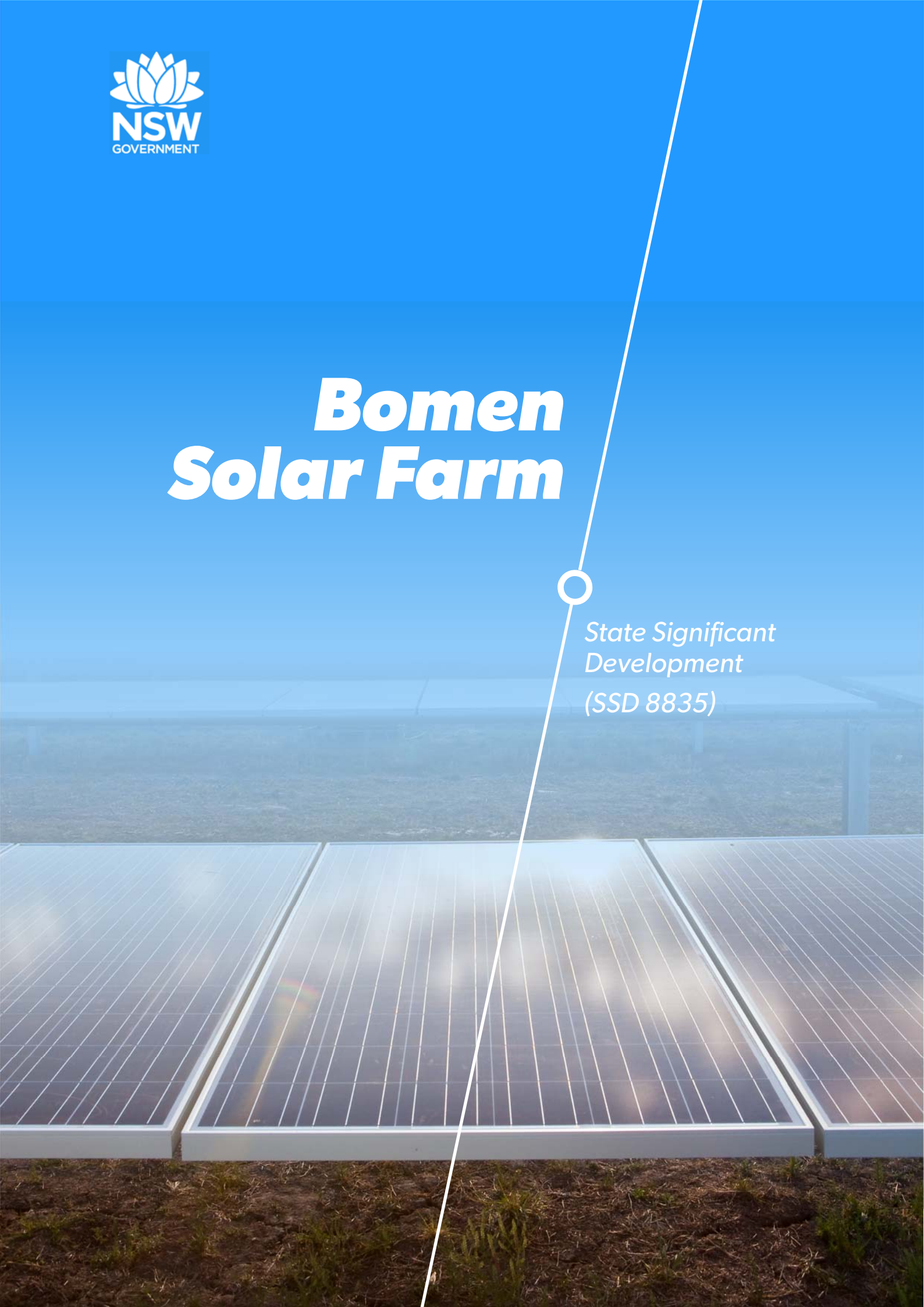
NSW GOVERNMENT

Bomen Solar Farm

State Significant Development

(SSD 8835)



October 2018

Cover photo

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

Executive Summary

Renew Estate Pty Ltd (the Applicant) proposes to develop a new 100 megawatt (MW) solar farm and 10 MW/40 MW-hour (MWh) battery storage facility approximately 7 kilometres north-east of Wagga Wagga.

Engagement

The Department publicly exhibited the Environmental Impact Statement for the project and received advice from 10 Government agencies, 12 submissions from the general public and seven submissions from special interest groups.

Wagga Wagga City Council (Council) supports the project and none of the other Government agencies objected to the project. Of the 19 submissions received from the general public and special interest groups, 10 objected to the project, 5 supported the project and 4 provided comments.

During the assessment process, the Applicant revised the project layout to remove one of the two options proposed for the alignment of the transmission line corridor, in consultation with the Department and relevant Government agencies, which has led to better outcomes for the community and the environment.

The Department also inspected the site and held a teleconference with the key special interest group that has raised concerns about the project.

Assessment

The key assessment issues for this project are the compatibility of the proposed land use and potential visual impacts.

A number of public submissions raised concerns that the project was incompatible with the rural character of the surrounding area. However, the Department notes that the majority of the project is located within land zoned IN1 - General Industrial under the *Wagga Wagga Local Environment Plan 2010,* and Council's *Bomen Strategic Master Plan 2009* explicitly identifies the Bomen precinct for a transition to industrial land uses. Therefore, both the Department and Council consider the project is suitably located within an area that will likely consist of a range of industrial land uses in the future.

While the Applicant has designed the project to minimise visual impacts, portions of the project would be visible to surrounding residences due to the undulating terrain of the site. However, the level of potential visual impacts is relatively minor at most surrounding residences due to intervening vegetation, topography and/or distance. The Department considers that subject to the implementation of visual impact mitigation measures, including vegetation screening, there would be no significant visual impacts on the surrounding residences.

Summary

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

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.

With these conditions, 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.

Importantly, with a capacity of 100 MW the project would generate enough electricity to power up to 37,000 homes, and is therefore consistent with both the Commonwealth's *Renewable Energy Target* and NSW's *Renewable Energy Action Plan*. Further, the project includes an 40 MWh energy storage facility that would enable the project to store solar energy for dispatch to the grid, which would contribute to increased grid stability and energy security.

The project would also provide flow-on benefits to the local community, including up to 200 full time construction jobs, with a capital investment of up to $164 million.

As such, following on from its assessment of the project, the Department believes that the project is in the public interest and should be approved, subject to the recommended conditions of consent.

Contents

1. Introduction

Renew Estate Pty Ltd (the Applicant) proposes to develop a new 100 megawatt (MW) solar farm and 10 MW/40 MW-hour (MWh) battery storage facility (the project) approximately 7 kilometres (km) north-east of Wagga Wagga, within the City of Wagga Wagga local government area (see **Figure 1**).

