Preliminary Environmental Assessment

Brewongle Solar Farm

transport | community | environment | industrial | food & beverage | energy

Prepared for:	Photon Energy
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Date:	31 August 2017 Rev 01

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1. Introduction

1.1 Overview of the Project

Photon Energy (Photon) propose to construct and operate a solar photovoltaic (PV) farm of 131.2 megawatt (MWDC) capacity (the Proposal).

The Proposal would be located at "Euarra", O'Connell Road, Bathurst, NSW, 2795 and contained within Lot 1DP 242576, Lot 1 DP 1206130, Lot 118 DP 755784, Lot 119 DP 755784, Lot 120 DP 755784, Lot 121 DP 755784, Lot 122 DP 755784, Lot 123 DP 755784, Lot 128 DP 755784, Lot 129 DP 755784 and Lot 130 DP 755784 (the "Site"). The Site is approximately 203 hectares and is currently used for agriculture, specifically sheep grazing.

The Proposal includes installation of groups of north facing PV modules (approximately 2m x 1m) on mounting structures approximately 3m in height. An estimated 397,576 PV panels will be installed at a 25° angle. The PV mounting structure would comprise steel posts driven approximately 1.6 m below ground using a pile driver. Additional support structures would be attached to the steel mounting structures and the PV modules would then be attached to the support structures.

Power generated by the facility transmitted to an existing Transgrid 132 kV high voltage powerline that runs to the north of the Site. A substation will be built on the Site which will connect directly into the 132kV line to transmit power into the high voltage grid.

1.2 Purpose of this Report

The capital investment value of this proposed development is estimated at $145 million. As such it is deemed as State Significant Development (SSD) and an Environmental Impact Statement (EIS) is therefore required.

This Preliminary Environmental Assessment (PEA) has been prepared to support a request to the Department of Planning and Environment (DPE) for Secretary's Environmental Assessment Requirements (SEARs). The SEARs will be used to guide the preparation of an Environmental Impact Statement (EIS) for the proposal under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The PEA provides the following:

- An overview of the relevant planning legislation and approvals process (Section 2)
- An outline of the proposal justification and alternatives considered (Section 3)
- A description of the solar farm and its construction and operation (Section 2)
- An outline of the preliminary environmental assessment (Section 6)
- An outline of stakeholder consultation for the proposal (Section 4)
- A proposed scope for the subsequent EIS (Section 6.4)

2. The Proposal

2.1 Site Location

The Site is located at "Euarra", O'Connell Road, Bathurst, NSW, 2795, approximately 12 km from the Bathurst town centre in the Bathurst Regional Council Local Government Area (LGA) and approximately 4 km south of the Great Western Highway (A32) as shown in Figure 2-1.

The site is not located in close proximity to urban or dense residential areas. The Proposal would be contained within part of Lot 1 DP 242576, Lot 1 DP 1206130, Lot 118 DP 755784, Lot 119 DP 755784, Lot 120 DP 755784, Lot 121 DP 755784, Lot 122 DP 755784, Lot 123 DP 755784, Lot 128 DP 755784, Lot 129 DP 755784 and Lot 130 DP 755784 (Refer figure 2-2).

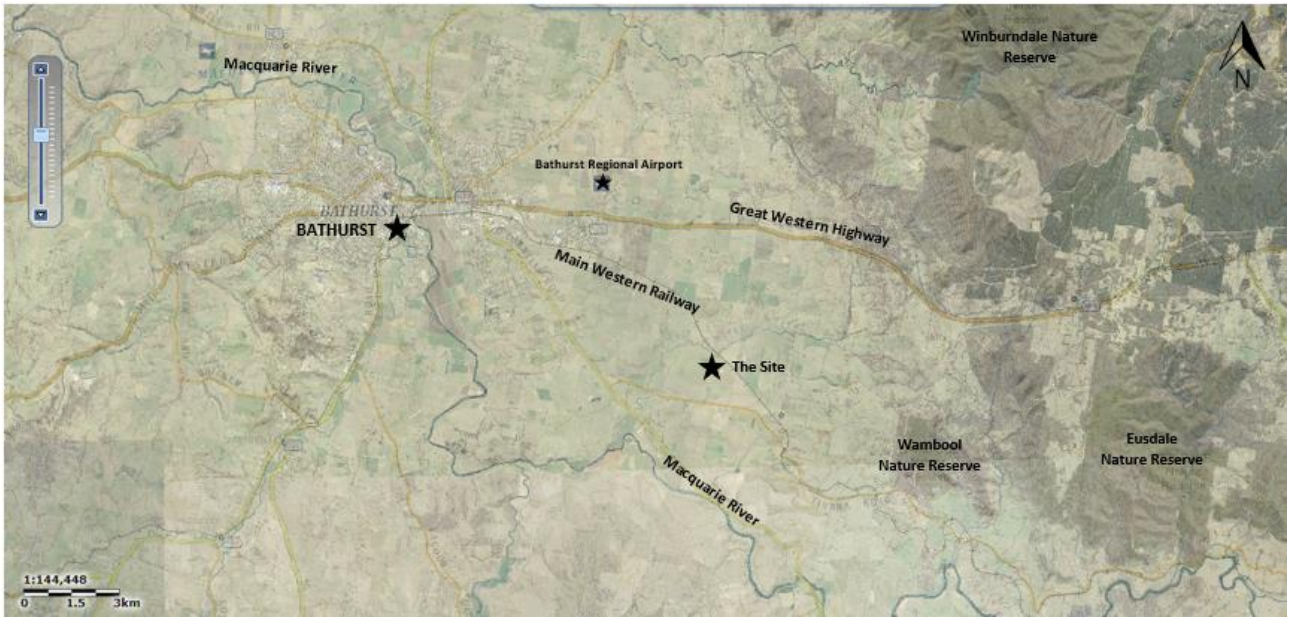

Figure 2-1: Location of the Proposed Site (Source: *Google Maps*)

Figure 2-2: Locality map of the Proposal showing lot boundaries (Source: *Six maps*)

2.2 Site Description

The Site comprises a number of large, fenced paddocks to facilitate the current land use of livestock grazing (sheep) and associated agricultural infrastructure including a hay shed and water troughs. The Site is mostly cleared with the exception of row of trees along one internal fence boundary (Lot 130 DP755784). A natural waterway (Saltwater Creek) is adjacent to the northern boundary of the Site. There are two small farm dams that will likely be retained as part of the Proposal.

There is an existing Transgrid 132 kV powerline that runs along the creek on the north side of the property and also an underground gas line easement that runs through the middle of the Site (refer to **Appendix A**).

2.3 Site Locality

The Project is located in the Bathurst Regional LGA with road access from Bathurst (approximately 15 km) and Sydney (approximately 200 km) via the Great Western Highway (A32), which is approximately 10 km north of the Site. Additionally, Bathurst has a small airport located approximately 15 km north west of the Site.

The Site is located in an agricultural region. The majority of built structures in the immediate vicinity of the Site are rural-residences and agricultural buildings (e.g. hay / machinery shedding).

There are six rural-residences located within 1 km of the development footprint:

- Lot 1 DP 873093, located approximately 680 m north west of the Site (1)
- Lot 61 DP 1013488, located approximately 970 m south west of the Site (2)
- Lot 121 DP 1061084, located approximately 650 m south of the Site (3)
- Lot 5 DP 880125, located approximately 750 m south of the Site (4)
- Lot 2 DP 1106759, located approximately 790 m south of the Site (5)
- Lot 2 DP 1106759, located approximately 780 m south of the Site (6)

There are also several other properties between 1 – 2 km of the development footprint that may be affected due to the flat nature of landscape and lack of vegetation screening:

- Lot 601 DP 1186424, located approximately 1.9 km west of the Site (A)
- Lot 61 DP 1013488, located approximately 1.14 km south west of the Site (B)
- Lot 21 DP 810837, located approximately 1.6 km south west of the Site (C)
- The village of Brewongle, located approximately 1.7 km south east of the Site (D)
- Lot 77 DP 755784, located approximately 1.8 km south east of the Site (E)
- Lot 74 DP 755784, located approximately 1.75 km south east of the Site (F)
- Lot 2 DP 792926, located approximately 1.7 km south east of the Site (G)
- Lot 70 DP 786945, located approximately 1.2 km south east of the Site (H)
- Lot 121 DP 1187556, located approximately 1.14 km north east of the Site

Local topography is generally flat.

