



Narrabri South Solar Farm

*State Significant
Development Assessment
(SSD 8387)*

December 2018

© Crown Copyright, State of NSW through its Department of Planning and Environment 2018

Cover photo

Source: Moree Solar Farm. Moree, NSW. Department of Planning and Environment Image Database (<https://images.planning.nsw.gov.au>).

Disclaimer

While every reasonable effort has been made to ensure this document is correct at time of printing, the State of NSW, its agents and employees, disclaim any and all liability to any person in respect of anything or the consequences of anything done or omitted to be done in reliance or upon the whole or any part of this document.

Copyright notice

In keeping with the NSW Government's commitment to encourage the availability of information, you are welcome to reproduce the material that appears in this report. This material is licensed under the Creative Commons Attribution 4.0 International (CC BY 4.0). You are required to comply with the terms of CC BY 4.0 and the requirements of the Department of Planning and Environment. More information can be found at: <http://www.planning.nsw.gov.au/Copyright-and-Disclaimer>.



Executive Summary

Canadian Solar (Australia) Pty Ltd proposes to develop a new 60 megawatt (MW) solar farm near Narrabri in north-western NSW.

Engagement

The Department publicly exhibited the Environmental Impact Statement for the project from 16 May 2018 until 15 June 2018 and received eight submissions, including six from Government agencies and two from the general public.

None of the Government agencies objected to the project. One community submission supported the project and the other objected to it.

Assessment

The two key issues for the project are land use compatibility and potential flooding impacts.

The project would use around 152 ha of agricultural land and with the nearby operational Moree Solar Farm would contribute to the loss of around 528 ha of agricultural land to solar development. The Department considers the loss of this land would have a negligible impact on the agricultural output of the region, given it represents about 0.007% of the agricultural land in the region.

The project site is located in the Upper Namoi Valley Floodplain on land located below the 'flood planning level' under the *Narrabri Local Environment Plan 2012*. The project's development footprint has been designed to avoid the most flood affected land within the site, however most of the site would be affected by flood waters during a 1% Annual Exceedance Probability (AEP) flood event. The Applicant undertook modelling to assess the impact of the project on flood behaviour, which demonstrated that the project is unlikely to have a consequential impact on flood waters and would comply with the *Narrabri Local Environment Plan 2012* assessment criteria for permissible development on a floodplain. As such, both the Department and DoI – L&W consider that the project would not result in any significant impacts on adjacent properties or high value infrastructure in the event of a flood.

Summary

Overall, the Department considers the site to be suitable for the project as it has good solar resources and is close to the existing electricity network.

The project is consistent with the Commonwealth's *Renewable Energy Target* and NSW's *Renewable Energy Action Plan* as it would contribute 60 MW of renewable energy to the National Electricity Market. The project would also provide flow-on benefits to the local community, including up to 112 construction jobs, with a capital investment value of \$82 million.

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



Contents

Executive Summary	iii
1. Introduction	1
2. Project	2
3. Strategic Context	4
3.1 Project setting	4
3.2 Other solar farms	4
3.3 Energy Context	6
4. Statutory Context	7
4.1 State Significant Development	7
4.2 Permissibility	7
4.3 Integrated and Other Approvals	7
4.4 Mandatory Matters for Consideration	7
5. Engagement	8
5.1 Department's Engagement	8
5.2 Submissions and Response to Submissions	8
5.3 Key Issues – Government Agencies	8
5.4 Key Issues – Community	9
6. Assessment	9
6.1 Compatibility of Proposed Land Use	9
6.2 Water Resources	10
6.3 Other Issues	12
7. Evaluation	16
8. Recommendation	17
9. Determination	17
Appendices	18
Appendix A – List of Documents	19
Appendix B – Environmental Impact Statement	20
Appendix C – Additional Information	21
Appendix D – Statutory Considerations	22
Appendix E – Submissions	24
Appendix F – Response to Submissions	25
Appendix G – Recommended Conditions of Consent	26



1. Introduction

Canadian Solar (Australia) Pty Ltd (the Applicant) proposes to develop a new 60 megawatt (MW) solar farm (the project) approximately 10 kilometres (km) southeast of Narrabri, in the Narrabri local government area (see **Figure 1**).