The project is located on a 276 hectare (ha) site that is predominantly zoned IN1 - General Industrial under the *Wagga Wagga Local Environment Plan (LEP) 2010*. It is comprised of undulating land that has historically been cleared for agricultural purposes, including grazing and cropping.

There is an existing development consent over a portion of the site for a 22 MW solar farm, which was granted by the Southern Joint Regional Planning Panel (JRPP) on 23 May 2016. The Department understands that the Applicant is now the holder of this consent.

The land surrounding the site is used for industrial and agricultural purposes with four residences located within 1 km of the site boundary (see **Figure 2**). Several industrial developments are located adjacent to the western site boundary, including the Riverina Wool Combing effluent ponds, the former Riverina Oils and BioEnergy facility and former Enirgi recycling facility.

There are several easements traversing the project site (see **Figure 2**), including:

- two parallel high pressure gas pipelines (i.e. the Young to Wagga Wagga Pipeline and Looping);
- a fibre optic telecommunications cable that runs parallel to the high pressure gas pipelines; and
- existing 66 kilovolt (kV) and 132 kV transmission lines, with a new 132 kV line under construction.

The proposed development footprint within the site covers 256 ha and is irregular in shape as it was designed to avoid the easements and minimise impacts on remnant native vegetation. The Applicant is proposing to subdivide the site to facilitate the purchase of the land for the project.

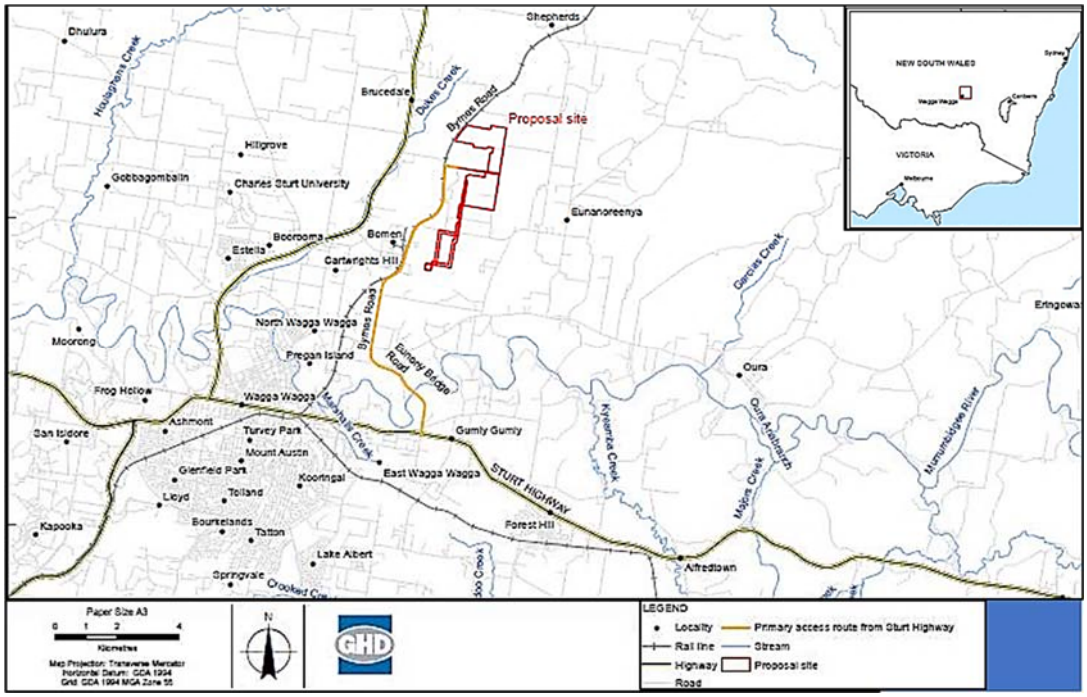


Figure 1 | Regional Context

2. Project

The project involves the construction of a new solar farm with a generating capacity of approximately 100 MW and a battery storage facility with a capacity of 10 MW/40 MWh. 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.

During the assessment process, the Applicant revised the project layout to remove one of the two options proposed for the alignment of the transmission line corridor, in consultation with the Department and relevant Government agencies, which has led to better outcomes for the community and the environment.

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	The project includes: • approximately 400,000 solar panels and approximately 44 inverter stations (up to 4 m high); • a lithium-ion battery storage facility within housing containers (10MW/40MWhr capacity); • an on-site 132 kV substation and 3.5 km 132 kV underground transmission line connecting to TransGrid's 132 kV Wagga North substation; • an operation and maintenance building, car park, access tracks, fire breaks and security fencing; and • subdivision for the project site (256 ha).
Project area	276 ha (with a 256 ha development footprint)
Access route	• Over-dimensional and heavy vehicles would access the site via Trahairs Road, Byrnes Road, Eunony Bridge Road and the Sturt Highway.
Site entry and road upgrades	• The site would be accessed utilising four new access points on Trahairs Road. Key road works include upgrading Trahairs Road between Byrnes Road and the site access points.
Operational life	• The expected operational life of the infrastructure is approximately 30 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 above ground infrastructure.
Construction	• The construction period would last for up to 12 months, and would include a peak period of four months. • Construction hours would be limited to Monday to Friday 7am to 6pm, and Saturday 8am to 1pm.
Hours of operation	• The project would operate during daylight hours. • Daily operations and maintenance would be undertaken Monday to Friday 7am to 6 pm and Saturday 8am to 1pm.
Employment	Up to 200 full time equivalent construction jobs, and 5 full time equivalent operational jobs.
Capital investment value	$164 million

