APPENDIX 18

Economic Impact Assessment

This report has been prepared for Richmond Valley Solar & BESS Pty Ltd (ABN 43 672 993 869) a wholly owned special purpose vehicle of Ark Energy Projects Pty Ltd and the Proponent of the Project. Richmond Valley Solar & BESS Pty Ltd will herein be referred to as Ark Energy or Ark Energy Projects.

Richmond Valley Solar Farm

Economic Impact Assessment (EIA)

Prepared For Ark Energy Projects Pty Ltd

Ethos Urban

Prepared by Ethos Urban

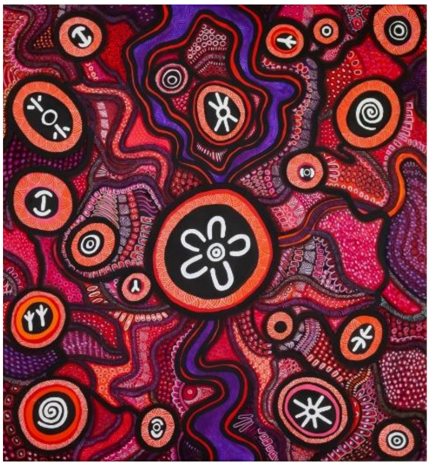
26 April 2024 | 3230012

'Gura Bulga'
Liz Belanjee Cameron

'Gura Bulga' – translates to Warm Green Country. Representing New South Wales.

'Dagura Buumarri'
Liz Belanjee Cameron

'Dagura Buumarri' – translates to Cold Brown Country. Representing Victoria.



'Gadalung Djarri'
Liz Belanjee Cameron

'Gadalung Djarri' – translates to Hot Red Country. Representing Queensland.

Ethos Urban acknowledges the Traditional Custodians of Country throughout Australia and recognises their continuing connection to land, waters, and culture.

We pay our respects to their Elders past, present and emerging.

In supporting the Uluru Statement from the Heart, we walk with Aboriginal and Torres Strait Islander people in a movement of the Australian people for a better future.

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This document has been prepared by:		**This document has been reviewed by:**	
Alex Wilson	26 April 2024	John Noronha	26 April 2024

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Contents

Figures

Tables

Executive Summary

Ark Energy Projects Pty Ltd (the Proponent) has commissioned Ethos Urban to prepare an Economic Impact Assessment (EIA) for the construction of the Richmond Valley Solar Farm (the Project). The Project Site is located approximately 25 kilometres (km) south of Casino and approximately 65km north of Grafton, New South Wales (NSW). The Project is positioned in the Richmond Valley Council Local Government Area (LGA).

The Project includes the construction, maintenance and decommissioning of a solar farm with a capacity of up to 500 MW DC and a Battery Energy Storage System (BESS) of up to 275 MW (DC) and associated infrastructure. The Project Area covers 1,475 ha of which 803 hectares (ha) includes the solar farm site, the BESS development area, substation, ancillary infrastructure, and transmission line route. The Project road upgrades occupy approximately 11 ha along Avenue Road, Main Camp Road and the intersection of Main Camp Road and Summerland Way.

The main findings of this EIA are summarised as follows.

Baseline Regional Economic Profile

1. The population of the EIA Study Area (Clarance Valley, Richmond Valley, Lismore, and Ballina LGAs) was estimated at 170,380 persons as of June 2023. Over the period 2023-2036, annual population growth in the EIA Study Area is expected to be +0.5% pa (or +830 persons pa over 13 years) and this compares to the NSW growth rate of +1.1% p.a. The Lismore LGA is projected to experience population decline over the coming years. In this regard local investment projects (such as the proposed Project) have potential to generate new long term employment opportunities for residents, workers transitioning from other sectors as well as more diverse income streams for local farmers. These factors may contribute to retaining, and potentially expanding, population levels within this area.
2. The EIA Study Area had an unemployment rate of 3.3% in June 2023, similar to the NSW rate of 3.2%; with approximately 2,780 EIA Study Area residents unemployed at that time. The Project may provide new short-term construction employment opportunities for the region's labour force participants (including unemployed job seekers, subject to suitable skills match and demands from other concurrent infrastructure Projects), with a small amount of ongoing employment also supported once the facility is operational.
3. The EIA Study Area's occupational and business structures indicate a good base exists to service the needs of the Project, with approximately 22,440 workers and 2,590 businesses involved in construction-related industries that are typically involved in the construction of renewable energy projects.
4. The major regional townships of the EIA Study Area, including Ballina, have the capacity and labour force to service some aspects of the Project, while nearby smaller settlements such as Grafton, Casino and Maclean will play a more limited role (at times) in providing labour, accommodation, and other general services to the Project.
5. Given Lismore is currently undergoing significant reconstruction as part of a major flood recovery program, it would be prudent for the Project to limit the use of the town's accommodation facilities and seek alternatives to Lismore's construction workforce and services.

Economic Impact Assessment Summary

6. The Project will require approximately $1.2 billion in investment during the construction phase (of which approximately $180 million will be retained in the EIA Study Area). Approximately 150 direct and 240 indirect Full Time Equivalent (FTE) positions will be supported in the national economy on average over the maximum 24-month construction period. At the Project's peak, approximately 327 direct and 525 indirect FTE positions will be supported in the national economy (on average) over the six-month peak construction period. Once operational, 13 direct and 40 indirect FTE jobs will be supported nationally by the Project. Of these national totals, the EIA Study Area is expected to benefit from 80 FTE construction jobs and 21 FTE ongoing jobs (direct and indirect) associated with the Project.
7. Construction is a specialisation of the region's economy as indicated by the EIA Study Area's workforce structure (by occupation and industry). The anticipated number of direct and indirect FTE jobs in the EIA Study Area (80 FTE) represents only 0.4% of the total labour force in construction-related activities (22,440 workers), noting that many of the indirect jobs will be supported in non-construction sectors (e.g., services sector). The EIA Study Area also has approximately 2,780 unemployed labour force participants, some of whom could work on the Project and/or other major infrastructure projects (subject to suitable skills mix). In

isolation, the workforce requirement of 80 FTE workers should not present a constraint to labour supply for the Project, but potential does exist for labour market constraints due to the cumulative impacts of multiple concurrent renewable and other large infrastructure projects in the region, as discussed in Section 4.3 of this report.

8. It is estimated that construction workers relocating to the region will inject approximately $9.0 million in new spending into the economy over the construction phase, supporting approximately 23 FTE jobs in the service sector in the EIA Study Area over this time.

9. It is possible that the construction of the Summerville Solar Farm could overlap with the construction of the Project, although there are a range of uncertainties associated with the timing of approval and subsequent construction of the Project that will influence cumulative impacts. Myrtle Creek and Clarence Valley Solar Farm's construction phases are unlikely to overlap with the construction phase of the Project due to assumed delays currently being experienced in the planning phase.

10. It is understood sheep grazing is not recommended to be co-located with the operating solar farm based on landowner's advice and soil capability testing. In this regard, it is expected that all current agricultural employment (2-3 FTE jobs) associated with the Project Area is to be made redundant with these jobs replaced (and increased) by ongoing solar farm related workers (13 FTE) resulting in a net increase in on-site employment.

    The temporary impact of the Project on the productivity of agricultural land based on the change in land use for the duration of the Project is up to $305,572 per year. While the permanent impact of the Project on the productivity of agricultural land following the Project is estimated up to $1,547 per year. The Project will have a negligible impact on the viability of local and regional agricultural services.

11. Ongoing economic stimulus associated with the operation of the Project is estimated at approximately $145 million (rounded) (over 30 years, CPI adjusted) relating to landowner payments, operational wage stimulus and community fund payments.

12. The Project has the capacity to supply sufficient renewable energy to power the equivalent of approximately 181,000 homes pa, which represents approximately two and a half the total annual residential requirements of the EIA Study Area (77,280 homes).

13. In addition to supporting NSW State policy directions and national grid supply benefits, the Project will deliver the following key Statewide economic benefits:
    - Capital investment: $480 million or 40% of total Project capital investment (60% attributed to imports and 10% to other states and territories)
    - Construction employment: 310 FTE jobs (direct and indirect FTE jobs) or 80% of construction employment (remaining 20% attributed to other states and territories)
    - Ongoing employment: 40 FTE jobs (direct and indirect), or 80% of total operating employment (remaining 20% attributed to other states and territories)
    - Supports ongoing industry transition in Regional NSW from coal energy generation, mining etc to renewable energy.
    - Future decommissioning investment and employment opportunities, to be determined (refer to Section 4.13).

14. Decommissioning of the Project is likely to support significant employment generation, new business contracts and provide a spending stimulus to the EIA Study Area over the decommissioning period. However, given decommissioning will not occur for at least 30 years after the operation of the Project commences, it is not possible to estimate potential impacts and benefits at this stage noting economic, technological, and environmental factors may change considerably over this period.

Net economic outcomes are summarised in Table A.

