



Preliminary Environmental Assessment

WELLINGTON NORTH SOLAR PLANT



NOVEMBER 2017



Document Verification



Project Title:

Wellington North Solar Plant

Project Number: 17-382

Project File Name: Wellington North PEA final_v2

Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Draft v1	27/10/17	Jane Blomfield Zoe Quaas	Brooke Marshall	Brooke Marshall
Final v1	7/11/17	Jane Blomfield	Brooke Marshall	Brooke Marshall
Final v1.1	9/11/17	Jane Blomfield	Minor changes	
Final v2	17/11/17	Jane Blomfield	Brooke Marshall	Brooke Marshall

NGH Environmental prints all documents on environmentally sustainable paper including paper made from bagasse (a by-product of sugar production) or recycled paper.

NGH Environmental Pty Ltd (ACN: 124 444 622. ABN: 31 124 444 622) and NGH Environmental (Heritage) Pty Ltd (ACN: 603 938 549. ABN: 62 603 938 549) are part of the NGH Environmental Group of Companies.

CONTENTS

1	INTRODUCTION	1
1.1	PURPOSE OF THIS DOCUMENT	1
1.2	THE PROPONENT	1
2	SITE DESCRIPTION	2
2.1	SITE LOCATION	2
2.2	THE SITE	3
3	THE PROPOSAL	5
3.1.1	Proposed Infrastructure	5
3.1.2	Construction, operation and decommissioning	5
3.1.3	Capital investment.....	5
4	PROPOSAL JUSTIFICATION AND ALTERNATIVES.....	6
4.1	PROPOSAL JUSTIFICATION	6
4.1.1	Technical feasibility and electricity supply	6
4.1.2	Climate change	6
4.1.3	Socio-economic benefits.....	7
4.2	ALTERNATIVES CONSIDERED.....	7
4.2.1	Alternative sites.....	7
4.2.2	Alternative technologies.....	8
5	CONSULTATION	9
5.1	CONSULTATION COMMITMENT	9
5.2	COMMUNITY CONSULTATION	9
5.3	FORWARD PROGRAM OF COMMUNITY CONSULTATION.....	9
6	PLANNING CONTEXT	11
6.1	NSW LEGISLATION	11
6.1.1	Environmental Planning and Assessment Act 1979	11
6.1.2	State Environmental Planning Policy (State and Regional Development) 2011.....	11
6.1.3	State Environmental Planning Policy (Infrastructure) 2007.....	11
6.1.4	Roads Act 1993.....	11
6.1.5	Biodiversity Conservation Act 2016	12
6.1.6	Heritage Act 1977	12
6.1.7	Crown Lands Act 1989	12
6.2	LOCAL LEGISLATION.....	13

6.2.1	Wellington Local Environmental Plan 2012.....	13
6.3	COMMONWEALTH LEGISLATION	14
6.3.1	Environment Protection and Biodiversity Conservation Act 1999.....	14
7	PRELIMINARY ENVIRONMENTAL ASSESSMENT.....	15
7.1	METHODOLOGY.....	15
7.2	ASSESSMENT OF KEY ISSUES.....	17
7.2.1	Aboriginal heritage	17
7.2.2	Historic Heritage.....	17
7.2.3	Biodiversity.....	18
7.2.4	Noise	22
7.2.5	Visual amenity and landscape character.....	23
7.2.6	Watercourses and hydrology.....	23
7.2.7	Land use and cumulative impacts.....	24
7.3	OTHER ENVIRONMENTAL ISSUES.....	25
8	CONCLUSION	28
9	REFERENCES.....	29
APPENDIX A	SITE PHOTOGRAPHS.....	A-I

FIGURES

Figure 2-1	Proposal site.....	4
Figure 7-1	Preliminary Constraints	16

ACRONYMS AND ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACHA	Aboriginal Cultural Heritage Assessment
AHIMS	Aboriginal heritage information management system
ASL	Above sea level
BC Act	<i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
CEC	Clean Energy Council
CEMP	Construction environmental management plan
Cwth	Commonwealth
DECCW	Refer to OEH
DoEE	Department of the Environment and Energy
DP&E	Department of Planning and Environment
DPI	(NSW) Department of Planning and Infrastructure
EEC	Endangered ecological community – as defined under relevant law applying to the proposal
EIS	Environmental Impact Statement
EMF	Electromagnetic fields
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EPA	(NSW) Environment Protection Authority
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Cwth)
ha	hectares
Heritage Act	<i>Heritage Act 1977</i> (NSW)
ICNG	Interim Construction Noise Guideline
INP	<i>NSW Industrial Noise Policy</i>
ISEPP	<i>State Environmental Planning Policy (Infrastructure) 2007</i> (NSW)
km	kilometres
kV	kilovolts
LEP	Local Environment Plan
LGA	Local Government Area
m	Metres
MNES	Matters of National environmental significance under the EPBC Act (c.f.)
MW	Megawatt
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water

PCT	Plant Community Type
PEA	Preliminary Environmental Assessment
PV	Photovoltaic
RMS	Roads and Maritime Services
RNP	<i>NSW Road Noise Policy</i>
SCS	Soil Conservation Service
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy (NSW)
sp/spp	Species/multiple species

1 INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

This Preliminary Environmental Assessment (PEA) provides a description of the Wellington North Solar Plant proposal, including the site and its surroundings, the statutory framework for approval and identification of key potential environmental issues that may be associated with the solar plant proposal. The report has been prepared to support a request to the Department of Planning and Environment (DP&E) for the Secretary's Environmental Assessment Requirements (SEARs) which would 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).

1.2 THE PROPONENT

AGL is committed to helping shape a sustainable energy future for Australia. The company operates the country's largest electricity generation portfolio, is the largest ASX-listed investor in renewable energy, and has more than 3.6 million customer accounts. The company has made significant investments in renewable energy, including the Nyngan and Broken Hill solar plants, which when constructed were Australia's largest utility-scale solar photovoltaic (PV) power plants and represented the birth of large scale solar in the country.

Proudly Australian, with more than 180 years of experience, AGL have made it their responsibility to provide sustainable, secure and affordable energy for their customers. Their aim is to prosper in a carbon-constrained world and build customer advocacy as the energy industry transforms. Hence, AGL has committed to the progressive retirement of their coal-fired generation by 2050 and will continue to develop innovative solutions for their customers.

2 SITE DESCRIPTION

2.1 SITE LOCATION

The Wellington North Solar Plant proposal site is located approximately seven kilometres (km) north east of Wellington off Goolma Road, in the Orana region of central western NSW. The site would be located within the Dubbo Regional Local Government Area (LGA). The proposed solar plant would connect to an existing substation approximately 2.4km south of the site.

The land surrounding the proposal site includes crops and grazing land, the Wellington and Macquarie Correctional Centres and the TransGrid 330kV Substation. Agriculture is the main local industry for employment in the Wellington district, including sheep, beef cattle and grain farming (15.2% in 2011) (ABS, 2011). The steeper land to the east of Wellington supports mainly grazing activities and the gentle undulating land to the west supporting mainly cereal production. Mining exploration activity is of continuing interest, with a number of mineral deposits within the area (Regional Development Australia – Orana, 2016).

Wellington is the main town and rural centre within the locality, with a population of 4,077 people (ABS, 2016). Community facilities and services in the locality include numerous parks and reserves, Wellington fire station and local schools including Wellington Public School, Wellington Christian School and Wellington High School (Dubbo Regional Council, 2017). The Wellington and Macquarie Correctional Centres are also situated on the outskirts of the town (the proposed solar plant will be directly adjacent to the Wellington Correctional Centre). Attractions for Wellington include the Oxley Museum, Eris Fleming Art Gallery, Wellington Caves and Phosphate Mines, Wellington Golf Club and Oxley Park that supports local aboriginal history. The town is involved in numerous community events including the Wellington Bicentenary, Annual Eisteddfods and weekly Rotary Markets.

Approximately 134 residences are located within 2km of the proposed solar plant (including transmission lines) with seven residences within 400m of the site. Consultation undertaken to date with nearby residents is outlined in Section 4.

The Wellington area has a higher proportion (25.63%) of residents identifying as Aboriginal, compared to the Orana Regional Development Area (RDA) (14%) and NSW (2.38%). Further, there is a slightly higher proportion of residents identifying as Torres Strait Islander and both Aboriginal and Torres Strait Islander compared to the Orana RDA and NSW.