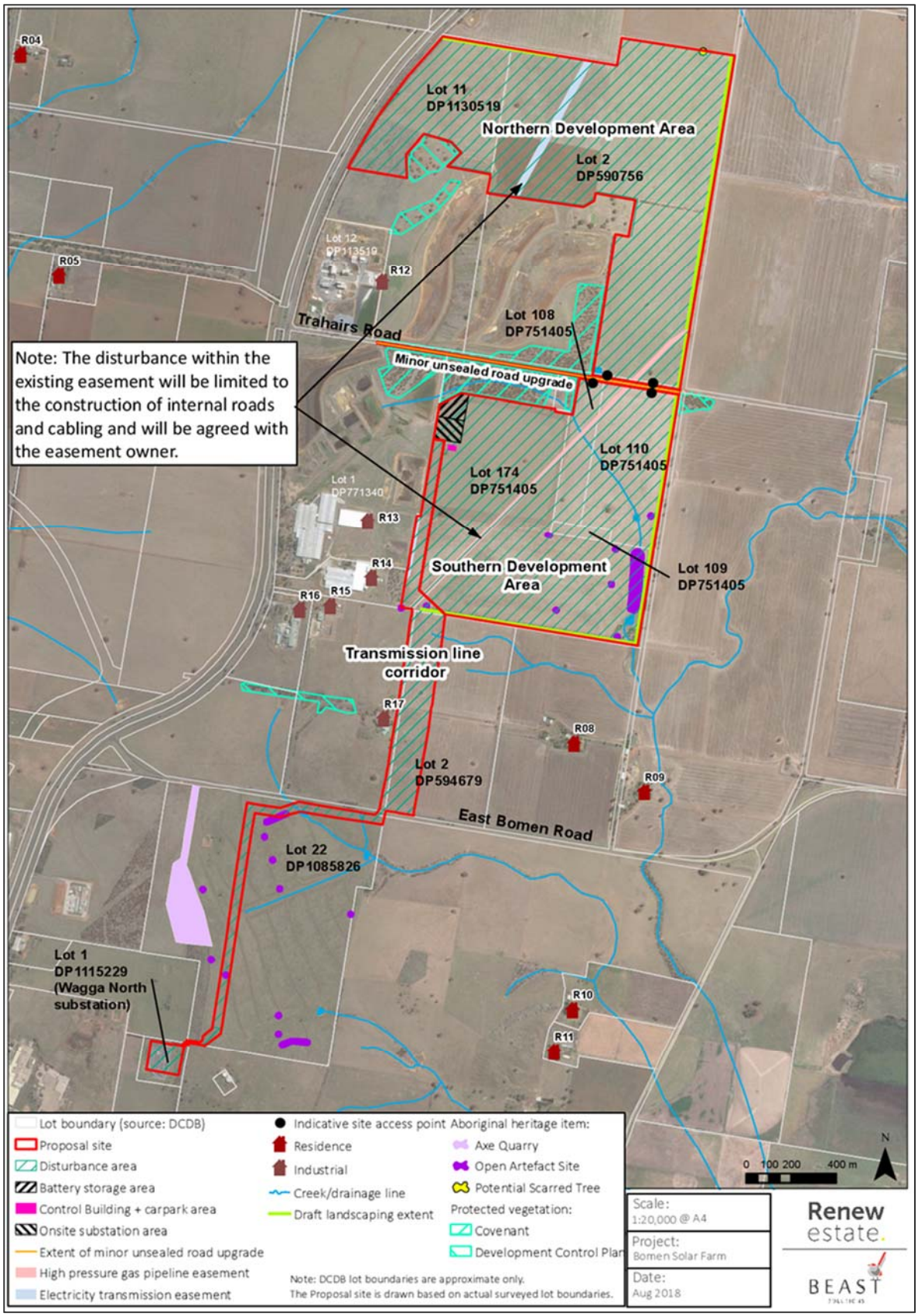


Figure 2 | Project Layout and Constraints

3. Strategic Context

3.1 Renewable Energy in NSW

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 five major operational projects, including the largest solar farm in Australia. With a capacity of 100 MW, the project would generate enough electricity to power up to 37,000 homes, and is therefore consistent with both the Commonwealth's *Renewable Energy Target* and NSW's *Renewable Energy Action Plan*.

3.2 Solar Projects in Wagga Wagga

The City of Wagga Wagga local government area has attracted considerable interest from solar developers given the proximity of major transmission lines and existing electricity substations. The Department has issued environmental assessment requirements for a total of four projects, including Bomen Solar, Gregadoo Solar, Sebastapol Solar and Quorn Park Solar. Bomen Solar is the first of these four projects to reach the determination stage.

In 2016 the Southern JRPP approved a smaller solar project (i.e. 22 MW) on Lot 174 DP751405, within the southern development area of the Bomen Solar project site (see **Figure 2**). The JRPP stated that this project was a suitable land use given the industrial zoning of the land and that it would have minimal environmental impacts. The Department understands that the Applicant is now the holder of this consent.

The Southern JRPP also recently refused a solar project known as the Wagga Wagga Solar Project on a site located directly south of the Bomen Solar Farm, notwithstanding Council's recommendation to approve the project.

The JRPP stated that the site was not suitable for the development "*in its current form*", that the proposed vegetation and landscape mitigation measures were inadequate to minimise visual impacts on surrounding properties, and that the proponent provided "*insufficient information*" on various aspects of the project.

The Department has considered the key issues which informed both of the decisions by the Southern JRPP in its assessment of the Bomen Solar project, including land use compatibility and visual impacts, as discussed in **section 6**.

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 as Council did not object, there were less than 25 objections from the general public and a political donations disclosure statement has not been made.

4.2 Permissibility

The site is located in the Wagga Wagga City local government area and is on land zoned IN1 - General Industrial, with portions of the transmission line corridor located on land zoned RU1 – Primary Production and RE1 – Public Recreation under the *Wagga Wagga Local Environment Plan 2010* (Wagga Wagga LEP).

Solar farms are a permissible land use on land zoned IN1 under the Wagga Wagga LEP, as discussed further in **section 6.1**.

Additionally, under the *SEPP (Infrastructure) 2007* (Infrastructure SEPP) electricity generating works are permissible on any land in a prescribed rural, industrial or special use zones (including IN1 and RU1). However, the Infrastructure SEPP does not expressly permit development for the purposes of electricity generating works on land zoned RE1.

Under Section 4.38(3) of the EP&A Act, development consent may be granted despite the development being partly prohibited by an environmental planning instrument. As such, despite the provisions of the Infrastructure SEPP, consent could be granted for the development on the land zoned RE1. While the consent authority has the power to override a partial prohibition for SSD, it must assess the planning merits of such a decision. This is discussed further in **section 6.1**.

In accordance with the Infrastructure SEPP, the Department has given written notice of the project to TransGrid as the electricity supply authority for the area and Transgrid provided landowner's consent for the development.

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**).

The project is not considered a 'controlled action' under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

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 could be 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 21 April 2018 until 21 May 2018 (30 days), and advertised the exhibition in the Wagga Wagga Daily Advertiser.

The Department inspected the site on 14 March 2018 and has consulted with the relevant Government agencies, including Wagga Wagga City Council, surrounding landowners and special interest groups throughout the assessment process.

5.2 Submissions and Response to Submissions

During the exhibition period of the EIS, the Department received a total of 29 submissions, including:

- ten from government agencies (all comments);
- twelve from the general public (nine objections, three comments); and
- seven from special interest groups (one objection, five support, one comment).

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**).