Nearby environmental features include a natural waterway (Saltwater Creek) that runs along the northern boundary of the Site and Wambool Nature Reserve. Saltwater Creek runs adjacent to the north boundary of the Site and is a tributary of Fish Creek which flows into the Macquarie River approximately 7.5 km south west of the Site.

Land use within the local area is dominated by rural activities and also a rail line that runs to the north of the Site, including adjoining the northern Site boundary on the eastern end.

The environment around the Site is dominated by cleared agricultural land which is the dominant industry in the area surrounding the city of Bathurst.

2.4 Proposal Description

The Proposal would consist of the following elements:

- 203 ha of solar PV modules on ground screw or similar mounting structures
- Central inverters located within the site
- Underground cabling
- A transformer kiosk to connect to existing electrical infrastructure
- A substation with transformer located within the site
- Two maintenance storage containers
- Security fencing with 24/7 surveillance cameras
- Maintenance and access tracks

2.4.1 Construction

The construction phase of the Proposal is expected to take nine to twelve months and employ approximately 100 people, using local labour and resources where possible.

It is anticipated that the solar farm would be constructed in one hectare stages – with up to 10 stages in construction at any one time.

Minor earthworks would be required for the preparation of the Site. Most of the ancillary infrastructure would be pre-fabricated off-site, delivered and then assembled on-site. Further design of the auxiliary infrastructure would be outlined in the EIS.

A gas pipeline is present on site however consultation has been undertaken with the owner and no works will be undertaken in the gas easement.

The key infrastructure components and construction activities for the proposal are shown in Table 2-1**Error! Reference source not found.**.

Table 2-1 Key Components of Proposal

Component	Details	Construction Activities	Image Reference
PV Panels (solar modules)	The site will include installation of groups of north facing PV modules (approximately 2m x 1m) on mounting structures approximately 3m in height. The solar modules consist of mounting system, the solar panels and cabling. An estimated 397,576 PV panels will be installed at a 25 ° angle.	Install posts (pile driven). Attach support structures to posts. Mount panels on support structure (crane mounted).	Refer to Figure 2-3
Electrical connections/inverters	Wiring between PV panels and inverter systems. 82 x 1.6MW Ingeteam CON40 inverters each 12.2m (l) x 2.4m (w) x 2.9m (h).	Install/connect electrical wiring. Footings installed for inverters and transformers, mount inverters and transformers on footings. Connect inverters.	Refer to **Error! Reference source not found.** and Figure 2-4
Collection circuits	Copper and Aluminium interconnection cabling.	Trenching, cable laying and backfill.	N/A
Inverter kiosk	Steel container type inverter kiosks installed on concrete pads. Containers fitted with inverters, cable glands, transformer, oil retention safety tank, HV switchgear and cooling fans. Inverter containers located adjacent to the PV	Kiosk foundations, cable laying.	N/A

Component	Details	Construction Activities	Image Reference
	arrays. Noise level <77dB at 1m. The kiosk would connect to existing TransGrid infrastructure		
Substation	The substation will be installed on the north western border of the site, closest to the existing 132 kv line running across the property.		N/A
Access works	The site will be accessed via Tarana Road. Access tracks required for operation will be on undisturbed ground remaining between panel installations. These will be wide enough for maintenance vehicles to move through. The indicative layout is shown in **Appendix A**.		Refer to **Appendix A**.
Maintenance	Two 40' shipping containers will be installed on-site for storage of maintenance equipment.	Footings, install containers.	N/A
Safety and Security	Security fencing (cyclone chain wire) bordering the entire Site. Fencing is expected to be between 2m and 2.4m high. CCTV Cameras	Excavate and form footings (concrete). Install posts and attach mesh.	N/A

Figure 2-3: Example of Solar PV Panels

Figure 2-4: Example Ground Mounting Arrangements

Figure 2-5: Example Inverter Kiosk

2.4.2 Infrastructure Layout

PV infrastructure on the site will comprise groups of panels located 3m above ground with a 10m set back from the Site boundaries. The PV infrastructure will be mounted on structures comprising galvanized steel posts driven 1.6m below ground using a pile driver (refer Figure 2-4). Support structures would be joined to the steel posts and the PV modules would be fixed to the support structures. Electrical cabling would be attached beneath the modules and would connect the individual PV modules to each other. Transformer-less central inverters will be located centrally to groups of panels and groups of panels will be connected to each other by underground cables. The PV modules are in a fixed position facing north.

The final infrastructure layout is yet to be finalised however, will be contained solely within the Site which includes the access road as well as areas required for stockpiling and materials laydown during construction.

2.4.3 Power generation

Energy generated by each PV module would be transferred via cables to central inverters. Central inverters collect electricity from an area of panels, convert it from direct current (DC) to alternating current (AC). The energy is conveyed from the central inverter to the site transmission kiosk. The kiosk will be located on-site and will increase voltage to a level that can be transmitted via upgraded Transgrid powerlines.

2.4.4 Access

Access to the Site will be via Tarana Road, which runs along the southern boundary of the Site. This road and the Great Western Highway, approximately 10 km north of the Site, would likely be the major transport routes for haulage and Site vehicles during construction and operation phases.

The Site will be secured by wire cyclone fencing and a locked gate off Tarana Road. The fencing is expected to be between 2 to 2.4m high.

2.4.5 Operation

The proposal would effectively operate 24 hours a day, 7 days a week however this would not involve the presence of staff on site or active operations. During operation, the PV panels would generate electricity which would be fed into the power grid via the substation.

Regular maintenance activities will be undertaken during standard working hours (except in an emergency) and are expected to include:

- Panel cleaning
- Repairs or replacement of infrastructure, as required
- Mowing activities to control vegetation

2.4.6 Decommissioning

The solar farm has an operational life of 25 years. After 25 years, all above and below ground infrastructure would be updated for continued use or the be permanently removed. Should the decision be made to remove the infrastructure, then the site would be returned to its existing condition.

3. Proposal Justification and Need

3.1 Strategic Justification

Australia is a signatory to various international agreements, conventions and protocols. Some, including the United Nations Framework Convention on Climate Change, the Paris Agreement and the Kyoto Protocol, involve commitments requiring action relating to climate change and greenhouse gas emissions. Both the NSW and the Australian Government have developed renewable energy targets and strategies to meet these targets, reduce greenhouse gas emissions and provide reliable energy to the public through the acquisition of renewable energy certificates (REC) (DEE 2016).

3.1.1 The Australian Government's Renewable Energy Target (RET) scheme

In 2001, the Commonwealth Government introduced the Mandatory Renewable Energy Target (MRET) Scheme to increase the amount of renewable energy being used in Australia's electricity supply. A condition of the scheme is that energy retailers and businesses that use a large amount of energy must obtain a certain percentage of their energy from renewable sources.

Since January 2011 the RET scheme has been separated into two parts—the Small-scale Renewable Energy Scheme (SRES) and the Large-scale Renewable Energy Target (LRET). Energy Proposals supported under LRET include utility-scale solar plants, wind farms, hydro-electric power stations and geothermal (*DEE 2016*).