Table A: Economic Impact Assessment Summary Table

Factor	Value
Negative Economic Outcomes	
Temporary loss of agricultural land (30 years) (Development Footprint)	799 ha
Permanent loss of agricultural land (substation)	4 ha
Loss of employment (includes direct and indirect jobs)	2-3 jobs
Positive Economic Outcomes	
Construction Phase (24-Months)	
Estimated Development Costs	+$1.2 billion
EIA Study Area investment (including wage stimulus)	+$180 million (assumes 15% of total investment)
Construction employment (average no. of FTE jobs for 24 months)	150 FTE Direct + 240 FTE Indirect *Total: 390 FTE*
EIA Study Area employment (average no. of FTE jobs for 24 months based on 20% of workforce being local)	*EIA Study Area jobs* *30 FTE Direct on-site* *50 FTE Indirect off-site* *Total: 80 FTE*
Operational Phase (30 Years)	
Operational employment average no. of ongoing FTE jobs)	13 FTE Direct + 40 FTE Indirect *Total: 53 FTE*
EIA Study Area operational employment	*13 FTE Direct on-site* *8 FTE Indirect off-site* *Total: 21 FTE*
Operational Economic Stimulus	
Total net local economic stimulus (operational wage stimulus, community payments, landowner lease payments, increased Council rates returns.	**$145 million**
Total Economic Benefits (Construction and Operational Phases)	**$325 million**
Decommissioning Phase	
Likely to generate employment, business contract and spending stimulus benefits for the EIA Study Area	Not quantified

Proposed Mitigation Measures

15. In order to minimise potential Project impacts and maximise Project benefits, the following mitigation measures are recommended:

- Prior to commencing construction, it is recommended that the Proponent prepares a Construction Workforce Accommodation Strategy for the Project in consultation with relevant stakeholders, including a recommendation to navigate procurement constraints in Lismore.
- In order to ensure the broader community benefits from the construction and operation of the Project, it is recommended the Proponent develops a Community Shared Benefit Strategy, which could include funds to be administered through an agreed mechanism with Richmond Valley Council.

1.0 Introduction

1.1 Background

Ark Energy Projects Pty Ltd (the Proponent) is seeking to develop the proposed Richmond Valley Solar Farm (the Project) in the North Coast region of New South Wales (NSW). The Project Area is located approximately 7 km to the east of the town of Rappville, 25 km south of Casino and 65 km north of Grafton, within the Richmond Valley Local Government Area (LGA).

The Project will involve the construction, operation and decommissioning of:

- Solar electricity generating capacity of up to 500 MW of DC electricity.
- A Battery Energy Storage System (BESS) with up to 275 MW (DC) energy storage capacity for up to 8 hours.

The Project Area covers 1,475 ha and includes the solar farm site, the BESS development area, substation, ancillary infrastructure, and transmission line route with a Development Footprint of 803 ha and the road upgrade has a Development Footprint that occupies approximately 11 ha.

This Economic Impact Assessment (EIA) has considered a broader area for the identification of economic conditions and potential economic impacts and benefits, referred to as the EIA Study Area as discussed further in section 2.4. Refer to Figure 2.2 for a visual representation of the broader EIA Study Area and Figure 2.1 for the Project Area.

The Project Area supports agricultural cattle grazing activities. Primary access to the Project Area will be via Avenue Road.

The estimated capital value for the Project is approximately $1.2 billion (rounded). Accordingly, the Project is a State Significant Development (SSD) under the *State Environmental Planning Policy (Planning Systems) 2021* (SRD SEPP) as the capital value of the Project is over $30 million. A development application (DA) for the Project is required to be submitted under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Proponent has commissioned Ethos Urban to prepare an Economic Impact Assessment (EIA) for the Project. This EIA report supports the Project's Environmental Impact Statement (EIS) and responds to the Secretary's Environmental Assessment Requirements (SEARs) for economic impacts, which are:

- ***"Economic:*** *including an assessment of the economic impacts or benefits of the Project for the region and the State as a whole."*

Note, that cumulative impacts relevant to economics are assessed in Section 4.3 of this report.

1.2 Methodology

The following methodology has been applied to this EIA:

- Identification of a relevant EIA Study Area for the assessment that reflects likely labour force, accommodation, and supply chain linkages available to support the Project. The EIA Study Area is defined in terms of host and surrounding LGA boundaries.
- Review of federal and state policies relevant to investment in the renewable energy sector, including the Paris Climate Accord and NSW Large Scale Solar Energy Guidelines 2022.
- Baseline analysis of population, labour markets, occupational structure and business structure for the EIA Study Area and NSW, with reference to latest available data relating to ABS Estimated Resident Population, Department of Planning Projections (by LGA), ABS Census, ABS Business Counts and Department of Education, Skills and Employment Small Area Labour Markets.
- Assessment of the capacity and opportunities of townships in the EIA Study Area to participate and service the Project. This information has been compiled through site visits, accommodation data has been referenced from the Project SIA.
- Assessment of Project investment, with investment figures provided by the Proponent and share of investment retained in the EIA Study Area informed by benchmarking analysis of similar sized completed renewable energy facilities located in regional areas.
- Assessment of Project employment (direct and indirect) for construction and operational phases. Direct employment is assessed as jobs created to support the on-site construction and operation of the Project.

Indirect employment is assessed as jobs supported through the supply-chain and consumption/induced impacts of each Project stage. Relevant ABS multipliers are applied to construction and operational phases. Employment numbers have been provided by the Proponent based on estimated labour requirements. Ratios of direct EIA Study Area (local) and non-EIA Study Area (imported) employment are based on the Proponent's anticipated labour force requirements and the EIA Study Area's existing workforce capacity.

- Identification of business and industry participation opportunities, with reference to baseline analysis outcomes regarding workforce size and skills composition and procurement activities proposed by the Proponent.
- Assessment of agricultural impacts which includes employment and production impacts through land consumption and disruption to activities, and benefits to host landowners from new incomes and improved on-site infrastructure.
- Assessment of accommodation and housing impacts with reference to the baseline analysis and the estimated number of construction workers that may require accommodation at the Project's peak.
- Assessment of cumulative impacts relating to the potential concurrent construction of major infrastructure projects in the EIA Study Area/within 100km of the Project Area. Importantly the political push to renewable energy to be the primary source of power generation in Australia is likely to generate significant demand for new projects over the coming years. This includes assessing potential impacts on accommodation and labour and providing measures to manage identified cumulative impacts.
- Estimates of economic stimulus impacts (construction and operation phases) including Project wages and spending, neighbour benefit payments, uplift in Council rates revenues, and the Proponent's community fund payments. Construction stimulus is expressed in 2023 dollars (and calculated over 20 months), while operational stimulus is calculated over 30 years using 2023 dollars but indexed to 3.0% CPI annually.
- Description of proposed mitigation measures relating to accommodation, workforce and procurement and community benefit sharing.

Note, detailed assumptions and calculations are provided throughout the report.

The following specific data sources have been used in compiling this EIA:

- ABS Average Weekly Earnings, November 2023
- ABS, Counts of Australian Businesses, including Entries and Exits, June 2018 to June 2022
- ABS Census of Population and Housing, 2021
- ABS Estimated Resident Population, 2022 (April 2023 release)
- ABS Household Expenditure Survey, 2015-16
- ABS Regional Population Growth, Australia
- Australian National Accounts: Input-Output Tables
- Air DNA, September 2023
- Department of Employment - Small Area Labour Markets, June Quarter 2023
- Department of Planning NSW, State and Local Government Population Projections 2022, 2022 NSW Common Planning Assumption Projections
- Premise, Richmond Valley Solar Farm Scoping Report, July 2022
- CSQS, Richmond Valley Solar Farm – Estimated Development Costs Report, April 2024
- www.energy.nsw.gov.au/renewables/renewable-energy-zones
- www.tripadvisor.com

2.0 Project Context

2.1 Site Location

The Project will be developed on a 1,475ha site in the North Coast region of New South Wales (NSW) which is accessible to two regional centres (Lismore and Ballina), along with several other medium and small sized towns located generally within a 60-minute drive from the Project Area.

- **Lismore**, regional city located approximately a 50-minute drive (60km) to the northeast of the Project Area.
- **Ballina**, major regional city located approximately a 65-minute drive (90km) to the northeast of the Project Area.
- **Grafton**, medium township located approximately a 50-minute drive (70km) to the south of the Project Area.
- **Casino**, medium township located approximately a 25-minute drive (30km) to the north of the Project Area.
- **Maclean**, small township located approximately a 65-minute drive (65km) to the southeast of the Project Area.

Note: drivetime and distances estimated by Google Maps based on Avenue Road access point

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

2.2 Project Description

The Project involves the construction, operation and decommissioning of up to 500 megawatts (MW) DC of solar photovoltaic (PV) generation, Battery Energy Storage System (BESS) with a power capacity of up to 275 MW and an energy storage capacity of up to 2,200 megawatt hour (MWh) over 8 hours and a transmission line to connect the Project from the substation to the National Electricity Market (NEM). The Project will include various associated infrastructure including:

- temporary construction facilities,
- O&M facility,
- internal roads,
- civil works and,
- other required electrical infrastructure.

