and other local features would not be</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>adversely affected in the medium to long term. Road improvements may enhance local access.</p> <p>No land value study has been undertaken specific to this solar plant development. Existing studies in relation to wind farms (which are generally larger renewable energy developments, with taller structures which are generally more visually intrusive on the landscape than a solar plant, but which have the same reversible impacts on agricultural productivity during decommissioning), have found no conclusive evidence to support the claim that wind farms devalue nearby property on the basis of visual impacts (e.g. refer Henderson & Horning Pty Ltd 2006 <i>Land Value Impact of Wind Farm Development - Crookwell New South Wales</i> and OEH 2016 <i>Review of the Impact of Wind Farms on Property Values</i>). Therefore, there is no evidence to support that property devaluation or reduced marketability would result from the solar farm proposal. It is accepted that renewable energy can be a polarising and subjective issue. This may affect decisions made by individuals.</p> <p>The proposed solar farm has potential to create an economic stimulus for the local economy. Economic benefits include income for the area (accommodation and retail), job creation and alternative income stream for the area. Tourism is likely to be enhanced by visitors seeking to view a commercial solar farm operation. Given the high degree of confidence in mitigating impacts to agricultural and visual impacts and the potential for positive impacts on access and tourism, no compensation is proposed for any properties.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
Impacts on rural lifestyle	210476 210478 206468 206606 207166 207634	Thirteen respondents stated that they moved to the local area for the rural lifestyle, peacefulness and scenery. There is concern the construction of the solar farm would harm this rural lifestyle.	<p>An important objective of the community consultation undertaken for the proposal is to understand local values and ensure the project would be responsive to them.</p> <p>Confirmed by these submissions, the consultation identified that the farming landscape and views of elements including trees, sky, hills and paddocks were the most valued characteristic of the Beryl local area to the local community.</p>

Issue	Submissions no.	Detail of issue	First Solar Response
	207632 208049 207680 207477 207176 210476 210468		<p>Respondents stated they valued the rural lifestyle. Specifically, they identified peace and quiet and close community contributed to their rural lifestyle.</p> <p>The EIS acknowledged that the solar array would be visible to the public and have potential for noise and traffic impacts during the construction phase. These impact areas were a focus of the assessment and mitigation strategy now built into the proposal. (Refer to Sections 7.3, 7.4 and 8.3 of the EIS, respectively). Visual, noise and traffic impacts are also addressed specifically below (Sections 4.3, 4.2 and 4.4).</p> <p>The proposal is considered unlikely to have any direct impact on the population level within Beryl. While construction staffing may swell the surrounding area temporarily (8 months), the operational plant will require low staffing levels and will be unlikely to affect the community in this regard.</p> <p>Mitigation strategies are provided within the EIS to address these impacts to the community. These centre on consultation with the community, so that benefits can be maximised and conflicts resolved where possible. For example, the commitments ensure the final visual screen planting is verified post construction to ensure it is effective in break up views of the project.</p> <p>The EIS also identified positive outcomes of the solar farm on the rural lifestyle, as above.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<h2>4.2 NOISE</h2>			
Cumulative noise impacts	210480 207453 207112 210476 206468 207477	<p>Eight respondents raised concerns about the noise implications of the solar farm. Specifically, the cumulative impacts, as residents are already exposed to noise sources including the quarry and existing substation.</p>	<p>The background noise monitoring was conducted at the nearest resident to the existing substation and recorded background noise levels were below the EPA minimum background noise level. Therefore, existing noise from the substation at the time of monitoring is not considered to be significant in the assessment of noise impacts on nearby residences.</p> <p>The Beryl Quarry lies approximately 1.2km south of the solar farm site. The Beryl Quarry EPL has no conditions on operational noise but has conditions on</p>

Issue	Submissions no.	Detail of issue	First Solar Response
	208049 207680		<p>blast noise. Review of the blast noise monitoring report from March 2017 to May 2017 showed no occurrence of blasting events (during the noise monitoring period for the solar farm noise assessment).</p> <p>Furthermore, the nearest receiver to both the solar farm and quarry was identified as Receiver R8 and the predicted operational noise at Receiver R8 is 11dB(A) below the nominated criteria. Assuming noise impacts from the Beryl Quarry are compliant, cumulative noise impacts with the operation of the solar farm are also expected to be compliant.</p> <p>No changes to the EIS mitigation measures are proposed</p>
Amphitheatre effect	208654	One respondent questioned whether the impact assessment considered the potential 'amphitheatre effect' likely to occur due to the actual site contours in relation to adjacent properties to the north.	<p>The noise modelling conducted takes into account the topographical features of the intervening area between noise sources and receiver locations.</p> <p>No changes to the EIS mitigation measures are proposed</p>
Impact on shift workers during construction	208049 206468	Two respondents raised concerns over noise impacts on sleep, including shift workers that require sleep during the day.	<p>Sleep disturbance was assessed in accordance with the EPA guidelines which requires assessment for the night time period. It was found that the noise emissions from the solar farm will be well below the nominated sleep disturbance criteria.</p> <p>No changes to the EIS mitigation measures are proposed</p>
Operational noise impacts	210480 207112 210472 207166 210271 210466 207632 207634	<p>Eleven respondents raised concerns about the operational noise impacts of the proposal. One respondent commented that sustained exposure to low frequency noise has potential to affect a person's ability to sleep and concentrate.</p> <p>It was stated that inconsistent information was provided during consultation regarding the operational</p>	<p>The findings of the operational noise assessment were that the predicted operational noise levels at the nearest receivers complied with the nominated criteria with concurrent operation of all plant and equipment and even under adverse meteorological conditions. Consideration of 'modifying factor' adjustments as per EPA guidelines was included in the operational noise assessment which considered tonal, low frequency, impulsive or intermittent characteristics of the noise sources.</p> <p>There may be confusion for the public in the understanding of the equipment "sound power levels" and the propagation of noise. The tracker motors and inverters are separate equipment and rated at 78dB(A) LAeq re. 1pW (each)</p>

Issue	Submissions no.	Detail of issue	First Solar Response
	<p>207626 210478 210484</p>	<p>noise of the solar farm equipment, including inverters and tracking system.</p>	<p>and 88dB(A) LAeq re. 1pW (each), respectively. The rated levels are “sound power levels” and are different to the “sound pressure levels’ presented at the nearest receiver locations.</p> <p>The "sound power level" is the source emission strength analogous to the wattage of a light bulb (a higher wattage producing a higher light intensity at any distance). Having established the sound power level of concurrent equipment operating at the solar farm, the sound pressure level then decreases with distance from the solar farm.</p> <p>It was found that the predicted operational noise levels of the proposal at all receiver locations will be lower than the background noise level within a typical living room, refer to below.</p> <div data-bbox="1249 694 1464 790"> <h3>What are Decibels?</h3> </div> <div data-bbox="1240 885 1541 1157"> <p>Decibels [dB] - Sound (or noise) is measured in units of decibels. The dB scale is logarithmic. The following are examples of the decibel readings of every day sounds.</p> </div> <div data-bbox="1615 715 1973 1241"> </div> <p>No changes to the EIS mitigation measures are proposed</p>

Issue	Submissions no.	Detail of issue	First Solar Response
Noise monitoring and modelling	210271 208654	Two respondents raised concerns about the adequateness of the background noise monitoring methodology.	The background noise monitoring was conducted at the nearest resident to the existing substation and recorded background noise levels were below the EPA minimum background noise level. The EPA minimum background noise level was adopted for all receiver locations. No changes to the EIS mitigation measures are proposed
Lot 59 DP 755434 impacts	208654	The approved development on Lot 59 DP 755434 wasn't included within the noise assessment. It is also mentioned that Receiver Point R4 is on the adjoining Lot 321.	First Solar have undertaken additional consultation with the new owners of Lot 59 DP 755434 to understand any potential impacts at this location. Since becoming aware of the new owners and their plans to construct a new dwelling on the Lot, First Solar have been in continued dialogue with the landowners and have had several face to face meeting on the site of the proposed dwelling. The lot had no approved dwelling at the time of the assessment and therefore was not assessed as a receiver in the EIS. The now approved development on Lot 59 is slightly closer to the proposed solar farm equipment than Receiver R4 (Appendix H). Operational noise levels would be higher by 1dB(A) than the predicted level for Receiver R4 and will be well within with the operational noise criteria at this new location. Receiver R4 lies near the boundary of Lot 59 and Lot 321 of DP 755434 with driveway access within Lot 59 DP 755434. No changes to the EIS mitigation measures are proposed

4.3 VISUAL AMENITY

Visual impacts	208049 210172 207810 208654	Thirteen respondents raised concerns about the visual impacts of the proposal. It was suggested that the solar farm would be an eyesore, take away from current rural views and create an industrial complex. Comments were	Community consultation undertaken by First Solar for the proposal identified that the farming landscape and views of elements including trees, sky, hills and paddocks were the most valued characteristic of the Beryl local area to the local community. Respondents stated they valued the rural lifestyle. Specifically, they identified peace and quiet and close community contributed to their rural lifestyle.
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Issue	Submissions no.	Detail of issue	First Solar Response
	207477 207374 210472 206468 210468 210478 207112 210470 210480	<p>made not just concerned about the panels but also the construction of power poles, overhead power lines and towers.</p> <p>One specific comment was that all traffic heading south to Gulgong will have uninterrupted views of solar panels.</p>	<p>The potential visual impacts of the proposal, particularly from local roads and residents was investigated specifically in The Visual Impact Assessment, Appendix F (and summarised in Section 7.3) of the EIS. The EIS acknowledged that the solar array would be visible to the public. However, it is considered unlikely that the solar farm would be highly visible from Castlereagh Highway due to the distance (approximately 750m at the nearest point), topography (a rise is located between the highway and the proposed infrastructure), low infrastructure height and existing native vegetation remnants. Only short term glimpse views, if any, would be visible. No houses located off the Castlereagh Highway would have views of the infrastructure.</p> <p>The proposal site is adjacent to an existing substation with existing powerline and power poles. Therefore, the proposed new powerline and power poles connecting the Solar Farm Substation to the existing substation are not new infrastructure in the landscape. Power poles would be of similar proportions and materials to existing poles onsite and will only be used for the short section of 66kV infrastructure between the two substations, all other HV reticulation will be installed underground.</p> <p>The low height infrastructure and proposed onsite screening would minimise the view shed (areas from which the site is visible) of the proposal, and therefore at the time of assessment visual impact was considered low at most locations assessed. A medium impact was determined for six representative viewpoints (no high impact locations were identified) and to address community expectations, mitigation measures were outlined to break up views of the proposed infrastructure from these locations with sections of vegetation screening on the proposed solar farm site. This would reduce the impact to a low and acceptable level at all locations.</p> <p>There would be no visibility of the solar farm from Gulgong or for traffic heading south into Gulgong.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
Screening	207477 208654	Two comments on the proposed screening were made including:	A vegetation buffer (screening) along sections of the proposed solar farm boundary is part of the project description and a commitment of the project.

Issue	Submissions no.	Detail of issue	First Solar Response
		<ol style="list-style-type: none"> 1. An established (minimum of 2.5 m high) tree line be planted to form a border around the solar panels. This is not to include the existing trees along Perseverance Lane and Spring Ridge Roads. 2. Sparse plantings to break up the view would not be acceptable. Due to seasonal effects and soil quality in the region, vegetation screens are an unreliable method to break up views. 3. Is noted that no proposed screening has been included for the boundaries of several R5 zoned properties. 	<p>The aim of the screening is to soften the visual impact of the solar farm. A continuous, dense 'hedge' effect that blocks all views is not considered sympathetic with the existing landscape character. Native species, planted 1-2 rows deep in specific locations are intended to provide a resilient landscape treatment that would be maintained for the life of the project; all dead trees would be replaced. Furthermore, a verification process, which requires the 'as built' structure to be reassessed to confirm the effectiveness of the proposed screen is also a commitment of the project. This verification process could be undertaken in consultation with affected near neighbours and a botanist or landscape architect.</p> <p>Existing topography and mature trees will provide some visual screening of project infrastructure. Specifically, existing vegetation in the road corridor to the south (Perseverance Lane) and south-west (Spring Ridge Road), in paddocks to the east (between the site and Castlereagh Highway), along sections of Beryl Road to the north and in the central fenced planted area on the proposed solar farm site, would act both to break up expansive views of infrastructure as well as soften the visual impact. The local topography also assists to limit the view shed to receivers further from the site. The site is in the lower landscape with dense riparian corridors to the north and south-west. A rise to the east of the site limits views from further east.</p> <p>The suggested locations for the proposal's vegetation buffer target specific remaining sections of the site's perimeter where existing screening is not provided. It is acknowledged that plantings will take some time to mature and provide maximum screening. A minimum mature height has not been proposed however, the project commits to planting being undertaken as soon as practical in the construction process, as it will take time for the plants to establish and become effective as a screen. Seasonal requirements for planting would also be considered. As above, it is noted that the project commitment is 'objective-oriented', so that corrective actions will be required if the screening is not meeting its objective of softening the visual impact of the infrastructure, due to unforeseen events such as seasonal conditions or potentially removal of vegetation that currently provides an off site screening</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>effect. Soil types, rainfall and native vegetation communities that already occur would be primary factors in selecting the species use for onsite planting.</p> <p>As above, the impact assessment within the Visual Impact Assessment (Table 5.3 of the VIA) found impacts to R5 zoned receivers to the south and south-east of the site (including Perseverance Lane and Spring Ridge Roads) would be limited, due to existing screening, the distance and the view angle (limited horizontal view of the site). Numerous remnant patches of trees as well as road side planting are located between these residences and the site. These factors combine to ensure when driving on these local roads, only glimpse views of infrastructure would be afforded and that from residences similarly, no expansive views would be experienced. At distances of greater than 500m, the low height infrastructure has limited contrast in this landscape, given the existing features described above. The closest residence in this direction is over 575m away. Further, seen from the narrowest boundary, to the east, the horizontal extent of the infrastructure is minimized in this direction. Specific sections of additional project screening on the eastern boundary are therefore not considered to be required.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<p>Impact classification and Lot 59 DP 755434</p>	<p>208654</p>	<p>One submission outlines the assessment fails to adequately identify and address the potential visual impacts of the proposal to Lot 59 DP 755434. The submission states that 90% of the proposed SF infrastructure will be visible from the lot and it must be considered to be a “Very High” visual impact rating. The respondent is concerned that screening would not be adequate to reduce the impact on Lot 59 due to the height difference between the lot and proposal site.</p>	<p>This lot was not known to have an approved residence at the time of the visual assessment. First Solar have undertaken additional consultation with the new owners of Lot 59 DP 755434 to understand any potential impacts at this location. Since becoming aware of the new owners and their plans to construct a new dwelling on the Lot, First Solar have been in continued dialogue with the landowners and have had several face to face meetings on the site of the proposed dwelling. On the 18th of April, First Solar issued a letter to the landowners setting out the details of the Visual Impact Assessment and provided the landowners with a commitment to provide further screening along the northern boundary of the site as well as provide onsite screening if required.</p> <p>As stated above, the lot had no approved dwelling at the time of the assessment and therefore was not assessed as a receiver in the EIS.</p>

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			<p>Impacts are considered highest from close residential areas, including outdoor recreation areas, where prolonged views could result. It is understood this residence would be approximately 500m from the site's northern boundary and is being designed to face south, towards the site. In this location, a limited scatter of existing trees occur south-west, between the site and the house. A more extensive planted corridor is located to the west, blocking views of infrastructure that would be located further west of the corridor. This results in the greatest view impact to the direct south of the house. It is noted that the site is approximately 4m lower than the house. As such, a planted screen would be required to be taller than 4m to soften views of the infrastructure.</p> <p>The revised Landscape Plan (Appendix E) shows the new section of screening directly south of the residence. Screening further east is not proposed, on the basis that onsite planting may provide a more effective supplement to the perimeter planting and avoid a 'hedge effect' that may result from following the rectilinear boundary of the site too closely around the corner. An additional project commitment now includes:</p> <ul style="list-style-type: none"> • Supplementary onsite planting, on Lot 59 to mitigate views from recreational areas, in consultation with the landowners. <p>The aim of this commitment is to provide the best result for this receiver.</p>
<p>Glare and glint</p>	<p>210478 206468</p>	<p>Two respondents raised concerns about the solar farm producing glare and glint that would impact surrounding residents.</p>	<p>The potential risk of reflective glint and glare from the operation of the Beryl SF was discussed in Section 8.4.2 of the EIS. Glint is a quick reflection that occurs when the sun is reflected on a smooth surface. Glare is a longer reflection. Both can create nuisance to affected receivers.</p> <p>The EIS identified the following proposed onsite infrastructure that may cause glint or glare depending on the sun angle:</p> <ul style="list-style-type: none"> • Solar panels. • Steel array mounting - array mounting would be steel or aluminium. • Transmission line poles, if steel is used. • Temporary construction site buildings.