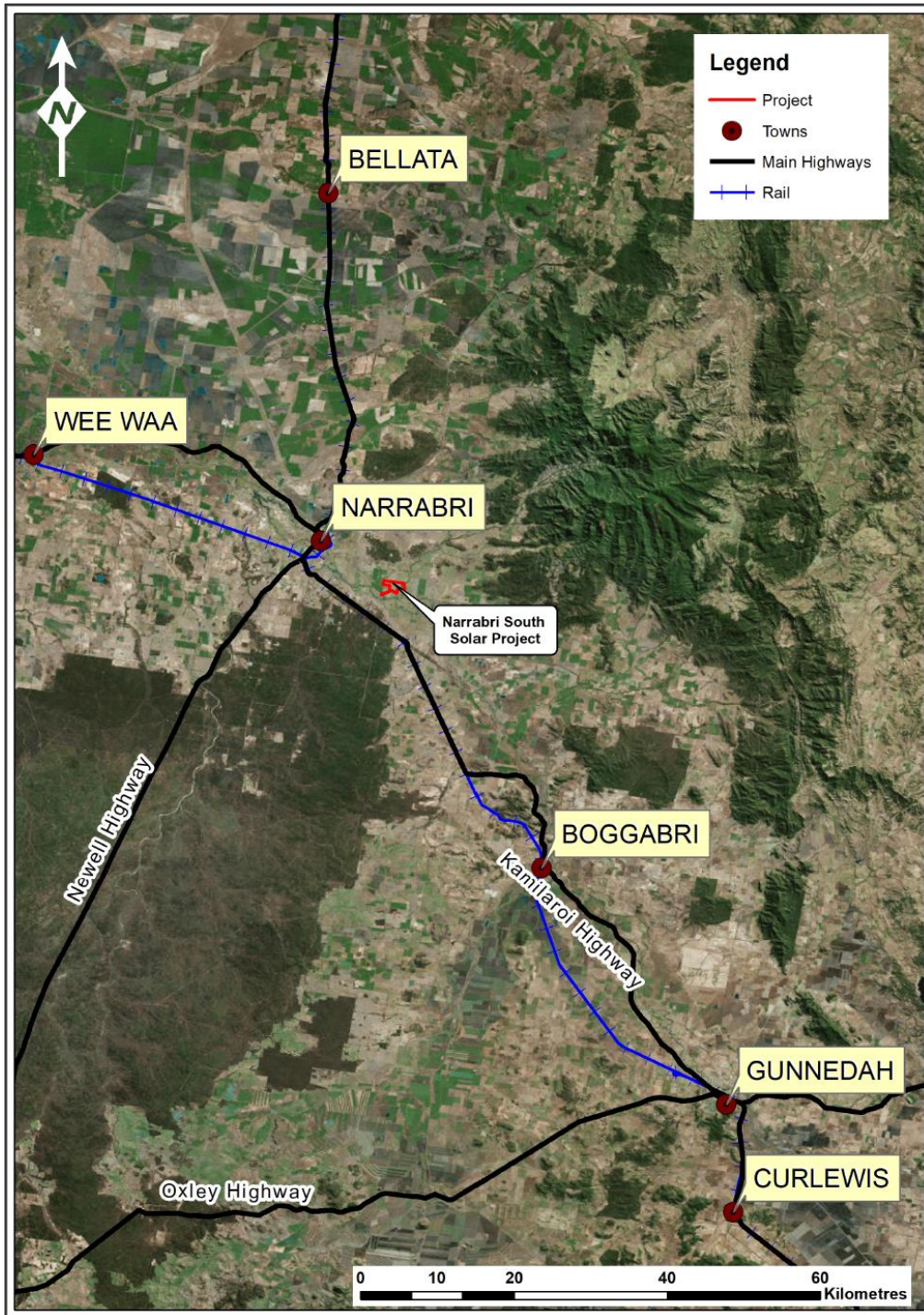


Figure 1 | Regional Context Map



2. Project

The project involves the construction of a new solar farm with a generating capacity of approximately 60 MW. It also involves the upgrading and decommissioning of infrastructure and equipment in the future. While the capacity of the project may increase over time as technology improves, the footprint of the development would not increase.

The key components of the project are summarised in **Table 1**, depicted in **Figure 2**, and described in the Environmental Impact Statement (EIS) (see **Appendix B**) and additional information provided during the Department's assessment of the project (see **Appendix C**).

Table 1 | Main Components of the Project

Aspect	Description
Project summary	<p>The project includes:</p> <ul style="list-style-type: none">• approximately 200,000 solar panels (up to 3 m high) and 10 inverter stations (up to 3 m high);• an on-site 66 kilovolt (kV) substation;• internal access tracks, car park, maintenance building (up to 5 m high), vegetation screening, fire breaks, security fencing and an access driveway; and• subdivision of the project site.
Project area	190 ha (with a 152 ha development footprint)
Access routes	<ul style="list-style-type: none">• Over-dimensional and heavy vehicles (>19 m in length) would access the site via the Newell Highway, Tibbereena Street, Fitzroy Street, Maitland Street and Old Gunnedah Road.• Other vehicles (<19 m in length) may also access the site via the Kamilaroi Highway, Turrawan Road and Old Gunnedah Road.
Site entry and road upgrades	<ul style="list-style-type: none">• A new access driveway would be created off Old Gunnedah Road.• Road upgrades are required at the intersection of Old Gunnedah Road and the site access driveway.
Operational life	<ul style="list-style-type: none">• The expected operational life of the infrastructure is approximately 35 years. However, the project may involve infrastructure upgrades that could extend the operational life.• The project also includes decommissioning at the end of the project life, which would involve removing all infrastructure.
Construction	<ul style="list-style-type: none">• Construction would last for up to nine months.• Construction hours would be limited to Monday to Friday 7 am to 6 pm, and Saturday 8 am to 1 pm.
Hours of operation	<ul style="list-style-type: none">• The project would operate during daylight hours. Daily operations and maintenance would be undertaken Monday to Friday 7 am to 6 pm.
Employment	Up to 112 construction jobs, and 5 operational jobs.
Capital investment value	\$82 million

