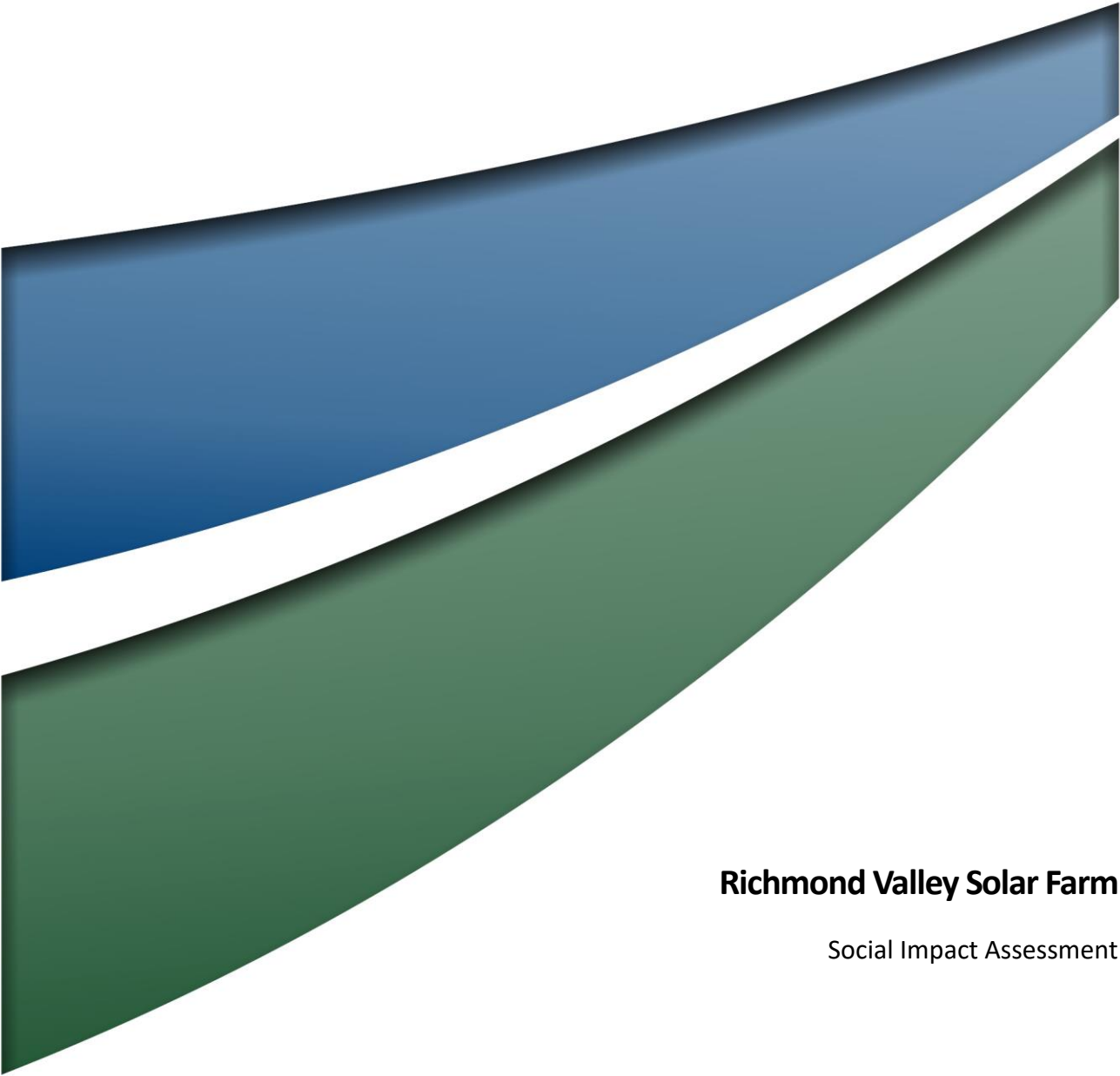


APPENDIX 7

Social Impact Assessment



Richmond Valley Solar Farm

Social Impact Assessment

Final

April 2024

Richmond Valley Solar Farm

Social Impact Assessment

Final

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Ark Energy Projects Pty Ltd

Project Director: Malinda Facey
Project Manager: Jessica Henderson-Wilson
Technical Director: Dr Sheridan Coakes
Technical Manager: Helen Le Gresley
Report No. 23252/R10
Date: April 2024



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Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	Dr Sheridan Coakes	02/05/2024	J Henderson-Wilson	02/05/2024

Executive Summary

The Richmond Valley Solar Farm (RVSF) is a proposed renewable energy project that will generate up to 500 megawatts of solar power on approximately 1,475 hectares of land in the Richmond Valley Council area, New South Wales. The Project will involve the installation of solar photovoltaic panels, inverters, substations, access roads, fencing, and other ancillary infrastructure. The Project will connect to the existing 330 kilovolt transmission line that runs through the site and deliver clean energy to the National Electricity Market.

The Social Impact Assessment (SIA) for the RVSF aims to identify, analyse, and evaluate the potential social impacts of the project on the local and regional communities and stakeholders, and to provide recommendations for the management and mitigation of negative social impacts and the enhancement of positive social impacts. The SIA follows the International Association for Impact Assessment principles and the NSW Government guidance for SIA for State Significant Developments.

The SIA methodology includes a desktop review of relevant literature, policies, and data; stakeholder analysis and mapping; a social baseline study, including analysis of the existing social conditions and trends in the study area; impact identification and evaluation using various tools and techniques, such as impact matrices, significance criteria, and scenario analysis; and preparation of a social impact management framework that outlines the roles and responsibilities, monitoring and evaluation mechanisms, and reporting and feedback procedures for the implementation of the SIA recommendations.

The SIA has involved extensive consultation with a range of stakeholders, including the project proponent, government agencies, local councils, landowners, neighbours, community groups, local and regional businesses, service providers, and the general community. The consultation activities have included interviews, surveys, focus groups, workshops, information sessions, and use of online platforms. The consultation has provided valuable input and feedback for the SIA and has helped to identify the key issues and concerns, expectations and aspirations, and opportunities and challenges related to the project.

The social baseline and locality section of the SIA provides a comprehensive overview of the existing social conditions and trends in the social locality, which covers the Richmond Valley, Clarence Valley, Lismore and Ballina local government areas (LGAs) and the Northern Rivers region. The section draws on various sources of data, such as census statistics, community surveys, stakeholder consultations, and literature reviews, to describe the key characteristics of the social locality, including:

- Human capital, illustrating that the social locality has a relatively stable and ageing population, with a lower-than-average proportion of Aboriginal and Torres Strait Islander people, migrants, and people from culturally and linguistically diverse backgrounds.
- Economic capital, indicating that the social locality has lower-than-average income levels, a higher-than-average unemployment rate, and a diverse economic base, with agriculture, manufacturing, health care, and tourism being the main industries.
- Physical capital, highlighting that the social locality has a range of facilities and services to meet the needs of the community, such as schools, health services, emergency services, transport, and recreation, but also faces some challenges and gaps, such as limited public transport options, lack of affordable housing, and ageing infrastructure.

- Social capital, including community wellbeing which suggests that the social locality has a strong sense of community identity and pride, high levels of civic participation and volunteerism, and good social networks and support systems, but also experiences some issues and concerns, such as social isolation, mental health problems, drug and alcohol abuse, and domestic violence.

The section also identifies the key stakeholders likely to be impacted by the Project, such as the landowners and neighbours of the Project, local and regional businesses and workers, local and state government agencies and representatives, community and environmental groups and organisations, and the general community. The views and perceptions of these stakeholders regarding the project and its potential benefits and impacts is documented, based on the feedback gathered through various engagement methods, such as interviews, workshops, surveys, and submissions. Analysis of engagement data indicates that stakeholders have mixed opinions about the project, with some expressing greater acceptance and interest, and others expressing opposition and concern. The main themes that have emerged from the stakeholder engagement include potential and/or perceived:

- Positive impacts of the project on the local and regional economy, employment, income, and skills development, especially during the construction phase.
- Negative impacts of the project on the visual amenity, landscape character, rural lifestyle, and heritage values of the area, especially for proximal landowners and neighbours of the project.
- Indirect social impacts associated with environmental impacts of the project, including impacts on environmental values relating to flora and fauna, water resources, soil quality, and air quality in the area, and the measures to avoid, minimise, or mitigate these impacts.
- Social impacts of the project related to traffic and road safety, noise and vibration, dust and glare, and health and wellbeing of the community, and the measures to avoid, minimise, or mitigate these impacts.
- Opportunities and challenges of the project in relation to social infrastructure and service provision, such as the demand and supply of housing, education, health, and emergency services, and the contribution and coordination of the proponent and local and state government agencies.
- Benefits and risks of the project for the community wellbeing and social capital, such as the enhancement or disruption of community cohesion, identity, and values, and engagement and involvement of stakeholders in project planning and decision making.

The SIA has identified and assessed the potential social impacts of the project during the construction, operation, and decommissioning phases. The impacts have been categorised into high, moderate, low, or negligible levels of significance based on their likelihood, consequence, extent, duration, and reversibility. The SIA has also considered the cumulative and residual impacts of the project in combination with other existing or planned developments in the region.

The main positive impacts of the Project include the:

- Creation of direct and indirect employment and income opportunities, especially during the construction phase, which may benefit the local and regional economy and reduce unemployment, should local workers be sourced as a priority.

- Contribution to NSW renewable energy targets and the reduction of greenhouse gas emissions, which will enhance environmental sustainability and the reputation of the region as a leader in clean energy production.
- Provision of community benefits and initiatives, such as scholarships, grants, sponsorships, and partnerships, which will support the social and economic development and well-being of the local communities and organisations.
- Improvement of local infrastructure and services, such as roads, telecommunications, and emergency response, to increase the accessibility, connectivity, and safety of the area.

The main negative impacts of the Project include the potential:

- Loss or degradation of agricultural land, biodiversity, and cultural heritage, which may affect the land use, landscape, and amenity values of the area and the identity and attachment of local communities and Indigenous groups.
- Visual, noise, dust, traffic, and electromagnetic interference impacts, which may cause nuisance, disturbance, and health and wellbeing issues for nearby residents and more sensitive/vulnerable stakeholders, including children and the elderly.
- Social and demographic changes, such as population influx, workforce accommodation, and social cohesion, which may create pressures and challenges for housing, service provision and facilities in the area and affect community character and dynamics.
- Economic and employment impacts, such as competition, displacement, and skills gap, which may affect the existing and future businesses and industries in the region and the availability and quality of the local labour force.

The SIA provides a range of strategies and measures to address the negative impacts and enhance the positive impacts of the project, based on the best practice principles and the feedback from the stakeholders. These strategies include developing and implementing:

- A range of management plans, such as an emergency management plan, biodiversity management plan, a cultural heritage management plan, a visual impact management plan, a noise and vibration management plan, a dust and air quality management plan, a traffic management plan, and an electromagnetic interference management plan, to minimise and mitigate the environmental impacts of the project.
- A local participation plan, a workforce management plan, and a community engagement plan, to maximise and monitor the local employment and procurement opportunities, to manage the construction workforce accommodation and behaviour, and to maintain ongoing and transparent communication and consultation with the stakeholders throughout the project lifecycle.
- A community benefits strategy, a community development fund, and a community partnership program, to provide financial and in-kind support for the local community projects and initiatives, to address the priority needs and issues, and to foster long-term and mutually beneficial relationships with the local organisations and groups.

- A regional development strategy, a skills and training plan, and a transition and decommissioning plan, to support the diversification and resilience of the regional economy and industry, to enhance the capacity and capability of the local workforce, and to plan for the end-of-life of the project and its infrastructure.

The SIA has followed a systematic and participatory approach to identify and assess the potential social impacts and benefits of the project, as well as proposing mitigation and enhancement measures to address high and moderate significant impacts.

The SIA has also demonstrated how relevant stakeholders and the community have been involved in the SIA process and how the proponent intends to continue this engagement during project implementation and operation, should the Project be approved.

The SIA has provided valuable insights and information to inform the decision-making process to ensure that the project contributes positively to the social and economic development of the region and its people.

Abbreviations

Abbreviation	Definition
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACHMP	Aboriginal Cultural Heritage Management Plan
AEC	Australian Electoral Commission
AEMO	Australian Energy Market Operator
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AIHW	Australian Institute of Health and Welfare
ANZCO	Australian and New Zealand Standard Classification of Occupations
APZ	Asset Protection Zones
Ark Energy	Ark Energy Limited
ATDW	Australian Tourism Data Warehouse
BESS	Battery Energy Storage System
BLALC	Bogal Local Aboriginal Land Council
BOCSAR	Bureau of Crime Statistics and Research
CBF	Community Benefit Fund
CEC	Clean Energy Council
CIV	Capital Investment Value
Co-op	Cooperative
CSEP	Community and Stakeholder Engagement Plan
CSP	Community Strategic Plan
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cr	Councillor
DCJ	Department of Communities and Justice
DFID	The Department of International Development
DPA	Distribution Priority Area
DPE	(Former) Department of Planning and Environment
DPHI	(Current) Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries
EDC	Estimated Development Cost
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement

Abbreviation	Definition
EPA	Environmental Protection Authority
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
FPIC	Free Prior and Informed Consent
FTE	Full-time equivalent
GHG	Greenhouse gas
GP	General Practitioner
Ha	Hectare
HHIA	Historic Heritage Impact Assessment
IAIA	International Association for Impact Assessment
IAPP	Indigenous and Australian Participation Plan
ICNNSW	Industry Capability Network of NSW
ICU	Intensive Care Unit
IEO	Index of Education and Occupation
IER	Index of Economic Resources
IRSD	Index of Relative Socio-Disadvantage
km	Kilometres
Korea Zinc	Korea Zinc Co Ltd
kV	Kilovolt
LAHA	Living away from home allowance
LALC	Local Aboriginal Land Council
LEP	Local Environmental Plan
LGA	Local Government Area
LIB	Lithium-ion batteries
LTESA	Long-Term Energy Service Agreement
LUCRA	Land Use Conflict Risk Assessment
LVIA	Landscape and Visual Impact Assessment
m	metre
MW	megawatt
MWh	Megawatt Hour
NEM	National Energy Market
NEMA	National Emergency Management Agency
NPWS	National Parks and Wildlife Service
NRJO	Northern Rivers Joint Organisation
NRRA	Northern River Reconstruction Authority

Abbreviation	Definition
NRRC	Northern Rivers Reconstruction Corporation
NRRI	Northern Rivers Resilience Initiative
NRRRP	Northern Rivers Recovery and Resilience Program
NSW	New South Wales
NVIA	Noise and Vibration Impact Assessment
OEH	Office of Environment & Heritage
PBC	Prescribed Body Corporate
PHA	Preliminary Hazard Assessment
PHIDU	Public Health Information Development Unit
PHN	Primary Health Network
PV	Photovoltaic
Q&A	Question and answer
Rd	Road
RDA	Regional Development Australia
REX	Regional Express Airlines
REZ	Renewable Energy Zone
RFS	Rural Fire Service
RNTBC	Registered native title bodies corporate
RL	Reduced level
ROI	Register of Interest
SAL	Suburb and Locality
SALM	Small Area Labour Market
SEARs	Secretary's Environmental Assessment Requirements
SEIFA	Socio-Economic Indexes for Australia
SIA	Social Impact Assessment
SISR	Social Impact Scoping Report
sq	Square
SSD	State Significant Development
TfNSW	Transport for New South Wales
UCL	Urban Centres and Localities
UN	United Nations
WHO	World Health Organisation

Author's Declaration

As outlined in Appendix B of the SIA Guideline, (DPE, 2023), suitably qualified and experienced practitioner/s should be involved in the preparation of the SIA scoping report and the SIA report. A suitably qualified person must have:

- Suitable qualifications in a relevant social science discipline.
- Proven experience over multiple years and substantial competence in social science research methods and SIA practices.

This SIA has been prepared by Helen Le Gresley (the SIA Project Manager) under the guidance and review of Dr Sheridan Coakes (the SIA Project Director). We declare that this SIA, completed on 2 May 2024:

- was prepared by a team that has suitable qualifications, proven experience and competence in SIA practice, and relevant professional memberships as outlined in **Table AD.1**;
- that the authors understand their legal and ethical obligations in the preparation of the SIA;
- that none of the information included in the SIA is false or misleading; and
- that the SIA contains all relevant information.

We declare that through the development of this SIA, the authors have adhered to:

- the SIA principles outlined in Table 2 of the SIA Guideline (DPE, 2023); and
- the EIANZ Code of Ethics and Professional Conduct (EIANZ, 2021).

Project Manager

A handwritten signature in black ink, appearing to read 'H. Le Gresley'.

Helen Le Gresley

Project Director

A handwritten signature in blue ink, appearing to read 'S. J. Coakes'.

Dr Sheridan Coakes

Table AD.1 Author Qualifications

Requirement	SIA Project Manager – Helen Le Gresley	SIA Project Director – Dr Sheridan Coakes
Suitable Qualifications	Bachelor of Social Science - Psychology/ Sociology Bachelor of Psychology Master of Psychology Graduate Certificate in Human Rights	Bachelor of Applied Science – Psychology Honours First Class – Psychology Doctor of Philosophy – Psychology
Proven Experience in SIA Practice	15 years	25 years
Professional Memberships	Australian Psychological Society American Psychological Association	Environmental Institute of Australia and New Zealand – Co-convenor of the SIA Community of Practice Board Member – Certified Environmental Practitioner Scheme

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1.0 Introduction

This Report documents the process and outcomes of the Social Impact Assessment (SIA) undertaken by Umwelt for the proposed Richmond Valley Solar Farm (the Project) located in the locality of Myrtle Creek in the Richmond Valley Local Government Area (LGA) of New South Wales (NSW). This SIA forms part of the Project's Environmental Impact Statement (EIS) required under Part 4 of the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project is considered a State Significant Development (SSD) under Part 4 of the EP&A Act. This report documents the process and outcomes of the SIA undertaken by Umwelt for the Project and has been prepared to address the requirements of the NSW Department of Planning, Housing and Infrastructure (DPHI) *Social Impact Assessment Guideline for State Significant Projects* (2023) (the SIA Guideline), *Undertaking Engagement Guidelines for State Significant Projects* (DPIE, 2022) as well as the Secretary's Environmental Assessment Requirements (SEARs) issued for the Project on 21 September 2022.

1.1 Project Overview

The Project is located approximately seven kilometres (km) east of Rappville and 25 km south of Casino within the Richmond Valley Local Government Area (LGA) of NSW. The Project involves the construction, operation and decommissioning of up to 500 megawatts (MW) of direct current (DC) solar photovoltaic (PV) generation, a 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 eight hours and approximately 2 km of transmission line to connect the Project from the substation to the National Energy Market (NEM). The Project will include various associated facilities and infrastructure including temporary construction facilities, an operation and maintenance (O&M) facility, internal access roads, civil works, fencing and other required electrical infrastructure.

The Project Area, illustrated in **Figure 1.1**, is an irregular shape to accommodate existing land uses and property boundaries. The Project covers an area of approximately 1,475 hectares (ha) and is proposed to have a Development Footprint of approximately 803 ha.

Key components of the Project include, but are not limited to:

- Up to 730,000 bifacial PV modules in an east-west single-axis tracking arrangement with a maximum tilt height of 4 metres (m) above ground level.
- A BESS with an approximate 275 MW power and 2,200 MWh storage capacity, housed in a series of outdoor containers, aggregated in one central location adjacent to the substation and switching substation.
- Up to 118 inverter stations to convert the DC solar panel electricity into AC electricity.
- Approximately 2 km of new transmission line connecting to the TransGrid Lismore – Coffs Harbour 330 kV transmission line (line 89) from a 330 kV switching substation and a 330 kV / 33 kV substation.
- Transmission towers up to 55 m tall.

- Underground electrical cable reticulation within the solar farm component of the Project Area to transport power from the solar arrays to the onsite substation.
- Site office and operations and maintenance building with parking for the operations team.
- Three access points from Avenue Rd (SA1, SA2 and SA3) via Main Camp Rd and Summerland Way.
- Internal roads to allow for Project maintenance and emergency response.
- Road upgrades - The access route from Summerland Way will require upgrades including Summerland Way / Main Camp Rd intersection, Main Camp Rd and Avenue Rd Intersection and sealing of sections of Avenue Rd from Main Camp Rd to the north most Project access point (SA3).
- A biodiversity corridor to improve habitat connectivity and reduce amenity impacts.
- Drainage line crossings (where required) to manage existing surface water flows (to be determined during further design development).
- Vegetation clearance associated with establishment of infrastructure.
- Perimeter security fencing around the Project, crossing gates, water tanks and/or dams, and internal access points around the Project.

Additionally, during the construction of the Project, a temporary site compound and laydown areas will be established to support the safe and efficient construction of the Project. These areas will be located within the Development Footprint.

The Project is expected to operate for 30 years. After the initial 30-year operating period, the solar farm would either be decommissioned, removing all infrastructure except the transmission lines and substations and returning the Project Area to its existing land capability, or repurposed with new PV equipment subject to technical feasibility and planning consent.

