ETHOS URBAN

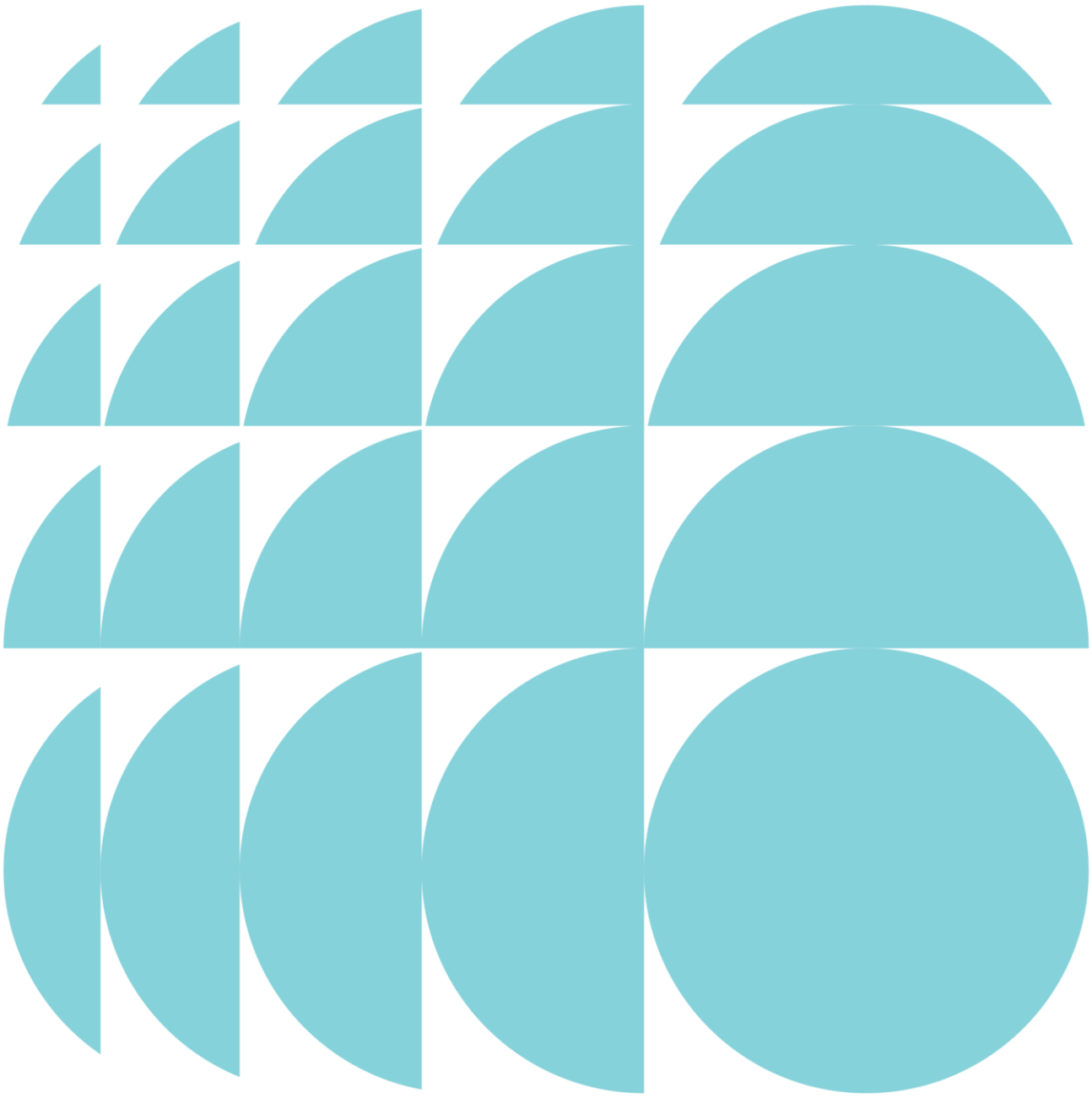
Dunedoo Solar Farm

Economic Impact Assessment

FINAL

Prepared for ib vogt on behalf of Sun Spot 4 Pty Ltd

August 2020



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Disclaimer

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Contents

Executive Summary

ib vogt on behalf of Sun Spot 4 Pty Ltd has commissioned Ethos Urban to prepare an Economic Impact Assessment (EIA) for the proposed 55 MW Dunedoo Solar Farm development to be located to the north of Allweather Road and East of the Castlereagh Highway, approximately 2 km north of Dunedoo in the Warrumbungle Shire Local Government Area (LGA).

The solar farm will be located across a 112ha site and, subject to planning approval and financing, the facility is expected to be operational by autumn 2022.

The main findings of this EIA are summarised as follows.

Regional Economic Context

1 The population of the Study Area (Local Government Areas (LGAs) of Dubbo, Gilgandra, Mid-Western and Warrumbungle) totalled 92,490 persons as of June 2019 (ABS Estimated Resident Population, 2019). Over the period 2019-2036, annual population growth in the Study Area is expected to be +0.3% pa compared to the Regional New South Wales growth rate of 0.5% p.a. The Gilgandra and Warrumbungle LGAs are projected to experience population decline over the coming years. In this regard local investment projects (such as the proposed Dunedoo Solar Farm) can generate new employment opportunities for residents and diverse income streams for local farmers. These factors may contribute to retaining, and potentially expanding, population levels within these shires.

2 Department of Employment data shows the Study Area had an unemployment rate of 2.5% in March 2020, compared to the NSW rate of 4.5%; with 1,120 jobseekers unemployed. These figures reflect the pre-COVID-19 environment. Labour market conditions have deteriorated more recently with approximately 2,000 additional jobs lost between March-June 2020, according to data sourced from REMPLAN. In this regard, construction of the Dunedoo Solar Farm Project provides new short-term employment opportunities for the region's labour force participants, with a small amount of ongoing employment also supported once the facility is operational.

3 The Study Area's occupational and business structures indicate a good base exists to service the needs of the Project, with approximately 12,630 workers and 1,860 businesses in the Study Area involved in construction-related activities.

4 The major regional cities/townships of Dubbo and Mudgee have the capacity and labour force to service many aspects of the Project, with smaller settlements such as Dunedoo, Mendooran, Coolah, Gulgong and Gilgandra, also likely to provide labour, accommodation and other general services to the Project.

Economic Impact Assessment

5 The Dunedoo Solar Farm Project will involve $76 million in investment during the construction phase and will support 100 direct and 160 indirect positions over the construction period. Once operational, 3 direct and 9 indirect jobs will be supported by the facility. Many of these jobs will be supported in the Study Area (refer to Table A).

6 The Study Area has significant capacity in terms of construction-related workers (12,630 workers) and businesses (1,860 businesses) to manage the requirements of the Project, and concurrent regional infrastructure projects if required.

7 The Project will provide significant participation opportunities for businesses and workers located in the Study Area, having regard for the good match of skills and resources available. Major investment projects, such as the Dunedoo Solar Farm, will play an important role in revitalising the regional economy in the post-COVID-19 recovery phase.

8 The 'external' Project labour requirement would be expected to generate an accommodation need for 40 workers at the peak of the Project. This represents only 2% of total commercial accommodation rooms/cabins within a 70-minute drive of the Subject Site, with further capacity available in caravan parks (powered sites), and private rentals (e.g. Airbnb). The Project will support new revenues for accommodation providers over the construction phase (especially in off-peak seasons) in small townships such as Dunedoo, Mendooran, Coolah, and Gulgong.

9 Construction workers relocating to the region would be expected to inject approximately $1.0 million in additional spending into the economy over the construction phase, supporting approximately 10 jobs in the service sector across the Study Area.

10 Approximately 112ha of existing agricultural land will be required to host the solar farm. However, this land is of low productive value and used for cattle and sheep grazing, representing just approximately 10% of the broader land holdings. No loss of employment associated with the Subject Site is anticipated, either directly (on-site) or through the supply chain. The proponent is exploring the possibility of sheep grazing on the Subject Site, which would ensure some agricultural activity is retained on the host land.

11 Ongoing economic stimulus associated with the operation of the solar farm is estimated at approximately $12.6 million (over 30 years, CPI adjusted) associated with landowner returns and operational wage stimulus. Net land tax revenue to Council would be in addition to this value.