Interesting features within the region includes Mount Arthur Reserve. The reserve is located outside the town of Wellington and approximately 4.5km to the south-west of the site. Rising to 563 m above sea-level (ASL), this 2,123ha reserve is set aside for public recreation and environmental protection. Seven marked walking trails are available within the reserve with scenic vantage points from the three main peaks providing views over Wellington, the valley and the Bell and Macquarie Rivers.

Siding Spring Observatory is located approximately 130km south of the proposed Wellington North Solar Plant. The Dark Sky Region in NSW is centred upon the site of this observatory which is considered Australia's most important visible-light observatory. The Dark Sky region consists of land within a 200km radius of the observatory, which therefore includes the solar plant proposal site.

2.2 THE SITE

The Wellington North Solar Plant proposal would be located on an approximately 970 hectare property comprising of Lots 75-84, 88, and 119-121/DP 2987, Lots 1 and 2 /DP 1104720, Lot 3/DP 976701, Lots 1-3 /DP 808748, Lot 100 /DP 750760, Lot 1/DP 664645 and Lot 1/ DP 1206579. Under the *Wellington Local Environmental Plan 2012*, the proposed solar plant is located on land zoned as RU1 Primary Production. The site is bounded by Campbells Lane to the north, Goolma Road to the east, private land and Cobbora Road to the west and private agricultural land to the south (Figure 2-1). Another solar plant, Wellington Solar Farm owned by First Solar, is proposed on private property immediately south of the site.

The site is in an agricultural area primarily used for grazing and cropping. The proposed site comprises of several large paddocks which consist of undulating hills that have been largely cleared for cropping. Remnant vegetation throughout the site is derived from a community of White Box Woodland and Yellow Box Woodland. The remnant areas have been highly disturbed and lack native understory due to grazing and pasture improvement practices. Plantings of native species have been used as wind breaks and for rehabilitation along onsite waterways. A dry land salinity plantation is located in the north east of the site.

Four dams occur within the proposal site, three along the south-western boundary and one in the south-eastern corner of the proposal site. Six watercourses occur within the proposal site, all are tributaries of Wuuluman Creek. Wuuluman Creek is a tributary of the Macquarie River, which is located 4.5km west of the proposal site.

Access to the site for the solar plant would primarily be from Campbells Lane which bounds the project to the north or Goolma Road to the east of the project. Campbells Lane is a mostly unsealed road and can be accessed from Goolma Road to the east and Cobbora Road to the west. The Mitchell Highway intersects Goolma Road approximately 8km from its intersection with Campbells Lane. Subject to completing a traffic study, it is anticipated that Goolma Road would be the major transport route for haulage and site vehicles during construction and operation of the project.

One residential dwelling is located within the proposal site, within Lot 84/DP2987. The dwelling is a homestead and is listed as an item of local heritage significance under Schedule 5 of the *Wellington Local Environmental Plan 2012*. A thorough investigation into the nature and significance of the Heritage item would be carried as part of the preparation of the EIS.

The proposal site also contains a building delegated to the Soil Conservation Service (SCS). The SCS is an environmental consulting and soil conservation business entity within the Department of Primary Industries (DPI).

One 132kV transmission line intersects the site in the south western corner, it continues south east to meet other transmission line west of the Wellington Substation.

The site has two current mineral titles:

- Exploration licence 6178 held by Modeling Resources Pty Ltd occupies majority of the site.
- Exploration licence 8505 held by Drummond West Pty Ltd occupies a small portion of the south eastern corner of the proposal site.

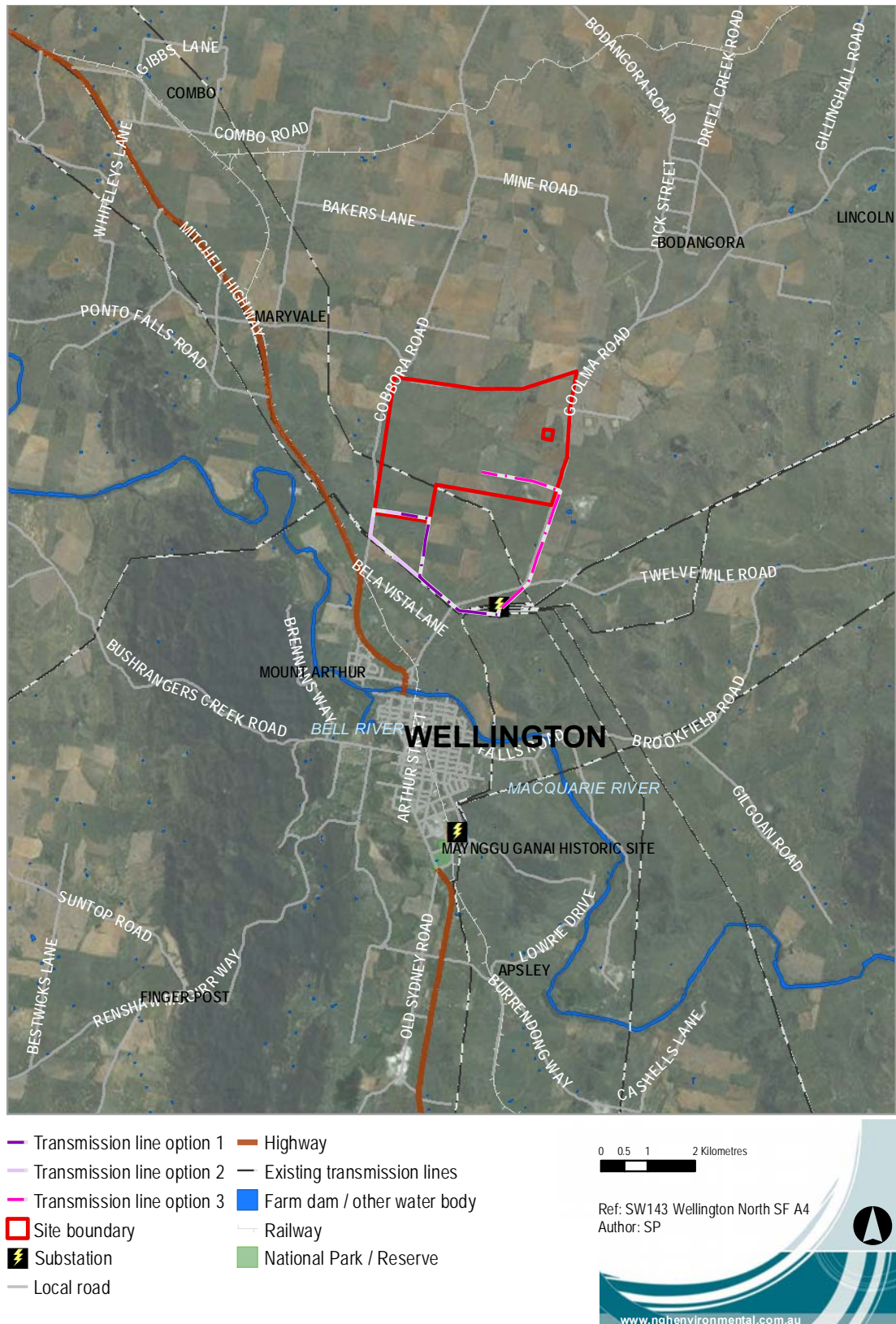


Figure 2-1 Proposal site

3 THE PROPOSAL

3.1.1 Proposed Infrastructure

The Wellington North Solar Plant proposal involves the construction, operation and decommissioning of a ground-mounted photovoltaic solar array which will generate up to 300MW(AC) into the national electricity grid. The proposal site is approximately 970 hectares of which approximately 650Ha will form the footprint of the solar plant.

The solar plant arrangement is flexible and adaptable and would be designed to avoid impacts where feasible and minimise and mitigate environmental impacts where avoidance is not possible. The design would consider the results of this preliminary environment assessment, consultation with relevant stakeholders and the EIS to be prepared. The EIS will detail how these studies have been used to produce the final proposal design to reflect the site's constraints.

One 132kV overhead transmission line would be constructed to connect the solar plant to the existing Wellington substation located approximately 2.4km from the proposal site. There are currently three transmission line options under consideration and presented in Figure 2-1.