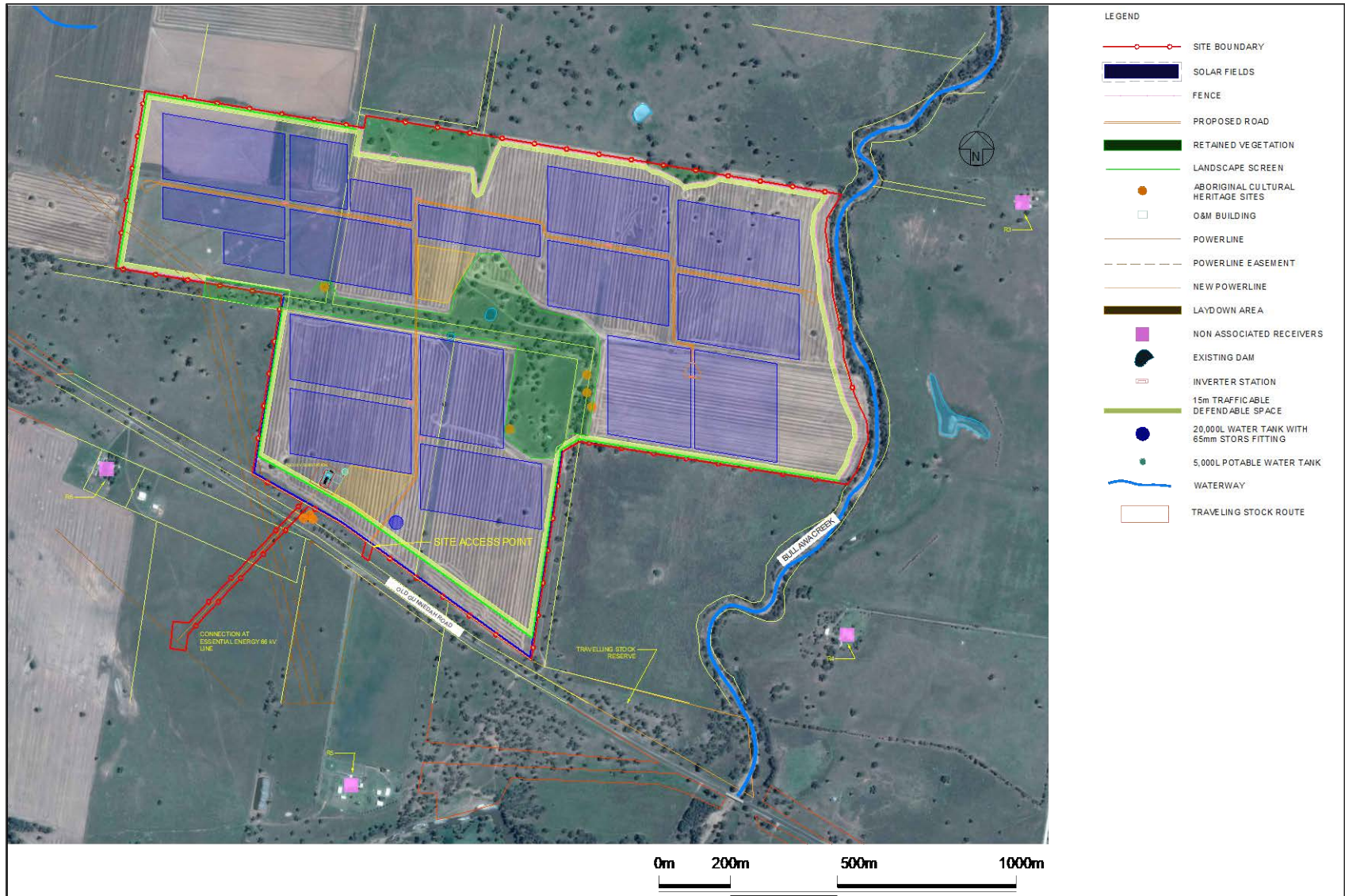


Figure 2 | Project Layout



3. Strategic Context

3.1 Project setting

The project is located on a 190 hectare (ha) site that is comprised of relatively flat open grassland (with pockets of remnant native vegetation) that has historically been used for agricultural grazing and cropping. The site is zoned RU1 – Primary Production under the *Narrabri Local Environment Plan (LEP) 2012* (Narrabri LEP).

The proposed development footprint is 152 ha and was designed to avoid disturbing native vegetation and Aboriginal cultural heritage sites, and to minimise flooding impacts (see **Figure 2**).

The land surrounding the site is also zoned RU1 and is used for agricultural purposes.

The site is located within the Namoi River Catchment. Bullawa Creek flows adjacent to the eastern site boundary and joins the Namoi River about 900 m south of the site.

The site is bounded by Old Gunnedah Road and a Travelling Stock Reserve to south. A Crown Road reserve also traverses the centre of the site.

There are four non-associated residences located within 2 km of the site, with the closest residence located 380 m south west of the site.

Essential Energy's 66 kilovolt (kV) transmission line is approximately 520 m south of the site.

3.2 Other solar farms

The New England North West region has attracted considerable interest from solar developers given the proximity of major transmission lines and existing electricity substations.

In this regard, there are five proposed and one operational State significant development solar projects within approximately 100 km of the project (see **Table 2** and **Figure 3**).

Table 2 | Nearby solar farms

Project	Capacity (MW)	Status	Approximate distance from the project (km)
Silverleaf	120	Proposed	11
Wee Waa	55	Proposed	38
Gunnedah	150	Proposed	75
Narrabri South	60	Proposed	80
Moree Solar	150	Operational	90
Tamworth	80	Proposed	100

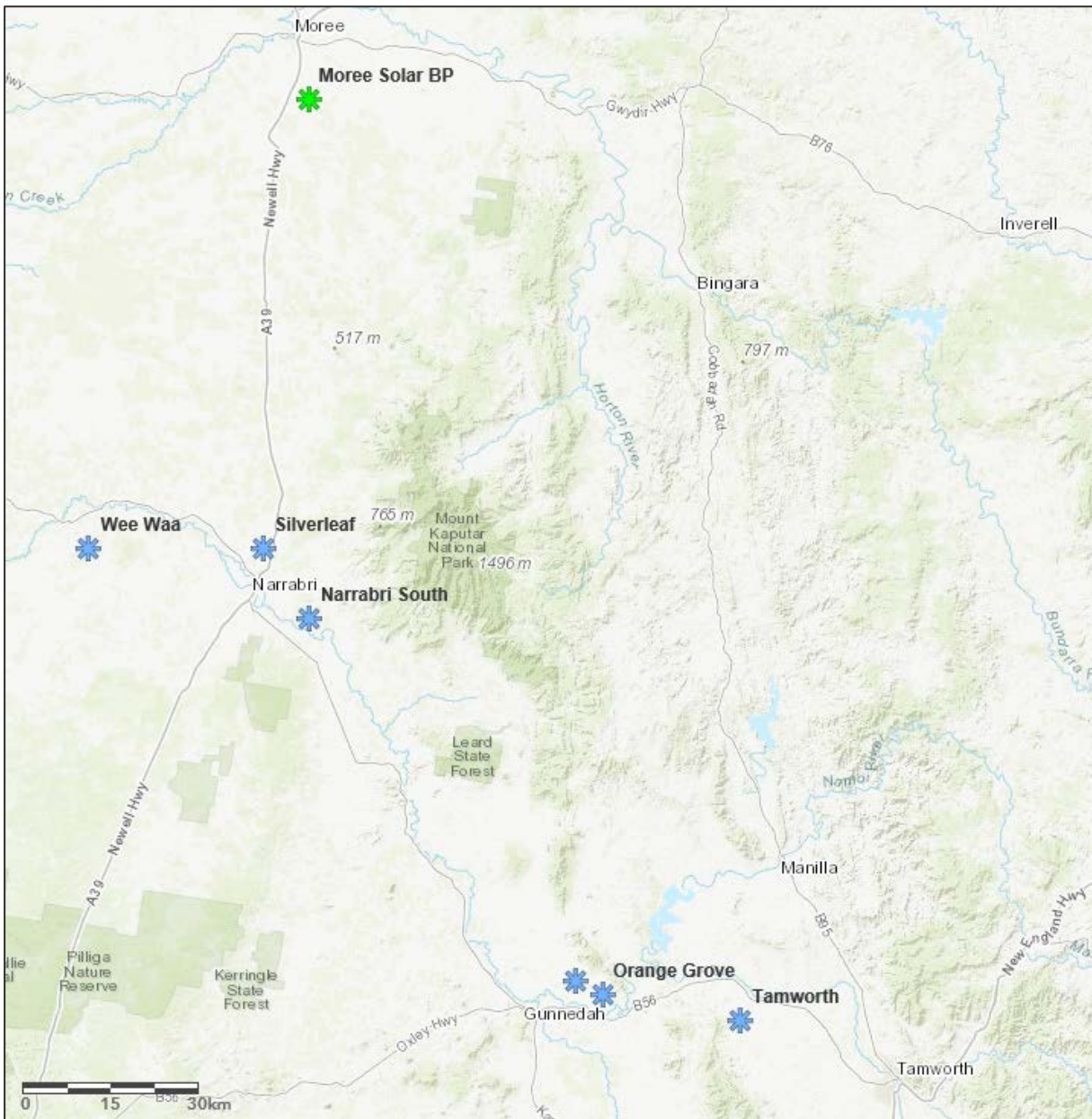


Figure 3 | Nearby Solar Farms

The key issues for cumulative impacts relate to workforce accommodation, traffic and impacts on agricultural land.