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			<p>It is well established that the potential for glint or glare associated with non-concentrating solar panel systems, which do not involve mirrors or lenses is limited. Solar panels are designed to absorb as much solar energy as possible in order to generate the maximum amount of electricity. As such, they reflect only around 2% of the light received (Spaven Consulting 2011).</p> <p>Spaven Consulting 2011 provides a comparative reflection analysis against other surfaces and solar panels. In relation to water and snow, a solar panel (with an anti-reflectivity coating) reflects a much lower percentage of light. In addition, the Department of Planning (2010) in their discussion paper on planning for renewable energy generation, stated that solar panels would not generally create noticeable glare compared with an existing roof or building surfaces.</p> <p>For other infrastructure on site such as the buildings and steel mounting frames and transmission line poles, impacts from glint and glare is considered minor due to their small size and low surface area.</p> <p>The EIS commits First Solar to using materials and colours of onsite infrastructure, where practical, that are non-reflective and in keeping with the materials and colouring of the landscape. Impacts of glint and glare as a result of the proposed solar farm's infrastructure are considered to be minor.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
Lighting	207477 207453	Two respondents were concerned about the use of light or night-lighting. As there is currently no lighting in the area due to the rural nature of the site	The EIS outlines there would be no permanently lit night lighting installed within the array area. For maintenance purposes, there would be lighting included in each inverter station and at the substation that would only be used in case of emergency. Security lighting at the operation and maintenance building would also be present. All lighting would be designed to reduce disturbance to neighbouring properties and would be utilised only when there are staff on site or during emergency situations. The EIS commits First Solar to minimise night lighting to the maximum extent possible (i.e. manually operated safety lighting at main component locations).

Issue	Submissions no.	Detail of issue	First Solar Response
			No changes to the EIS mitigation measures are proposed.
Colour of inverters	208654	Confirm colour of inverters. In consistency with being told in consultation they would be white, while the EIS outlines the inverters would be either eucalypt green, beige or muted brown.	The EIS indicates in photos provided that the inverter stations would be white. However a commitment of the proponent is that the materials and colour of onsite infrastructure will, where practical, be non-reflective and in keeping with the materials and colouring of existing infrastructure or of a colour that will blend with the landscape. No changes to the EIS mitigation measures are proposed.
4.4 TRAFFIC			
Damage to road infrastructure	210480 208049 207680 210476 206468 207477	Six respondents are concerned that the traffic generated by the construction of the solar farm will cause road deterioration. One respondent suggested that upgrades to the road will be needed.	The EIS identified during construction of the proposal there would be an increase in traffic along Beryl Road, which could potentially result in damage to road infrastructure. It is outlined that even though heavy vehicles are common along Beryl Road due to the quarry on Spring Ridge Road, the proposed solar farm is likely to have a larger amount of heavy vehicles within a short period of time (construction only) compared to the ongoing operation of the quarry. This is due to the delivery of infrastructure. First Solar have committed to preparing a Road Dilapidation Report that would be undertaken prior to construction. The report includes audits to be undertaken during construction, at the completion of construction, operation and decommissioning phases to identify any road formation and/or pavement condition resulting from the construction of the solar farm. First Solar would consult with Mid-Western Regional Council regarding any damage and restoration requirements. Rectification of all damage attributable to the project would be paid for by First Solar. In addition to this commitment of a Road Dilapidation Report and repair of any damage resulting from proposal traffic, First Solar would also undertake upgrades to Beryl Road and the intersection with the Castlereagh highway prior to construction as recommended by Mid-Western Regional Council. The upgrades would include sealing of shoulders to widen road, between the

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>highway intersection and site entrance, and line marking. Refer to Council and Roads and Maritime submission and response, Section 5.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
Traffic numbers	207477	One respondent requested estimates of the increased traffic on Beryl Road and the Castlereagh Highway during construction and operation.	<p>Since the lodgement of the EIS, there has been a reduction in the estimated traffic movements for the proposal during construction. An updated table of total overall one-way traffic movements including heavy vehicles for the delivery of equipment and infrastructure, anticipated throughout the construction period of 8 months in provided in Appendix F.</p> <p>In summary, during the construction period, a total of 2,976 heavy vehicles would be required. This averages to approximately 13 heavy vehicles per work day for the 8 month onsite construction period. The amount of deliveries per day would depend on the phase of works being undertaken. An increase number of heavy vehicles is required for the delivery of modules and mounting frames, which would be delivered over a period of five months.</p> <p>During operation, three full time equivalent staff would access the proposal site to operate and maintain the solar infrastructure. It is likely three light vehicles (4x4) and an all-terrain vehicle will be required to transport the staff around the site.</p>
Safety	207453 210484 210476 208049 207477	Five respondents were concerned about safety due to the increased traffic and heavy vehicles that would be generated by the proposal. Safety concerns relate to children, school buses, animals, stock crossing and residents entering Beryl Road via driveways.	<p>The EIS identified an increased collision and safety risk along Beryl Road and Castlereagh Highway due to increased traffic during construction of the proposal. As above, the estimated traffic volumes have been revised down and similarly safety risks would therefore be lower.</p> <p>The EIS commits First Solar to ensuring safety for all road users and pedestrians. A Traffic Management Plan would be developed in consultation with the Mid Western Regional Council and Roads and Maritime. The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> Assessment of road condition prior to construction on all local roads that would be utilised.

Issue	Submissions no.	Detail of issue	First Solar Response
			<ul style="list-style-type: none"> • A program for monitoring road condition, to repair damage exacerbated by the construction and decommissioning traffic. • The designated routes of construction traffic to the site. • Carpooling/shuttle bus arrangements to minimise vehicle numbers during construction. • Scheduling of deliveries. • Community consultation regarding traffic impacts for nearby residents. • Consideration of cumulative impacts. • Traffic controls (speed limits, signage, etc.). • Procedure to monitor traffic impacts and adapt controls (where required) to reduce the impacts. • Providing a contact phone number to enable any issues or concerns to be rapidly identified and addressed through appropriate procedures. <p>Furthermore, as above, First Solar has committed to road upgrades along Beryl Road that would improve the existing safety risks along the road.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<h2>4.5 HEALTH AND SAFETY</h2>			
EMFs and magnetic fields	210468 207477 206468	Three respondents are concerned that the solar farm will have long term health implications on resident's due to radiation and magnetic fields. The existing substation and overhead power lines are already subjecting residents to EMF radiation. The solar farm would put them at an increased risk.	Section 3.9 of the EIS assesses the potential impact of electromagnetic fields (EMFs) on human health. It was identified that the proposal includes five components that could generate EMFs: <ul style="list-style-type: none"> • An overhead or underground 66kV transmission line; • Underground 22-33kV cables; • Up to 40 Inverters up to 2.5MW • A 66kV substation and; • the solar array (up to 1.5kV DC).

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>It was found that all components would produce electric and magnetic fields that are below the recommended reference guidelines in accordance with <i>Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300GHz)</i> in 1998 published by The International Commission on Non-Ionizing Radiation Protection (ICNPR).</p> <p>A cumulative impact of EMF's with upgrades to existing substation an additional substation and transmission line is considered negligible. The EMF's of substations are typically confined to the substation compound, with EMF levels being indistinguishable from background levels beyond the substation fence. The proposed new substation design would be similar to other designs used throughout Australia that have had EMF measurements taken to ensure levels within the compound are within recommended occupational exposure limits for staff. The upgrades to the existing Beryl Substation are considered minor and would not result in any changes to EMFs produced. The proposed new transmission line would be 300m long from the proposed solar farm substation to the existing Beryl Substation. It will be confined to the solar farm site and substation, which cannot be accessed by the public. EMF levels produced by the transmission line would be well within the recommended exposure limits and EMF levels reduce with distance. Therefore, the new transmissions would not increase EMF's levels for local residents in any meaningful way.</p> <p>Furthermore, First Solar commits to placing transmission lines as far as practical from residences, farm sheds, and yards to reduce the potential for exposure to EMFs.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
Hazardous materials	210187	One respondent is concerned about the safety of solar farms in regards to hydrogen gas. The source of solar energy is hydrogen, a highly explosive gas.	The proposal is a photovoltaic solar farm, it will use thin film solar panels to generate electricity. The panels contain photovoltaic cells which are semi-conductors made of Cadmium telluride (CdTe). CdTe is a stable crystalline compound. Electricity is generated by photovoltaic cells through photons (particles of light) moving electrons free from atoms, which creates a flow of electricity.

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>The proposal does not involve nuclear energy or hydrogen.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<h2>4.6 LAND USE AND AIR QUALITY IMPACTS</h2>			
<p>Land use impacts</p>	<p>203696 207453 207112 210468</p>	<p>Four respondents outlined that the proposal shouldn't be built on productive land as it would reduce the agricultural productivity of the land.</p> <p>One respondent was specifically concerned about the operation of the solar farm affecting the surrounding environment and climate. Concerns relate to the solar panels generating heat that have potential to impact plant growth and impact the welfare and health of cattle and sheep on surrounding land.</p>	<p>During operation, the proposal site would change from agricultural land use to power generation. Grazing may occur as a ground cover management activity but is not expected to be maintained for agricultural profit. Once the panels are installed, the proposal would result in the development of a large proportion of the 332ha property, approximately 56% of the site. The duration of the proposal would be 30 years. The loss of the array site (225ha) for agricultural production during this period is not considered a significant economic loss in the locality. The loss is temporary as the project is highly reversible; agricultural land use potential will be maintained. Project commitments include a Rehabilitation Plan, based on onsite soil testing to ensure this objective is met.</p> <p>First Solar have undertaken a literature review and consultation to establish whether there is an industry accepted approach or method to assessing the potential heat impact from a solar farm on local agricultural activities. The literature review has been based on peer reviewed published journals and papers, and existing environmental impact assessments for solar farms within Australia. Consultation has included specialists in renewables (including in countries where solar farms have been established for longer periods of time) and specialists in computational analysis and modelling techniques.</p> <p>First Solar assume the concern regarding heat generated from the solar panels on agricultural activities is relation to the perceived potential for 'heat island effect'. 'Heat island' is defined as an area having higher average temperature than its surroundings owing to the greater absorption, retention and generation of heat by buildings, pavements and activities. This is usually used in reference to the impact of an urban area on its rural surroundings.</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>It is generally accepted in the scientific field that there is the potential for large urban and suburban areas to experience elevated temperatures compared to their outlying rural surroundings. This has been confirmed through typical identification methods of remote sensing and thermal imaging. Key contributors to the heat island effect are a reduction in vegetation, the properties of urban materials to retain heat, and urban geometry. Additional factors such as weather and geographic location can also influence the heat island effect.</p> <p>Studies have shown that Photovoltaic (PV) panels convert incident solar radiation into heat and this can alter the air-flow and temperature profiles near the panels and whether such changes may subsequently affect the thermal environment of near-by populations of humans and other species have been questioned (Fthenakis & Yu, 2013). However, to date there have been limited empirical studies on the potential for a heat island effect in utility scale solar farms and none of the studies reviewed by First Solar have been undertaken in Australia.</p> <p>The limited studies that do exist also show results that can be seen as contradictory, as they are so site and project specific. Some studies suggest that PV systems can actually cause a cooling effect on the local environment, depending on the efficiency and placement of the PV panels while others demonstrate a warming effect (Barron-Gafford, Minor, Allen, Cronin, Brooks, & Pavao-Zuckerman, 2016).</p> <p>Other studies conclude that whilst air temperatures may increase within the solar farm itself, they rapidly decrease to the ambient temperature beyond the perimeter of the solar farm (Fthenakis & Yu, 2013).</p> <p>Fthenakis and Yu (2013) undertook an analysis of the potential for large solar farms to generate a heat island effect and increase air temperature within the solar farm area. The study found at the centre of the solar farm that the annual average air temperature at a height of 2.5m increased by up to 1.90C. However, this increase in temperature dissipated at a height of 5m. Additionally, the solar farm completely cooled overnight.</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>Hence, the research suggested a small potential effect on climate within the solar farm site. This effect may actually enhance retention of ground cover in very cold or hot conditions onsite. Negligible impacts on adjacent properties and agricultural activities such as plant growth and health of cattle would occur.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>
<p>Management of air quality</p>	<p>207810 207477</p>	<p>Two submissions enquire about how air quality will be mitigated during construction of the solar farm. They outline that the suggestion of 'visual cues' to assess the level of dust or debris is not a reliable method. Often the dust can't be seen but it finds its way into the home and into water troughs and dams, affecting the quality of water.</p> <p>One respondent commented that residents already endure dust and debris from Beryl Road, with the current amount of traffic.</p>	<p>Section 8.8 of the EIS assesses the proposal's impact on air quality including dust and emissions. Dust generated by the proposal would include excavation and other earthworks as well as the movement of trucks and work vehicles travelling along unsealed access roads during construction and decommissioning of the project. The limited earthworks associated with construction mostly involve trenching for cables, construction of access tracks and construction of footings for inverters, substation and buildings. Piles for the module frames would either be pile driven or screwed. The impact area for the piles would be less than 1% of the site area.</p> <p>First Solar are committed within the EIS to minimise dust by developing protocols, which will include the use of watercarts. These will not only be undertaken by visual cues but also within the requirements of a Soil and Water Management plan and the Blue Book (Volume 2C Unsealed Roads, DECC 2008b).</p> <p>During operation, there is potential for dust where ground cover vegetation may be lost due to drought and also from unsealed perimeter access roads. A Groundcover management plan is a commitment of the project, specifically developed to retain a stable ground cover and thereby minimise any dust or other erosion under the panels. The plan would include monitoring and expert input as required. In comparison to agricultural activities currently occurring on site such as cropping or regular slashing, the operational solar farm would generate less air quality impacts.</p> <p>The EIS also outlined the potential for a cumulative impact on air quality with the existing quarry operations, 1.2km south east of the site; the quarry haulage</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>route includes Beryl Road. Due to the distance from the proposal site, the cumulative impact is not expected to be significant.</p> <p>Mitigation strategies First Solar are committed to include a formal community consultation and engagement process, and complaints management system, whereby the sources of complaints are promptly identified and addressed, and appropriate application of a suite of dust and emission reduction measures.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>
<h4>4.7 WATER USE AND WATER QUALITY</h4>			
<p>Impacts on water quality</p>	<p>210480 206468 208049 207477</p>	<p>Four respondents are concerned the solar farm will impact on water quality due to the potential of runoff and close proximity of Cudgegong River.</p>	<p>Section 8.2 of the EIS outlines the proposal’s potential to impact on water quality during construction and operation.</p> <p>During construction, the potential for the proposal to contaminate Cudgegong River and Wialdra Creek is considered a low risk given:</p> <ul style="list-style-type: none"> • The limited amount of excavation; as above, only limited areas of the land surface would be excavated. The solar array panels are mounted above the ground. • The distance of the waterways from the proposal site (>900m). • The flat to slightly undulating terrain. <p>The risk is highly manageable with the implementation of mitigation measures outlined within the EIS, such as site specific sediment control plans and spill control plans.</p> <p>During operation, there is minimal potential for any impacts to surface water quality to occur. Appropriate drainage features would be constructed along internal roads to minimise the risks of dirty water leaving the site or entering waterways. With the exception of internal roads, parking areas and areas around onsite substation, the site would be maintained with grass cover. Water quality impacts at the site would therefore be low and are not considered substantially different to the current potential water quality</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>impacts occurring from existing activities onsite including cropping and use of machinery.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
Water use impacts	210472	One respondent noted concerns about the proposal's water use.	<p>Section 8.2 of the EIS outlines the proposal's water use and potential to impact on water resources. Water use during the construction phase would be minimal and mainly for dust suppression on unsealed tracks. This water requirement is likely to vary depending on weather conditions such as rainfall and wind and is estimated to be up to 2000kL per annum. The water would be sourced onsite from existing dams. If required, water will be sought from a local council standpipe.</p> <p>Water use volumes during operation would be minimal. Water would be required for staff amenities and may be required for panel cleaning. Panel cleaning may be required in dry conditions when cropping operations in the locality are generating dust. Rain water will be gathered from the operation and maintenance building roof and stored within on site tanks, in cases of prolonged drought water would be trucked to site as required.</p> <p>Refer also to the DPI's submission and response, Section 5.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
4.8 HERITAGE			
Impacts to Gulgong	207453 206468 210484 207374 208049 207166	Seven respondents noted concerns about solar farm's proximity to Gulgong, a historic town. The town is a major tourist attraction in the region.	<p>The EIS acknowledges that Gulgong is a historic town and popular tourist destination. The EIS identifies and assesses the proposal's potential impact on the town, approximately 5km from the proposed solar farm. The potential impacts identified include visual, traffic, land use and socio-economics.</p> <p>The proposal would not be visible from any areas of the township. A panoramic from the town's Flirtation Hill look out confirms the visual impact on the town would be negligible. Local traffic impacts, as addressed above, are manageable. No construction traffic haulage would impact on Gulgong</p>