12 The Project has the capacity to supply sufficient clean energy to power the equivalent of approximately 24,400 homes pa, which represents approximately 68% of the total annual residential requirements of the Study Area (36,130 homes).

13 Operation of the Dunedoo Solar Farm will not impact on the Siding Spring Observatory and could potentially support small-scale tourism and educational opportunities in the future.

Net Community Benefit Assessment

A summary of community outcomes is included in Table A.

Table A: Dunedoo Solar Farm – Net Community Benefit Assessment

Factor	Value
Negative Community Outcomes	
Temporary loss of agricultural land (30 years)	112ha
Loss of employment (includes direct and indirect jobs)	0 jobs
Positive Community Outcomes	
Construction Phase	
Capital investment	+$76.0 million
Local investment (including wage stimulus)	**+$11.4 million (assumes 15% of total investment)**
Construction employment (direct plus indirect jobs)	+ 260 total jobs (over 12 months) *+ 100 local jobs (over 12 months)*
Operational Phase	
Employment	
Operational employment (direct and indirect jobs)	+12 total jobs (for 30 years) *+5 local jobs (for 30 years)*
Economic Stimulus	
Total net local economic stimulus (landowner returns and wage stimulus) EXCLUDES increased Council land tax returns.	**+$12.6 million (over 30 years)**
Total Economic Benefits (Construction and Operational Phases)	**+$24.0 million (Construction period plus 30 years)**

Introduction

Background

ib vogt on behalf of Sun Spot 4 Pty Ltd has commissioned Ethos Urban to prepare an Economic Impact Assessment (EIA) for the proposed Dunedoo Solar Farm development (the Project).The Project is located approximately 2km north of Dunedoo and is bounded on the south by Allweather Road and the Castlereagh Highway to the west, and by agricultural land on the other sides of the site. The Project lies within the Warrumbungle Shire Local Government Area (LGA) in central western NSW.

The solar farm will be situated on a 112ha site (Subject Site) which involves on involving two private landholders. The solar farm will have a capacity of 55 MW AC powered by approximately 173,000 photovoltaics panels.

Subject to planning approval and financing, construction of the Dunedoo Solar Farm is anticipated to start in autumn 2021, with the facility expected to be fully operational by autumn 2022. The construction phase of the Project is expected to be between 10-12 months.

Objectives

The objectives of this EIA are:

- To highlight likely local and regional economic benefits arising from the Project.
- To identify potential economic impacts associated with the Project.

This Report

This report contains the following chapters:

Chapter 1: Project Context

Presents a description of site location, project components, policy context and definition of Study Area.

Chapter 2: Regional Economic Profile

Presents an overview of population, labour force, occupational structure, business structure and township services, including an audit of commercial accommodation in the Study Area.

Chapter 3: Economic Impact Assessment of Proposed Project

Presents an assessment of the anticipated economic impacts of the proposed development, including investment, employment, business participation, local wage stimulus, impact on accommodation, impact on agricultural activities, cumulative impacts, local economic stimulus, financial returns to Council, environmental benefits and tourism impacts.

1 Project Context

1.1 Site Location

The proposed Dunedoo Solar Farm (the Project) will be developed on a 112ha site in the central western region of NSW, which is well-connected to a number of major regional centres and towns located within approximately a 60-70 minute drive from the Subject Site. These settlements are listed below (in order of population size):

- **Dubbo,** significant regional city located approximately a 65 minute drive to the south west of the Subject Site.
- **Mudgee,** major regional city located approximately a 70 minute drive to the south east of the Subject Site.
- **Gulgong,** small township located approximately a 45 minute drive to the south east of the Subject Site.
- **Wellington,** small-medium township located approximately a 65 minute drive to the south west of the Subject Site.
- **Gilgandra,** medium township located approximately a 60 minute drive from the Subject Site to the north west.
- **Coolah,** small township located approximately a 45 minute drive from the Subject Site to the north east.
- **Dunedoo,** small township located approximately a 5 minute drive from the Subject Site to the south.
- **Mendooran,** small township located approximately a 30 minute drive from the Subject Site to the north west.

These regional centres and townships, to differing extents, are likely to play important roles in supporting the requirements of the Project.

The Subject Site, which comprises two separate landholdings, is currently used for farming purposes (cattle and sheep grazing) under the Rural Use 1 Zone (Primary Production).

The Dunedoo Solar Farm will require planning approval by the NSW State Government as a State Significant Development (SSD).

1.2 Project Description

The Project is expected to include the following key components:

- Approximately 173,000 photovoltaics panels.
- Battery storage to store energy produced on site, the proposed battery storage is anticipated to have a rated capacity of approximately 85.88 MWh / 60.48 MW. The facility would comprise lithium-ion batteries housed across the site in up to 18 customised containers.
- 2km of hybrid power lines both underground and overground electrical conduits and cabling to connect the arrays to the inverters and transformers.

- Systems of invertor units and voltage step-up throughout the arrays.
- Site office and maintenance building, vehicle parking areas, internal access tracks, and perimeter security fencing.

1.3 Policy Context

International agreements and government policy settings are important factors in influencing demand and investment in the renewable energy sector, as noted below.

Paris Climate Accord

The Paris Accord is a comprehensive international climate agreement to which Australia is a party. The Accord provides a framework for participating nations to set themselves nationally determined contributions (NDCs) beginning in 2020, with review at five-year intervals. The agreement sets out a global consensus to limit temperature increases to below two degrees Celsius when compared to pre-industrial levels; an additional goal is to maintain this increase at less than one and a half degrees Celsius. NDCs do not have any set lower limit but are required to progress over time (beginning with the intended NDC pledged during the Paris conference), and to be 'ambitious'.

Australia's current targets are to achieve a reduction of emissions by 5% from 2000 levels by 2020, and by 26-28% below 2005 levels by 2030.

Federal Renewable Energy Target

The Renewable Energy Target (RET) is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and to encourage the additional generation of electricity from sustainable and renewable sources.

The RET works by allowing both large-scale power stations and the owners of small-scale systems to create certificates for every megawatt hour of power they generate. Certificates are then purchased by electricity retailers who sell the electricity to householders and businesses. These electricity retailers also have legal obligations under the RET to surrender certificates to the Clean Energy Regulator, in percentages set by regulation each year. This creates a market which provides financial incentives to both large-scale renewable energy power stations and to the owners of small-scale renewable energy systems.

In June 2015, the Australian Parliament passed the Renewable Energy (Electricity) Amendment Bill 2015. As part of the amendment bill, the large-scale RET was reduced from 41,000 GWh to 33,000 GWh in 2020, with interim and post-2020 targets adjusted accordingly.

NSW Renewable Energy Action Plan 2013

The NSW Renewable Energy Action Plan (2013) provides a framework to enable the State to meet the RET target through a range of 24 actions associated with:

- Attracting investment and projects
- Building community support
- Attracting and growing expertise in renewable energy technology.

While the NSW Government does not mandate a specific renewable energy target for the State, unlike Victoria and Queensland which both have 50% renewable energy targets by 2030, it does have an aspirational target of zero emissions by 2050.

The NSW Renewable Energy Action Plan Annual Report monitors implementation of the Plan and reports on progress to meeting the 2020 RET target. In December 2018, the NSW Government completed the implementation of the Action Plan with the following actions of relevance to the solar sector noted:

- Contributed funding to Australia's first major solar farms at Nyngan and Broken Hill.
- Entered into a contract with the Beryl Solar Farm in the State's central west to use enough renewable energy to cover all of Sydney Metro Northwest's operational electricity needs.
- Provided targeted assistance to five solar farms with total capacity of 160 megawatts (MW) in Dubbo, Glen Innes, Griffith, Parkes and Manildra to leverage $34.9m from the Commonwealth's Australian Renewable Energy Agency (ARENA).
- Signed an agreement to buy renewable energy from the 24 MW Dubbo Solar Hub which underpinned the project reaching financial close and beginning construction.
- Introduced a streamlined approach to the assessment of solar projects without compromising environmental standards or community engagement.
- Helped 20 businesses in NSW plan to achieve 100% renewable energy use and reduce their emissions through the Clean Energy Strategies for Business program.
- Supported the University of Technology Sydney, Institute for Sustainable Futures' Network Opportunity Maps, which highlight where renewable energy, energy storage and demand management can be used to meet network constraints.
- Commissioned research by the Australian Photovoltaics Institute that revealed at least a quarter of the roof space in Sydney's inner city is available for solar panels.
- Appointed a dedicated advocate for renewable energy within government to oversee delivery of the Plan.