One of these projects (i.e. Moree Solar) is operational, and the two projects located closest to the project (i.e. Wee Waa Solar and Silverleaf Solar) are at an early stage of the assessment process as the Department has not yet received a development application or environmental impact statements (EIS) for these projects yet. The three remaining projects (i.e. Gunnedah Solar, Orange Grove Solar and Tamworth Solar) are located over 75 km from the project and closer to the larger settlements of Gunnedah and Tamworth.

Any cumulative impacts would be limited to impacts associated with workforce accommodation and construction traffic.

In regard to workforce accommodation, the construction workforce for many of these solar projects would be sourced from the local and wider region, including neighbouring towns and local government areas, as discussed further in **section 6.3**.

In regard to construction traffic impacts, while the surrounding regional road network may experience an increase in traffic numbers, the local roads along the Narrabri South Solar Farm's transport route would not experience cumulative impacts, as only the project would be using these roads for construction traffic, as discussed further in **section 6.3**.

The broader potential cumulative impacts on agricultural land in the region is discussed further in **section 6.1**.

There would be no cumulative visual or noise impacts due to the distance from the project to other projects in the region.

3.3 Energy Context

In 2017, NSW derived approximately 15.8% of its energy from renewable sources. The rest was derived from fossil fuels, including 79.3% from coal and 4.8% from gas. However, there are currently no plans for the development of new coal power stations in NSW, and the development of renewable energy sources, like wind and solar farms, is experiencing rapid growth.

This is highlighted in the 2017 *Independent Review into the Future Security of the National Electricity Market* (the Finkel Review), which outlines a strategic approach to ensuring an orderly transition from traditional coal and gas fired power generation to generation with lower emissions. It notes that Australia is heading towards zero emissions in the second half of the century.

The *United Nations Framework Convention on Climate Change* has adopted the Paris Agreement, which aims to limit global warming to well below 2°C, with an aspirational goal of 1.5°C. Australia's contribution towards this target is a commitment to reduce greenhouse gas emissions by 26% to 28% below 2005 levels by 2030.

One of the key initiatives to deliver on this commitment is the Commonwealth Government's *Renewable Energy Target*. Under this target, more than 20% of Australia's electricity would come from renewable energy by 2020. It is estimated that an additional 5,400 MW of new renewable energy capacity will need to be built by 2020 to achieve the *Renewable Energy Target*.

The *NSW Climate Change Policy Framework*, released in November 2016, sets an aspirational objective for NSW to achieve net zero emissions by 2050. The NSW Government also has a *Renewable Energy Action Plan*, which promotes the development of renewable energy in NSW.

NSW is currently leading Australia in large-scale solar, with eight major operational projects, including the largest solar farm in Australia.

In March 2018, the NSW Government identified 10 potential Energy Zones across three broad regional areas, including the New England, Central West and South West regions of NSW. The identified energy zones are aimed at encouraging "investment in new electricity infrastructure and unlocking additional generation capacity in order to ensure secure and reliable energy in NSW".

The project would not be located in any of the three priority energy zones. However, with a capacity of 60 MW, the project would generate enough electricity to power up to 22,000 homes, and is therefore consistent with both the Commonwealth's *Renewable Energy Target* and NSW's *Renewable Energy Action Plan*.



4. Statutory Context

4.1 State Significant Development

The project is classified as State Significant Development under Section 4.38 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This is because it triggers the criteria in Clause 20 of Schedule 1 of *State Environmental Planning Policy (SEPP) (State and Regional Development) 2011*, as it is development for the purpose of electricity generating works with a capital investment value of more than \$30 million.

Consequently, the Minister for Planning is the consent authority for the development. However, under the Minister's delegation of 11 October 2017, the Executive Director, Resource Assessments and Business Systems, may determine the development application.

4.2 Permissibility

The site is located wholly within land zoned RU1 Primary Production under the Narrabri LEP. As a solar farm is not expressly listed as permitted with or without consent, it is a prohibited land use under a strict reading of the LEP zoning table.

Under the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) electricity generating works are permissible on any land in a prescribed rural, industrial or special use zone. Consequently, the project is permissible with as it is located wholly within land zoned RU1, which is a prescribed rural zone.

4.3 Integrated and Other Approvals

Under Section 4.41 of the EP&A Act, a number of other approvals are integrated into the State Significant Development approval process, and consequently are not required to be separately obtained for the proposal.

Under Section 4.42 of the EP&A Act, a number of further approvals are required, but must be substantially consistent with any development consent for the proposal (e.g. approvals for any works under the *Roads Act 1993*).

The Department has consulted with the relevant government agencies responsible for the integrated and other approvals, considered their advice in its assessment of the project, and included suitable conditions in the recommended conditions of consent to address these matters (see **Appendix G**).

4.4 Mandatory Matters for Consideration

Section 4.15 of the EP&A Act outlines the matters that a consent authority must take into consideration when determining development applications. These matters are summarised as:

- the provisions of environmental planning instruments (including draft instruments), development control plans, planning agreements, and the EP&A Regulations;
- the environmental, social and economic impacts of the development;
- the suitability of the site;
- any submissions; and
- the public interest, including the objects in the EP&A Act and the encouragement of ecologically sustainable development (ESD).

The Department has considered all of these matters in its assessment of the project, as well as the Applicant's consideration of environmental planning instruments in its EIS, as summarised in **section 6** of this report. The Department has also given consideration to the relevant provisions of the environmental planning instruments in **Appendix D**.

5. Engagement

5.1 Department's Engagement

The Department publicly exhibited the EIS from 16 May 2018 until 15 June 2018, and advertised the exhibition in the Namoi Valley Independent and Narrabri North West Courier.

On 13 June 2018, the Department inspected the site and met with a member of the community who raised concerns about the project. The Department has also consulted with the relevant government agencies throughout the assessment process, including Council.