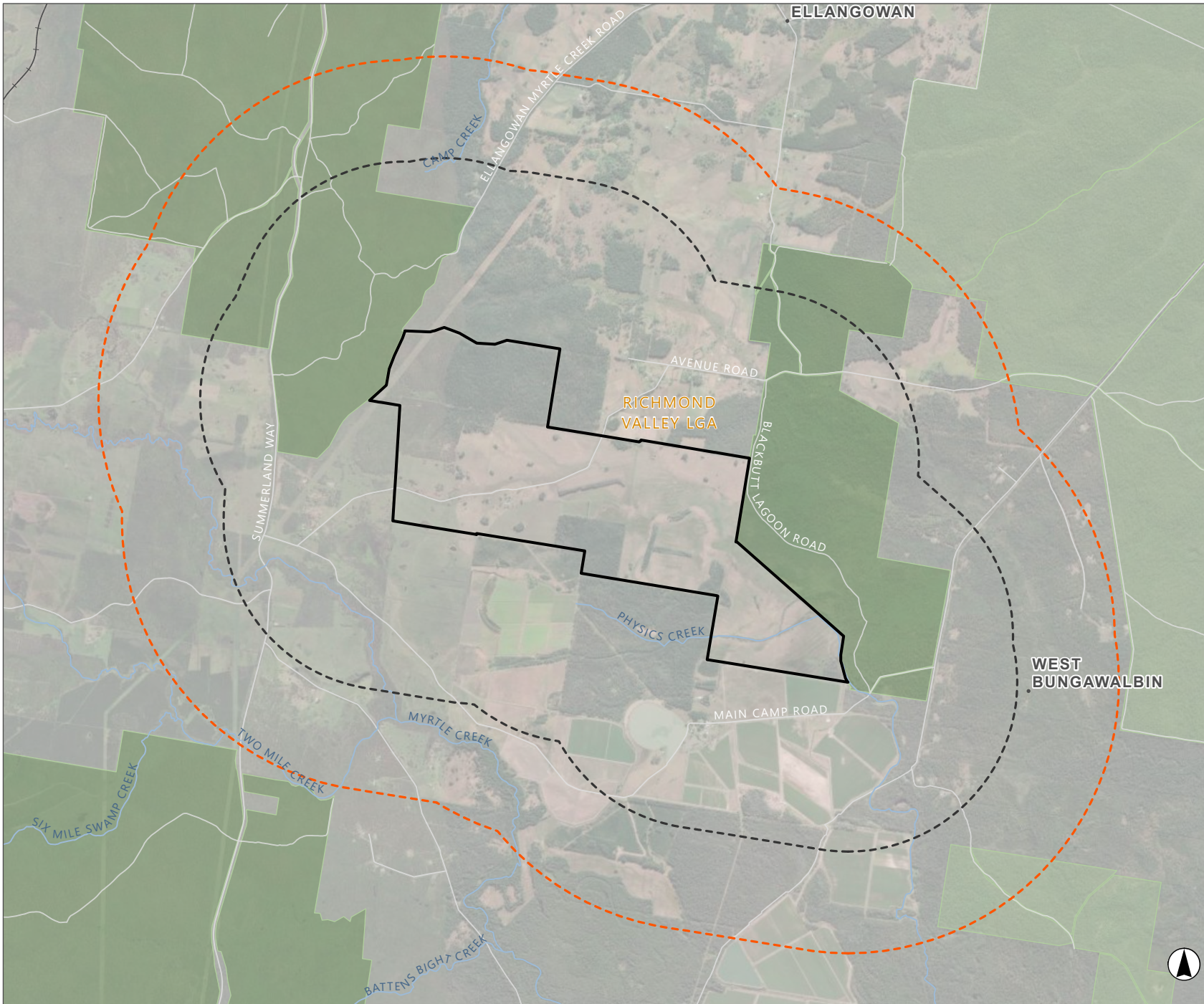


FIGURE 1.1
Project Area

Legend

- Project Boundary
- 2.5km Buffer
- 4km Buffer
- NPWS Reserve
- State Forest
- Railway
- Roads
- Watercourse



Scale 1:80,000 at A4
GDA 1994 MGA Zone 56

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1.1.1 Land Use and Settlement

The Project Area is generally flat with some undulation towards the western side of the Project Area. The general gradient of the Project Area slopes from west to east with an elevation of 70.0 Australian Height Datum (AHD) along the western boundary and 24.4 m AHD on the southern boundary of the Project Area. The Project Area has been subject to extensive land clearing, however, contains remnant patches of vegetation connecting into Ellangowan and Bungawalbin State Forests. Land use within the Project Area includes livestock grazing, private native plantation, forest and areas of environmental conservation as well as use for rural residential purposes.

Approximately 1,076 ha of the Project Area is comprised of Category 1 exempt land (NSW) and the whole Project Area is zoned as RU1 Primary Production under the Richmond Valley Local Environmental Plan (LEP) 2012. The Project is bordered by land zoned as RU3 Forestry and is also in proximity to land zoned as C1 National Parks and Nature Reserves comprising the Bungawalbin State Conservation Area and Bungawalbin National Park to the east.

1.2 The Proponent

The Proponent for the Project is Richmond Valley Solar & BESS Pty Ltd (ABN 43 672 993 869), a wholly owned special purpose vehicle of Ark Energy Corporation Pty Ltd. Richmond Valley Solar & BESS Pty Ltd (herein referred to as Ark Energy). Ark Energy was established in 2021 through the acquisition of Australian wind and solar developer Epuron and owns a growing portfolio of wind and solar energy projects in Queensland, New South Wales and Tasmania.

Ark Energy is the Proponent of 19 renewable energy projects across NSW and Australia at various stages of construction through to energy generation. Ark Energy is committed to achieving positive outcomes for the communities and environment in which it operates. To achieve this, Ark Energy is committed to building strong relationships with key stakeholders and local communities as well as appropriately addressing issues of concern and relevance to the local community.

Ark Energy is a subsidiary of Korea Zinc Co Ltd (Korea Zinc), the world's largest producer of zinc, lead and silver. Through its subsidiary, Sun Metals Corporation Pty Ltd, Korea Zinc has operated the Townsville Zinc refinery, which is the largest private employer in Townsville and has made a significant contribution to the regional economy of North Queensland for more than two decades.

Ark Energy is driven by the overarching goal of advancing decarbonisation in the energy sector. As a part of the Korea Zinc group, a pioneering member of the RE100 initiative, the company is dedicated to achieving 100% reliance on renewable energy for its global operations by 2050. For further information refer to Section 1.2 of the EIS.

1.3 Project Objectives

Through the development of the Project, Ark Energy aims to:

- Contribute to the local, regional and NSW economies with a particular focus on maximising the economic benefits for the Northern Rivers region.
- Support long-term productive relationships with the local community, Traditional Owners, regulators, and industry.

- Contribute to the secure energy transition associated with the closure of the remaining coal fire power stations in NSW by supplying electricity to the NEM.
- Positively contribute to State and Commonwealth renewable energy goals.
- Reduce carbon emissions associated with the energy consumption of the Korea Zinc group.
- Further details on how these objectives will be achieved are available in Section 1.6 of the EIS.

1.4 Report Purpose

Pursuant to the objectives of the SIA Guideline (DPE, 2023), the purpose of this SIA Report is to:

- Validate social data, assumptions and outcomes of the engagement undertaken to date and Proposed Assessment of social impacts as outlined in the 8 July 2022 Scoping Report.
- Identify and predict social impacts (positive and negative) associated with the Project, informed by engagement with key stakeholders.
- Consider potential Project design refinements in response to identified social impacts.
- Consider monitoring, mitigation, and enhancement measures and actions to address any significant social impacts associated with the Project.

Furthermore, this SIA has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued on 21 August 2022, by NSW DPIE, which outlines:

The EIS must include an assessment of the social and economic impacts in accordance with Social Impact Assessment Guideline (DPIE, July 2021) (subject to transitional arrangements) and benefits of the project for the region and the State as a whole, including consideration of any increase in demand for community infrastructure services, assessment of impact on agricultural resources and agricultural production on the site and region.

As is the case with any type of social change, some individuals or groups within the community may benefit, while others may experience negative consequence or effect. If negative impacts are predicted, it is the role of the SIA to determine how such impacts may be addressed effectively to reduce the degree of social disruption to those affected. If positive impacts are predicted, the aim of the SIA is to maximise these opportunities and identify how they might be further enhanced.

Monitoring and evaluation are also a key component of the SIA process, to identify any unanticipated impacts that may arise as a result of the project in the future, and to monitor social impacts, should the project proceed.

1.4.1 Report Overview

This Report is structured as follows:

Section 1.0 : Introduction, including a Project Overview.

Section 2.0: Assessment Requirements, Methodology, Stakeholder Identification and Engagement Mechanisms.

Section 3.0 : Social Baseline, consisting of the community profile and identification of development challenges and opportunities.

Section 4.0: Perceived Social Impacts, containing a thematic overview of community and stakeholder consultation outcomes.

Section 5.0: Social Impact Evaluation, presenting a technical assessment of the Project's social impacts (positive and negative).

Section 6.0: Social Impact Management Plan, providing a framework and overview of the approach to social impact management for the Project moving forward.

Section 7.0 and **Section 8.0**: Conclusion and References.

2.0 Methodology

SIA is an approach to predicting and assessing the likely social consequences of a proposed action and developing options and opportunities to improve outcomes for people. Best practice SIA is participatory and involves understanding impacts from the perspectives of those involved in a personal, community, social or cultural sense (Ross, 1992), to provide a complete picture of potential impacts, their context, and implications.

2.1 Assessment Requirements and Process

A ‘best practice’ approach to the SIA has been adopted and addresses the Department of Planning, Housing and Infrastructure (DPHI) Social Impact Assessment Guideline for State Significant Projects (hereafter referred to as the SIA Guideline) (2023) and the Undertaking Engagement Guidelines for State Significant Projects (2022), with this process illustrated in **Figure 2.1** and **Figure 2.2**.



Figure 2.1 SIA and EIA Process

Source: (DPE, 2023).

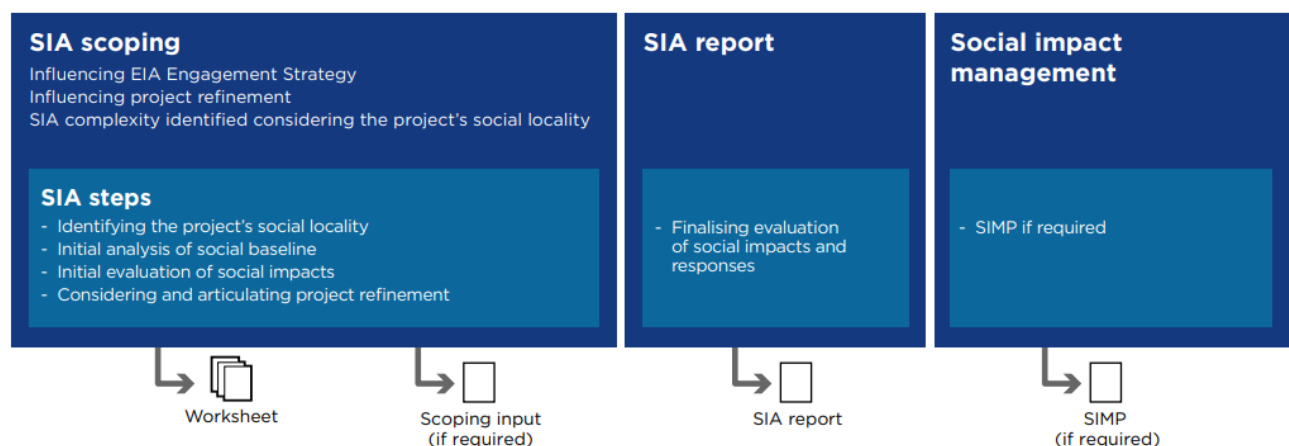


Figure 2.2 SIA Steps in Detail

Source: (DPE, 2023).

This SIA has been completed to address the SEARs for the Project as issued by DPHI (formerly DPE), which included the provision to undertake an assessment of social impacts in accordance with the SIA Guideline (DPE, 2023), and consideration of construction workforce accommodation requirements.

A SIA, informed by community and stakeholder engagement, affords opportunities to effectively identify, integrate and address social impacts within the detailed Project planning and assessment phase. The phases involved in identifying and managing social impacts and activities undertaken in each phase, are further outlined in **Figure 2.3**.

Community and stakeholder engagement is a key component of a SIA, to identify key social impacts from the perspectives of those likely to be most affected/interested in the Project, and to explore strategies that may be put in place to reduce negative impacts and enhance social benefits and outcomes.



Figure 2.3 SIA Program Phases¹

Source: ©Umwelt, 2023.

¹ Note: SIMP only required if included in the Conditions of Consent for the Project upon approval.

According to the SIA Guideline and as outlined in **Figure 2.4**, social impacts can be grouped according to several different categories and may involve impacts and changes to people’s way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems.



Figure 2.4 Social Impact Categories

Source: (DPE, 2023) ©Umwelt, 2023.

While some social impacts may directly occur because of the Project, others may be indirectly caused by changes in the biophysical environment and biophysical impacts, as outlined in **Figure 2.5**. Consequently, both direct and indirect social impacts are equally valid and should be considered.

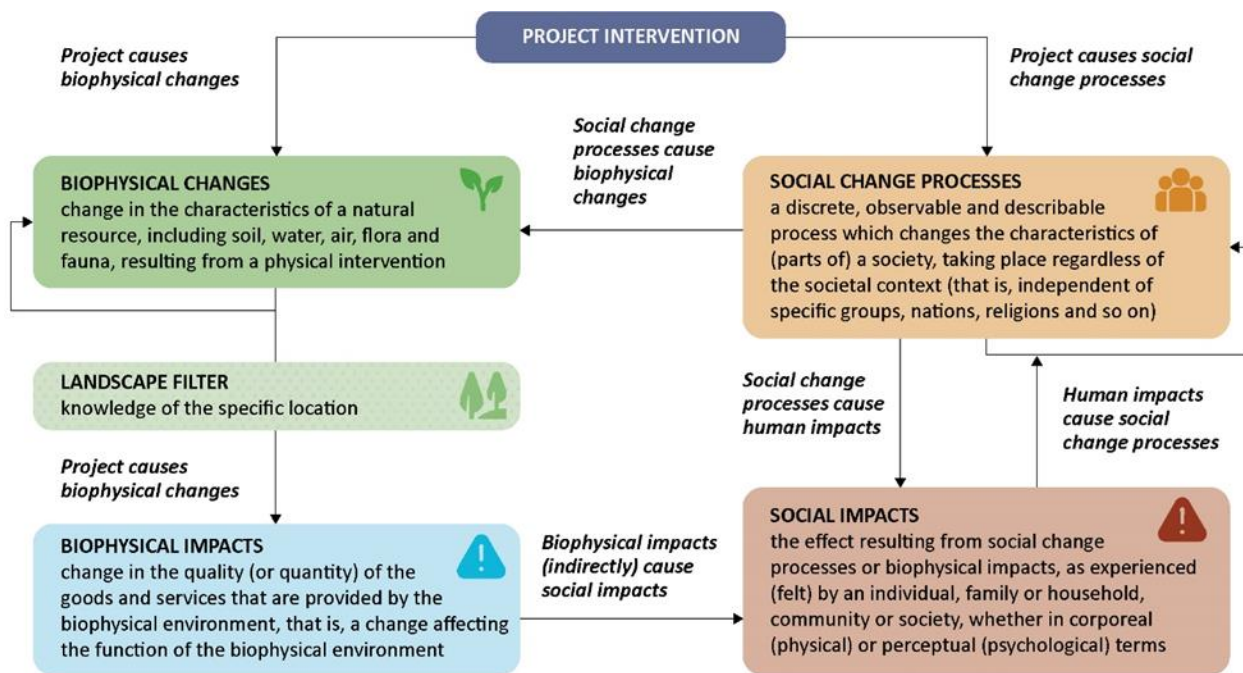


Figure 2.5 Direct and Indirect Social Impacts

Source: Umwelt, 2023, Adapted from Sloatweg et al, 2013 (p.28).

As is the case with any type of change, some individuals or groups within the community may benefit as a result of the Project, while others may experience negative impacts. Social impacts may also manifest as *tangible* impacts, these being impacts that may have a material outcome on the lives of individuals and communities, and more *intangible* impacts, such as justified fears or aspirations associated with a project:

‘Social impacts may be physically observable or may manifest as rational or justified fears or aspirations; may be experienced positively and negatively by different stakeholders; and may be tangible or more tangible’ (DPE, 2023).

If negative impacts are predicted, it is the role of the SIA to determine how such impacts may be addressed effectively through Project design or management measures to reduce the degree of disruption to those affected. If positive impacts are predicted, the aim of the SIA is to identify how benefits and opportunities might be further enhanced and realised.

Ongoing monitoring and evaluation are also key components of a SIA process, to identify any unanticipated impacts that may arise because of the Project, and which may not have been anticipated, and to monitor social impacts, should the project proceed.

Section 4.0 provides a description of the Project’s potential social impacts and **Section 5.0** provides an evaluation of the significance of each of the potential social impacts. The assessment is undertaken using the criteria noted above and through the application of the consequence and likelihood framework, as identified in the SIA Guideline, and summarised in **Figure 2.6**.



Figure 2.6 Social Impact Evaluation Process

Source: @Umwelt, 2023.

Appendix A further details the methodology, data sources and consultation mechanisms utilised for the SIA.

2.2 Stakeholder Engagement

2.2.1 Stakeholder Identification

SIA involves the participation and collaboration of people that may have an interest in, or those that are affected by, a project. As Burdge (2004) outlines, stakeholders may be affected groups or individuals that:

- live nearby the resource or Project
- have an interest in the proposed action or change
- use or value a resource
- are interested in the use of the resource
- may be forced to relocate as a result of the Project.

To identify key stakeholders, Ark Energy undertook a stakeholder identification process as part of the development of the Project's Community and Stakeholder Engagement Plan (CSEP) (Ark Energy, 2024). This process involved identifying stakeholders with an interest in the Project, or those that may be directly and/or indirectly affected, including any potentially vulnerable or marginalised groups.

Umwelt reviewed the CSEP and provided guidance on additional stakeholder groups to consider, and these have been incorporated into the plan.

Key stakeholder groups consulted or engaged during the SIA are outlined **Figure 2.7**, with further detail provided in **Section 2.2.2**. Engagement with NSW Government agencies was also undertaken in the development of the EIS and is summarised in Section 5 of the EIS.



Figure 2.7 Key Stakeholder Groups

Source: (Umwelt, 2024).

2.2.2 Engagement Mechanisms

Consultation activities undertaken to inform the SIA focused on providing information on the Project and planning process, understanding the social impacts of the proposed Project, and gathering community suggestions on potential management measures to address social impacts.

The SIA program and outcomes gathered through the various technical studies were also communicated during SIA engagement and broader Project engagement undertaken initially by Epuron, and subsequently Ark Energy, to assist in gathering feedback from key stakeholders and the wider community on predicted Project impacts more broadly.

Ark Energy has also undertaken additional engagement with key stakeholders and community members throughout the assessment process to inform Project design changes and environmental studies, with further detail provided in Section 1.5 of the EIS Report. Ark Energy's communication with individual stakeholders, in the form of de-identified correspondence and feedback forms, has also been assessed to inform the SIA.

As stated in the DPE SIA Guideline (2023), and acknowledged in Ark Energy’s CSEP, it is important that the SIA and broader engagement program is informed by an understanding of the relevant communities and potentially vulnerable groups within these communities, to ensure accessibility and appropriateness of the mechanisms and tools selected, as well as considering the social impacts that might be experienced and/or heightened for these groups.

The World Health Organisation (WHO) defines vulnerability ‘as the degree to which a population, individual or organization is unable to anticipate, cope with, resist and recover from the impacts of significant change’ (WHO, 2002). The Australian Charities and Not-for-profits Commission have identified the following populations as potentially vulnerable and requiring additional protection and consideration in the identification of project impacts; children and seniors, people with impaired intellectual or physical functioning, people from a low socio-economic background, Aboriginal and/ or Torres Strait Islander peoples, Culturally and Linguistically Diverse people, people with low literacy or education, and people who are homeless or at risk of becoming homeless (Australian Charities and Not-for-profits Commission, ND).

As outlined in the CSEP for the Project (refer to **Appendix D**), a variety of consultation mechanisms have been utilised to obtain the input of various stakeholder groups during the scoping and assessment phases, to inform Project design and planning and the development of this SIA.

Stakeholder engagement has been undertaken over two main rounds as part of the SIA program:

- **Round 1:** to inform the scoping phase of the SIA and the development of the Scoping Report. This engagement round, undertaken in 2021–2022, sought to identify the perceived issues/impacts to near neighbours and key stakeholders in the Project area. Mechanisms utilised in this phase included website development, development of an online feedback form, distribution of letters and newsletters, local media, meetings with Richmond Valley Council and the local Aboriginal Land Council and online community information sessions (due to COVID-19 restrictions). This round of engagement was undertaken by Epuron.
- **Round 2:** to further inform the evaluation and prediction of social impacts to support the preparation of the SIA, including the development of relevant mitigation and enhancement strategies. Round 2 engagement took place in 2023 – 2024 and included an updated website, letters and newsletters outlining Project updates and engagement mechanisms, an online feedback form, email and telephone correspondence and meetings with near neighbours, community members and stakeholders, community information sessions and distribution of an online/hardcopy survey focused on social impacts and opportunities. This round of engagement was undertaken by Ark Energy supported by Umwelt.

Utilising a mixed methods approach, where multiple data sources and methods, such as surveys, interviews, media reports, meeting notes, feedback forms and correspondence are incorporated, provides multiple perspectives on the Project and allows for discrepancies and/ or complexities to be better understood (Creswell & Clark, 2017).

Table 2.1 illustrates the provision of information and mechanisms utilised for community and key stakeholder engagement across the Scoping (Round One) and SIA/ EIS phases (Round Two) by targeted stakeholder group.

Appendix A (Section 1.3), further details the community and key stakeholder engagement mechanisms conducted across the Scoping (Round One) and SIA/ EIS phases (Round Two).

Table 2.1 Engagement and Communication Mechanisms to Stakeholder

Stakeholder Group	Information Provision							Engagement Mechanisms						
	Project Website	Printed project newsletters	Project posters	Project information sheets	Project email updates	Personalised letter box drops	Local media release	Project briefings	Individual meetings/ Interviews	Community information sessions	Online survey	Phone Survey	Feedback Survey	Site Visits
Aboriginal stakeholders and Traditional Owners	✓							✓						✓
Local Government	✓							✓						
State Government	✓							✓						
Federal Government	✓							✓						
Neighbouring landholders / residents	✓	✓			✓	✓			✓	✓	✓			
Community and Special Interest Groups	✓	✓			✓		✓		✓	✓	✓			
Local Businesses and Service providers (health, emergency, education, local business)	✓								✓		✓			
Accommodation Service Providers												✓		
Broader community	✓	✓	✓	✓	✓		✓			✓	✓		✓	

Source: (Umwelt, 2024).

Table 2.2 provides a breakdown of the stakeholder groups that have participated in the Project’s planning and assessment process to date through the engagement mechanisms outlined above, and whose feedback and input has informed the SIA.

Table 2.2 Stakeholders Consulted by Phase

Stakeholder Group	Phase 1 – Scoping		Phase 2 – SIA/EIS	
	No. of Participants/ Times Contacted *	Number Participants Engaged	No. of Participants/ Times Contacted*	Number Participants Engaged
Aboriginal stakeholders and Traditional Owners	2	2	20	5
Local Government	1	1	3	2
State Government	-	-	12	-
Community and Special Interest Groups			15	2
Local Business and Service providers (health, emergency, education, local business)	2	2	16	4
Accommodation Service Providers	-	-	31	10
Neighboring landholders / residents	82	82	101	34
Broader community	1,199	18	1,040	92

Source: (Epuron, 2022)(Umwelt, 2024).

*Note: Number of contact attempts made to stakeholder groups.

Quantitative and qualitative information collected through engagement activities outlined in **Appendix A**, has been evaluated to inform the analysis of social impacts associated with the Project, as outlined in **Section 5.0**. Data generated through engagement activity was systematically compared and cross checked for consistency across multiple sources and stakeholders to enhance the credibility and quality of evaluation (Denzin & Lincoln, 2011).

2.3 Assessment Limitations

The following limitations to the study are noted:

- The views of the community represented throughout the report are based on the sample of community members and stakeholders consulted as outlined in **Appendix A** and do not necessarily represent the views of all community members.
- The SIA did not include primary insights from Traditional Owner groups and relied on inputs from engagement undertaken as part of the Aboriginal Cultural Heritage Assessment.
- Elements of the SIA have been developed based on knowledge and information collected from secondary data sources and community consultation. It is assumed that secondary data sources contain valid, representative data and have not misconstrued information.