NSW Large Scale Solar Energy Guidelines 2018

The NSW Large Scale Solar Energy Guidelines issued by the NSW Government notes the following (p.12):

> *"Social and economic impacts: Impacts, both positive and negative (including how they are distributed), of the proposed development on potentially affected people and groups. This includes workforce accommodation, job creation opportunities, and flow-on economic impacts to local communities."*

This EIA report addresses these impacts.

Central-West Orana Renewable Energy Zone

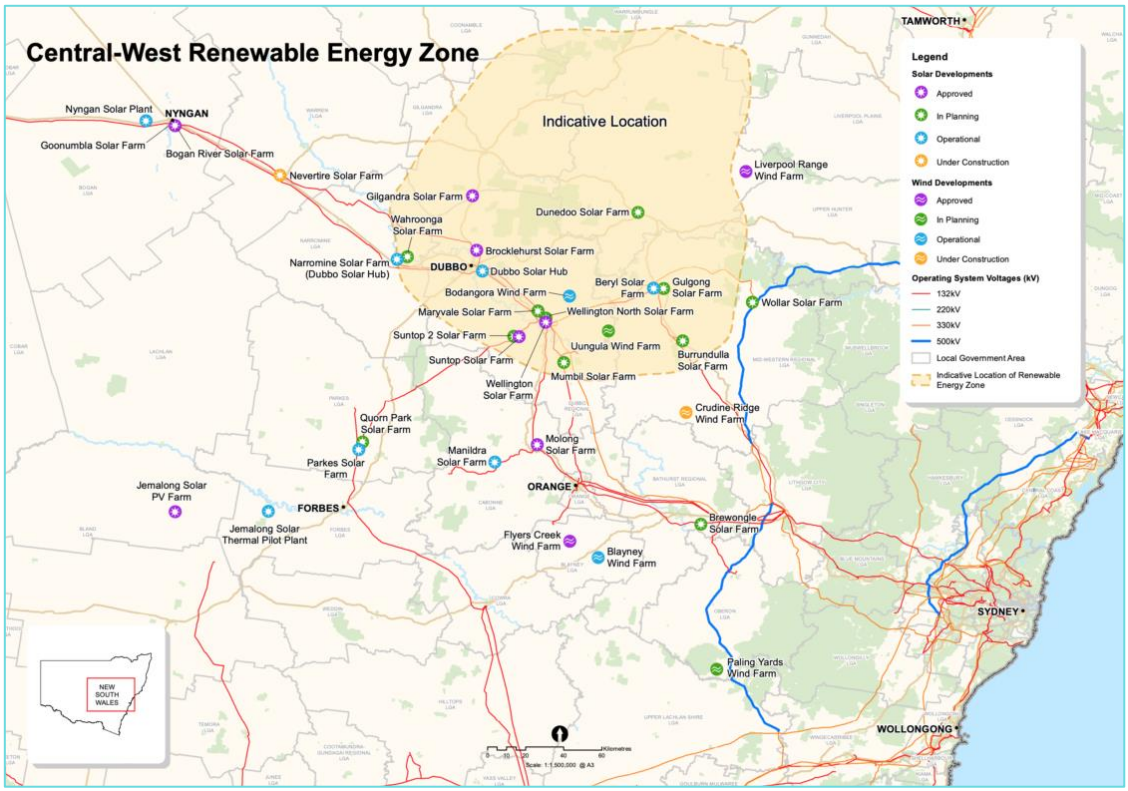
In late 2019, the NSW Government announced plans to create its first Renewable Energy Zone -- (REZ), seeking to attract 3,000 MW of investment in the state's Central-West (which will cover the area in which the Dunedoo Solar Farm is to be located) in order to accelerate the state's efforts to attract cheap wind and solar to replace NSW's ageing coal-fired power stations.

The state's Central-West has been chosen as a pilot location due to a host of approved and planned projects, relatively low build costs and a strong mix of solar and wind resources. It is part of the NSW government's long-term plan to deliver three REZs across the state – in the Central-West, New England and South-West regions; building on the NSW Transmission Infrastructure Strategy and in line with the Australian Energy Market Operator's Integrated System Plan.

This pilot Renewable Energy Zone would produce enough energy to power up to 1.3 million homes each year. The NSW Government will set up a dedicated Renewable Energy Zone body that will bring together investors and undertake early planning so benefits for local communities are maximised. Where appropriate, the NSW Government will change the regulatory settings to incentivise generators to cover part of the cost of building new transmission for REZs.

ARENA has announced $5 million in funding for TransGrid, in conjunction with the NSW Government, to undertake preliminary works for a Central-West Orana Renewable Energy Zone. Proposed for an area surrounding Dubbo (refer to Figure 1.1), the $16.2 million project will scope the feasibility of a plan to construct a high voltage transmission network that will unlock 3,000 MW of new electricity generation capacity. The new study will explore all aspects of developing a renewable energy zone and deliver a business case for the proposed Central-West Orana zone, which if approved could see construction begin in late 2022.

Figure 1.1: Proposed Location of the Central-West Renewable Energy Zone



Source: NSW Department of Planning & Environment

1.4 Study Area

The Study Area for the Project has been defined in terms of the following Local Government Areas (LGAs):

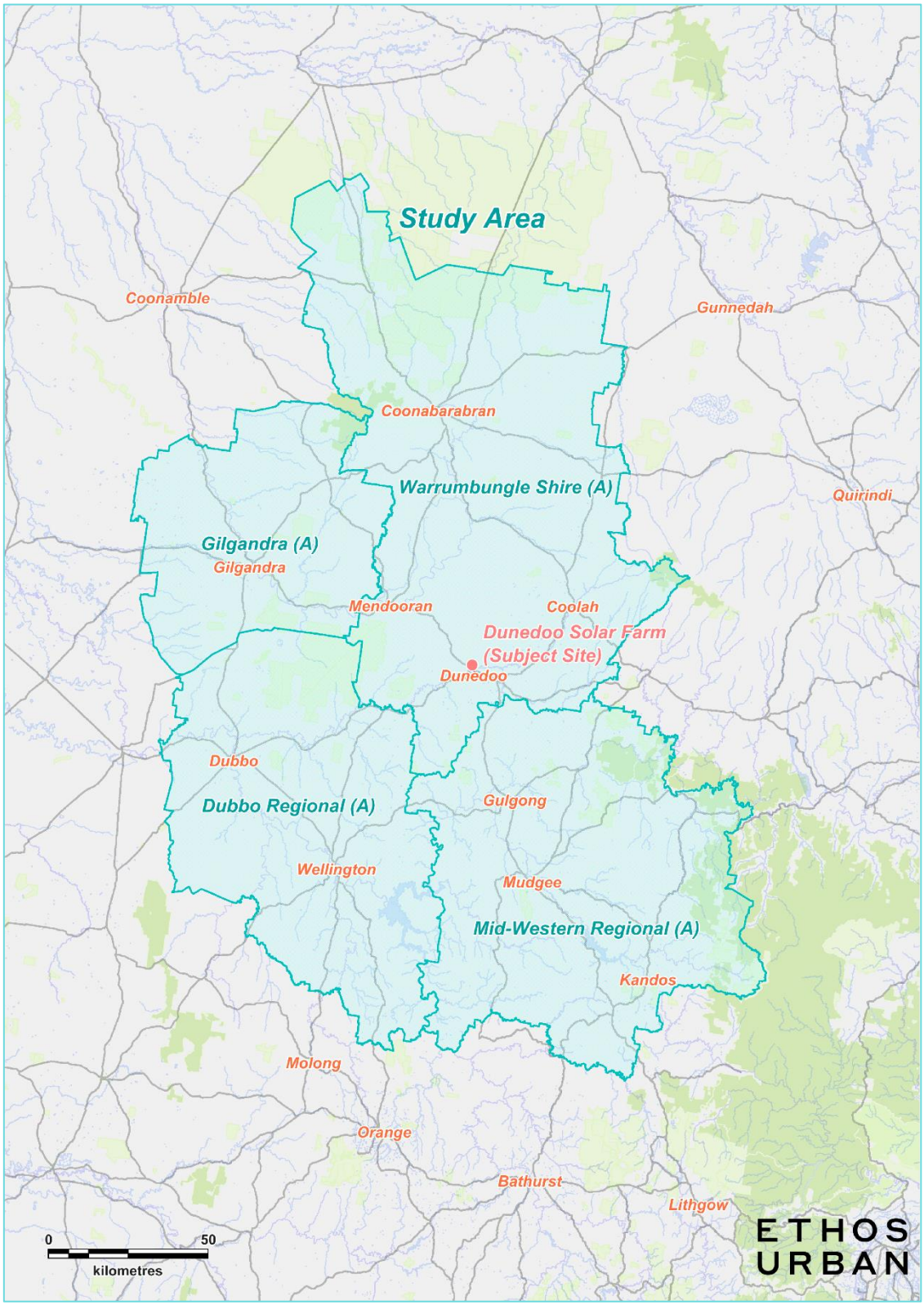
- Warrumbungle Shire (in which the project is to be located)
- Gilgandra Shire
- Dubbo Regional Council
- Mid-Western Regional Council