Issue	Submissions no.	Detail of issue	First Solar Response
	206606		<p>although increased standard vehicles would be noticeable as workers access services in Gulgong. Accommodation and retail services would be utilised. Additionally, the solar farm is likely to attract a proportion of visitors interested in the commercial scale solar electricity generation. This has been seen in other rural areas and ‘viewing locations’ in safe pull over areas are sometimes proposed.</p> <p>Socio-economic impacts are considered manageable with the implication of management measures outlined in the EIS, including:</p> <ul style="list-style-type: none"> • The Community Consultation Plan will continue to be implemented, including but not limited to implementing protocols to: <ul style="list-style-type: none"> ○ Keep the community updated about the progress of the proposal and proposal benefits. ○ Inform relevant stakeholders of potential impacts (haulage, noise etc.). ○ Respond to any complaints received. • Liaise with local industry representatives to maximise the use of local contractors, manufacturing facilities, materials • Liaise with local representatives regarding accommodation options for staff, to minimise adverse impacts on local services. • Liaise with local tourism industry representatives to manage potential timing conflicts with local events. <p>No changes to the EIS mitigation measures are proposed.</p>
<p>Aboriginal heritage representative parties involvement</p>	208049	<p>One respondent claimed there had been poor involvement of Aboriginal groups as part of the proposal and stated no local Aboriginal Lands Council participated in a cultural study of the site.</p>	<p>A specialist Aboriginal Cultural Heritage Assessment Report (ACHAR) was undertaken to provide an assessment of the Aboriginal cultural values associated with the proposal site and to assess the cultural and scientific significance of any Aboriginal heritage sites recorded.</p> <p>Section 5.4.3 of the EIS summarises the consultation undertaken for the proposal with Aboriginal stakeholders. The consultation with Aboriginal stakeholders was undertaken in accordance with clause 80C of the National</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p><i>Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010</i> following the consultation steps outlined in the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> guide provided by Office of Environment and Heritage.</p> <p>Four Registered Aboriginal Parties (RAPs) registered interest including Buudang, Murong Gialinga Aboriginal & Torres Strait Islander Corporation, Warrabinga Native Tittle Claimants Aboriginal Corporation and the Wellington Valley Wiradjuri Aboriginal Corporation. The field work for the proposal was undertaken in late February 2017 with a representative from all four of the registered parties participating for a day of the survey. The draft ACHAR was provided to the RAPs for comment during the exhibition of the EIS. The report has now been finalised in consideration of the comments provided and is included as Appendix G.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
4.9 BIODIVERSITY			
Spread of noxious weeds	203696	One submission was concerned about the spread of noxious weeds onto adjacent properties as a result of vehicle movements during construction and operation of the solar farm.	<p>One noxious weed was found at the proposal site, St John's wort (<i>hypericum perforatum</i>). The biodiversity assessment (Section 7.1 and Appendix D of the EIS) identified that the proposal has the potential to introduce and spread noxious weeds. The EIS commits First Solar to preparing and implementing weed and hygiene protocols. These protocols will be outlined within the Flora and Fauna Management Plan.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
Bird deaths from heat emissions	203696	One submission commented that there has been records of bird deaths from the heat emitted by solar farms.	<p>Based on research of other photovoltaic solar plants and the fact solar panels absorb heat, the proposal is unlikely to produce heat emissions that result in bird deaths.</p> <p>No changes to the EIS mitigation measures are proposed.</p>

Issue	Submissions no.	Detail of issue	First Solar Response
<p>Native fauna and habitat fragmentation</p>	<p>208049</p>	<p>One submission is concerned about the impacts the solar farm will have on native fauna in the area. The Preliminary Environmental Assessment in the Scoping Report identified 6 threatened ecological communities, 29 threatened species and 8 migratory species of fauna living in this local area. The local fauna is an integral part of the countryside. It is imperative a positive outcome is received for biodiversity.</p> <p>Another submission was concerned about the fragmentation of habitats from the proposal.</p>	<p>A Biodiversity Assessment Report (BAR) was prepared for the proposal, Section 7.1 and Appendix D of the EIS. The aim of the BAR is to address the biodiversity matters raised in the Secretary’s Environmental Assessment Requirements (SEARs) and to address the requirements of the Framework for Biodiversity Assessment (FBA), developed for Major Projects as part of the Biodiversity Offsets Policy for Major Projects. These requirements ensure that all impacts to listed species are identified and assessed and that offsets are calculated to mitigate any vegetation or habitat clearing required for the project.</p> <p>The submission is referring to the findings of the Environment Protection and Biodiversity Conservation Act 1999 Protected Matters Search report that is used to identify Matters of National Environmental Significance (MNES). The search provides a listed of threatened species that have potential to occur or utilise the area. After detailed site surveys, it was considered that none of the listed threatened species have the potential to be adversely impacted to any substantive degree. One of the identified Endangered Ecological Communities (EEC) occurs at the proposal site, the White Box-Yellow Box-Blakely’s Red Gum Grassy Woodland and Derived Native Grassland.</p> <p>An important part of the assessment and design process is to minimise impacts on biodiversity. After an initial assessment of biodiversity impacts, the layout was scrutinised in terms of ‘offset credit drivers’. The layout was further adapted:</p> <ul style="list-style-type: none"> • To remove all impacts on Zone 1 EEC/CEEC vegetation – higher quality vegetation • To reduce impacts on Zone 2 and 3 EEC, where they occur near the north-south laneway in the centre of the site. A 30m buffer either side of the fenced lane way was mapped and the development footprint excluded from this buffer. <p>The final design footprint allows for areas of better quality vegetation at the western corner of the project site (as well areas along the south-western boundary) to be avoided. These have been highlighted as potential offset / revegetation sites. They would contribute to local landscape connectivity. The</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>potential of the development to alter movements of fauna within site and through the landscape was considered in the assessment. A commitment of the project is to ensure that fences that enclose operational areas do not block fauna movement along adjacent habitats.</p> <p>Management measures to ensure impacts are minimised and offset are proposed to be carried out under two strategies:</p> <ul style="list-style-type: none"> • Offset native vegetation clearing in accordance with the FBA (EECs and threatened species habitat). An offset strategy is included as Appendix J, showing two areas that would be protected for biodiversity management in perpetuity. • Minimise impacts as much as possible during construction and decommissioning. The Flora and Fauna Management Plan would address the risks during construction and decommissioning forms part of the proposal. The plan would include protocols such as staged felling of hollow-bearing trees and fallen logs, and relocation of displaced fauna. A nominated non-clearing period is also a commitment to help avoid the core hibernation period for two bat species. <p>No changes to the EIS mitigation measures are considered to be required.</p>

4.10 PROPOSAL AND LEGISLATIVE REQUIREMENTS

<p>Land zoning</p>	<p>208654 208049</p>	<p>Two submissions outlined that the proposal would be located on 'R5' Large lot Residential land zoning under the <i>Mid-Western Regional Council Local Environmental Plan 2012</i> and hence would not be in accordance with this land zonings objectives. The objectives relate</p>	<p>Section 4.3.6 of the EIS outlines the provisions of the <i>Mid-Western Regional Council Local Environmental Plan 2012</i> for the proposed solar farm.</p> <p>The proposed site layout includes the construction of three and a half arrays within the R5 Large Lot Residential zone. Under the provisions of the Mid-Western Regional Council the proposed development is prohibited in the R5 zone, however given the proposed development is deemed a State significant development approval is sought under the following provisions:</p>
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Issue	Submissions no.	Detail of issue	First Solar Response
		to residential housing in a rural setting and preserving the rural landscape.	<ul style="list-style-type: none"> • Clause 8(2) of the SEPP State and Regional Development 2011, which states that if a single development application comprises development that is only partly State significant development, the remainder of the development is also declared to be State significant development. Consultation with the Department confirmed that the intent of this clause means if the subdivision is included in the development application with the solar farm, the subdivision is also declared to be state significant; and • Section 89E(3) of the <i>Environmental Planning and Assessment Act 1979</i>, which states “development consent may be granted despite the development being partly prohibited by an environmental planning instrument”. <p>The EIS assessed the potential impact of the proposal on the residents and rural setting. The potential impacts and risks identified were considered manageable with the effective implementation of the measures stipulated in the EIS.</p> <p>The proposal is also considered compatible with existing land uses and highly reversible upon decommissioning, returning the site to its previous land capability.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>
Chosen location for the solar farm	207453 207158 207176 207112 210476 210468 206606	Eleven respondents enquired about why the solar farm is going to be located so close to residential properties and on highly productive land when there is vacant, unproductive land further away from residents. Respondents also suggested that the solar farm be placed at the proposed Cobbora mine location.	<p>First solar (Australia) Pty Ltd reviewed numerous sites within NSW for the solar farm proposal prior to proceeding with the development application and determined that the Beryl site represented the best opportunity for the development of a large scale PV solar plant.</p> <p>Considerations during initial site investigations included:</p> <ul style="list-style-type: none"> • Access to electrical network • Availability of suitably sized lots • Existing land use and quality • Soil structure • Site vegetation

Issue	Submissions no.	Detail of issue	First Solar Response
	207166 210466 208654 207678	<p>One respondent also commented that no other solar farm in Australia has been approved so close to a residential town.</p>	<ul style="list-style-type: none"> • Flood risk and location relevant to waterways • Location of nearby sensitive receivers • Locality population density <p>The Beryl SF proposal site is located on Lot 20 DP 1173059 and Lot 1 DP 1012926, Beryl. The site is approximately 332ha of predominately flat agricultural land that has been used for grazing and cropping purposes for decades. The majority of the site has been cleared and the land severely degraded from the decades of use as agricultural land. The majority of the site is set back from formed roads and at the time of investigation was not directly overlooked by any elevated residences and shared only one boundary with a property with a residence.</p> <p>Three existing electricity transmission lines pass through the proposal site, mostly in a north-south direction and in alignment with the existing Beryl Substation. The existing Beryl Substation is directly adjacent to the proposal site within the north western section. The existing substation is connected to the Wellington 330kV substation via a 132kV transmission line and to the Mount Piper 132KV substation by a 132kV line via Mudgee. It is further connected to Coonabarabran, Dunedoo, Gulgong and Ulan via five existing 66kV transmission lines. The existing Beryl Substation provides an ideal location for a connection to the National Electricity Market as there is adequate existing local load consumed via the 66KV connections to utilise a large portion of the generation and the 132KV connections provide a direct link to the NSW 330kV backbone to enable low loss transmission of the remaining energy to end users.</p> <p>First solar have undertaken numerous studies into the solar resource availability across NSW and believe the Beryl location represents one of the few remaining high capacity grid connections in the higher irradiance areas of NSW. Beryl is located on the west of the Great Dividing Range and received an average of 5.14kwh/m² per day (Meteonorm 2013) or the equivalent of more than 5 peak sun hours per day. This can be seen in the map of solar resources provided by the Department of Planning and Environment Resource and Energy included in Appendix K.</p>

Issue	Submissions no.	Detail of issue	First Solar Response
			<p>Several regional solar farms are being proposed and constructed in close proximity to regional service centres and townships. Recent examples include, Dubbo Solar Farm, Ross River Solar Farm Nevertire Solar Farm (recently approved) and Griffith Solar Farm (approved in 2016).</p>
<p>Solar farm size and capacity</p>	<p>208654</p>	<p>One submission commented that the proposal is unnecessarily excessive in size and capacity given the need to acquire and rezone residential property. Other solar farms within the state are substantially smaller in size and are still considered financially viable.</p>	<p>The project is sized to suit the connection point (Beryl Substation) and available capacity of the existing network and the size of the block of land that is being acquired by the proponent. The connection infrastructure represents the single highest fixed cost element of the project and by spreading this cost over a larger project, First Solar are able to provide energy to the end user at a competitive rate.</p> <p>Following the initial planning phases of the project and preparation of the EIS, the size of the plant has been reduced, from an original 95MW AC plant to what is now an 87MW AC project.</p> <p>Currently there are planning application under review by the NSW Department of Planning for 10 projects with capacities over 100MW representing an industry wide movement towards larger projects which can benefit from the economies of scale.</p>
<p>Wrong maps and errors in temperature</p>	<p>208049 206468</p>	<p>One respondent noted concerns that maps contained errors and that there were errors in the regions temperatures displayed on First Solar's Site Development Plan. The Project Climatic Conditions Extreme Max (50 year) Temperature is 43.1 °C.</p> <p>One respondent disagreed with temperature, as this January the temperature reached up to 50 °C within the region. The Site Development Plan also showed that the sites Annual Cooling Design Temp is 34.7 °C. Respondents outlined that this is an average summer night's temperature for the area.</p>	<p>We understand the plans that are being referred to by the respondents were those contained within Appendix B of the EIS.</p> <p>The temperature figures provided in the project layouts are not used in the design or development of the proposed solar farm. The temperatures provided are used to calculate the potential energy yield of solar modules. The data was collected from reliable sources including Ashrae database and was accurate in 2013 as noted on the plan.</p> <p>According to Bureau of Meteorology (BOM), the highest recorded temperature at Gulgong Post office is 43.5°C, which was recorded in February 2017. It is acknowledged that local conditions can vary and higher temperatures may have been reached in other areas.</p> <p>The highest mean minimum temperature for the area according to BOM is 16.8°C.</p>

Issue	Submissions no.	Detail of issue	First Solar Response
		Therefore would this result in the cooling system running all day and all night during summer.	The Inverter cooling is provided by forced air only and the fans on the proposed inverters only operate when the production of the plant is in excess of 40% regardless of the external temperature. The inverters are designed to disconnect themselves from the network each night to reduce energy consumption and it is therefore not possible for the fans to be running when the plant is not generating.
Beryl's cloudy days	207374	One respondent asks whether First Solar know that for the last 40 years Beryl has on average 247.8 cloudy days per year (B.O.M.).	First Solar has undertaken extensive investigation into the solar resource and are confident in the energy yield the solar farm will produce. The BOM reports the mean number of cloudy days per year as 97.9 for the region.
Beryl Substation	208049	One submission enquired about what the approval of the Solar Farm meant to Essential Energy and who will own the Beryl Sub-station. They also enquired if there will be any future upgrades to the sub-station.	The Beryl Substation is owned by Transgrid and will continue to be owned by Transgrid following the upgrade that has been detailed as part of the proposal. First Solar is unaware of any future upgrades to the Beryl Substation by Transgrid, however the Essential Energy Distribution Annual Planning Report 2015 notes that a new West Gulgong Substation is planned to be built in 2016/2017. This new Essential Energy Substation has been in planning for many years and has no relation to the proposed Beryl Solar Farm or Development Application
4.11 SOLAR FARMS			
Department approvals of solar farms	204624	One respondent considered there are too many solar projects in NSW.	<p>The EIS provides a justification for solar farm development as an important part of meeting national and state initiatives to address climate change, in Section 2.</p> <p>The do nothing option, specific to the proposed Beryl SF, would mean:</p> <ul style="list-style-type: none"> • Loss of opportunity to reduce GHG emissions and move towards cleaner electricity generation. • Loss of a renewable energy supply that would assist in reaching the Renewable Energy Target.

Issue	Submissions no.	Detail of issue	First Solar Response
			<ul style="list-style-type: none"> • Loss of additional electricity generation and supply into the Australian grid. • Loss of social and economic benefits, created through the provision of direct and indirect employment opportunities during the construction and operation of the solar farm. <p>It is considered likely that these justifications and improving economic price points of solar technology will see further solar farm development in the coming years in Australia and in NSW.</p>
<p>Electricity prices and security</p>	<p>204739</p>	<p>One respondent was concerned about the adverse impact of the project on NSW electricity prices and electricity security for NSW.</p>	<p>Regardless of whether renewable energy projects are constructed in response to the Federal Governments Renewable Energy Target, any adverse impact to electricity prices as a result of this policy will occur as liable entities (electricity users) are required to either procure sufficient Largescale Generation Certificates (LGC) to achieve the RET or pay a penalty rate for any shortfall. Construction of renewable energy generators realises LGC's at a cost lower than the legislated penalty.</p> <p>The network operators and the Australian Energy Market Operator are responsible for ensuring the project complies with the National Electricity Rules and network stability requirements. The project has completed a full set of static and dynamic network modelling of the proposed connection point which have been submitted to Transgrid and AEMO for review and acceptance.</p>

5 PROPONENTS RESPONSE TO GOVERNMENT AGENCY SUBMISSIONS

Government agency submissions are addressed in the order received. For each submission, the key issues are summarised in the left hand column and the Proponents response is provided in the right hand column.