The Applicant has also provided additional information during the Department's assessment (see **Appendix C**). The additional information responded to agency requests, and included a revised development footprint and refined transmission line corridor.

5.3 Key Issues – Government Agencies

The **Office of Environment and Heritage** (OEH) requested that test excavations for Aboriginal heritage items be undertaken and a Biodiversity Assessment Report (BDAR) be prepared for portions of the transmission line corridor. Additional heritage and biodiversity surveys were completed by the Applicant to the satisfaction of OEH, and these matters are discussed in **section 6.3**.

Roads and Maritime Services (RMS) noted that the main access roads are local roads managed by Council, however recommended the establishment of a landscape buffer to minimise views of the project from the public road network. The Department has incorporated this recommendation into the conditions of consent.

The **Department of Industry – Lands and Water** (DoI - L&W) recommended all underground infrastructure be removed following decommissioning of the site. The Department has incorporated this requirement into the conditions of consent.

Wagga Wagga City Council advised the project is compatible with the long term vision of Bomen and the Bomen Master Plan, which has a strong focus on enabling renewable energy in the locality. Council noted that it has made a strategic decision to convert the locality from a rural area into an industrial area, and for that reason supports the project. These matters are discussed in **section 6.1**.

The **Rural Fire Service** (RFS) and **Fire & Rescue NSW** recommended fire and emergency response plan conditions, which have been incorporated into the recommended conditions of consent.

The **Division of Resources and Geoscience** (DRG) confirmed it is satisfied the project would have no resource sterilisation issues.

Local Land Services, SafeWork NSW and **TransGrid** raised no concerns about the project and made no recommendations.

5.4 Key Issues – Community

Of the 12 submissions received from the general public, nine objected to the project and three provided comments. Most of these submissions were from residences residing in the local area (i.e. within 10 km of the project site).

The key issues raised in the public submissions related to visual impacts and land use compatibility. These matters are addressed in **section 6.1** and **6.2** of this report.

5.5 Key Issues – Special Interest Groups

Of the seven submissions received from special interest groups, one objected to, five supported and one commented on the project.

Eunony Valley Association objected to the project and raised concerns regarding the land use compatibility and the amenity impacts of the project, including visual and noise. The Department held a teleconference with representatives of the Eunony Valley Association to further discuss their concerns about this project and other solar developments in the local government area.

Committee 4 Wagga, **Teys Australia Southern Pty Ltd**, **Riverina Oils & BioEnergy**, **Regional Development Australia Riverina** and **Enirgi Power Storage Recycling** support the project on the grounds of the economic benefits it would provide for the local area and the contribution it would make towards Australia's renewable energy target.

APA Group is the owner of the two high pressure gas pipelines (i.e. the Young to Wagga Wagga Pipeline and Looping) which traverse the project site. It requested the number of crossings of the pipeline easement be minimised on the project site, and that any crossings be perpendicular to the pipeline easement. Additionally, it requested the Applicant prepare a Safety Management Study to assess the risk of the project on the integrity and safety of the pipelines.

The Department has considered all the issues raised by the community and special interest groups in its assessment of the project.

6. Assessment

The Department has undertaken a comprehensive assessment of the merits of the project. This report provides a detailed discussion of the two key issues raised in submissions, namely the compatibility of the proposed land use and potential visual impacts.

The Department has also considered the full range of potential impacts associated with the project and has included a summary of the conclusions relating to these in **section 6.3**.

A list of the key documents that informed the Department's assessment is provided in **Appendix A**.

6.1 Compatibility of Proposed Land Use

The site is primarly located within the IN1 - General Industrial zone under the Wagga Wagga LEP, however small portions of the transmission line corridor are located within land zoned RU1 – Primary Production and RE1 – Public Recreation (see **Figure 3**).

Potential impacts on industrial land

Zoning

The majority of the site (approximately 99%) is zoned IN1 and solar farms are permissible in that zone under both the Wagga Wagga LEP and the Infrastructure SEPP.

The LEP contains four objectives in the IN1 zoning, including:

- providing a wide range of industrial and warehouse land uses;
- encouraging employment opportunities;
- minimising any adverse effect of industry on other land uses; and
- supporting and protecting industrial land for industrial uses.

The Department and Council consider the proposed solar development is entirely consistent with these objectives. In its submission, Council stated that the proposed solar farm is "*of a nature that is compatible with the long-term vision of Bomen*" and "*would not inhibit the future potential of land to be developed for industrial purposes*".