The main regional cities/townships/settlements in the Study Area are all located within a 70 minute drive of the Subject Site.

The Study Area's local and regional communities, to differing extents, have the potential to contribute to the Project and derive economic benefits from both the construction and ongoing phases of the Project.

The Study Area is illustrated in Figure 1.2.

Figure 1.2: Dunedoo Solar Farm – Study Area



Source: Ethos Urban using Mapinfo, StreetPro, BingMaps

1.5 Summary

1 ib vogt on behalf of Sun Spot 4 Pty Ltd is proposing the construction of the 55 MW Dunedoo Solar Farm. The facility will be located approximately 2km north of Dunedoo and is bounded on the south by All Weather Road and agricultural land on the other sides.

2 The Project lies within the Warrumbungle Shire Local Government Area (LGA) in central western NSW and is well connected to the major regional centres of Dubbo and Mudgee.

3 The solar farm facility will be located across two properties totalling approximately 112ha of agricultural land, which is currently used for cattle and sheep grazing.

4 Subject to planning approval, grid connection approval and financing; it is anticipated construction of the solar farm could start in autumn 2021, and the facility may be operational by autumn 2022 with a 10-12 month construction phase.

5 Federal (Paris Climate Accord and RET) and State (NSW Renewable Energy Action Plan, NSW Large Scale Solar Energy Guidelines) policies provide guidance for the renewable energy sector in the short-to medium-term.

6 Additionally, the NSW Government has recently flagged setting up a Renewable Energy Zone in the State's Central-West, which covers the area in which the Dunedoo Solar Farm is to be located. This initiative is aimed at providing more certainty for the sector, especially with regard to the transmission network, and in doing so stimulate major investment in the sector.

7 This EIA will provide an understanding of potential economic benefits arising for the local and regional economies and communities through the construction and operational stages of the Dunedoo Solar Farm Project, as well as any other impacts associated with the Project.

2 Regional Economic Profile

2.1 Population

The population of the Study Area totalled 92,490 persons as of June 2019 (ABS Estimated Resident Population, 2019), including 53,720 persons located in in the Dubbo Regional Council LGA.

Over the period 2019-2036, annual population growth in the Study Area is expected to be +0.3% pa (or +275 persons pa over 17 years) compared to the Regional New South Wales growth rate of 0.5% p.a. While this level of growth is comparatively weak, it is noted that Dubbo Regional Council is projected to experience an average population growth rate (+0.5%) similar to Regional NSW to 2036. However, the Gilgandra and Warrumbungle LGAs are projected to experience a decline in population over the period; this highlights the need for local investment projects which provide new employment opportunities for residents and alternative income streams for local farmers. Both these factors can contribute to retaining, and potentially expanding, population within these shires.

The proposed Dunedoo Solar Farm will provide new income to the host landowners (farm operators), while the construction and operational phases of the Project will provide an economic stimulus (additional jobs, project contracts, new spending etc) to the local economy, as well as support the emergence of the region's renewable energy sector.

Population estimates, which are shown in Table 2.1, are based on official population projections prepared by New South Wales government and rebased using the most recent ABS estimated resident population figures.

Table 2.1: Population Projections – Study Area, 2019-2036 (No. of Persons)

	2019	2036	Average Annual Growth 2019-36	
			No.	%
Population (no.)				
Dubbo Regional (A)	53,720	58,880	+304	+0.5%
Gilgandra (A)	4,240	3,530	-42	-1.1%
Mid-Western Regional (A)	25,250	26,960	+101	+0.4%
Warrumbungle Shire (A)	9,280	7,810	-86	-1.0%
Dunedoo Study Area	**92,490**	**97,180**	**+276**	**+0.3%**
Regional NSW	**2,777,650**	**3,046,540**	**+15,817**	**+0.5%**

Sources: ABS, 3218.0 Regional Population Growth, Australia; Department of Environment and Planning – NSW State and Local Government Population Projections 2019

Notes: Figures rounded

2.2 Labour Force

As of March 2020 (latest available), the Study Area had an unemployment rate of 2.5%, which is significantly lower than the rate for NSW (4.6%). The Study Area currently has approximately 1,120 job seekers who are unemployed.

The Dunedoo Solar Farm Project is likely to require 125 workers (at the Project's peak), with potentially 70% of these workers (90 workers) likely to be sourced locally or from within the Study Area, providing new opportunities for unemployed job seekers (subject to appropriate skills match).

In the context of the Study Area's large labour market comprising 44,300 persons as shown in Table 2.2 (which exclude COVID-19 impacts), the construction phase of the Project is unlikely to cause labour supply issues, rather provide new short-term opportunities for labour force participants.

Estimates sourced from REMPLAN, indicate that the initial impacts of COVID-19 (March to June 2020) have resulted in the loss of approximately 2,000 jobs in the Study Area. This highlights the importance of new investment projects in the region to help stimulate new job opportunities in the post-COVID-19 environment. These labour supply factors are further explored in Chapter 3.

Table 2.2: Resident Labour Force Statistics – Study Area, March 2020 (No. of Persons)

Municipality / Area	Employed	Unemployed	Labour Force	Unemployment Rate
Dubbo Regional (A)	25,000	500	25,500	2.0%
Gilgandra (A)	1,910	60	1,970	3.0%
Mid-Western Regional (A)	12,400	440	12,840	3.4%
Warrumbungle Shire (A)	3,880	120	3,990	3.0%
Dunedoo Study Area	**43,190**	**1,120**	**44,300**	**2.5%**
New South Wales	**4,136,900**	**198,500**	**4,335,400**	**4.6%**

Source: Australian Government Department of Education, Skills and Employment, *Small Area Labour Markets,* December Quarter 2019

Note: Figures rounded.

2.3 Occupational Structure

The skills base of the Study Area is reflected in its occupational structure, as indicated in Table 2.3. ABS Census data for 2016 shows 34.5% of employed residents in the Study Area were occupied in activities generally associated with the types of skills required for the construction of a solar farm (e.g. technicians and trades workers, machinery operators and drivers, and labourers).

The Study Area's representation in these occupations is well above State average 27.9%, indicating a generally suitable occupational base for the proposed Project is present in the region. In total numbers, approximately 12,630 workers in the Study Area are occupied in construction-related activities, highlighting the strong worker base available to support the Project.

Table 2.3: Study Area Workers – Occupational Structure, 2016

Occupation	Study Area		New South Wales	
	No.	***Share***	***No.***	***Share***
Managers	5,660	15.5%	456,090	13.6%
Professionals	5,840	15.9%	798,130	23.8%
Technicians and Trades Workers	*5,390*	*14.7%*	*429,240*	*12.8%*
Community and Personal Service Workers	4,350	11.9%	350,260	10.4%
Clerical and Administrative Workers	4,270	11.7%	467,980	14.0%
Sales Workers	3,590	9.8%	311,410	9.3%
Machinery Operators and Drivers	*2,900*	*7.9%*	*206,840*	*6.2%*
Labourers	*4,340*	*11.8%*	*297,890*	*8.9%*
Inadequately described	280	0.8%	36,180	1.1%
Total	**36,620**	**100.0%**	**3,354,010**	**100.0%**

Source: ABS, Census of Population and Housing, 2016, TableBuilder – Usual Place of Residence
Note: Figures rounded.

