

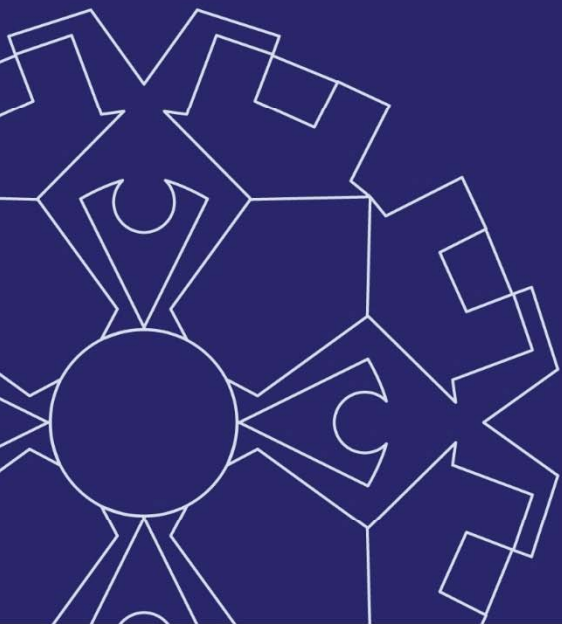


GEOLYSE

**GOONUMBLA SOLAR FARM
SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS**

**PREPARED FOR
RENEWABLE ENERGY CONSULTANCY**

APRIL 2016



• Civil, Environmental & Structural Engineering • Surveying • Environmental • Planning • Architecture

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The preparation of this report has been in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

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Site Details

1.1 LOCATION AND REGIONAL CONTEXT

The proposed Goonumbla Solar Farm (GSF) is located approximately 10 km west of Parkes in the Central West Slopes and Plains of New South Wales. The site can be accessed via Henry Parkes Way (Condobolin Road) to the north, or from Millers Lookout Road and Pat Meredith Drive, east and west of the site respectively.

The proposed GSF would be located within the boundaries of five land parcels, including:

- Lot 1 DP602329
- Lot 2 DP602329
- Lot 409 DP750152
- Lot 5 DP854193
- Lot 1 DP877903

The site in a regional context is provided in **Figure 1** and the immediate site locality in **Figure 2**.

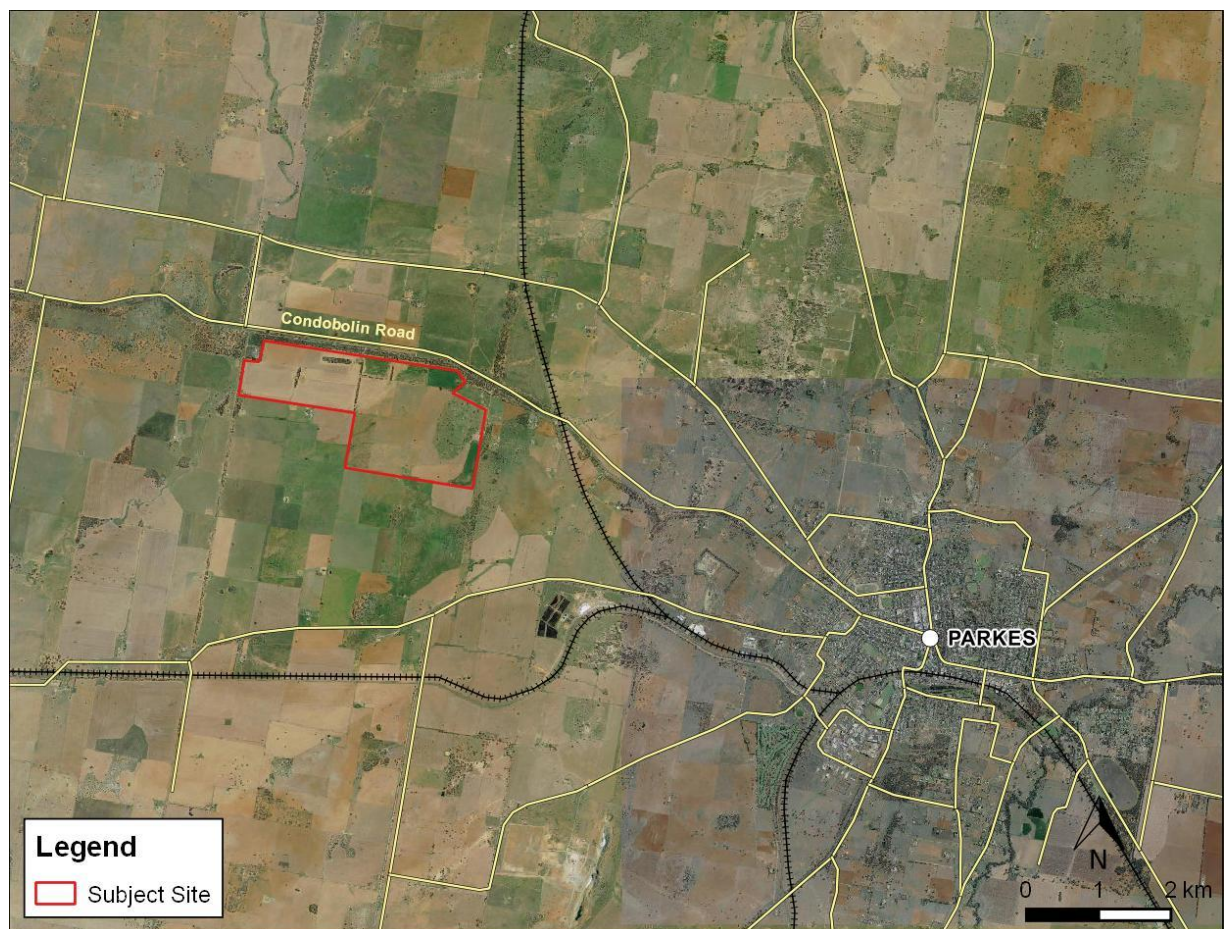


Figure 1: Site location regional context (Source: NSW LPI)



Figure 2: Immediate site locality (Source: NSW LPI)

1.2 SURROUNDING DEVELOPMENT

1.2.1 LAND USE

The site is located predominantly on cleared land used for agricultural purposes, such as cropping and grazing. There are some small areas of native vegetation remaining within the site, and a hill (known as Millers Lookout) at the eastern extent of the site that is not cultivated due to outcropping rock. There is one residential dwelling within the site, located on the eastern side of Millers Lookout (refer – **Figure 4**).