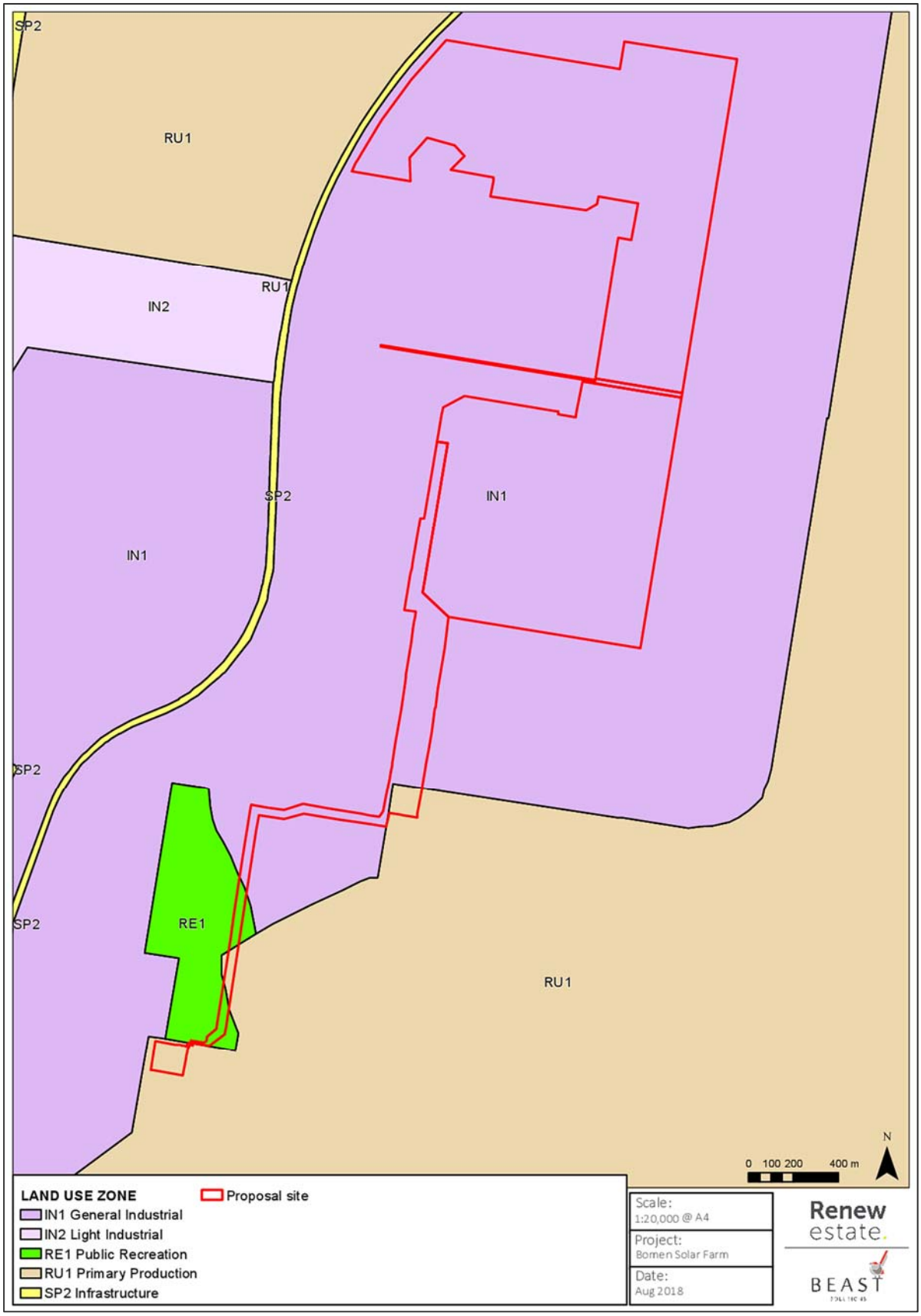


Figure 3 | Zoning

The Department also notes that the Southern JRPP has previously approved a smaller solar farm on this land. It stated in its Statement of Reasons that the "*development is a permitted use in zone IN1 General Industrial and that the site is suitable for this use*".

Broader consideration

The majority of the site is located on land that Council has called the 'Bomen Industrial Area', which has been identified as a significant industrial growth area that will play an important role in the regional economy. The *Bomen Strategic Master Plan 2009* has earmarked this land for strategic industrial growth and employment.

The *Bomen Strategic Master Plan 2009* expressly identifies sustainability as one of the top priorities for the Bomen Industrial Area, with the aim of developing a "*closed loop*" of energy and materials use, which minimises emissions to the environment as well as the consumption of energy and materials.

Council has also identified the Bomen Industrial Area as an area of economic growth for the region and considers that renewable energy projects will provide diversification for the local economy through the development of local skills, including expertise in the construction of large scale solar.

Additionally, the project is consistent with broader plans for the region outlined in the *Riverina Murray Regional Plan 2036*, which identifies a direction for "*the diversification of energy supply through renewable energy generation*". The Regional Plan recommends an action to encourage renewable energy projects through "*identifying locations with renewable energy potential and ready access with the electricity network*". The Bomen Industrial Area is ideal in terms of renewable energy potential and close proximity to the electricity network, as it is almost adjacent to the Transgrid Wagga North Substation.

Potential impacts on agricultural land

The portion of the site zoned RU1 comprises approximately 0.5% of the total site area and the Applicant is only proposing to develop a section of the underground transmission line in this portion of the site. Solar farms are permissible in that zone under both the Infrastructure SEPP and the Wagga Wagga LEP.

The Department also notes that while the land in this area has traditionally been agricultural, it also contains a range of existing infrastructure, including two parallel high pressure gas pipelines, a fibre optic telecommunications cable, and one 132 kV and one 66 kV transmission line. There is also a new 132 kV transmission line currently under construction by Essential Energy to replace the existing 66 kV transmission line.

As the proposed transmission line for the project would only cross a small corner section of the RU1 zoned land and would be laid underground, it would not reduce the agricultural capability of the land or affect the rural landscape character of the land. The Department considers it is consistent with the objectives of the RU1 zone.

Potential impacts on public recreational land

The portion of the site zoned RE1 also comprises approximately 0.5% of the total site area and the Applicant is only proposing the underground transmission line in this portion of the site. Neither the LEP nor the Infrastructure SEPP permit electricity generating works on land zoned RE1.

While the Department has the power to override a partial prohibition (under Section 4.38(3) of the EP&A Act), it must carefully assess the merits of such a decision, including considering the views of the Council and the public interest.

This portion of land is zoned RE1 primarily due to the presence of the Bomen Axe Quarry, which is protected as a registered Aboriginal place under the *National Parks and Wildlife Act 1974.*

The Department acknowledges that the Bomen Axe Quarry is an item of high Aboriginal cultural significance, however the project would not impact it, as the transmission line infrastructure would be located underground and approximately 100 m east of the Bomen Axe Quarry site. There would only be a short-term disturbance on the land during construction, and the land would be rehabilitated to its original state within a short timeframe.

Both the Department and Council consider that the proposed installation of an underground transmission line is not inconsistent with the objectives of the RE1 zone as it would not have any significant impact on the Bomen Axe Quarry or the public recreation value of the land.

Summary

While the proposed underground transmission line would cross small sections of RU1 and RE1 zoned land, the proposed solar panels would only occur on land zoned for industrial purposes (IN1). The Department and Council consider that large-scale solar development is a suitable use of this land, and is consistent with Council's *Bomen Strategic Master Plan 2009* and the *Riverina Murray Regional Plan 2036*.

Based on its assessment of local and regional strategic plans, the Department considers the project is compatible with existing and future land uses in both the locality and the region.

6.2 Visual

Concerns about visual impacts were raised in some public submissions from local residents. The EIS includes a comprehensive visual impact assessment that is based on seven 'viewpoints' and includes photomontages showing the visual extent of the project for four viewpoint locations (see **Figure 4**).

Visual Context

The project site is located on undulating land that has historically been cleared for agricultural purposes, including grazing and cropping. It generally slopes east towards a small valley away from Byrnes Road, which runs along a low ridge.

The land surrounding the site is used for industrial and agricultural purposes, with 25 rural residences located within 2 km of the project site boundary. For the purposes of the visual impact assessment the Applicant has grouped the residences into seven 'viewpoints', noting that Viewpoint 7 only comprises industrial receivers (see **Figure 4**).

The nearest residences are located in Viewpoint 1, between 450 to 650 metres south of the site, at a slightly lower elevation to the project (i.e. between 10 m and 50 m).

Eight residences are located within Viewpoint 2 approximately 1.5 km to the east of the project and would have views across a small valley up the slope of the project site.

Two residences are located within Viewpoint 3 approximately 2 km northeast of the project and would have slightly elevated views southwest ftowards the project (i.e. between 10 m and 50 m).