5.2 Submissions and Response to Submissions

During the exhibition, the Department received eight submissions, including:

- advice from six from government agencies (all comments); and
- two from the general public (one supporting and one objecting).

Full copies of the submissions are attached in **Appendix E**.

The Applicant provided a response to all matters raised in submissions on the project (see **Appendix F**), as well as additional information to address matters raised by the Department and other agencies during the assessment process (see **Appendix C**). This included revising the development footprint to avoid all impacts on Aboriginal cultural heritage items and reduced flooding impacts.

5.3 Key Issues – Government Agencies

Narrabri Shire Council did not object to the project. However, Council requested additional information on flooding, essential services, bushfire management measures, site rehabilitation and potential visual and traffic impacts. These matters have been addressed by the Applicant's Response to Submissions (RTS) and the Department's recommended conditions of consent, and are discussed in **section 6** of this report.

The **Department of Industry – Lands and Water (DoI L&W)** recommended that the Applicant be required to undertake further assessment of the potential flooding impacts, having regard to the *Draft Floodplain Management Plan for the Upper Namoi Valley Floodplain 2016* (draft FMP). The Applicant provided a revised Flood Impact Assessment, and this issue is discussed further in **section 6.2**. DoI L&W also made several recommendations relating to Crown Land, the adjacent Travelling Stock Reserve, development near creeks and water licensing. The Department has considered all these matters in its assessment, and incorporated DoI L&W's comments into the recommended conditions of consent.

The **Roads and Maritime Services (RMS)** recommended that the Applicant develop a Traffic Management Plan, complete specific intersection upgrades and install signage during construction. These requirements have been incorporated into the recommended conditions of consent.

The **Office of Environment and Heritage (OEH)** requested clarification about inconsistencies in the EIS relating to biodiversity and Aboriginal cultural heritage. These matters have been addressed through the provision of a revised Aboriginal Cultural Heritage Assessment and Biodiversity Assessment Report. OEH raised no further concerns and acknowledged the Applicant's effort to avoid impacts.

The **Rural Fire Service (RFS)** recommended specific operating requirements related to bushfire preparation and management, which have been incorporated into the recommended conditions of consent.

The **Division of Resources and Geoscience (DRG)** confirmed it is satisfied that the project would not sterilise any mineral resources.

5.4 Key Issues – Community

The community submission supporting the project was from a member of the public located north of the township of Narrabri. The submission supports renewable energy development in the region and the socio-economic benefits of the project.

The community submission objecting to the project was from the owner of receivers R3 (agricultural sheds) and R4 (dwelling), located beyond Bullawa Creek to the east of the site (see **Figure 2**). The submission raised concerns about the potential for the project to affect the approval process of a potential future dwelling on the property. The submission also raised concerns about glare and requested mitigation for this potential impact. These matters are addressed in **section 6.3** of this report.



6. Assessment

6.1 Compatibility of Proposed Land Use

Provisions of the Narrabri LEP

The site is located wholly within the RU1 Primary Production zone under the Narrabri LEP. The RU1 zone includes various land uses that are both permitted with and without consent. As a solar farm is not expressly listed as permitted with or without consent, it is a prohibited land use under a strict reading of the LEP.

However, based on a broader reading of the LEP, and consideration of the objectives of the RU1 zone and other strategic documents for the region, the Department considers that there is no clear intention to prevent the development of a solar farm on the project site.

Firstly, the Narrabri LEP expressly references the Infrastructure SEPP and acknowledges that electricity generating works are regulated by the Infrastructure SEPP, rather than the LEP. As described above, a solar farm is permitted with consent on land zoned RU1 under the Infrastructure SEPP.

Secondly, the project is consistent with the objectives of the RU1 zone, particularly in relation to:

- encouraging diversity in primary industry enterprises and systems appropriate for the area;
- minimising fragmentation and alienation of resource lands; and
- allowing for non-agricultural land uses that will not restrict the use of other land for agricultural purposes.

The proposed development would not fragment or alienate any resource lands during its operation as it has generally low impacts and it could be easily returned to agricultural land following decommissioning. Further, managed grazing may also occur during the operation of the solar farm.

Additionally, while the Narrabri Shire local government area has traditionally relied on agriculture, the introduction of solar energy would contribute to a more diverse local industry, thereby supporting the local economy and community.

Finally, the project is also consistent with the Department's *New England North West Regional Plan 2036* which identifies the development of renewable energy generation as a future growth opportunity for the region.

Potential Impacts on Agricultural Land

The project is located within the New England North West Region, one of the State's most fertile and productive agricultural areas. Over 1.5 million ha of this region has been mapped as Biophysical Strategic Agricultural Land (BSAL).

While the development footprint (152 ha) does not include any mapped BSAL, it is currently used for cropping and low intensity grazing. The development of the solar farm would therefore reduce the agricultural output of the site.

The development footprint of the project combined with the operational Moree Solar Farm would be 528 ha.

However, the loss of 528 ha of agricultural land represents a small fraction (<0.007%) of the land being used for agricultural output in the New England North West Region and would result in a negligible reduction in the overall productivity of the region.

Notwithstanding the five proposed State significant development solar projects, there are currently no other approved or operational large-scale solar projects within 100 km of the site.

Additionally, the inherent agricultural capability of the land would not be affected by the project due to the relatively low scale of the development. Managed grazing may be used to maintain the height of ground cover during operations and the land would be returned to agricultural use following decommissioning.

The potential loss of a small area of cropping and grazing land in the region must be balanced against:

- the broader strategic goals of the Commonwealth and NSW governments for the development of renewable energy into the future;
- the environmental benefits of solar energy, particularly in relation to reducing greenhouse gas emissions;
- the economic benefits of solar energy in an area with good solar resources and capacity in the existing electricity infrastructure; and
- the benefits of dispatchable energy for grid stability and reliability.

The Applicant proposes to return the land back to existing levels of agricultural capability and the Department has included rehabilitation objectives in the recommended conditions to maintain the productivity of the agricultural land during the construction and operation of the project, and to fully reinstate the agricultural capability of the land following decommissioning of the project.

6.2 Water Resources

The project site is located in the Namoi River catchment approximately 430 m north of the Namoi River, at its closest point. Bullawa Creek, which flows south into the Namoi River, abuts the eastern site boundary. Due to the site's proximity to the Namoi River and Bullawa Creek, it is located within the floodplains of both watercourses, as well as on land located below the 'flood planning level' under the Narrabri LEP (which is the 1% Annual Exceedance Probability (AEP) flood event plus 0.5 m freeboard).