The Proposal has a maximum power output up to 131.2 MW and would produce an estimated 215,611 MWh per year of renewable electricity which would assist in meeting the LRET.

3.2 Alternatives to the Proposal

The Proposal did not consider alternative infrastructure or infrastructure layouts but did consider alternative locations and the option of not undertaking the project.

3.2.1 Alternative locations

The current location was considered a preferred location due to:

- The proximity to suitable transmission lines and access to the electricity grid
- The topography of the Site is relatively flat, generally cleared of trees and requires minimal earthworks
- The rural environment with fewer neighbours overlooking the Site leading to lower visual amenity impact
- The low environmental values of the land
- Ease of access to and from the Great Western Highway

3.2.2 The *'do nothing'* option

The consequences of not proceeding with the Proposal would be to forgo the benefits of the Proposal, resulting in:

- The loss of a source of renewable energy that would assist the Australian and NSW Government to reach their targets such as 20% renewable energy by 2020, 'attract renewable energy investment and Proposals, build community support for renewable energy, and attract and grow expertise in renewable energy technology' (DPI 2013)
- The loss of cleaner energy and reduced greenhouse gas emission
- The loss of additional electricity generation and supply into the Australian grid
- Loss of social and economic benefits through the provision of direct and indirect employment opportunities locally and regionally during construction and operation of the solar farm.

The *'do nothing'* option may avoid any potential environmental impacts however, the likelihood that the proposed works would have a significant negative impact on the environment is low, considering the mitigation measures outlined in Section 6. It is considered the benefits of the Proposal significantly outweigh any potential environmental impacts whilst contributing to ecologically sustainable development.

3.3 Proposal benefits

The Proposal would provide the following benefits:

- Produce renewable energy that does not produce greenhouse gases
- Assist in reducing the reliance on fossil fuels in Australia and provide a cleaner and sustainable substitute
- Develop the solar power industry and supply chain in Australia
- Develop Australian intellectual property and know-how in solar power
- Assist with Australia's commitments under national and international agreements
- Generate local economic benefits by generating jobs, encouraging regional development and maximising the use of local contractors and equipment hire
- Some materials during construction will be sourced locally through liaison with local industry representatives however the majority of materials will be procured from Sydney or Melbourne due to the technical nature of the technology

4. Consultation

A Stakeholder and Community Engagement Plan will be prepared for the Proposal. The plan will identify community, business and regulatory stakeholders and outline consultation activities to be undertaken during preparation of the EIS.

The principal objectives and requirements of the consultation plan are to:

- Identify and engage with stakeholders (including government agencies) to notify them of the Proposal, the approvals process, and the means by which they can engage with Photon
- Determine the communication tools and methodology for consultation
- Provide stakeholders with consistent and accurate information regarding the Proposal
- Inform nearby communities to raise awareness of the Proposal, especially those who may potentially be affected by the Proposal
- Implement a system to effectively record, consider, manage and respond to stakeholder feedback

- Understand and address community concerns through consultation and the Environmental Impact Statement (EIS) process
- Anticipate any issues and communicate these to stakeholders as early as possible

5. Statutory and Planning Framework

5.1 NSW Legislation

5.1.1 Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (EP&A Act) is the principal piece of legislation covering assessment and determination of development proposals in NSW. It aims to encourage the proper management, development and conservation of resources, environmental protection and ecologically sustainable development. The development assessment and approval system in NSW is set out in Parts 4 and 5 of the EP&A Act.

The Brewongle Solar Farm Proposal would be assessed under Part 4 of the EP&A Act.

5.1.2 State Environmental Planning Policy (State and Regional Development) 2011

Under Schedule 1, Part 20 of the *State Environmental Planning Policy (State and Regional Development) 2011* electricity generating works with a capital investment value of more than $30 million or a capital investment of more than $10 million and located in an environmentally sensitive area of State significance are deemed state significant developments.

The Proposal has an estimated capital investment value greater than $30 million and is therefore classified as 'state significant development' under Part 4 of the EP&A Act. An Environmental Impact Statement (EIS) must be prepared and submitted to Department of Planning and Environment (DP&E) for approval. The EIS is to be prepared in accordance with the SEARs issued by DP&E.

5.1.3 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to enable the efficient delivery of infrastructure across NSW, provide a consistent planning regime for infrastructure, providing greater flexibility in the location of infrastructure and service facilities and identifying the environmental assessment category into which different types of infrastructure and services development fall.

Clause 34(7) of the SEPP provides that development for the purpose of 'solar energy systems' may be carried out with consent on any land, except as prescribed by sub clause 34(8). The solar farm is located within a Primary Production (RU1) zone and is permissible with consent under the ISEPP.

Clause 45 of the ISEPP will also apply as the site intends to connect with existing transmission lines that are located to the north of the site and as such has the potential to affect an electricity transmission line.

Clause 104 of ISEPP refers to traffic generating developments. Schedule 3 lists the types of developments that must be referred to Roads and Maritime Services (Roads and Maritime).

Clause 104 also applies to developments that have the capacity to accommodate 200 or more vehicles. Clause 104 does not apply as traffic generated is below the trigger and Schedule 3 does not include electricity generating works.

5.1.4 Bathurst Regional Local Environment Plan 2014

The Proposal is located within the Bathurst Regional LGA and is subject to the Bathurst Regional Local Environment Plan 2014 (Bathurst Regional LEP). Under the Bathurst Regional LEP, the Site is zoned Primary Production (RU1).

The objectives of the zone are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base
- To encourage diversity in primary industry enterprises and systems appropriate for the area
- To minimise the fragmentation and alienation of resource land
- To minimise conflict between land uses within this zone and land uses within adjoining zones
- To maintain the rural and scenic character of the land
- To provide for a range of compatible land uses that are in keeping with the rural character of the locality, do not unnecessarily convert rural land resources to non-agricultural land uses, minimise impacts on the environmental qualities of the land and avoid land use conflicts.

The Proposal is generally complaint with these objectives as it:

- Can be considered a sustainable primary industry that extracts renewable energy (a natural resource)
- Is complementary to surrounding land uses
- Is highly reversible and will not impact the future productivity of the land

Electricity generation is not listed among developments which are permitted consent for the zone however, under clause 34(7) of the ISEPP the Proposal is permissible with consent.

5.1.5 Other Relevant Legislation

Legislation	Relevance to Project
Threatened Species Conservation Act 1995 (TSC Act) provides legal status for biota of conservation significance in NSW.	Biodiversity is addressed in Section **Error! Reference source not found.**.
Roads Act 1993 (Roads Act) provides for the classification of roads and for the declaration of the Roads and Maritime Services (Roads and Maritime) and other public authorities as roads authorities for both classified and unclassified roads. It also regulates the carrying out of various activities in, on and over public roads.	The Proposal does not involve works or activities in, on or over public roads therefore approval from the road authority for the works is not required.
Protection of the Environment Operations Act 1997 (POEO Act) is administered by the Environmental Protection Authority and provides for a system of environmental protection licences for scheduled development work and activities, as well as the ability to issue environmental protection notices for pollution and waste management. Environmental offences are also described under the POEO Act.	The Proposal is not defined as a scheduled activity under this act; therefore, under section 48 of the POEO Act an Environment Protection Licence is not required.