It is anticipated that the proposed solar plant would include the following development:

- PV modules mounted on a horizontal tracking structure.
- Site office and maintenance building with associated car park.
- An access track off Campbells Lane and/or Goolma Road.
- Internal access tracks and upgrades to existing access roads, where required.
- Internal inverter stations to allow conversion of DC module output to AC electricity.
- An energy storage facility.
- Internal access tracks to allow for site maintenance.
- Perimeter security fencing and CCTV.
- Native vegetation planting to provide visual screening for specific viewers, if required.
- Approximately 3km of high voltage, overhead powerline.
- Underground electrical conduits and cabling to connect the arrays on the array site.

AGL are not currently seeking approval for the energy storage facility as part of this Project. There would be a location allocated for future storage options.

3.1.2 Construction, operation and decommissioning

The Wellington North Solar Plant would be expected to operate for 30 years. The construction phase of the proposal would take approximately 18 months. After the initial 30 year operating period, the solar plant would either be decommissioned, removing all above ground infrastructure and returning the site to its existing land capability, or repowered with new PV equipment subject to landowner and planning consents.

3.1.3 Capital investment

The Wellington North Solar Plant would have an estimated capital investment of \$450 million (excluding storage). A report would be prepared during the EIS process as part of the proposal which would confirm the capital investment cost.

4 PROPOSAL JUSTIFICATION AND ALTERNATIVES

4.1 PROPOSAL JUSTIFICATION

4.1.1 *Technical feasibility and electricity supply*

A significant quantity of ageing power station capacity is being permanently retired as Australia transitions to a market where reliable, sustainable and affordable energy is most important.

The retirement of old power stations will require the development of new, reliable and low-emissions energy supply. Given the high levels of solar irradiance in the central west, the strong transmission network in the region and the declining cost of solar power over the last decade, Wellington North Solar Plant proposal is an important source of new power generation.

AGL is considering the proposed solar plant as part of its commitment to reliably meet the energy needs of the future in a cost effective and sustainable way.

Australia's energy assets are aging. More than 75% of them are operating beyond their intended lifetime. Over the next decade, Australia will see more coal-fired plants close as these assets age, as Australia seeks to meet its international commitment to reduce greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030, and seeks to remain internationally competitive.

AGL has publicly committed to closure dates for its coal-fired plants, commencing with the closure of Liddell Power Station in the Hunter Valley NSW in 2022. Liddell will be close to 50 years old by this point. This will see a further 2000 MW withdrawn from the NEM.

AGL's [*Greenhouse Gas Policy*](#), released in April 2015, sets out AGL's commitment that it "will not build, finance, or acquire new conventional coal-fired power stations (i.e. without Carbon Capture and Storage)." Instead, AGL is prioritising investment in renewables and complementary near-zero emission technologies.

4.1.2 *Climate change*

The proposed Wellington North Solar Plant supports Australia in its efforts toward providing 23.5 per cent of its energy from renewable resources by 2020, while further establishing regional NSW as a leader in renewable energy. On an annual basis, the proposed Wellington North Solar Plant would provide enough clean, renewable energy for about 98,000 average NSW homes while displacing approximately 498,000 metric tons of carbon dioxide.

The Wellington North Solar Plant proposal would provide the following benefits, specific to Australia's commitments:

- Reduction in greenhouse gas emissions required to meet our international climate commitments.
- Assisting the transition towards cleaner electricity generation.
- Direct contribution to help in meeting the RET.

At a State level, the Wellington North Solar Plant proposal is consistent with current goals and targets for renewable energy generation in NSW. These include:

- Goal 22 of the NSW 2021: A plan to Make NSW Number One (NSW Government 2011).
Contribute to the national renewable energy target [i.e. 20% renewable energy supply] by

promoting energy security through a more diverse energy mix, reducing coal dependence, increasing energy efficiency and moving to lower emission energy sources

- The three goals of the NSW Renewable Energy Action Plan (NSW Government 2013) which include:
 1. Attract renewable energy investment and projects.
 2. Build community support for renewable energy.
 3. Attract and grow expertise in renewable energy.

The COP21, also known as the 2015 Paris Climate Conference, achieved a legally binding and universal agreement on climate, with the aim of keeping global warming below 2°C, chiefly by reducing greenhouse gas emissions. The Wellington North Solar Plant would form part of the Australian effort to help meet this target.

4.1.3 Socio-economic benefits

The proposal will generate around 250 direct jobs during construction. In addition, it will employ approximately 2-4 full time staff during the operation and maintenance phase (expected to be 30 years).

The employment benefits extend through the local supply chains to fuel supply, vehicle servicing, uniform suppliers, hotels/motels, B&B's, cafés, pubs, catering and cleaning companies, tradespersons, tool and equipment suppliers and many other businesses. In 2015-2016, 11,500 Australians were employed directly in the renewable energy sector and the industry is set to generate an additional new 18,400 jobs by 2020 (CEC 2014; CEC 2016). These benefits would be predominately during construction, however they would also occur during operation in relation to the maintenance and upgrade of infrastructure over the lifetime of the Project.

4.2 ALTERNATIVES CONSIDERED

4.2.1 Alternative sites

AGL have reviewed numerous sites within NSW for the solar plant proposal and determined that the Wellington North site represented an opportunity for PV development that could be developed to meet the federal target of 23.5% by 2020.

Considerations during initial site investigations included:

- Access to and capacity of the electrical transmission network.
- Availability of an abundant solar resource.
- Availability of appropriate land i.e. topography, aspect, presence of native vegetation.
- Suitability in terms of the interests of other stakeholders and the environment.

Of these considerations, AGL put substantial weight on obtaining access to the 330kV transmission network. This is important because it provides long term network stability, lower losses and the ability to connect a higher capacity plant (200MW+), which supports lower cost and greater diversification in the energy supply to AGL's customers. Wellington is one of the most westerly points on the 330kV network in NSW and hence is key location for connection of large scale solar plant.

AGL will consider all of the relevant environmental constraints when finalising the layout, once they have been fully investigated through the EIS process. The layout submitted as part of the EIS will balance the

solar production and costs while taking into account the relevant environmental constraints. The EIS will include the details on the evolution of the layout, with regard to these constraints.

4.2.2 *Alternative technologies*

AGL invests in generation assets that support reliability, low emissions and affordability for customers. The AGL generation portfolio is diversified across a range of supply technologies to ensure these three characteristics are delivered. The Wellington North Solar Plant is proposed to further add to this diversification through the provision of additional solar capacity to the AGL portfolio. There is a broad range of solar technologies available in the market, however only photovoltaic solar can be delivered cost effectively at this stage.

5 CONSULTATION

5.1 CONSULTATION COMMITMENT

AGL is committed to conducting activities, operations and projects in ways that demonstrate and contribute enduring benefits to the community, through integrated consideration of social, environmental, ethical and economic impacts.

AGL maintains a company-wide Community Engagement Policy that is applied across all business sectors in the development of new projects, expansions of existing infrastructure and ongoing operations.

The Community Engagement Policy commits AGL to:

- **Be proactive:** AGL will engage with communities early and often, to understand and respond to their interests and concerns.
- **Be flexible and inclusive:** AGL will offer a range of engagement opportunities that are tailored to the variety of needs and preferences of the communities in which it operates.
- **Be transparent:** AGL will act honestly and ethically in all its dealings with the communities in which it operates.
- **Support employees and contractors to engage well:** AGL will provide tools, peer support and training to enable its staff to deliver on commitments.
- **Continuously improve engagement:** AGL will evaluate the effectiveness of its engagement and modify it as needed to ensure that its activities address community needs and expectations.

5.2 COMMUNITY CONSULTATION

AGL has engaged a variety of community members from Local and State Government, Dubbo Regional Council, Local Aboriginal Land Councils, business leaders, environmental groups and those directly impacted by our proposed project. This preliminary consultation has been based on the early stage of the proposal.

Feedback received from this engagement include:

- Employment potential during construction and operation of the asset;
- Traffic impact on Goolma Road during construction, particularly during the changeover shift at the Wellington and Macquarie Correctional Centres and during the morning and afternoon school bus run;
- Cumulative impacts of the project when considering other renewable energy projects underway;
- Community investment;
- Visual amenity; and
- Community concerns regarding the use of agricultural land for energy generation.

AGL will continue to work with Council, community members and stakeholders to ensure that this feedback is taken into account and addressed throughout the EIS process.

5.3 FORWARD PROGRAM OF COMMUNITY CONSULTATION

AGL's forward community consultation program for the Wellington North Solar Plant will include a letterbox drop of a project factsheet to community members within a 10km radius of the proposed project site introducing them to the project.