Table 5-1 Agency submissions and proponent’s response

Issue	Detail of issue	First Solar response
<h3>5.1 DEPARTMENT OF PLANNING AND ENVIRONMENT (DPE)</h3>		
<p>Roads and Maritime Services (RMS) letter</p>	<p>Provide additional information to address Roads and Maritime Services (RMS) letter dated 18 January 2017.</p>	<p>In the preparation of this Submission Report, First Solar have made contact with RMS in order to clarify the additional information and commitments required by the agency.</p> <p>Information requested by RMS and included within the EIS includes:</p> <ul style="list-style-type: none"> • Hours of construction, staging of the project, Section 3 of the EIS • Traffic volumes, now updated and provided as Appendix F of this Submissions Report. • Access requirements to Castlereagh Highway and an analysis of intersections with the highway to determine suitability. As stated in Section 8.8.1 of the EIS, Beryl Road is the only intersection that would be used by project traffic. There are no traffic counts available for Beryl Road, however it is expected to be low due to the low population density. The closest counting average daily traffic along the Castlereagh Highway is located approximately 6km south east of the proposal site; the average daily traffic was 613 vehicles travelling west in 2009, which included 89% cars and 11% heavy vehicles (RMS 2009). • Impact of additional traffic and mitigation measures required, need for improvements. Addressed in Sections 8.8.3 and 8.8.4 of the EIS. • Internal track layout, including parking. Figure 1-2 of the EIS provides the indicative layout <p>Information not previously provided includes:</p>

Issue	Detail of issue	First Solar response
		<ul style="list-style-type: none"> • A Traffic Impact Study in accordance with RTA’s Guide to Traffic Generating Developments 2002. While not provided the information provided in the EIS is considered to cover relevant project matters. • A Traffic Management Plan. The appointed construction contractor would prepare a Traffic Management Plan (TMP), including this information, in consultation with the RMS and Mid-Western Regional Council. • Proposed road facilities, access and intersection treatments. These are a commitment of the EIS, to be developed in accordance with Austroads Guide to Road Design and, on classified roads, Roads and Maritime supplements, including safe intersection sight distance. • Consideration of local climate conditions in regards to road safety. The detail of the plans proposed would take into account local climate conditions expected to include flooding, ice, wind. <p>Specific additional matters raised in the post-public exhibition RMS response are addressed in Section 5.9, below.</p>
Mineral holder consultation	Provide evidence of consultation with mineral title holders EL8160 and EL8405 and Beryl quarry operator.	<p>Refer to Section 5.5 and Appendix B.</p> <p>On 30th June 2016, Silver Mines Limited finalised the acquisition of 100% of Bowens Silver Pty Limited.</p>
Harvestable water rights	Confirm existing dams onsite can supply the water requirements with maximum harvestable right dam capacity	Refer to DPI discussion below, Section 5.6.
Landowner consent	Provide landowners consent for Lot 1 DP190927, Lot 1 DP1016556, Lot 1 DP 523876 and Lot 21 DP 1173059.	First Solar have been working with TransGrid, Essential Energy and the NSW Country Rail Network to obtain these consents and they will be provided to DPE as they are received. Refer to Appendix L for consents received to date.
Subdivision	DPE has requested if Lot 20 DP 1173059 is subdivided as part of the development, a separate formal request of a subdivision certificate compliant with the	<p>As a subdivision is proposed, as part of the development of the project, the proponent commits that:</p> <p>A subdivision certificate will be obtained with respect to the subdivision of the existing house lot from the broader R1 zoned allotment.</p>

Issue	Detail of issue	First Solar response
	requirements of section 157 of the <i>Environmental Planning and Assessment Regulation 2000</i> .	
<h2>5.2 FIRE AND RESCUE NSW</h2>		
<p>Fire and safety risk associated with photovoltaic solar</p>	<p>Fire and Rescue NSW commented that small and large scale photovoltaic installations present unique electrical hazard risks to their personnel when fulfilling their emergency first responder role. Due to the electrical hazards associated with large scale photovoltaic there is potential risk to the health and safety of firefighters and FRNSW and NSW Rural Fire Service must be able to be able to implement effective and appropriate risk control measures when managing an emergency incident at the proposed site.</p> <p>Fire and Rescue NSW recommendations included:</p> <ul style="list-style-type: none"> • The development of a Comprehensive Emergency Response Plan (ERP) for the site. The ERP would: <ul style="list-style-type: none"> ○ Specifically addresses foreseeable on site and off site fire events and other emergency incidents. ○ Detail appropriate risk control measures to mitigate potential risks to the health and safety of firefighters and other first responders ○ Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site. 	<p>A new mitigation measure is proposed regarding fire and safety risk:</p> <ul style="list-style-type: none"> • Prior to operation of the solar farm, an Emergency Response Plan (ERP) must be prepared in consultation with the RFS and Fire & Rescue NSW. This plan must include but not be limited to: <ul style="list-style-type: none"> ○ Specifically addresses foreseeable on site and off site fire events and other emergency incidents. ○ Detail appropriate risk control measures to mitigate potential risks to the health and safety of firefighters and other first responders ○ Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site. ○ A copy of the ERP is to be stored in a location directly adjacent to the sites main entry points ○ Once constructed and prior to operation, the operator is to contact with the relevant local emergency management committee regarding the site.

Issue	Detail of issue	First Solar response
	<ul style="list-style-type: none"> • A copy of the ERP is to be stored in a location directly adjacent to the sites main entry points • Once constructed and prior to operation, the operator is to contact with the relevant local emergency management committee regarding the site. 	
<p>5.3 NATURE CONSERVATION COUNCIL OF NSW</p>		
<p>No concerns</p>	<p>The Nature Conservation Council of NSW has no specific concerns regarding the proposed solar farm. They believe the solar farm would deliver a net-positive impact on nature and for the citizens of NSW. The response outlines the benefits of solar farms. Also, states an increased investment in renewable energy projects such as solar farms is an essential step towards a low-carbon future. This proposed solar farm will significantly add to the installed renewable energy capacity in NSW. Further, it will contribute to the government’s pledge to support the federal renewable energy target of 33,000GWh of renewable power generation by 2020.</p>	<p>No changes to the EIS mitigation measures are considered to be required.</p>

Issue	Detail of issue	First Solar response
<h2>5.4 MID-WESTERN REGIONAL COUNCIL</h2>		
<p>Community consultation</p>	<p>Council have stated that representations have been made to them that some neighbouring land owners have had minimal consultation and are uncertain about the specific details of the project and how it will impact them.</p> <p>Council has requested that community consultation is maintained on an ongoing basis and throughout each phase of the project with all stakeholders, particularly those community members within close proximity to the proposed site that have raised concerns. It is important that First Solar continues to monitor and respond promptly to all community enquiries and maintain open and transparent communication in relating to these concerns.</p>	<p>As stated in Section 3.3, First Solar undertook consultation, guided by the ARENA document <i>Establishing the social licence to operate large scale solar facilities in Australia</i> (ARENA n.d.), from the early planning stages of the project and plan to continue consultation during development and operation of the project, to ensure the local community is informed about the proposal.</p> <p>A Community Consultation Plan (CCP) was developed for the proposal. The aim of the CCP was to identify methods to inform the community about the Beryl Solar Farm and facilitate engagement with the community throughout all stages of the project. The CCP identified:</p> <ul style="list-style-type: none"> • Community stakeholders for the proposal. • Issues / risks related to the engagement of each stakeholder group. • A consultation strategy for each stakeholder group. • A set of activities against the proposal development timeline to facilitate consultation. <p>The following community consultation was undertaken in regards to the proposal leading up the lodgement of the EIS on 12 April 2017.</p> <ul style="list-style-type: none"> • Direct engagement with nearby neighbours through face to face meetings on 7 November 2016. • Mail out to all residents within 2km of the proposal site, notifying them of the proposal on 8 December 2016. • Project update, including Open day information and feedback form mailed out to adjacent neighbours, near neighbours (residents of Beryl locality), local businesses, special interest groups and the Gulgong Chamber of Commerce 6th February. • Power point slide advertising the open day provided to Gulgong Post office for inclusion in their digital notice board 10th February. • Flyer provided to local business for inclusion on notice board at the pub in the main street 10th February .

Issue	Detail of issue	First Solar response
		<ul style="list-style-type: none"> • Advertisement in Mudgee Guardian outlining proposal, receipt of SEARs and open day details on the 14th and 21st of February 2017. • Community Open Day held by First Solar at the CWA Hall on 23rd February 2017 between 2pm and 6pm. • Direct engagement with nearby neighbours through face to face meetings on 23rd February 2017. • Advertisement in the Gulgong Gossip March edition setting out contact details and website for the project. • Direct engagement with nearby neighbours through face to face meetings on 21st and 22nd March 2017. • Continued dialogue with local community through numerous telephone discussion throughout the exhibition period. • Development of a project website to provide information and updates (http://www.firstsolar.com/Resources/Projects/Beryl%20Solar%20Farm) • Establishment of dedicated email address for feedback (berylsolarfarm@firstsolar.com). <p>Section 5.4.4 of the EIS summarises the results of the community consultation.</p> <p>First Solar have used different vehicles to try to capture the broadest audience for consultation activities, as shown above, including advertisements, letter drops and open day events. They have followed up on queries and undertaken face to face meetings with numerous local landowners.</p> <p>Since the lodgement of the EIS in April 2017, First Solar has continued direct engagement with the local residents including phone calls and onsite meetings. The consultation has included updating them on the proposal and discussing any concerns. The consultation has been targeted to those identified as likely to be most impacted by the proposal.</p> <p>Additional feedback forms were provided to the local residents in the Beryl region following meetings on April 9th. As discussed in Section 3.3, a further 14 feedback forms have been received for the proposal since the lodgement of the EIS in April 2017. The issues raised have been further addressed within this submissions report in order that all issues raised can be properly responded to.</p> <p>First Solar is committed to ongoing consultation with the community including engagement during different phases of the project e.g. determination period, prior to construction and</p>

Issue	Detail of issue	First Solar response
		<p>operation. Since lodging the application with DPE First Solar have mailed two updates to all residents within 2km, undertaken face to face meetings with 12 nearby residents and continue to engage directly with the local community. First Solar's consultation register contains more than 150 entries with representation from over 45 local residents. The community will continue to be engaged through direct meetings a project website, media releases, newsletters and open days.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<p>Traffic and transport</p>	<p>Council agrees with the approach to utilise pre and post dilapidation report to management impacts of the solar farm on existing road assets. Council commented that the dilapidation reports should be undertaken by First Solar at each phase of development i.e. construction, operation and decommissioning.</p> <p>The EIS does not anticipate any road upgrades to Beryl Road. However, based on potential impacts identified in the EIS during construction, Council requests the following improvements to Beryl Road:</p> <ul style="list-style-type: none"> • Additional Seal Width on Shoulders - council requests additional seal width (1.0 metre) on the road shoulders. The current shoulder seal width is 0.5 metres on each side and the recommendation is to extend the seal width to 1.5 metres on each side. • Line-Marking – Council requests line-marking both on the centre link and edge lines to improve road safety. There is no line-marking currently. 	<p>The EIS commits First Solar to preparing a Road Dilapidation Report and include audits of the road formation and/or pavement condition prior to construction and at the completion of construction, operation and decommissioning phases.</p> <p>Additionally, First Solar will undertake the recommendations proposed in Council's submission. A new mitigation measure is proposed:</p> <p>The following improvements would be made to Beryl Road:</p> <ul style="list-style-type: none"> • Additional Seal Width on Shoulders - additional seal width (1.0 metre) on the road shoulders to extend the seal width to 1.5 metres on each side. • Line-Marking – Council requests line-marking both on the centre link and edge lines to improve road safety.

Issue	Detail of issue	First Solar response
<p>Visual impacts</p>	<p>Based on the representations made to Council, the visual impacts are a serious concern for neighbouring land owners given the large scale of the project. Council strongly supports the inclusion of relevant conditions which ensure that additional screening on the sites northern boundary and north-east corner is provided as recommended in the EIS.</p> <p>First Solar should also ensure that all impacted land owners have the opportunity to participate and provide feedback during development of a Visual Impact Management Plan for the project to minimise visual impacts and address concerns for their specific properties.</p>	<p>The EIS commits First Solar to preparing a Visual Impact Management Plan. Areas identified for screening include the site’s northern boundary. Due to the identification of an additional residential receiver, since the submission of the EIS, an additional mitigation measure is now proposed to extend screening on and offsite, in consultation with this landowner (refer to more detailed discussion in Section 4.3).</p> <p>The revised Landscape Plan (Appendix E) shows the new section of screening directly south of the residence. Screening further east is not proposed, on the basis that onsite planting may provide a more effective supplement to the perimeter planting and avoid a ‘hedge effect’ that may result from following the rectilinear boundary of the site too closely around the corner. An additional project commitment now includes:</p> <ul style="list-style-type: none"> • Supplementary onsite planting, on Lot 59 to mitigate views from recreational areas, in consultation with the landowners. <p>The aim of this commitment is to provide the best result for this receiver.</p> <p>As above, the impact assessment within the Visual Impact Assessment (Table 5.3 of the VIA) found impacts to R5 zoned receivers to the south and south-east of the site (including Perseverance Lane and Spring Ridge Roads) would be limited, due to existing screening, the distance and the view angle (limited horizontal view of the site). Numerous remnant patches of trees as well as road side planting are located between these residences and the site. These factors combine to ensure when driving on these local roads, only glimpse views of infrastructure would be afforded and that from residences similarly, no expansive views would be experienced. At distances of greater than 500m, the low height infrastructure has limited contrast in this landscape, given the existing features described above. The closest residence in this direction is over 575m away. Further, seen from the narrowest boundary, to the east, the horizontal extent of the infrastructure is minimized in this direction. Specific sections of additional project screening on the eastern boundary are therefore not considered to be required.</p> <p>It is noted that a verification process that requires the ‘as built’ structure to be reassessed to confirm the effectiveness of the proposed screen is also a commitment of the project and would be undertaken in consultation with affected near neighbors and a botanist or landscape architect. This ensures the project commitment is ‘objective-oriented’ and provides certainty regarding visual impact mitigation.</p>

Issue	Detail of issue	First Solar response
<p>Noise impacts</p>	<p>Council states it is essential that First Solar communicates with all impacted land owners throughout the construction period to ensure all exceedances are managed appropriately and effectively. All impacted land owners also should have the opportunity to participate and provide feedback during the development of a Construction Noise Management Plan for the project to minimise noise impacts. Where noise level exceedances cannot be avoided during construction, relevant conditions should be included to restrict the noise to certain time periods and provide regular breaks for resident from 'noisy activities'.</p> <p>The noise modelling presented in the EIS concludes that predicted operational noise levels comply with the nominated criteria under all scenarios and meteorological conditions. However, based on the representations made to Council, neighbouring land owners are concerned about the ongoing noise from tracker motors and inverters, the cumulative impacts of this equipment and how noise will be managed by First Solar if it exceeds the predicted noise levels included in the EIS. Council strongly supports the inclusion of relevant conditions to both monitor and report noise generating activities during operations, which includes threshold for shutting down powered equipment where it does not comply with noise criteria.</p>	<p>Construction:</p> <p>The Construction Noise Management Plan and mitigation measures within the EIS restricts construction to standard work hours and regular breaks for resident from 'noisy activities'.</p> <p>A new mitigation measure is proposed:</p> <ul style="list-style-type: none"> • All impacted landowners also should have the opportunity to participate and provide feedback during the development of a Construction Noise Management Plan for the project to minimise noise impacts. <p>Operation:</p> <p>The EIS already commits the proponent to a noise compliance process. In response to a complaint noise logging will be carried out to determine if noise is compliant against criteria.</p>
<p>Aboriginal heritage</p>	<p>Whilst the EIS indicates that consultation with Aboriginal groups was undertaken, it is noted that a section of the Aboriginal and Heritage Assessment is incomplete. It is recommended that feedback from Aboriginal groups is recorded regarding the proposed relocation of artefacts, and that First Solar prepare an</p>	<p>The final Aboriginal Cultural Heritage Assessment Report is provided within Appendix G. It has been finalised with regard to comments received from Registered Aboriginal Parties, in accordance with clause 80C of the <i>National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010</i> following the consultation steps outlined in the <i>Aboriginal cultural heritage consultation requirements for proponents 2010</i> guide provided by Office of Environment and Heritage.</p>