There are also a number of rural residences located in Viewpoints 4, 5 and 6 to the southeast, southwest and west of the site, respectively, between 1.5 km and 3 km between the project.

Avoidance and Mitigation

The Applicant has designed the project's transmission line to be underground, in order to avoid impacts to the surrounding residences as well as the Bomen Axe Quarry.

Additionally, the Applicant has proposed a vegetation buffer along along part of the site's northern, eastern and southern boundaries, located outside of the perimeter fence augmenting existing native vegetation to be retained, which would reduce visual impacts on residences located in Viewpoints 1, 2, 3 and 4 (see **Figure 2**).

Assessment

The proposed solar farm is a relatively low-lying development with a maximum solar panel height of up to 4 m. The operations and maintenance building, site office and battery storage facility would be a similar size to agricultural sheds commonly utilised in the local area. Additionally, the photovoltaic panels are designed to absorb rather than reflect sunlight and the project would not cause noticeable glint or glare compared to other building surfaces.

As such, with the proposed avoidance and mitigation measures, the visual impacts to surrounding residences would not be significant.

Notwithstanding, the Applicant's assessment considered there would be 'moderate' visual impacts to 12 residences located within Viewpoints 1, 2 and 3. A number of these landowners objected to the project due to visual impacts.

The Applicant's assessment considered the remainder of the residence located within Viewpoints 4, 5 and 6 would be 'negligible'.

Of Viewpoints 1, 2 and 3, the residences located within Viewpoint 2 would be the most visually impacted due to their location approximately 1.5 km east of the project across a small valley with views up the slope of the project site.

Figure 5 provides an example of the predicted views looking west towards the project from Viewpoint 2 (with the inclusion of perimeter vegetation screening).

The views from Viewpoint 2 are already affected by existing industrial development located adjacent to the project site. Additionally, there is existing vegetation near the perimeter of the project site that would reduce the potential visual impacts.

While the proposed vegetation screening goes some way towards mitigating the visual impact of the project from Viewpoint 2, the residences within this viewpoint would still have views of project infrastructure up the slope of the project site.

With the proposed vegetation screening, while residences located within Viewpoint 1 are the nearest to the project, they would have limited views of it due to intervening topography and vegetation.

Similarly, residences located within Viewpoint 3 would have limited views of the project, due to their distance from it (i.e. approximately 2 km) and intervening topography and vegetation.

As such, while the visual impact assessment concluded that 12 residences located in Viewpoints 1, 2 and 3 would experience 'moderate' visual impacts, the Department notes that the classification of these impacts is a relative term and is in the context of minor impacts overall, particularly in comparison to other renewable energy projects like wind farms.

As such, the Department considers that the impacts are not such that the project should not be able to proceed.

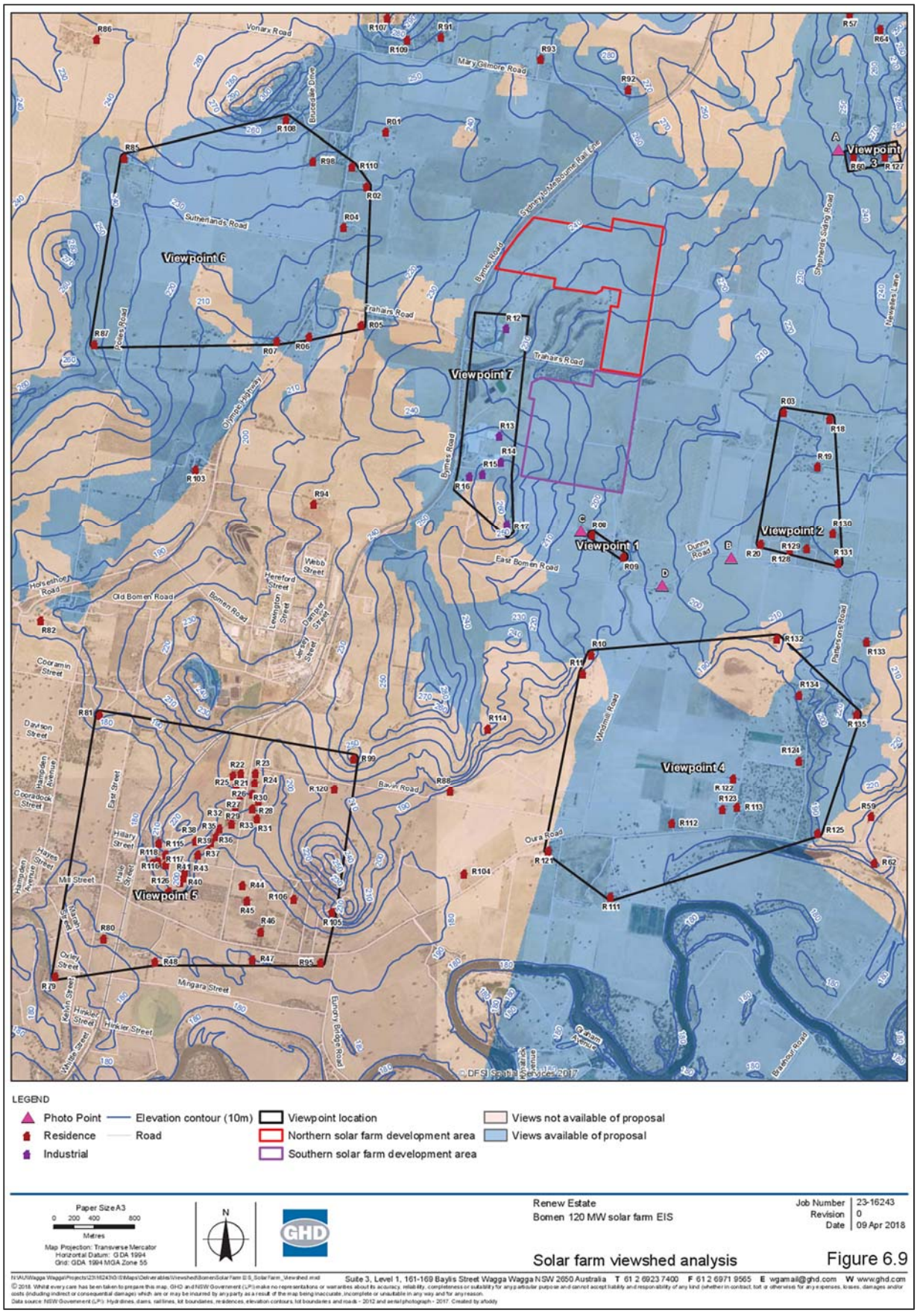


Figure 4 | Viewshed Analysis

Figure 5 | Viewpoint 2 photomontage looking west towards the project

Recommended Conditions

To address the residual visual impacts, the Department has recommended a range of stringent conditions requiring the Applicant to establish and maintain a mature vegetation buffer along part of the site's northern, eastern and southern boundaries. This buffer must:

- be established prior to the commencement of operations;
- consist of species that facilitate the best possible outcome in terms of visual screening (i.e. the buffer does not have to consist only of native vegetation); and
- be effective at screening views of the solar panels and ancillary infrastructure from surrounding residences within 3 years of the commencement of construction.