There are no natural watercourses within the site, but there are a number of ephemeral drainage lines that run from the north-east to the south-west across the site.

The project's development footprint has been designed to avoid the most flood affected land within the site, including a 55 m setback from Bullawa Creek and a 150 m setback from the site's southern boundary.

Notwithstanding, in a 1% AEP flood event for Bullawa Creek, the majority of the site would be inundated to a height of between 0.2 m and 0.6 m at a velocity up to 0.7 m/s.

In a 1% AEP event for the Namoi River, a small area along the southern site boundary would be inundated to a height of between 0.2 m to 0.4 m at a velocity up to 0.2 m/s. No project infrastructure is located within this area.

Under the Narrabri LEP, a consent authority must not grant consent to a development located on land below the 'flood planning level' unless it is satisfied the development would not significantly adversely affect flood behaviour and the surrounding environment during a 1% AEP event. The *Draft Floodplain Management Plan for the Upper Namoi Valley Floodplain 2016* coordinates the development of future flood works on the Namoi River floodplain.

In order to assess the impact of the project on flood behaviour, the Applicant commissioned two flood impact assessments, including:

- Narrabri Solar Farm Flood Study, WRM Water & Environment Pty Ltd, 14 December 2017; and
- Narrabri Solar Farm Flood Assessment, WRM Water & Environment Pty Ltd, 30 October 2018.

The assessments demonstrated that in a 1% AEP event for both Bullawa Creek and the Namoi River, the project is unlikely to have a consequential impact on flooding within and downstream of the development. Additionally, the assessments demonstrated that the project's infrastructure (including substation, operations, maintenance building, water tanks and security fencing) would comply with the Narrabri LEP assessment criteria for permissible development on a floodplain.

As such, both the Department and DoI – L&W consider that the project would not result in any significant impacts on adjacent properties and high value infrastructure in the event of a flood. Notwithstanding, the Department has recommended conditions requiring the Applicant to implement appropriate flood management practices to ensure the development is consistent with the *Draft Floodplain Management Plan for the Upper Namoi Floodplain 2016*.

Any potential erosion and sedimentation risks associated with the project can be effectively managed using best practice construction techniques.

The project would not have any impact on groundwater sources or groundwater dependent ecosystems.

Water Demands

The project would require approximately 2 megalitres (ML) of water during construction (mainly for dust suppression) and 0.2 ML of water annually during operation. A static water supply (20,000 litres) would also be established and maintained for fire protection and a 5,000 litre potable water storage tank would provide water for use at the operations and maintenance building.

Water demands would be met via a combination of potable water trucked to the site and water sources from on-site bores (consistent with existing Water Access Licences. Following confirmation about which bores would be used, DoI - L&W raised no concerns about water supply or licencing.

Recommended Conditions

To ensure that impacts on water resources are minimised, the Department has recommended conditions requiring the Applicant to:

- minimise any soil erosion associated with the construction, upgrading or decommissioning of the project in accordance with OEH's *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) manual;
- implement appropriate flood management practices to ensure the development is consistent with the *Draft Floodplain Management Plan for the Upper Namoi Floodplain 2016*, or its latest version; and
- ensure all works are undertaken in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (2012), and *Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (2004).

Subject to the recommended conditions, the Department and Council consider that the project would not result in significant impacts in the event of flooding.

6.3 Other Issues

The Department's consideration of other issues is summarised in **Table 3**.

Table 3 | Other Issues

Issue	Findings	Recommended Condition
<i>Visual</i>	<ul style="list-style-type: none"> • The solar panels would be relatively low lying (up to 3.5 m). • The maintenance building and substation would stand at a maximum height of 5 m and 3.5 m, respectively. These structures would be a similar size to agricultural sheds commonly utilised in the area. • Three non-associated residences (i.e. R4, R5, R6) are located within 1 km of the site. There are a further 22 non-associated residences located within 2 km of the site, the majority of which form part of a low-density residential zone to the northwest. • The relatively low height of the infrastructure combined with the flat topography and existing vegetation would limit views of the site from surrounding residences, particularly residences located beyond 1 km from the site. • The three residences within 1 km of the site would have views of project infrastructure. To mitigate visual impacts at these receivers, a vegetation buffer would be installed along sections of the northern, western and southern site boundaries. This buffer was expanded to include the south eastern boundary following consultation with the adjacent landowner (R4) who raised concerns about visual impacts. • The proposed visual buffer would also screen views of the site from Old Gunnedah Road. • The owner of receiver (R3), a small group of agricultural sheds, located beyond Bullawa Creek to the east of the site, raised concerns about the potential for the project to impact the approval of a potential future dwelling on the property. However, the Department considers that: <ul style="list-style-type: none"> - existing dense vegetation along Bullawa Creek would mitigate views of the project; - the landowner would have flexibility in locating a potential future dwelling within the property to avoid any adverse impacts from the project; and 	<ul style="list-style-type: none"> • Establish and maintain vegetation buffers. • Prepare and implement a Landscaping Plan. • Ensure that external lighting is minimised and complies with the relevant Australian Standards. • Prohibit any signage or advertising on the development, unless for safety purposes.