Issue	Detail of issue	First Solar response
	<p>Unexpected Finds Protocol to address the potential for finding unexpected Aboriginal artefacts during the construction and operation of the solar farm.</p>	<p>Existing mitigation measures provided within the EIS already include:</p> <ul style="list-style-type: none"> • Involving representatives of the registered Aboriginal parties with the salvage of artefacts prior to construction. • Preparing an Unexpected Finds Protocol (UFP). <p>One mitigation measure has been updated :</p> <p>First Solar should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm and management of known sites and artefacts. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties.</p>
<p>R5 zoned land</p>	<p>The EIS indicates that approximately 20% of the total proposed project site is located on R5 zoned land. The development of a solar farm is prohibited on land zoned R5 under the Mid-Western Regional LEP 2012. In its May 17 2017 Council resolved not to support the solar farm occurring within the R5 zone.</p>	<p>It is acknowledged that solar farm development is prohibited on land zoned R5 under the Mid-Western Regional LEP 2012.</p> <p>The proposed development, being a State Significant Development, is subject to the provisions of the State <i>Environmental Planning Policy (State and Regional Development) 2011</i>. Section 89E (3) of the SEPP <i>Environmental Planning and Assessment Act 1979</i> states “development consent may be granted despite the development being partly prohibited by an environmental planning instrument”.</p> <p>Subsequently NGH, on behalf of the proponent, sought the direction of the Department of Planning and Environment on Friday 3 February 2017. The Department confirmed the intent of the provisions set out under Clause 8(2) of the SEPP and Section 89(3) of the EP&A Act 1979 that enable justification for the proposed development to occur on land prohibited under the LEP.</p> <p>Additionally, the Department advised that they could assess the proposed development as part of the overall application however, they requested evidence from the Mid-Western Regional Council that there would be no objection to the proposal during the notification period and that they would require evidence of Council’s concurrence prior to the assessment of the proposed development.</p> <p>After a meeting and presentation by First Solar, in a letter of support dated 21 March 2017, Council advised that they raised no objection to the proposed subdivision required in relation to the development of the Beryl Solar Farm (Appendix A), which would be assessed as part of the overall State Significant Development process. However, in its May 17 2017, Council</p>

Issue	Detail of issue	First Solar response
		<p>resolved not to support the development of the solar farm on the area of the site zoned R5 due to the proposal being inconsistent with their LEP.</p> <p>During our recent consultation with the Mid-Western Regional Council they were generally supportive of the project, but are unable to change the position put forward in their submission that the use of the R5 land is inconsistent with the Mid-Western LEP.</p> <p>It is understood that some members of the community have made representation to Council (refer to responses above on community consultation, traffic and transport, visual, noise and Aboriginal heritage impacts). These impacts have been addressed specifically above and specific additional mitigation is now proposed as part of the project's commitments (traffic and transport visual, noise).</p> <p>The proposal demonstrates that at this time, the financial gain of developing a solar farm is more beneficial than alternative land uses on the subject site and will be constructed so as to not impact or effect the existing ephemeral wetland and overland flows in this area. The yield and viability of the proposed solar farm, along with its associated benefits for the local economy and contribution to renewable energy targets, would be impacted significantly should it not be permitted to develop the 20% of the project that falls on R5 land.</p> <p>The site remains a production landscape in close proximity to a service centre and therefore compatible with solar development. There are currently relatively few residents within 2km of the site. Existing development in the locality includes a quarry, substation and connecting infrastructure. Beryl Road and the Castlereagh Highway provide local transport corridors suited to the project's needs and able to sustain the additional traffic impacts of the development. The direct and indirect impacts on existing land uses, including visual, noise, traffic, have all been assessed as acceptable and able to be managed effectively such that adjacent land uses are not adversely impacted. At the completion of the project, the existing land use would be restored, evidenced by several specific commitments to meet this objective. First Solar intend to continue consultation with the Council regarding this issue.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>
<p>Proposal and development site areas</p>	<p>Council noted there are some inconsistencies in the EIS regarding the total project site area.</p>	<p>The proposal site has a total area of 332ha, approximately 206ha of the site would be developed by the proposal.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>

Issue	Detail of issue	First Solar response
<h2 style="text-align: center;">5.5 NSW DIVISION OF RESOURCES AND GEOSCIENCE</h2>		
<p>Mineral value of land and consultation</p>	<p>The NSW Division of Resources and Geoscience (DRG) provided the following comments:</p> <ul style="list-style-type: none"> The Proponent correctly notes in Section 4.3.10 of the EIS that the site is the subject of Exploration Licence (EL) No. 8160. However the Proponent incorrectly states that the tenement has expired. Renewal of EL8160 is currently being sought by Bowdens Silver Pty Ltd. Under Section 117 of the <i>Mining Act 1992</i>, EL8160 is in force until the renewal application is determined. Additionally, a small portion of the western part of the project site is also subject to a current mineral tenement - EL8405 held by Silver Mines Limited. The proponent has not provided any evidence of direct consultation (as requested by SEARs) with Boral Resources (Country) Pty Ltd operators of Beryl Quarry and Bowdens Silver Pty Ltd holders of EL8160. Specifically, DRG requires evidence of notification (to these stakeholders) of the solar farm project including a map showing the extent of the site (including electricity transmission infrastructure) in relation to the exploration licence boundaries and to the quarry operations. Importantly, GSNSW requires evidence that a response has been received by 	<p>First Solar acknowledge that the EIS incorrectly stated that EL8160 had expired and accepts that two current leases are relevant to the site.</p> <p>Regarding consultation, an email was sent to Bowdens Silver Pty Ltd on 31 January 2017. A reply was received on the 19th January 2017 with no comments on the proposal.</p> <p>A letter was sent to Boral Resources (Country) Pty Ltd regarding Beryl Quarry on 30 January 2017. Boral Quarries contacted the proponent by phone on 06 February and verbally indicated no objections to the proposal. First Solar have continued to discuss the proposal with Boral Quarries throughout the development phase and a letter was received from Boral on the 6th of July with no objections to the proposal.</p> <p>Evidence of consultation is provided in Appendix B.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>

Issue	Detail of issue	First Solar response
	the Proponent from the title holder and quarry operator.	
<p>5.6 NSW DEPARTMENT OF PRIMARY INDUSTRIES</p>		
<p>Soil and groundcover</p>	<p>The NSW Department of Industries (DPI) recommends appropriate species of pasture, and spacing arrangements of the solar panels are used to maximise growth of groundcover. They also commented that details on proposed alternatives for soil protection in the event pasture establishment is not successful are provided.</p>	<p>The EIS commits Fist Solar to designing the solar farm with sufficient space between the panels to establish and maintain ground cover. Additionally, a groundcover management plan would be developed and implemented. It is acknowledged that ensuring persistent ground cover beneath the panels at this site may require expert input and trials. The plan would be developed in reference to soil testing, which would also assist in selecting appropriate species for groundcover. The aim of the plan is to ensure the existing ground cover is maintained beneath the array during operation of the solar farm.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>
<p>Water</p>	<p>The NSW DPI recommends:</p> <ul style="list-style-type: none"> The proponent should ensure adequate supplies of water are located within the project site to ensure the welfare of grazing animals. 	<p>The Beryl solar farm project area is approximately 330 ha in size. The approximate area of solar panels is 180ha in size. Sheep (crossbred weaners) may be used on site for vegetation management. Based on the area available of 330ha and assuming 25% net loss of dry matter (vegetation) production due to the panels, the stocking rate would be about 6000 sheep over 90 days in spring and summer. This would leave about 25% of the vegetation on the ground for soil cover. This will vary depending on annual rainfall in autumn and winter.</p> <p>The sheep will need a daily source of water. Each sheep on average will have a daily water requirement of about 4 -6 litres per day in late spring early summer. Based on a stoking rate of 6000 crossbred weaners the daily water needs are 24,000 to 36,000 litres per day. Over the 90 days of stocking that would equate to 2.2-3.2 ML in total.</p> <p>The current layout of the solar farm retains seven existing farm dams. These dams are distributed across the site and range in size from approximately 2.5ML to 0.5ML. Combined the dams have a volume of approximately 9.3ML. Based on the water needs of the sheep at a maximum of 3.2ML and the volume of available water storage at 9.3ML ample water storage is available on site for the anticipated livestock needs.</p>

Issue	Detail of issue	First Solar response
	<ul style="list-style-type: none"> The proponent confirms water supply requirements and sources prior to project approval to understand the water supply risks and to ensure any requirement for additional licensing is identified early. In particular, the proponent should confirm that existing dams on site to be utilised in construction are under the maximum harvestable right dam capacity. 	<p>The current layout of the solar farm would allow seven existing farm dams to be retained. These dams are located across the project area ranging in size from approximately 2.5ML to 0.5ML. Combined the seven dams have a volume of approximately 9.3ML.</p> <p>The project area is approximately 330ha in size. About 180ha of solar panels are proposed within the 332 ha of project area. It is likely that the panels will create higher runoff due to concentrated flows. This assessment will assume no change in runoff conditions. Based on an average annual rainfall of 650mm per annum (Commonwealth Bureau of Meteorology) and about 5% runoff approximately 107.9 ML/ year is generated by the project area on average. The harvestable right is 10% of runoff. Based on 10% of 107.9ML the harvestable right is approximately 10.8ML.</p> <p>The solar panel installation and cabling for construct of the solar farm requires some farm dams to be filled early in the project. Prior to filling in the dams they would be dewatered. This water would be used for construction or transferred to another dam. Only about 2ML is required for construction. The required water for construction and the volume of the combined dams to be retained are all within the harvestable rights of the project area. The volume of water for construction and the volume of water for grazing when combined are less than the harvestable water right of the project area. Up to four existing farm dams will be removed for the project with a combined volume of 4.4ML. The project will take the total volume of on-site storage from 13.7ML to 9.3ML returning it to below the harvestable water right limit of 10.8ML.</p> <p>Consultation was undertaken with council on 28th June 2017. Council has indicated they have a potable water standpipe for operational water needs, available at a cost of \$5.44/kL. A raw water standpipe for construction needs is also available at a cost of \$1.03/kL. During winter there would no potential impacts with availability and supply. During summer, supply is required by appointment in off peak times. It is understood that council's water supply if required can meet both construction and operational needs of the proposal.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>
	<p>The NSW DPI recommended the following Conditions of Consent be included if the project is approved:</p> <ul style="list-style-type: none"> All subsurface infrastructure should be removed when the site is decommissioned or alternatively should be installed a minimum of 	<p>In the EIS, below ground infrastructure that impedes cropping activities (less than 500mm depth) is suggested to be removed.</p> <p>Acknowledging limited areas of the site are suited to ongoing cropping, removal of infrastructure to this depth would allow for cropping operations after decommissioning.</p>

Issue	Detail of issue	First Solar response
	<p>1200 mm below ground level to ensure future agricultural activities are not impacted.</p> <ul style="list-style-type: none"> The proponent should prepare a soil and water management plan in consultation with DPI Water (water.referrals@dpi.nsw.gov.au) prior to commencement of activities. The design of waterway crossings, installation of cables and any associated in-stream works should be prepared in accordance with DPI Water's <i>Guidelines for Controlled Activities on Waterfront Land</i> (2012). 	<p>Committing to installing infrastructure below 1200 mm or removing all subsurface infrastructure is not considered to be warranted on the basis of protecting future land capability.</p> <p>In the EIS, A Soil and Water Management Plan (with erosion and sediment control plans) would be prepared, implemented and monitored during the proposal, in accordance with Landcom (2004), to minimise soil (and water) impacts.</p> <p>The proposal does not require any waterway crossings or in-stream works. The EIS mapped two waterways within the proposal site, however these are considered to be greener depressions within the pasture. There is no evidence of a channel or creek bed. These areas are likely to have water present only after substantial rainfall. Therefore these guidelines do not apply to the proposal.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>
<h2>5.7 NSW ENVIRONMENTAL PROTECTION AUTHORITY</h2>		
<p>No comment</p>	<p>The NSW Environment Protection Authority (EPA) had previously determined that the proposed development is not a Scheduled Activity under the <i>Protection of the Environment Operations Act 1997</i> and consequently will not require an Environment Protection Licence. Therefore, they will not be reviewing or providing comment on the DA and EIS.</p>	<p>No changes to the EIS mitigation measures are considered to be required.</p>
<h2>5.8 NSW OFFICE OF ENVIRONMENT AND HERITAGE</h2>		
<p>Vegetation zones</p>	<p>The proponent has mapped five Box-Gum Woodland vegetation zones within the project site but has not provided details of the structural and/or floristic differences between the zones. OEH is unable to</p>	<p>Refer to Appendix I. The table provides a structural and floristic description of each of the vegetation zones, including notable differences between the zones. The table also identifies which zones are a threatened ecological community or not.</p>

Issue	Detail of issue	First Solar response
	<p>determine if the vegetation zones have been identified appropriately which may influence the number of credits generated by the project. The proponent should provide a structural and floristic description of each of the vegetation zones, including notable differences between the zones. Any other differences between the zones (e.g. soil type, past management, etc.) should also be described</p> <p>The BAR simply states whether each vegetation zone is a threatened ecological community or not. The BAR fails to detail why each vegetation zone in Table 3.2 does, or doesn't, form part of the White Box Yellow Box Blakely's Red Gum Woodland Endangered Ecological Community (EEC) listed on the <i>Threatened Species Conservation Act 1995</i> (TSC Act) or the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (CEEC) listed on the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The BAR does not provide comparison of the vegetation zones against the threatened ecological community listings. Details should be provided comparing the characteristics of the vegetation zones against the final determinations of the threatened ecological communities. OEH is unable to determine the appropriateness of the threatened ecological community mapping without further explanation by the proponent. Accurate identification of threatened ecological communities is critical as threatened ecological</p>	<p>No changes to the EIS mitigation measures are considered to be required.</p>
<p><i>Dichanthium setosum</i></p>	<p><i>Dichanthium setosum</i> (Bluegrass) was listed as a species for further consideration by OEH in the SEARs provided to the Department of Planning and</p>	<p>Bluegrass (<i>Dichanthium setosum</i>) was a species identified in the SEARs as a species requiring "further consideration and provision of the information specified in s9.2 of the Framework for Biodiversity Assessment". Section 9.2.5.1 of the FBA states that further consideration of the</p>

Issue	Detail of issue	First Solar response
	<p>Environment (DPE) on 19 January 2017. The BAR does not include assessment of this species potential to occur. The potential for <i>Dichanthium setosum</i> to occur should be assessed in accordance with section 6.5 of the FBA. If <i>Dichanthium setosum</i> does occur the proponent should provide the information required for further consideration of the impacts to the species in accordance with Section 9.2.5 of the FBA.</p>	<p>impacts of the development is required on a threatened species or population that is specifically nominated in the SEARS as a species or population that is likely to become extinct or have its viability significantly reduced in the IBRA subregion if it is impacted on by the development.</p> <p>It is acknowledged that no information was provided in the BAR with regard to this species. It was however, considered during the field surveys. The field surveys determined that the development site was unlikely to provide habitat for <i>Dichanthium setosum</i>. The main distribution for the species is the upper north west slopes and northern tablelands. The south-western extent of this main distribution is over 100km to the north-east of the development site. The species prefers good soils, either black basalt-derived soils or red-brown loams over clay (OEH threatened species profile) whereas the soils at Beryl are generally sandy or gravelly loams, with grey clays on the drainage lines. These soils are much poorer than usually associated with <i>Dichanthium setosum</i>.</p> <p>The nearest records are 30km south of the site near Mudgee. The two records are from 1911 with one noted as “Habitat: Natural Grasslands of the tablelands”. Natural grasslands do not occur at the development site. There are also two outlying records from Narromine to the west of Dubbo, approximately 115km west of the development site, from 1892. Again, one of the records is noted “Habitat: Natural Grasslands of the tablelands”.</p> <p>Targeted flora surveys incorporating linear transects spaced approximately 10m apart, were conducted in patches of remnant woodland with areas of ground cover containing a representation of native flora. The majority of the study area, comprising improved pasture and intensively grazed pastures in low condition and was not intensively surveyed for threatened flora however, numerous plot surveys were conducted in these areas. <i>Dichanthium setosum</i> has distinct blue-grey foliage and the species was not detected during any survey.</p> <p>Given that the site is outside of the currently known main distribution of the species, the absence of suitable habitat and lack of detection during surveys, it is considered unlikely that the species would occur at the site and be impacted by the development. As such, provision of the information specified in Section 9.2.5.2 of the FBA is not considered to be required.</p> <p>No changes to the EIS mitigation measures are considered to be required.</p>
<p>Offset strategy</p>	<p>A biodiversity offset strategy (BOS) has not been provided with the Environmental Impact Assessment (EIS) for the project. Instead, the Biodiversity</p>	<p>A Biodiversity Offset Strategy (BOS) has now been prepared for the proposal and is provided in Appendix J.</p>

Issue	Detail of issue	First Solar response
	<p>Assessment Report (BAR) indicates (Section 9) that a BOS will be developed in consultation with OEH and provides no details on the proponents intended composition of the offset strategy for the project. Thus, OEH is unable to assess the offset strategy for the project and recommends that the proponent is required to prepare and detail a BOS as part of its response to submissions report.</p> <p>The FBA states (Section 11.1.1.2) that the BOS should be submitted with the BAR as part of the EIS. The offset strategy should propose an offset that is consistent with the <i>NSW Biodiversity Offsets Policy for Major Projects</i>. Offset commitments must be demonstrated prior to approval of the impact and the offset components should be identified and be in place prior to the commencement of construction.</p>	<p>In summary, the BOS has been prepared to demonstrate that offsets for the proposed Beryl Solar Farm are available within the proposal area and are adequate to compensate for the impacts of the development.</p> <p>The proposed offset areas generate a total of 723 ecosystem credits for PCT281 - Rough-Barked Apple – red gum – Yellow Box woodland on alluvial clay to loam soils on valley flats in northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion, which meets the required 684 ecosystem credits for this PCT as determined according to the FBA.</p> <p>An additional commitment is proposed:</p> <p>A Biodiversity Offset Plan is proposed to be prepared in consultation with OEH to define the final offset area. The Biodiversity Offset Plan will include details regarding the management (and any required monitoring) of the offset area, as required by the BioBanking Assessment Methodology.</p>
<h2>5.9 NSW TRANSPORT, ROADS AND MARITIME SERVICES (RMS)</h2>		
<p>Traffic generated by project</p>	<p>RMS states the EIS lacks details in relation to the traffic generated by the project.</p>	<p>Since the lodgement of the EIS, there has been a reduction in the estimated traffic movements for the proposal during construction. An updated table of total overall one-way traffic movements including heavy vehicles for the delivery of equipment and infrastructure, anticipated throughout the construction period of 12 months in provided in Appendix F.</p> <p>In summary:</p> <ul style="list-style-type: none"> • During the construction period, a total of 2,976 heavy vehicles would be required. This averages to approximately 13 heavy vehicles per day for the construction period. The amount of deliveries per day would depend on the phase of works being undertaken. An increase number of heavy vehicles is required for the delivery of modules and mounting frames, which would be delivered over a period of five months.