A breakdown of land use within a 5 km radius is provided in **Table 1.1** and depicted in **Figure 3**.

Table 1.1 – Summary of land use within a 5 km radius of the site

Land Use	Area (ha)	%
Native / Exotic Pasture Mosaic	7,745	60.68
Cropping	4,391	34.40
Stock Route	153	1.20
Roads	131	1.03
Rural residential with agriculture	65	0.51
Railways	60	0.47
Tailings	43	0.34
Sewage	42	0.33

Table 1.1 – Summary of land use within a 5 km radius of the site

Land Use	Area (ha)	%
Urban residential	34	0.26
Landfill	29	0.23
Services	26	0.20
Mines	22	0.18
Environmental forest plantation	9	0.07
Reservoir/dam	8	0.07
Fuel powered electricity generation	4	0.03
Quarries	1	0.01

Source: NSW Office of Environment and Heritage (GIS Dataset: NSW Land Use)

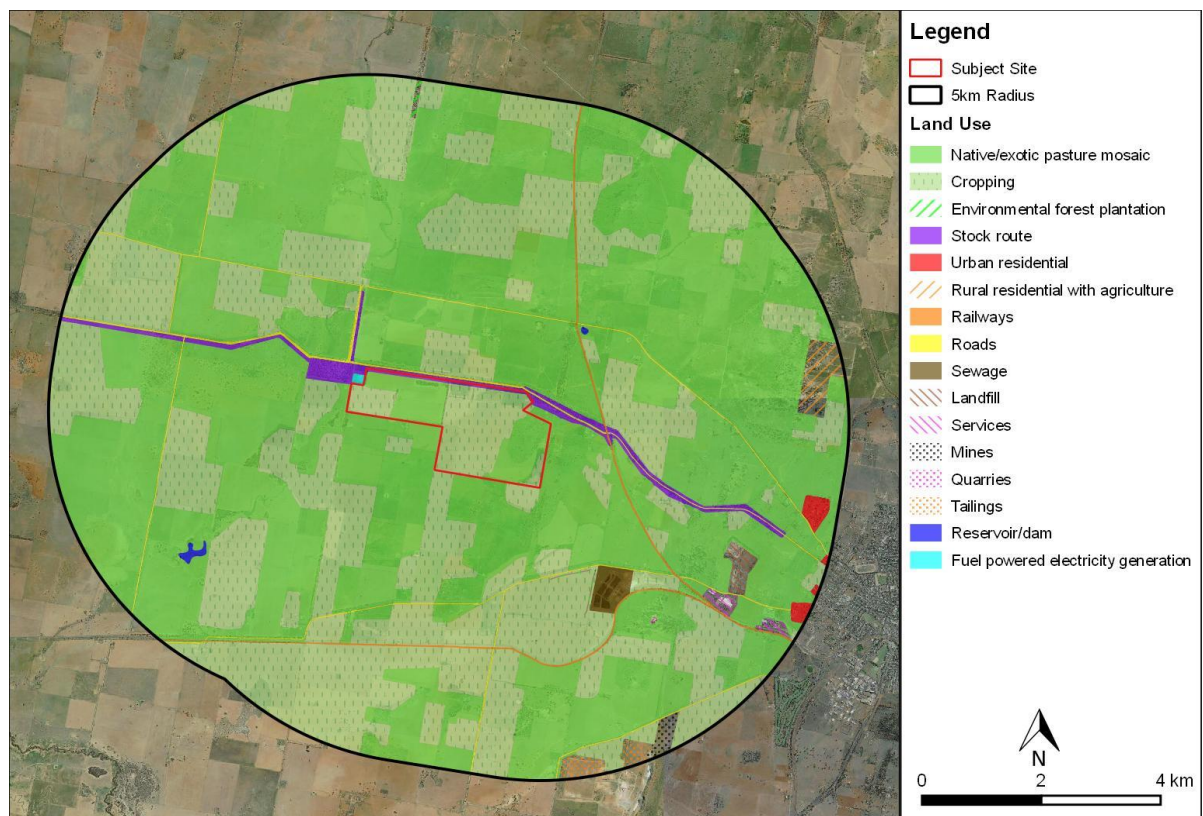


Figure 3: Land use within 5 km radius (Source: NSW OEH)

1.3 POTENTIALLY AFFECTED RECEPTORS

There are approximately 19 residences within a 2 km radius of the site, including 9 residences within a 1 km radius of the site (refer – **Figure 4**).