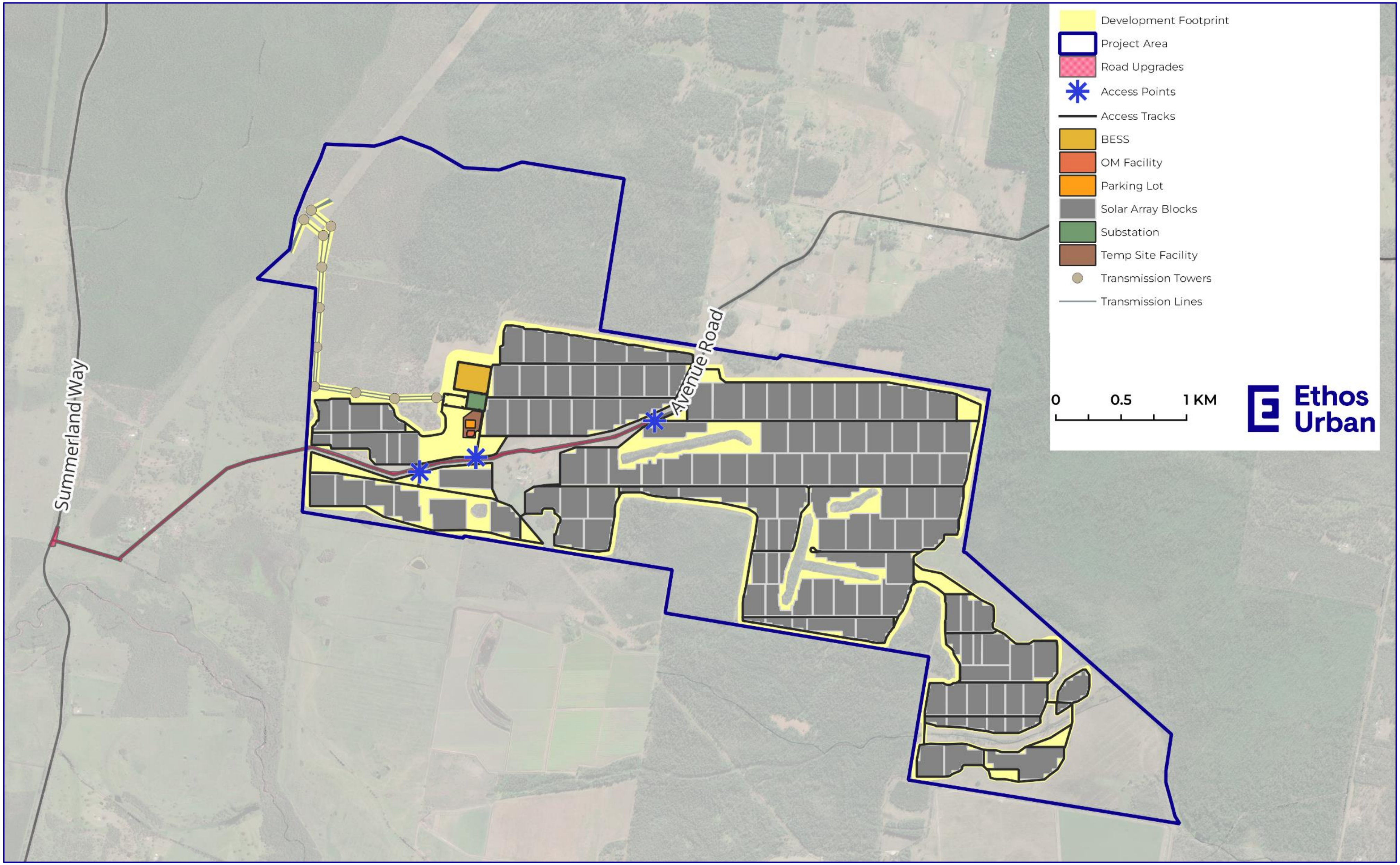
It is anticipated that:

The construction phase of the Project (including commissioning) will take up to 24-months and involve an Estimated Development Costs (EDC) of approximately $1.2 billion (rounded).

- Approximately 150 direct (onsite) full-time equivalent (FTE) jobs will be supported (on average) across the construction and commissioning phase, increasing to 327 jobs during the peak construction which could last for six-months.
- The operational lifespan of the Project will be in the order 30 years. 13 ongoing onsite FTE jobs will be supported by the Project's operational phase.

The layout of the Project Area is shown by Figure 2.1.

Figure 2.1 Richmond Valley Solar Farm - Project Area and Associated Infrastructure



Source: Ethos Urban; Ark Energy

2.3 Policy Context

International agreements and domestic government policy settings are important factors in influencing demand and investment in the renewable energy sector, an overview of the key policies relevant to the Project include the following.

2.3.1 Paris Climate Accord and Updated Federal Government Target

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. It 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 previous target was to achieve a reduction of emissions by 5% from 2000 levels by 2020 and the previous Liberal Federal Government committed to a reduction of 26-28% below 2005 levels by 2030 and net zero emissions by 2050.

In July 2022, an updated Nationally Determined Contribution (NDC) was submitted by the Federal Government and reflected a pre-election promised by the incoming Labor Party to fulfill Australia's obligations under the Paris Agreement. The updated NDC includes a commitment to reduce greenhouse gas emissions by 43% by 2030 and reaffirms the previous commitment to net zero emissions by 2050.

2.3.2 Commonwealth Renewable Energy Target Scheme

The Commonwealth Renewable Energy Target (RET) Scheme has legislated objectives that include encouraging additional electricity generation from renewable sources, reducing greenhouse gas emissions in the electricity sector, and ensuring the use of ecologically sustainable renewable energy sources. The RET operates by creating a market for renewable energy certificates, which promotes investment in the renewable energy sector.

The RET provides the opportunity to both major power stations and owners of smaller systems to generate certificates for each megawatt hour of power they produce. These certificates come in two types: large-scale generation certificates and small-scale technology certificates. Electricity retailers, responsible for supplying power to households and businesses, purchase these certificates and present them to the Clean Energy Regulator. As a result, a market is established, offering financial incentives to both large-scale renewable energy power stations and owners of small-scale renewable energy systems.

The RET aimed to achieve a large-scale renewable generation of 33,000GWh in 2020, accounting for approximately 23.5% of Australia's total electricity generation at the time. This target was met in January of 2021 and will remain at 33,000GWh until 2030.

The Project represents an electricity provider which will be capable of creating large scale generation certificates and participating in the RET. As a provider, the Proponent may sell these certificates to liable entities (mainly electricity retailers to demonstrate renewable energy use for voluntary purposes).

2.3.3 NSW Large Scale Solar Energy Guidelines, 2022

The NSW Large Scale Solar Energy Guidelines issued by the NSW Department of Planning, Housing, and Infrastructure (DPHI) notes (p.34):

> "A social impact assessment is required for all state significant Projects and must be undertaken in accordance with the department's Social Impact Assessment Guideline for State Significant Projects (PDF 2,181 KB). The assessment will include both positive and negative impacts of the proposed development on potentially affected people and groups, including how the impacts are distributed. This includes workforce accommodation, job creation opportunities and flow-on economic impacts to local communities."

The SIA prepared by Umwelt and this EIA report addresses these impacts in an integrated approach.

2.3.4 Draft Energy Policy Framework, 2023

Department of Planning, Housing and Infrastructure (DPHI) have provided a section in the Draft Energy Policy Framework namely 'Updates to the Solar Energy Guideline'. The proposed changes to the Large-scale Solar

Energy Guideline are still preliminary with further changes expected before the guidelines are finalised. The proposed changes to the Large-scale Solar Energy Guideline are as follows:

Area of Change	Proposed Change
Planning framework	• Consistent with section 2.6 of the draft Wind Energy Guideline, identify that the Minister will consider requests to declare solar energy development as Critical State Significant Infrastructure if it includes a significant energy storage system (for example, a delivery capacity of 750 megawatts or more).
Site selection	• Update section 4.2 of the existing Solar Energy Guideline to identify suitable locations for solar energy development (as shown in Figure 3) to help communities anticipate development and change.
Decommissioning	• Provide a calculator for estimating decommissioning costs to ensure landholders are well informed about the likely costs.
Benefit sharing	• Repeal existing guidance on benefit sharing in section 5.3.2 of the Solar Guideline and replace with a reference to the draft Benefit Sharing Guideline (2023). This encourages applicants to pay $850 per megawatt per annum (in 2023 dollars) in benefit sharing.
Private agreements	• Repeal existing guidance on private agreements in section 5.3.3 and Appendix B of the Solar Energy Guideline and replace it with a reference to the draft Private Agreement Guideline (2023).
Landscape and visual impact assessment	• Define dwelling and clarify assessment requirements for dwelling entitlements, in accordance with the draft Wind Energy Guidelines (2023), where relevant. • Update the assessment methodology in line with the proposed approach for wind and transmission to allow a more proportionate approach that does not rely exclusively on photomontages.

2.4 Economic Impact Assessment Study Area Definition

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

- Clarence Valley
- Richmond Valley (Project location)
- Lismore
- Ballina

The main regional cities/townships/settlements in the EIA Study Area are all located within approximately a 60-minute drive from the Project Area.

The EIA 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 EIA Study Area and location of the Project are shown in Figure 2.2.

Figure 2.2 EIA Study Area

Source: Ethos Urban

2.5 Summary

1. The Proponent is proposing the construction of the Richmond Valley Solar Farm with a capacity of up to 500MW DC. The Project Area is located approximately 25 km south of Casino and approximately 65km north of Grafton. The Project is positioned in the Richmond Valley Council Area.
2. The Project Area covers 1,475 ha and is well connected to the regional centres of Lismore and Ballina and smaller townships including Grafton, Casino, and Maclean.
3. Federal (Paris Climate Accord) and State (NSW Large Scale Solar Energy Guidelines, NSW Electricity Strategy, NSW Electricity Infrastructure Roadmap and the Network Infrastructure Strategy) policies provide guidance for the renewable energy sector in the short-to medium-term. The NSW Draft Energy Policy Framework 2023 includes proposed revisions to the existing Large Scale Solar Guideline, but noting these revisions are not yet finalised.
4. This EIA, guided by the Project SEARs, will provide an understanding of potential economic benefits arising for the local, regional and State economies and communities through the construction and operational stages of the Project, as well as any potential negative impacts associated with the Project.