Issue	Detail of issue	First Solar response
		<ul style="list-style-type: none"> During operation, three full time equivalent staff would access the proposal site to operate and maintain the solar infrastructure. It is likely three light vehicles (4x4) and an All-terrain vehicle will be required to transport the staff around the site.
<p>Existing road and intersection treatments</p>	<p>RMS states the EIS lacks details in relation to existing road and intersection treatments.</p>	<p>The intersection of the Beryl Solar Farm with Beryl Road would be upgraded to the appropriate standard to accommodate the increased traffic flows that would occur during construction. Although the final design has not yet been complete, the location and form of the main access road intersection with Beryl Road would provide adequate sightlines (approximately 350m) for vehicles entering and exiting the site.</p> <p>The proponent has consulted RMS further regarding the project and makes a commitment to work with RMS to determine the appropriate upgrades to Castlereagh Highway and Beryl Road intersection. This intersection will be upgraded to accommodate the increased traffic flows to the site from the Port of Botany via the Castlereagh Highway and Mudgee. The location of the site west of Gulgong on the Castlereagh Highway, the delivery port of Botany and the location of local service centres to the south and east will result in the majority of traffic created by the project turning left into Beryl Road from the highway, very little traffic is expected to approach the site from the west on the Castlereagh Highway.</p> <p>The proponent would consult with the Mid Western Regional Council and RMS regarding the proposed upgrading of the site access and Beryl road intersection. The upgrade would be subject to detailed design, and must be designed and constructed to the standards specified by RMS Guidelines.</p> <p>First Solar would also undertake upgrades to Beryl Road prior to construction as recommended by Mid-Western Regional Council and RMS. The upgrades would include sealing of shoulders to widen road and line marking.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<p>Management of safety for road users</p>	<p>RMS states the EIS lacks details in relation to how traffic will be managed to provide a high level of safety for all road users during construction and operation of the solar farm.</p>	<p>The EIS commits First Solar to ensuring safety for all road users and pedestrians. These commitments include:</p> <ul style="list-style-type: none"> Road upgrades and a road dilapidation report Preparation and implementation of a Haulage plan

Issue	Detail of issue	First Solar response
		<ul style="list-style-type: none"> • Preparation and implementation of a Traffic Management Plan <p>First Solar has committed to road upgrades along Beryl Road that would improve the existing safety risks along the road. This involves upgrading the intersection of the Beryl Solar Farm with Beryl Road to the appropriate standard to accommodate the increased traffic flows that would occur during construction and delivery vehicles. Additionally, as recommended by Mid-Western Regional Council, First Solar will seal shoulders of Beryl Road to increase the existing road width and undertake line marking. Audits as part of the Road Dilapidation Report and repair of any damaged road infrastructure resulting from the proposal will safeguard the road infrastructure.</p> <p>As outlined in the EIS, First Solar will prepare a Haulage Plan and Traffic Management Plan prior to construction. The Haulage plan will include:</p> <ul style="list-style-type: none"> • An assessment of road routes to minimise impacts on transport infrastructure. • Scheduling of deliveries of major components to minimise safety risks (on other local traffic). • Traffic controls (signage and speed restrictions etc.). <p>A Traffic Management Plan would be developed in consultation with the Mid Western Regional Council and Roads and Maritime. The plan would include, but not be limited to:</p> <ul style="list-style-type: none"> • Assessment of road condition prior to construction on all local roads that would be utilised. • A program for monitoring road condition, to repair damage exacerbated by the construction and decommissioning traffic. • The designated routes of construction traffic to the site. • Carpooling/shuttle bus arrangements to minimise vehicle numbers during construction. • Scheduling of deliveries. • Community consultation regarding traffic impacts for nearby residents. • Consideration of cumulative impacts. • Consideration of impacts to the railway. • Traffic controls (speed limits, signage, etc.). • Procedure to monitor traffic impacts and adapt controls (where required) to reduce the impacts.

Issue	Detail of issue	First Solar response
		<ul style="list-style-type: none"> • Providing a contact phone number to enable any issues or concerns to be rapidly identified and addressed through appropriate procedures. <p>It is considered during operation of the solar farm, the safety risk would be minor due to the limited traffic likely to be produced and no heavy vehicles are required.</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<p>Proposed Traffic routes to site</p>	<p>During additional consultation with RMS it became apparent the proposed traffic route to site had not been indicated and RMS were therefore unable to recommend the required intersection upgrades on the Castlereagh Highway.</p>	<p>The majority of heavy vehicle movements are required for the delivery of solar modules and mounting frames, which would be delivered to the project in containers that land in the Port of Botany and transported to the site via the Castlereagh Highway resulting in a left turn from the highway into Beryl Road.</p> <p>The proponent would consult with the Mid-Western Regional Council and RMS regarding the proposed upgrading of the Castlereagh Highway and Beryl Road intersection. The upgrade would be subject to detailed design, and must be designed and constructed to the standards specified by RMS Guidelines</p> <p>No changes to the EIS mitigation measures are proposed.</p>
<p>5.10 TRANSPORT FOR NSW</p>		
<p>No comment</p>	<p>The NSW Transport for NSW had no comments at this stage of the planning process.</p>	<p>No changes to the EIS mitigation measures are considered to be required.</p>

6 ENVIRONMENTAL MANAGEMENT CHANGES

In summary, the following additional mitigation strategies are proposed, as detailed in Sections 4 and 5.

Safeguards and mitigation measures	C	O	D
<ul style="list-style-type: none"> Supplementary onsite planting, on Lot 59 to mitigate views from recreational areas, in consultation with the landowners. 	C	O	
<ul style="list-style-type: none"> A subdivision certificate will be obtained with respect to the subdivision of the existing house lot from the broader R1 zoned allotment 	Design		
<ul style="list-style-type: none"> Prior to operation of the solar farm, an Emergency Response Plan (ERP) must be prepared in consultation with the RFS and Fire & Rescue NSW. This plan must include but not be limited to: <ul style="list-style-type: none"> Specifically addresses foreseeable on site and off site fire events and other emergency incidents. Detail appropriate risk control measures to mitigate potential risks to the health and safety of firefighters and other first responders Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site. A copy of the ERP is to be stored in a location directly adjacent to the sites main entry points Once constructed and prior to operation, the operator is to contact with the relevant local emergency management committee regarding the site. 		O	
<ul style="list-style-type: none"> The following improvements would be made to Beryl Road: <ul style="list-style-type: none"> Additional Seal Width on Shoulders - additional seal width (1.0 metre) on the road shoulders to extend the seal width to 1.5 metres on each side. Line-Marking – Council requests line-marking both on the centre link and edge lines to improve road safety. 	C		
<ul style="list-style-type: none"> All impacted landowners also should have the opportunity to participate and provide feedback during the development of a Construction Noise Management Plan for the project to minimise noise impacts. 	C		
<ul style="list-style-type: none"> A Biodiversity Offset Plan is proposed to be prepared in consultation with OEH to define the final offset area. The 	C	O	D

Safeguards and mitigation measures	C	O	D
Biodiversity Offset Plan will include details regarding the management (and any required monitoring) of the offset area, as required by the BioBanking Assessment Methodology.			

One mitigation measure has been revised based on the submissions presented in Section 4 and 5 of this Submissions Report.

Amended safeguard and mitigation measure	C	O	D
<ul style="list-style-type: none"> First Solar should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm and management of known sites and artefacts. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties. 	C		

The table Appendix A documents the revised environmental management commitments of the proposal. Where measures are relevant to more than one environmental aspect, they are cited only once under the most relevant aspect, to avoid duplication. The applicable project phase (construction, operation or decommissioning) is also noted.

7 CONCLUSION

This Submissions Report has been prepared by NGH Environmental on behalf of First Solar (Australia) to fulfill the requirements of Section 75H of the *Environmental Planning and Assessment Act 1979*.

This report makes two minor clarifications, regarding the project proposal, as presented in the EIS:

- Reduced overall capacity from 95 MW AC to 87 MW AC.
- Construction timing in the EIS was noted as 12 months. A more accurate estimate is now provided as 8 months of onsite construction works.
- Construction traffic in the EIS is noted as 20,303. A more accurate estimate is now provided as Appendix F.

Regarding public and agency submissions:

- 37 issues were raised within 31 public submissions. Further information has been provided in response to these resulting in the proposal now committing to one additional mitigation strategy.
- 23 issues were raised within 9 government agency submissions. Further information has been provided in response to these resulting in the proposal now committing to 5 additional mitigation strategies. One mitigation measure was also modified.

The benefits of the proposed Beryl Solar Farm would remain unchanged. The proposed Beryl SF would provide the following benefits, specific to Australia's environmental commitments:

- Reduction in greenhouse gas emissions required to meet our energy demands.
- Assisting the transition towards cleaner electricity generation.
- Direct contribution to help in meeting the Renewable Energy Target (RET).
- Attract and grow expertise in renewable energy.

Additionally, the proposal would allow for the provision of:

- Significant economic benefits to the region, through the creation of direct and indirect jobs, supporting small business and by developing skills in a growing industry. First Solar (Australia) Pty Ltd has a proven track record of hiring local, qualified labour for plant construction and long-term positions for the maintenance and monitoring of daily operations. This remains an important commitment by First Solar for the Beryl SF.
- Embedded electricity generation, to supply into the Australian grid closer to the consumption centres.

In consideration of the assessment of the impacts from the project contained in the EIS, and the proposed mitigation measures committed to in the revised mitigation measures (included in Appendix A of this report), it is believed that all relevant issues and concerns have been addressed and that the project should now proceed for approval by the Minister.

8 REFERENCES

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APPENDIX A REVISED MITIGATION MEASURES

Modified and new mitigation measures are present in **Bold**.

Safeguards and mitigation measures	C	O	D
<ul style="list-style-type: none"> A subdivision certificate will be obtained with respect to the subdivision of the existing house lot from the broader R1 zoned allotment 	Design		
<ul style="list-style-type: none"> Hollow-bearing trees within the development site would not be cleared between June and January, to avoid the breeding season of hollow-dependant fauna including the Superb Parrot as well as the Large-eared Pit Bat and Corben's Long-eared Bat, which whilst considered unlikely to occur within the site, nevertheless may have some small potential as occurring within the site from time to time. The nominated clearing period above will also help to avoid the core hibernation period for the two bat species. If clearing outside of this period cannot be achieved, pre-clearing surveys would be undertaken to ensure these species do not occur. 	C		
<ul style="list-style-type: none"> Preparation of a Flora and Fauna Management Plan (FFMP) that would incorporate protocols for: <ul style="list-style-type: none"> Protection of native vegetation to be retained (including EEC) Best practice removal and disposal of vegetation Staged removal of hollow-bearing trees and other habitat features such as fallen logs with attendance by an ecologist. Where possible, fallen timber with hollows is to be collected and placed into adjacent suitable habitats outside the development footprint. The relocation of displaced fauna during clearing Weed management, particularly noxious weeds Pathogen management Unexpected threatened species finds Rehabilitation/stabilisation of disturbed areas 	C		
<ul style="list-style-type: none"> Stockpiling materials and equipment and parking vehicles will be avoided within the dripline (extent of foliage cover) of any native tree that originates from outside of the development site. Prior to the commencement of work, a physical vegetation clearing boundary at the approved clearing limit is to be clearly demarcated and implemented. The delineation of such a boundary may include the use of temporary fencing, flagging tape, parawebbing or similar. 	C		D
<ul style="list-style-type: none"> Use non barbed-wire on exterior fencing where possible. 		O	
<ul style="list-style-type: none"> A groundcover management plan would be developed and implemented to ensure the existing ground cover is maintained beneath the array during operation of the solar 		O	

Safeguards and mitigation measures	C	O	D
farm. The plan would be developed with reference to soil testing. Highly managed grazing may be used to maintain the height of ground cover during operation.			
<ul style="list-style-type: none"> Where possible, landscape plantings will be comprised of local indigenous species with the objective of increasing the diversity of the existing vegetation. Planting locations would be designed to improve the connectivity between patches in the landscape where consistent with landscaping outcomes. 		O	
<ul style="list-style-type: none"> Avoid night works as much as possible, and avoid altogether where in close proximity to woodland habitats on adjacent properties. 	C		D
<ul style="list-style-type: none"> Ensure lights (during nightworks and operation) are directed away from vegetation and adjacent habitats. 	C	O	D
<ul style="list-style-type: none"> Weed and hygiene protocols will be prepared and implemented. 		O	
<ul style="list-style-type: none"> Awareness training (fauna collision risks) during site inductions and enforcement of site speed limits. 		O	
<ul style="list-style-type: none"> Feral species to be monitored and a management plan to be prepared and implemented to reduce feral species abundance. 	C	O	
<ul style="list-style-type: none"> Implement plan which ensures that fauna movement still possible around perimeter of development site. 	C	O	
<ul style="list-style-type: none"> A Biodiversity Offset Strategy (BOS) would be developed and implemented to retire the credits generated by the proposal, in accordance with the NSW Biodiversity Offsets Policy for Major Proposals. 	C	O	
<ul style="list-style-type: none"> A Biodiversity Offset Plan is proposed to be prepared in consultation with OEH to define the final offset area. The Biodiversity Offset Plan will include details regarding the management (and any required monitoring) of the offset area, as required by the BioBanking Assessment Methodology. 	C	O	D
<ul style="list-style-type: none"> If complete avoidance of the five recorded sites within the proposal area (Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar Farm AS 1) is not possible, the artefacts must be salvaged prior to the proposed work commencing and moved to a safe area within the property that will not be subject to any ground disturbance. 	C		
<ul style="list-style-type: none"> The collection and relocation of the artefacts should be undertaken by an archaeologist with representatives of the registered Aboriginal parties. A new site card/s will need to be completed once the sites are moved to record their new location on the AHIMS database. 	C		
<ul style="list-style-type: none"> Once the sites Beryl Solar Farm IF 1, Beryl Solar Farm IF 2, Beryl Solar Farm IF 3, Beryl Solar Farm IF 4 and Beryl Solar 	C		

Safeguards and mitigation measures	C	O	D
Farm AS 1 are salvaged, the proposed work can proceed with caution within the development footprint.			
<ul style="list-style-type: none"> • First Solar should prepare a Cultural Heritage Management Plan (CHMP) to address the potential for finding additional Aboriginal artefacts during the construction of the Solar Farm and management of known sites and artefacts. The Plan should include the unexpected finds procedure to deal with construction activity. Preparation of the CHMP should be undertaken in consultation with the registered Aboriginal parties. 	C		
<ul style="list-style-type: none"> • In the unlikely event that human remains are discovered during the construction, all work must cease in the immediate vicinity. OEH, the local police and the registered Aboriginal parties should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal. 	C		
<ul style="list-style-type: none"> • Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation. This would include consultation with the registered Aboriginal party and may include further field survey. 	C	O	D
<ul style="list-style-type: none"> • If feasible, underground rather than overhead power lines would be considered. • If feasible, co-location of powerlines would be undertaken to minimise the look of additional power poles. If additional poles are required, these would match existing pole design as much as possible. • The materials and colour of onsite infrastructure will, where practical, be non-reflective and in keeping with the materials and colouring of existing infrastructure or of a colour that will blend with the landscape. Where practical: <ul style="list-style-type: none"> ○ Buildings will non-reflective and in eucalypt green, beige or muted brown. ○ Pole mounts will be non-reflective. • Security fencing posts and wire would be non-reflective; green or black rather than grey would reduce the industrial character of the fence. 		Design stage	
<ul style="list-style-type: none"> • Dust would be controlled in response to visual cues. • Parking areas, material stock piles and other construction activities would be located as far as practical from nearby residences or screened (by existing vegetation or constructed screens) for the period of construction. • Areas of soil disturbed by the project would be rehabilitated progressively or immediately post-construction, reducing views of bare soil. 	C		