Legislation	Relevance to Project
SEPP – Mining, Petroleum Production and Extractive Industries 2007 - The aims of this Policy are, in recognition of the importance to New South Wales of mining, petroleum production and extractive industries; (a) to provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and (b) to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and to promote the development of significant mineral resources, and (c) to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources, and (d) to establish a gateway assessment process for certain mining and petroleum (oil and gas) development	The Property Planning Report for this area has identified this land as 'Biophysical Strategic Agricultural Land' (BSAL) classified under the *Mining Petroleum Production and Extractive Industries SEPP*. The purpose of this classification is to manage competing land uses proposed for high quality agricultural land. The legislation highlights that any State significant mining or coal seam gas proposals will be subjected to an additional level of scrutiny via the Gateway process. As the Proposal is neither a mining or coal seam gas development, and will maintain land use as agricultural (grazing), it has been determined that this proposal will not require a submission to the Commonwealth Independent Expert Scientific Committee. Consideration on potential land use conflicts associated with the proposal would be included in the Cumulative Impact Assessment within the EIS.

Other NSW State legislation that may be relevant to the proposed Project includes the following:

- Contaminated Land Management Act 1997
- Fisheries Management Act 1994
- Heritage Act 1977
- National Parks and Wildlife Act 1974
- Native Title (New South Wales) Act 1994
- Native Vegetation Act 2003
- Noxious Weeds Act 1993
- Rural Fires Act 1997
- SEPP 33 – Hazardous and Offensive Development
- SEPP 44 – Koala Habitat Protection
- Waste Avoidance and Resource Recovery 2001
- Water Act 1912
- Water Management Act 2000

The extent to which this legislation applies to the proposed Project would be documented in the EIS.

5.2 Commonwealth Legislation

5.2.1 Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is administered by the Commonwealth Department of the Environment (DoE) and provides a legal framework to protect and manage nationally important flora, fauna, ecological communities and heritage places defined as matters of 'national environmental significance' (MNES). An action that "has, will have or is likely to have a significant impact on a matter of National Environmental Significance" (MNES) may not be undertaken without prior approval from the Commonwealth Minister, as provided under Part 9 of the EPBC Act.

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World heritage properties
- National heritage places
- Wetlands of International importance
- Listed nationally threatened species and ecological communities
- Listed migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions including uranium mining
- Water resources in relation to coal seam gas or large mining development.

A search of the NSW Wildlife Atlas (11 August 2017) identified no listed threatened ecological communities and 7 listed threatened species within 10 km of the Site.

A search of the EPBC Act Protected Matters (11 August 2017) identified 2 listed threatened ecological communities, 31 listed threatened species and 12 migratory species within 10km of the Site. The EPBC Protected Matters search also identified 18 listed marine species and 29 invasive species. The extent to which this legislation applies to the Proposal, and whether an EPBC referral is required, would be assessed in the flora and fauna impact assessment as part of the EIS.

Native Title Act 1993

The *Native Title Act* 1993 recognises that Aboriginal people have rights and interests to land and waters which derives from their traditional laws and customs. Native title may be recognised in places where Indigenous people continue to follow their traditional laws and customs and have maintained a link with their traditional country. It can be negotiated through a Native Title Claim, an Indigenous Land Use Agreement (ILUA) or future act agreements.

The *Native Title Act* 1993 administers processes relating to the recognition, protection and determination of native title and dealings with native title land.

An online search of the Native Title Register held by the National Native Title Tribunal was undertaken for the area potentially impacted by the proposed development in August 2017. The results identified there are no native title claims, aboriginal sites or places recorded or declared near the Project area.

6. Preliminary Environmental Assessment

6.1 Methodology

A broad preliminary risk analysis was carried out utilising desktop search results to identify key environmental issues for the Project.

Key issues were those identified as requiring further detailed or specialist assessment and investigation. It is likely that these issues may require specific site management issues.

Other issues were those that are considered to require some further assessment but are likely to be managed by routine industry environmental management measures.

A detailed risk assessment would be conducted during preparation of the EIS.

6.2 Assessment of Key Issues

6.2.1 Land use

Existing Environment

The Site is approximately 203 hectares contained within the Bathurst Regional LGA where the dominant land use is agriculture, forestry and fishing (ABS, 2011). The Site is zoned Primary Production (RU1) and is currently used for grazing of livestock (sheep). A small proportion of the Site on the north west and western boundaries is also mapped as Biophysical Strategic Agricultural Land.

Potential Impacts

The Proposal will result in additional land use on the Site to include electricity generation for the duration of the Proposal life cycle however, agriculture (grazing) will continue on the Site.

During construction, the Proposal has the potential to impact on agricultural use of the Site however these impacts (air quality, noise, amenity) would be minimised through the adoption of the mitigation measures to be outlined in a CEMP to be prepared for the works.

During operation, the relatively small loss of productive land on a regional basis is not considered likely to have a significant impact and grazing will continue on site. The operational stage of the proposal is not considered to present a land use conflict for adjacent agricultural areas due to the minimal active operations required to operate the solar farm.

The solar farm would be decommissioned at the end of its operational life, removing all infrastructure and returning the Site to its original use. Remediation of the site would be undertaken to ensure agricultural use can continue on site.

Further Assessment

Consideration on potential land use conflicts associated with the proposal would be included in the Cumulative Impact Assessment within the EIS.

6.2.2 Biodiversity

Existing Environment

The Site is currently used for agriculture, specifically sheep grazing, and has been subject to substantial disturbance. Potential vegetation communities and fauna habitat may be limited by the previous disturbance caused by agricultural use.

A review of aerial photographs and site history has identified that the Site has been predominately cleared of over-storey vegetation. Remaining vegetation is outlined below (Refer Table 6-1).

Table 6-1 Existing Vegetation

Description	Location
Row of semi-mature / mature trees	Western boundary of Lot 130 DP755784
Grasses (assumed exotic)	Whole site

Due to the number of exotic species found in this region, and the current land use, it is likely that the vegetation growing within the Site are predominately exotic species.

Nearby environmental features include a natural waterway (Saltwater Creek) that runs along the northern boundary of the Site and Wambool Nature Reserve. Saltwater Creek is classified a fourth order stream, is likely to display valuable fish habitat and hence could support viable fish populations. Saltwater Creek runs adjacent to the north boundary of the Site and is a tributary of Fish Creek which flows into the Macquarie River approximately 7.5 km south west of the Site.

A search of the NSW Wildlife Atlas (11 August 2017) identified no listed threatened ecological communities and 7 listed threatened species within 10 km of the Site. A search of the EPBC Act Protected Matters (11 August 2017) identified 2 listed threatened ecological communities, 31 listed threatened species and 12 migratory species within 10km of the Site. The EPBC Protected Matters search also identified 18 listed marine species and 29 invasive species.

Threatened Ecological Communities
Natural Temperate Grassland of the South Eastern Highlands
White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Threatened Flora

- Bluegrass (*Dichanthium setosum*)
- Black Gum *(Eucalyptus aggregata)*
- Silver-leaved Mountain Gum, Silver-leaved Gum (*Eucalyptus pulverulenta*)
- *Euphrasia arguta*
- Basalt Pepper-cress, Peppercress, Rubble Peppercress, Pepperweed (*Lepiddium hyssopifolium*)
- Hoary Sunray, Grassland Paper-daisy (*Leucochrysum albicans* var. tricolor)
- Angus's Onion Orchid (*Microtis angusii*)
- Austral Toadflax, Toadflax (*Thesium austral*)

Threatened Fauna

- Birds

- Regent Honeyeater (Anthochaera phrygia)
- Curlew Sandpiper (Calidris ferruginea)
- Painted Honeyeater (Grantiella picta)
- Swift Parrot (Lathamus discolor)
- Malleefowl (Leipoa ocellata)
- Eastern Curlew, Far Eastern Curlew (Numenius madagascariensis)
- Superb Parrot (Polytelis swainsonii)
- Australian Painted Snipe (Rostratula australis)

Fish

- Trout Cod (*Maccullochella macquariensis*)
- Murray Cod (*Maccullochella peelii*)
- Macquarie Perch (*Macquaria australasica*)

Mammals

- Large-eared Pied Bat, Large Pied Bat (*Chalinolobus dwyeri*)
- Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (*Dasyurus maculatus maculatus*)
- Greater Glider (*Petauroides volans*)
- Brush-tailed Rock-wallaby (*Petrogale penicillata*)
- Koala (*Phascolarctos cinereus*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)

Reptiles

- Pink-tailed Worm-lizard, Pink-tailed Legless Lizard (*Aprasia parapulchella*)
- Striped Legless Lizard (*Delma impar*)

Frogs

- Green and Golden Bell Frog (*Litoria aurea*)
- Booroolong Frog (*Litoria booroolongensis)*
- Yellow-spotted Tree Frog, Yellow-spotted Bell Frog *(Litoria castanea)*

Insects

- Bathurst Copper Butterfly, Purple Copper Butterfly, Bathurst Copper, Bathurst Copper Wing, Bathurst-Lithgow Copper, Purple Copper (*Paralucia spinifera*)

The initial list of subject species above does not include '*migratory species'* listed under the EPBC as many of these would likely be assessed as unlikely possible occurrences within the proposed site given the absence of significant stands of native vegetation. However, this would be assessed in the flora and fauna impact assessment as part of the EIS.