Issue	Findings	Recommended Condition
	<ul style="list-style-type: none"> - the project would not affect Council’s ability to approve a dwelling on the property. • The photovoltaic panels are designed to absorb rather than reflect sunlight, and the Department considers that the project would not cause noticeable glint or glare compared to other building surfaces. • With the existing vegetation buffer, the proposed visual screen and the recommended conditions of consent, the Department considers there would be no significant visual impacts on surrounding residential receivers or road users. 	
Noise	<ul style="list-style-type: none"> • Noise generated by the proposed construction, upgrading and decommissioning activities would be well below the ‘highly noise affected’ criterion of 75 dB(A) in the EPA’s <i>Interim Construction Noise Guideline</i> (ICNG). • However, three residences (R3, R4, R5, R6) would experience noise levels of 10 - 17 dB(A) above the ‘noise affected’ criterion of 45 dB(A) at some stage during construction. • These exceedances would short-term (up to 10 weeks at the most affected receiver), limited to standard daytime construction hours and similar to noise generated by agricultural machinery such as tractors and harvesters. • Construction noise would be minimised and managed by implementing the noise mitigation work practices set out in the ICNG, including scheduling activities to minimise noise, using quieter equipment, informing the immediately surrounding landowners and establishing a complaints handling procedure. • There would be negligible noise during operation. 	<ul style="list-style-type: none"> • Minimise the noise generated by any construction, upgrading or decommissioning activities on site in accordance with best practice requirements outlined in the ICNG, including consultation with nearby landowners. • Restrict construction hours to Monday to Friday 7 am - 6 pm, and Saturday 8 am - 1 pm.
Traffic	<ul style="list-style-type: none"> • All vehicles would use the new access driveway off Old Gunnedah Road, which traverses a Travelling Stock Route (TSR). To manage any potential conflict, the Department has incorporated a recommended condition requiring the Applicant to ensure that travelling stock have the right of way to use the existing TSR. • The main increase in traffic volumes associated with the project would occur during the 9 month construction period, with a peak period of 2 months. The estimated peak daily vehicle movements during construction would be 76 vehicle movements per day, comprising 46 light vehicles (cars and shuttle buses) and 30 heavy vehicles (trucks). Additionally, there would be 3 over-dimensional vehicle movements during construction. • Traffic during operations would be negligible (i.e. up to 10 light vehicles per day and 5 heavy vehicles per quarter). • The existing road network can accommodate this traffic without road upgrades. However, the intersection of Old 	<ul style="list-style-type: none"> • Ensure that travelling stock have the right of way to use the existing TSR. • Restricted over-dimensional and heavy vehicles to the Newell Highway, Tibbereena Street, Fitzroy Street, Maitland Street and Old Gunnedah Road route. • Undertake the relevant intersection upgrade prior to commencing construction. • Ensure the number and length of vehicles does not exceed those predicted in the EIS.

Issue	Findings	Recommended Condition
	<p>Gunnedah Road and the site access would be upgraded prior to construction.</p> <ul style="list-style-type: none"> With this and the implementation of a Traffic Management Plan, the Department, RMS and Council are satisfied that the project would not result in significant impacts on the road network capacity, efficiency or safety. 	<ul style="list-style-type: none"> Prepare and implement a Traffic Management Plan in consultation with RMS and Council, including a flood response plan.
Biodiversity	<ul style="list-style-type: none"> The majority of the site is cleared agricultural land. However, the site includes 22 ha of Poplar Box - Yellow Box - Western Grey Box grassy woodland, 16 ha of which is listed as an Endangered Ecological Community (ECC) under the <i>Biodiversity Conservation Act 2016</i> (BC Act) and critically endangered under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The project has been designed to avoid the clearance of all native vegetation on the site (see Figure 2). However, up to 77 isolated paddock trees, including 57 hollow bearing trees, may be cleared. OEH has confirmed that no offsets are required for the clearance of these trees as they are not located within a native vegetation zone. The Applicant proposes to fence off, protect and enhance the areas of retained vegetation; undertake pre-clearance fauna surveys; and relocate hollow bearing trees elsewhere within the site. The project would be unlikely to have a significant impact on any threatened species, populations or ecological communities under the BC Act or EPBC Act. Both the Department and OEH acknowledge that the project has been designed to avoid the clearance of vegetation, and consider that the project is unlikely to result in a significant impact on biodiversity. 	<ul style="list-style-type: none"> Prepare and implement a Biodiversity Management Plan in consultation with OEH, including measures to protect and manage vegetation and fauna habitat outside the approved disturbance area.
Heritage	<ul style="list-style-type: none"> There are no known items of historic heritage in the vicinity of the site. Site surveys identified 10 potential Aboriginal scarred trees within the site. Following consultation with OEH, the project was revised to avoid impacts on all scarred trees. Given the highly disturbed nature of the site, the likelihood of identifying unexpected items during construction is low. OEH confirmed that the Aboriginal Cultural Heritage Assessment complied with the relevant requirements for Aboriginal consultation. 	<ul style="list-style-type: none"> Protect all heritage items on site from any impact. Cease works and notify the NSW Police and OEH if human remains are identified over the life of the project. Prepare a Chance Finds Protocol.
Hazards	<ul style="list-style-type: none"> The project would comply with the National Health and Medical Research Council standards for electric and magnetic fields. Following a request by the RFS, the Applicant has committed to establishing an Asset Protection Zone around the solar array area and preparing a fire management plan. 	<ul style="list-style-type: none"> Ensure that the development complies with the relevant requirements in the RFS's <i>Planning for Bushfire Protection 2006</i>.

Issue	Findings	Recommended Condition
	<ul style="list-style-type: none"> The Department considers that the bushfire risks can be suitably controlled through the implementation of standard fire management procedures. 	<ul style="list-style-type: none"> Prepare Fire Management and Emergency Response Plan.
Workforce accommodation	<ul style="list-style-type: none"> Up to 112 employees would be required during the construction period. Employees would be drawn from the local community where possible. The Applicant has commenced discussions with local accommodation providers to ensure there would be suitable options to accommodate construction employees if required. In addition, the nearby towns of Gunnedah and Moree are located approximately 1 hour from Narrabri, and would provide a potential source of employees and accommodation options if necessary. 	<ul style="list-style-type: none"> No specific conditions required.
Mining and Exploration	<ul style="list-style-type: none"> The site is the subject of a petroleum exploration licence (PEL 238), held by Santos NSW Pty Ltd, and a coal exploration licence (AUTH 216), held by the NSW Department of Industry on behalf of the Crown. The Applicant has consulted with the relevant licensees and DRG has confirmed that sufficient information has been provided about potential exploration land use conflicts and that it has no concerns with the project. While the ability to access the site for mining purposes would be restricted during operation of the project, the Department is satisfied that access to this resource would be returned following decommissioning and rehabilitation. 	<ul style="list-style-type: none"> No specific conditions required.
Subdivision	<ul style="list-style-type: none"> The Applicant proposes to subdivide all lots on which the development footprint is located to facilitate the transfer of land (the Applicant has entered in to an option to Purchase Agreement with the landowner). The proposed subdivision would result in the reconfiguration of five existing lots to create two new development-related lots (58 ha and 132 ha), and one residual lot (16 ha). The residual lot would be retained by the existing landowner for agricultural purposes consistent with the current use. The reconfigured lots below 100 ha would be prohibited under a strict reading of the Narrabri LEP as they would not meet the minimum lot size for RU1 land (100 ha). Notwithstanding, under Section 4.38(3) of the EP&A Act, development consent for the project as a whole can be granted despite the subdivision component of the application being prohibited by the LEP. The Department is satisfied that the subdivision should be approved as: <ul style="list-style-type: none"> it would permit existing agricultural land uses to continue on land that is not required for the development; 	<ul style="list-style-type: none"> Subdivide the proposed lots providing information is provided in accordance with requirements of section 157 of the <i>Environmental Planning and Assessment Regulation 2000</i>.