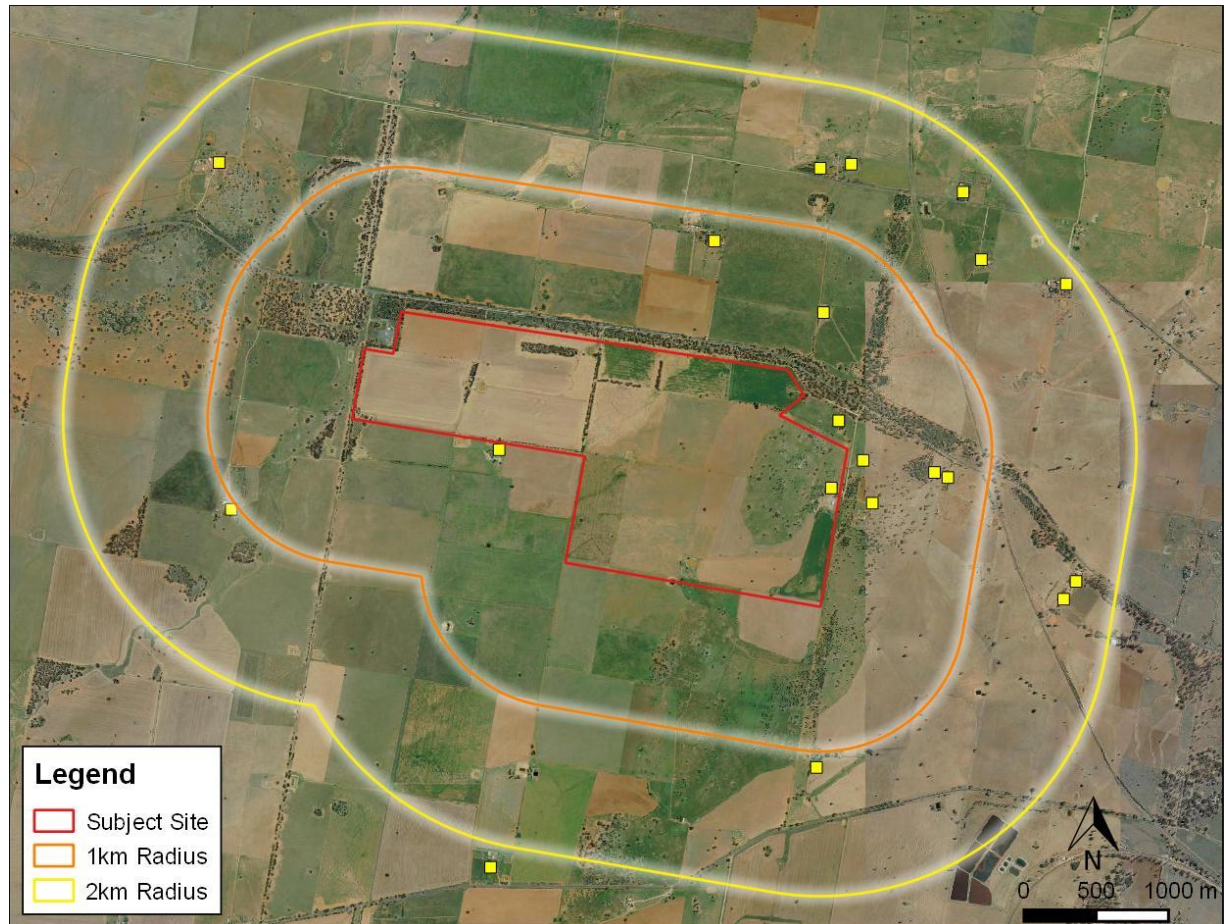


Figure 4: Potentially affected properties within a 2 km radius (Source: NSW LPI)

1.4 KEY INFRASTRUCTURE

The development site fronts the Condobolin Road (Henry Parkes Way).

A TransGrid substation is located in the north west corner of the site. Existing electricity transmission lines (ETL) cross the site, including one that joins with the TransGrid substation.

The location of existing infrastructure is provided in **Figure 5**.



Figure 5: Existing Infrastructure (Source: NSW LPI)

1.5 ENVIRONMENTAL FEATURES

1.5.1 TOPOGRAPHY

The site is characterised by largely flat topography, rising in the east towards Miller's Lookout hill.

1.5.2 VEGETATION

The 385 ha site contains approximately 7 ha of native vegetation and isolated paddock trees.

Grey box plant communities that are listed as Endangered Ecological Communities are known to exist in large remnant patches within the Henry Parkes Way (Condobolin Road) and Pat Meredith Drive roadside corridors.

Vegetation within and near the site is also mapped as Terrestrial Biodiversity by the NSW Planning Portal (refer – **Figure 6**).

There is no bushfire prone land mapped within or near the site. The closest mapped bushfire prone land is located approximately 1.3 km west of the site (refer – **Figure 7**).



Figure 6: Mapped Terrestrial Biodiversity (Source: NSW Planning Portal)



Figure 7: Bushfire Prone Land (Source: NSW Planning Portal)

1.5.3 WATER

1.5.3.1 Surface Water

There are no mapped watercourses or drainage lines within the site. The closest mapped watercourse (non-perennial) is Ridgely Creek, located (at its closest point) approximately 80 metres from the western boundary of the site. The site does contain several farm dams.

Ridgely Creek flows south west into Goobang Creek, a tributary of the Lachlan River. Ridgely Creek is also mapped as Key Fish Habitat by the NSW Department of Primary Industries (Fisheries). A drainage line mapped by NSW LPI flows towards a dam adjacent to the southern boundary of the site.

Surface water features at and surrounding the site are depicted in **Figure 8**.



Figure 8: Surface water features (Source: NSW LPI)

1.5.3.2 Groundwater

A review of the NSW Office of Water online *All Groundwater Map* does not identify any groundwater bores at the site. There are three bores within a 1 km radius of the site. One bore has groundwater data available that indicates that groundwater bearing zones are relatively deep. Groundwater bore GW054818 is located approximately 1 km south of the site with the upper limit of the groundwater bearing zone recorded at a depth of 73.20 m below ground level.