2.4 Business Structure

A tangible benefit of a major investment project, such as the proposed Dunedoo Solar Farm, is the extent to which local businesses can participate in the Project through project contracts and other service provision.

ABS Business Count data for June 2019 (latest available) shows the Study Area includes 1,400 construction businesses and a further 460 businesses associated with transport, postal and warehousing service, with these two sectors contributing 1,860 businesses or 19.7% of all businesses located in the Study Area (numbers rounded).

This data, which is included in Table 2.4, indicates a strong presence in the Study Area of the types of firms that are likely to be well-placed to service aspects of the Project. This opportunity is explored in more detail in the following Chapter.

Table 2.4: Business Structure – Study Area, 2019

Sector	Non-employing	1-19 Employees	20-199 Employees	Total Businesses	
	no.	no.	no.	no.	%
Agriculture, Forestry and Fishing	2,070	870	20	2,960	31.4%
Mining	20	20	0	40	0.4%
Manufacturing	130	150	20	300	3.2%
Electricity, Gas, Water and Waste Services	10	0	0	10	0.1%
Construction	*800*	*580*	*20*	*1,400*	*14.8%*
Wholesale Trade	120	120	10	250	2.6%
Retail Trade	200	290	30	520	5.5%
Accommodation and Food Services	130	280	30	440	4.7%
Transport, Postal and Warehousing	*290*	*160*	*10*	*460*	*4.9%*
Information Media and Telecommunications	20	10	0	30	0.3%
Financial and Insurance Services	410	70	0	480	5.1%
Rental, Hiring and Real Estate Services	570	100	0	670	7.1%
Professional, Scientific and Technical Services	290	250	10	550	5.8%
Administrative and Support Services	130	110	10	250	2.6%
Public Administration and Safety	10	10	0	20	0.2%
Education and Training	50	40	0	90	1.0%
Health Care and Social Assistance	230	150	20	400	4.2%
Arts and Recreation Services	30	40	0	70	0.7%
Other Services	220	240	10	470	5.0%
Currently Unknown	20	10	0	30	0.3%
Total	***5,750***	***3,500***	***190***	***9,440***	***100.0%***

Source: ABS, Counts of Australian Businesses, including Entries and Exits, June 2015 to June 2019

2.5 Township Services Capacity

Accommodation

An audit has been undertaken of commercial and private accommodation within the Study Area's major townships. These townships generally represent a maximum drivetime of 70-minute drive from the Subject Site.

The Study Area has a good supply and mix of accommodation including motels, hotels, guest houses, caravan/holiday parks (including cabins). Most accommodation options are located in Dubbo and Mudgee (refer to Table 2.5), which are within relatively close proximity to the Subject Site and provide a regional-level services; however, there are also options in smaller townships located closer to the Subject Site including Dunedoo, Mendooran, Coolah, and Gulgong.

The following accommodation was available in the Study Area as of August 2020:

- 1,750 hotel, motel and serviced apartment rooms
- 275 cabins (caravan/holiday parks)

Table 2.5: Commercial Accommodation in the Study Area, August 2020

Locality	Establishments	Rooms	Cabins	Total
Dunedoo	5	33	3	36
Mendooran	1	10	0	10
Coolah	4	25	13	38
Gulgong	4	68	12	80
Dubbo	39	1,040	80	1,120
Mudgee	23	362	115	477
Gilgandra	9	98	12	110
Wellington	10	116	40	156
Study Area Total	**95**	**1,752**	**275**	**2,027**

Source: Ethos Urban; Various Published Sources

Private Accommodation

Private accommodation is often used to support construction worker needs. This could be through leasing of holiday homes and investment properties, either privately (including Airbnb), or through real estate agents.

As Table 2.6 shows, 13.3% of Study Area dwellings (4,790 dwellings) were unoccupied at the 2016 Census, which is notably higher than the average for NSW (9.9%). Mid-Western Regional LGA has a significant share of unoccupied dwellings (17.8%) or 760 dwellings, which is likely related to a large number of holiday homes in this well touristed area. Shared private housing accommodation is one potential option for solar farm project workers, with some of the Study Area's unoccupied dwellings having the potential to enter the housing market to support the construction phase of the Project.

Data sourced from *www.airdna.co* shows approximately 500 active short-term rentals are currently (August 2020) advertised on Airbnb and Vrbo in the Study Area. These active rentals have an average of 2.6 bedrooms per rental. Therefore, in the order 1,315 rooms could be available in the Study Area through the short-term rental market.

Table 2.6: Unoccupied Dwellings – Study Area, 2016

Municipality/ Area	No. Occupied Private Dwellings	No. Unoccupied Private Dwellings	Total No. Private Dwellings	Share of Unoccupied Private Dwellings
Dubbo Regional (A)	1,590	250	1,840	13.6%
Gilgandra (A)	8,770	1,660	10,430	15.9%
Mid-Western Regional (A)	3,520	760	4,280	17.8%
Warrumbungle Shire (A)	17,470	2,110	19,590	10.8%
Study Area	**31,350**	**4,790**	**36,130**	**13.3%**
New South Wales	**2,604,320**	**284,740**	**2,889,060**	**9.9%**

Source: ABS, Census of Population and Housing, 2016
Note: Figures rounded

Township Services

In addition to accommodation, workers locating temporarily to the Study Area will require a wide range of other convenience services, and the Project will also need to source trade, equipment hire, vehicle mechanical services, and other services from businesses located in the immediate region.

The following sections provide an overview of the services located in the regional centres and main townships, with are listed in order of driving distance from the Subject Site.

Dunedoo

Dunedoo, with a population of approximately 750 persons, is located 2km to the south of the Subject Site and will be the most immediate supporting township for the Project. Situated at the intersection of the Castlereagh and Golden highways, Dunedoo is a small township located along the Talbragar river and traditionally known for its history including mining, agriculture, military and Aboriginal heritage.

Key services in Dunedoo include:

- A limited range of commercial accommodation options (see Table 2.5 above)
- Dunedoo Memorial Health Service – a small regional hospital.
- Dunedoo Supermarket – a small convenience grocer
- Entertainment & Dining – various small cafes, Dunedoo Sports Club (access to Golf Course, squash, tennis and touch football areas) and Hotel Dunedoo
- Fuel Supplies – Caltex and Shell
- Postal Services
- Education – Dunedoo Central School

Service industry in Dunedoo is limited, as the township is principally residential in nature and mainly supports agricultural activities for the wider municipality.

Mendooran

Mendooran is located in Warrumbungle Shire Council, approximately 40km to the north west of the Subject Site. Mendooran is a small community of approximately 300 persons (ABS Census 2016). With a long agricultural history, the township is known for its many murals which attract visitors to the

area as does the annual agricultural show and Raceday Festival. Mendooran's limited range of services include:

- Accommodation (Royal Hotel and camping)
- General store
- Food and drink (pub, café)
- Post office
- Black Gate Distillery (breakfast, dinner)
- Police station

Coolah

Coolah, located approximately 30km to the north east of the Subject Site, and containing some 795 persons (ABS Census 2016) is located in Warrumbungle Shire Council. The township predominantly functions as a service hub for local agricultural activities.

The township has a moderate range of facilities and services, including:

- Limited commercial accommodation – including three motels and one caravan parks
- Coolah Valley Medical Centre – small regional clinic
- Supermarket –IGA Plus Liquor
- Cafes, butcher, bakeries, restaurants and take-away
- Fuel supplies (Shell, Coolah's Top servo, BP Truckstop)
- Postal Services
- Automotive Mechanics and Smash repairer
- Entertainment (parks, hotels, clubs, sports and recreational activities – golf course etc)
- Education – Coolah Central School and Sacred Heart Primary school.
- Limited industry – Haynes Farm and Hardware, Bondys Metalworks, Flint's Rural Supplies.