Issue	Findings	Recommended Condition
	<ul style="list-style-type: none"> - it would not result in the addition of any dwelling entitlements on the subdivided lots; - It is consistent with the key objectives of the RU1 zone as it would encourage diversity and primary industry enterprises and minimise conflict between land uses. • Further, Council has not objected to the proposed subdivision. 	



7. Evaluation

The Department has assessed the development application, EIS, submissions, Response to Submissions and additional information provided by the Applicant and relevant government agencies. The Department has also considered the objectives and relevant considerations under section 4.15 of the EP&A Act.

The Department considers the site to be appropriate for a solar farm as it has good solar resources and available capacity on the existing electricity network.

The project has been designed to largely avoid key constraints, particularly in relation to native vegetation, Aboriginal heritage and flood waters. Any residual impacts would be managed through the recommended conditions of consent.

The project would not result in any significant reduction in the overall agricultural productivity of the region. Additionally, the site could be easily returned to agricultural uses after the project is decommissioned and the inherent agricultural capability of the land would not be affected.

To address the residual impacts of the project, the Department has recommended a range of detailed conditions, developed in conjunction with agencies and the Council, to ensure these impacts are effectively minimised or offset. The Applicant has reviewed the conditions and does not object to them.

Importantly, the project would assist in transitioning the electricity sector from coal and gas-fired power stations to low emissions sources. It would generate up to approximately 132,000 MWh of clean electricity annually, which is enough to power up to 22,000 homes and save up to 127,000 tonnes of greenhouse gas emissions per year. It is therefore consistent with the goals of the Commonwealth's *Renewable Energy Target* and NSW's *Climate Change Policy Framework*.

The Department is satisfied that the project achieves a reasonable balance between maximising the efficiency of the solar resource development and minimising the potential impacts on surrounding land users and the environment. The project would also stimulate economic investment in renewable energy and provide flow-on benefits to the local community through job creation and capital investment.

On balance, the Department believes that the project is in the public interest and should be approved, subject to the recommended conditions of consent.




8. Recommendation

It is recommended that the Executive Director, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report; and
- **accepts** and **adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant consent to the application;
- **agrees** with the key reasons for approval listed in the notice of decision;
- **grants consent** to the application in respect of the Narrabri South Solar Farm (SSD 8387);
- **signs** the attached development consent and recommended conditions of consent (see **Appendix G**).

Recommended by:

 18/12/18

Iwan Davies

Senior Environmental Assessment Officer
Resource and Energy Assessments

Recommended by:

 21/12/18

Clay Preshaw

Director
Resource and Energy Assessments



9. Determination

The recommendation is **Adopted** / Not adopted by:

 21/12/18

David Kitto

Executive Director
Resource Assessments and Business Systems



Appendices



Appendix A – List of Documents

Narrabri South Solar Farm Environmental Impact Statement, Melotte Consulting, April 2018.

Narrabri South Solar Farm Response to Submissions Report, Melotte Consulting, Sept 2018.

Response to Request for Additional Information, Melotte Consulting, October 2018.

Narrabri Solar Farm Flood Assessment, WRM Water and Environment, October 2018.

Appendix B – Environmental Impact Statement

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8387

Appendix C – Additional Information

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8387

Appendix D – Statutory Considerations

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

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

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

Aspect	Summary
Objects of the EP&A Act	<p>The objects of most relevance to the Minister’s decision on whether or not to approve the project are found in Section 1.3(a), (b), (c), (e) and (f) of the EP&A Act.</p> <p>The Department is satisfied that the project encourages the proper development of natural resources (Object 1.3(a)) and the promotion of orderly and economic use of land (Object 5(c)), particularly as the project is:</p> <ul style="list-style-type: none"> • a permissible land use on the subject land; • located in a logical location for efficient solar energy development; • able to be managed such that the impacts of the project could be adequately minimised, managed, or at least compensated for, to an acceptable standard; and • consistent with the goals of the Renewable Energy Action Plan, and would assist in meeting Australia’s renewable energy targets whilst reducing greenhouse gas emissions. <p>The Department has considered the encouragement of ESD (Object 1.3(b)) in its assessment of the project. This assessment integrates all significant socio-economic and environmental considerations and seeks to avoid any potential serious or irreversible environmental damage, based on an assessment of risk-weighted consequences. The Applicant has also considered the project against the principles of ESD. Following its consideration, the Department considers that the project can be carried out in a manner that is consistent with the principles of ESD.</p> <p>Consideration of environmental protection (Object 1.3(e)) is provided in section 6.3 of this report. Following its consideration, the Department considers that the project is able to be undertaken in a manner that would improve or at least maintain the biodiversity values of the locality over the medium to long term and would not significantly impact threatened species and ecological communities of the locality. The Department is also satisfied that any residual biodiversity impacts can be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits.</p> <p>Consideration of the sustainable management of built and cultural heritage (Object 1.3(f)) is provided in section 6.3 of this report. Following its consideration, the Department considers the project would not significantly impact the built or cultural heritage of the locality.</p>
State Significant Development	<p>Under Section 4.38 of the EP&A Act the project is considered a State Significant Development.</p> <p>The Minister for Planning is the consent authority for the development.</p> <p>Under the Minister’s delegation of 11 October 2017, the Executive Director, Resource Assessments and Business Systems, may determine the project.</p>
Environmental Planning Instruments	<p>The <i>Narrabri Local Environment Plan (LEP) 2012</i> applies and is discussed in sections 4.2 and 6.1 of this report.</p> <p>The project is permissible under the Infrastructure SEPP.</p>

Aspect	Summary
	<p>Inverell Shire Council is listed under <i>SEPP No. 44 – Koala Habitat Protection</i>. The assessment found that there is no core koala habitat identified on the site, and the Department is satisfied that there would be no impacts on koala habitat.</p> <p>The Department has considered the provisions of <i>SEPP No. 55 – Remediation of Land</i>. A preliminary assessment of the land found no contaminated land within the project site, and the Department is satisfied the site is suitable for the development.</p>

Appendix E – Submissions

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8387

Appendix F – Response to Submissions

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8387

Appendix G – Recommended Conditions of Consent

See the Department's website at:

http://www.majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8387