3.0 Baseline Regional Economic Profile

3.1 Population Trends and Forecasts

The population of the EIA Study Area was estimated to total 170,380 persons as of June 2023, including 55,130 persons located in Clarence Valley LGA, 47,250 persons located in Ballina LGA, 44,190 persons located in Lismore LGA and 23,800 persons located in Richmond Valley LGA.

Over the period 2023-2036, annual population growth in the EIA Study Area is expected to be +0.5% pa (or +830 persons pa over 13 years) and this compares to the New South Wales (NSW) growth rate of +1.1% p.a. over this period. While the EIA Study Area's projected population growth is passive compared to the NSW benchmark, it is noted that the Clarence Valley, Ballina, and Richmond Valley LGAs are projected to experience an average annual population growth +0.9%, +0.9% and +0.3% p.a. respectively for the period 2023-2036.

However, Lismore LGA is projected to experience a decline in population of around -2,430 persons over the period. This decline in population highlights the need for local investment projects which provide new employment opportunities for residents and potentially attract new residents to the area. Further, large scale renewable energy projects provide an alternative income stream for local farmers and workers. These factors may contribute to retaining, and potentially expanding the population within Lismore and surrounding areas. Noting there are other factors other than employment opportunities causing population decline in the Lismore LGA, most notably the impacts of severe flooding events in 2017 and 2022.

Population estimates, which are included in Table 3.1, are based on official population projections prepared by the NSW Government and the most recent ABS estimated resident population figures for 2022.

Table 3.1 EIA Study Area Population Trends and Projections, 2016 to 2036

	2016	2021	2023	2026	2031	2036	2023 to 2036
Population (no.)							
Clarence Valley	51,620	54,210	55,130	56,770	59,360	61,700	+6,570
Richmond Valley	23,260	23,600	23,800	24,140	24,540	24,850	+1,050
Lismore	44,120	44,360	44,190	43,930	42,970	41,760	-2,430
Ballina	42,990	46,200	47,250	48,660	50,880	52,890	+5,640
Total EIA Study Area	**161,990**	**168,360**	**170,380**	**173,510**	**177,760**	**181,200**	**+10,820**
Annual Growth (no.)							
Clarence Valley		+520	+460	+545	+520	+470	+505
Richmond Valley		+70	+100	+115	+80	+60	+80
Lismore		+50	-85	-85	-190	-240	-185
Ballina		+640	+525	+470	+445	+400	+435
Total EIA Study Area		**+1,275**	**+1,010**	**+1,045**	**+850**	**+690**	**+830**
Annual Growth (%)							
Clarence Valley		+1.0%	+0.8%	+1.0%	+0.9%	+0.8%	+0.9%
Richmond Valley		+0.3%	+0.4%	+0.5%	+0.3%	+0.3%	+0.3%
Lismore		+0.1%	-0.2%	-0.2%	-0.4%	-0.6%	-0.4%
Ballina		+1.5%	+1.1%	+1.0%	+0.9%	+0.8%	+0.9%
Total EIA Study Area		**+0.8%**	**+0.6%**	**+0.6%**	**+0.5%**	**+0.4%**	**+0.5%**
New South Wales		**+0.9%**	**+0.6%**	**+1.0%**	**+1.1%**	**+1.0%**	**+1.1%**

Source: ABS ERP (cat. 3218.0); NSW DPE Population Projections (LGA); Ethos Urban

3.2 Labour Force

As of June 2023 (latest available), the EIA Study Area had a labour force of 84,410 persons and an unemployment rate of 3.3% (Australian Government Jobs and Skills Australia – *Small Area Labour Markets* data). This is in line with the unemployment rate for NSW (3.2%). The EIA Study Area currently has approximately 2,780 persons who are unemployed.

The Project is likely to require some 327 workers at peak construction. It is anticipated that approximately 20% of these workers will be sourced from within the EIA Study Area, providing direct new opportunities for unemployed job seekers (subject to appropriate skills match) or 'back filling' employment opportunities associated with jobs vacated by workers taking up Project employment.

The Project also has potential to provide new opportunities for workers who are beginning or seeking to transition to the renewable energy sector from other sectors. This transition is predominately driven by Global, Federal, and State reduced emissions targets associated with electricity generation.

Labour supply factors are further explored in Chapter 4.

Table 3.2 Resident Labour Force Statistics – EIA Study Area, June Quarter 2023 (no. Persons)

LGA/Area	Labour Force	Unemployed	Employed	Unemployment Rate
Clarence Valley	23,710	1,120	22,590	4.7%
Richmond Valley	11,300	430	10,870	3.8%
Lismore	24,680	810	23,870	3.3%
Ballina	24,720	420	24,300	1.7%
Total Study Area	**84,410**	**2,780**	**81,630**	**3.3%**
New South Wales	**4,457,400**	**142,700**	**4,314,700**	**3.2%**

Source: Australian Government Department of Jobs and Skills, *Small Area Labour Markets,* June Quarter 2023
Note: Figures rounded.

3.3 Occupational Structure

The skills base of the EIA Study Area is reflected in its occupational structure. ABS Census data for 2021 highlights that approximately 32.2% of employed residents in the EIA Study Area occupied in construction-related activities (e.g., technicians and trades workers, machinery operators and drivers, and labourers, as highlighted in Table 3.3).

The representation of these occupations in the EIA Study Area is significantly above the State average (26.1%), indicating a generally suitable occupational base for the Project exists in the region. In total, 22,440 workers in the EIA Study Area are occupied in construction-related activities, highlighting the strong worker base available to support larger infrastructure projects.

Table 3.3 EIA Study Area – Occupational Structure, 2021

Occupation	EIA Study Area		New South Wales
	(no.)	(%)	(%)
Managers	8,830	12.7%	14.6%
Professionals	13,010	18.7%	25.8%
Technicians and Trades Workers	9,370	13.4%	11.9%
Community and Personal Service Workers	9,920	14.2%	10.6%
Clerical and Administrative Workers	7,870	11.3%	13.0%
Sales Workers	6,470	9.3%	8.0%
Machinery Operators and Drivers	4,050	5.8%	6.0%
Labourers	9,020	12.9%	8.2%
Inadequately described/ Not Stated	1,170	1.7%	1.9%
Total	**69,710**	**100.0%**	**100.0%**

Source: ABS Census of Population and Housing, 2021

3.4 Business Structure

A tangible benefit of a major investment project is the extent to which local businesses can participate through project contracts and other service provision.

ABS Business Count data for June 2022 (latest available) shows the EIA Study Area includes 2,590 construction businesses (rounded), representing 16.9% of all businesses located in the EIA Study Area (refer Table 3.4). This data indicates a reasonable presence in the EIA Study Area of small, medium, and large firms that have potential to service aspects of the Project (subject to capacity and specialisation). This opportunity is discussed in more detail in the following chapter (Chapter 4).

Although construction-related businesses will likely be the main beneficiaries of the Project, businesses in other sectors supporting the Project (directly and indirectly) are also likely to benefit via increased revenues, including:

- Manufacturing
- Retail trade
- Accommodation and food services
- Financial and Insurance Services
- Rental, hiring and real estate services
- Health care and social assistance.

These sectors make up approximately 32.9% of all businesses located in the EIA Study Area and their services will likely play a role in supporting the needs of Project workers, especially those relocating to the EIA Study Area to work during the construction phase of the Project. Industries of relevance are highlighted in blue in Table 3.4.

Table 3.4 EIA Study Area – Business Structure, 2022

Industry	Non employing	1-4 Employees	5-19 Employees	20-199 Employees	200+ Employees	Total
Agriculture, Forestry and Fishing	2,720	439	87	18	0	3,265
Mining	25	9	3	0	0	41
Manufacturing	293	183	118	31	3	626
Electricity, Gas, Water and Waste Services	22	18	14	0	0	52
Construction	1,452	930	176	33	0	2,589
Wholesale Trade	206	114	54	13	0	388
Retail Trade	377	334	204	36	0	950
Accommodation and Food Services	180	247	212	66	3	707
Transport, Postal and Warehousing	416	213	53	14	0	698
Information Media and Telecommunications	66	30	8	0	0	106
Financial and Insurance Services	211	98	18	0	0	330
Rental, Hiring and Real Estate Services	1,133	136	67	3	0	1,343
Professional, Scientific and Technical Services	684	474	118	18	0	1,291
Administrative and Support Services	315	171	68	10	3	568
Public Administration and Safety	16	11	9	0	0	35
Education and Training	106	59	31	15	3	212
Health Care and Social Assistance	653	294	114	25	3	1,089
Arts and Recreation Services	150	66	25	9	0	249
Other Services	351	356	82	0	0	790
Currently Unknown	13	0	3	0	0	15
Total	**9,389**	**4,182**	**1,464**	**291**	**15**	**15,344**

Source: ABS: 8165.0 Counts of Australian Businesses, including Entries and Exits, Jun 2018 to Jun 2022

3.5 Township Services and Capacity

Based on discussions with the Proponent, approximately 80% of the construction workforce are likely be non-local (i.e., sourced from the beyond the EIA Study Area). This means that on average, around 120 FTE workers may require accommodation across the 24-month construction phase, with this figure increasing to approximately 260 FTE workers at peak construction (which is expected to last for six-months).