1.5.3.3 Flooding

There is no Flood Prone Land mapped in the Parkes LGA.

A sign-posted floodway does exist where Ridgely Creek passes under the Condobolin Road, approximately 500 m west of Pat Meredith Drive.

Development Description

The Goonumbla Solar Farm will use solar PV panels to convert sunlight into electrical current. Inverters will produce power at 22 kV or 33 kV. A site substation will transform the voltage to 66kV or 132kV grid and grid compliant energy will be delivered to the network by connecting to the TransGrid 132/66 kV substation located in the north west corner of the site. Electricity will be sold into the National Electricity Market (NEM) and Large Generation Certificates (LGC's) will be sold to liable entities under the Renewable Energy Act 2000.

The final footprint of the solar farm infrastructure will be refined through consideration of findings as a result of further site investigations and identification of constraints and opportunities mapped through the environmental impact assessment process. The intent, however, is to maximise the built footprint over the development site which, at this stage, includes an area of approximately 350 ha (refer **Figure 9**).



Figure 9: Proposed GSF Footprint

Solar PV technology will be either crystalline silicone or thin film. The solar PV modules will be connected together via a direct current (dc) collection system consisting of cables mounted on the module support structure. The support structure may be fixed-tilt or tracking. A fixed system does not move and the panels are tilted at the optimal angle towards the sun. A tracking system tracks the daily movement of the sun and a motorised system rotates the panels constantly towards the sun to maximise energy output performance.

Inverters and transformers will be located in an array within the footprint to convert the dc current to alternating current (ac). Inverter and transformer assemblies are mounted on a steel platform or slab at ground level and generally covered. The ac collection system consists of underground cabling at 22kV

or 33kV which connects to each inverter assembly and delivers the electricity to the site substation. The site substation consists of a transformer to increase the energy's voltage to 66kV or 132kV depending on the final network connection details and essential switch gear and protection equipment. The site substation will be enclosed securely. A connection from the site substation to TransGrid's substation will be made via overhead or underground high voltage cables.

A control room with associated parking area will be located conveniently on the site. This will be a relatively small structure which will provide shelter for a limited number of site staff as well as facilities to enable monitoring of the performance of the solar farm and communications connections to the electricity market operator; TransGrid and the operations team. Once operational the solar farm will require minimal site based maintenance. It will be monitored remotely and only attended to rectify faults and for occasional scheduled maintenance.

Construction is estimated to take up to 12 months. The site is expected to require minimal preparation in advance of installing the PV panel system as it is flat and largely devoid of vegetation. A security fence will be installed on the site boundary and construction tracks will be laid down if required. Construction will require the use of bull dozers, water trucks, graders, flatbed trucks, skid steers, front end loaders, roller compactors, trenchers, backhoes, gravel trucks, water tankers, cranes, and aerial lifts. Deliveries of modules and other equipment will be made via flatbed trucks on the approved route and site entrance.

Steel piles will be driven into the soil to support the module racking system. A galvanized metal racking assembly will be attached to the piles according to the manufacturer's guidelines. Once the panels have been installed on the racking system, the dc collection cabling is laid out on the structure and connected to the panels. The underground ac and dc cables will then be laid using trenching techniques and connected. The electrical inverter, transformer, and enclosure assemblies are then placed on concrete foundation structures or steel skids. The site substation will require construction of a secure compound, laying of foundations and installation of the transformer, switch gear, protection and cable support structures. Once all modules, inverters, transformers and electrical collection systems have been installed, commissioning will occur. Commissioning will include testing, calibration of equipment, and troubleshooting.

When commissioning is completed, the facility becomes operational and will largely be un-attended. Annual maintenance activities will include control of weeds and grass; maintaining site tracks and fences; maintaining security systems; checking of electrical, communications and mechanical components and cleaning panels if required.

Permissibility and Strategic Planning

3.1 STRATEGIC PLANNING DOCUMENTS

3.1.1 NSW 2021 PLAN

The NSW 2021 plan, released in 2011, sets state wide priorities for action and also guides resource allocation. Goal 22 of this plan seeks to protect the natural environment and includes a specific target to increase renewable energy. The plan states:

We will contribute to the national renewable energy target by promoting energy security through a more diverse energy mix, reducing coal dependence, increasing energy efficiency and moving to lower emission energy sources. Specific initiatives include:

- *Building the Moree solar power plant in partnership with the Commonwealth Government under the Solar Flagship Program*
- *Establishing a Joint Industry Government Taskforce to develop a Renewable Energy Action Plan for NSW to identify opportunities for investment in renewable energy sources.*

Since release of the 2021 plan, the NSW Government has overseen the development of the NSW Renewable Energy Action Plan (REAP). The vision of the plan is a 'secure, affordable and clean future for NSW'. Goal 1 of the REAP is to attract renewable energy investment, including to 'support mid-scale solar PV to enable an uptake of solar technologies where they are most cost effective'.

The proposed GSF sits comfortably with this state led objective and is consistent with the goal and intent of the REAP.

3.1.2 DRAFT CENTRAL WEST AND ORANA REGIONAL PLAN

The Draft Central West and Orana Regional Plan, released in April 2016, provides 4 goals for 20 LGAs in the Central West and Orana regions, including the Parkes LGA. These goals include the following:

1. *A growing and diverse regional economy.*
2. *A region with strong freight transport and utility infrastructure networks that support economic growth.*
3. *A region that protects and enhances its productive agricultural land, natural resources and environmental assets.*
4. *Strong communities and liveable places that cater for the region's changing population.*

Under Direction 2.2 of Goal 2, Action 2.2.1 is to 'coordinate the delivery of infrastructure to support the future needs of residents, business and industry'. Under the Energy subsection of Action 2.2.1, access to energy is highlighted as an 'essential requirement for residential and industrial development', and that the 'challenge of providing cost-effective extended and upgraded services to some remote areas in the region creates opportunities for stand-alone alternative energy generation, and the use of renewable energy options, such as wind and solar generation' (DoPE, 2016, p. 40).