Gulgong

Gulgong, a township of some 1,955 persons (ABS Census 2016) is located in Mid-Western Regional Council and is situated around 45km south of the Subject Site. Founded as a gold mining settlement, today the township predominantly functions as a service hub for local agricultural activities.

The township offers a limited range of facilities and services, including:

- Commercial accommodation – 3 motels and a hotel (Prince of Wales Gulgong), as previously noted
- Gulgong Timber and Hardware
- Automotive Mechanics

- Industry – Macquarie Geotech (soil testing), Ace Engineering etc.
- Supermarkets – Supa IGA and Coles
- Cafes, bakeries, restaurants and take-away
- Commonwealth Bank branch
- Fuel supplies (Shell and BP)
- Postal Services
- Entertainment (parks, hotels, clubs, sports and recreational activities – swimming pool, bowls club etc)
- Gulgong District Hospital – small local hospital
- Education – primary and secondary schools (both public) and a Catholic primary school (All Hallows Primary School).

Mudgee

Mudgee, with a population of some 10,965 persons, is the regional service centre for the Cudgegong River Valley region and Mid-Western Regional Council. The township is located approximately 70km south east from the solar farm site (direct line distance) and about a 1-hour driving distance by car. While the Mudgee district is historically noted for gold mining, the township now operates as a regional services hub for local agriculture including viticulture, sheep and cattle grazing, cropping etc, as well as mining (Ulan Coal Mines).

The level of services/facilities available in Mudgee is generally consistent with the township's regional service role, and include:

- A wide range of commercial accommodations options (hotels, motels, caravan parks etc), as outlined above
- Mechanic and trade supplies – Bunnings, Furney's Building & Plumbing Supplies and Supercheap Auto
- Construction and transport services including Coates Hire, Westrac CAT, Mid State Freight.
- Supermarkets – full-line Coles and Woolworths supermarkets, as well as ALDI
- Cafes, bakeries, restaurants and take-away
- Range of commercial and financial institutions – banks, solicitors, conveyancing etc
- Fuel supplies & Automotive Mechanics
- Entertainment (parks, hotels, clubs, sports and recreational activities)
- Education – primary and secondary schools (both public), and a Catholic primary school (St Matthew's Catholic School)
- Medical and emergency services (Mudgee District Hospital, police station etc)

Additionally, Mudgee Airport operates as a regional airport within NSW's Mid-Western Region. Fly Pelican commenced passenger operations between Mudgee and Sydney in 2015 and currently (pre-COVID-19) operates 20 flights per week between the two destinations.

Dubbo

Dubbo located some 75km south west of the Subject Site (approximately 65-minute drive), is the major regional centre for NSW's Central West region and has a population of 34,340 persons. Dubbo provides significant access to major civic, education, health and commercial services for an expansive rural area comprising a network of many smaller towns.

Key services in Dubbo include:

- Wide range of commercial accommodation options (refer to section 2.5) – in view of the town's regional service role, as well its strategic location as the half-way point for vehicles travelling between Queensland and Victoria (via the inland route).
- Large range of retail services including the following malls/shopping centres:
  - Dubbo City Centre (anchored by Coles and Target)
  - Orana Mall (anchored by Woolworths and Big W)
  - Riverdale Shopping Centre (anchored by Woolworths and Reading Cinema).
- Large range of professional/commercial services – solicitors, accounting, conveyancing etc.
- Major banks and financial institutions
- Entertainment – parks, hotels, clubs, sports and recreational activities.
- Dubbo Airport, which accommodates some 200 passenger flights per week (pre-COVID-19) to and from destinations including Sydney, Brisbane, Canberra, Melbourne, as well regional centres such as Newcastle and Broken Hill. Four airlines operate from Dubbo Airport: Fly Pelican, Fly Corporate, Qantas Link and Regional Express.
- Dubbo Base Hospital – operates as the major regional hospital with emergency department for the Central West region of NSW. The hospital has received several major upgrades over recent years.
- Education – Dubbo's network of education institutions comprises four tertiary institutions (Charles Sturt University, University of Sydney – School of Rural Health, TAFE Western Dubbo College and Western College); three private secondary schools and three public secondary schools; and a range of primary and early education facilities.

Importantly, Dubbo has an expanded range of service industry geared to civil construction works. Key businesses include:

- John Holland (depot)
- Inland Petroleum (bulk fuel delivery)
- NACAP Depot (bespoke equipment for civil projects – roads, mining, dams etc)
- MCR Modules (portable building construction)
- EMS (depot)
- Cobra (plant and crane hire)
- Cole for Cranes (crane hire)
- Ezyquip Hire (earthmoving equipment hire)

- Rod Pilon Transport

Gilgandra

Gilgandra, a township of some 2,595 persons (ABS Census 2016) is located centrally in Warrumbungle Shire Council and is situated around 75km north west of the Subject Site. The township predominantly functions as a service hub for local agricultural activities.

The township has a moderate range of facilities and services, including:

- Commercial accommodation – including seven (7) motels
- Gilgandra District Hospital – large regional hospital
- Supermarkets – Supa IGA and additional smaller grocers
- Cafes, bakeries, restaurants and take-away
- National branded bank branches – Commonwealth, NAB, Westpac and Bendigo Bank
- Fuel supplies (Caltex, Shell, BP and Independents)
- Postal Services
- Automotive Mechanics
- Entertainment (parks, hotels, clubs, sports and recreational activities – golf course, swimming pool, bowls club etc)
- Education – two primary schools (one government and on private) and a government secondary school; TAFE NSW campus.
- Limited industry – O'Connor Bros Electrical, Morris & Weir Electrical, Central West Machining & Engineering, Ahrens, etc.

Wellington

Wellington, with a population of 4,520 persons, is located approximately 75km direct line distance to the south of the proposed solar farm. Situated in the Macquarie River Valley and in the shadow of the Mount Arthur Range, Wellington functions as a local service hub for surrounding agriculture aspects, as well as visitors to the Wellington Caves Complex, Lake Burrendong State Park, and Mount Arthur Reserve. In addition, two prisons are in proximity to the town: Wellington Correctional Centre and Macquarie Correctional Centre, which provide local employment.

Key services in Wellington include:

- A limited range of commercial accommodation options (see Table 2.5 above)
- Wellington District Hospital – a small regional hospital with an emergency department
- Two full-line supermarkets – Coles and Woolworths
- Entertainment & Dining – Federal Hotel, Court House Hotel, Wellington Hotel, Central Hotel Wellington and Calf & Cow Hotel; cafes/restaurants include Smoko & Lunches, Cactus Café & Gallery, Chinese and Thai food restaurants, and KFC and McDonalds

- A limited collection of commercial and financial services, including Commonwealth and NAB branches
- Fuel Supplies – Caltex, BP, Metro Petroleum
- Postal Services
- Education – two primary schools (Catholic and public), a secondary school (public) and a TAFE NSW Campus (Wellington TAFE)
- Train Station – Wellington Station is situated in the Central West line which has a daily service operating between Sydney and Dubbo.

Service industry in Wellington geared to major civil construction works is limited. Wellington Sand & Gravel (quarries/landscaping products) is most noted in this context.

2.6 Conclusions

The key findings of this Regional Economic Profile are as follows:

1 The population of the Study Area (Local Government Areas (LGAs) of Dubbo, Gilgandra, Mid-Western and Warrumbungle) totalled 92,490 persons as of June 2019 (ABS Estimated Resident Population, 2019). Over the period 2019-2036, annual population growth in the Study Area is expected to be +0.3% pa compared to the Regional New South Wales growth rate of 0.5% p.a. The Gilgandra and Warrumbungle LGAs are projected to experience population decline over the coming years. In this regard local investment projects (such as the proposed Dunedoo Solar Farm) can generate new employment opportunities for residents and diverse income streams for local farmers. These factors may contribute to retaining, and potentially expanding, population levels within these shires.

2 Department of Employment data shows the Study Area had an unemployment rate of 2.5% in March 2020, compared to the NSW rate of 4.5%; with 1,120 jobseekers unemployed. These figures reflect the pre-COVID-19 environment. Labour market conditions have deteriorated more recently with approximately 2,000 additional jobs lost between March-June 2020, according to data sourced from REMPLAN. In this regard, construction of the Dunedoo Solar Farm Project provides new short-term employment opportunities for the region's labour force participants, with a small amount of ongoing employment also supported once the facility is operational.