3.5.1 Commercial Accommodation

A review has been undertaken by Umwelt for commercial accommodation located within the EIA Study Area's major townships as outlined in the Social Impact Assessment (Umwelt, 2024). These townships generally represent a maximum drivetime of 60 minutes from the Project Area. The EIA Study Area's commercial accommodation capacity is currently approximately 1,761 rooms/cabins, as shown in Table 3.5 .

Most accommodation options in the EIA Study Area are located in Ballina, Grafton and Lismore, reflecting these towns' roles as a regional service centres. A more limited provision of visitor accommodation is located in the smaller towns of Casino and Maclean. Existing accommodation in Ballina, in particular, plays a key role in supporting the tourist sector.

The range of short-term commercial accommodation options available in the EIA Study Area are reasonably diverse and include motels, hotels, guest houses, caravan/holiday parks.

Based on an assumed average occupancy rate of 70% for the EIA Study Area commercial accommodation, the main townships have an estimated 528 rooms that could potentially be available to the Project. Further, it is assumed that 30% of these 528 rooms may actually be available for the Project to use i.e. 158 rooms.

Table 3.5 EIA Study Area - Commercial Accommodation

Locality	Approx. Distance from Project (Straight line km)	Number of Providers	Listing/ Classification Type										Total Number of Rooms
			Motels		Hotel		Caravan, Camping and Holiday Parks		Apartments		Other		
			No. Providers	No. rooms	Total Number of Providers	Number of rooms	Total Number of Providers	Number of rooms	Total Number of Providers	Number of rooms	Total Number of Providers	Number of rooms	
Casino SAL	27 km	9	7	122	1	22	1	59	-	-	-	-	203
Lismore UCL	40 km	13	8	189	1	7	2	101	1	42	1	6	345
Grafton UCL	65 km	17	4	88	2	54	4	202	2	34	5	18	396
Ballina SAL	110 km	29	12	237	-	-	6	405	7	154	4	21	817
Total		**68**	**31**	**626**	**4**	**83**	**13**	**767**	**10**	**230**	**10**	**45**	**1,761**

Source: Umwelt; ATDW, 2023

Table 3.6 Hotel and Motel Accommodation, Considering Occupancy Rates

Locality	Number of Providers	Total Number of Rooms	Number of rooms @ 70% occupancy	Rooms available @ 30% utilisable
Casino SAL	9	203	61	18
Lismore UCL	13	345	104	31
Grafton UCL	17	396	119	36
Ballina SAL	29	817	245	74
Total	**68**	**1,761**	**528**	**158**

Source: Umwelt; ATDW, 2023

3.5.2 Private Accommodation

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

Unoccupied Dwellings

The EIA Study Area has a slightly higher share of unoccupied dwellings (10.3%) when compared to the NSW average (9.4%). Richmond Valley LGA has a significant share of unoccupied dwellings (21.0%). It is possible that some of these unoccupied dwellings (subject to tenant suitability) may enter the market to support the Project and other major infrastructure projects in the region.

Table 3.7 Private Dwellings – EIA Study Area, 2021

LGA	Occupied Dwellings		Unoccupied Dwellings	
	no.	%	no.	%
Clarence Valley	20,932	86.7%	3,211	13.3%
Richmond Valley	*3,211*	*79.0%*	*852*	*21.0%*
Lismore	17,154	92.8%	1,321	7.2%
Ballina	18,281	92.8%	1,421	7.2%
Total EIA Study Area	**59,578**	**89.7%**	**6,805**	**10.3%**
New South Wales	**2,900,470**	**90.6%**	**299,520**	**9.4%**

Source: ABS, Census of Population and Housing, 2021
Note: Figures rounded

Long Term Rentals

As with many large projects relying on local accommodation, local rental markets can reach full utilisation and at times require further supply be brought to the market during construction. Potential exists that the private accommodation demands of the multiple potentially concurrent renewable energy projects in the EIA Study Area (including the Project) could result in a shortage of established (long-term) rental supply putting upward pressure on prices and the potential for local renters to be priced out of the market.

The vacancy rate for long-term rental properties in the EIA Study Area was 1.6% in September 2023 or approximately 250 properties (Data sourced from SQM Research for July 2023). This indicates a constrained rental market in the main townships of the EIA Study Area and as such it will be difficult for the local rental market to play a major role in accommodating non-local workers in the Project's construction phase. If long term rental properties were used to house construction workers, this could result in negative impacts on the local rental market (upwards pressure on rental prices, displacement of existing local tenants etc).

Short Term Rentals

Short-term accommodation provides another option for construction workers. As of December 2023, 557 active short-term rentals are advertised in the EIA Study Area (based on data sourced from www.airdna.co). This represents an estimated 1,114 rooms, based on an average of 2 rooms per rental (noting this is a conservative estimate). However, it is likely that many of these rooms already play a role in servicing a range of visitor sectors including business travellers, tourists, seasonal agriculture workers and the visiting friends and family cohort.

Some of these properties/rooms are also likely to be used to support the Lismore flood recovery effort. Allowing for a typical annual occupancy rate of 70% and assuming 30% of these unoccupied listings are available for the Project, for these types of properties, potentially 167 short-term properties yielding around 334 rooms may be utilised by the Project. This accommodation cohort therefore provides an important option for the Project

Table 3.8 Short Term Accommodation Availability, Considering Occupancy Rates

Locality	Total		Total Listings @ 70% Occupancy		Total Listings Available to the Project @ 30% utilisable	
	Active Listings	Estimated Total Rooms @ 2 rooms per listing	Number of listings	Estimated Total Rooms @ 2 rooms per listing	Number of listings	Estimated Total Rooms @ 2 rooms per listing
Richmond Valley Council	160	320	48	96	14	28
Lismore Shire Council	231	462	69	138	21	42
Grafton UCL	14	28	4	8	1	2
Ballina SAL	152	304	46	92	14	28
Total	**557**	**1,114**	**167**	**334**	**50**	**100**

Source: AirDNA; Umwelt

3.5.3 Township Services

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

The following sections provide an overview of the services located within regional/townships in the EIA Study Area that may service some needs of the Project.

Casino

Casino, with a population of 10,580 persons, is located approximately 25km direct line distance to the north of the proposed Project Area. Known for its rich history of cattle breeding and being Australia's beef capital. The township is a medium sized service centre primarily supporting surrounding agricultural activities with a prominent share of personal support services.

Key services in Casino include:

- Limited range of commercial accommodation options (refer to 3.5.1).
- Medical facilities – a regional hospital (Casino & District Memorial Hospital) with an emergency department, Casino Aboriginal Medical Service and Riverside Family Practice.
- Three full-line supermarkets – Coles, Woolworths, and ALDI.
- Recreation, Entertainment & Dining – Casino has a good range of options including the Casino RSL Club, and an array of takeaway and restaurant options including cafés, pubs, Chinese and Thai restaurants, and fast-food outlets including McDonald's, KFC, Domino's, and Subway.
- Casino DIY Home Timber and Hardware.
- A collection of commercial and financial services, including Commonwealth, Westpac and Greater Bank branches, and additional ATMs.
- Fuel Supplies including Liberty, BP, Shell, Ampol and United.
- Education – three primary schools (Casino Public School, St Mary's Primary School, Casino West Public School), two secondary schools (Casino High School and St Mary's Catholic College) and a non-government Combined School (Casino Christian School).
- Service industry - A range of construction (domestic and industrial), manufacturing and civil companies are located in the township. Companies with particular relevance to the Project includes Holcim Concrete, JD Fabrications, Williams Group Building Supplies, and Eneral Engineering.

Grafton

Grafton, a township of approximately 17,540 persons is located in Clarence Valley LGA and is situated 50-minutes (drive-time) south of the Project Area. Historically known as key regional service centre supporting the farming, forestry and aquaculture sectors, the township today continues to predominantly function as a service hub for local agricultural activities, with the NSW Government Department of Primary Industries operating the Primary Industries Institute in the town. Grafton offers a mix of facilities and services, including:

- A wide range of commercial accommodation options (refer to 3.5.1).
- Mechanic and trade supplies – Bunnings, Tradelink, Reece Plumbing, Grafton Hardware, Autobarn, Hip Pocket workwear and Supercheap Auto.
- Retail Centre – Grafton Shopping World including specialty shops and larger discount department stores including Target, Big W.
- Construction and transport services including Coates Hire, Big River Crane Hire, Grafton Hire, Westrac CAT Grafton, Wicks & Parker Metal and Fabrication and Cromack Transport.
- Car Dealerships – Toyota, Nissan, Mitsubishi, and Subaru.
- Supermarkets – full-line Coles and Woolworths supermarkets, as well as ALDI.
- Fast-food outlets including McDonald's, KFC, Subway, Red Rooster, Hungry Jacks.
- 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 – Grafton is serviced by 10 educational facilities including six primary schools, two secondary schools, one combined (P-12) school and one special school. Additionally, Tafe NSW have a small campus located in the Grafton CBD.
- Medical and emergency services (Grafton Base Hospital, Fire and Rescue, Police station etc).