Furthermore, the Applicant must prepare a detailed Landscaping Plan for the site, in consultation with Council and surrounding landowners, which must include a description of measures that would be implemented to ensure the effectiveness of the vegetation buffer. This plan must also include a program to monitor and report on the effectiveness of these measures.

The Department has also required that external lighting is minimised and complies with the relevant Australian Standards, and prohibits any signage or advertising on the development, unless it is required for safety purposes.

Subject to the implementation of these measures, the Department considers that there would be no significant visual impacts on surrounding residences, and the rural character and visual quality of the area would be preserved.

6.3 Other Issues

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

Table 3 | Other Issues

Issue	Findings	Recommended Condition
Battery storage facility hazards	• In response to increasing demands for dispatchable energy, the Applicant is proposing an on-site battery storage facility. • The location of the battery storage facility is shown in **Figure 2** and would be located within a cleared and fenced area approximately 412 m from the high pressure gas transmission pipelines, away from residences and environmentally sensitive landscapes. • The facility would include purpose-built containers to house the batteries, each comprising power conversion systems, transformers, air conditioning and temperature monitoring systems. • The Applicant would implement a range of hazard prevention and mitigation measures including (but not limited to): - minimum separation distances of 2 m between containers; - a 20 m APZ around the battery storage facility; - an integrated fire suppression system in each container; - automated monitoring of voltage and temperature, including alarm and shutdown response systems; and - pressure release exhaust in the container. • The Department has carefully assessed the proposed battery storage facility in consultation with its internal hazards unit, APA Group and relevant government agencies. • The Department has recommended several conditions in accordance with *Hazardous Industry Planning Advisory Paper No. 12* to ensure proper accountability for pipeline safety risks.	• Prepare and implement a Fire Safety Study consistent with the Department's *Hazardous Industry Advisory Paper No. 2, 'Fire Safety Study'* guideline and the *'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'*. • Identify the location of the high pressure gas pipelines (including ancillary assets) through appropriate signage and relevant documentation. • Prepare and implement an Emergency Plan in conjunction with the Department's *Hazardous Industry Advisory Paper No. 1.* • Submit a compliance report outlining how the conditions have been addressed prior to the commencement of construction.

Issue	Findings	Recommended Condition
	• Subject to the recommended conditions, the Department is satisfied that risks associated with the facility would be minimal.	
Other hazards	• The project would comply with the National Health and Medical Research Council standards for electric and magnetic fields. • The bushfire risks can be suitably controlled through the implementation of standard fire management procedures. • The Applicant has committed to managing the entire site as an Asset Protection Zone and preparing a bushire management plan to manage fire risk. • The Department is satisfied that the bushfire risks can be suitably controlled through the implementation of standard fire management procedures.	• Ensure that the development complies with relevant asset protection requirements in the RFS's *Planning for Bushfire Protection 2006*. • Prepare and implement a Fire Management and Emergency Response Plan in consultation with RFS and Fire & Rescue NSW.
Heritage	• An Archaeological and Cultural Heritage Assessment was completed in accordance with the relevant guidelines, and included consultation with the local Aboriginal community and subsurface test excavations. • 22 Aboriginal heritage items were identified, including 20 open artefact sites (i.e. artefact scatters and isolated artefacts), one axe quarry and one potential scarred tree. Of these, all items were assessed as having low significance, except for the axe quarry, which is considered to have high significance. • The project has been designed to avoid 12 of the Aboriginal heritage items, including the axe quarry and the potential scarred tree. • However, 10 of the open artefact sites are located within the project's development footprint. • The assessment recommended that prior to the commencement of construction, the Applicant salvage and relocate these 10 items to suitable alternative locations on the project site. • The Applicant has committed to preparing and implementing a Heritage Management Plan which would incorporate the recommendations of the assessment. • With these measures, both the Department and OEH consider that the project would not significantly impact the Aboriginal heritage values of the locality.	• Ensure the project does not cause any direct or indirect impacts on any items located outside the approved development footprint, including the axe quarry and potential scarred tree. • Minimise and manage impacts on the 10 Aboriginal heritage items located within the development footprint, including undertaking salvage and relocation. • Prepare and implement a Heritage Management Plan in consultation with OEH and relevant Aboriginal stakeholders for the project.
Biodiversity	• Except for a small portion of the proposed transmission line corridor, the project is located within the Wagga Wagga Biodiversity Certification area. • As such, the Applicant was only required to undertake a Biodiversity Assessment Report (BDAR) under the *Biodiversity Conservation Act 2016* (BC Act) for the small portion of the transmission line corridor. • The project would impact 0.69 ha of exotic groundcover vegetation. • Under the *Biodiversity Assessment Method* (BAM), areas of exotic vegetation do not require further assessment. Nevertheless, the BDAR considered threatened species with the potential to occur in the area and concluded that the proposal is unlikely to impact any threatened species. • The Department and OEH consider that the project is unlikely to result in a significant impact on the biodiversity values of the locality.	• No specific conditions required.

Issue	Findings	Recommended Condition
Traffic	• The main transport route to be used by over-dimensional, heavy and light vehicles for the project during construction and operation is via the Sturt Highway, Byrnes Road, Eunony Bridge Road and Trahairs Road. • Site access would be via four new site access points on Trahairs Road (see **Figure 2**). • The main increase in traffic volumes would occur during the 12 month construction period, with a peak period of four months. During the peak period, there would be up to 30 heavy vehicle movements a day. Additionally, there would be 1 over-dimensional vehicle movement during construction. • Traffic during operations would be negligible (i.e. up to 6 heavy vehicle movements per day). • While Byrnes Road and Eunony Bridge Road are both local roads, they can accommodate the construction traffic associated with the project. • Additionally, the intersection of Byrnes Road and Trahairs Road has an existing auxiliary left turn lane (AUL) and right turn lane (AUR) and would not require further upgrades. • However, the Applicant is proposing to upgrade Trahairs Road to facilitate the construction traffic accessing to the site. • With these upgrades 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.	• Undertake the relevant road upgrades prior to commencing construction. • Ensure the number and length of vehicles does not exceed those predicted in the EIS. • Prepare and implement a Traffic Management Plan in consultation with RMS and Council.
Noise	• The proposed construction, upgrading and decommissioning activities would be well below the 'highly noise affected' criterion of 75 dB(A) in the EPA's *Interim Construction Noise Guideline* (ICNG). • However, one non-associated residence directly south of the site may be subject to temporary noise up to 2 dB(A) above the 'noise affected' criterion of 45 dB(A) when construction activities are undertaken on the transmission line corridor site in proximity to them. • These exceedances would be short-term, 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.	• 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.
Soil and water	• The project would require around 2 megalitres (ML) of water during construction and decommissioning (mainly for dust suppression) and 0.5 ML of water annually during operation. • The Applicant is proposing to either source this water from rainwater tanks or via tankers. • The project is not expected to impact groundwater resources. • The Department is satisfied any erosion and sedimentation risk associated with the project can be effectively managed using best practice construction techniques.	• Prohibit water pollution in accordance with Section 120 of the *Protection of the Environment Operations Act 1997*.