Safeguards and mitigation measures	C	O	D
<ul style="list-style-type: none"> Ground cover would be maintained beneath the panels and within the site boundary, to break up views of the infrastructure from the side and back views. Night lighting would be minimised to the maximum extent possible (i.e. manually operated safety lighting at main component locations). 			
<p>A Visual Impact Management Plan would address the ‘as built’ visual impacts of the proposed solar farm. The plan would include:</p> <ul style="list-style-type: none"> Onsite vegetation screening, guided by the proposed screening, provided in Appendix D of the VIA report Appendix F. Involvement of the most affected landowners (relevant to medium impact view locations). This may include increased onsite planting density in specific locations suggested by the landowners (for example, where the proposed solar farm would be visible from outdoor recreational areas). Verification of predicted and actual impacts. This would improve the reliability of the measures and provide a trigger to undertake additional mitigation if required. <p>(Guidance regarding these measures is provided in Appendix D of the VIA report Appendix F).</p>		O	
<ul style="list-style-type: none"> Supplementary onsite planting, on Lot 59 to mitigate views from recreational areas, in consultation with the landowners. 	C	O	
<ul style="list-style-type: none"> Implement noise control measures such as those suggested in Australian Standard 2436-2010 “Guide to Noise Control on Construction, Demolition and Maintenance Sites”, to reduce predicted construction noise levels. 	C		
<ul style="list-style-type: none"> Preparation of a Construction Noise Management Plan. A draft plan is included in Appendix G.2. 	C		
<ul style="list-style-type: none"> All impacted landowners also should have the opportunity to participate and provide feedback during the development of a Construction Noise Management Plan for the project to minimise noise impacts. 	C		
<ul style="list-style-type: none"> Additionally, during construction: <ul style="list-style-type: none"> Use less noisy plant and equipment, where feasible and reasonable. Plant and equipment should be properly maintained. Provide special attention to the use and maintenance of ‘noise control’ or ‘silencing’ kits fitted to machines to ensure they perform as intended. 	C		

Safeguards and mitigation measures	C	O	D
<ul style="list-style-type: none"> ○ Strategically position plant on site to reduce the emission of noise to the surrounding neighbourhood and to site personnel. ○ Avoid any unnecessary noise when carrying out manual operations and when operating plant. ○ Any equipment not in use for extended periods during construction work should be switched off. ● Develop and implement a noise complaint process. Each complaint would be investigated and appropriate noise amelioration measures put in place to mitigate future occurrences, where the noise in question is in excess of allowable limits. Keep people informed of progress. The person selected to liaise with the community should be adequately trained and experienced in such matters. 			
<ul style="list-style-type: none"> ● The array would be designed to allow sufficient space between panels to establish and maintain ground cover beneath the panels. 	Design stage		
<ul style="list-style-type: none"> ● A soil and water management plan (with erosion and sediment control plans) would be prepared, implemented and monitored during the proposal, in accordance with Landcom (2004), to minimise soil (and water) impacts. These plans would include provisions to: <ul style="list-style-type: none"> ○ Carry out soil testing prior to any impacts, to inform any soil treatments and provide baseline information for the decommissioning rehabilitation. ○ Install, monitor and maintain erosion controls. ○ Ensure that machinery leaves the site in a clean condition to avoid tracking of sediment onto public roads which may cause risks to other road users through reduced road stability. ○ Manage topsoil: In all excavation activities, separate subsoils and topsoils and ensure that they are replaced in their natural configuration to assist revegetation. Stockpile topsoil appropriately so as to minimise weed infestation, maintain soil organic matter, maintain soil structure and microbial activity. ○ Minimise the area of disturbance from excavation and compaction; rationalise vehicle movements and restrict the location of activities that compact and erode the soils as much as practical. Any compaction caused during construction would be treated such that revegetation would not be impaired. ○ Ensure any discharge of water from the site is managed to ensure ANZECC (2000) water quality criteria are met. ● Manage works in consideration of heavy rainfall events; if a heavy rainfall event is predicted, the site should be stabilised and work ceased until the wet period had passed. 	C		D
<ul style="list-style-type: none"> ● A spill response plan would be developed as part of the overall risk management plan to prevent contaminants 	C	O	D

Safeguards and mitigation measures	C	O	D
<ul style="list-style-type: none"> affecting adjacent surrounding environments. The plan would: <ul style="list-style-type: none"> ○ Manage the storage of any potential contaminants onsite. ○ Mitigate the effects of soil contamination by fuels or other chemicals (including emergency response and EPA notification procedures and remediation. ● Ensure that machinery arrives on site in a clean, washed condition, free of fluid leaks. 			
<ul style="list-style-type: none"> ● A protocol would be developed in relation to discovering buried contaminants within the proposal site (e.g. pesticide containers). It would include stop work, remediation and disposal requirements. 	C		D
<ul style="list-style-type: none"> ● Design of footings for electrical componentry and panel mounts will consider flood risk. 	Design stage		
<ul style="list-style-type: none"> ● All staff would be appropriately trained through toolbox talks for the minimisation and management of accidental spills. 	C	O	D
<ul style="list-style-type: none"> ● All fuels, chemicals, and liquids would be stored at least 50m from any waterways or drainage lines and would be stored in an impervious bunded area. 	C	O	D
<ul style="list-style-type: none"> ● Adequate incident management procedures will be incorporated into the Construction Environmental Management plan, including requirement to notify EPA for incidents that cause material harm to the environment (refer s147-153 Protection of the Environment Operations Act). 	C	O	D
<ul style="list-style-type: none"> ● The refuelling of plant and maintenance would be undertaken in impervious bunded areas on hardstand areas only. 	C	O	D
<ul style="list-style-type: none"> ● Machinery would be checked regularly to ensure there is no oil, fuel or other liquids leaking from the machinery. 	C		D
<ul style="list-style-type: none"> ● A flood risk contingency plan would be prepared prior to construction and is to be implemented during construction, operation and decommission. The plan would: <ul style="list-style-type: none"> ○ Detail who would be responsible for monitoring the flood threat and how this is to be done. ○ A process for removing any necessary equipment and materials offsite and out of flood risk areas. ○ Consideration of site access in the event that some tracks become flooded ○ Establishment of an evacuation point 	C	O	D
<ul style="list-style-type: none"> ● The proponent would consult with the Mid Western Regional Council regarding the proposed upgrading of the site access. The upgrade would be subject to detailed 	Design stage		

Safeguards and mitigation measures	C	O	D
design, and must be designed and constructed to the standards specified by RTA Guidelines.			
<ul style="list-style-type: none"> • The following improvements would be made to Beryl Road: <ul style="list-style-type: none"> ○ Additional Seal Width on Shoulders - additional seal width (1.0 metre) on the road shoulders to extend the seal width to 1.5 metres on each side. ○ Line-Marking – Council requests line-marking both on the centre link and edge lines to improve toad safety. 	C		
<ul style="list-style-type: none"> • A Haulage Plan would be developed with input from the roads authority, including but not limited to: <ul style="list-style-type: none"> ○ Assessment of road routes to minimise impacts on transport infrastructure. ○ Scheduling of deliveries of major components to minimise safety risks (on other local traffic). ○ Traffic controls (signage and speed restrictions etc.). 	C		D
<ul style="list-style-type: none"> • A Traffic Management Plan would be developed as part of the CEMP and DEMP, in consultation with the Mid Western Regional Council and Roads and Maritime. The plan would include, but not be limited to: <ul style="list-style-type: none"> ○ Assessment of road condition prior to construction on all local roads that would be utilised. ○ A program for monitoring road condition, to repair damage exacerbated by the construction and decommissioning traffic. ○ The designated routes of construction traffic to the site. ○ Carpooling/shuttle bus arrangements to minimise vehicle numbers during construction. ○ Scheduling of deliveries. ○ Community consultation regarding traffic impacts for nearby residents. ○ Consideration of cumulative impacts. ○ Consideration of impacts to the railway. ○ Traffic controls (speed limits, signage, etc.). ○ Procedure to monitor traffic impacts and adapt controls (where required) to reduce the impacts. • Providing a contact phone number to enable any issues or concerns to be rapidly identified and addressed through appropriate procedures. 	C		D
<ul style="list-style-type: none"> • A Road Dilapidation Report would be prepared and include audits of the road formation and/or pavement condition to be undertaken prior to construction and at the completion of construction, operation and decommissioning phases. The proponent would repair any damage resulting from proposal traffic (except that resulting from normal wear and tear) as required at the proponent’s cost and in consultation with Mid-Western Regional Council. 	C	O	D

Safeguards and mitigation measures	C	O	D
<ul style="list-style-type: none"> • Consultation with proposal site mineral titleholder and Beryl Quarry regarding the proposal and potential impacts 	C	O	D
<ul style="list-style-type: none"> • Consultation with local community, to minimise impact of construction of adjacent agricultural activities and access. 	C	O	D
<ul style="list-style-type: none"> • Consultation would be undertaken with Transgrid regarding connection to the substation and design of electricity transmission infrastructure 	C	O	D
<ul style="list-style-type: none"> • A Rehabilitation Plan would be prepared to ensure the array site is returned to its pre solar farm land capability. The plan would be developed with reference to base line soil testing and with input from an Agronomist to ensure the site is left stabilised, under a cover crop or other suitable ground cover. The plan would reference: <ul style="list-style-type: none"> ○ Australian Soil and Land Survey Handbook (CSIRO 2009) ○ Guidelines for Surveying Soil and Land Resources (CSIRO 2008) ○ The land and soil capability assessment scheme: second approximation (OEH 2012) 			D
<ul style="list-style-type: none"> • The materials and colour of onsite infrastructure will, where practical, be non-reflective and in keeping with the materials and colouring of the landscape. 	C		
<ul style="list-style-type: none"> • Should an item of historic heritage be identified, the Heritage Division (OEH) would be contacted prior to further work being carried out in the vicinity. 	C	O	D
<ul style="list-style-type: none"> • If any old farm machinery is to be removed, contact the Gulgong Historical Society to enquire about their interest in acquiring any items. 	C		
<ul style="list-style-type: none"> • Maintain the railway embankment formation as much as possible. 	C	O	D
<ul style="list-style-type: none"> • A Waste Management Plan (WMP) would be developed to minimise wastes. It would include but not be limited to: <ul style="list-style-type: none"> ○ Identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy. ○ Quantification and classification of all waste streams. ○ Provision for recycling management onsite. ○ Provision of toilet facilities for onsite workers and identify that sullage would be disposed of (i.e., pump out to local sewage treatment plant). ○ Tracking of all waste leaving the site. ○ Disposal of waste at facilities permitted to accept the waste. ○ Requirements for hauling waste (such as covered loads). 	C	O	D

Safeguards and mitigation measures	C	O	D
<ul style="list-style-type: none"> Septic system is installed and operated according to the Mid-Western Regional Council regulations. 	C	O	
<ul style="list-style-type: none"> The Community Consultation Plan will continue to be implemented, including but not limited to implementing protocols to: <ul style="list-style-type: none"> Keep the community updated about the progress of the proposal and proposal benefits. Inform relevant stakeholders of potential impacts (haulage, noise etc.). Respond to any complaints received. 	C		
<ul style="list-style-type: none"> Liaise with local industry representatives to maximise the use of local contractors, manufacturing facilities, materials. 	C		
<ul style="list-style-type: none"> Liaise with local representatives regarding accommodation options for staff, to minimise adverse impacts on local services. 	C		D
<ul style="list-style-type: none"> Liaise with local tourism industry representatives to manage potential timing conflicts with local events. 	C		D
<ul style="list-style-type: none"> Development of a complaints procedure to promptly identify and respond to complaints. 	C	O	D
<ul style="list-style-type: none"> Develop protocols to minimise vehicle and construction equipment emissions for inclusion in the construction and operational environmental management plans. This would include but not limited to Australian standards and the POEO Act. 	C	O	D
<ul style="list-style-type: none"> Protocols would be developed minimise dust levels generated during construction (e.g. water carts or similar in response to visual cues). 	C		D
<ul style="list-style-type: none"> All design and engineering would be undertaken by qualified and competent person/s with the support of specialists as required. 	C		
<ul style="list-style-type: none"> Transmission lines would be located as far as practical from residences, farm sheds, and yards to reduce the potential for exposure to EMFs. 	C		
<ul style="list-style-type: none"> Design of electrical infrastructure would minimise EMFs. 	C		
<ul style="list-style-type: none"> Develop a Bush Fire Management Plan to include but not be limited to: <ul style="list-style-type: none"> Management of activities with a risk of fire ignition. Management of fuel loads onsite. Storage and maintenance of firefighting equipment, including siting and provision of adequate water supplies for bush fire suppression. This includes access to the onsite dam if required for fire emergency situations. 	C	O	D

Safeguards and mitigation measures	C	O	D
<ul style="list-style-type: none"> ○ The below requirements of <i>Planning for Bush Fire Protection 2006</i> - <ul style="list-style-type: none"> ▪ Identifying asset protection zones ▪ Providing adequate egress/access to the site ▪ Emergency evacuation measures ○ Operational procedures relating to mitigation and suppression of bush fire relevant to the solar farm. 			
<ul style="list-style-type: none"> • Prior to operation of the solar farm, an Emergency Response Plan (ERP) must be prepared in consultation with the RFS and Fire & Rescue NSW. This plan must include but not be limited to: <ul style="list-style-type: none"> ○ Specifically addresses foreseeable on site and off site fire events and other emergency incidents. ○ Detail appropriate risk control measures to mitigate potential risks to the health and safety of firefighters and other first responders ○ Outline other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site. ○ A copy of the ERP is to be stored in a location directly adjacent to the sites main entry points ○ Once constructed and prior to operation, the operator is to contact with the relevant local emergency management committee regarding the site. 		O	

APPENDIX B CONSULTATION WITH MINERAL STAKEHOLDERS

APPENDIX C CONSULTATION WITH MID-WESTERN COUNCIL

APPENDIX D ADDITIONAL FEEDBACK FORMS

As part of this consultation, First Solar provided feedback forms directly to neighbours through face to face meetings and to the public through mailouts and an open community day on 23rd February 2017. Feedback received during the preparation of the EIS was summarised and used to ensure that community values and local information informed the environmental assessment process.

Since the lodgement of the EIS in April, First Solar has received a further 14 feedback forms.

In support

The following supportive comments were raised by in the additional feedback forms (number of forms that raise the issue):

- Liked solar farms (3 responses, stating they liked them in remote areas)
- Solar farms make use of a good energy source (1 response)
- Environmental friendly, have minimum maintenance and lead to reduced electricity costs (1 response)

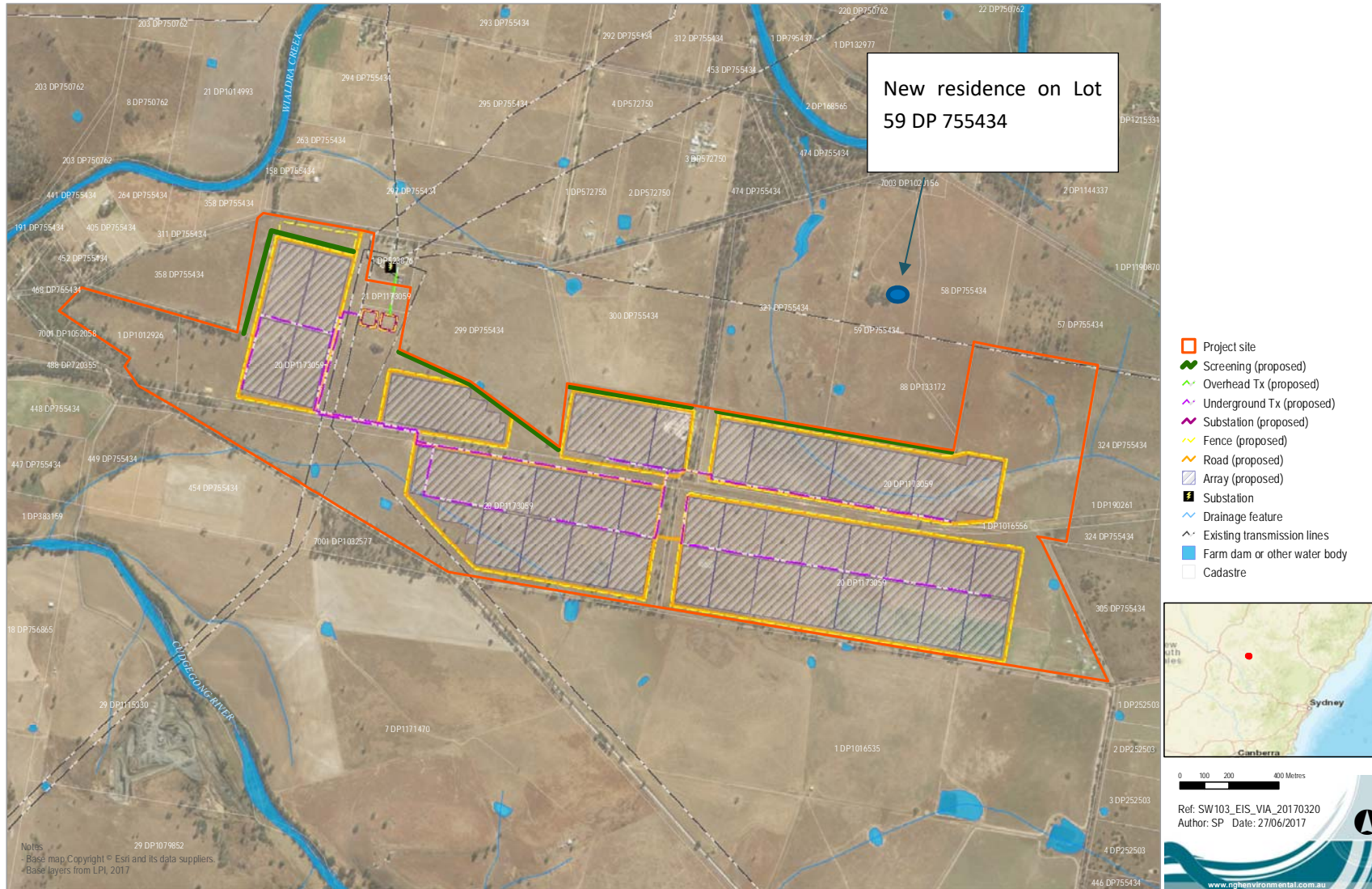
Concerns

The following concerns were raised by in the additional feedback forms (number of forms that raise the issue):

- Noise and sleep disturbance (6 responses)
- Visual impacts (5 responses)
- Potential to devalue properties and lack of compensation (3 responses)
- Pollution (1 response)
- Traffic such as increased heavy vehicles and road deterioration (1 response)
- Impacts on native fauna and bird life (3 responses)
- Electromagnetic fields, radiation and health risks (3 responses)
- Dust production (1 response)
- Too close to residents (1 response)
- Located on productive agricultural land (7 responses)
- Impacts on quality of life and rural lifestyle (1 response)
- Temperature effects (1 response)
- Fire hazards (1 response)

All these concerns have been addressed in the proponent's response to submissions Section 4.