- Accommodation data has been analysed (as per issued SEARs) from the latest data available, though this is indicative of the current periods (AirDNA – December 2023, ATDW – January 2024), and therefore may change once Project construction has commenced.
- Umwelt were not involved in all consultation mechanisms therefore have relied on engagement records collated and maintained by Ark Energy and Epuron during the Scoping Phase.

3.0 Social Locality and Baseline

3.1 Social Locality

The social baseline profile has been compiled based on the definition of the Project’s social locality or ‘area of social influence’.

The social locality for the Richmond Valley Solar Farm has been defined at both a localised and regional scale, given the likely social impacts that may be experienced because of the Project both locally and across the broader region as defined in **Table 3.1**.

A social locality or ‘area of social influence’ is defined as the area considered to be impacted by a Project, based on a range of direct and indirect, tangible and intangible impacts (DPE, 2023). The Project boundary, drive times and REZ boundary are illustrated in **Figure 3.3**, to demonstrate the geographical setting of the social locality in relevance to current developments, service townships and regional development context.

Table 3.1 Social Locality Inclusions and Justifications

Settlement Aspect	Township/ Locality/ Community & Population	Reason for inclusion
The SA1 ² including, and surrounding, the Project, including landholders and neighbours of the Project	Much of the land within the Project Area is substantially disturbed due to historic forestry operations and current cattle grazing. The land is currently used for cattle grazing with 2 landholders and approximately 200 head of breeding cattle on the Project Area. The SA1 (11202124527) which includes and surrounds the Project has a population of 275.	The host SA1 is the smallest geographical unit available to analyse demographic data surrounding the Project location, it also includes the township of Myrtle Creek. It provides indicative insights into the characteristics of landholders likely to experience the highest impacts from the Project.
Immediate neighbours of the Project	5 km radius from the Project Area 22 neighbours identified in the EIS.	5 km radius aligns with the distance used to identify ‘sensitive receivers’, as identified by the NSW DPHI Solar Guideline and the Technical Supplement – Landscape and Visual Impact Assessment. The receivers list received from Ark Energy dated June 27, 2023, showed 69 dwellings within 4 km of the Project Area. This list was refined based on feedback from Richmond Valley Council to exclude 17 structures that were determined to be sheds. Therefore, there are now 52 structures classified as dwellings within 4 km of the Project Area.

² SA1s are designed using multiple criteria including, populations ranging from 200-800 people, remote and regional areas, designed to represent Aboriginal and Torres Strait Islander communities and designed to be either urban or rural in character.

Settlement Aspect	Township/ Locality/ Community & Population	Reason for inclusion
Immediate surrounding transport routes	Avenue Road, Summerland Way and Main Camp Road.	These roads will likely see traffic changes due to the Project construction activities, with traffic along Avenue Road Summerland Way and Main Camp Road increasing.
Geographically adjacent (within 30 min drive)	Myrtle Creek (92) Rappville (142) Ellangowan (318) West Bungawalbin (54)	These settlements are included due to their physical proximity which indicates that they may be most likely to be impacted by the Project, and more likely to provide services or accommodation to support the Project. The larger settlements of Grafton and Lismore are also likely to serve as higher-order townships with a greater density of businesses, services and infrastructure. It is identified that Lismore LGA will have limitations to services and housing due to the 2022 flood further detailed in Section 3.3.1.6 .
Proximal (within 60-minute drive) and primary order (population over 10,000 people) (SAL)	Casino (10,930) Grafton (17,155) Lismore (27,916)	
Proximal (within 60-minute drive) and secondary order (population between 1,000 and 10,000 people)	Ballina (9,735)	
Local Government Area (LGA)	Richmond Valley LGA (23,565) Lismore LGA (44,334) Ballina LGA (46,296) Clarence Valley LGA (54, 115)	
Proximal projects with the capacity to generate cumulative impacts	Projects further outlined in Table 3.5 and illustrated in Figure 3.3 .	These projects are included as they generate cumulative impacts by exacerbating or enhancing the impact of the Project. A broader assessment of cumulative impact is covered in Section 3.3.2 . There are a number of renewable energy and infrastructure projects in this locality.

Settlement Aspect	Township/ Locality/ Community & Population	Reason for inclusion
Key communities affected by 2019/20 bushfires and 2022 floods	<p>Figure 3.3 illustrates the maximum water heights of flood affected towns in the Richmond catchment in which major flooding³ occurred.</p> <p>Table 3.2 below summarises the total area flooded in each of the LGAs.</p> <p>Table 3.3 summarises the total area burned in the 2019–2020 bushfires in the LGAs.</p>	<p>Two of the identified potential service townships for the Project (Lismore and Ballina) experienced severe weather and major flooding in 2022 as identified in Figure 3.3. The local area also experienced extreme bushfires in 2019–2020. Appendix C further summarises the scale and nature of the 2019/20 bushfires. This experience was declared natural disaster and influences the respective community’s adaptive capacity and sustainable livelihoods, as outlined in Section 3.5 and Appendix C.</p> <p>These communities may be more vulnerable to change due to the experience, and ongoing threat of, flooding events and previous impacts experienced.</p>

Source: (Umwelt, 2024 (ABS, 2021)).

Table 3.2 2022 Flood Statistics for LGA

Locality	Total Area Flooded	Agricultural Land Flooded	Residential Land Flooded
Richmond Valley LGA	219 sq km (7%)	146 sq km (13%)	8 sq km (14%)
Lismore LGA	203 sq km (16%)	170 sq km (18%)	5 sq km (7%)
Ballina LGA	66 sq km (14%)	51 sq km (16%)	4 sq km (8%)

Source: (CSIRO, 2022).

Table 3.3 2019–2020 Bushfire Statics for LGA


Locality	% of total land burned in 2019–2020 fires
Richmond Valley LGA	53.4%
Lismore LGA	2.7%
Ballina LGA	2.1%
Clarence Valley LGA	59.0%

Source: (Nicholas & Evershed, 2020).



Table 3.4 provides a snapshot insight into the key localities and townships within the social locality, with a more detailed summary in **Appendix C**.

³ Flooding which caused inundation of extensive rural areas, with properties, villages and towns isolated and/or appreciable urban areas flooded. Evacuation of flood affected areas may be required. Utility services may be impacted.

Table 3.4 Snapshot of Township/Locality

Township/ Locality	Description
Geographically Adjacent (within 30 minutes' drive)	
Myrtle Creek	<ul style="list-style-type: none"> • Small population of 92. • Older population with a median age of 60⁴. • Limited access to social infrastructure. • Impacted by bushfires in 2019.
Rappville	<ul style="list-style-type: none"> • Small population of 142. • Older population with a median age of 49⁴. • Key community services such as a primary school. • Historically valued infrastructure e.g. Commercial Hotel, and Rappville Soldier's First World War Memorial Avenue. • Impacted by floods in 2019 as well as bushfires which destroyed 10 homes and burnt 100,000 ha of land.
Ellangowan	<ul style="list-style-type: none"> • Small population of 318. • Older population with a median age of 47⁴. • Limited community services. • The township area is vulnerable to annual bushfires, with large fires in 2018 and 2022.
West Bungawablin	<ul style="list-style-type: none"> • Small population of 54. • Older population with median age of 49⁴. • Limited to no community services. • Key natural environment with Bungawablin National Park. • Impacted by bushfires in 2019.
Proximal and Primary	
Lismore	<ul style="list-style-type: none"> • Larger population of 27,916. • Older population with a median age of 41⁴. • Key service township of surrounding regional and rural areas. • Key community services such as educational facilities including tertiary educational options, shops, hospitals and social services. • Historically valued infrastructure including Lismore Cultural Trail, War Memorial Baths and natural conservation areas. • Impacted by extreme weather events, most significantly in 2022 with a flood height of 14.4 m. (refer to Figure 3.1). 

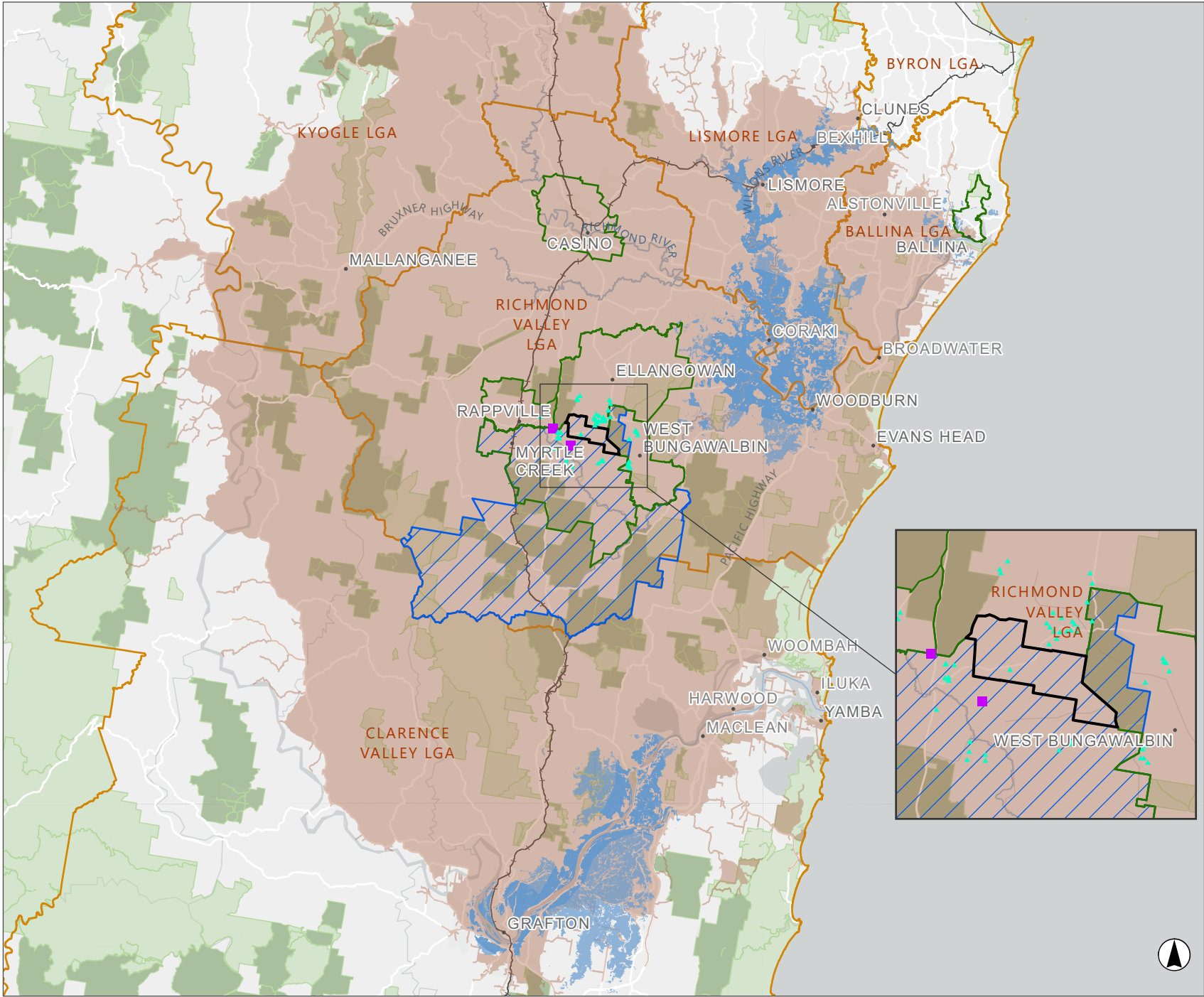
⁴ NSW median age= 39.

Township/ Locality	Description
	 <p>Figure 3.1 Lismore’s St Carthage’s Cathedral and Liberty Petrol Station, 2022 Source: (Zagon, Noble, & Gilbert, 2022).</p>
Grafton	<ul style="list-style-type: none"> • Larger population of 17,155. • Older population with a median age of 42⁴. • Key service township of surrounding regional and rural areas. • Key services and infrastructure include shops, cafes, emergency services, hospitals, educational facilities including tertiary education options. • Historically valued infrastructure and natural amenity. Area is characterised by the Victorian buildings and recreational activities such as Grafton Heritage City Walk. • In 2022, Grafton experienced extreme weather events with flooding of 6.1 m (refer to Figure 3.2).  <p>Figure 3.2 Clarence River, Grafton, 2022 Floods Source: (The Daily Telegraph, 2022).</p>
Casino	<ul style="list-style-type: none"> • Larger population of 10,930. • Older population with a median age of 43⁴. • Regional service township, that relies on the cattle and timber industry. Key services include public transport, trains, accommodation, restaurants, emergency services and recreational facilities. • Key events such as Beef Week held annually. • Historically valued township with Victorian era buildings. • Impacted by bushfires in 2023, destroying historical infrastructure and major floods in 2020.
Ballina	<ul style="list-style-type: none"> • Larger population of 9,375. • Older population with a median age of 56⁴. • Key service area with schools, social services and community services. • Key tourism area, with iconic attractions such as the big prawn and surfing beaches. • Impacted by 2022 floods, with a maximum flood height of 2.8 m (refer to Figure 3.3).

Sources: (news.com.au, 2019; Discover Richmond Valley, n.d.; NSW War Memorial Register, n.d.; Herbert, 2022; Aussie Towns, n.d.; Aussie Towns, n.d.; Visit North Coast NSW, n.d.; Krusche & Morphet, 2018; Visit North Coast NSW, n.d.; Ballina Shire Council, 2023).

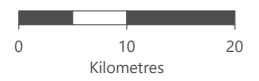
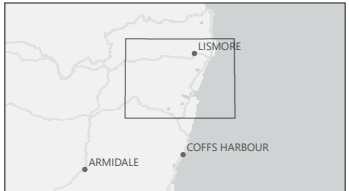
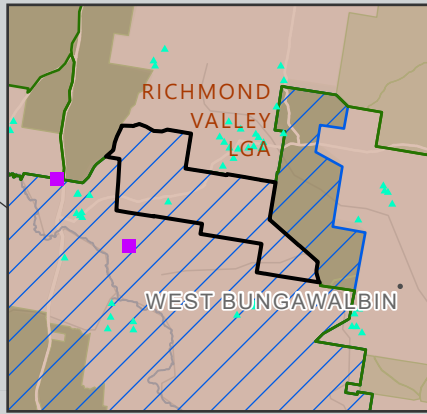
FIGURE 3.3

Social Locality



Legend

- Project Boundary
- Nearby Residents
- Towns
- Nearby SSD Projects (Solar)
- Areas within a 60-minute drive
- Local Government Area
- SA 11202124527
- Suburb and Localities Boundary
- Flood Extent March-April 2022
- State Forest
- NPWS Reserve
- Roads
- Watercourse
- Railway



Scale 1:700,000 at A4
GDA 1994 MGA Zone 56



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3.2 Energy Policy in NSW

3.2.1 NSW Climate Change Policy

Australia's commitment at the international level to the 2015 Paris Climate Accord has influenced the growth of and investment in the renewable energy sector across the country in recent years, with further commitments to reduce national Greenhouse gas (GHG) emissions by 26–28%, below 2005 levels by 2030, and achieve net zero emissions by 2050 committed to as part of the 2021 United Nations (UN) Climate Change Conference (Department of Industry, Science, Energy and Resources, 2022).

The NSW Government's current energy security policy and approach to a clean energy transition is being delivered through the strategic development of the renewable energy sector. As outlined through the NSW Government's Renewable Energy Action Plan (2013), Electricity Strategy (2019), the Electricity Infrastructure Roadmap (2020) and the Net Zero Plan Stage 1: 2020–2030 (2021).

For further information refer to Section 2.3.2 of the EIS report.

3.2.2 Net Zero Plan Stage 1: 2020–2030

The Net Zero Plan Stage 1: 2020–2030 establishes the NSW Government's delivery plan toward its objective of achieving net zero emissions by 2050. The Plan represents the overarching strategy to mitigate emissions and address the impacts of climate change. The implementation of the Plan will result in more than 9,000 jobs and up to \$37 billion in private investment, with the majority expected to be in regional NSW (NSW Climate and Energy Action, 2021).

For further information refer to Section 2.3.1 of the EIS report.

3.2.3 NSW Electricity Infrastructure Roadmap

In November 2020, the Electricity Infrastructure Roadmap was released, enabled by the *Electricity Infrastructure Investment Act 2020* (NSW), which sets out the NSW Government's plan to deliver the State's first five Renewable Energy Zones (REZ). The Roadmap builds on the foundations of the Electricity Strategy released in 2019, and is expected to attract up to \$32 billion of private investment in regional energy infrastructure by 2030 (NSW Energy, 2020); with investment generating around 6,300 construction jobs and 2,800 ongoing jobs, along with \$1.5 billion in lease payments for landowners, especially in regional NSW, as a result of the development of wind and solar farms.

For further information refer to Section 2.3.2 of the EIS report.

3.2.4 Network Infrastructure Strategy

NSW has identified 5 REZs so far in the State. These zones allow for the grouping of solar and wind power generation into locations where it can be efficiently stored and transmitted across NSW (NSW Government, n.d.). The REZs are a key to the NSW Government plans and strategies to increase renewable energy production in the State. The proposed Project is situated outside of the current REZs but aligns with the overall goals and plans for renewable energy in NSW.

For further information refer to Section 2.3.5 of the EIS report.

3.3 Regional Development Context

The proposed Project is located with the Northern Rivers Region, NSW. The Northern Rivers covers approximately 20,732 square kilometres and is defined by the Tweed, Richmond and Clarence River systems. In 2021, 310,857 people called the Northern Rivers home (RDA, 2021). The unique lifestyle attributes of the Northern Rivers are deemed to be a key driver for growth. Retirees are attracted by the climate, and younger people seeking alternative lifestyles are attracted to ‘tree change’ and ‘sea change’ opportunities provided by affordable housing, beaches and waterways and a creative social environment (REMPLAN, 2023).

The region has experienced various changes in population. In Ballina LGA there has been significant net internal migration of 39% from September 2022 to September 2023, while Lismore LGA reported net outflows over the past 12 months (September 2022 to September 2023) (Regional Australia Institute, 2023). The changing internal migration patterns identify potential changes in demand for housing and infrastructure in the key service townships proximal to the Project.



Figure 3.4 RDA Northern Rivers Region

Source: (DPE, 2022).

Recent weather events have also influenced access to critical social and physical infrastructure in the social locality. In 2022, the Region experienced severe weather causing detrimental damage to the community, homes and infrastructure. This prompted the creation of the Northern Rivers Reconstruction Authority (NRRRA). The NRRRA manages the rebuilding of flood-impacted communities in the Northern Rivers region. The NRRRA formally came into effect from 1 July 2022 and is working with stakeholders and communities within the 7 local government areas in the Northern Rivers: Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed (NSW Government, n.d.). The Authority has three key objectives:

- Deliver resilient homes.
- Drive social and economic recovery.
- Construct critical infrastructure.
- Further details regarding plans and funding aligned to recovery and reconstruction following the 2022 flooding is outlined in **Section 3.3.1.6**.

A number of local and regional plans relevant to the social locality were also reviewed to inform an understanding of the development priorities and interests of the region and these are summarised below.

3.3.1 Relevant Planning Instruments

3.3.1.1 Northern Rivers Regional Economic Development Strategy

The Northern River Regional Economic Development Strategy (Department of Regional NSW, 2023) encompasses the Project Area and social locality. It's recent update in 2023 was due to the changes in regional NSW including, bushfires, floods, COVID-19 and the mouse plague, and significant new economic opportunities have emerged.

The Strategy further identifies key significant investments which have been delivered in the region since 2018. These include:

- \$13 million towards the redevelopment of Lismore Base Hospital.
- Establishment of Richmond Valley Jobs Precinct.
- Over \$17 million committed to the Northern Rivers Rail Trail project.
- \$23 million to expand the Ballina Byron Gateway Airport.

Through consultation with stakeholders from across the Northern Rivers region, key priority areas were highlighted. These included:

- Need for resilience policies, programs and projects in light of natural disasters and COVID-19.
- Current housing availability and affordability issue which are further exacerbated by population growth, limited land availability, worker influx.
- Workforce and skills shortages in key industries such as healthcare, agriculture, tourism and hospitality.

3.3.1.2 North Coast Regional Plan 2041

The North Coast Regional Plan sets a 20-year strategic land use planning framework for the region. The plan has set the core vision of *'Healthy and thriving communities, supported by a vibrant and dynamic economy that builds on the region's strengths and natural environment.'* This vision is supported by three focused goals and associated directions:

- Goal 1 – Liveable, sustainable and resilient: delivering housing; protecting ecological diversity and high environmental assets; understanding, celebrating and integrating Aboriginal culture; managing resilience to natural hazards and climate change; support agricultural productivity; and promoting renewable energy infrastructure such as wind and solar farms.
- Goal 2 – Productive and connected: support employment hubs; create a diverse visitor economy; champion Aboriginal self-determination; improves state and regional connectivity; utilise new transport technology and support public transport use; and deliver industries of the future.
- Goal 3 – Growth change and opportunity: planning social and physical infrastructure; and green infrastructure and healthy communities. (DPE, 2022).

For further information refer to Section 2.4.1 of the EIS.

3.3.1.3 Northern Rivers Region- Renewable Energy Blueprint for the Northern Rivers

Richmond Valley Council, the LGA within which the Project is located, have joined 6 other proximal councils in the Northern Rivers Region to form the Northern Rivers Joint Organisation (NRJO). This joint venture was created to deliver key regional priorities, including the promotion of innovative, sustainable energy, water, and waste management.

The Blueprint identifies the regions alignment with the move towards renewable energy sources.

'The Northern Rivers has been at the forefront of renewable energy uptake in Australia. It is home to Australia's first community-owned renewable energy retailer, NSW's largest bioenergy generation plants, Australia's first solar garden, Australia's first ever council-operated and community-owned solar farm, and the region has among the highest levels of rooftop solar in the country.'

The Blueprint encourages renewable energy developers to seek social license and conduct thorough community engagement while committing to streamlining planning processes for SSDs and working collaboratively with developers (NRJO, 2022).

For further information refer to Section 2.4.2 of the EIS.

3.3.1.4 Richmond Valley Community Strategic Plan

The Richmond Valley Community Strategic Plan (CSP) outlines the goals and aspirations of the Richmond Valley community into 2040. Due to the 2022 floods in the region, the CSP focuses on the recovery of the community and infrastructure to support the continued growth and resilience required to service future growth.

Key elements of the CSP include:

- **Housing:** 3,000 properties impacted by flooding (28.1% of private dwellings in the LGA), more than 450 homes uninhabitable (5.1% of occupied dwellings in the LGA), more than 1000 people displaced (4.2% of the population in the LGA). In light of this the plan states that more than 2,000 new homes will be built on flood-safe land.
- **Employment:** new employment opportunities which will arise such as 600 new jobs created directly through the Regional Jobs Precinct, and more than 1,000 jobs from associated support and service industries as the population grows.
- **Services and infrastructure:** the region’s plans to support future population growth includes updates to secure long-term water supplies, provide new and upgraded water and sewage infrastructure and enhanced community facilities across the entire region.