This introductory factsheet will also include an invitation to a community drop-in afternoon at the Wellington Civic Centre on 28 November 2017. The drop-in afternoon will be advertised in the local newspapers, as well as the local radio station.

AGL are also seeking a meeting with the new leadership team at the Dubbo Regional Council to introduce them to the proposed project.

AGL will continue to update and seek feedback from community members during the project planning by email, phone, letterbox drop and face to face meetings. These interactions will be logged and reviewed using AGL's consultation register, Consultation Manager.

6 PLANNING CONTEXT

6.1 NSW LEGISLATION

6.1.1 *Environmental Planning and Assessment Act 1979*

Development in NSW is subject to the requirements of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and its associated regulations. Environmental planning instruments prepared pursuant to the Act set the framework for approvals under the Act. The Wellington North Solar Plant proposal would be assessed under Part 4 of the EP&A Act.

6.1.2 *State Environmental Planning Policy (State and Regional Development) 2011*

Clause 20 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* states that the following is considered a State Significant Development:

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) 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 Wellington North Solar Plant proposal would have a capital investment cost estimated of more than \$30 million. Therefore, the proposal is classified as "State Significant Development" under Part 4 of the EP&A Act.

State Significant Developments are major projects which require approval from the Minister for Planning and Environment. While the Minister for Planning and Environment is the consent authority for State Significant Development, the Minister may delegate the consent authority function to the Planning Assessment Commission (PAC), the Secretary or to any other public authority.

An EIS is required to be prepared in accordance with the requirements of the Secretary's Environmental Assessment Requirements (SEARs) of Department of Planning and Environment. In determining the SEARs, the Secretary must consult with relevant public authorities and would have regard to the need to assess key issues raised by those public authorities.

6.1.3 *State Environmental Planning Policy (Infrastructure) 2007*

Clause 34(7) of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) provides that development for the purpose of a solar energy system may be carried out by any person with consent on any land (except land in a prescribed residential zone). A solar energy system includes a PV electricity generating system. The proposal is therefore permissible with consent within appropriate land zoning. Land zoning is discussed in Section 6.2.1.

6.1.4 *Roads Act 1993*

The *Roads Act 1993* (Roads Act) provides for the classification of roads and for the declaration of the Roads and Maritime Services (RMS) and other public authorities as road authorities for both classified and

unclassified roads. It also regulates the carrying out of various activities in, on and over public roads. Each of the proposed transmission line route options would be required to cross over public roads. The need for upgrade works on local roads would be considered as part of the traffic assessment conducted for the proposal. Approval from the roads authority (RMS and/or Dubbo Regional Council) would be required under Section 138 of the Roads Act to erect a structure or carry out a work in, on or over a public road.

6.1.5 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act* relates to the conservation of biodiversity. The Act repeals the *Threatened Species Conservation Act 1995*, the *Nature Conservation Trust Act 2001* and the animal and plant provisions of the *National Parks and Wildlife Act 1974*. The Act commenced on the 25th of August 2017.

The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community consistent with the principles of the ecological sustainable development.

The new act brings in changes to biodiversity survey and assessment and offset methodologies. It also requires specific consideration of irreversible impacts. Given the newness of this act, extensive consultation with OEH would be undertaken during the survey and assessment of the project.

6.1.6 Heritage Act 1977

This Act aims to conserve heritage values. The Act defines 'environmental heritage' as those places, buildings, works, relics, moveable objects and precincts listed in the Local or State Heritage Significance. A property is a heritage item if it is listed in the heritage schedule of the local Council's Local Environmental Plan or listed on the State Heritage Register, a register of places and items of particular importance to the people of NSW. Under Section 89J of the EP&A Act, an approval under Part 4 or a permit under Section 139 of the *Heritage Act 1977* would not be required for a State Significant Development.

The potential to impact environmental heritage is discussed in Section 7.2.2 of this report. Consultation would be undertaken with Dubbo Regional Council and the assessment would be undertaken in accordance with OEH guidelines for *Assessing Heritage Significance* (*Heritage Office* (former), 2001).

6.1.7 Crown Lands Act 1989

The objective of the Crown Lands Act is to ensure that Crown land is managed for the benefit of the people of New South Wales. The Lands Division, Department of Primary Industries (DPI) is responsible for the sustainable and commercial management of Crown land. This involves the management of state-owned land, linking with other agencies, local government, the private sector and communities to provide social and economic outcomes for NSW. Council is appointed Trustee for Crown Lands.

Section 11 of *Crown Lands Act 1989* sets out principles for Crown land management including:

- Environmental protection principles be observed in relation to the management and administration of Crown land.
- The natural resources of the Crown land (including water, soil, flora, fauna and scenic quality) be conserved wherever possible.
- Public use and enjoyment of appropriate Crown land be encouraged.
- Where appropriate, multiple use of Crown land be encouraged.

Depending on the preferred transmission line route option chosen, an easement or licence permit would be required if the proposed works affect Crown Land. Consultation would be required with Department of Primary Industries - Lands. Crown lands permits would be investigated as part of the EIS.

6.2 LOCAL LEGISLATION

6.2.1 Wellington Local Environmental Plan 2012

The site is located within the Dubbo Regional Local Government Area (LGA), which has two Local Environmental Plans. The proposal site is subject to the provisions of the *Wellington Local Environmental Plan 2012*. The proposed solar plant is located across the following land zones:

- The solar plant site:
 - **RU1 Primary Production:** Electricity generation is prohibited within this land zoning, however the ISEPP allows the development for the purpose of a solar energy system on any land with consent, which overrides the local provisions.
- The three proposed transmission line routes:
 - **RU1 Primary Production:** Electricity generation is prohibited within RU1, however the ISEPP allows the development for the purpose of a solar energy system on any land with consent, which overrides the local provisions.
 - **SP2 – Infrastructure** (Classified Road Electricity Supply and Correctional Facility): Electricity generation is permitted with consent.
- Transmission line Option 2 is additionally in:
 - **R5 – Large Lot Residential:** Electricity generation is prohibited within this land zoning. Additionally, the ISEPP does not allow development for the purpose of a solar energy system in residential zoning. A State Significant Development may however seek approval under the following provisions:
 - Clause 8(2) of the SEPP State and Regional Development 2011, which states that if a single development application comprises development that is only partly State Significant Development, the remainder of the development is also declared to be State Significant Development. Consultation with the Department on similar projects has confirmed that the intent of this clause means if the subdivision is included in the development application with the solar plant, the subdivision is also declared to be state significant; and
 - Section 89E(3) of the *Environmental Planning and Assessment Act 1979*, which states “development consent may be granted despite the development being partly prohibited by an environmental planning instrument”.

Initial Council consultation has demonstrated general support for the project, however AGL will continue to work with the Council to ensure all issues or concerns raised are adequately answered.

6.3 COMMONWEALTH LEGISLATION

6.3.1 *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 and Energy (DoEE). Under the EPBC Act, if the Minister determines that an action is a 'controlled action' which would have or is likely to have a significant impact on a Matter of National Environmental Significance (MNES) or Commonwealth land, then the action may not be undertaken without prior approval of the Minister.

The EPBC Act identifies the following nine MNES:

- World Heritage properties.
- National heritage places.
- Ramsar wetlands of international significance.
- Threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).
- Water resources (in relation to coal seam gas development and large coal mining development).

Actions that adversely affect these matters may be deemed to be a 'controlled action' under the Act.

A search of the Commonwealth Protected Matters Search Tool (coordinate search, undertaken on 12/09/2017) indicates that there are no World Heritage or National Heritage areas or items within the proposal site. Two areas of Commonwealth land were identified, Australian Postal Commission and Australian Telecommunications Commission. These are not present at the site. One commonwealth heritage place was identified, Wellington Post Office, which is located approximately 7km from the site.

Search results returned four Wetlands of International Importance. Due to the distance approximately 150-200km upstream of the proposal site, these have been confirmed as not being relevant to the proposal.

Two threatened ecological communities were returned from the search, including White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box Gum Woodland) (Critically Endangered), and Grey Box (*Eucalyptus macrocarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Endangered). Neither of these occur at the proposal site.

Twenty-nine threatened species and eleven migratory species were also returned from the Protected Matters Search. The site provides suitable habitat for several of these species, and the potential impacts are discussed further in Section 7.2.3. Further flora and fauna studies would confirm whether impacts to these entities would occur, during the preparation of the EIS. At this stage, the need for a Commonwealth referral is considered unlikely.