APPENDIX E REVISED LANDSCAPE PLAN



APPENDIX F REVISED TRAFFIC NUMBERS

Table 8-1 Total overall one-way traffic movements including heavy vehicles for the delivery of equipment and infrastructure, anticipated throughout the construction period of 12 months.

Phase	Purpose	Vehicle Type / Trailer Type	No. of One Way Vehicle Movements
Site Set-Up and De-mobilisation	Portacabin delivery and removal	Low loader	10
	Skip delivery and removal	Low loader	4
	Generator delivery and removal	Semi-trailer	1
	General Deliveries	Semi-trailer	12
	Crane mob and demob	Crane	1
	Water tank delivery and removal	Truck	2
Roads and hardstands	Delivery of imported capping for roads, laydowns and crane hardstands	Truck and dog	390
	Plant delivery and removal: excavators, compactors, drill rig	Low loader	16
Generating Equipment	Tool container delivery and removal	Low loader	2
	Module deliveries	Semi-trailer	1,089
	Mounting structure and pile deliveries	Semi-trailer	1,045
	Inverter Station deliveries	Low loader	40
	DC cabling, trays and combiner boxes	Semi-trailer	25
AC Cable Installation	AC Cable delivery	Semi-trailer	8
	Backfill material delivery	Dump Truck	36
	Plant delivery and removal: Telescopic handler and excavator	Low loader	4
Overhead Line	Conductor delivery	Semi-trailer	1
	Pole deliveries	RAV	2
	Pole dressing delivery	Semi-trailer	2
	Plant delivery and removal: Telescopic handler and excavator	Low loader	8
Sub Station	Concrete deliveries	Concrete agitator	20
	Switchroom delivery	Low loader	4
	O&M and workshop deliveries	Low loader	8
	Transformer delivery	RAV	2
	Electrical equipment deliveries	Semi-trailer	16
Other	Employee vehicle movements	Light vehicle	10,667
	Monitoring equipment, fibre, SCADA servers etc.	Truck	12
	Waste Collection	Truck	104
	Consumables (Oil, Petrol etc.)	Truck	16
	Miscellaneous deliveries	Light vehicle (Vans)	96
Total *			13,860

*Assume water source is onsite

Assume rock needs to be imported for road capping

APPENDIX G FINAL ACHAR

APPENDIX H NOISE RECEIVER MAP

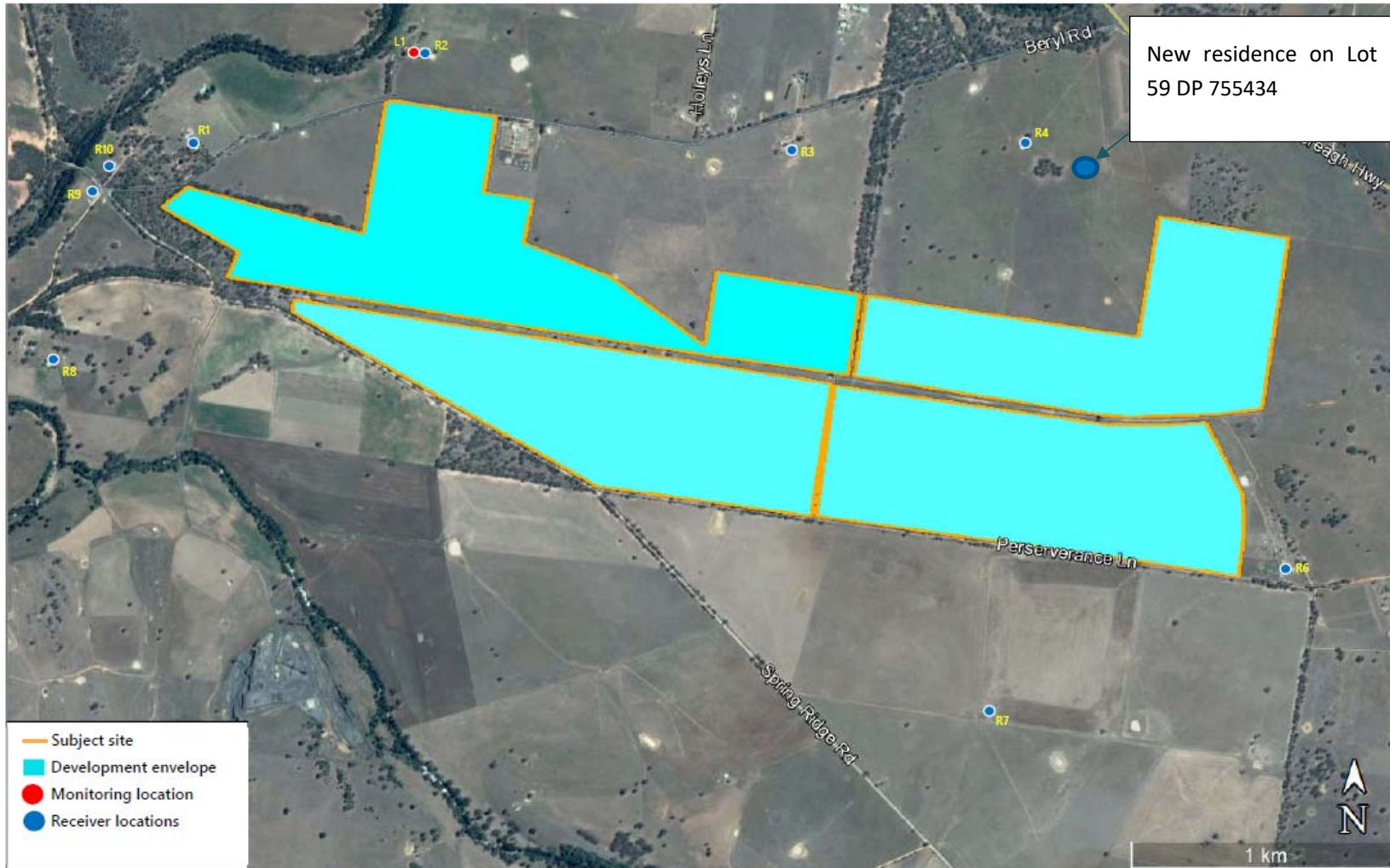


Figure 8-1 Residential receivers and noise monitoring locations adjacent to the proposal site

APPENDIX I DEFINITION OF VEGETATION ZONES AND EEC

Zone ID	Vegetation zones	Condition class	EEC status?	Area (ha) within development footprint	Survey effort (number of plots completed)	Site value score (current)	Vegetation zone clarification	Justification for EEC status
1	PCT #281 BVT #CW111 Rough-barked Apple – Red Gum – Yellow Box Woodland on alluvial clay to loam soils on valley flats in the NSW SWS and BBS Bioregions	Moderate - good	Yes	0	2	66.67	Overstorey present >25% of lower benchmark with high diversity native understorey	EEC in good condition
2	PCT #281 BVT #CW111 Rough-barked Apple – Red Gum – Yellow Box Woodland on alluvial clay to loam soils on valley flats in the NSW SWS and BBS Bioregions	Moderate - Good	Yes	0.99	3	67.33	Overstorey present >25% of lower benchmark with exotic dominated understorey and occasional disturbance tolerant natives	EEC based on presence of overstorey
3	PCT #281 BVT #CW111 Rough-barked Apple – Red Gum – Yellow Box Woodland on alluvial clay to loam soils on valley flats in the NSW SWS and BBS Bioregions	Low	Yes	16.14	3	47.33	Overstorey present <25% of lower benchmark with exotic dominated understorey and occasional disturbance tolerant natives	EEC based on presence of overstorey albeit low density

Zone ID	Vegetation zones	Condition class	EEC status?	Area (ha) within development footprint	Survey effort (number of plots completed)	Site value score (current)	Vegetation zone clarification	Justification for EEC status
4	<p>PCT #281</p> <p>BVT #CW111</p> <p>Rough-barked Apple – Red Gum – Yellow Box Woodland on alluvial clay to loam soils on valley flats in the NSW SWS and BBS Bioregions</p>	Low	No	95.04	3 (+2)	10.00	Derived grassland in low condition. Exotic dominated understorey and occasional disturbance tolerant natives	<p>The NSW Scientific Committees determination for the EEC states that <i>“The understorey may be highly modified by grazing history and disturbance... Disturbed remnants are still considered to form part of the community including remnants where the vegetation, either understorey, overstorey or both, would, under appropriate management, respond to assisted natural regeneration, such as where the natural soil and associated seed bank are still at least partially intact”</i>. The areas mapped as Low condition derived grassland are considered unlikely to respond to assisted natural regeneration. There was no evidence of natural overstorey regeneration in these areas and given the very low density and diversity of native species, the seed bank appears to be mostly depleted. Weed loads are very high, particularly of annual species which flourish in spring and autumn and die off to form a dense cover of litter in summer and winter which is likely to inhibit the further establishment of perennial native ground covers. The</p>

Zone ID	Vegetation zones	Condition class	EEC status?	Area (ha) within development footprint	Survey effort (number of plots completed)	Site value score (current)	Vegetation zone clarification	Justification for EEC status
								conservation value of these areas is considered to be very low and they are not considered to be part of the Box-Gum Woodland EEC.
5	<p>PCT #281 BVT #CW111</p> <p>Rough-barked Apple – Red Gum – Yellow Box Woodland on alluvial clay to loam soils on valley flats in the NSW SWS and BBS Bioregions</p> <p><u>Revised to</u></p> <p>PCT#400 BVT #CW248</p> <p>Riparian sedgeland rushland wetland of the Pilliga to Goonoo sandstone forests, Brigalow Belt South Bioregion</p>	Moderate - good	No	17.89	3	20.67	Originally considered derived grassland, native and exotic dominated, but with the native component is dominated by wet area species such as <i>Eleocharis</i> , <i>Juncus</i> , <i>Isolepis</i> and <i>Carex</i> . Further consideration of the species composition and topographic context has determined that this community is more representative of PCT400 than typical of a grassy woodland such as PCT281.	Originally not considered to be an EEC based on the species composition not being typical of a grassy woodland such as Box-Gum Woodland as described in the Scientific Committees determination for the community. Further consideration of this aspect along with consideration of topographic context has determined that the PCT was more appropriately classified as PCT400. This PCT is not associated with any EECs. The habitats provided by this PCT within the development site are considered unlikely to support any threatened species. As this PCT is not considered an EEC or threatened species habitat within the development site, it is maintained (as concluded in the BAR) that offsets are not required for impacts to this vegetation in accordance with Section 9 - Table 4 of the FBA.

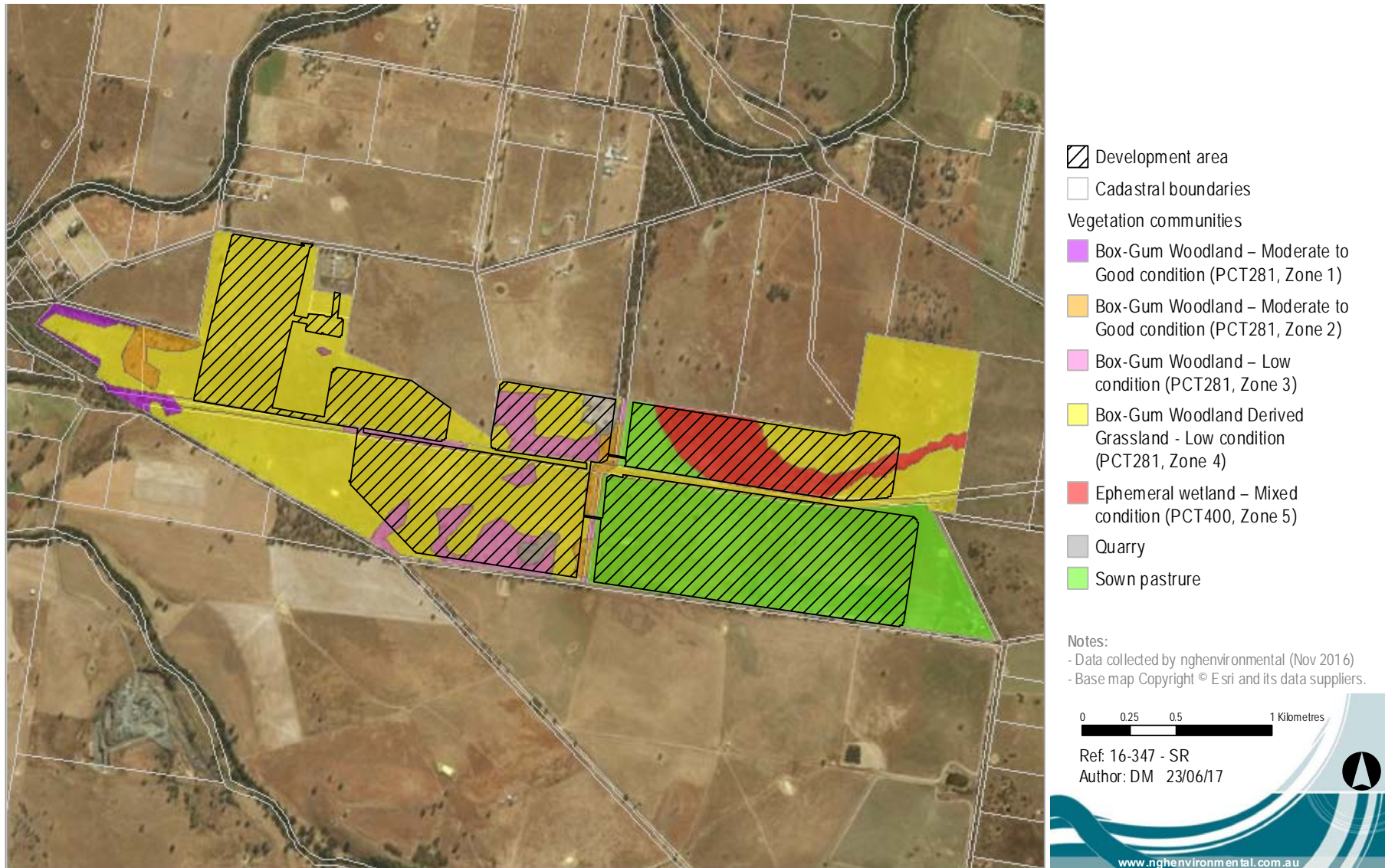


Figure 8-2 Updated Biodiversity Assessment Report Vegetation zones

APPENDIX J BIODIVERSITY OFFSET STRATEGY

APPENDIX K MAP OF SOLAR RESOURCES

APPENDIX L LETTERS OF CONSENT AND SUPPORT