3 The Study Area's occupational and business structures indicate a good base exists to service the needs of the Project, with approximately 12,630 workers and 1,860 businesses in the Study Area involved in construction-related activities.

4 The major regional cities/townships of Dubbo and Mudgee have the capacity and labour force to service many aspects of the Project, with smaller settlements such as Dunedoo, Mendooran, Coolah, Gulgong and Gilgandra, also likely to provide labour, accommodation and other general services to the Project.

3 Economic Impact Assessment

3.1 Project Investment

The total construction cost for the Dunedoo Solar Farm Project is estimated to be approximately $76 million, according to information provided by ib vogt. Major investment costs are associated with the purchase of PV panels and associated equipment, although significant investment is also required for civil, electrical and grid connection works. Generally, with projects of this type approximately 15% to total investment is retained in the Study Area which indicates approximately $11 million in wages, contracts and other service provision will flow to the Study Area's economy.

3.2 Project Employment

Construction Phase

Project employment is assessed in terms of direct jobs (i.e., site-related) and indirect (or flow-on) jobs in the local and wider economies (i.e., jobs that are generated through the industrial and consumption impacts of the initial investment).

Direct Construction Employment

ib vogt indicate 100 jobs (on average) will be generated over the construction phase, which is expected to be up to 12 months. At the Project's peak a higher number of jobs will be supported, which is estimated to be approximately 125 positions (or 25% higher than the average project number).

Construction-related jobs are expected to be associated with a wide-range of on and off-site activities, including:

- Installation of PV support structures
- Vehicle and equipment hire
- Earthworks
- Foundations
- Engineering services
- Roads and access tracks
- Transport and logistics
- Assembly and installation of PV panels
- Electrical works (cabling and connections)
- Installation of monitoring equipment
- Fencing
- Landscaping
- Security
- Waste disposal

- Business and financial services
- Administrative services.

As indicated in Chapter 2, the business structure of the Study Area indicates that a good mix of these types of services is available in the Study Area, especially in Dubbo and Mudgee. It is reasonable to expect, therefore, that businesses located in the Study Area will be well-positioned to provide services and secure contracts during the construction phase of the Project.

Indirect Construction Employment

In addition to direct employment, significant employment will be generated indirectly through the employment multiplier effect. By applying an industry-standard multiplier for the construction industry of 1.6 (based on ABS Type B multipliers), the Project is estimated to generate an additional 160 jobs over the construction period.

Indirect or flow-on jobs (which captures industry and consumption effects) include those supported locally and in the wider economy (including in other states), as the economic effects of the capital investment flow through the economy. Indirect employment creation in local and regional economies would include jobs supported through catering, accommodation, trade supplies, fuel supplies, transportation, food and drink etc. For the purposes of this assessment, it is assumed 20% of indirect jobs or 30 jobs (rounded) are supported in the Study Area, recognising relative proximity of the site to major supply chains in Dubbo and Mudgee.

Total Construction Employment

In summary, approximately 260 jobs (100 direct jobs and 160 indirect jobs) are expected to be generated by the Dunedoo Solar Farm Solar Farm Project during the 12-month construction phase.

The amount of direct local employment required for the Project is estimated by the proponent to be approximately 90 jobs (at the peak of construction, or 70 local jobs on average), with a further 30 jobs supported indirectly in the Study Area. This number of local workers (120 workers) represents only 1% of the Study Area's labour force occupied in construction-related activities (12,630 workers) and this should not present a constraint to labour supply for the Project, especially in the ongoing/post-COVID-19 environment.

Operational Phase

Direct Operational Employment

The proponent indicates that three direct jobs will be supported locally (on-site) on an ongoing basis through the operation and maintenance of the Dunedoo Solar Farm.

Indirect Operational Employment

A number of additional jobs will also be supported indirectly through the employment multiplier effect. By applying an industry-standard multiplier for the electricity industry of 2.9 (based on ABS Type B multipliers) to the direct operational and maintenance jobs, a further 9 permanent jobs (rounded) would be generated in the wider State and national economies, with some of these jobs supported locally through operational supply chains and consumption impacts.

Operational-related employment is for the lifetime of the Project (i.e., at least 30 years); therefore, while job creation is relatively small, it represents new long-term employment opportunities at a local, regional and national level.

For the purposes of this assessment it is assumed that 20% of indirect operational jobs are created in the Study Area. This equates to approximately 2 ongoing positions.

Total Operational Employment

In summary, approximately 5 jobs (3 direct and 2 indirect) are expected to be generated by the Dunedoo Solar Farm Project in the Study Area.

3.3 Cumulative Effects Assessment

The Dunedoo Solar Farm Project may need to compete for labour, accommodation, and other resources with other infrastructure projects, principally renewable energy projects, in the Study Area. Identified projects in the Study Area are outlined in Table 3.1.:

Table 3.1: Proposed Major Renewable Infrastructure Projects, Study Area

Project Name	Description	LGA	Distance to Subject Site	Status
Mumbil Solar	• 134 MW solar farm • Development site 280 ha	Dubbo	77 km southwest of Dubbo	Seeking planning approval
Maryvale Solar	• 196 MW solar farm • Development site 230 ha	Dubbo	71 km southwest of Dubbo	Approved
Suntop Solar	• 260 MW solar farm • Development site 280 ha	Dubbo	82 km southwest of Dubbo	Approved
Suntop 2 Solar	• 230 MW solar farm • Development site 530 ha	Dubbo	10 km west of the Central West township of Wellington	Seeking planning approval
Wellington Solar	• 180 MW solar farm • Development site 490 ha	Dubbo	72 km southwest of Dunedoo	Approved
Wellington North Solar	• 300 MW solar farm • Development site 970 ha	Dubbo	72 km southwest of Dunedoo	Seeking planning approval
Wollar Solar	• 400 MW solar farm • Development site 800 ha	Mid-Western	118 km southeast of Dunedoo	Approved
Uungula Wind Farm	• 400 MW wind farm • Development site 11,000 ha	Dubbo	90 km southwest of Dunedoo	Seeking planning approval

Source: Project websites; ib vogt; Ethos Urban

In relation to these projects, the following is noted:

- The development status of these projects varies, some projects are approved (but construction has yet to start) and others are going through the approval process; therefore, construction timing is uncertain.
- The Study Area has significant capacity in terms of construction-related workers (12,630 workers) and construction-related businesses (1,860 businesses), including many located in the immediate region to service multiple concurrent infrastructure projects.

- The Study Area currently contains 1,120 unemployed labour force participants, some of whom could work on these infrastructure projects (subject to suitable skills mix). Note, it is likely the number of unemployed persons will increase and remain high in the Study Area due to the impacts of COVID-19 and associated recession.
- The Subject Site is located at least 70km from the proposed new facilities; therefore, locally provided resources (labour, accommodation etc) are unlikely to be impacted.

The above factors indicate that potential cumulative impacts associated with the construction of the Dunedoo Solar Farm are manageable.

3.4 Industry and Business Participation Assessment

In terms of cost efficiencies (lower transport, labour costs etc), many large construction projects located in regional areas are, where possible, serviced locally or from within the immediate region.

As identified above, the Study Area comprises approximately 1,400 construction firms and many other businesses associated with activities likely to be required for the Project, including transport operators, electrical engineers, trade suppliers, vehicle and machinery hire, auto mechanics etc.

The proponent has a commitment to use local suppliers and contractors as a priority where possible.

3.5 Housing and Commercial Accommodation Sector Impacts

Information provided by the proponent indicates up to 40 non-local staff may need to be accommodated in the region at the Project's peak. These staff will include occupations such as general management, project management and supervising engineers. Contract lengths will vary. This highlights the need for several types of accommodation which would be expected to range from higher-end options for professional staff on longer contracts, to convenient low-cost options for those on short-term contracts.