7 PRELIMINARY ENVIRONMENTAL ASSESSMENT

7.1 METHODOLOGY

NGH Environmental has undertaken a preliminary constraints assessment of the Wellington North solar plant proposal site. The assessment was based on a desktop review and preliminary site inspection undertaken in October 2017 to identify potential high-level constraints and major risks to the proposal.

Preliminary environmental constraints were defined to assess the potential developable area of the site. The preliminary constraints map is provided in Figure 7-1. This will be used to guide further detailed investigations and ultimately the site infrastructure layout. Constraints mapping will also be refined based on these investigations, prior to submission of the EIS.

A summary of the *key* environmental issues of relevance to the site and its development is provided in Section 7.2. They include:

- Aboriginal heritage
- Historic heritage
- Biodiversity
- Noise
- Visual amenity and landscape character
- Water courses and hydrology
- Land use and cumulative impacts

The potential impacts and management of other (less substantive) issues are discussed in Section 7.3. These are expected to be able to be addressed through desktop investigation. These include:

- Soils and contamination
- Access and traffic
- Social and economic impacts
- Air quality
- Hazards and risks – Electromagnetic fields
- Bushfires
- Aviation
- Waste management

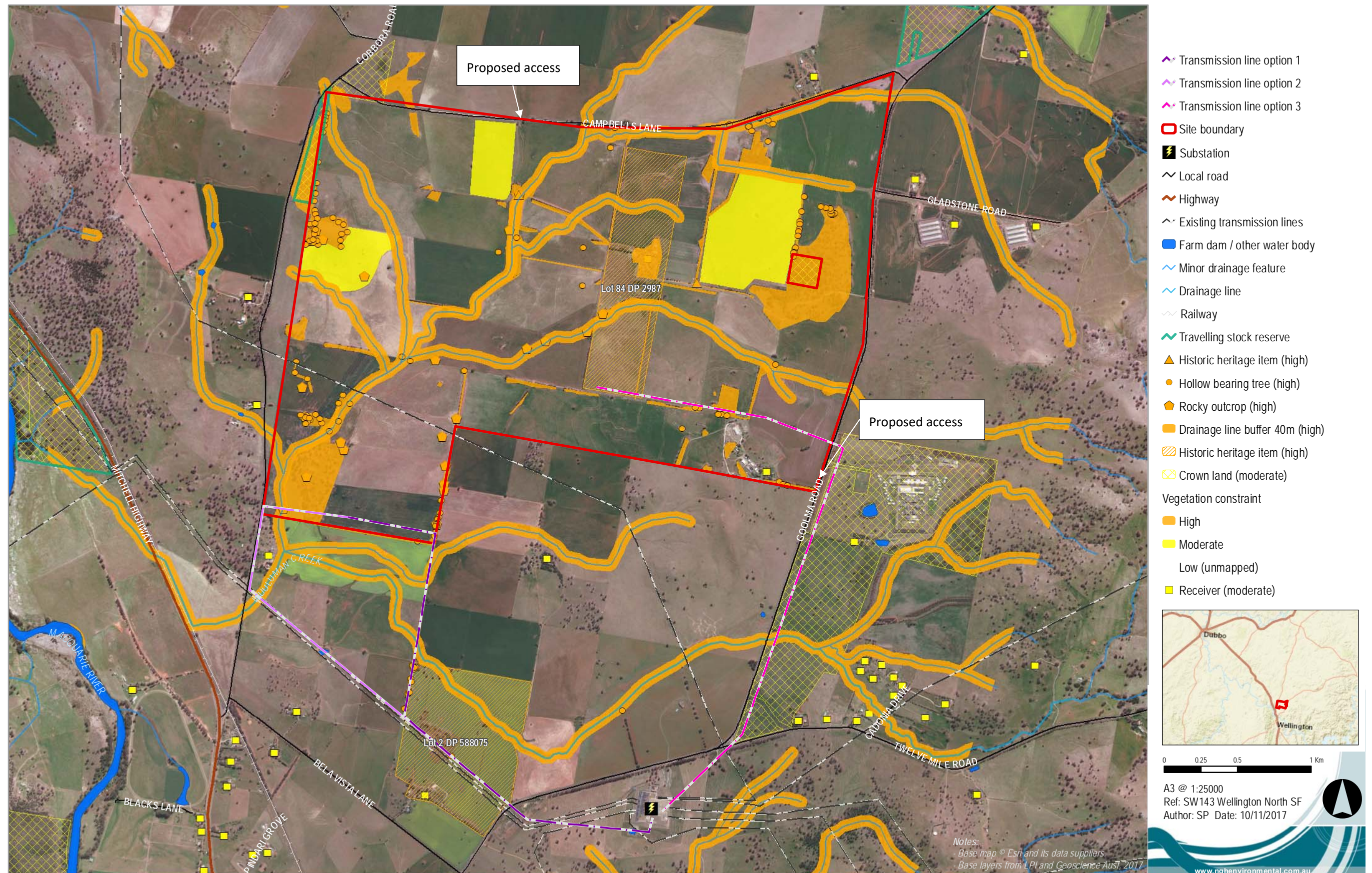


Figure 7-1 Preliminary Constraints

7.2 ASSESSMENT OF KEY ISSUES

7.2.1 Aboriginal heritage

The NSW Office of Environment and Heritage (OEH) maintains the Aboriginal Heritage Information Management System (AHIMS) database. A search of the AHIMS register for Aboriginal sites and places provides an indication of the presence of previously recorded Aboriginal sites, these include:

- Information about Aboriginal objects that have been reported by archaeologists, the Aboriginal community and members of the public.
- Information about Aboriginal places which have been declared by the Minister for the Environment to have special significance with respect to Aboriginal culture.
- Archaeological reports

A search of the Aboriginal Heritage Information Management System (AHIMS) database for the site with a 50 metre (m) buffer on 12 September 2017 identified 18 Aboriginal sites and no Aboriginal places within the proposal area. There have been no items recorded to date within the proposal site, however a number of items have been recorded in close proximity during the recent survey of adjacent properties. These site types included artefact scatters, isolated finds and a scarred tree.

Inspection of the site determined a moderate level of modification of current landforms and vegetation, such as ploughing and landforming, that are likely to reduce the potential for Aboriginal heritage features. However, sensitive landscape features within the study area that are associated with waterways, such as along the tributaries of Wuuluman Creek within the proposal site are likely to have a higher potential for significance.

Constraints and need for further assessment

An Aboriginal Cultural Heritage Assessment (ACHA) would be required to investigate the presence of any Aboriginal sites and to assess the impacts and management strategies that may mitigate any impact. The significance of any Aboriginal heritage sites that may be potentially affected by the proposal would be determined in accordance with the Guide to Investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW 2010).

Consultation with Aboriginal stakeholders in accordance with clause 80C of the *National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010* is required.

7.2.2 Historic Heritage

A search of the Australian Heritage database on the 19 September 2017 for the Wellington LGA found one Commonwealth listed item; the Wellington Post Office, located approximately 7km south.

A search of the NSW Heritage Register on 12 September 2017 for the Wellington LGA identified 6 listed items under the NSW Heritage Act and 62 items listed under the Wellington LEP and by state agencies. The closest listed heritage item is located within Montefiores, approximately 3km south west of the proposed site.

A portion of the proposal site, Lot 84 DP 2987 is identified in Schedule 5 of the Wellington LEP 2012 as an item of Environmental Heritage; Noonee Nyrang Homestead. Transmission line options one and two pass through Lot 2 DP 588075, which is also listed under Schedule 5 of the Wellington LEP 2012 as an item of

Environmental Heritage; Keston Homestead. The proposal site is also adjacent to one other listed item Narrawa Homestead is to the south.

During the site inspection, one culvert and one stock watering trough were identified as having potential for historic heritage significance.

Constraints and need for further assessment

The potential for the proposal to impact heritage items will be investigated and assessed during preparation of the EIS. Potential impacts to the Noonee Nyranng homestead would be thoroughly investigated, and this will include an inspection of the homestead by an experienced heritage consultant and liaison with Dubbo Regional Council's heritage advisor regarding the item. Suitable mitigation strategies will be developed to mitigate any impacts.