The proposed GSF site comfortably with the intent of Goal 2 of the Draft Central West and Orana Regional Plan.

3.1.3 CENTRAL WEST REGIONAL ACTION PLAN

The proposed GSF is consistent with the Central West Regional Action Plan (CWRAP) priority action to 'support economic growth within the region', including to 'foster growth sectors in the region...by supporting businesses and industries in the region that have a competitive advantage and will drive future job growth'.

3.1.4 PARKES SHIRE COUNCIL COMMUNITY STRATEGIC PLAN 2022

The Parkes Shire Council Community Strategic Plan 2022 (CSP) identifies the community's main priorities and aspirations for the future. It contains the vision for the Parkes Shire and the 8 key Future Directions in achieving this vision by 2022, including:

1. Develop Lifelong Learning Opportunities
2. Improve Health and Wellbeing
3. Promote, Support and Grow Our Communities
 1. **Grow and Diversify the Economic Base**
 2. Develop Parkes as a National Logistics Hub
 3. Enhance Recreation and Culture
 4. **Care for the Climate in a Changing Climate**
 5. **Maintain and Improve the Shire Assets and Infrastructure**

The proposed GSF would assist in achieving the key Future Directions highlighted above by diversifying Parkes' economic base and infrastructure by providing a new industry, and investment in renewable energy to reduce climate change.

3.2 ENVIRONMENTAL PLANNING INSTRUMENTS

3.2.1 NSW LEGISLATION

3.2.1.1 Environmental Planning and Assessment Act 1979

The proposed GSF would be assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

3.2.1.2 State Environmental Planning Policy

State Environmental Planning Policy (State and Regional Development) 2011

Clause 8 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) provides that development is declared to be State Significant Development (SSD) for the purposes of the EP&A Act if:

1. *The development is not permissible without consent under Part 4 of the EP&A Act; and*
2. *The development is specified in Schedule 1 or 2 of the SRD SEPP.*

Clause 20 of Schedule 1 of the SRD SEPP provides:

"Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, bio-fuel, distillate and waste and hydro, wave, solar or wind power), being development that:

- (a) has a capital investment value of more than \$30 million, or*
- (b) has a capital investment value of more than \$10 million and is located in an environmentally sensitive area of State significance."*

The proposed development is not located in an environmentally sensitive area of State Significance, but does have a capital investment value in excess of \$30 million.

Accordingly, the proposed solar energy system is declared to be SSD for the purposes of the EP&A Act.

State Environmental Planning Policy (Infrastructure) 2007

By virtue of Clause 34 of Division 4 of Part 3 of the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) the development of solar energy systems are permitted with consent on any land by any person.

A solar energy system is defined by the ISEPP as:

solar energy system means any of the following systems:

- (a) a photovoltaic electricity generating system,*
- (b) a solar hot water system,*
- (c) a solar air heating system.*

The proposed development satisfies the above definition and is therefore permissible with consent.

State Environmental Planning Policy No. 44 – Koala Habitat Protection

State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44) applies to the Parkes LGA, and therefore an assessment of core koala habitat at the site is required. .

3.2.1.3 Parkes Local Environmental Plan 2012

The site is located within the Parkes LGA and is therefore subject to the provisions of the *Parkes Local Environmental Plan 2012* (LEP). The site is located on land zoned RU1 – Primary Production.

The objectives of the RU1 – Primary Production 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 lands.*
- To minimise conflict between land uses within this zone and land uses within adjoining zones.*
- To encourage eco-tourism enterprises that minimise any adverse effect on primary industry production.*
- To permit non-agricultural uses that support the primary production purposes of the zone.*
- To permit small scale rural tourism uses associated with primary production and environmental conservation with minimal impact on primary production and the scenic amenity of the area.*
- To encourage the provision of tourist accommodation in association with agricultural activities.*
- To provide opportunities for employment-generating development that adds value to local agricultural production and integrates with tourism.*

The proposed GSF would impact on the availability of land for primary production during the life of the project. The project involves minimal ground disturbance and is reversible, allowing the return to primary production land use. It is also noted that the proposed GSF would not fragment or alienate primary production land.

A solar energy system is a form of electricity generating works. Electricity generating works are not expressly prohibited and are therefore permitted with consent.

3.2.1.4 Roads Act 1993

The development involves access off the Condobolin Road (Henry Parkes Way). This road is a classified state road. Pursuant to section 138 of the *Roads Act 1993*, consent from Roads and Maritime Services is required where connecting a road (whether public or private) to a classified road.

3.2.1.5 Native Vegetation Act 2003

The proposal will involve clearing of native vegetation. The *Native Vegetation Act 2003* will be considered in the EIS.

3.2.1.6 Threatened Species Conservation Act 1995

The potential impacts to threatened species listed under the *Threatened Species Conservation Act 1995* (will be considered in the EIS.

3.2.1.7 National Parks and Wildlife Act 1974

The potential impacts to Aboriginal heritage and native flora and fauna, pursuant to the *National Parks and Wildlife Act 1974* will be considered in the EIS.

3.2.1.8 Heritage Act 1977

There are no known items of heritage significance at or near the site.

3.2.2 COMMONWEALTH LEGISLATION

3.2.2.1 Environment Protection and Biodiversity Conservation Act 1999

A search of the online Protected Matters Search Tool (PMST) identified matters of national environmental significance or other matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) likely to occur at or near the area. The only matter reported that is considered applicable to the site is the potential for threatened flora and fauna species to occur. The EPBC Act will be considered in the EIS.