Lismore

Lismore, a 55-minute drive northeast of the Project Area, is the major regional centre for NSW's North Coast region and has a population of approximately 27,730 persons. Lismore supports a range of major civil, education, health, and commercial services for the surrounding expansive rural area.

Key services in Lismore include:

- Higher order retailing including Lismore Shopping Square.
- Large range of professional/commercial services – solicitors, accounting, conveyancing etc.
- Major banks and financial institutions.
- Entertainment – parks, hotels, clubs, sports, and recreational activities.
- Lismore Airport – used primarily for pilot training, freight, and charter operations. Although at times is used for emergency medical transfers and search and rescue. Limited public flights are operated.
- Lismore Base Hospital and St Vincent's Hospital – the Lismore Base Hospital operates as the major regional hospital with emergency department, while St Vincent's provides key clinical and surgical services along with pastoral care.
- Emergency Services – Ambulance dept, Fire and Rescue, SES and Police.
- Education – Lismore's network of education instructions comprises 16 schools including 10 primary schools, four secondary schools, one combined school and one special school; tertiary institutions (TAFE NSW and Lismore Technical College).

Lismore has an expansive range of services with potential to be involved or assist the Project. Key businesses include:

- Bunnings
- Syndey Tools
- North East Cranes
- Coates Lismore
- GCB Hire

- Hanson Concrete Australia
- Boral Concrete
- Holcim Australia
- Matthews Metal Fabrications
- Metroll Lismore
- O'Brien Electrical and Plumbing
- Haymans Electrical
- Marelex Electrical
- MJC Excavations
- Clements Haulage
- Norton's Transport
- McMullens Freightliners

Note, the availability of the above services is likely to be significantly impacted by the ongoing Lismore flood recovery effort and reconstruction activities.

Ballina

Ballina, with a population of approximately 18,610 persons, is located 55km to the northeast of the Project Area or a 65-minute drive-time. Ballina is a major regional town in the NSW North Coast region. Ballina is a notable holiday destination in the region due to its many beaches and its setting on the Richmond River along with a favourable warm climate. The industrial sector in Ballina is primarily focused to domestic services or lighter industrial uses as the township is principally residential in nature and mainly supports tourism sector activities with limited uses servicing the wider nearby agricultural region.

Ballina will likely provide limited industrial services to the Project, rather the town will act as the gateway to the Project through the use of the Ballina airport (Fly in Fly Out workers) and businesses in other sectors supporting the Project (directly and indirectly) including businesses in retail trade, accommodation and food services, rental, hiring and real estate services, and health care and social assistance.

Key services in Ballina include:

- An extensive range of commercial accommodation options (refer to Table 3.5.1).
- Ballina District Hospital – serving the medical needs of the Ballina municipality.
- Good provision of supermarkets with two Woolworths, Coles, and an ALDI. Additional smaller convenience grocers.
- Entertainment & Dining – various parks, hotels, clubs, sports, and recreational activities.
- Fuel Supplies – a good provision of service stations with all national retailers operating in the town.
- Postal Services (AusPost).
- Education – two primary schools (one government and one independent).
- Emergency Services – Ambulance dept, Fire and Rescue, SES and Police.

Maclean

A township of 2,780 persons, Maclean is located in Clarence River LGA approximately 40km southeast of the Project Area or a 65-minute drive time. The township contains limited retail and commercial offerings which are primarily geared towards tourism uses and day-to-day shopping needs, with the following services available:

- Limited range of commercial accommodation options (refer to 3.5.1).
- Cafes, bakeries, restaurants and take-away.
- Pharmacies including Stanford's Pharmacy and Advantage Maclean Pharmacy.
- Maclean District Hospital.
- Small range of entertainment and recreational activities – Maclean Olympic Pool, Golf Club, Showgrounds, a boat ramp, and numerous fishing jetties.
- BP and Puma Service Stations.

3.6 Baseline Regional Economic Profile Summary

1. The population of the EIA Study Area (Clarance Valley, Richmond Valley, Lismore, and Ballina LGAs) was estimated at 170,380 persons as of June 2023. Over the period 2023-2036, annual population growth in the EIA Study Area is expected to be +0.5% pa (or +830 persons pa over 13 years) and this compares to the NSW growth rate of +1.1% p.a. The Lismore LGA is projected to experience population decline over the coming years. In this regard local investment projects (such as the proposed Project) can generate new employment opportunities for residents, workers transitioning from the mining sector as well as more diverse income streams for local farmers. These factors may contribute to retaining, and potentially expanding, population levels within this area.
2. The EIA Study Area had an unemployment rate of 3.3% in June 2023, similar to the NSW rate of 3.2%; with approximately 2,780 EIA Study Area residents unemployed. The Project may provide new short-term construction employment opportunities for the region's labour force participants (including unemployed job seekers, subject to suitable skills match and demands from other concurrent infrastructure Projects), with a small amount of ongoing employment also supported once the facility is operational.
3. The EIA Study Area's occupational and business structures indicate a good base exists to service the needs of the Project, with approximately 22,440 workers and 2,590 businesses involved in construction-related industries.
4. The major regional townships of Lismore and Ballina have the capacity and labour force to service some aspects of the Project, while nearby smaller settlements such as Grafton, Casino and Maclean will play a more limited role (at times) in providing labour, accommodation, and other general services to the Project.

4.0 Economic Impact Assessment

4.1 Project Investment

The total construction cost for the Project is estimated to be approximately $1.2 billion, according to the Proponent's preliminary estimates (to be confirmed through an EDC report). Major investment costs are associated with the purchase of solar panels, batteries, inverters and associated equipment, substation components etc, with significant investment is also required for civil, electrical and grid connection works.

Typically, around 15% of construction investment is generally retained within the host EIA Study Area for these types of projects. This is based on unpublished confidential engineering, procurement, and construction (EPC) information from a range of renewable energy projects in Australia accessed by the consultant in the course of undertaking many economic impact assessments for renewable energy projects in the last 10 or so years.

Applying this ratio to total investment indicates approximately $180 million in wages, contracts, supplies and other service provision may be generated for the EIA Study Area's economy over the 24-month construction phase.

4.2 Project Employment

4.2.1 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 supported through the industrial and consumption impacts of the initial investment).

Direct Construction Employment

Data provided by the Proponent indicates an average of 150 Full Time Equivalent (FTE) jobs will be supported over the construction phase, which is expected to be up to 24-months. However, actual workforce numbers will vary from month to month depending on the intensity of construction at the time. At the Project's peak, which is expected to last for six-months, the Proponent estimates 327 FTE positions will be supported by on-site construction activities.

Based on the economic characteristics and constraints of the EIA Study Area, specialist skills required to construct the Project, and Ethos Urban's experience in solar construction projects in similar rural/regional locations, the following employment split is considered realistic:

- **20%** or an average of 30 FTE jobs (for 24 months) to be sourced from within the EIA Study Area (local/regional employment), rising to 65 FTE local/regional jobs at the Project's peak.
- **80%** or an average of 120 FTE jobs (for 24 months) to be sourced from outside the EIA Study Area (non-local employment), rising to 260 FTE non-local jobs at the Project's peak. Note, non-local employment includes Fly In Fly Out (FIFO) / relocating workers from other areas of NSW, interstate and internationally.

Note, sourcing 20% of the construction workforce locally should be considered a target rather than a commitment by the Proponent, given the low unemployment rate in the EIA Study Area, competition for local labour from concurrent major infrastructure projects and ongoing requirements relating to Lismore flood recovery operations.

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

- Labour recruitment
- Training
- Vehicle and equipment hire
- Earthworks
- Foundations
- Engineering services
- Roads and access tracks
- Transport and logistics
- Assembly and installation of PV components

- Electrical works (cabling and connections)
- Installation of monitoring equipment
- Fencing
- Landscaping
- Security
- Waste disposal
- Business and financial services
- Administrative services.

As highlighted in Chapter 3, the business structure of the EIA Study Area indicates that a reasonable mix of these types of services is available.

Indirect Construction Employment

In addition to direct employment, significant employment will be supported 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 240 FTE jobs on average over the 24-month construction period.

Indirect or flow-on jobs (which captures industry and consumption effects) include those supported locally and in the wider economy (including within other parts of NSW, and nationally), as the economic effects of the capital investment flow through the economy. Indirect employment creation in local and regional economies includes 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 50 FTE jobs (rounded) are supported in the EIA Study Area. This assumption is made with reference to findings from completed renewable energy projects in regional areas, where generally 20% share of indirect jobs is applied and noting the impact of non-local workers (and their spending) likely to be associated with the Project.

Total Construction Employment

In summary, approximately 390 FTE jobs (150 FTE direct jobs and 240 FTE indirect jobs) are expected to be supported by the Project (on average) for each month of the 24-month construction phase.

The amount of direct EIA Study Area employment (i.e., related to on-site construction activities) required for the Project is estimated to be approximately 30 FTE jobs (or 20% of the construction workforce), with a further 50 FTE jobs supported indirectly in the EIA Study Area (i.e., off-site through supply chains and consumption activities) reflecting a total of 80 FTE jobs supported in the EIA Study Area on average over the 24-month construction phase.