7.2.3 Biodiversity

Potential ecological constraints within the locality of Wellington and the proposal site have been identified based on the following information sources:

- Existing threatened species listings under the BC Act and EPBC Act.
- Existing records of threatened species sightings in the proposal site, as recorded in the Bionet Database (OEH).
- Department of Environment Protected Matters Search Tool (nationally threatened species listed under the EPBC Act).
- Threatened species and communities identified as potentially occurring through the Biodiversity Assessment Methodology Calculator (OEH).
- Areas of outstanding biodiversity value declared under the BC Act 2016.
- A site survey completed by experienced ecologists.

Threatened species and communities

A search of the EPBC Act Protected Matters Search Tool was undertaken within a 10km buffer of the proposal site. The search identified two endangered Ecological Communities: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, and Grey Box (*Eucalyptus macrocarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia. The search also identified 29 threatened species and 11 migratory species that are either known to occur or have potential to occur in the search area, including:

- 8 flora species
 - *Androcalva procumbens*
 - *Atsrostipa wakoolica*
 - *Euphrasia argute*
 - *Philotheca ericifolia*
 - Tarengo Leek Orchid (*Prasophyllum petilum*)
 - A leek orchid (*Prasophyllum sp*)
 - Small Purple-pea (*Swainsona recta*)
 - *Tylophora linearis*
- 9 bird species
 - Regent Honeyeater (*Anthochaera phrygia*)
 - Australasian Bittern (*Botaurus poiciloptilus*)
 - Curlew Sandpiper (*Calidris ferruginea*)

- Painted Honeyeater (*Grantiella picta*)
- Swift Parrot (*Lathamus discolor*)
- Malleefowl (*Leiopa ocellata*)
- Eastern Curlew (*Numenius madagascariensis*)
- Superb Parrot (*Polytelis swainsonii*)
- Australian Painted Snipe (*Rostratula australis*)
- 4 fish
 - Flathead Galaxias (*Galaxias roratus*)
 - Trout Cod (*Maccullochella macquariensis*)
 - Murray Cod (*Maccullochella peelii*)
 - Macquarie Perch (*Macquaria australasica*)
- 6 mammals
 - Large-eared Pied Bat (*Chalinolobus dwyeri*)
 - Spot-tailed Quoll (*Dasyurus maculatus maculatus*)
 - Corben's Long-eared bat (*Nyctophilus corbeni*)
 - Greater Glider (*Petauroides volans*)
 - Koala (*Phascolarctos cinereus*)
 - Grey-headed Flying-fox (*Pteropus poliocephalus*)
- 2 reptiles
 - Pink-tailed Worm-lizard (*Aprasia parapulchella*)
 - Striped Legless Lizard (*Delma impar*)

A search of the OEH Wildlife Atlas database for the Central West - Upper Slopes CMA subregion, identified 6 threatened species that have been recorded within 10km of the proposal site. These include:

- Little Eagle (*Hieraaetus morphnoides*)
- Glossy Black Cockatoo (*Calyptorhynchus lathami*)
- Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*)
- Diamond Firetail (*Stagonopleura guttate*)
- Grey Headed Flying Fox (*Pteropus poliocephalus*)
- Small Purple-pea (*Swainsona recta*)

None of the above species have been recorded within the proposal site. The closest recorded sighting is a Brown Treecreeper located about 2km north of the proposal site and a Little Eagle about 1.5km south along Goolma Road.

Species credit species

The proposal will be assessed under the Biodiversity Assessment Methodology (OEH, 2017). A preliminary assessment using the Biodiversity Assessment Calculator was undertaken to determine species credit species requiring consideration. Based on the preliminary BAM assessment and surveys undertaken to date, species that may require further surveys are outlined in the table below.

Table 7-1 Species that may require further surveys.

Type	Species	Scientific Name	Survey Time	Potential to occur and require surveys?
Flora	Ausfeld's Wattle	<i>Acacia ausfeldii</i>	All	No, not detected during surveys.
Flora	Tylophora Linearis	<i>Tylophora linearis</i>	Sept-May	No, not detected during surveys.
Flora	Zieria obcordate	<i>Zieria obcordate</i>	Any	No, not detected during surveys.
Flora	Euphrasia argute	<i>Euphrasia argute</i>	-	No, not detected during surveys.
Flora	Scant pomaderris	<i>Scant pomaderris</i>	Any	No, no suitable habitat.
Flora	Small Purple-pea	<i>Swainsona recta</i>	Sept - Nov	No, not detected during surveys.
Flora	Silky Swainson Pea	<i>Swainsona sericea</i>	Sept -Feb	No, not detected during surveys.
Flora	Small Scurf Pea	<i>Cullen parvum</i>	Dec - Feb	Yes
Flora	Blue Grass	<i>Dichanthium setosum</i>	Dec-May	Yes
Flora	Tarengo Leaf Orchid	<i>Prasophyllum petilum</i>	Oct-Dec	No, highly susceptible to grazing
Bird	Bush Stone Curlew	<i>Burhinus grallarius</i>	Any	No, no fallen timber present.
Bird	Gang	<i>Callocephalon fimbriatum</i>	Oct- Jan	No, not detected during surveys.
Bird	Glossy Black Cockatoo	<i>Calyptorhynchus lathami</i>	Oct-Jan	No, not detected during surveys.
Bird	White bellied sea eagle	<i>Haliaeetus leucogaster</i>	July -Dec	No, not detected during surveys.
Bird	Little Eagle	<i>Hieraaetus morphnoides</i>	Aug -Oct	No, not detected during surveys.
Bird	Swift Parrot	<i>Lathamus discolor</i>	May-Aug	Yes
Bird	Square-tailed Kite	<i>Lophoictinia isura</i>	Sept - Jan	No, not detected during surveys.
Bird	Barking Owl	<i>Ninox connivens</i>	May -Dec	No, not detected during surveys.
Bird	Masked Owl	<i>Tyto novaehollandiae</i>	May - Aug	No, not detected during surveys.
Bird	Regent honeyeater	<i>Anthochaera phrygia</i>	Sept - Dec	No, not detected during surveys.
Bird	Superb Parrot	<i>Polytelis swainsonii</i>	Sept -Nov	No, not detected during surveys.

Type	Species	Scientific Name	Survey Time	Potential to occur and require surveys?
Marsupial	Eastern Pygmy Possum	<i>Cercartetus nanus</i>	Oct - Mar	No, not detected during surveys.
Marsupial	Squirrel Glider	<i>Petaurus norfolcensis</i>	Any	No, not detected during surveys.
Marsupial	Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	Any	No, not detected during surveys.
Marsupial	Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>	Any	No, rocky escarpment absent
Marsupial	Koala	<i>Phascolarctos</i>	Any	No, not detected during surveys
Mammal	Grey Headed Flying Fox	<i>Pteropus poliocephalus</i>	Oct - Dec	No, not detected during surveys
Mammal	Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	Nov - Feb	Yes
Mammal	Southern Myotis	<i>Myotis macropus</i>	Nov-Jan	Yes
Mammal	Large-eared Pied bat	<i>Chalinolobus dwyeri</i>	Sep-Mar	Yes
Amphibian	Sloane's Froglet	<i>Crinia sloanei</i>	July -August	Yes
Amphibian	Booroolong Frog	<i>Litoria booroolongensis</i>	Nov - Dec	Yes
Reptile	Pink tailed legless lizard	<i>Delma impar</i>	Sept -Nov	No, not detected during surveys
Insecta	Golden Sun Moth	<i>Synemon plana</i>	Oct-Dec	No, not suitable habitat.

Vegetation and fauna habitat

The proposal site has been extensively cleared and modified for agricultural purposes. The majority of vegetation is comprised of exotic pastures and cereal crops. Several native tree plantings occur throughout the proposal site. These tree plantings are approximately 10 to 20 years old. Remnant patches of White Box Woodland occur on the rocky hilltops and Remnant patches of Yellow Box Woodland occur on the slopes. Remnant paddock trees are scattered throughout the proposal site and rocky outcrops occur in several areas. These remnant areas have been highly disturbed and lack a native understory due to grazing and pasture improvement practices.

Plant community types and endangered ecological communities

Based on existing vegetation mapping and the initial site inspection, vegetation within the proposal area were assigned to Plant Community Types (PCTs) in accordance with the Vegetation Information System Classification Database (OEH). PCTs were determined based on the presence of diagnostic species identified within the site survey. The results are preliminary in nature and will be refined following detailed vegetation survey of the site, and the undertaking of Floristic Plots in accordance with the Biodiversity Assessment Methodology (OEH, 2017).