3.2.2.2 Native Title Act 1993

A review of National Native Title Tribunal's Native Title Register (via WMS web services) did not identify any Native Title claims or applications, or Indigenous Land Use Agreements at or near the site.

Impact Identification and Assessment

4.1 PRELIMINARY RISK ASSESSMENT

A preliminary risk assessment based on a desk-top review of available data, consideration of another known solar farm development in the immediate locality (neoen's Parkes Solar Farm), an initial site inspection, and review of SEARs issued by the Department for other solar farms, have all been considered to identify potential impacts associated with the development.

It is noted, however, that these impacts are identified and prioritised on the basis of preliminary research alone and their significance (or otherwise) will ultimately be determined following completion of further specialist studies, investigation and assessment.

4.2 KEY ISSUES

4.2.1 CUMULATIVE IMPACT

An Environmental Impact Statement is currently on public exhibition for neoen's Parkes Solar Farm. Secretary's Environmental Assessment Requirements were issued for this development in December 2014.

This proposed development is located on lands immediately to the south of the proposed Goonumbla Solar Farm. The relationship between these two proposed developments is shown on **Figure 10**.

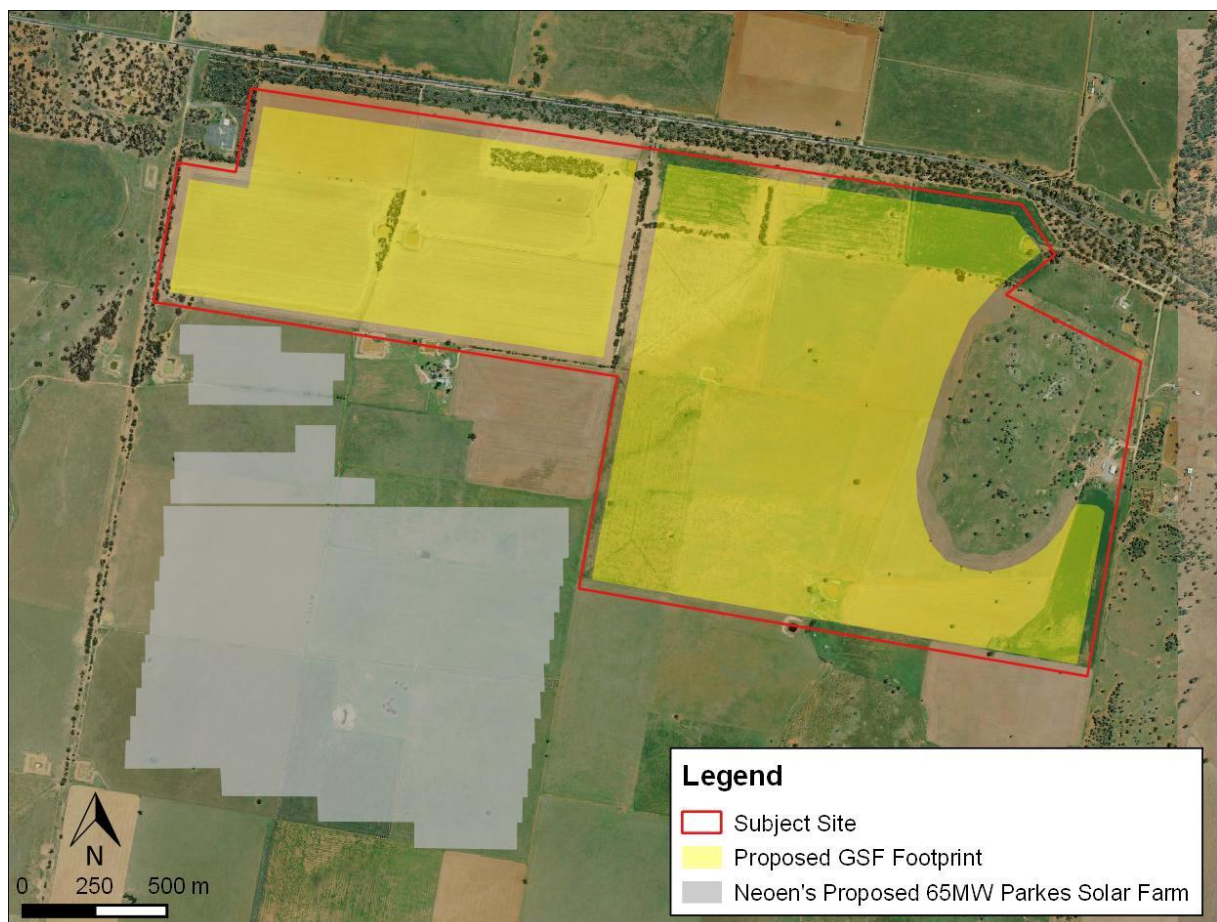


Figure 10: Proposed footprints for GSF and Neoen's Parkes Solar Farm

Contingent on timing, whether the developments secure approval, and neoen's intent to proceed, cumulative impacts include considerations such as traffic and noise (construction) as well as visual amenity.

4.2.2 BIODIVERSITY

The development will involve clearing native vegetation. Whilst the extent of the proposed clearing has yet to be determined, there are known occurrences of Endangered Ecological Communities in the locality and existing records of threatened species sightings at and near the site (as recorded in the NSW Atlas of Wildlife). There is also the potential for species and ecological communities listed under the *Environment Protection and Biodiversity Conservation Act 1999* to occur at or near the site, as reported using the Department of Environment's online Protected Matters Search Tool (PMST).