The CSP included consultation with community members to better understand the aspirations of the community into the future. The community identified climate change as a key challenge the community is facing. Plans to build and respond differently to climate change going forward was a key opportunity identified to create a safe and sustainable future (Richmond Valley Council, 2023).

3.3.1.5 Richmond Valley Regional Job Precincts

The NSW Government has identified four Regional Job Precincts in areas of regional NSW which have the potential as growth areas for industry. These precincts provide a planning framework which will support local governments, regional communities, industry and business for future investments and development. The initiative will drive local planning changes, investment and new jobs in regional NSW (Regional Growth NSW Development Corporation, 2024).

As illustrated in **Figure 3.5** the Richmond Valley LGA has been identified as a precinct.



Figure 3.5 Regional Jobs Precincts

Source: (Regional Growth NSW Development Corporation, 2024).

The Richmond Valley Regional Job Precinct master plan is currently in draft form and was placed on exhibition for public comment from 12 February to 10 March 2024. The draft masterplan has been made in collaboration with technical experts and Richmond Valley Council to provide a clear understanding of the opportunities within the Precinct and a framework which will allow for industrial growth and upskilling opportunities and employment. The draft master plan is focused on industrial development at Nammoona, the existing Casino Food Cooperative (Co-op), and around the Johnson Street Industrial precinct (Regional Growth NSW Development Corporation, 2024). Key industries of focus are growing jobs in the agribusiness and manufacturing sectors.

3.3.1.6 Northern Rivers Recovery and Reconstruction Plans and Funding

A number of plans, with associated funding for implementation, were developed following the 2022 major flooding event. This includes the Northern Rivers Resilience Initiative, the Northern Rivers Recovery and Resilience Program, and the Northern Rivers Regional Economic Recovery Plan (NSW Government, 2023). While some of these plans, and associated funding, will be well underway when Project construction commences in 2027 those focused on housing and infrastructure will still be in the implement due to the large-scale nature of the reconstruction required in the region.

Northern Rivers Resilience Initiative (NRRI)

In the face of devastating fires and floods, the Australian Government combined the efforts of the National Recovery and Resilience Agency and Emergency Management Australia, to create a single, end-to-end agency to better respond to emergencies, help communities recover, and prepare Australia for future disasters known as the National Emergency Management Agency (NEMA). The Northern Rivers Resilience Initiative (NRRI) sits within NEMA and is a \$150 million project to improve the disaster resilience of the Northern Rivers region following the 2022 floods. NEMA aims to further support long-term resilience by delivering priority community supported projects that mitigate the impact of disasters on communities and economies in the region and ensuring that they are in a better position to recover from future disasters (NEMA, n.d.).

The initiative will include region wide programs which increase education about flood risk awareness as well as delivering floor level surveys, assessing evacuation routes and options for infrastructure upgrades and establishing community-led resilience teams (NEMA, n.d.). Phase 1 of the initiative will inform the Northern Rivers Recovery and Resilience Program (NRRRP) (NEMA, n.d.).

The Northern Rivers Recovery and Resilience Program (NRRRP)

The NRRRP further supports the NRRI with 16 projects announced on 23 February 2023. The 16 projects were identified through Phase 1 of the NRRI and include increasing flood risk awareness, nature base solutions to flooding, flood risk management infrastructure and regional and local economic adaption. Initiatives in proximity (within 30 min drive) of the Project include, improve condition of Coraki and Woodburn town drains, Tatham Bridge rising, and broader community education and resilience training. On 28 July 2023 the Federal Minister for Emergency Management, Murray Watt, announced a further 20 projects, with a funding envelope of \$100 million under Tranche 2 projects of the NRRRP (NEMA, 2023).

Many of the projects align with recommendations from the NSW Flood Inquiry, and with local floodplain risk mitigation programs. All seven LGAs of the Northern Rivers region – Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed – will benefit (NEMA, 2023).

RDA Northern Rivers Regional Economic Recovery Plan 2025

The RDA Northern Rivers Regional Economic Recovery Plan provides a framework to assist the Northern Rivers to recover from recent disasters, namely drought, 2019 bushfires, COVID-19 Pandemic and the 2022 flooding.

The plan discusses the opportunity to support innovation across the economy, in particular focusing on business innovation and the development of emerging industries including the renewable energy sector, creating value from waste resources, designing out waste altogether and embracing 'circular economy' principles (Regional Development Australia, 2023).

3.3.2 Project Development in the Region

In addition to the regional development context, there are several other major projects which have been recently developed, or currently being considered within the region, which could result in changes to the community, or which may have further cumulative effects, particularly in relation to impacts associated with concurrent construction activities. Such developments, in combination with the number of renewable projects in the planning phase, which may have similar construction timings may further intensify impacts experienced by local communities across the region.

Table 3.5 summarises proposed projects within 1 hr 30 min drive to the Project Area which may coincide with the Richmond Valley Solar Farm Project (further illustrated in **Figure 3.3**). Based on this information, it is considered appropriate that the SIA considers the cumulative impacts of the Project within its broader regional context.

State significant developments which have been approved and are currently operational are unlikely to have cumulative impacts due to no overlapping construction timings and already established workforces. These projects include:

- Coraki Quarry (Richmond Valley LGA), approved in 2009, operational until 2025.
- Lismore to Mullumbimby Transmission Upgrade (Lismore LGA), approved in 2009.
- Champions Quarry (Lismore LGA), approved in 2017, consent to operate until 2031.
- Lismore Hospital Redevelopment (Lismore LGA), approved in 2018, operational in 2023.
- Blakebrook Quarry (Lismore LGA), approved in 2009, consent to operate until 2039.

Table 3.5 Proposed Proximal State Significant and Road Infrastructure Projects

Development Name/ Developer	Overview	Status	Development Timelines and Workforce Details	Approximate Driving Time from Project and Km	Identified Positive and Negative Impacts
Richmond Valley LGA					
Myrtle Creek Solar Farm/ Terrain Solar	100 MW solar farm with battery storage of up to 100 MWh over a 424.3 ha site.	Scoping lodged	Approximately 150 workers on site during peak construction.	Adjacent south of the Project Area	Unlikely cumulative impacts due to unlikely overlapping construction phases.
Summerville Solar Farm/ ESCO Pacific	90 MW solar farm and associated battery energy storage system (BESS) with a capacity of 90 MW and up to four hours storage.	Response to submissions	Construction expected to begin in Q4 2024 and with peak construction requiring approximately 200 personnel for 1–2 months. On average 60–80 personnel require on site.	8 mins (1.8 km north-west)	Cumulative impacts associated with incoming construction workforces such as traffic, need for short term accommodation as well as increased demand on service provision.
Casino Biohub (bioenergy facility)	Construction & operation of a bioenergy facility with a capacity to process up to 903,000 tpa of organic waste using anaerobic digestion technology to generate up to 4.4 MW of electricity & 16,000 MW/hr of heat to the Casino Food Co-op.	Prepare EIS	Development is proposed within the Casino Food Co-op's (the Co-op) red meat livestock processing facility. 25 jobs during construction. Over 18 months.	32 mins (27 km north)	Cumulative impacts associated with incoming construction workforces such as traffic, need for short term accommodation as well as increased demand on service provision.
Richmond Valley Power Station	30 MW gas fired power project.	Approved in 2010 – construction unlikely	Construction workforce of 50FTE though unlikely to be constructed.	23 mins (20 km north)	Unlikely cumulative impacts due to the project unlikely to go ahead.
Lismore City LGA					
Lismore Battery Energy Storage System GMR Energy	Standalone 100 Megawatt (MW)/ 200 Megawatt hour (MWh) Battery Energy Storage System (BESS) and associated ancillary infrastructure, approximately 12 km southwest of Lismore (the Proposal).	Prepare EIS Note: SEARs expired	Will employ approximately 200 people with over a 12 month construction timeline with construction estimated to end in 2026.	38 mins (26 km north-east)	Cumulative impacts associated with incoming construction workforces such as traffic, need for short term accommodation as well as increased demand on service provisions.
Clarence Valley LGA					
Clarence Valley Solar Farm	85 MW solar farm with an 85 MW BESS.	Prepare EIS	100 FTE over 12 months	52 mins (50 km south)	Cumulative impacts associated with incoming construction workforces such as traffic, need for short term accommodation as well as increased demand on service provisions.

Source: (DPIRDC, n.d.; DPE, 2024).

A review of publicly available documentation highlighted community sentiments towards the proximal solar farm development, Summerville Solar Farm.

Summerville Solar Farm is located 1.8 km north-west from the Project Area. Public submissions were received between 16 November 2023 to 13 December 2023, with 36 submissions received, 34 of which were objections. There were also 4 submissions from organisations/agency, all of which were objections. Key community sentiments from the submissions included concerns regarding:

- The ethical supply chain of solar farms.
- Developer's social license in the community.
- Developer's transparency throughout the assessment and development process.
- Health and safety concerns regarding impacts of solar farm infrastructure including toxicity, flooding and fire.
- Agricultural productivity of the land.
- Distributive equity of benefit.
- Intergenerational equity of the project.
- Furthermore, Richmond Valley Council raised concerns regarding the following:
 - Construction-related traffic.
 - Developer's responsibility of infrastructure during construction and operation.

This is not to say that community perceptions regarding Summerville Solar Farm will be identical for the current Project, but it provides some useful background context to explore further as part of the SIA.

3.4 Community Capitals Analysis

As discussed in **Section 2.2.2** to understand the communities of interest to the Project and to evaluate their resilience and adaptive capacity to change, a Sustainable Livelihoods or Community Capitals Approach (DFID, 2001) has been adopted. This includes an analysis of the seven Community Capitals as illustrated in **Figure 3.6**.



Figure 3.6 Community Capitals

Source: (Umwelt, 2024).

According to Hart (1999), natural, human, social, and built capitals are key assets to defining community resilience and sustainability over time. Also central to Hart’s model is the inter-relationship and linkages that exist across different community capitals and assets, such that where one capital is depleted, other community capitals and assets are also likely to be correspondingly compromised. For example, should human capital be depleted, in terms of a potential deterioration in levels of education or health, the subsequent maintenance of built capitals (e.g., economic infrastructure) are likely to also become affected, thus compromising the overall sustainability of the community. A full capitals analysis is outlined in **Appendix C**.

In summary the social locality can be characterised as having:

- Significant natural capital, including national parks and reserves, lakes, and agricultural land; as well as high risk for natural disasters such as bushfires and flooding.
- An older median age than the NSW average.
- Lower levels of education across the communities except in certificate attainment when compared to the NSW average.
- A more cohesive community with higher rates of volunteering and more homogenous when compared to the NSW average.
- Agriculture has been historically significant in the economic and community development of the area and is still a key current land use and employer, with construction and manufacturing as top economic contributors.
- Significant demand for housing in the region as flooding has reduced supply, and significantly high rental stress when compared to NSW average.

3.5 Community Resilience and Adaptive Capacity

The community profile has highlighted key strengths and vulnerabilities arising from the capitals assessment that will be important in the assessment of social impacts. Table 3.6 identifies key challenges and opportunities experienced across the social locality, as gathered in the development of the social baseline profile and through community consultation.

Table 3.6 Community Challenges and Opportunities

Challenge	Capital	Opportunity
<ul style="list-style-type: none"> Federal representative opposed to wind and solar with a preference for nuclear energy and minimising impact on agricultural land. Local activist groups opposing solar farm in the local area, specifically mentioning the Project and cumulative impacts. 	<p>Political</p>	<ul style="list-style-type: none"> State representative support in Lismore and Ballina for transition to renewable energy, with a focus on achieving social license. Local and regional government planning and policy references need for renewable energy projects in the region. Collaboration with Casino Boolangle LALC.
<ul style="list-style-type: none"> High risk of natural disasters in the region. Conflicts with historical agricultural land uses. Project Area surrounded by community valued State Forests. 	<p>Natural</p>	<ul style="list-style-type: none"> Reduction of climate change impacts through renewable energy projects. Investment in key community environmental causes such as protection of coastal emu.
<ul style="list-style-type: none"> Older and ageing population. Lower population growth impacted by 2022 natural disasters. Higher prevalence of health conditions requiring more health services. Rise in vulnerability to negative mental health outcomes. Rise in prevalence of negative mental health outcomes aligned with 2022 floods. 	<p>Human</p>	<ul style="list-style-type: none"> Higher rate of certificate attainment in relevant industries such and manufacturing/ construction. Approximately ¼ of certificate attainment in Richmond Valley LGA, Lismore LGA and Ballina LGA is in engineering and related technologies. Education and upskilling opportunities. Investment in access to specialist medical professionals.
<ul style="list-style-type: none"> Higher levels of socio-economic disadvantage demonstrating higher proportions of vulnerable groups. A more settled and less transient community less likely to be accepting of large changes. Rise in theft in the area lowering sense of personal safety. The region severely impacted by 2022 floods causing reduced adaptive capacity and resilience to major community change. 	<p>Social</p>	<ul style="list-style-type: none"> A more cohesive and connected community to share knowledge and provide local insight.

Challenge	Capital	Opportunity
<ul style="list-style-type: none"> Lowered economic output due to 2022 floods impacting key industries, housing and employment. Current housing crisis impacting residents exacerbated by recent natural disasters. Higher proportion of vulnerable communities who rely on pensions for financial support. Increasing mortgage and rental prices rental stress and insurance premiums. High risk suburbs in the social locality to bushfires and flooding. 	Economic	<ul style="list-style-type: none"> Strong manufacturing and construction industry. Local, State and Federal investment into the community and infrastructure as a result of the 2022 floods. Provide targeted local community employment opportunities.
<ul style="list-style-type: none"> Limited public transport. Strain on existing infrastructure due to recent flood events. Road infrastructure and road surfaces require upgrade following flood events. Need for more aged care facilities and potential pressure on health services as population is ageing. Difficulty in attracting and retaining health care professionals. Lack of affordable housing. 	Physical	<ul style="list-style-type: none"> Well-connected transport routes to major cities and regions as well as recent upgrade to the Pacific Highway. Access to tertiary education facilities such as TAFEs and SCU providing pathways for skills development. Access to social infrastructure including hospitals and airports. Investment pathways for youth services and facilities.
<ul style="list-style-type: none"> Strong cultural values connected to agricultural practices throughout history. 	Cultural	<ul style="list-style-type: none"> Aboriginal people are strongly represented in the social locality through the local Aboriginal Land Council, Traditional Owner and Elders groups, creating opportunities to engage early and authentically with Traditional Owner groups will foster Free, Prior and Informed Consent.

Source: (Umwelt, 2024).

4.0 Social Impact Evaluation

This section provides an evaluation of the social impacts identified in relation to the Project, with the aim of assessing the anticipated changes to the current social baseline due to the Project proceeding.

Supplementary secondary insights have also been compiled to further contextualise, benchmark and qualify the matters raised to inform the evaluation of each social impact. The methodology for ranking the significance of impacts is consistent with the DHPI SIA guideline as referenced in **Appendix A**.

Table 4.1 the colour blue has been used to represent the Significance Rating of impacts, while the symbol + has been used to indicate positive impacts.

Table 4.1 Significance Rating Legend

Significance Rating	Legend Colour Blue
Very High	
High	
Medium	
Low	

Source: (Umwelt, 2024).

As **Figure 4.1** demonstrates, through the engagement program and when asked to consider potential negative impacts associated with the Project, 27 survey respondents rated a number of prompted potential impacts. Stakeholders were most concerned about **changes to landscape and visual amenity, reduction in air quality impacting health and wellbeing during construction, increased traffic during construction causing disruption to road users**, with almost two-thirds (63%) of participants rating these impacts as being extremely significant. These concerns were followed by **increased noise to households during construction works**, with over half (56%) of participants rating this impact as extremely significant.

Figure 4.2 highlights perceived positive impacts associated with the Project. In this regard, approximately one-quarter of respondents rating **contribution to renewable energy resources** and **reduction in power prices in the locality** as extremely significant positive benefits of the Project (22% and 24% of respondents respectively). **Increased employment opportunities**, during the construction and operation phase, **the economic boost for the locality during construction** and **contribution to renewable energy resources** were also highlighted as significant for around a third of those consulted (rating of 6 or 7 on the significance scale).

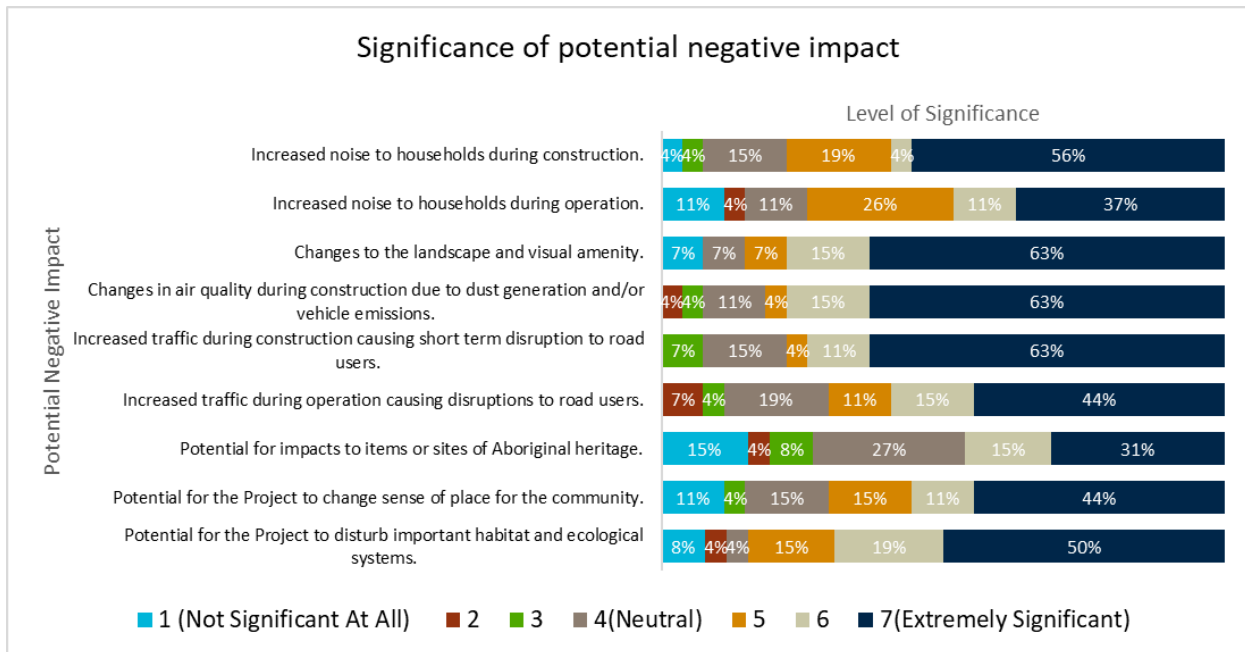


Figure 4.1 Percentage of survey respondents rating significance⁵ of potential negative impacts of the Project (prompted)

Source: (Umwelt, 2024).

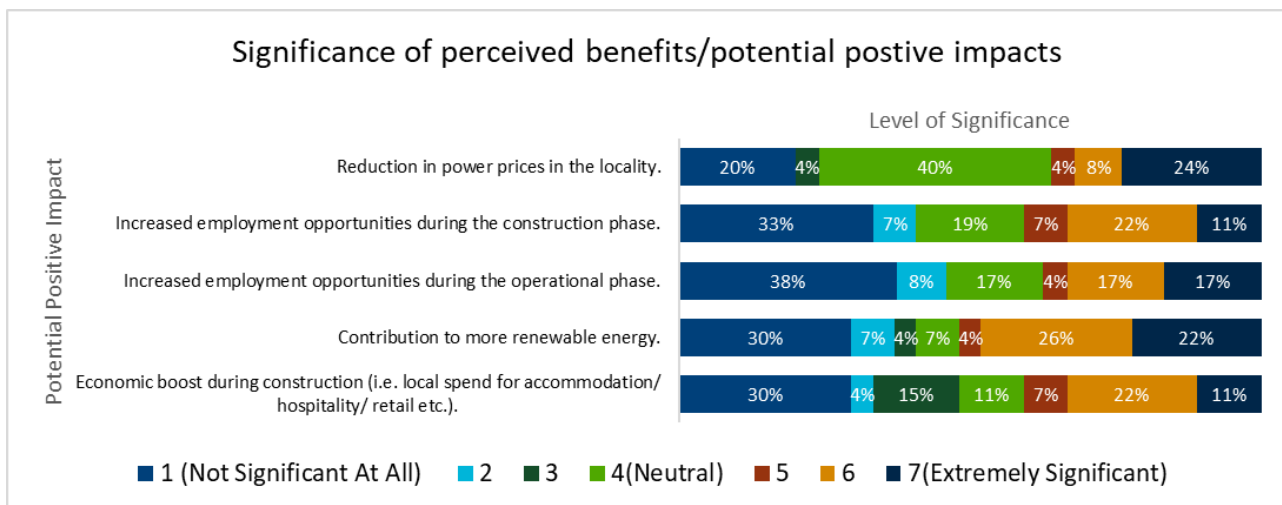


Figure 4.2 Percentage of survey respondents rating significance⁶ of potential positive impacts of the Project (prompted)

Source: (Umwelt, 2024).

⁵ Significance Rating: 1-3= 'Not Significant', 5-7= 'Significant'.

⁶ Significance Rating: 1-3= 'Not Significant', 5-7= 'Significant'.

Interviews, meeting notes, feedback forms and correspondence with stakeholders were utilised to further validate survey data therefore allowing multiple perspectives on the Project and allowing for the multifaceted impacts and opportunities to be better understood.

The following section expands on the positive and negative impacts raised during consultation and through an assessment of the Project, categorising them according to the social impact categories of livelihoods, community, way of life, accessibility, culture, health and wellbeing, surroundings, livelihood, decision making systems (including engagement), as outlined in the SIA Guideline (DPE, 2023).

The risk of the social impact occurring has also been considered in addition to stakeholders' perceived concern regarding Project impacts and the potential impact on underreached or vulnerable groups/communities in the social locality. Given the proximity to three potential solar farms and the recent impacts of a major flooding event across the social locality (captured in **Section 3.4**), the cumulative impact of concurrent projects has also been considered in assessing the impacts of the Project.

Table 5.1 presents a summary of the social impact evaluation and proposed management and enhancement strategies that have also been identified to address these impacts. Community-generated strategies and opportunities are denoted with the abbreviation (CG).

A further description of salient social impacts, as per the social impact categories outlined in the SIA Guideline (DPE, 2023) are provided below.

4.1 Way of Life and Community

Potential impacts to way of life and community may include changes to how people live, work, and play within their communities and any changes in community composition, cohesion, character, function, resilience, and sense of place because of a project.

4.1.1 Change in Sense of Place

When prompted, respondents ranked the significance of a change to sense of place as a key impact, with 70% of respondents stating this impact to be significant to them (5.3 out of 7). In the various methods utilised as part of the SIA, most community members described their relationship with the Project Area and surrounding area, by focusing on feelings of belonging and the characteristics of the landscape that were valued due to ecological worth (variety and rarity of ecological elements), aesthetic or amenity (including tranquillity and natural beauty) values, and historic or familial connections (lack of human modifications, and familial history with the land).