Potential Impacts

The identified stand of mature trees is not anticipated to be impacted by the proposal.

The following impacts upon biodiversity have been considered as having potential to occur during **construction** of the Proposal:

- Clearing, removal and disturbance of vegetation
- Clearing of habitat (such as food sources, foraging habitat, breeding habitat, tree hollows). Includes loss of habitat connectivity and nest sites
- Introduction and spread of invasive species and weeds
- Disturbance to fauna.

The following impacts upon flora and fauna have been considered as having potential to occur during **operation** of the Proposal:

- Microclimate impacts under the PV array (shading, water availability, temperature and humidity)
- Weed growth and spread
- Movement barrier and collision hazard created by perimeter fencing
- Vehicle collision risks to fauna.

Further Assessment

A flora and fauna impact assessment (F&FIA) would be undertaken and would include:

- Detailed desktop review to identify threatened species, populations and ecological communities with potential to occur having regard to the NSW Biodiversity Offsets Policy for Major Projects and in accordance with the Framework for Biodiversity Assessment.
- Detailed flora and fauna surveys. This would include:
  - Targeted surveys of potentially occurring threatened species and endangered ecological communities.
  - Fauna habitat survey including paddock tree survey (identification of paddock tree species, hollows and nests), water bird survey (dam) with descriptions of the fauna habitats occurring on-site and suitable fish habitat within Saltwater Creek and the likely presence of viable fish populations.
  - Floristic survey of vegetation communities and descriptions of the vegetation communities occurring on-site.
  - Where appropriate habitat is identified anabat surveys and koala scat searches would be undertaken.
- Investigate potential impacts of construction and operation of the Proposal on flora and fauna and provide project specific mitigation options.
- Recommendations regarding referral requirements under EPBC Act as required.

Preparation of assessments of significance for threatened species likely to occur on-site in accordance with Section 5A of the EP&A Act as required.

6.2.3 Noise

The Site is located within an agricultural area on the outskirts of Bathurst in a rural setting. Background noise levels are characterised by passing trains along the railway to the north of the site, agricultural activities, local traffic and some wildlife noise. Current noise generating activities on the Site include operation of motor vehicles relating to livestock management. As such, background noise levels are likely to be low.
There are six rural-residences located with 1 km of the Site (refer to Section 2.3).

The following noise impacts have been considered as having potential to occur during **construction** of the Proposal:

- Noise from fixed and mobile plant and equipment which includes:
  - Telehandlers
  - Piledrivers
  - Cable trenching equipment
  - A mobile crane
  - Various delivery and utility vehicles.
- Noise from increased traffic along Tarana Road from worker vehicles and delivery trucks during construction.

The noisiest activity during construction will be pile driving however noise impacts will be limited to the construction period which is estimated to take (approximately nine to twelve months) and will only be conducted during standard construction hours.

The following noise impacts have been considered as having potential to occur during **operation** of the Proposal:

- Noise from vehicle movements and some maintenance equipment use.

However due to the limited activities and short duration of these activities during operation of the Proposal there will be negligible to no noise impacts during operation.

Further assessment

A noise and vibration impact assessment would be undertaken and include:

- Assessment of construction noise in accordance with the Department of Environment, Climate Change NSW (DECC) Interim Construction Noise Guidelines (ICNG), July 2009
- Qualitative operational noise assessment
- Identification of appropriate mitigation measures.

6.2.4 Visual Amenity and Landscape Character

Existing Environment

The Site is located within rural area with large lot agricultural production and sparsely distributed rural-residences usually located some distance from roads. The Site is surrounded by large, fenced, flat paddocks that are cleared of trees. Local topography is generally flat.

Potential Impacts

The proposal has the potential to impact upon visual amenity and landscape character during construction and operation.

The following visual impacts have been considered as having potential to occur during **construction** of the Proposal:

- Construction facilities, including portable structures and laydown areas
- Excavations and earthworks
- Machinery present, including a mobile crane
- Minor civil works to facilitate access
- Dust and reduced air quality from traffic on unsealed road.

These construction impacts would be temporary and limited to the length of the construction period. Therefore, they are not expected to have a long term visual impact.

During operation, it is not proposed to operate any night lighting.

The following visual impacts have been considered as having potential to occur during **operation** of the Proposal:

- Visual impact to existing public and private viewpoints
- Sun-glint and glare and reflectivity.

Further assessment

A visual and landscape character impact assessment, would be prepared as part of the EIS to investigate potential visual impacts of the Proposal and mitigation options. The impact assessment would include:

- Impact to landscape character of the site and the surrounding area
- Visual impact to the surrounding viewpoints, both public and private
- Potential visual impacts of the development including glare and reflectivity.

6.2.5 Surface Water, Groundwater and Hydrology

There is one natural waterway (Saltwater Creek) in the immediate vicinity of the Site. This waterway is classified a fourth order stream, is likely to display valuable fish habitat and may support viable fish populations. Saltwater Creek runs adjacent to the north boundary of the Site and is a tributary of Fish River which intersects with Campbells River to become the Macquarie River approximately 7.5 km south west of the Site. Flow from Fish River, as well as the Chifley Dam and Windburndale Dam are the major sources of Bathurst's supply of drinking water. The Site is located within the Macquarie-Bogan Catchment, within the Murray-Darling Basin.

The Site contains a number of manmade waterbodies generally consisting of small farm dams for livestock watering. As mapped within the Bathurst Regional LEP (2014), the Site not located in a Flood Planning Area.

A search of the Department of Primary Industries (Office of Water) water monitoring framework found two groundwater bores near the Site. These identified groundwater depths of 13 to 30 m in the area. The site is not designated as groundwater vulnerable under the Bathurst Regional LEP.
The proposal has the potential to impact upon surface water, groundwater and hydrology of the Site during construction and operation.

Construction of the Proposal may increase the transport of exposed sediment to the creek (Saltwater Creek) in a medium to heavy rainfall event. As vehicles will be travelling on unsealed roads, dust and erosion is likely if no mitigation methods are in place. Increased sedimentation may increase creek turbidity, and negatively impact growth of aquatic flora and fauna. As identified in section **Error! Reference source not found.**, this creek is unlikely to harbour significant density of viable fish populations. Due to the depth of groundwater in the area it is unlikely that construction would intercept groundwater. It is likely the surface water from the creek (Saltwater Creek) and the groundwater systems connect within the vicinity of the site. If surface water is contaminated, there is therefore a greater risk of flow on groundwater contamination.