A search of the NSW Atlas of NSW Wildlife (Bionet) identified 15 threatened fauna species and 2 threatened flora species listed under the *Threatened Species Conservation Act 1995* within a 10 km radius of the site. Two of those fauna species and one flora species are also listed under the EPBC Act.

A search conducted on 14th April 2016 of a 15 km radius of the site using the PMST identified 3 listed Threatened Ecological Communities (TECs), 13 listed threatened fauna species, 4 listed threatened flora species, and 10 listed migratory bird species that may have the potential to occur at or near the site. Four Wetlands of International Importance (Ramsar) were identified but are not relevant to the site or proposal. No other matters of national environmental significance or other matters (as reported by the PMST) protected by the EPBC Act were considered applicable to the site.

4.2.3 ABORIGINAL HERITAGE

A basic search of the online Aboriginal Heritage Information Management System (AHIMS) identified 5 Aboriginal sites in the search area. The search area was inclusive of the entire subject site (by eastings and northings, rectangular search area covering the site) with a 200 m buffer. It is also noted that nghenvironmental's (2016) draft *Aboriginal Cultural Heritage Assessment: Parkes Solar Farm* reported 7 isolated artefacts across the proposal area for the Parkes Solar Farm site and reported the location of 2 AHIMS sites (PIF1 and PIF2), located near Pat Meredith Drive.

Potential impacts of the proposal may include disturbance of unknown Aboriginal heritage sites. It is proposed that as part of the EIS a specialist Aboriginal Heritage Assessment would be undertaken to identify potential impacts, and necessary management and mitigation measures.

4.2.4 VISUAL AMENITY

Whilst the development site has a very limited viewing catchment by virtue of topography and existing stands of road side vegetation, visual; impact is likely to be a key issue for neighbours.

Potential impacts to surrounding sensitive receptors may include changes to existing rural views and solar glint and glare from the solar panels. It is proposed that as part of the EIS a Visual Impact Assessment (including an assessment of solar glare) would be undertaken to identify potential impacts, and necessary management and mitigation measures.

4.2.5 CONSTRUCTION NOISE

Noise impacts would mostly be associated with construction activities and include noise generated by preparatory earthworks, delivery and assembly of the solar panel infrastructure, grid connection, and operation of vehicles.

Operational noise impacts may include the operation of a solar tracking system (optional feature to be confirmed), transformer station and switchgear, and maintenance works. Operational noise impacts are expected to be negligible. It is proposed that as part of the EIS a specialist Construction and Operational Noise and Vibration Assessment would be undertaken to identify potential impacts, and necessary management and mitigation measures.

4.2.6 OTHER ENVIRONMENTAL ISSUES

Other environmental issues that they considered less likely to affect the project are identified in **Table 4.1**. These issues are considered to be manageable due to the availability of appropriate management and mitigation measures.

Table 4.1 – Assessment of Other Environmental Issues

Issue	Potential Impacts	Strategies
Access and traffic	Potential impacts (increased traffic volumes) during construction for the Condobolin Road and potential access roads (Pat Meredith Drive and/or Millers Lookout Road).	• Consultation with Roads and Maritime Services and Parkes Shire Council. • Traffic impacts would be assessed in the EIS. • Management of traffic impacts would be addressed in a Construction Environmental Management Plan (CEMP).
Air quality	Potential impacts during construction may result from dust generation and vehicle emissions.	• Air quality impacts would be assessed in the EIS. • Management of air quality impacts would be addressed in a CEMP.
Bushfire risk	The site is not located on or near land mapped as bushfire prone land, and lacks significant vegetation (refer – Section 1.5.2). There is no vegetation on site connective with the adjacent road corridor vegetation. Therefore, it is considered unlikely that the site would pose a significant bushfire risk, and unlikely that the site would be affected by a bushfire.	• Potential bushfire risk and appropriate management/mitigation measures would be addressed in the EIS.
Contamination	A review of the NSW EPA Contaminated Land Record and List of NSW contaminated sites notified to the EPA confirms there are no known contaminated sites at or near the site. Contamination may be present from agricultural activities (i.e. pesticides). Based on the historical agricultural use of the site, it is unlikely that significant contamination exists at the site. Construction and operation of the proposal is unlikely to pose a significant contamination risk.	• Based on available information, it is considered unlikely that contamination is present at the site, and therefore no further investigation or assessment is proposed. • A CEMP would address management of contamination if identified during construction.
EMF hazard and risk	Impacts from an electromagnetic field (EMF) may be generated by transmission lines and underground cables. Overhead transmission lines are not proposed due to the close proximity to the TransGrid substation. EMF risks are expected to be below the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines (adopted by the Australian Radiation Protection and Nuclear Safety Agency, ARPANSA).	• Potential EMF hazards and risks will be assessed in the EIS, including calculation of EMF levels associated with proposed infrastructure.
Groundwater	Impacts to groundwater are considered unlikely due to the depth of groundwater bearing zones.	• The existing groundwater environment and potential impacts would be addressed in the EIS.
Land use	Impacts to land use would include: • Change in land use from agriculture to electricity generation. • Potential changes to private landowner access.	• Impacts to land use will be assessed in the EIS.