These descriptions denote that for some, the area evokes a sense of place identity and attachment, that is part of how community members define who and what they are, in relation to the 'memories, ideas, feelings, attitudes, values, meanings and experience' that are attached to the physical settings around them (Proshansky, Fabian & Kaminoff, 1983), p. 59). This incorporates both past and current ways in which a place or space contributes to fulfilling biological, psychological, social and/ or cultural needs (Proshansky, Fabian & Kaminoff, 1983; Devine-Wright, 2009; Hernandez, Hidalgo, Salazar-Laplace & Hess, 2007). These feelings, values and experiences are highlighted in the quotes below.

*'The **perfect** mixture of cattle country and bush. Very **private and peaceful** but the **type of place** you **never** want to leave. Plenty of places to explore, amazing animals like emus. That **you don't see elsewhere**' – Survey Respondent: Neighbouring Landholder (within 2.5 km)*

*'People here **don't like the way the city is**. And that's why people **are here** and make a living **here**. People **live here for a long time**.' – Community Information Session*

*'(Our community is)... **passionate** about keeping **our** local land/ flora/ fauna **unharmd**' – Survey Respondent: Neighbouring Landholder (within 2.5 km)*

*'The Richmond Valley is a **peaceful and calming** small rural town. It has **beautiful** scenery.'*
– Community Resident

*'The **serenity, NO** traffic, Native Animals & Birds, the Quiet.'* – Survey Respondent: Neighbouring Landholder (within 2.5 km)

As stated by some of participants, potential or perceived impacts to place identity can be viewed as a threat, with this threat most likely focused on the symbolic, aesthetic and affective attributes of a place, and the perceived 'fit' of these attributes with proposed changes or developments (Devine-Wright, 2011).

'Many families are now looking at selling... because they just can't stand the thought of being taken over by something that they didn't want in their community. It's not consistent with what we want.'
– Community Information Session

'We are now referring to this as 'Solar Farm Way' instead of 'Summerland Way' due to the number of solar farms moving into the area (3) – they are taking over our community. We moved here to be self-sufficient, to grow our food, live off the land, give our children an upbringing where there is freedom in a natural environment – our natural environment is going to be destroyed and industrialized. For them it's business, for us it's a lifestyle and who we are and what we want to provide for our children.' – Community Information Session

As place attachment tends to increase with length of residence, a less transient population, higher levels of volunteering and home ownership, and for those with a close living and working relationship with the natural world such as agriculture and forestry, it is likely that sense of place will be impacted by those living in close proximity to the Project (Devine-Wright, 2009; Giuliani, 2003; Marshall et al, 2019). In relation to these indicators of place attachment and the Project:

- **Transience of population:** The social locality experiences a less transient population, with a higher proportion of people living at the same address 5 years ago in the LGAs of Richmond Valley (53.5%), Clarence Valley (52.6%) and Lismore (52.6%) compared to NSW (50.7%).
- **Volunteering:** There is a high proportion of residents in the proximal townships (Rappville SAL 18.3% and Ellangowan SAL 14.8%) and broader LGAs (Lismore 14.6%, Ballina 14.5%, Clarence Valley 13.2% and Richmond Valley 11.4%) who had participated in volunteer work compared to NSW (10.6%).
- **Home ownership:** The social locality indicates higher rates of homeownership when compared to NSW (64.0%).
- **Largest industry of employment:** Of the top 3 industries of employment in the localised area (SA1) two out of them relate to agriculture, these include meat processing (12.7%) and beef cattle farming (specialised) (6.3%).

For further information regarding indicators of place attachment refer to **Appendix C**.

4.1.2 Loss of Sense of Community and Cohesion

Large-scale transitions, the introduction of new projects in a social locality, changes to the built and natural environment, and the subsequent influx of new residents, can influence the levels of social cohesion within a community as well as alter a community's composition and stability (NSW DPE, 2023).

Sense of community focuses on the notion that an individual exists within a larger interdependent network or system that is greater than personal relationships between individuals. It includes a sense of communal efficacy and mutual responsibility to do 'right' by the community as a whole, where community members believe that they can do together what they can't achieve on their own (Jason, Stevens & Ram, 2015; Pretty, Bishop, Fisher & Sonn, 2007). It is not an outcome nor an end state in itself but can be perceived as a process in which members of a community interact with each other, express who they are in an individual and collective sense, seek and provide social support, and create experiences that facilitate a shared history (Pretty, Bishop, Fisher & Sonn, 2007).

Survey participants within 2.5 km of the Project highlighted the value of community as evidenced in the following quotes:

'[We] work together as a team, help each other out' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'[Our community is]...friendly, welcoming to local folk, tight' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'Good neighbours surrounding us, looking out for and supporting each other.' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

Some stakeholders raised concerns in regard to how the development of a solar farm in the local area would potentially strain the relationship between community members due to differing levels of acceptance of, and feelings towards, renewable energy development in the local community and region.

'[Our community is] great. This solar farm will divide our community.' – Survey Respondent: Community Member

'As a community it is important that we are in the same place and that we function together – we want to focus on what is good for the community and not only for one resident. We help each other in times of crisis, so if one neighbour is opposed, it's hard to be in favour.' – Community Information Session

Recent research has demonstrated that the strongest predictor of acceptance of solar farms were affective responses, with how a person felt about a project highly influencing all other aspects of social license (Cousse, 2021; Scovell, McCrear, Walton & Poruschi, 2024). Feelings such as dislike, passion and worry, raised by respondents in **Section 4.1.1**, can produce protective approaches in which people and things that aren't part of the 'familiar' are excluded based on their difference (Pretty, Bishop, Fisher & Sonn, 2007). Communities may then reinforce who is 'part' of the 'real' community and who 'doesn't belong' leading to a sense of exclusion for those depicted as the 'others' (Pretty, Bishop, Fisher & Sonn, 2007; Fisher & Sonn, 2007). This can include project proponents who are not considered to be part of the local community.

'I don't feel [Ark Energy can support us], as they are not part of the community.' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'[We don't want the area] to be commandeered by a large company for the benefit of profit at the expense of the local environment and the safety of our community.' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'[We are] a close-knit community that does not want a solar farm in their backyard. [We have a] community connection to neighbours surrounding our area' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

There are mechanisms that can be utilised by project proponents to better acknowledge a community's sense of place and community and lessen the perception of the Project as an external 'other'. This includes providing transparent and timely information about the Project that acknowledges the stages of psychological response to place change (see **Figure 4.3**), focusing on place-based community benefits to be generated as a result of the Project, and facilitating space for communities and Project representatives to share narratives about the motivation behind place protective behaviour. Some of these components are addressed by Ark Energy in the Project CSEP and will be further clarified in the discussion of Social Impact Management in **Section 6.0**.

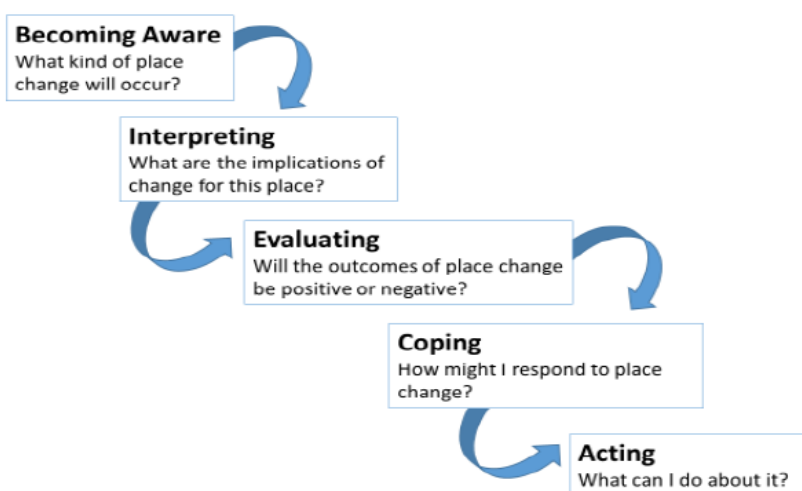


Figure 4.3 Stages of Psychological Response to Place Change

Source: (Devine-Wright, 2009).

Table 4.2 outlines the social impacts of the Project relating to distributions to sense of place and reduce community cohesion.

Table 4.2 Social Impact Ranking – Way of Life and Community

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Disruption to sense of place due to changes in community values associated with the ecological, aesthetic, amenity attributes and function of the landscape.	Host landholders	Construction	Unlikely	Minor	Low
		Operation	Unlikely	Minor	Low
	Neighbouring landholders	Construction	Likely	Moderate	High
		Operation	Likely	Moderate	High
	Broader Community	Construction	Unlikely	Minimal	Low
	Users of environmental assets such as Bungawalbin National Park and/ or Ellangowan State Forest	Construction	Unlikely	Minimal	Low
Operation		Unlikely	Minimal	Low	
Reduced community cohesion due to differing attitudes and feelings towards renewable energy development in the local community and region. i.e. good/bad/like/dislike.	Host Landholders	Construction & Operation	Unlikely	Minimal	Low
	Neighbouring Landholders	Construction & Operation	Likely	Minor	Medium
	Broader Community	Construction & Operation	Possible	Minimal	Low
	Special Interest Groups	Construction & Operation	Possible	Minor	Medium
	Local Government	Construction & Operation	Likely	Minor	Medium

Source: (Umwelt, 2024).

4.2 Change in Indigenous Culture

Impacts or changes to culture include effects on people’s shared beliefs, customs, values, language, and dialect, as well as their local culture, heritage, and ability to access cultural resources.

Regarding the impact on Aboriginal heritage, respondents to the survey ranked the potential impact to items or sites of Aboriginal heritage a weighted average of 4.6 out of 7, with 46% considering it a significant impact of the Project. This more moderate rating may have been affected by the lack of demographic diversity in the survey respondents, with only one respondent identifying as Aboriginal and/ or Torres Strait Islander.

One interview participant felt that there could potentially be opportunities for the Aboriginal community in the local area to benefit from the Project if early and ongoing engagement with the representative Traditional Owner group/s occurred. These opportunities included assisting in accessing cultural, social and transport services in the area through an appropriate community benefits scheme, employment and training opportunities particularly for local young people, and capacity building in the form of accessing, and achieving, trade tickets and licences.

An Aboriginal Cultural Heritage Assessment (ACHA) has been undertaken in consultation with representative Aboriginal stakeholders to assess and understand the archaeological potential of the Project Area, with the assessment noting that the Development Footprint and Road Upgrade Footprint are not within a particularly sensitive archaeological landscape. One site was identified during the ACHA within the Project Area and was subsequently registered on the Aboriginal Heritage Information Management System (AHIMS) (RVSF-UMW-01). This indicates that the Project Area was more likely traversed by Aboriginal people in the past, as opposed to being inhabited for long-periods. The absence of other stone artefacts indicates that the find is a result of transient movement rather than resulting from longer camping events. This aligns with the broader understanding that the study area lacks characteristics conducive to long-term habitation by past Aboriginal people (Umwelt, 2023).

Overall, although it is acknowledged that there could be undetected artefact sites within the Project Area that could be impacted by the development, the overall archaeological sensitivity of the landscape is low, and does not warrant further archaeological investigation. Even if it were considered necessary to test the hypothesis that the Project Area did not support long-term habitation by past Bundjalung people (as speculated within the ACHA), the high degree of disturbance across the Project Area through past forestry and agricultural practices further limits the practicality of any archaeological investigations. Potential impacts to Aboriginal cultural heritage would be managed under an Aboriginal Cultural Heritage Management Plan (ACHMP) which would be developed post-approval.

It is noted that Ark Energy has undertaken engagement with Aboriginal stakeholders in accordance with the procedures set out in the consultation requirements as part of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Department of Environment, Climate Change and Water) (DECCW, 2010). This has included 20 expression of interest letters sent regarding the ACHA, with five Aboriginal parties registering their interest in being consulted for the Project.

Further consultation was conducted during field work with representatives from the Registered Aboriginal Party (RAP) groups comprising Bandjalang Aboriginal Corporation Prescribed Body Corporate RNTBC and Casino-Boolangle Local Aboriginal Land Council. Ark Energy will continue to work closely with the Aboriginal community to ensure opportunities are realised and culture is respected (Umwelt, 2023). It is recommended that this ongoing engagement includes the discussion of intangible values connected to, or surrounding, the Project Area to better inform decision making and understand the interconnected nature of Country and the culturally significant waterways near to the Project Area, as evidenced in **Appendix C**.

Table 4.3 outlines the social impact of the Project relating to cultural Indigenous values.

Table 4.3 Social Impact Ranking – Change in Indigenous Culture

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Limited consultation with the Bundjalung people in regard to intangible values connected to, or surrounding, the Project Area could result in: cultural values not considered in decision making, potential damage to Country, and lack of acceptance of the Project.	Traditional Owners	Planning, Construction, Operation & Decommissioning	Possible	Moderate	Medium
	Aboriginal Community	Planning, Construction, Operation & Decommissioning	Unlikely	Moderate	Low

Source: (Umwelt, 2024).

4.3 Health and Wellbeing

Health and wellbeing impacts include impacts to both physical and mental health and may include psychological stress resulting from uncertainty, financial and/or other pressures, as well as anticipated changes to individual and public health.

4.3.1 Mental Health and Wellbeing Impacts

Stakeholders raised concerns regarding the impact of the development of the Project to their mental health and wellbeing. Concerns raised included the uncertainty associated with the assessment process, construction, operation and decommissioning of the solar farm, with this impact compounded given that communities in the locality had experienced past trauma associated with major natural disasters within the region.

'A lot of people in the community do not understand the impacts of the solar farm (health wise) causing great stress' – Survey Respondent: Neighbouring Landholder (within 5 km)

This uncertainty regarding the assessment process has created additional anxiety and stress for some members of the community who have recently experienced major stressors in the form of flooding and fires.

'What about mental health impacts to the people that this project will affect? Most have already gone through massive bushfires and floods in the last 5 years- some of which still have not recovered from. I fear that this devaluation to land will be a tipping point for some.' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'I think there is a great deal of fatigue in the community and there's you know, there has been one disaster compounding after another. There's been a lot of demand on community to step up and respond... even the seasonal conditions have been really exhausting for the community. I think in that particular zone (where the Project is located) I would say there is broad fatigue' – Interviewee

Impacts on mental health and wellbeing for nearby residents is also linked to disruption or threat to place, and this can lead to adverse health and wellbeing, psychological trauma, and reduced social cohesion (Devine-Wright, 2009; Breth-Peterson, Garay, Clancy, Dickson & Angelo, 2023). Research suggests that this is compounded in agricultural, rural and regional landscapes, and given the culture and emotional attachment that manifests around the natural environment as outlined in **Section 4.1.1** threats of altering this landscape may result in greater anxiety among nearby residents or those who enjoy the landscape (Marshall, Adger, Benham et al., 2019; Benham, 2016; McManus, Albrecht & Graham, 2014).

However, it is also noted that strong communication and transparency from Ark Energy regarding the Project, particularly with near neighbours, was undertaken and may have helped reduce the scale to which this impact has occurred. It is suggested that this communication and consultation continues, and the CSEP evolves as required, to reduce uncertainties associated with the Project.

4.3.2 Physical Health and Wellbeing Impacts

Health concerns regarding the properties of the solar panels and associated infrastructure were also raised by some stakeholders during the community information sessions, surveys and interviews. Concerns regarding reduced health and wellbeing mostly focused on threats from fire (outlined in **Section 4.6.1**), however other safety concerns related to the potential for Project infrastructure to leach chemicals into the ground/ ground water and result in radiation causing cancer and heat island effect were expressed. Such concerns were compounded for those living in greater proximity to the proposed Project and other planned solar farms.

‘We need more information about the health impacts of living near the solar farm. Keep heat generated by the panels as low as possible... Block any radiation’ – Survey Respondent: Neighbouring Landholder (within 2.5 km)

‘We are concerned about the technology involved in the solar panels and the batteries, and we don’t trust that there has been rigorous testing....where is the proof that these have been tested?’ – Community Information Session

‘Are these panels flammable? What are the chemicals in each of them? Can they contaminate the soil, the water, the drinking water?’ – Community Information Session

Furthermore, survey respondents also ranked the impacts associated with changes in air quality, due to dust generation and vehicle emissions during construction, an average of 6.1 out of 7. With 81% of survey respondents rating this to be a significant impact, it was one of the highest areas of concern for participants, however, was not raised as a significant concern during the stakeholder interviews or community information sessions.

The NSW Environment Protection Authority state that solar panels do not leach chemicals during operation and have not found to present a risk to the environment or people. However, it is considered important to ensure sustainable reuse, recycling and safe disposal options (Chantiri, 2023). A Preliminary Hazard Analysis (PHA) was conducted to assess the hazards and risks posed by the components utilised as part of the Project including lithium-ion batteries (LIB), Project batteries and energy density and electrical transformers (Umwelt, 2024) (further information refer to Section 6.10 of the EIS). Other than LIBs and transformer oil, there will be no hazardous materials stored at, or transported to, the Project in significant quantities (Umwelt, 2024).

Ark Energy has provided written material relating to the physical components of the solar panels and the potential risk they pose to the physical health and well-being of nearby residents and communities. A technical advisor was also available during the February 2024 community information session to respond to these queries and concerns.

However, given the community concern, it is strongly recommended that Ark Energy continues to address these concerns through ongoing information provision, including opportunities for interactive Q&A sessions where targeted questions can be addressed, and further information shared.

Table 4.4 demonstrates the social impact of stakeholders physical and mental wellbeing as a result of the Project.

Table 4.4 Social Impact Ranking – Health and Wellbeing

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Anxiety/ Stress associated with the introduction of the Project into an environment with reduced adaptive capacity following a series of natural disasters in the area.	Neighbouring Landholders	Planning & Construction	Likely	Moderate	High
	Mental Health Service Providers	Construction	Possible	Moderate	Medium
	Special Interest Groups	Planning & Construction	Possible	Minor	Medium
	Broader Community	Construction	Unlikely	Minimal	Low
Anxiety/ Stress associated with the uncertainty of the assessment process.	Host Landholders	Planning	Unlikely	Minimal	Low
	Neighbouring Landholders	Planning	Likely	Minor	Medium
	Broader Community	Planning	Unlikely	Minimal	Low
Reduced health and wellbeing due to potential for project components to leach chemicals into the ground/ ground water and generate radiation causing cancer and these effects being compounded by proximity to other solar farms.	Host Landholders	Construction & Operation	Unlikely	Minimal	Low
		Decommissioning	Possible	Moderate	Medium
	Neighbouring Landholders	Construction & Operation	Unlikely	Minor	Medium
		Decommissioning	Possible	Moderate	Medium
	Broader Community	Construction, Operation & Decommissioning	Unlikely	Minimal	Low
	Special Interest Groups	Construction & Operation	Unlikely	Minor	Medium
		Decommissioning	Possible	Moderate	Medium
	Local Health District	Construction, Operation & Decommissioning	Unlikely	Minimal	Low
	Traditional Owners	Construction, Operation & Decommissioning	Possible	Moderate	Medium

Source: (Umwelt, 2024).

4.4 Livelihoods and Economic Benefits

Livelihood impacts refer to the Project’s effect on people’s capacity to sustain themselves through employment or business activities, and the economic contribution that a project may make to local communities and the broader region. Several themes were identified by those who participated in the SIA survey, community information sessions and interviews, including impacts associated with:

- Agricultural productivity.
- Land values.
- Insurance premiums.
- Local employment, procurement and capacity building opportunities.
- Distributive equity.

4.4.1 Loss of Agricultural Productivity

As described in **Appendix C** the Richmond Valley region is known for its strong agricultural industry with livelihoods derived from cattle (meat, dairy and tanning), pig farming, food and fibre. In addition, there are strong cultural and historical ties to employment in allied industries such as the Northern Rivers Livestock Exchange (opened in Casino, 1916) and Food Cooperative (opened in Casino, 1933), with multiple generations employed in these locally owned, agriculture-centric businesses.

When prompted, grazing land was assessed by 73% of respondents as a landscape feature with high scenic value (refer to **Figure 4.8**) and also featured when residents were discussing impacts of the Project on sense of place and community cohesion (refer to **Section 4.1.1** and **Section 4.1.2**).

'We have a lovely farm with beautiful surroundings, and you want to come in and take it away... That's in very poor taste. What an absolute waste of good farmland.' – Email Correspondence: Neighbouring Landholder

'Maybe you should look into raising the solar panels or adjusting the design somehow to still allow for cattle grazing there' – Community Information Session

As a result, there is some evidence of strong community values and place protective behaviour associated with the Project Area as an agricultural and landscape asset and an assumption that the land will be rehabilitated /reactivated for cattle grazing. A Soils, Land and Agriculture Impact Assessment has been undertaken (Minesoils Pty Ltd, 2023) (further information refer to Section 6.5 of the EIS). This assessment has estimated the productivity of the agricultural land within the Project Area ranges from \$261,237 to \$305,572 per annum under the NSW Department of Primary Industries (DPI) (2023) *Gross Margin Budgets for Livestock*. The Project Area was also subject to a site verification assessment of land and soil capability (LSC), in accordance with the LSC Guideline, and was found to contain two LSC classes:

- LSC⁷ class 4: moderate⁸ capability land – covering 731 ha.
- LSC class 5: moderately-low⁹ capability land – covering 72 ha.

⁷ LSC= Land and soil capability.

⁸ Moderate capability= Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology. (Minesoils Pty Ltd, 2023).

⁹ Moderate-low capability= Land has high limitations for high-impact land uses. Will restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation (Minesoils Pty Ltd, 2023).

LSC 4 and 5 land requires intensive modification and specialist management, that said, the impact on neighbouring landholders from a values perspective are identified to ensure transparency and communicate the concerns of nearby landholders. It is noted that impacts on agricultural productivity and land use will be limited to the Project Area with productivity connected to landscape values addressed through an exploration of agri-solar opportunities.

Ark Energy is committed to exploring the integration of solar panel installation with agricultural use at the Project Area as a means of mitigating the impacts to agriculture. However, merino sheep, the most common livestock used for agri-solar in NSW, are considered potentially unsuitable for the local climate, which may inhibit implementation. Alternative dual land use options will be considered, and preliminary discussions have occurred with the host landholders and the local council. These may be implemented as part of a cooperative trial and/or research efforts, with involvement from government, universities, agronomy groups or other relevant business enterprises interested in pursuing dual land use opportunities.

Table 4.5 demonstrates the summaries the social impact of the Projects lifecycle on agricultural productivity.

Table 4.5 Social Impact Ranking – Agricultural Productivity

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Disruption to agricultural productivity values (\$) across the Project lifecycle	Host Landholders	Construction & Operation	Unlikely	Minor	Low
		Decommissioning	Possible	Minor	Medium

Source: (Umwelt, 2024).

4.4.2 Decline in Land and Property Values

Stakeholders raised concerns during consultation regarding the impact of the solar farm on nearby property and land values. This was first raised by neighbouring landholders during the scoping phase consultation. The reasoning for this was multifaceted and included concerns linked to increased fire risk (see **Section 4.6.1**), changes to sense of place (see **Section 4.1.1**), disruption to landscape values associated with an agricultural community (see **Section 4.4.1**) and changes to visual amenity (see **Section 4.6.4**).