As highlighted in Chapter 2, the Study Area has a capacity of approximately 2,030 rooms and cabins in commercial accommodation in locations within a 70-minute drive of the Project site. Assuming each non-local worker requires individual accommodation (40 rooms), only 2% of this accommodation stock would be required at peak times to service the Project. However, this requirement is likely to be lower as some workers may choose to be accommodated in caravan/holiday parks (powered sites), B&Bs, shared private rentals (e.g. holiday homes, Airbnb) or stay with family or friends (where possible) rather than in commercial accommodation. Additionally, other workers may share motel rooms/cabins etc to reduce personal costs.

This data indicates that adequate capacity exists in the Study Area to accommodate the number of non-local workers expected at the peak of the Project, even allowing for increased demand from other regional infrastructure projects and seasonal demands (holiday periods, harvesting etc). Importantly, the influx of these workers will support higher occupancy rates and revenues for local accommodation operators, particularly during off-peak periods.

3.6 Local Wage Spending Stimulus

The proponent indicates that 30% of the 100 direct construction jobs (i.e. 30 jobs on average) may need to be sourced from outside the Study Area, particularly specialist and management positions.

This level of employment would equate to $1.9 million in wages (2019 dollars) on the basis that each non-local worker is employed for 9 months and earns the average construction wage of $82,000 pa including on-costs (source: ABS, *Average Weekly Earnings 6302.0*, November 2019).

A considerable portion of these wages would be spent in the Study Area, where the workers will be based. An estimated $1.0 million in wages (2019 dollars) would likely be directed to local and regional businesses and service providers during the construction period. This estimate is based on reference to the ABS *Household Expenditure Survey* which indicates that approximately 75% of post-tax wages are likely to be spent by workers in the regional economy in view of the wide range of goods and services available in the Study Area. This spending would include the following:

- Housing expenditure, including spending on accommodation at hotels, motels, caravan/holiday parks, B&Bs, and private rental dwellings
- Retail expenditure, including spending on supermarket items, clothing, books, homewares etc
- Recreation spending associated with day trips and excursions, gaming (lottery, sports betting, etc), purchases in pubs and clubs (although noting that expenditures at restaurants is included in the retail category)
- Personal, medical and other services, such as GP fees and local prescriptions, fuel, vehicle maintenance and so on.

This level of personal spending would generate the equivalent of approximately 10 jobs in the services sector (based on 1 job allocated for every $100,000 of induced spending), supporting jobs in the Study Area associated with retail, accommodation, trade supplies, cafes and restaurants etc. These jobs are included in the 'indirect employment' estimates outlined in Section 3.2 above.

3.7 Agricultural Impacts

Approximately 112ha of agricultural land will be required to host the solar farm, with this land currently used primarily for cattle grazing. This amount of land represents approximately 10% of the broader landholdings owned by the host landowners. It is anticipated the landowner's existing level of employment will be retained to service the balance of the land; therefore, no agricultural-related jobs will be lost as a result of the solar farm project.

Only minimal supply chain impacts are expected with regard to the Subject Site's change of land use, noting the land's low productive capacity and the sporadic nature of existing maintenance and other services.

The proponent is exploring the possibility of sheep grazing in and around the solar farm infrastructure which, if possible, would retain some agricultural activity on the host land.

3.8 Ongoing Economic Stimulus

Landowners

Local landowners involved in the Project will receive either purchase or annual lease payments to host solar farm infrastructure. These payments are confidential between the proponent and landowner.

However, as both landowners will continue to undertake agricultural activities on the balance of their land; it can be expected that a portion of purchase/lease revenues will be reinvested back into the local economy through business, household and individual consumption.

Returns to Council

Change in land use to facilitate the development of the Dunedoo Solar Farm will result in an increase in annual payments to Council from the site (compared with existing uses). The amount payable will be subject to discussions between the proponent and Council; however, based on observations from

similar utility scale solar farm developments in NSW, the net increase in annual revenue to Council is likely to be significant.

Local Wage Stimulus

The Dunedoo Solar Farm will support 5.0 jobs in the Study Area (direct and indirect) and will result in no job losses associated with existing site uses (as noted above). These 'net' additional 5.0 jobs will provide an estimated stimulus within the Study Area of $230,000 in Year 1 of operations. Refer to section 3.6 for methodology.

Total Operational Stimulus

The combined economic stimulus to the Study Area from landowner returns (purchase and lease) and operational wage stimulus is estimated at approximately $12.6 million over 30 years (includes adjustment for CPI @ 2.5% pa, where relevant). Note, net land tax revenue to Council would be in addition to this value.

3.9 National Grid Supply Benefits

With an installed capacity of 55 MW, the Dunedoo Solar Farm has the potential to provide sufficient renewable energy to support the annual electricity needs of the equivalent of approximately 24,400 NSW households, according to information provided by the proponent.

In a regional context, the Study Area currently contains approximately 36,130 dwellings (ABS Census 2016); therefore, the Dunedoo Solar Farm has the potential to provide approximately 68% of the annual electricity requirements of the Study Area, highlighting the importance of the facility from a clean electrical generation perspective.

3.10 Environmental Benefits

The operation of the solar farm would help reduce greenhouse gas emissions and move towards cleaner electricity generation. Based on 144,540 MWh of annual production, the solar farm would offset the equivalent of approximately 147 kilotonnes per annum of CO_2 emissions for brown coal or approximately 101 kilotonnes per annum of CO_2 emissions for black coal.

3.11 Tourism Impacts

The Dunedoo Solar Farm will have no impact on the Siding Springs Observatory, noting the solar farm will be located approximately 120km south of the Observatory.

Over time, the Dunedoo Solar Farm may provide opportunities to attract new visitors to the area to view the facility and to be involved in educational and environmental activities. It is also noted that there are a dozen or so existing/approved or planned utility scale renewable energy facilities in the broader region (stimulated by developer interest in the Central-West Orana REZ) which may provide opportunities for linked tours to these facilities.

Benefits of attracting new visitors to the area include increased expenditures on accommodation, food and beverage, fuel, retail, entertainment etc, all of which will support businesses and employment, especially in nearby townships such as Dunedoo.

3.12 Conclusions

1 The Dunedoo Solar Farm Project will involve $76 million in investment during the construction phase and will support 100 direct and 160 indirect positions over the construction period. Once operational, 3 direct and 9 indirect jobs will be supported by the facility. Many of these jobs will be supported in the Study Area.

2 The Study Area has significant capacity in terms of construction-related workers (12,630 workers) and businesses (1,860 businesses) to manage the requirements of the Project, and concurrent regional infrastructure projects if required.

3 The Project will provide significant participation opportunities for businesses and workers located in the Study Area, having regard for the good match of skills and resources available. Major investment projects, such as the Dunedoo Solar Farm, will play an important role in revitalising the regional economy in the post-COVID-19 recovery phase.

4 The 'external' Project labour requirement would be expected to generate an accommodation need for 40 workers at the peak of the Project. This represents only 2% of total commercial accommodation rooms/cabins within a 70-minute drive of the Subject Site, with further capacity available in caravan parks (powered sites), and private rentals (e.g. Airbnb). The Project will support new revenues for accommodation providers over the construction phase (especially in off-peak seasons) in small townships such as Dunedoo, Coolah and Gulgong.

5 Construction workers relocating to the region would be expected to inject approximately $1.0 million in additional spending into the economy over the construction phase, supporting approximately 10 jobs in the service sector across the Study Area.

6 Approximately 112ha of existing agricultural land will be required to host the solar farm. However, this land is of low productive value and used for cattle and sheep grazing, representing just approximately 10% of the broader land holdings. No loss of employment associated with the Subject Site is anticipated, either directly (on-site) or through the supply chain. The proponent is exploring the possibility of sheep grazing on the Subject Site, which would ensure some agricultural activity is retained on the host land.

7 Ongoing economic stimulus associated with the operation of the solar farm is estimated at approximately $12.6 million (over 30 years, CPI adjusted) associated with landowner returns and operational wage stimulus. Net land tax revenue to Council would be in addition to this value.

8 The Project has the capacity to supply sufficient clean energy to power the equivalent of approximately 24,400 homes pa, which represents approximately 68% of the total annual residential requirements of the Study Area (36,130 homes).

9 Operation of the Dunedoo Solar Farm will not impact on the Siding Spring Observatory and could potentially support small-scale tourism and educational opportunities in the future.