Table 4.1 Construction Employment Summary

Direct Average Monthly Employment FTE	Direct Average Monthly EIA Study Area Employment FTE (80% Share)	Indirect Average Monthly Employment FTE	Indirect Average Monthly EIA Study Area Employment FTE (20% Share)	Total Average Monthly Employment FTE	Total Average Monthly EIA Study Area Employment FTE
150	**30**	**240**	**50**	**390**	**80**

Source: The Proponent; Ethos Urban, ABS Input-Output Tables.
Note: Figures rounded

4.2.2 Operational Phase

Direct Operational Employment

The Proponent indicates that between 10 and 15 FTE direct jobs will be supported locally (on-site) on an ongoing basis through the operation and maintenance of the Project, for this assessment it is assumed 13 FTE jobs will be supported.

Indirect Operational Employment

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 40 FTE jobs (rounded) would be supported in the wider state and national economies, with some of these jobs supported locally through operational supply chains and consumption impacts.

For the purposes of this assessment, it is assumed that 20% of indirect operational jobs are created in the EIA Study Area (refer to previous assumption). This equates to approximately 8 ongoing FTE EIA Study Area positions.

Operational-related employment is for the lifetime of the Project (i.e., 30 years) and represents new long-term employment opportunities at a local, regional, and national level.

Total Operational Employment

In summary, approximately 53 FTE jobs (13 FTE direct and 40 FTE indirect) are expected to be supported by the Project during operation, with 21 FTE of these positions supported in the EIA Study Area.

4.3 Cumulative Impact Assessment

As required by the Cumulative Impact Assessment Guideline for State Significant Projects (DPIE 2022b), relevant future projects that may potentially generate cumulative impacts with the Project have been identified through a search of the NSW Planning Portal and local government websites.

Developments in proximity to the Project are listed in Table 4.2. The greatest potential for cumulative impacts, from an economic perspective, are likely to be during construction.

It is possible that the construction of Summerville and Myrtle Creek projects could overlap with the construction of the Project, although there are a range of uncertainties associated with the timing of approval and subsequent construction of projects that will influence cumulative impacts. Clarence Valley Solar Farm's construction phase is unlikely to overlap with the construction phase of the Project due to assumed delays currently being experienced in the planning phase.

Table 4.2 Surrounding Large Scale Projects, February 2024

Project	Capacity	Construction Phase Timing	Construction Jobs	Status	Impact Rating
Clarence Valley Solar Farm	85 MW	12-months	100 FTE	Preparing EIS in response to SEARs. SEARs expire 20 December 2024	Low
Summerville Solar Farm	90 MW	15-18 months	100 FTE / 200 FTE (Peak)	Response to Submissions	Medium
Myrtle Creek Solar Farm	100 MW	12-18 months	200 FTE	Preparing EIS in Response to SEARs	Low

Source: Ethos Urban; NSW Major Projects Portal

4.4 Labour Force and Business Participation Assessment

Construction is a specialisation of the region's economy as indicated by the EIA Study Area's workforce structure (by occupation and industry).

The anticipated number of direct and indirect local jobs that will be sourced from the EIA Study Area (80 FTE workers) represents only 0.4% of the EIA Study Area's labour force employed in construction-related activities (22,440 workers), noting that many of the indirect jobs will be supported in non-construction sectors (e.g., services sector).

The EIA Study Area also has approximately 2,780 unemployed labour force participants, some of whom could work on the Project and/or other major infrastructure projects (subject to suitable skills mix). Alternatively, unemployed jobseekers may play a 'backfill' role in the labour market, engaging in jobs vacated by other workers transferring to employment on the Project or other major infrastructure projects.

In isolation, and in view of regional labour market, the workforce requirement of 80 FTE workers should not present a constraint to labour supply for the Project. However, potential does exist for labour market constraints due to the cumulative impacts of concurrent large infrastructure projects in the region, as well of demand for construction workers servicing the Lismore flood recovery efforts.

Given some uncertainty exists regarding labour force and supplier availability in the EIA Study Area, the Proponent should consider preparing a workforce plan/strategy to guide the sourcing of local employment and suppliers based on market conditions in the lead up to the construction phase of the Project commencing (refer Section 4.12).

4.5 Housing and Commercial Accommodation Sector Impacts

4.5.1 Project Accommodation Needs and Study Area Capacity

Information provided by the Proponent indicates 260 non-local FTE workers may need to be accommodated in the region at the Project's peak (which is likely to last for six months).

This calculation is based on 80% of the 327 peak on-site FTE workers coming from outside the EIA Study Area and requiring accommodation. This level of accommodation relates to the Project's peak only, which might last for six-months. The average number of non-local staff requiring accommodation across the 24-months is estimated at 120 FTE workers (noting this number will be much lower during periods of low site activity).

These temporary relocating staff are likely to include general managers, project managers, supervising engineers and solar specialists. Contract lengths will vary. This highlights the need for a range of accommodation types including higher-end options for staff on longer contracts, to convenient low-cost options for those on short-term contracts.

As outlined in Section 3.5, it is estimated approximately 127 commercial rooms/cabins and 100 short-term rooms potentially available to service the Project, which is well above the average monthly requirement (120 rooms) but below the peak requirement (260 rooms). Additional options exist such as the use of powered sites and workers staying with family and friends (where available).

Given very low occupancy rates (less than 2%) and limited available stock (250 rental dwellings), the established long term rental market should generally be avoided as an option for housing Project construction workers. The use of long-term rental properties runs the risk of placing upwards pressure on rental prices and has the potential to displace existing local tenants from their properties.

While this data overall indicates reasonable capacity currently exists in the EIA Study Area to service the Project (when all options are considered), it would be prudent for the Proponent to develop a construction workforce and accommodation strategy prior to the construction phase of the Project commencing, which will reflect local market conditions at the time (including demands from concurrent infrastructure projects etc) and specifically address peak requirements. Refer Section 4.11.

Such an approach should aim to minimise impacts on the community especially for those reliant on low-cost housing, as well as ensuring sufficient accommodation is available to service other key industry sectors (e.g., tourism, agriculture).

4.6 Local Wage Spending Stimulus

Construction employment estimates outlined earlier in this report indicate that 80% of the 150 direct FTE construction jobs (120 FTE workers) may need to be sourced from outside the EIA Study Area, particularly specialist and management positions.

This level of employment will equate to an estimated $18.0 million in wages (2023 dollars) on the basis that each non-local worker is employed for 24-months and earns the average construction wage of $100,000 pa (source: ABS, *Average Weekly Earnings 6302.0 – Full Time Adult Ordinary Time Earnings*, November 2023).

A share of these wages will be spent in the EIA Study Area, where these workers will be based. An estimated $9.0 million in wages (2023 dollars) will likely be directed to local and regional businesses and service providers during the construction period. This estimate is based on the ABS *Household Expenditure Survey,* which indicates that approximately 50% of post-tax wages are likely to be spent by workers in the regional economy. The spending by non-local workers in the regional economy will likely include:

- 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 will generate the equivalent of approximately 23 FTE jobs in the services sector and associated supply chains (based on 1 FTE job allocated for every $200,000 of induced spending per year), supporting jobs in the EIA Study Area and beyond, such as in retail, accommodation, trade supplies, health services, fuel supplies, cafes, and restaurants etc. These jobs are included in the 'indirect employment' estimates outlined in Section 4.2 above.

4.7 Agricultural Impacts

Approximately 790 ha of existing agricultural land will be required to host the Project with this land is mainly used for grazing cattle, with the total Development Footprint equally 803 ha, noting 13 ha will remain as remnant bushland.

It is understood sheep grazing is not recommended to be co-located with the operating solar farm based on landowner's advice and soil capability testing. In this regard, it is expected that all current agricultural employment (2-3 jobs) at the Project Area to be made redundant with these jobs replaced (and increased) by ongoing solar farm related workers resulting in a net increase in on-site employment.

An outline the negative financial impacts of the Project on the agricultural sector are summarised in the Soil and Land Capacity report prepared by Minesoils for this EIS. The report states the following:

> "For the purpose of this assessment, the temporary impact of the Project on productivity of agricultural land based on the change in land use for the duration of the Project is up to $305,572 per year. Due to the minimal disturbance to the landform, following the life of the Project, 799 ha of land removed from agriculture will be returned to agricultural use, with no reductions in land and soil capability. Agricultural enterprises can then re-commence at an equivalent agricultural productivity.
>
> The permanent impact of the Project on productivity of agricultural land based on the removal of the remaining 4 ha following the Project is estimated up to $1,547 per year. This is due to the construction of a substation onsite.
>
> The permanent reduction of $1,547 per year is considered negligible impact in the context of the agricultural industry gross value of the Richmond Valley Council LGA as outlined in Section 2.4.2 (0.002%).
>
> The Project will have a negligible impact on the viability local and regional agricultural services. Impacts may be experienced for contracting services associated with cultivation activities, weed control, sowing, stock feeding, cutting, raking, bailing, and harvesting services. However, changes to the supply and viability of agricultural support services in the main service centres of Grafton and Casino are driven by social and market trends far exceeding the scale of the anticipated reduction in agricultural land use and productivity as a result of the Project."

4.8 Local Road Improvements

Local roads will be upgraded to facilitate the delivery of key components to the Project Area via over size and over mass (OSOM) vehicles. In broad terms, the Proponent will seek to ensure roads are left in the same or better condition than their current status post construction. The Proponent will be responsible for financing any necessary road improvements, with this figure included in the Project investment total (refer to 4.2).

4.9 Ongoing Economic Stimulus

4.9.1 Landowners

The Proponent will be leasing the land to host the Project. While these annual lease payments are confidential, they may provide a local stimulus through investment in farming (or other) activities and through business and individual consumption impacts associated with the host landowners.