‘Work with the neighbours and compensate them. The property value for the area will go down... mental health issues will go up.’ – Survey Respondent Neighbouring Landholder (within 2.5 km)

‘(We are) concerned about property devaluation due to the project.’ – Community Information Session

‘Would it be in our interest to do an evaluation of our property now and again in a couple of years to see how much it was devalued? I saw it happen... it goes down 30– 40%.’ – Community Information Session

‘There is the potential that our property value will go down due to the solar farm.’ – Feedback Form: Neighbouring Landholder (0–1 km)

It is understood by the renewable energy industry nationwide that neighbouring landholders to renewable energy projects have recurring concerns regarding the potential impact of project infrastructure on their property values (Office of the Australian Energy and Wind Farm Commissioner, 2020). A recent report by the NSW Agriculture Commissioner in 2022 concluded that there is very little reliable evidence of large-scale renewable energy developments influencing adjacent land values, particularly for solar facilities, mostly due to the insufficient evidence of sales of properties near solar farms (NSW Agriculture Commissioner, 2022). However, research undertaken overseas where more longitudinal data is available, such as in the Netherlands (Dröes & Koster, 2021) and United States (Gaur & Lang, 2020), has indicated that in certain cases some small reductions in property values may be experienced, particularly for properties within 1 km of solar farms and in populated suburban areas. Research conducted in Rhode Island and Massachusetts has suggested that, on average, houses lying within one mile (1.6 km) of solar installations experience property devaluation of around 1.7% post construction, relative to properties located further away (Gaur & Lang, 2020). At current there is no evidence to support this or otherwise in NSW.

Table 4.6 summaries the social impact of the Project to land values proximal to the Project.

Table 4.6 Social Impact Ranking – Land Values

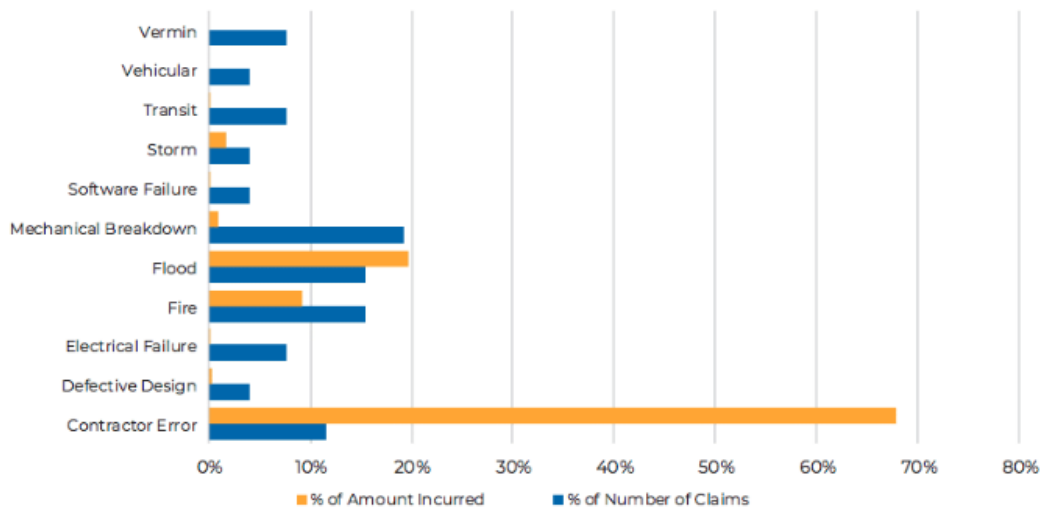
Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Reduction in land values due to proximity to solar farm.	Neighbouring Landholders	Planning, Construction & Operation	Possible	Moderate	Medium
	Real Estate Agents	Planning, Construction & Operation	Possible	Minimal	Low

Source: (Umwelt, 2024).

4.4.3 Increase in Insurance Premiums

Previous developments of solar farms in Australia have seen stakeholders raise concerns regarding the potential impact of increasing insurance premiums for neighbouring properties due to fire risk (further detailed in **Appendix C**). Similarly, consultation between Ark Energy and a neighbouring landowner revealed concerns regarding the impact of the solar farm on their insurance premiums and overall liability if an incident was to occur. These concerns were bi-directional and related both to the potential increased risk of an incident occurring on the solar farm impacting surrounding properties, and incidents occurring on neighbouring properties and impacting the solar farm.

A study conducted by the BMS Group in Australia found that the top insurance claims made by solar farms were linked to mechanical breakdown, fire, and flood, however it is unclear if these risks increased the insurance premiums of surrounding properties (refer to **Figure 4.4**).



Solar claims by type
BMS Group

Figure 4.4 Solar Farm Insurance Claims by Type

Source: (Peacock, 2021).

Public liability insurance linked to solar farms has been recently raised in the Parliament of Australia by Hon. Sam Faraway, with concerns regarding insurance premiums with landholders neighbouring a solar farm ‘quoted in excess of \$250,000 per annum for an insurance premium to cover themselves in the event of a crop fire that could spread to an adjacent solar farm or solar factory’. This potential increase in insurance raises concerns regarding the ability of neighbouring landholders to continue to live and utilise productive farmland due to increasing costs connected to neighbouring major developments (Parliament of Australia, 2023). Furthermore, neighbouring landholders to the proposed Meadow Creek Solar Farm in Victoria have indicated that they may face ‘skyrocketing’ insurance premiums if the project goes ahead as they would be liable for damage and loss of earnings if a grassfire began on their property and spread to the neighbouring development (Douthie, 2023).

In 2023 the NSW Agriculture Commissioners prepared two reports regarding land use conflicts and agriculture associated with renewable energy development. In relation to fire and insurance risks the NSW Agriculture Commissioners report recommended that renewable energy project applicants should cover any additional public liability insurance cost incurred by neighbouring stakeholders as a result of proximity and risk to new energy facilities as well as should include clauses to compensate for any land use constraints imposed on neighbouring landowners through public liability insurance policies. In response to these recommendations, the NSW Government noted that further information and analysis is needed to understand the extent of the problem and to respond appropriately and is undertaking further analysis in consultation with the Australian Energy Infrastructure Commissioner and the CEC (DPI, 2023).

Table 4.7 demonstrates the social impact ranking for changes to insurance premiums due the Project.

Table 4.7 Social Impact Ranking – Insurance Premiums

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Increased public liability insurance premiums for neighbouring landholders reducing livelihood.	Neighbouring Landholders	Construction & Operation	Possible	Moderate	Medium

Source: (Umwelt, 2024).

4.4.4 Local Employment, Procurement and Training/Education Opportunities

Most of the stakeholders interviewed, particularly those from the economic or community development sectors, welcomed the potential growth in local employment opportunities that the construction of the solar farm may generate. As noted in **Appendix C**, growth and diversification in local employment opportunities is increasingly considered a key area of focus by the community and key stakeholders, particularly as the local community rebuilds following a series of natural disasters.

'An incredibly high priority is employment, so job creation, employment and economic growth... addressing the social issues through giving local people opportunity, is what's really important...'. – Interviewee

'Bringing people to the town with employment opportunities' – Survey Respondent: Community Member

Despite this view and increased opportunities for employment for local electricians and other suppliers being raised during the scoping phase as a positive contribution of the Project to the local economy, only 41% of survey respondents perceived employment opportunities created during construction as being a significant positive impact of the Project for the community, with an average rating of only 3.7 out of 7.

Some stakeholders also commented that renewable energy companies, alongside other industries, may struggle to find employees in the region due to recent natural disasters and recovery efforts.

'I think there will be a struggle to get enough local workers in construction, the reconstruction [as a result of the 2022 floods] will probably still be going then and there is so many government contracts out there which are the preference because they know they are paid well and there's a lot more certainty around them... We've also got a bit of a transient workforce at the moment chasing these contracts who once they get in with the government will travel around and service their projects. This means we might lose some local skilled workers who will move within the state or nationally for work. So, this project would need to be able to provide the same level of surety over an extended period of time.' – Interviewee

'I think it's going to continue to be a challenge to fill roles, but it doesn't matter how experience has been, it's not confined to any one industry... we're saying there's relatively high unemployment in the region, but we're also saying that we can't fill roles' – Interviewee

'There is a lot of activity in the area due to the flood such as rebuilding infrastructure and roads and so there is still competition not just for accommodation but also for workforce and supplies' – Interviewee

As discussed in **Section 4.4.1**, employment in the Casino area, the township nearest the Project, has historically focused on employment in agriculture and allied industries such as the Northern Rivers Livestock Exchange and Food Co-op, with multiple generations employed in these locally owned, agriculture-centric businesses. This has been further reinforced by the 2023 opening of a large-scale chicken breeding facility and the reopening of the Norco Dairy Co-op in the same year, with the latter obtaining a \$35 million injection of federal funds to attract and retain staff. While there may be limited cross over between the skills required by these industries compared to the renewable energy sector, attracting local staff whose cultural and familial ties are strongly associated with agriculture will require a considered and timely framework.

'The Casino Food Co-op, it's by far the largest employer regionally in Casino. It's a significant employer. I think at some stage they did some research in terms of how much of the town is connected in some way to the Co-op and it came out at like 50%. Like half of the town through relatives or personal networks are connected to the Co-op – it is the original employer in terms of job creation and economic growth.' – Interviewee

Several stakeholder groups interviewed also welcomed the potential benefits of increased training and education opportunities for local residents should the Project proceed.

'It's a goal of [ours] to try and increase opportunities and diversification in relation to local skill development, education, and training. However, there's very limited availability at a tertiary level as you have to be able to get to Lismore (through Southern Cross University). Locally there is probably an opportunity, but this is likely around TAFE and certificate level and I'm not sure what is available around here.' – Interviewee

'If we focus on economic opportunities or training for local people it would be so good to see opportunities from the Project for the local community, particularly young people' – Interviewee

Approximately 40% of survey respondents perceived that there may be an economic boost during the construction of the Project due to the level of local spend it would generate in accommodation, retail, and hospitality with a moderate rating of 3.7 out of 7, although some stated that *'I don't see any real significant local benefit coming out of it at all...'*

'The solar farm and the workforce might help bring a bit of life into town. Tends to be really quiet especially during the week at the restaurants/ shops- might help small businesses as it's only really been the larger suppliers that have benefited from the infrastructure upgrades (as part of the reconstruction efforts)' – Interviewee

'One of the benefits of having an increased population in the locale would be that they are going to use local businesses to buy their coffee or buy their food, so hopefully there a bit of a benefit around that' – Interviewee.

The following section below discusses the potential for local employment in more detail.

4.4.4.1 Local Employment Opportunities

The Project is expected to generate up to 327 jobs during the peak months of the construction period, with onsite workforce numbers varying month to month, depending on the intensity of the proposed works at the time. The average full-time equivalent workforce is expected to be approximately 150 and is likely to include licensed electrical trade personnel, mechanical and electrical trade assistants, machinery operators, riggers, and labourers (Ethos Urban, 2024).

Almost 75% of jobs in renewable energy over the next 15 years are likely to be available for labourers, trades and technicians and professionals, with electricians, electrical trade assistants, mechanical trades and technicians, finance, business, legal and planning professions and administrative staff generating the largest number of jobs (Briggs, Rutovitz, Nagrath, & Dominish, 2020). As outlined in the Ethos Urban Economic Impact Assessment (Ethos Urban, 2024), the majority of jobs created by the Project are likely to be taken by people with backgrounds in the construction industry or people employed as trades workers, technicians or labourers, with the CEC predicting that the majority of those employed during the construction phase of a solar farm will be electricians (16.7% of the workforce) and labourers (15.5%) (CEC, n.d.). **Table 4.8** examines the potential to employ a local workforce, assuming the workforce is likely to be derived from two key sources:

1. Suitably skilled people who are currently unemployed.
2. Suitably skilled people who are currently employed but may transition to work on this Project in response to new job opportunities.

Despite considering only the UCL ABS boundaries for Grafton and Ballina for the purpose of identifying the relevant social locality of the Project, this has been adapted in **Table 4.8** to Grafton SA2 and Ballina LGA for the purpose of acquiring the most up to date unemployment and labour force statistics at the SALM. Grafton SA2 has been used as a key township and service centre within Clarence Valley LGA where accommodation and employment are likely to be derived from. The use of Grafton SA2 and Ballina LGA ABS boundaries were also utilised across employment, occupation and skills for consistency and accuracy. As such the LGAs of Richmond Valley, Lismore, Ballina and the SA2 of Grafton will be considered 'local' for the purposes of the SIA and the following workforce change scenario analysis.

Table 4.8 Potential Project Workforce

Locality	Unemployment rate ¹⁰	Unemployed people ¹¹	Number of people employed in construction industry	Number of unemployed people in construction industry ¹²	Number of people employed as electricians	Number of unemployed electricians	Number of people employed in relevant occupations ¹³	Number of unemployed people in relevant occupation ¹⁴	Number of unemployed people with relevant skills ¹⁵
Richmond Valley LGA	4.2%	548	702	29	87	4	2,955	124	46
Lismore LGA	4.4%	1,105	1,503	66	136	6	5,095	224	77
Grafton SA2	6.2%	528	551	34	61	4	1,840	114	96
Ballina UCL	2.1%	535	2,119	44	215	5	4,946	104	73
Total		2,716	4,875	174	499	18	14,836	566	292

Source: (ABS Table Builder, 2021; SALM, 2023).

¹⁰ SALM March 2023 only available at the LGA ABS boundary except for Grafton which is at the SA2 level.

¹¹ SALM March 2023 only available at the LGA ABS boundary except for Grafton which is at the SA2 level.

¹² This is an estimate calculated by applying the unemployment rate to the number of people in the construction industry.

¹³ Relevant occupations have been defined as labourers, and technicians and trade workers.

¹⁴ This is an estimate calculated by applying the unemployment rate to the number of people with relevant occupations.

¹⁵ Relevant skills have been defined as those with qualifications in the engineering and related technologies, and architecture and building fields of study.

Table 4.8 indicates that there are:

- Approximately 2,716 unemployed people, including approximately 566 people who may have relevant trades experience to support the Project.
- 14,836 people employed as trades, labourers or technicians and 4,875 people specifically employed in the construction industry.
- Based on the CEC prediction that approximately 16.7% of a solar farm construction workforce would constitute electricians (CEC, n.d.), this would equate to approximately 25 electricians required on average during the construction period and 54 during the peak construction periods for the Project. In the combined LGAs and SA2 there are a total of 499 people currently employed as electricians. Utilising the assumption that all electricians will be employed locally from these LGAs and SA2 that would equate to 5% (during average workforce months) and 10.8% (during the peak construction workforce) of the existing electrician workforce potentially moving across to the Project.

In assessing potential local workforce scenarios, the utilisation of a conservative (10%), anticipated (20%) and aspirational (40%) scenario has been applied. To assess the likely local employment outcome from the Project, this SIA applies a midline, anticipated scenario of 20% local employment. This is based on experience in the construction of renewable energy projects in 'like' social localities and on the following set of contextual factors derived from the social baseline and engagement outcomes:

- As a result of the recent flooding events in the region, there are approximately 2,500 infrastructure projects underway in the Northern Rivers area, many of these likely to continue over the next decade. The locality has also experienced labour force losses, as people have been temporarily or permanently dislocated from the region, reducing labour supply (See **Appendix C**).
- While some population growth has been predicted and experienced in the area, there has been, and continues to be, a population decrease evident in Lismore (See **Appendix C**). This is somewhat countered by there being a number of primary and secondary order localities within one-hours' drive of the Project (See **Section 3.1**).
- Job vacancies are increasing (See **Appendix C**).
- Workforce constraints identified as part of Northern Rivers Regional Economic Development Strategy will require workers to move to the area (See **Section 3.3.1.1**).
- \$60 million has been injected into the local economy in 2022 to employ 1,400 locals in agriculture and manufacturing over the next few years. (See **Appendix C**).
- Richmond Valley is one of 4 NSW Regional Job Precincts proposed by the State government. The focus is on three precincts being built/ further developed in and around Casino to provide needed housing and attract new residents to the region (See **Section 3.3.1.5**).
- Historically local employment has focused on agriculture and agriculture-aligned industries, and as such it may be difficult to attract people to seek employment in other sectors. However, renewable energy development within the region is likely to attract new workers, and/or provide opportunities for existing workers resident within the locality (See **Appendix C**).

Table 4.9 provides a potential workforce scenario based on an average of 150 FTE employees required across the construction period and assuming that during the peak 6-month construction period there will be a workforce of approximately 327. It is also assumed that approximately 20% of this workforce will be sourced from the local population for reasons outlined above. As a result, it is anticipated that 120 FTE employees across the construction period and a peak of 260 FTE employees would need to be accommodated within 1 hour drive of the Project as they will drive in/drive out or fly in/fly out on work rotations.

As **Table 4.9** shows, the 30 local jobs estimated in the average scenario constitute approximately 1.1% of the total unemployed population, 0.6% of those currently employed in the construction industry, 6% of electricians or 0.2% of those currently working in trades, technician or labourer roles in the LGAs of Richmond Valley, Lismore and Ballina and the SA2 of Grafton. Given the current levels of unemployment in the region, this has been deemed achievable.

Table 4.9 Potential Local Workforce Availability

Scenario	% local employment	Local jobs	% of total unemployed	% of total construction industry	% of total electricians	% of total trades, labourers and technicians
Average Workforce-Low	10%	15	0.6%	0.3%	3.0%	0.1%
Average Workforce-Medium Scenario	20%	30	1.1%	0.6%	6.0%	0.2%
Average Workforce-High	40%	60	2.2%	1.2%	12.0%	0.4%
Peak Workforce-Medium	20%	65	2.4%	1.3%	13.0%	0.4%

Source: (Umwelt, 2024).

Ark Energy has expressed an intent to maximise the percentage of local workforce employed on the Project with a target of 20%. It is acknowledged that this is an aspirational target and has not been used for the purposes of assessment. Ark Energy is continuing to work with stakeholders and contractors to realise this target.

Suggested ways that Ark Energy could further prioritise local procurement and employment to maximise local economic benefits and reduce the impacts of a population influx, have been outlined in **Table 4.10**, many of these would require early adoption to ensure adequate lead time for Project construction and operations.


Table 4.10 Local Employment and Procurement Strategies

Capacity Building Type	Stakeholder	Notes
Local employment and Procurement	Local construction companies Chambers of Commerce Councils	<p>Engage with local employers, Council and Chambers of Commerce throughout Project planning, construction and delivery to identify opportunities for collaboration and cross skilling. A focus on equity principles encouraging training and employment of those groups who are traditionally underrepresented in the Renewable Energy sector, for example, women, young people, Aboriginal and/ or Torres Strait Islander communities, people with a disability.</p> <p>The strategy should also consider the peak workforce of approximately 327 for a period of 6 months alongside cumulative considerations including:</p> <ul style="list-style-type: none"> the proximal solar farm developments of Myrtle Creek Solar Farm and Summerville Solar Farm with an approximate combined workforce of 350 FTE potential competing large scale local industries such as the Food Cooperative residual requirements for construction workforces due to the ongoing reconstruction following the 2022 flooding event. <p>The strategy would build upon the initial engagement that has informed the SIA with key stakeholders.</p> <p>It is noted that Ark Energy has commenced engagement with relevant stakeholders.</p>



Source: (Umwelt, 2024).

Table 4.11 outlines case studies which provide examples of how a focus on local employment and procurement can result in increased social/community value being generated at the local community level and for more vulnerable / marginalised groups.

Table 4.11 Local Employment and Procurement Relevant Case Studies

Capacity Building Type	Case Study	Notes
Local Employment and Training- Equity focus	Karadoc Solar Farm, Flow Power— Iraak, VIC 	<ul style="list-style-type: none"> The company behind the solar farm developed a strategic employment and training program in the Mildura community (CEC, 2019). The project aims were to hire local, provide employment opportunities for people facing barriers to employment and to provide training and support to young people so they could build skills for a career in the solar industry.

Capacity Building Type	Case Study	Notes
		<ul style="list-style-type: none"> The team worked with Jobsactive, the local Mallee District Aboriginal Service, the Mildura City Council’s employment program, the Victorian Department of Justice and the Jobs Victoria Employment Network. They also partnered with Mildura’s SuniTAFE and local group training organisation SMGT on a training program for 25 new electrical apprenticeships, of which were 9 Aboriginal. Overall, the company has employed 200 locals including 90 long-term unemployed people, 12 people on community-based orders, 38 Aboriginal people and 4 people with a disability.
Local Employment and Training- Gender Equity	Beon Energy Solutions- Women in Solar 	<ul style="list-style-type: none"> As further detailed in Appendix C it was identified that there is a significantly low proportion of female electricians in the relevant LGAs ranging from 3–5% of electricians in the LGAs being females. The below case study further emphasises the large gender gaps in employment in the construction of solar farms. Beon Energy Solutions identified that the participation rate of women in the construction of their solar farm project was less than 5%. Through the initiative of ‘Women in Solar Program’ which identified that there was a lack of pathways for women into the industry and limited opportunities for advancement of women who do get a job, resulting in low retention. The Program seeks to increase the participation of women in the construction component of large-scale solar farms through recruitment, and retention. The women in solar program saw the numbers increase to 11% during the construction of Spark Infrastructure’s Bomen solar farm. In 2021, at Genex’s Jemalong Solar Farm, a Beon development, the numbers of women onsite increased to 22% (CEC, 2021).
Higher Education Scholarships	Carwarp Solar Farm, RayGen — Carwarp, VIC 	<ul style="list-style-type: none"> Canadian Solar, the developer of the Carwarp Solar Farm in Victoria, aims to provide 15 energy-focussed higher education scholarships per year for the initial five years of the auction scheme and then another 4 scholarships per year for the remaining 10 years of the support scheme for school leavers and continuing education students in areas of education relating to energy and technology (CEC, 2019). Furthermore, the company has funded the installation of a 20 kW solar array at SuniTAFE and Mildura Regional Development’s Smart Farming training facility (DELWP, 2018). <p>Potential courses include:</p> <ul style="list-style-type: none"> TAFE NSW Diploma & Undergraduate Certificate in Renewable Energy Engineering. TAFE QUE Certificate II in Sustainable Energy.

Capacity Building Type	Case Study	Notes
Education around Renewable Energy	PowerMakers Project, First Nations Clean Energy Network 	<ul style="list-style-type: none"> The PowerMakers Project is a five-day learning program designed to empower First Nations people to drive First Nations participation in, and ownership of, clean energy solutions in communities and on Country. Participants learn about clean energy, community energy planning, advanced energy systems, project ownership and negotiation, and business management (First Nations Clean Energy Network, 2023).
First Nations employment	Avonlie solar farm- Beon Energy Solutions 	<ul style="list-style-type: none"> Beon Energy Solutions established 'genuine and early community engagement' to target First Nations people which targets people facing barriers to employment through working with them to overcome barriers. Beon set up 'ID Days' which assisted First Nations people to organise relevant ID needed for people to be employed. Approximately 30 people were employed by Beon at Avonlie, with jobs predominately in the installation of the solar panels and then as a result were qualified electricians (Vorrath, 2023).