PCTs identified in the proposal site include;

- **PCT 276** -Yellow Box grassy tall woodland on alluvium or parna loams and clays on flats in NSW South Western Slopes Bioregion
- **PCT 435** -White Box - White Cypress Pine shrub grass hills woodland in the Brigalow Belt South Bioregion and Nandewar Bioregion

Subject to further assessment, the vegetation communities may be consistent with the following threatened ecological communities:

- White Box – Yellow Box – Blakely’s Red Gum Woodland (BC Act, Endangered Ecological Community).
- White Box – Yellow Box– Blakely’s Rd Gum Grassy Woodland and Derived native grassland (EPBC Act, Endangered)

Biodiversity Constraints

To inform the early project planning process, biodiversity features within the proposal site have been mapped to areas of High, Moderate, or Low constraints (Figure 7-1) based on preliminary assessment. Remnant Box Gum Woodland and the plantings have been mapped as a high constraint. The remnant vegetation is an EEC and the planted vegetation provides threatened species habitat. Offsetting would be required for the removal of these areas.

Hollow bearing trees have also been mapped as a high constraint. Several threatened bird species have been recorded in the locality and paddock trees play an important role in supporting woodland bird populations. Hollow bearing trees also provide potential habitat for threatened bats. Hollow bearing trees are considered a valuable resource and would require offsetting.

The rocky outcrops and the creek line have been mapped as a high constraint. These areas provide potential habitat for threatened fauna including; Sloanes Froglet (*Crinia sloanei*) and the Pink tailed legless Lizard (*Aprasia parapulchella*). Targeted surveys would be required to determine the presence of these species and offsetting requirements.

Low condition native grasslands which are dominated by exotic vegetation have been mapped as a moderate constraint. All cultivated and cropped areas which occur as unmapped areas have been classified as a low constraint. It is unlikely that these areas will require offsetting.

Conclusions and need for further assessment

As part of the EIS, the detailed ecological surveys and further investigation and assessment will be undertaken in the format of the Biodiversity Development Assessment Report (BDAR) in consultation with OEH. If calculations determine that offset credits are required to offset impacts, then an offset strategy would be required to be developed.

7.2.4 Noise

Approximately 134 residences are located within 2km of the proposed solar plant and transmission lines options, with seven residence located within 400m of the site. The closest non-involved receiver to the solar plant site is 140m north.

Noise impacts would, for the most part, only occur during construction (generated by construction vehicles and machinery). During the operation of the solar plant, noise levels would be much less and include the solar tracking system, the substation and switchgear and any maintenance works undertaken at the site.

Constraints and need for further assessment

A construction and operational noise and vibration assessment will be undertaken as part of the EIS to assess potential noise impacts. The assessment will be undertaken in accordance with the *Interim Construction Noise Guideline* (DECC, 2009), *NSW Industrial Noise Policy* (EPA, 2017), *Assessing Vibration: A Technical Guideline* (DECC, 2006) and NSW 'Road Noise Policy' (DECCW, 2011).

7.2.5 Visual amenity and landscape character

The solar plant has potential to result in visual impacts to neighbouring houses and road users adjacent to the site. The site is located within a rural area with large lot agricultural production and sparsely distributed residences usually located some distance from roads. There are approximately 134 residences within 2km of the proposed solar plant and transmission lines options. Aerial imagery shows there is limited vegetation screening for receivers including receivers along Cobbora Road, Goolma Road and Campbells Lane. However, the site is flat to undulating, limiting views to most sensitive receivers. The existing substation south east of the proposal site is well screened from the Goolma Road.

An assessment of the level of visual impact would be undertaken as part of the EIS process. The EIS would also consider the potential for the solar plant to affect local landscape character. Consultation will be undertaken broadly to understand the local values of the area, including visual characteristics valued by the community. Additional consultation with specific affected residences would be undertaken to identify the nature and significance of impacts and the need for mitigation measures.

Glare and reflections from solar plant infrastructure would be investigated. It is noted that solar panels are designed to absorb as much sunlight as possible. They therefore reflect a very low percentage of the light and are generally not considered likely to result in glare or reflections that would affect traffic or nearby receivers.

Constraints and need for further assessment

A visual impact assessment, including view shed analysis and community consultation, would be prepared as part of the EIS to investigate visual impacts and mitigation options. Mitigation measures would become part of the project description, as required, i.e. vegetation screens.

7.2.6 Watercourses and hydrology

Four dams occur within the proposal site; three within the south-western portion of the proposal site and one in the south-eastern corner of the proposal site. Six watercourses occur within the proposal site, all are tributaries of Wuuluman Creek. The main tributary flows from the north of the site to the south-western corner of the site. Another main tributary flows east to west across the southern portion of the site. The four other waterways onsite are minor incised drainage lines, that would only have water after storm events. The Macquarie River is located 1.7km west of proposal site. The Wellington LEP 2012 does not identify the site as flood prone.

Constraints and need for further assessment

The EIS would assess the impacts to waterways and include appropriate mitigation measures, such as buffering these areas for avoidance, where possible.

7.2.7 Land use and cumulative impacts

The proposal site is located in an agricultural area and aerial imagery suggests the site has a history of intensive agricultural cultivation; clearing and cropping are evident. The surrounding land includes irrigated crops and grazing land.

The entire proposal site has been mapped as Biophysical Strategic Agricultural Land (BSAL), which is land identified to have high quality soil and water resources capable of sustaining high levels of productivity. This data is not ground validated and can be inaccurate, ground validation will be carried out to confirm the accuracy of BSAL mapping. NGH Environmental site inspections noted that the site would not appear to support sustained cropping. The soils have a high erosive hazard, are rocky and salinity is an issue onsite. Many of the drainage lines mapped for the site are ephemeral at best or have been highly modified.

Other land uses nearby include the Wellington and Macquarie Correctional Centres, east of the proposal site, across Goolma Road. Nearby recreational areas include the Macquarie River, approximately 2km south of the proposal site, and Mount Arthur Reserve, south west of the proposal site.

The approved Bodangora Wind Farm site is located approximately 9km north east of the proposal site. An existing substation south of Goolma Road is located adjacent to the proposal site. Another solar farm is proposed to be constructed immediately south of the site, Wellington Solar Farm. While another solar farm is proposed 3.4km north of the site.

A search of the Department of Planning and Environment MinView on 19 September 2017 found the site to have two current mineral titles (refer to Figure 7-1). Exploration licence 6178 held by Modeling Resources Pty Ltd occupies majority of the site and expires January 2018. Exploration licence 8505 held by Drummond West Pty Ltd occupies a small portion of the south eastern corner of the proposal site. Consultation would be required with mineral title holders. As the proposal is highly reversible, this is considered a manageable constraint.

Lot 109 DP 750760 within the eastern portion of the site is mapped as Crown Land. Other Crown Land easements (paper roads) are located to the south of the proposal site. Transmission line option 3 is also located on Wellington Correctional Centre land. Consultation and an easement, licence or permit would be required from the Department of Justice.

Conclusions and need for further assessment

The impact on agricultural production in the locality and region would be assessed in detail in the EIS. Additionally, the EIS will address cumulative impacts associated the proposal and other activities occurring within the area including the construction and operation of Bodangora Wind Farm, construction and operation of Wellington Solar Farm, construction and operation of Maryvale Solar Farm, and operation of the Wellington and Macquarie Correctional Centres.