4.9.3 Community

The Proponent has indicated it will provide a Community Benefit Fund (CBF) for the operating life of the Project (30 years). The CBF is to be administered by Richmond Valley Council in the form of their Section 7.12 Contributions Plan aimed at improving and building local facilities such as parks, community facilities, roads and drainage.

It is understood payments are estimated at $850 per MW installed per year. In aggregate, these payments will equate to a total benefit of $20.2 million over the Project's operational lifespan. Note, these estimates are based on the installed operating capacity of the Project estimated at up to 500 MW DC.

4.9.4 Local Wage Stimulus

The Project will support 21 FTE jobs in the EIA Study Area (direct and indirect) during the operational phase. These 21 FTE jobs will provide an estimated stimulus within the EIA Study Area of approximately $905,000 (2023 dollars) in Year 1 of operations, applying the methodology previously discussed in Section 4.2. Over the 30-year lifespan of the Project, the 21 local jobs supported by the Project will generate economic stimulus of $43.1 million.

4.9.5 Total Operational Stimulus

The total economic stimulus associated with the operation of the Project is estimated at approximately $145 million (rounded) over 30 years, (2022 dollars, CPI inflated) relating to operational wage stimulus, community fund payments and net land tax revenue to Council.

4.10 National Grid Supply Benefits

With an installed grid connection capacity of up to 500 MW DC, the Project has the potential to provide sufficient renewable energy to support the annual electricity needs of the equivalent of approximately 181,000 NSW households, based on industry benchmarks and comparable projects.

To provide context and theoretical perspective on the scale of the anticipated output from the solar farm, the EIA Study Area currently contains approximately 77,280 dwellings (ABS Census 2021); therefore, the Project has the potential to provide approximately two and half times the annual electricity requirements of the EIA Study Area, highlighting the importance of the facility from a clean electrical generation perspective.

4.11 Summary of State Benefits

In addition to supporting NSW State policy directions (refer to section 1.3) and national grid supply benefits (refer Section 4.10), the Project will deliver the following key Statewide economic benefits:

- Capital investment: $480 million or 40% of total project capital investment (50% attributed to imports and 10% to other states and territories)
- Construction employment: 310 FTE jobs (direct and indirect) or 80% of total average construction employment (remaining 20% attributed to other states, territories and internationally).
- Ongoing employment: 40 FTE jobs (direct and indirect), or 80% of total operating employment (remaining 20% attributed to other states, territories and internationally)
- Supports ongoing industry transition in Regional NSW from agriculture, mining etc to renewable energy.
- Future decommissioning investment and employment opportunities, to be determined (refer Section 4.13).

4.12 Proposed Mitigation Measures

The potential mitigation measures recommended by this assessment are summarised below in Table 4.3

Table 4.3 Proposed Mitigation Measures

Mitigation ID	Mitigation measure
EIA01	**Construction Workforce and Accommodation Strategy (CWAS)** Prior to commencing construction, it is recommended the Proponent prepares a CWAS for the Project in consultation with relevant stakeholders. The CWAS would build upon the assessment already undertaken within the EIA and SIA. This CWAS should include: • Ensure adequate assessment of workforce composition and suitability, to minimise issues relating to workforce presence in the locality. • Augment/re-purpose existing accommodation venues that may otherwise be unoccupied or soon to be unoccupied e.g. Pod villages. • Consider partnerships with existing accommodation providers, including temporary accommodation providers and manufacturers. • Develop and maintain an accommodation register for private property and business owners to register interest in leasing their properties for worker accommodation or further developing their accommodation business to meet workforce demand. • In the selection of accommodation options, ensure as far as possible that other industry sectors e.g., tourist accommodation providers, are not disadvantaged by the use of existing accommodation options in the region e.g. hotel/motel accommodation. • Liaise and collaborate with other renewable energy proponents in the region such as Myrtle Creek Solar Farm and Summerville Solar Farm to identify relevant accommodation options, and to fund the infrastructure and services required to support an influx of construction workforces within the region.
EIA02	**Community Shared Benefit Strategy (CSBS)** To ensure the broader community benefit from the construction and operation of the Project, it is recommended the Proponent develops a CSBS which includes: • Continue to consult the community, and community service providers within the social locality, to understand evolving needs and priorities and facilitate tailoring the Community Benefit Fund initiatives to those most impacted throughout the life of the Project. • Collaborate with other proximal renewable energy developers to ensure coordination in the administration of funds across the communities most impacted by development within the social locality, and to avoid overlap and duplication.

4.13 Project Decommissioning

The Project has an operating life of approximately 30 years, at which stage there are likely to be two main options for consideration:

- The Project Area will be refurbished and repowered to continue producing energy.
- The Project Area will be decommissioned, including the removal of all infrastructure (above and below ground) and the site will be returned to agricultural purposes.

If decommissioning were to occur, these activities pose similar potential impacts and benefits as construction activities, albeit over a shorter timescale. Decommissioning activities will likely involve a significant on-site workforce to dismantle the infrastructure and other workers to transport Project components from the site for disposal (or recycling) and rehabilitation activities.

Decommissioning will therefore support significant employment, business contracts and provide a spending stimulus to the EIA Study Area over the decommissioning period.

Given decommissioning will not occur for at least 30 years after the operation of the Project commences, it is not possible to estimate potential impacts and benefits at this stage noting economic, technological, and environmental factors may change considerably over this period.

5.0 EIA Conclusions

1. The Project will require approximately $1.2 billion in investment during the construction phase (of which approximately $180 million will be retained in the EIA Study Area). Approximately 150 direct and 240 indirect FTE positions will be supported in the national economy on average over the 24-month construction period. Once operational, 13 direct and 40 indirect FTE jobs will be supported nationally by the Project. Of these national totals, the EIA Study Area is expected to benefit from 80 FTE construction jobs and 21 FTE ongoing jobs (direct and indirect) associated with the Project.

2. The anticipated number of direct and indirect FTE jobs in the EIA Study Area (80 FTE) represents only 0.4% of the total labour force in construction-related activities (22,440 workers), noting that many of the indirect jobs will be supported in non-construction sectors (e.g., services sector). The EIA Study Area has approximately 2,780 unemployed labour force participants, some of whom could work on the Project and/or other major infrastructure projects (subject to suitable skills mix).

3. It is estimated that construction workers relocating to the region will inject approximately $9.0 million in new spending into the economy over the construction phase, supporting approximately 23 FTE jobs in the service sector in the EIA Study Area over this time.

4. It is possible that the construction of the Summerville Solar Farm could overlap with the construction of the Project, although there are a range of uncertainties associated with the timing of approval and subsequent construction of the project that will influence cumulative impacts. Myrtle Creek and Clarence Valley Solar Farm's construction phases are unlikely to overlap with the construction phase of the Project due to assumed delays currently being experienced in the planning phase.

5. It is understood sheep grazing is not recommended to be co-located with the operating solar farm based on landowner's advice and soil capability testing. In this regard, it is expected that all current agricultural employment (2-3 FTE jobs) at the Project Area to be made redundant with these jobs replaced (and increased) by ongoing solar farm related workers (13 FTE) resulting in a net increase in on-site employment.

   The temporary impact of the Project on the productivity of agricultural land based on the change in land use for the duration of the Project is up to $305,572 per year. While the permanent impact of the Project on productivity of agricultural land based on the removal of the remaining 4 ha of productive agricultural land following the Project is estimated up to $1,547 per year. The Project will have a negligible impact on the viability local and regional agricultural services.

6. Ongoing economic stimulus associated with the operation of the Project is estimated at approximately $145 million (rounded) (over 30 years, CPI adjusted) relating to landowner payments, operational wage stimulus and community fund payments.

7. The Project has the capacity to supply sufficient renewable energy to power the equivalent of approximately 181,000 homes pa, which represents approximately two and a half the total annual residential requirements of the EIA Study Area (77,280 homes).

8. In addition to supporting NSW State policy directions and national grid supply benefits, the Project will deliver the following key Statewide economic benefits:
   - Capital investment: $480 million or 40% of total Project capital investment (50% attributed to imports and 10% to other states and territories)
   - Construction employment: 310 FTE jobs (direct and indirect FTE jobs) or 80% of construction employment (remaining 20% attributed to other states and territories)
   - Ongoing employment: 40 FTE jobs (direct and indirect), or 80% of total operating employment (remaining 10% attributed to other states and territories)
   - Supports ongoing industry transition in Regional NSW from coal energy generation, mining etc to renewable energy.
   - Future decommissioning investment and employment opportunities, to be determined (refer to Section 4.13).

9. To minimise potential Project impacts and maximise Project benefits, the following mitigation measures are recommended:
   - Prior to commencing construction, it is recommended that the Proponent prepares a Construction Workforce Accommodation Strategy for the Project in consultation with relevant stakeholders.

- To ensure the broader community benefits from the construction and operation of the Project, it is recommended the Proponent develops a Community Shared Benefit Strategy, which could include funds to be administered through a VPA with Richmond Valley Council.

10. Decommissioning of the Project is likely to support significant employment generation, new business contracts and provide a spending stimulus to the EIA Study Area over the decommissioning period. However, given decommissioning will not occur for at least 30 years after the operation of the Project commences, it is not possible to estimate potential impacts and benefits at this stage noting economic, technological, and environmental factors may change considerably over this period.