Source: (Umwelt, 2024).

4.4.4.2 Procurement

Some stakeholders and community members engaged during the process queried where construction materials would be sourced from for the Project. This concern was raised in relation to providing opportunities for procurement of Australian products and in relation to potential safety issues.

'Where are the panels coming from?' – Survey Respondent: Community Member

'So, you're looking as much as possible to local procurement of panels in Australia?' – Survey Respondent: Community Member

'Are your panels made here or overseas?' – Feedback Form: Neighbouring Landholder (5 km or more)

There was also a focus on building the capacity of local suppliers to be involved in the Project, with some businesses requiring additional support due to the impact of the 2022 flooding.

'We have been building solar farms for 8 years now and as this project is 1 hour from our depot we want to work on it' – Feedback Form: Community Member

'Equip people to respond to the Project, so to become a supplier or to be part of that process will need people to gear up and prepare in terms of workforce and supplies to be a local contractor... those things (contracting locals) will lessen those negative impacts of the solar farm.' – Interviewee

'... the flood reconstruction, it had such a massive impact on our ability [to procure] building supplies, and those sort of things... there were people whose businesses were wiped out' – Interviewee

Ark Energy’s current procurement schemes include the preparation of an Indigenous and Australian Participation Plan (IAPP) and will be developed to define and prioritise opportunities that pertain to activities on the Project. Through the Industry Capability Network of NSW (ICNNSW), Ark Energy or its contractor will actively encourage and promote the use of local, Indigenous and Australian resources in the performance of the work to maximize the amount of local content on the Project where possible. It is strongly suggested that initiatives such as those outlined in **Table 4.11** are also considered as part of the participation plan to facilitate greater social and community value at the local level.

Table 4.12 demonstrates the social impact ranking of the opportunities associated with local employment, procurement and capacity development opportunities relating to the Project.

Table 4.12 Social Impact Ranking – Local Employment, Procurement and Capacity Development Opportunities

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Local employment opportunities during construction.	Unemployed looking for work	Construction	Possible	Major	High+
	Traditionally underrepresented groups in the RE workforce, for e.g. women, young people, Aboriginal and/ or Torres Strait Islander peoples, people with a disability	Construction	Possible	Major	High+
	Currently employed skilled professionals in the local area	Construction	Possible	Minor	Medium+
Enhancement of local economy and livelihoods due to construction workforce influx and Project activity.	Broader Community	Construction	Unlikely	Minor	Low+
	Local Businesses and Service Providers	Construction	Likely	Moderate	High+
	Local, State and Federal Government (Funding Recovery)	Construction	Possible	Moderate	Medium+
	Special Interest Groups	Construction	Possible	Minor	Medium+
	Regional Businesses and Service Providers	Construction	Possible	Moderate	Medium+
Ability to enhance human and economic capital through skill development and training opportunities.	Broader Community	Construction & Operation	Possible	Minor	Medium+
	Unemployed looking for training opportunities	Construction & Operation	Likely	Moderate	High+
	Traditionally underrepresented groups in the RE workforce, for e.g. women, young people, Aboriginal and/ or Torres Strait Islander peoples, people with a disability	Construction & Operation	Likely	Moderate	High+

Source: (Umwelt, 2024).

4.4.5 Distributive Equity

The NSW SIA Guideline (DPE, 2023) describes distributive equity as a principle that ‘considers how different groups will experience social impacts differently, with a particular focus on vulnerable and marginalised groups, future generations compared with current generations, and differences by gender, age and cultural group.’

The Project has the potential to generate positive impacts for host landholders and other stakeholders through local employment and expenditure. The landholder benefits received, will diversify household income through hosting payments and supplement existing livelihoods. However, as there are only two landholders this could be construed as a benefit that may not directly impact the local community. The distribution of community benefit funds was raised in scoping consultation for the SIA and EIA.

Some stakeholders expressed levels of distrust in the process, given the perceived lack of distributive equity, noting that the Project developers, two landholders (two absentee) and ‘non-locals’ would be likely to gain most from the Project’s development. In this regard, some of the comments obtained also highlighted that it would be the cities that would benefit the most, with fewer long-term benefits generated in the locality:

‘... absentee owners using our land for a money-making scheme, for rich to get richer and buy more shiny things and for town and city people’ – Survey Respondent: Neighbouring Landholder (between 2.5 and 5 km)

‘I don’t see any real significant local benefit coming out of it...’ – Interviewee

‘...To not let (the land) get commandeered by a large company for the benefit of profit at the expense of the local environment and the safety of the community.’ – Survey Respondent: Neighbouring Landholder (within 2.5 km)

‘I am unable to use future house sites overlooking the mountains and that my business plan to start a (redacted business) next door has now been crushed by your solar farm’ – Feedback Form: Neighbouring Landholder (0–1 km)

Ark Energy has entered into agreements with the two host landholders of the Project and have offered neighbour agreements to 10 proximal neighbours. The neighbour agreements are not a requirement as a result of identified impact but offered by Ark Energy in recognition of community concerns. Some neighbouring landholders have raised concerns regarding the financial entitlements associated with the Project, however as neighbour agreements are a voluntary, commercial arrangement between the Project and neighbours, there is no requirement for disclosure. Neighbour agreements do provide an opportunity for landowners to share in the financial benefits of the Project, however, do not remove ability for them to make submissions during public exhibition or the need for Ark Energy to comply with the conditions of the Project Approval, or other legal obligations.

An opportunity of the Project raised during the scoping phase related to a desire to see ‘improved access for renewable energy options through improved grid management (Epuron, 2022)’. Survey respondents (N=27) considered the Project’s contribution to the provision of additional renewable energy to be a moderate positive impact, with a weighted average of 4.2 out of 7 ranking, and 52% of respondents considering this to be a significant positive impact.

Similarly, respondents (N=25) identified a reduction in power prices as a further positive impact of the project (weighted average of 4.3 out of 7), though around 36% of respondents were more neutral in relation to this impact. As one neighbouring landholder stated:

'Many have their own solar power supply already [because of a commitment to reducing our carbon footprint] so reduced power costs won't benefit us locals...Others in NSW benefit from our sacrifice. We really want to see local benefits that reduce our cost of living and enhance our local environment' – Community Information Session (within 2.5 km)

Interviewed stakeholders noted the potential for the Project to produce positive economic impacts through contributions and local community investment opportunities and sponsorship. In this regard, stakeholders provided many suggestions of where funds could be distributed, such as to community groups and not for profit services, youth centred infrastructure and activities, and initiatives that reduce the cost of living for the local community.

'There is a big demand for community grants for local clubs and services ...particularly after the floods because the insurance didn't cover everything, they are still waiting for it to come through. If there were more funds to leverage off, we could disperse them into the community to support reconstruction efforts.' – Interviewee

'So, I know one of the issues, particularly for the Aboriginal community, because they may not have access to cars, is that young people may not have access to a car to get their license, they don't have cars to learn how to drive and so how are you going to drive to a job. Assisting in this area would be really helpful and would provide great positive impact' – Interviewee

'It would be great to work with the solar farm to invest in community initiatives. Particularly for young people...we don't have a cinema, we don't have a bowling alley we don't have anything for them. If you are not into sport what do you do?' -Interviewee

'I think the real key...what will impress people is if they bring the cost of living down...people aren't going to get excited about electrification through solar, particularly as many relied on gas cooking after the floods...if it can bring down the cost of living then it would be a winner.' – Interviewee

Some community members also reflected on the need for targeted investment for the local communities nearest to the Project, rather than seeing Project benefits directed towards communities who are not immediately impacted or affected by the Project.

'Can we please make sure that the benefits don't lean towards the coastal communities like Evans Head – we have the solar farm in our backyard it should be our community benefiting.'
– Community Information Session

Enhanced social outcomes for local and regional communities through targeted community benefit sharing is proposed. The mechanism for delivery and management of the Ark Energy Community Benefit Fund (CBF) for the Project is yet to be confirmed however Ark Energy has committed to a value of \$850/MW installed (as per the draft *NSW Energy Policy Framework*). The CBF is likely to be administered by the 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. Consultation with Council will continue as the Project progresses (refer to **Section 6.0** and **Appendix F** for further discussion).

Table 4.13 demonstrates the social impact ranking of the impacts and opportunities associated with the distributive equity of the Project.

Table 4.13 Social Impact Ranking – Distributive Equity

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Increased distrust given the perceived lack of distributive equity in Project benefits (Project developers Vs community; Landholders Vs Neighbours/ Broader community/Region)	Host Landholders	Construction & Operation	Very Unlikely	Minimal	Low
	Neighbouring Landholders	Construction & Operation	Likely	Minor	Medium
	Special Interest Groups	Operation	Possible	Minor	Medium
	Broader Community	Operation	Unlikely	Minimal	Low
Enhanced social outcomes for local and regional communities through targeted community benefit sharing and investment initiatives.	Host Landholders	Operation	Almost Certain	Major	Very High +
	Neighbouring Landholders	Operation	Possible	Moderate	Medium+
	Aboriginal Stakeholders	Operation	Possible	Moderate	Medium+
	Special Interest Groups	Operation	Possible	Moderate	Medium+
	Broader Community	Operation	Unlikely	Minor	Low+
	Local Businesses and Service Providers	Operation	Possible	Moderate	Medium+
	Local Government	Operation	Almost Certain	Major	Very High +
Intergenerational equity given emphasis on RE production and reduction in carbon emissions.	Broader community	Operation	Possible	Moderate	Medium+
	Population of NSW	Operation	Possible	Major	High+

Source: (Umwelt, 2024).

4.5 Accessibility

The SIA Guideline (DPE, 2023) defines accessibility as those impacts of the Project on how people access and use infrastructure, services and facilities, and any changes to way of life, including how people live, get around, work, recreate and interact.

4.5.1 Increased Pressure on Housing and Accommodation

The potential for population change associated with an incoming construction workforce and subsequent strain on local housing and accommodation infrastructure was raised in the consultation process.

'They [community members] were renting any house that came up within Casino, that they were paying up to 30% more than the asking price because you just had to house people' – Interviewee

'Motel accommodation in Casino, Lismore and even Ballina is in short supply and often impossible to get' – Interviewee

'Accommodation availability was impacted by recent floods, although this created an opportunity for more rentals in the longer term as people sold houses they owned to investors... There are longer term plans by Council to move people to less flood affected areas but this is going to take some time and really focus on rehousing local people who have lost their homes' – Interviewee

As outlined in **Section 3.1**, the recent 2022 major flooding event and progression of other planned solar farms in proximity to the Project, were viewed as resulting in impacts on the availability of housing and accommodation in the social locality. Outlined below is an assessment on housing and accommodation in the region to gain a broad understanding of the region's capacity to house the incoming construction workforces associated with the Project. This assessment does not account for changes in construction workforce capabilities due to the uncertain nature of start and finish times of other concurrent major developments.

For the purposes of this SIA, we assume that:

- Peak workforce numbers would total 327 people.
- Average workforce numbers would total 150 people.
- Workforces may commute up to 60 minutes to the Project Area.

As discussed in **Section 4.4.4**, it is unlikely that a significant proportion of the workforce will be able to be sourced locally given current workforce constraints. Therefore, it is highly likely that a large proportion of construction workforces would need to be sourced from outside of the social locality as demonstrated in **Section 4.4.4**. The three scenarios considered in **Section 4.4.4** are therefore representative of the likely population impact of incoming construction workforce across the respective LGAs and subsequent impacts on local service provision.

- **Scenario 1** – assumes 10% of the Project workforce will be sourced locally, and a total of 90% of the workforce will migrate to the area for the construction period, thus seeking accommodation within the region.
- **Scenario 2** – assumes 20% of the Project workforce will be sourced locally, and a total of 80% of the workforce will migrate to the area for the construction period. This is considered the most likely scenario, with between 30-65 workers sourced locally and approximately 120-260 relocating to the area, (for both average FTE and peak workforce numbers), as highlighted in **Section 4.4.4.1**.
- **Scenario 3** – is considered an aspirational scenario of 40% local employment and 60% migration into the area.

Population change estimates are provided at a LGA level only given there is insufficient data available to accurately model how the incoming workforce (both construction and operational) will be distributed within specific communities in each LGA. It should also be noted that the peak construction workforce number (327) has been utilised in the calculation in **Table 4.14** to represent the highest/worst case impact scenario, and has assumed that all incoming employees would reside in each LGA in entirety (which will not occur).

Table 4.14 Construction Workforce Population Change Estimates – All Scenarios

Scenario	Population of LGAs: Richmond Valley (23, 565), Lismore (44, 334), Ballina (46, 296)			
	Population Increase ¹⁶	% increase in Richmond Valley population	% increase in Lismore population	% increase in Ballina population
Scenario 1 (90% migration into LGAs)	292	1.2%	0.7%	0.6%
Scenario 2 (80% migration into LGAs)	260	1.1%	0.6%	0.6%
Scenario 3(60% migration into LGAs)	195	0.8%	0.4%	0.4%

Source: (ABS, 2021).

Burdge (2004) suggests that any increase or decrease in population greater than 5% may be considered a significant population impact. In the highest impact scenario in which there is 90% migration into Richmond Valley LGA alone, this would result in a population change of 1.2%, though it is also unlikely that the whole of incoming construction workforces will be accommodated in one LGA.

For the purposes of assessing accommodation availability, we have considered the following locations:

Table 4.15 Social Locality

Location	Approximate Population	Reason for Inclusion
Richmond Valley LGA ¹⁷	23,565	Project Area located in the LGA.
Lismore LGA	44,334	40 km from Project Area. Is a major regional centre of the State and the Northern Rivers Region.
Clarence Valley LGA	54, 115	50 km from Project Area. The LGA includes the service township of Grafton which has been utilised for the analysis of accommodation availability as a key service township. However there may be other small settlements such as Maclean which may also have capacity to accommodate construction workforce.
Grafton UCL ¹⁸	17,155	65 km from Project Area. A major township located within Clarence Valley LGA with potential to provide services, including accommodation provision.

¹⁶ It is important to note that this population increase assumes workers would not be permanently relocating to the area and therefore does not consider the influx of families associated with the workforce.

¹⁷ LGA – Local Government Area.

¹⁸ UCL – Urban Centre and Locality.

Location	Approximate Population	Reason for Inclusion
Ballina UCL	18,532	110 km from Project Area. A major township which contains Ballina Byron Gateway Airport and multiple services.
Myrtle Creek SAL ¹⁹	92	In Myrtle Creek (Project Location).
Casino SAL	10,930	27 km from Project Area. The biggest township closest to the Project. Has a country service centre with tourist attractions and community services.
Rappville SAL	142	8 km from Project Area. Closest village to the Project Area.
Ellangowan SAL	318	8 km from Project Area. Closest locality to the Project Area.
West Bungawalbin SAL	54	6 km from Project Area. Closest locality to the Project Area.

Source: (ABS, 2021; Google Maps, 2023).

4.5.1.1 Analysis of Accommodation Options

For the purposes of assessing accommodation availability, we have considered the following accommodation options as relevant for the potential housing of the Project's construction workforce:

- Short-term accommodation, including AirBnB, hotel and motel accommodation.
- Rental accommodation.

Short-term Accommodation Options

This assessment considers accommodation availability based on: 1) number of rooms available; 2) occupancy rates across the social locality and 3) the impact of cumulative project development on short-term accommodation demand.

Research indicated that the localities of Myrtle Creek, Rappville, Ellangowan and West Bungawalbin had no identified short-term accommodation data and have therefore been removed from the analysis.

¹⁹ SAL – Suburb and Locality.

Table 4.16 indicates short-term accommodation data in the social locality. Across accommodation providers, an estimated 1,751 rooms were available throughout the year in 2023 (ATDW, 2023).

Table 4.16 Short-Term Accommodation Data

Locality	Approximate 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 ²⁰		
			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	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	1761

Source: (ATDW, 2023).

²⁰ Other listing and classification types include: cottages, bed and breakfasts, farm stays, holiday houses, backpackers and hostels.

Table 4.17 indicates that there is a total of 557 available listing within the areas of Richmond Valley, Lismore, Grafton and Ballina.

Table 4.17 Airbnb Accommodation Supply as of December 2023

Locality	Total Available Listings
Richmond Valley Council	160
Lismore Shire Council	231
Grafton UCL	14
Ballina SAL	152
Total	557

Source: (AirDNA, 2024).

Cumulative Impact

As **Table 3.5** shows, there are two projects proximal to Richmond Valley Solar Farm – Myrtle Creek Solar Farm and Summerville Solar Farm:

- The Summerville Solar Farm EIS was exhibited in December 2023 and is currently in the Response to Submissions phase with construction estimated to begin in 2025. The project is estimated to have a peak workforce of up to 200FTE.
- The Myrtle Creek Solar Farm lodged an updated Scoping Report in February 2023 and is awaiting SEARs. The project is estimated to have a peak workforce of up to 150FTE.

Each of the projects is at different stages of the planning approval process.

Should these construction phases occur concurrently, impacts associated with incoming construction workforces, including the need for short term accommodation, could be exacerbated during a period of time, resulting in a temporary cumulative impact effect.

Occupancy Rates

Currently, there is no publicly available data regarding the occupancy rates of hotels and motels in the social locality. However, as **Figure 4.5**, **Figure 4.6** and **Figure 4.7** demonstrate, occupancy rates of AirBnBs and Hotel Comparable accommodation categories range from 88% to 25% respectively, with peaks of 79% in Ballina and 88% in Lismore in September 2022, and 73% in Richmond Valley in November 2022.

The data in **Figure 4.5** also suggests that, at a minimum, 47% of AirBnBs will be occupied throughout the year in Richmond Valley. During peak times, it is likely that over 65% of AirBnBs will be occupied, with an average occupancy of 59% over the year. In the Lismore Region, similar trends are observable, with occupancy rates particularly high for hotel comparable properties (refer to **Figure 4.6**) and the average occupancy over the year being approximately 57%. Ballina City occupancy rates during peak times, school holidays in July and March, are likely to experience over 80% occupancy of AirBnBs, with an average occupancy rate of 61% over the year.

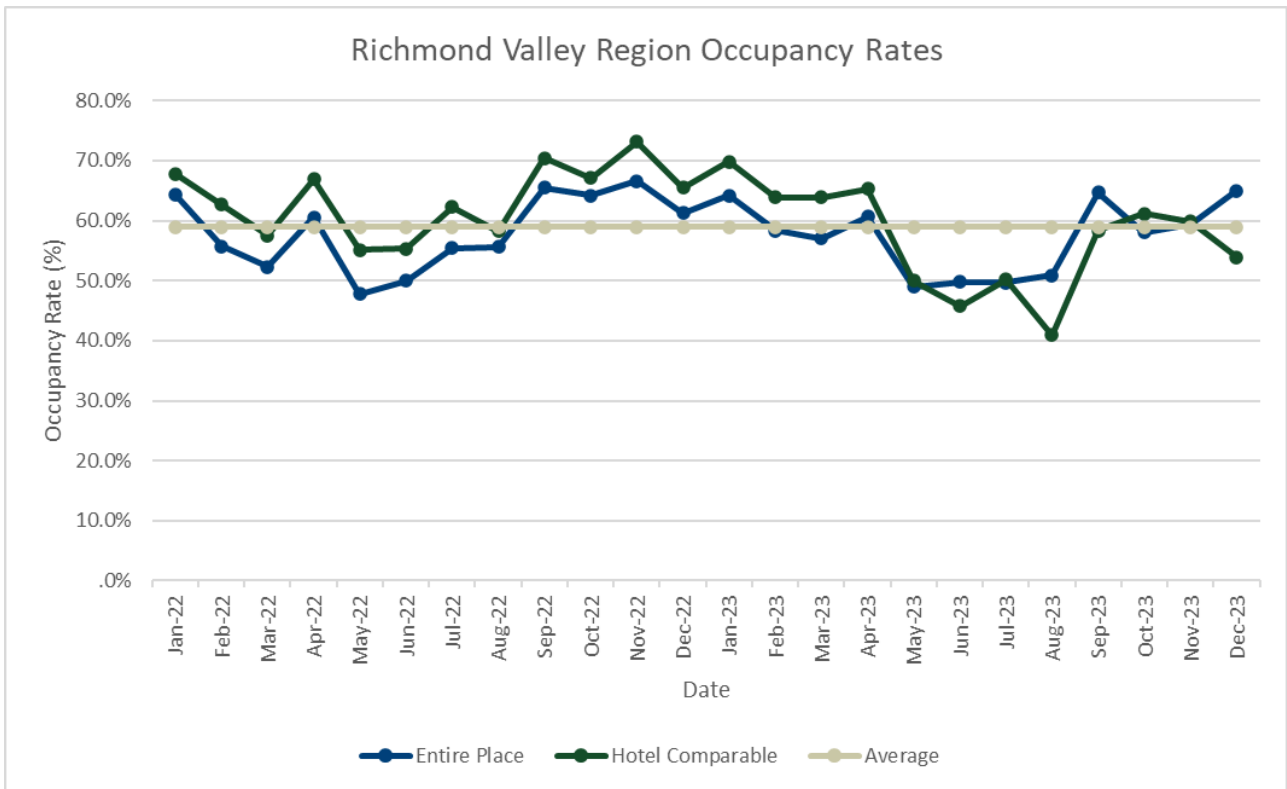


Figure 4.5 Richmond Valley Region Occupancy Rates

Source: (AirDNA, 2024).

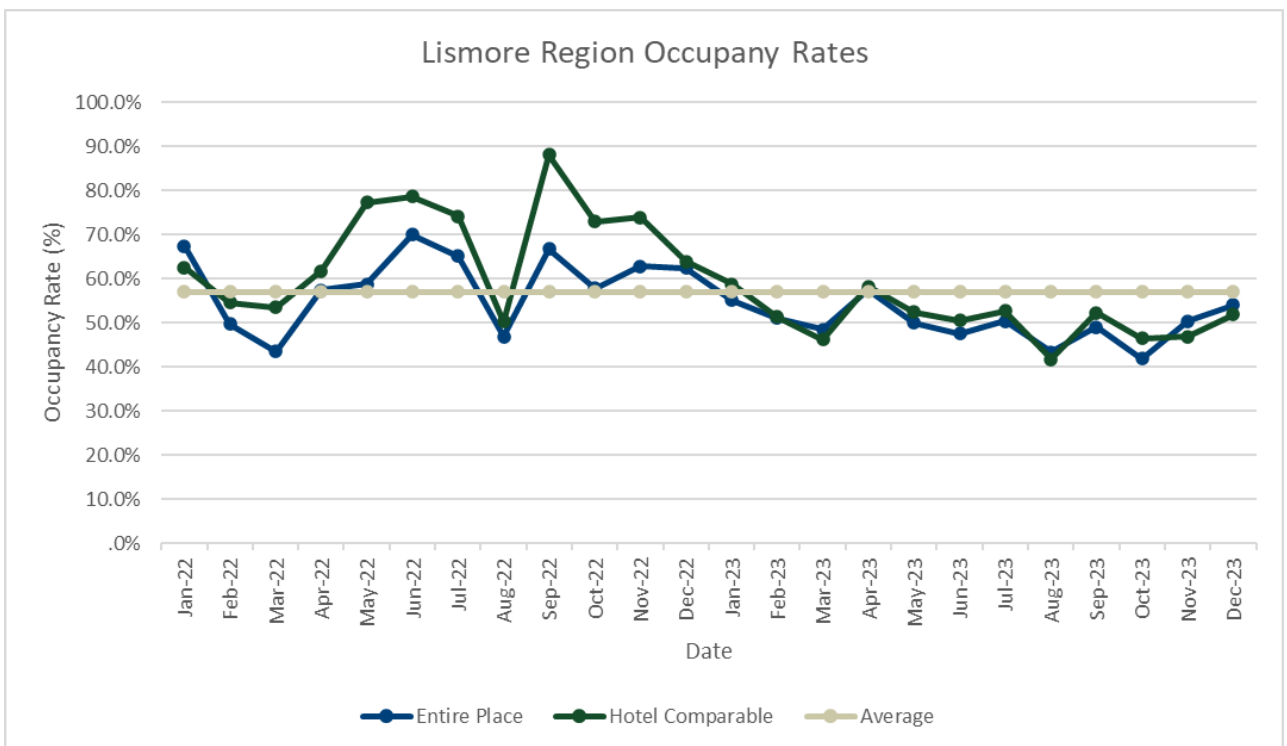


Figure 4.6 Lismore Region Occupancy Rates

Source: (AirDNA, 2024).