The following surface water, groundwater and hydrology impacts have been considered as having potential to occur during **construction** of the Proposal:

- Accidental spill or discharge of chemicals or hydrocarbons, such as fuels and oils in vehicles and/or equipment. Potential to contaminate both surface water and groundwater table
- Erosion of soil and sedimentation through storm-water runoff and transport of eroded sediments to waterways (natural or man-made)
- Dewatering sediment laden water from excavations
- Flooding during construction also has the potential to result in erosion as well as water quality impacts from items such as soil, gross-pollutants, chemicals and hydrocarbons
- Onsite activities resulting in change to the groundwater table (use of groundwater for on-site water supply).

The following surface water, groundwater and hydrology impacts have been considered as having potential to occur during **operation** of the Proposal:

- Accidental spill or discharge of chemicals or hydrocarbons, such as fuels and oils in vehicles and/or equipment. Potential to contaminate both surface water and groundwater table.

Water demand for the project will be relatively small as the construction of the solar PV farm is not water intensive. If surface or groundwater extraction is required to meet the projects demand for water an assessment of impacts to water will be included in the EIS.

Construction and operation activities are not expected to impact on flooding behaviour in the area.

Further Assessment

Potential impacts to water quality (surface and groundwater) and hydrology on surrounding land, including impediments to the flow of water will be considered in the EIS. The impact assessment would include:

- A water quality assessment
- A detailed surface water and hydrology impact assessment
- A groundwater impact assessment

Consultation with Bathurst Regional Council would also be undertaken regarding water quality impacts due to the location of the site within Bathurst drinking water area.

The EIS would also identify erosion and sediment control measures that would be implemented to mitigate any impacts.

6.2.6 Traffic and Site Access

Existing Environment

Vehicle access to the Site will be via an unsealed private driveway off Tarana Road. There are no formal roads or car parking arrangements and pedestrian access is restricted. Access arrangements will be further investigated during the EIS.

Tarana Road (a sealed single lane, two-way Council owned road) runs parallel to the southern boundary of the Site and joins into O'Connell Road, ultimately intersecting with the Great Western Highway (A32), approximately 11 km north west of the Site. These roads will be utilized for access to the Site and would be the major transport route for haulage and Site vehicles during construction and operation.

It is proposed that construction and operation traffic would pass through the eastern extent of the town of Bathurst to access Great Western Highway (A32). The potential impacts of this access and haulage route would be identified in the EIS.

Potential Impacts

The proposal has the potential to impact upon traffic in the region during construction and operation.

The following traffic and access impacts have been considered as having potential to occur during **construction** of the Proposal:

- Increased traffic generation. During the peak construction period, traffic is expected to be 40 heavy vehicles mostly B-double trucks and 50 light commercial vehicles per day. This equates to a total of 90 movements a day.
- Increased occurrence of road damage due to heavy vehicle use
- Increased noise and congestion impacting traffic flow within Bathurst city centre
- Dust generation and movement from unsealed access road, to sealed Tarana Road and associated air and surface water quality issues.

The following traffic and access impacts have been considered as having potential to occur during **operation** of the Proposal:

- Increased traffic generation. Traffic generated by the operation of the solar farm would consist of worker's light vehicles and the occasional truck delivering maintenance materials.

At this stage, the Proposal does not involve works or activities in, on or over public roads therefore approval from the road authority for the works is not required.

Further Assessment

A Traffic Impact Assessment will be undertaken as part of the EIS including consultation with Roads and Maritime and Bathurst Regional Council regarding preferred access and haulage routes.

6.3 Other Environmental Issues

Issue	Existing Environment	Potential Impacts	Mitigation Measures
Air quality	The air quality in the study area is expected to be fair and typical of rural settings in NSW with low population density with no major industrial pollution sources. Existing sources of air pollution are expected to include vehicle emissions, dust from agricultural practices and smoke from post-harvest burnings. During colder months, solid fuel heating may result in a localised reduction in air quality, particularly if temperature inversions operate overnight.	The construction of the Proposal is not anticipated to have a significant impact on air quality, and would mostly be related to dust during construction from activities such as: • Movement of construction traffic on unsealed roads within the Site. • Vegetation removal. • Excavations for cabling. Air quality may be temporarily impacted by exhaust emissions from increased numbers of vehicles in the area during construction. No impacts to air quality are anticipated during operation. Air quality impacts and risk would be assessed in the EIS.	The mitigation measures would require a Construction Environmental Management Plan (CEMP) be prepared to manage air quality impacts during the construction phase. Dust and sedimentation resulting from vehicle movement across unsealed roads, could be mitigated through sealing at least the site access road. This option should be assessed through the Erosion and Sediment Control Plan.
Indigenous Heritage	A search of the Office of Environment and Heritage's AHIMS database on 8 August 2017 indicated that there are no registered sites within 1km of the proposed works. Additionally, there are no landscape features that are likely to indicate the	There is a low risk of impact to Aboriginal heritage items, as no registered sites have been recognised within a 1km radius of proposed works. Unexpected or unidentified Aboriginal heritage items may be uncovered during the construction of the	A due diligence assessment will be completed in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (ECCW 2010). The mitigation measures would require an unexpected finds procedure be prepared as part of the

Issue	Existing Environment	Potential Impacts	Mitigation Measures
	presence of Aboriginal objects within 200m of the Site.	Proposal however this is considered low risk given the Sites current level of disturbance.	CEMP to manage potential heritage finds during the construction phase. In the event of an item of heritage significance being uncovered at the Site after works commence, the NSW Office of Environment and Heritage (OEH) should be contacted prior to further work being undertaken at the Site. Works would not recommence in the area of the find until written approval is provided by NSW OEH. If skeletal remains are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and OEH contacted.
Non-Indigenous Heritage	A search of the NSW Heritage Register on 8 August 2017 for the Bathurst Regional LGA identified numerous items listed under the NSW Heritage Act, mostly located in Bathurst city. The closest heritage item to the Site is the Grange and Macquarie Plains Cemetery, approximately 11 km south east of the Site.	Given the distance of heritage items from the Site there is a low risk of impact to heritage items. Unexpected or unidentified non-Aboriginal heritage items may be uncovered during the construction of the Proposal however this is considered low risk given the Sites current level of disturbance.	The mitigation measures would require an unexpected finds procedure be prepared as part of the Construction Environmental Management Plan (CEMP) to manage potential heritage finds during the construction phase. In the event of an item of heritage significance being uncovered at the Site after works commence, the NSW

Issue	Existing Environment	Potential Impacts	Mitigation Measures
	The search also had numerous listed under the Bathurst Regional LEP – Environmental heritage. The closest local heritage item to the Site is the Grange and Macquarie Plains Cemetery, approximately 11 km south east of the Site.	The Proposal is unlikely to harm any known non-Aboriginal site or item. No further archaeological survey or testing is proposed. Should the site inspection for the EIS identify any old structures or items that would potentially have historic significance this will be reassessed. Non-Aboriginal heritage impacts and risk would be assessed in the EIS.	Heritage Division should be contacted prior to further work being undertaken at the Site. Works would not recommence in the area of the find until written approval is provided by a heritage consultant or archaeologist.
Soils and Geology	The Bathurst 1:100,000 Geological Series Sheet (Department of Planning and Environment (DPE)) has marked the area Cbg – Bathurst Granite deposits including coarse grained, porphyritic biotite granite. A review of the Bathurst Regional LEP (2014) did not indicate that the Site is at risk of acid sulphate soils of salinity.	Construction activities would include minor excavations and vegetation removal which have the potential to cause: soil erosion and sedimentation (including potential for sediment laden run-off); compaction; disturbance and dispersion of soil by vehicles; and dust generation. There will be minimal operational impacts to soil. Soil and geology impacts and risk would be assessed in the EIS.	
Contaminated Land	A search of the NSW Environmental Protection Authority (NSW EPA) contaminated land records was undertaken on 11 August 2017. The	There is potential that contaminants may be uncovered during excavation activities at the Site.	A CEMP will be prepared to include an unexpected finds procedure for any unexpected contamination during site construction.