Issue	Findings	Recommended Condition
		• Undertake activites in accordance with OEH's *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004) manual and *Guidelines for Controlled Activites on Waterfront Land* (DPI Water).
Subdivision	• The Applicant proposes to subdivide four lots (i.e. Lot 11 DP 1130519, Lot 2 DP 590756, Lot 174 DP 751405 and Lot 108 DP 751405) to facilitate the purchase of the land for the project site. • The proposed subdivision would result in 14 lots, including seven lots for the project site (26.5 ha, 96 ha, 78.8 ha, 8 ha, 14 ha, 7 ha, 2 ha) and seven residual lots (41 ha, 44.7 ha, 8.3 ha, 1.5 ha, 27 ha, 82 ha, 2 ha). • All of the reconfigured lots would be permissible under the Wagga Wagga LEP, as they would meet the minimum lot size for IN1 land (0.2 ha). • The Department is satisfied that the subdivision should be approved as it is consistent with the key objectives of the IN1 zone as it would: - provide a wide range of industrial and warehouse land uses; - encourage employment opportunities; - minimise any adverse effect of industry on other land uses; and - support and protect industrial land for industrial uses.	• Subdivide the proposed lots subject to information being provided in accordance with the requirements of section 157 of the *Environmental Planning and Assessment Regulation 2000*.

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.

Both the Department and Wagga Wagga City Council consider a solar farm development to be a suitable land use for the site. The majority of the site (99%) is zoned industrial and is located within the 'Bomen Industrial Area', where Council has made a strategic decision to convert the land from rural land uses into industrial uses.

Small portions of the site that contain agricultural (RU1) and recreational (RE1) land would only be temporarily affected by the installation of an underground transmission line.

The project has also been designed to largely avoid key constraints, particularly in relation to heritage and biodiversity. The project also includes vegetation screening along the eastern, southern and northern boundaries to reduce potential visual impacts.

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 approximately 220,000 MWh of clean electricity annually, which is enough to power up to 37,000 homes and save up to 212,000 tonnes of greenhouse gas emissions per year. It is therefore consistent with the goals of the Commonwealth's *Renewable Energy Target* and NSW's *Renewable Energy Action Plan*.

Further, the project includes an 40 MWh energy storage facility that would enable the project to store solar energy for dispatch to the grid, which would contribute to increased grid stability and energy security.

The Department considers 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, including up to 200 full time construction jobs, with a capital investment of up to $164 million.

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 A/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 Bomen Solar Farm (SSD 8835); and
- **signs** the attached development consent and recommended conditions of consent (see **Appendix G**).

Recommended by:

21/09/18

Diana Mitchell
A/Team Leader
Resource and Energy Assessments

Recommended by:

28/9/18

Clay Preshaw
Director
Resource and Energy Assessments

9. Determination

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

8/10/18.

Mike Young
A/Executive Director
Resource Assessments and Business Systems

Appendices

Appendix A – List of Documents

Bomen Solar Farm Environmental Impact Statement, GHD Pty Ltd, April 2018.

Bomen Solar Farm Response to Submissions Report, Renew Estate Pty Ltd, June 2018.

Bomen Solar Farm PHA Supplementary Assessment, GHD Pty Ltd, 8 August 2018.

Bomen Solar Farm Aboriginal Archaeological and Cultural Heritage Impact Assessment, AECOM Australia Pty Ltd, 13 August 2018.

Bomen Solar Farm Biodiversity Development Assessment Report, GHD Pty Ltd, 14 August 2018.

Appendix B – Environmental Impact Statement

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8835

Appendix C – Additional Information

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8835

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	The objects of most relevance to the Minister's decision on whether or not to approve the project are found in Section 1.3(a), (b), (c), (e) and (f) of the EP&A Act. The Department is satisfied that the project encourages the proper development of natural resources (Object 1.3(a)) and the promotion of orderly and economic use of land (Object 5(c)), particularly as the project is: • a permissible land use on the subject land; • 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. 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. Consideration of environmental protection (Object 1.3(e)) is provided in **section 6.2** of this report. Following its consideration, the Department considers that the project is able to be undertaken in a manner that would improve or at least maintain the biodiversity values of the locality over the medium to long term, and would not significantly impact threatened species and ecological communities of the locality. The Department is also satisfied that any residual biodiversity impacts can be managed and/or mitigated by imposing appropriate conditions and retiring the required biodiversity offset credits. Consideration of the sustainable management of built and cultural heritage (Object 1.3(f)) is provided in **section 6.5** of this report. Following its consideration, the Department considers the project would not significantly impact the built or cultural heritage of the locality. The Department satisfied that any residual impacts on heritage can be managed and/or mitigated by imposing appropriate conditions.

Aspect	Summary
State Significant Development	Under Section 4.38 of the EP&A Act the project is considered a State Significant Development. The Minister for Planning is the consent authority for the development. Under the Minister's delegation of 11 October 2017, the Executive Director, Resource Assessments and Business Systems, may determine the project.
Environmental Planning Instruments	The *Wagga Wagga Local Environment Plan (LEP) 2010* applies and is discussed in **sections 4.2** and **6.1** of this report. The project is permissible under the Infrastructure SEPP. The Applicant completed a Preliminary Hazard Analysis for the battery storage facility, in accordance with *SEPP No. 33 – Hazardous and Offensive Development* (SEPP No. 33). The Department's consideration of this analysis is discussed in **section 6.5**. The Department has considered the provisions of *SEPP No. 55 – Remediation of Land*. A preliminary assessment of the land found no contaminated land within the project site, and the Department is satisfied the site is suitable for the development.

Appendix E – Submissions

See the Department's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8835

Appendix F – Response to Submissions

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8835

Appendix G – Recommended Conditions of Consent

See the Department's website at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8835