Table 4.1 – Assessment of Other Environmental Issues

Issue	Potential Impacts	Strategies
Loss of resources	The proposal has the potential to impact on the viability of the site as an agricultural resource. It is noted that the closest Biophysical Strategic Agricultural Land (BSAL) is approximately 28 km south west of the site, and is associated with the Lachlan River system. The proposal also has the potential to affect exploration and mining of potential mineral resources. The site is covered by Exploration Lease 7676 held by Gold Fields Australasia Pty Ltd, and is due to expire in January 2018.	Impacts to existing land resources would be assessed in the EIS.
Social and economic	Construction is expected to generate positive economic impacts by creating employment opportunities. Increased employment opportunities may attract more people to Parkes, increasing pressure on accommodation and services.	Impacts to the social and economic environment would be assessed in the EIS.
Soils and water	Potential impacts to soils and surface water may occur during construction, such as erosion and sedimentation. Impacts are expected to be minimal and manageable.	- Impacts to soil and water would be assessed in the EIS. - Management of soil and water impacts would be addressed in a CEMP.
Historic Heritage	A search of the NSW Planning Portal (Heritage), inclusive of items listed under the Parkes LEP, the NSW Office of Environment and Heritage State Heritage Register and Department of the Environment Australian Heritage Database indicates that there are no known heritage items at or near the site.	Heritage survey to determine the presence or not of historic heritage items.
Waste management	Potential impacts may include generation of waste during construction. Operation of the project is not expected to generate waste.	- Potential wastes generated by the proposal would be addressed in the EIS. - Waste management would be addressed in a CEMP.

Justification

5.1 DEVELOPMENT SUITABILITY

Benefits from this project will contribute to the Parkes region, the state and the nation.

Goonumbla will particularly benefit the Parkes region which has the potential to become a hub for utility scale solar projects due to its good solar resource, suitable land use and good network connection opportunities. Parkes is a thriving regional centre with a number of growth prospects which will increase demand for electricity, including new mining projects, the proposed intermodal transport hub and possible inland railway will all contribute to demand. New clean generation will be an ideal complement to these growth industries and contribute to the sustainability of the town.

Local economic benefits include employment particularly during construction, together with the provision of services and components and training of local contractors. The project will introduce new capabilities to the region which will benefit later projects. Local companies will be able to win project work around the country as the solar industry grows. The project benefits the state because it ensures that renewable energy which is consumed in NSW is also generated here. Without local renewable generation projects in NSW, NSW electricity consumers will have to import renewable generation from projects in other states.

The project will generate significant clean energy which will contribute to the Federal government's 33,000GWh Renewable Energy Target for 2020. The energy generated will also avoid transmission losses from centrally located fossil fuel generators. The annual carbon emissions avoided through generation of clean energy will be significant. Solar projects are a relatively new development in Australia despite being well established in overseas markets. Goonumbla will contribute to reducing the cost of large scale solar in Australia by adding to the experience base of the local supply chain.

5.2 SITE SUITABILITY

Renewable Energy Consultancy identified the Goonumbla site during a thorough screening program to identify suitable large scale solar sites in New South Wales. The site was selected after a number of alternatives were discarded due to sub-optimal performance against screening criteria.

The proposed site has a strong nearby high voltage transmission network with significant available capacity to connect. Specifically, the site is immediately adjacent to the TransGrid 132/66 kV substation which avoids the requirement for expensive and complex network connection solutions. The solar resource is good. The land is zoned rural which allows for solar generation with consent.

The development site is largely devoid of significant biodiversity constraints and flat, with little or no civil works required to prepare for construction. Further, whilst the land is currently used for farming and grazing the site is not located on or near any Biophysical Strategical Agricultural Land (BSAL). There is also a natural vegetation screen to the main road and due to the overall flat terrain of the region, visual impact will be low.

The site is owned by landowners who are interested and have committed to supporting the project. The site has good overall fundamental parameters that will generate electricity at a competitive rate.

Consultation

Renewable Energy Consultancy will carry out appropriate consultation with community stakeholders affected by the project. Some consultation is already underway. However, since details of the project will depend on site assessments, detailed community engagement will occur when those assessments are more advanced. The relevant groups for consultation and our approach are listed here.

Consultations have already commenced with near neighbours. Renewable Energy Consultancy communicated with most neighbours early in the site selection process to gather feedback on interest in hosting the project. Therefore, they have been identified and some meetings have taken place. Near neighbours will be revisited through information posted directly and face to face meetings as requested to inform them of project details and progress and to obtain their input. This will continue through the development approval process and construction.

The community will be informed of the project through notices in the local newspaper and through Parkes Council. Consultation will be considered depending on the amount of local interest for an information day. Project details will be available on a project website (not yet available). Contact numbers and an email address will be provided for people who wish for more details.

Parkes Council has been informed of the proposal and a face to face meeting is being scheduled with the planning officers and elected officials.

Special interest groups will be informed of the project to the extent they are affected by the project. The process of identifying affected groups has not commenced. As the development progresses and the construction schedule becomes clearer, local businesses will be advised via notices and media and will be invited to provide proposals for construction equipment, goods and services.

State and Federal government authorities will be informed of the project to the extent they are affected. This is already underway with advice provided to the NSW Department of Planning and the NSW Renewable Energy Advocate. The NSW Department of Industry and Regional Development Australia will be advised to ensure any opportunities to coordinate with the proposed infrastructure developments in Parkes are captured.

Elected representatives. State and federal elected members and the relevant ministers for Energy; Environment and Regional Development will be advised of the project as it progresses to ensure it is recognised for its contribution to state and federal clean energy development targets.

Capital Investment Value

Table 7.1 provides a preliminary breakdown of the capital cost of the project.

The overall cost of equipment and construction will be approximately \$223.5 million assuming the final capacity is 150 MW_{peak}.

Table 7.1 –Capital Cost (Preliminary Estimate)

Project Components	\$ (million)
Solar PV module equipment including installation	\$95
Mounting structure equipment including installation	\$20
Inverters and LV transformer equipment including installation	\$21
Civil works including piling, foundations, tracks, site entrance, fencing, compound, control room, site preparation	\$31
Electrical and communications cabling and equipment including installation and commissioning	\$56
TOTAL	\$223

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