Issue	Existing Environment	Potential Impacts	Mitigation Measures
	results of the search note that there are no records under Section of the Contaminated Land Management Act 1997 of contaminated sites within 1 km of the Site. There is potential for contamination to be present on site associated with former and current agricultural activities (e.g. pesticides or fuel spills).	There would remain a minor risk of soil contamination in the event of a chemical spill (e.g. fuels) during construction and operation.	
Socio economic	The Proposal is in the Bathurst Regional LGA which has a population of 38,519 people (ABS, 2011) and covers an area of 3,820 square kilometres. The main city and rural centre is Bathurst with a population of approximately 42,000. The unemployment rate is approximately 5.9 %, compared to the national rate of 5.6 %. The main industries for employment in the Bathurst district are education (10.4 % in 2011), food services (4.0 %) and hospitals 3 % etc (ABS, 2011). The Proposal area is currently used for agriculture.	The Proposal would reduce the availability of agricultural land but would generate economic benefits during construction and operation, including local employment opportunities. The potential adverse social impacts associated with the Proposal relate to amenity aspects including, noise, air quality and traffic during construction and visual amenity during operation. The potential for other adverse social impacts are limited as: • The Proposal is located a reasonable distance away from sensitive receivers with buffer distances exceeding 100m to neighbouring residences. • The PV panels are relatively close to the ground (3m). • The PV panels will absorb light rather than reflect it.	Employment opportunities for local sub-contractors should be maximised where possible.

Issue	Existing Environment	Potential Impacts	Mitigation Measures
		The EIS would assess potential social and economic impacts of the Proposal	
Bushfire Risk / Hazards / Electromagnetic Interference	The Site has been predominantly cleared for agriculture and currently grazing (sheep). A search of the Rural Fire Service (RFS) online search tool on 7 August 2011 did not identify the land as fire prone (*RFS 2017*). A review of the Bathurst Regional LEP 2014 did not identify any fire prone land associated with the Proposal. The frequency of fire on the Site and surrounding area is unknown.	The Proposal is unlikely to be affected by bushfire, or pose a significant bushfire risk. Activities associated with construction of the Proposal that may cause or increase the risk of bush fire include: • Site preparation activities such as mowing, slashing and use of other petrol-powered tools. • Operating a petrol, LPG or diesel-powered motor vehicle over land containing combustible material. • Operating plant fitted with power hydraulics on land containing combustible material. • Storage of fuel. • Bushfire impacts and risk would be assessed in the EIS.	All infrastructure would be installed in accordance with AS 3000:2007 Electrical installations. Safe clearance distances would be defined and maintained. Assessment against the International Commission on Non – Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to time-varying Electric, Magnetic and electromagnetic fields.

6.4 Cumulative Impacts

6.4.1 Other Projects and Developments

Cumulative impacts, for the purpose of this assessment, relate to the combined potential effects of different impact areas of the Proposal (i.e. construction traffic combined with visual impact) as well as the potential interaction with other proposals in the local area (e.g. the combined effects of adjacent proposals during construction, operation and decommissioning).

An assessment of cumulative impacts in the EIS will include review of the Department of Planning's Major Projects Register (July 2017) and a review of the Bathurst Regional Shire Council's development applications tracker.

6.4.2 Further Assessment

Potential cumulative impacts will be considered in the EIS via a Cumulative Impact Assessment. The assessment will include:

- Combined potential effects of different impact areas of the Proposal.
- Potential interaction with other Proposals in the local area.
- Identification of recommended mitigation measures to minimise any potential impacts.

7. Summary of proposed EIS scope

7.1 Proposed EIS Scope for Key Issues

Table 7-1 provides a summary of the proposed EIS assessment scope for key environmental issues. This scope would be refined (if necessary) following receipt of the SEARs for the project.

Table 7-1 Proposed EIS Scope for Key Issues

Issue	Proposed Environmental Impact Statement Scope
Land Use	Consideration on potential land use conflicts associated with the proposal would be included in the Cumulative Impact Assessment within the EIS.
Biodiversity	A flora and fauna impact assessment (F&FIA) would be undertaken and would include: • Detailed desktop review to identify threatened species, populations and ecological communities with potential to occur. • Detailed flora and fauna surveys. This would include: – Targeted surveys of potentially occurring threatened species and endangered ecological communities – Fauna habitat survey including paddock tree survey (identification of paddock tree species, hollows and nests) and water bird survey (dam) with descriptions of the fauna habitats occurring on-site – Floristic survey of vegetation communities and descriptions of the vegetation communities occurring on-site. – Where appropriate habitat is identified anabat surveys and koala scat searches would be undertaken • Investigate potential impacts of construction and operation of the Proposal on flora and fauna and provide project specific mitigation options.

Issue	Proposed Environmental Impact Statement Scope
	• Recommendations regarding referral requirements under EPBC Act as required. • Preparation of assessments of significance for threatened species likely to occur on-site in accordance with Section 5A of the EP&A Act as required.
Noise	A noise and vibration impact assessment would be undertaken and include: • Assessment of construction noise in accordance with the Department of Environment, Climate Change NSW (DECC) Interim Construction Noise Guidelines (ICNG), July 2009. • Qualitative operational noise assessment. • Identification of appropriate mitigation measures.
Visual Impact Assessment	A visual and landscape character impact assessment, would be prepared as part of the EIS to investigate potential visual impacts of the Proposal and mitigation options. The impact assessment would include: • Impact to landscape character of the site and the surrounding area. • Visual impact to the surrounding viewpoints, both public and private.
Surface Water and Hydrology	Potential impacts to water quality and flooding on surrounding land, including impediments to the flow of water will be considered in the EIS. The impact assessment would include: • A water quality assessment • A flood assessment • Groundwater Impact assessment • Consultation with Bathurst Regional Council with regards to potential impact on Bathurst drinking water supply
Traffic	A Traffic Impact Assessment will be undertaken as part of the EIS.

7.2 Proposed EIS Scope for Other Environmental Issues

Table 7-2 provides a summary of the proposed EIS assessment scope for other environmental issues. This scope would be refined (if necessary) following receipt of the SEARs for the project.

Table 7-2 Proposed EIS Scope for Other Issues

Issue	Proposed Environmental Impact Statement Scope
Air	The mitigation measures would require a CEMP be prepared to manage air quality impacts during the construction phase.
Non-Aboriginal Heritage	The mitigation measures would require an unexpected finds procedure be prepared as part of the CEMP to manage potential heritage finds during the construction phase. In the event of an item of heritage significance being uncovered at the Site after works commence, the NSW Heritage Division should be contacted prior to further work being undertaken at the Site. Do not recommence works in the area of the find until written approval is provided by a heritage consultant or archaeologist.

Issue	Proposed Environmental Impact Statement Scope
Aboriginal Heritage	The mitigation measures would require an unexpected finds procedure be prepared as part of the CEMP to manage potential heritage finds during the construction phase. In the event of an item of heritage significance being uncovered at the Site after works commence, the NSW Office of Environment and Heritage (OEH) should be contacted prior to further work being undertaken at the Site. Works are not to recommence in the area of the find until written approval is provided by NSW OEH. If skeletal remains are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and OEH contacted.
Soils	An Erosion and Sediment (ERSED) Control Plan will be prepared and implemented as part of the CEMP. ERSED controls (e.g. silt curtains, sediment fences, booms etc.) will be designed, installed and maintained in accordance with Managing Urban Stormwater: soils and construction 4th Edition, (*Landcom, 2004*), aka the '*Blue Book*'. The EIS would provide thorough consideration of soil impacts and proposed mitigation measures during construction and operation.
Contaminated Land	A CEMP will be prepared to include an unexpected finds procedure for any unexpected contamination identified during site construction.
Socio-economic	Employment opportunities for local sub-contractors should be maximised where possible
Bushfire	All infrastructure would be installed in accordance with AS 3000:2007 Electrical installations. Safe clearance distances would be defined and maintained.
Waste Management	A Waste Management Plan would be incorporated into the CEMP, applying the principles to avoid, re-use and recycle to minimise wastes. All waste will be disposed be a licensed contractor to an appropriately licenced facility. All records demonstrating lawful disposal of waste are required to be kept for at least six years.
Cumulative Impacts	Potential cumulative impacts will be considered in the EIS via a cumulative Impact Assessment. The assessment would include: • An assessment of spatial and temporal environmental effects resulting from the above projects. • Identification of recommended mitigation measures to minimise any potential impacts, where possible.