7.3 OTHER ENVIRONMENTAL ISSUES

Issue	Existing environment	Potential Impacts	Investigation strategies
Soils capability and contamination	<p>One soil landscape occurs within the proposal site, Bodangora. Its limitations include:</p> <ul style="list-style-type: none"> • High erosion hazard under cultivation and low cover levels • Moderate fertility • Friable surface soils • Moderate to high shrink-swell potential in sub soils • Aggregated clays may leak in earthworks <p>The soils onsite are rocky and have a high wind erosive hazard. A small amount of salinity was evident. Landcare involvement and dry salinity controls onsite, suggests that salinity has been an issue on the property.</p> <p>A search of the NSW OEH Contaminated Sites Register (NSW Government, 2017b) on 19 September 2017 identified no sites within the Wellington LGA. The proposed site does not appear on the List of NSW Contaminated Sites notified to the EPA (NSW Government, 2017a), as at 19 September 2017. It is noted that the site has a history of agricultural land use and that agricultural sites may contain buried rubbish including contaminants such as herbicides that may be encountered during excavation.</p>	<p>Construction activities would include excavation and vegetation removal which have the potential to cause soil erosion and sedimentation and weed ingress.</p>	<p>The EIS would provide thorough consideration of soil impacts and proposed mitigation measures during construction, operation and decommissioning.</p> <p>It is considered unlikely that contamination is present at the site and therefore no detailed investigation is likely to be required within the EIS.</p> <p>If contamination is identified during site construction, it would be managed in accordance with a Construction Environmental Management Plan (CEMP) and relevant EPA guidelines.</p>
Access and traffic	<p>Access to the site would be from Campbells Lane which bounds the site to the north. The access track would be constructed as part of the works.</p> <p>The Mitchell Highway intersects Goolma Road approximately 8km from its intersection with Campbells</p>	<p>Construction traffic would impact traffic along Campbells Lane, Goolma Road and Mitchell Highway. The proposal may require construction of a formal intersection on Campbells Lane at the location of the site</p>	<p>Construction traffic impacts would be considered in the EIS and take into consideration existing traffic volumes and any requirements from the roads</p>

Issue	Existing environment	Potential Impacts	Investigation strategies
	Lane. Mitchell Highway and Goolma Road would be the major transport routes for haulage and site vehicles during construction and operation of the project.	access. Maintenance of access tracks during operation would also be required across the proposal site. During construction, there may be impacts to nearby receivers associated with dust, vibration and noise generation.	authority. The requirement for upgrades would be considered in the EIS. The mitigation measures would require a Traffic Management Plan be prepared.
Social and economic impacts	The proposal site is located approximately 7km north of Wellington; a moderate sized rural town of about 4,500 residents with links to historic gold mining and now known for rich agricultural lands.	The proposal would generate economic benefits during construction and operation, including local employment opportunities.	The EIS would assess potential social and economic impacts of the proposal. It would investigate ways to spread the benefits of the project into operation. Detailed investigations and consultation with affected landowners regarding mitigation is required.
Air quality	The air quality in Wellington is generally expected to be good and typical of that found in a rural setting in NSW due to low population numbers. Existing sources of air pollution in such a location are expected to comprise vehicle emissions, dust from agricultural practices and smoke from seasonal stubble burning. During colder months, there may be a minimal increase in air contaminants due to smoke emissions from the operation of solid fuel heating.	The construction of the proposal is not anticipated to have a significant impact on air quality, and would mostly be related to dust during dry periods and vegetation removal. Impacts to air quality during operation are likely to be negligible. There is an opportunity to improve air quality in operation by maintaining ground cover beneath the panels compared to existing cropping operations.	The mitigation measures would require a CEMP be prepared to manage air quality impacts during the construction of the project.
Hazards and risks – Electromagnetic fields (EMF)	Existing powerlines produce EMF at neighbouring sites. Additional infrastructure which form part of the proposal such as connecting powerlines and substation would produce additional electromagnetic emissions at the site.	The transmission line would be constructed between the solar plant and the substation located on Goolma Road and would intersect Goolma Road. The EMF that would be generated by the proposed transmission line is expected to be below the guideline for public	The EMF levels of the proposed transmission line would be assessed as part of the EIS. Standard design provisions are expected to ensure impacts are acceptable to nearby receivers.

Issue	Existing environment	Potential Impacts	Investigation strategies
		exposure and would not be expected to have an adverse impact on human health.	
Hazards and risks – Bushfire	The proposal site has been predominantly cleared for agricultural purposes.	The proposal is unlikely to be affected by bushfire, or pose a significant bushfire risk.	<p>The proposed development is unlikely to result in an increased risk of bushfire for the site. This would be assessed in the EIS.</p> <p>During construction and operation phases of the project, the industry standard is that staff are trained in bushfire management, bringing additional fire-fighting capability to the locality to mitigate this potential impact.</p>
Aviation	An airstrip is located approximately 5km north-east of the proposal site.	It is noted that solar panels are designed to absorb as much sunlight as possible. They therefore reflect a very low percentage of the light they receive and are not considered likely to result in glare or reflections that would affect air traffic.	The EIS would investigate the potential for glare impacts related to aviation.
Waste Management	The proposal would generate several waste streams and utilise a variety of materials during the construction phase.	<p>During construction, excavated material and green waste would be generated as waste. Packaging from panels and other components would require disposal.</p> <p>Limited operational waste would be associated with this proposal.</p>	A Waste Management Plan (WMP) would be required to be developed and incorporated into the CEMP, prior to construction. This would incorporate the principles to avoid, re-use and recycle to minimise wastes.

8 CONCLUSION

This report has outlined the proposed Wellington North Solar Plant and established the planning context of the project. The proposal would be assessed under Part 4 of the EP&A Act and classed as State Significant Development under *State Environmental Planning Policy (State and Regional Development) 2011*.

The proposal would result in a number of benefits including:

- Assist in meeting Australia's future energy demand in a cost effective and sustainable way.
- Generation of enough clean, renewable energy for about 98,000 average NSW homes.
- Displacement of approximately 498,000 metric tonnes of carbon dioxide.
- Creation of local job opportunities.

Preliminary assessment and consultation with involved council, landowners and interested stakeholders has been undertaken to understand key community issues and take into account feedback.

Potential environmental impacts associated with the project have been categorised as key issues or secondary issues. Based on this Preliminary Environmental Assessment, an indicative scope for the EIS has been developed, focusing on the key issues:

- Aboriginal heritage
- Historic Heritage
- Biodiversity
- Noise
- Visual amenity and landscape character
- Watercourses and hydrology
- Land use and cumulative impacts

Secondary issues will be investigated in lesser depth, through desktop investigation.

Once received, the EIS would be prepared in accordance with the project-specific SEARs. Mitigation measures will be developed for inclusion in the EIS and will address the management of key issues and other issues identified in the assessment process.

9 REFERENCES

- Australian Bureau of Statistics, 2011, *Wellington 2011 Census QuickStats*, accessed 25 October 2017
http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/LGA18150?opendocument.
- Australian Bureau of Statistics, 2016, *2016 Census QuickStats*, accessed 25 October 2017,
http://www.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC14221?opendocument.
- Clean Energy Council, 2014, *RET Policy Analysis*, report prepared by Roam Consulting.
- Clean Energy Council, 2016, *Clean Energy Australia Report 2016*.
- Department of Environment and Climate Change, 2006, *Assessing Vibration: A technical Guideline*, Sydney.
- Department of Environment and Climate Change, 2009, *Interim Construction Noise Guideline*, Sydney.
- Department of Environment, Climate Change & Water, 2010, Aboriginal cultural heritage consultation requirements for proponent, accessed 25 October 2017,
<http://www.environment.nsw.gov.au/resources/cultureheritage/commconsultation/2010069ACHCRSummaryIssues.pdf>
- Department of Environment, Climate Change and Water, 2011, *NSW Road Noise Policy*. DECCW, Sydney.
- Dubbo Regional Council, 2017, *Wellington – Start your Adventure*, accessed 25 October 2017,
<http://www.visitwellington.com.au/visit/attractions-activities/winery.aspx>
- NSW Department Planning and Environment, 2017, *MinView*, accessed 19 September 2017, from
<https://minview.geoscience.nsw.gov.au/#/?lat=148.9645739421336&lon=-32.49799214517727&z=14&l=pi4:n:100,ad6:y:100,re2:n:100,re1:n:100,wa1:n:100>
- NSW Environment Protection Authority, 2000, *Industrial Noise Policy*, Sydney
- NSW Government, 2017a, *Contaminated sites notified to EPA*, accessed 19 September 2017, from
<http://www.epa.nsw.gov.au/clm/publiclist.htm>
- NSW Government, 2017b, *NSW OEH contaminated site register*, accessed 19 September 2017, from
<http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx>
- OEH, 2017, *The Biodiversity Assessment Methodology*.
- Regional Development Australia – Orana, 2016, accessed 25 October 2017,
<http://www.lovethefewelive.com.au/our-towns/wellington/>
- Wellington Council, 2012, *Wellington Local Environmental Plan 2012*, access September 2017 from
<https://www.legislation.nsw.gov.au/#/view/EPI/2012/578>

APPENDIX A SITE PHOTOGRAPHS

Proposed site





Locality