8. Conclusion

Photon Energy proposes to construct and operate a 131.2 MW solar farm using photovoltaic technology at Ëuarra", OÇonnell Road, Bathurst, NSW, 2795. The proposed Site is approximately 203 ha and covers several lots.

The proposed solar farm at Brewongle has an estimated capital investment value of $145 million, this exceeds the $30 million limit and is therefore classified as '*state significant development*' under Part 4 of the EP&A Act. An Environmental Impact Statement (EIS) must be prepared and submitted to Department of Planning and Environment (DP&E) for approval. The EIS is to be prepared in accordance with the SEARs issued by Department of Planning and Environment (DP&E).

The project components, location and design may be subject to further changes as part of the ongoing design development and community consultation and clarifications may be made during the EIS process.

The following have been identified as key environmental aspects:

- Biodiversity.
- Noise.
- Visual Impact Assessment.
- Surface Water and Hydrology.
- Traffic.

A PEA of the project's potential impact has confirmed that the above aspects have the potential to result in impact to the environment (without the adoption of adequate environmental mitigation measures). Detailed assessment of these issues, and other potential environmental issues, would be undertaken as part of an EIS.

Following the receipt of the SEARs an EIS would be prepared and publicly exhibited, in accordance with the requirements of Part 4.1 of the EP&A Act. The EIS would include:

- A description of the project, including its components and construction activities (including ancillary components and activities if required).
- A statement of the objectives of the project.
- A summary of the strategic need for the project with regard to its critical State significance and relevant State Government policy.
- An analysis of any feasible alternatives to the project.
- A description of feasible options within the project.
- A description of how alternatives to and options within the project were analysed to inform the selection of the preferred alternative/option.
- A concise description of the general biophysical and socio-economic environment that is likely to be impacted by the project (including offsite impacts).
- A demonstration of how the project design has been developed to avoid or minimise likely adverse impacts.
- The identification and assessment of key issues.
- A statement of the outcome(s) the proponent would achieve for each key issue.

- Consideration of the interactions between measures proposed to avoid or minimise impact(s), between impacts themselves and between measures and impacts.
- An assessment of the cumulative impacts of the project taking into account other projects that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed; and
- Statutory context of the project as a whole.

9. References

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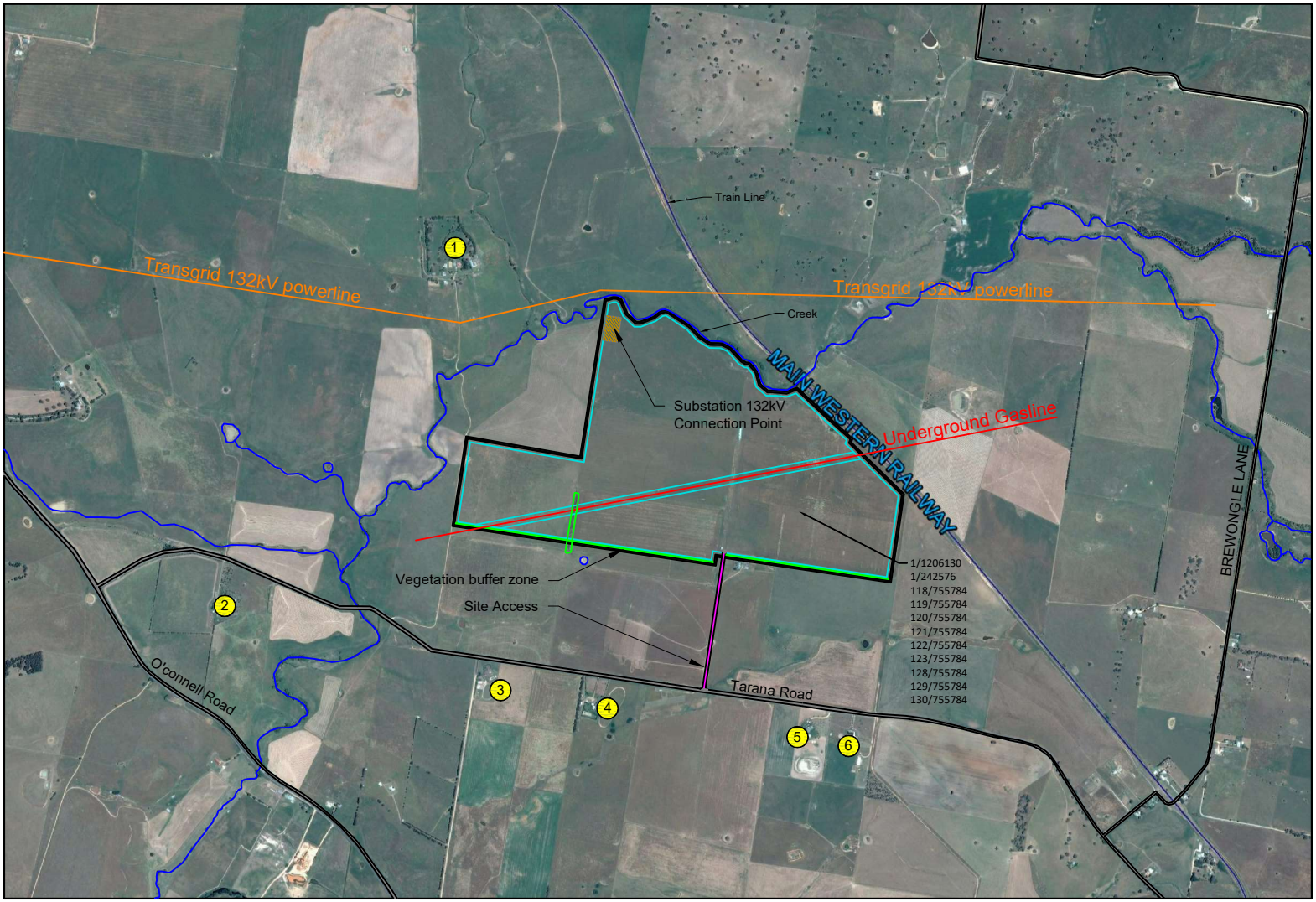
Appendix A

Site Location Plan

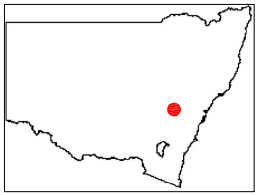
BREWONGLE - PHOTOVOLTAIC SYSTEM



Area assessed under the PEA
Road
Proposed access
Vegetation buffer
Transmission powerline

Proposed Substation
Solar farm boundary

Sensitive receiver within 1km of th solar farm footprint.
Note: Additional receivers within 2km of the solar farm footprint hav been identified in section 2.3 of the PEA.



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Drawn
Zbynek Vala 31/7/2017

Project
BREWONGLE PHOTOVOLTAIC SYSTEM

Part
System Layout

Drawing Title
Constraints Map

Drawing No.
PEA-17-194-420

Rev
A3

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