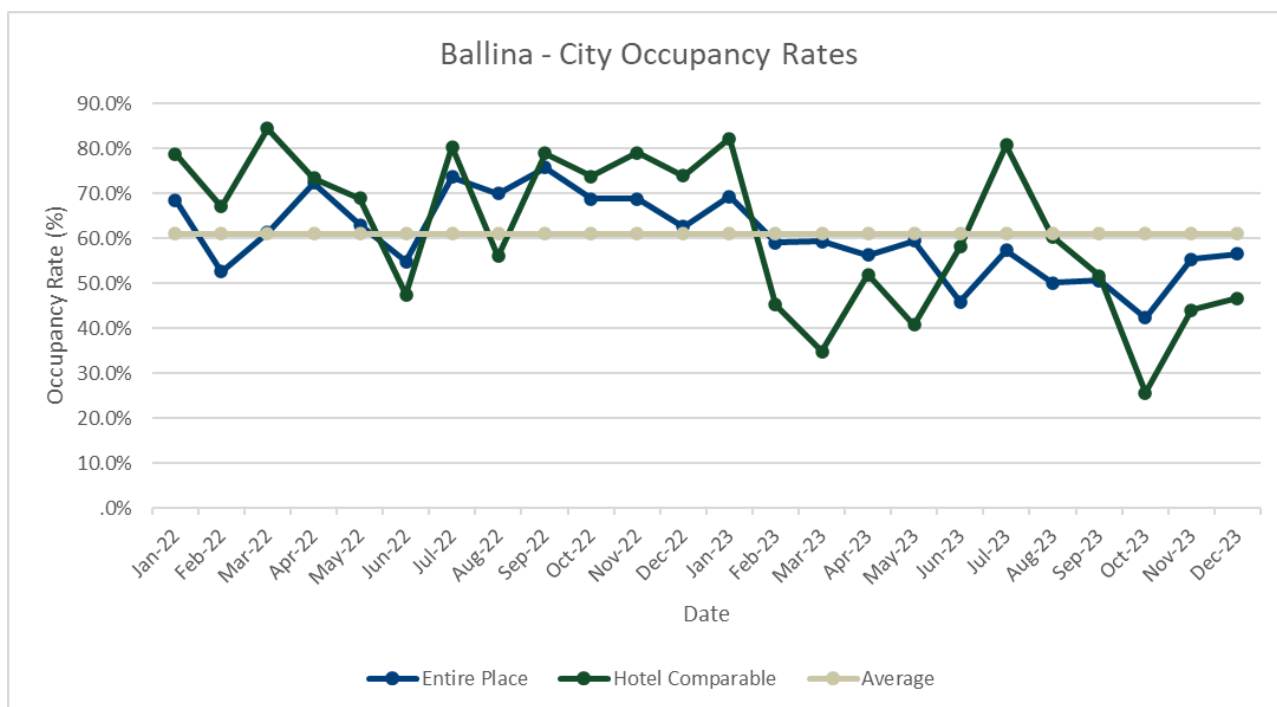


Figure 4.7 Ballina-City Occupancy Rates

Source: (AirDNA, 2024).

A conservative estimate of 70% occupancy rates across hotel and motel accommodation has been utilised given:

- The historical occupancy rates.
- Outcomes of consultation with 15% of local hotel and motel accommodation providers stating an average occupancy across the year as 73%.
- AirBnB data averaging an occupancy rate of 59% across the 3 LGAs.
- This conservative number allows for peaks in accommodation need (i.e. on weekends and school holidays for example), assumes the potential for a proportion of people still displaced by the 2022 flooding to be utilising such housing, and recognises that hotel and motel accommodation may also be used as emergency accommodation for homelessness and Domestic and Family Violence services. The remaining 30% of total stock is therefore assumed to be available to incoming workforces. In addition, the analysis acknowledges the cumulative impact of other construction periods in the social locality as indicated in **Table 3.5**.

Based on this assessment, **Table 4.18** and **Table 4.19** provide updated accommodation availability numbers.

Table 4.18 Hotel and Motel Accommodation, Considering Occupancy Rates

Locality	Number of Providers	Total Number of Rooms	Number of rooms @ 70% occupancy	Rooms available ²¹
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: (ATDW, 2023; AirDNA, 2024; Google Maps, 2023).

Table 4.19 AirBnB Accommodation Availability, Considering Occupancy Rates

Locality	Total Available Listings	Number of listings @ 70% occupancy	Total available listings to the Project ²²	Total available rooms to the Project ²³
Richmond Valley Council	160	48	14	28
Lismore Shire Council	231	69	21	42
Grafton UCL	14	4	1	2
Ballina SAL	152	46	14	28
Total	557	167	50	100

Source: (AirDNA, 2024)²⁴.

The tables above indicate approximately 158 hotel and motel rooms and 50 AirBnB homes are likely to be available to the Project on any given night. This is likely to be an underestimate given some AirBnB homes will accommodate more than one worker. Therefore, utilising the assumption that on average AirBnB homes have an average of two rooms per listing there will be 100 AirBnB rooms available. This reflects 258 rooms of accommodation that are likely to be available without generating an unsustainable impact on local short-term accommodation.

²¹ For the purpose of this assessment, it is assumed a maximum of 30% of total available beds may be available to construction workers from the Project given the volume of concurrent project and agricultural workforces in the area.

²² For the purpose of this assessment, it is assumed a maximum of 30% of total available listings may be available to construction workers from the Project given the volume of concurrent project and agricultural workforces in the area.

²³ Utilising the assumption that on average AirBnB's have two rooms per home a multiplier has been added to adequately assess the rooms available.

²⁴ This is an approximate estimate based on available data.

Utilising the medium scenario listed in **Section 4.4.4.1**, assuming 30 people in the workforce would live locally, this would suggest that around 120 workers would require accommodation on average throughout the construction period. Consequently, there may be adequate accommodation during the average construction workforce months. However, during peak construction, approximately 260 workers would be required to be housed in the local area, which may result in an approximate short fall of 2 rooms over the 6-month peak period. Given the assumptions utilised in generating this assessment, the shortfall of 2 rooms is considered negligible. Further small townships such as Maclean located within Clarence Valley LGA may also potentially be able to provide short-accommodation given a number of motels, caravan parks and holiday houses in the area. While existing accommodation has been assessed as sufficient, Ark Energy would assess and consider options during peak construction (as discussed at the conclusion of this section) or maximise local employment as much as possible. As stated above construction workforce influxes into the community can increase pressure on services, though it is acknowledged that it is unlikely for construction workforces to all be housed within the one LGA. **Section 4.5.2** further details the impact of the average and peak construction workforces on other services such as health care providers. Accommodation providers in the social locality stated interest in housing accommodation workforces while some stated concern due to peak seasons such as school holidays and Christmas as well as the continued impact of the 2022 floods.

‘You won’t get anywhere in Grafton’ – Telephone Survey

‘Wouldn’t count on Lismore, all nearly washed out, did 18 months of flood victims, dealing for traumatised people’ – Telephone Survey

‘We are busy during all holidays, you [Ark Energy] would need to book in early’ – Telephone Survey

‘Don’t believe anyone property have capacity to close out all stock to project’ – Telephone Survey

Rental Accommodation

The Northern Rivers Region (defined as the LGAs of Tweed, Byron, Ballina, Clarence Valley, Richmond Valley, Lismore and Kyogle) has been identified as an area experiencing a serious housing crisis, driven by strong population growth and housing supply constraints associated with flood damage and relocation requirements. In 2022, NSW State Emergency Services determined that 3,396 homes were uninhabitable and 6,708 inundated due to the floods (McKenna, 2022). The housing crisis has deepened across Australia with the overall national vacancy rate reaching 0.7% in February 2024 further demonstrating the current lack of supply of housing with increasing demand. Factors which have contributed to the low vacancy rates include rapid population growth, rising property prices and low building approvals (Taylor, 2024).

There is currently a Critical Infrastructure, Infrastructure Recovery and Coordination Program underway in the Northern Rivers Region which has identified the need for prioritised delivery of critical infrastructure for the 2,500 infrastructure projects currently occurring across the 7 Northern Rivers LGAs. The Northern Rivers Reconstruction Corporation (NRRC) is also coordinating a program of work to increase accommodation availability in the Northern Rivers for the incoming temporary workforce associated with these projects, in order to accelerate the regions flood rebuild without increasing the competition faced by local residents for scarce local housing stock.

In addition, the region, being an attractive option for metropolitan expatriates, has felt the full effects of city to regional migration following COVID-19, with the resulting supply/demand housing squeeze leading to the displacement of lower paid key workers and other vulnerable demographic groups (further details in **Appendix C**). As a number of stakeholders noted:

‘Housing a construction workforce of that size in our region will have a significant impact. We’re already struggling. So, for them to secure accommodation they’re going to have to just join the queues that are already there, and will still be there, because there are a lot of people looking, or they are going to have to sort out something specific to them - maybe an accommodation village.’
– Interviewee

‘Housing stock will continue to be an issue - it’s a big one. Stock is such a premium to support the workforce on top of that - that’s going to be a big issue.’ – Interviewee

“Where will the workforce live – they will most likely have to come from outside the community because there are not enough trained people in the area. If they come from outside the region where will they live? There are absolutely no rentals. If they take the minimal amount of affordable rentals that there are where will local families live?” – Community Information Session

Given that Ark Energy proposes to provide its workforce with a living away from home allowance (LAHA), it is likely that the Project workforce may seek to utilise available rental accommodation in the social locality and consequently, a strategic approach to housing and accommodation will be required. However, as **Table 4.20** identifies there is a limited available rental stock for incoming workforces within the social locality and consequently, based on existing low vacancy rates and rental pressures, it is recommended that the use of rental accommodation to house the Project workforce be limited, so as not to place additional strain on those existing residents seeking accommodation within the area.

Table 4.20 Rental Accommodation Availability

Location	Number of private dwellings	Rental Stock Available	Stock available to the Project (up to 2.5%) ²⁵	Vacancy Rate
Richmond Valley LGA	9,675	75	2	0.59%
Casino SAL	4,571	40	1	0.77%
Lismore LGA	18,477	121	3	0.57%
Grafton UCL	7,362	60	2	1.20%
Ballina SAL	4,745	168	4	0.73%
Total	44,830	464	12	-

Source: (Real Estate Investar, 2024; ABS, 2021).

Whilst adequate commercial accommodation is available for the identified workforce as outlined above it is recommended that Ark Energy continues to explore additional accommodation options as the Project progresses and in development of the Accommodation and Employment Strategy post approval.

²⁵ Assuming for the purpose of this assessment that the Project should aim to take up no more than 2.5% of available properties.

This could include:

- **Adaptive Re-Use or Extensions to Existing Buildings** – there may be opportunities to re-use existing buildings or extend existing buildings to generate accommodation for construction workforces. This may involve temporary or permanent retrofitting of buildings to generate housing/ and or assessing the feasibility of repurposing the 319 housing pods established in the Northern Rivers region (Ballina, Lismore and Richmond Valley) following the 2022 flooding that should be available by the expected 2025 Project construction period.
- **Supporting Long-Term housing** – there is an opportunity for Ark Energy to work directly with local councils, community housing providers or developers to encourage the construction of permanent housing in infill locations. Richmond Valley Council’s *Growth Management Plan (2023)*, outlines 2022 Housing Package, utilised in the region to address the increased pressures on the supply and affordability of housing in Regional NSW. This will be done through increased supply of diverse and affordable housing in existing centres and towns as well as identify new ‘greenfield’ residential areas.
- **Ancillary dwellings and community-integrated solutions** – there is a potential to support the use of existing granny flats or ancillary dwellings and/or support the generation of new ancillary dwellings as mechanisms for generating housing supply.
- **Development of a purpose-built workforce accommodation campsite** to support workforce associated with Richmond Valley Solar Farm. Given the adequacy of existing accommodation and continued investigation of the above this is considered a last resort option and currently not required for the Project to be constructed.

Table 4.21 demonstrates the social impact ranking for increased pressure on housing and accommodation as a result of the Project.

Table 4.21 Increased Pressure on Housing and Accommodation

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Increased demand for housing/accommodation due to construction workforce influx into the region, affecting accessibility, availability and affordability for other sectors and community members (particularly in key locations where community members remain displaced after the 2022 floods in Richmond Valley LGA and Lismore).	Local Accommodation Service Providers	Construction	Likely	Moderate	High
	Homelessness Service Providers	Construction	Likely	Moderate	High
	Homeless/ At Risk of Homelessness	Construction	Likely	Moderate	High
	Tourists/ Visitors	Construction	Possible	Minor	Medium
	Other Key Workers (construction workforce following 2022 flooding)	Construction	Possible	Minor	Medium
	Broader community	Construction & Operation	Unlikely	Minor	Low

Source: (Umwelt, 2024).

4.5.2 Pressure on Health Service Infrastructure

There is also the potential with an incoming workforce to further exacerbate access to key social infrastructure such as health services within the social locality, particularly GP and emergency medical services.

As evidenced in **Appendix C**, there is varied health service capacity across the social locality, with GP services in the Ballina LGA having the ability to service more patients, whilst emergency service delivery in this locality is limited due to the difficulty in retaining specialist staff. Within the social locality there are four hospitals:

- Casino and District Memorial Hospital: 3 cardiac emergency beds.
- Ballina District Hospital: 30 general ward beds and 9 emergency beds.
- Maclean District Hospital (Clarence Valley LGA): 10 bed rehabilitation unit.
- Grafton Base Hospital: 24 surgical beds and 23 medical inpatient unit beds.
- St Vincent Lismore: 86 general ward beds and 130 aged care beds.
- Lismore Base Hospital: 197 inpatient beds and 9 Intensive Care Unit (ICU) beds. The ten-year, \$312.7 million redevelopment has increased the ability of this hospital to cater for the emergency health needs of the broader region with an additional 51 emergency beds provided.

Approximately 5.5% of labourers and technicians experience a workplace related injury each year in Australia (Safe Work Australia, 2023). Applying this percentage to the proposed solar farm Project, under a worst-case scenario (where all of the reported injuries required medical attention) could result in an additional 8 people per annum over the 2-year construction period attending a GP service/ Emergency Department (average workforce of 150) or 18 people where peak construction numbers are realised. While a proportion of this workforce may be local and thus already have an established GP relationship in place, it does not consider the potential cumulative effects to allied health services that may be required to provide rehabilitation support post injury.

Constraints on health services are more likely to be experienced due to routine GP visits. On average 79.2% of Australian adults between the ages of 25 to 54 years attended a GP in 2022-2023 (ABS, 2023). Utilising this average, this would equate to approximately 188 worker visits (average workforce) or 257 worker visits (peak workforce) per year. As many of the conditions requiring presentation to a GP are preventable and/or can be assisted with active health promotion, such as hypertension, mental health, and asthma (NPS Medicine Wise, 2022), it is important that Ark Energy provides their own health care and promotion to their staff/employees rather than solely relying on local community services. This approach has been adopted in accommodation camps developed to house construction workforces in other states, with additional services also provided. As the Ballina LGA currently has some GP capacity as outlined in **Appendix C**, utilisation or partnering with GP services in that LGA may reduce the service load on other GPs within the social locality, and/or providing additional medical support e.g. medical help line.

The impact of incoming construction workforces on health care and facilities is outlined in **Table 4.22**.

Table 4.22 Social Impact Ranking – Health services

Impact	Affected parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Incoming construction workforce causing increased pressure local health care and facilities	Health care providers	Construction	Possible	Moderate	Medium

Source: (Umwelt, 2024).

4.5.3 Deteriorating Roads and Impact on Public Safety

Stakeholders raised concerns that current road conditions and reduced safety would further be exacerbated by the introduction of heavy vehicle traffic associated with the Project. This was first raised during scoping phase consultation as a key concern for neighbouring landholders and attendees at the online community information session, with increased traffic also perceived to cause a short-term disruption to residents and commuters.

The NSW Government initiative Roads to Recovery Program funded the construction and maintenance of Main Camp Road Bridge and Coraki Ellangowan Road. These roads located within 30 min drive of the Project Area had experienced deterioration due to long-term use as well as increased severe weather events. The Pacific Highway upgrade from Woolgoolga to Ballina is a significant development within the social locality as it provided 155 km of safer roads through increasing the highway to four lanes. The highway may be potentially utilised by construction workforces and heavy vehicles associated with the Project.

Respondents to the survey ranked the impact of construction traffic on road users and subsequent amenity and public safety aspects as high (a weighted average of 6.1 out of 7), with potential disruption to road users during Project operations also obtaining a moderately high rating (5.6 average). Across respondents, 78% considered construction traffic and 70% considered operational traffic to be significant impacts. Stakeholders further raised concerns regarding road safety and road upgrades required for the Project.

'Increased volume of traffic creating noise amenity and safety issues. Traffic is already an issue and it will get worse with the project which will bring large trucks into the area.' – Community Information Session

Stakeholders suggested ways for Ark Energy to invest in the community through improving road conditions in the area. During the community information session, stakeholders emphasised the need to improve and maintain Avenue Road to provide local community members who use the road regularly, and the Rural Fire Service, a safe evacuation route in the case of fire or flood.

'A BRAND NEW bitumen road from Summerland Way along Main Camp Rd & Avenue Rd wide enough for Semi Trailers...Build a BRAND NEW ROAD before construction starts.' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'[The] community needs roads maintained properly, drainage done and sides of roads cleared, e.g. dangerous corners' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'Upgrade roads would have a positive impact for the area and better access for the solar farm' – Survey Respondent: Neighbouring Landholder (between 2.5 km–5 km)

The recent major flooding in the area has highlighted reduced road safety issues, both due to damage from the flood itself and the deterioration of local roads due to the use of heavy haulage vehicles assisting with recovery and clean-up efforts (Richmond Valley Council, 2022). Ark Energy has proposed school bus stops at the intersections of Main Camp Road and Summerland Way as a community benefit.

Major solar components would be delivered via heavy and oversize and/or over mass (OSOM) vehicles from the Port of Brisbane, via Motorway/Highway, Summerland Way, Main Camp Road, Avenue Road and access into site via existing property access off Avenue Rd. Light vehicle access would be facilitated off Avenue Rd, with the central access point located approximately 3.5 km from the intersection of Avenue Rd and Main Camp Rd. The Construction Traffic Management Plan will need to consider any cumulative impact from construction traffic on the reconstruction and repair of local roads if road upgrades are not completed by the intended construction period of 2025–2027.

As outlined in the *Traffic Impact Assessment (TIA)* conducted by Access Traffic Consulting (Access Traffic Consulting, 2024), the main activities generating an increase in traffic will be the transportation of construction components and construction staff movements. The TIA further assesses that the increase in traffic numbers anticipated as a result of the construction, operations and decommissioning of the Project, the impact of the Project on the traffic operation of the surrounding road network can be managed by the provision of mitigation measures such as proposed road upgrades to Summerland Way/ Main Camp Road intersection, widening of construction traffic roads proximal to the site, adequate signage to highlight the presence of heavy vehicle traffic to motorists, and a detailed traffic management plan. (See Section 6.8 of the EIS for further details).

Current mitigation strategies to enhance road use and safety suggested by Ark Energy include:

- Traffic signage will be installed in compliance with the Construction Traffic Management Plan, relevant regulations and in accordance with any permits obtained for traffic management. Consultation with relevant local Councils and Transport for NSW (TfNSW) will be initiated to determine final signage locations.
- To limit traffic impacts on local community and workforce fatigue, mandatory 'park and ride' bussing services will be implemented during construction. A centralised car park (agreed with the local council and community) will be utilised in Casino, Lismore and Grafton where the workforce will park their cars before boarding a shuttle bus to site each morning. Key limited personnel who are required on site prior to the main workforce will use Light Vehicles to travel to site.

Table 4.23 demonstrates the social impact ranking of the impact of the construction of the Project on roads and safety.

Table 4.23 Social Impact Ranking – Roads and Safety

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Reduced public safety due to further deterioration of local roads (roads previously impacted by flooding and heavy haulage for recovery efforts) and increased volume of traffic.	Road Users around Project Area	Construction	Likely	Minor	Medium
	School Bus Route Users on Main Camp Road	Construction	Possible	Minor	Medium
	Local Government	Construction	Likely	Moderate	High
	State Government	Construction	Possible	Minor	Medium

Source: (Umwelt, 2024).

4.6 Surroundings

As outlined in the SIA Guideline (DPE, 2023), impacts relating to surroundings and social amenity can include changes in ecosystem services such as shade, pollution control, erosion control, public safety and security, access to and use of the natural and built environment and aesthetic value and amenity.

4.6.1 Fire Management and Safety

Community members and stakeholders involved in engagement expressed a number of concerns in regard to increased fire risk related to the Project, and how this risk will be managed by Ark Energy, as a result of the Project. Concerns include the proximity of the Project Area to state forests, the development of appropriate Asset Protection Zones (APZ) and setbacks, and potential fire risk associated with presence of a large-scale BESS.

The location of some of the Project infrastructure alongside RU3 zoned land for forestry led to some concern from stakeholders about the potential for fire to originate within the Project Area and spread quickly into the adjoining state forest, National Park and neighbouring properties.

‘The site borders a forest. What ways can we best defend our properties with the added risk of a solar farm on the site? We now have two potential catalysts – a solar farm full of combustible panels and a forest.’ – Community Information Session

‘[The Project is] a major fire risk. There is a fire currently burning on the property [Project Area], where solar panels will be. Forestry Corp has not been able to put it out and is getting worst. Currently on fires near me shows 285 ha burnt as at 20/9/2023. – Survey Respondent: Neighbouring Landholder (within 2.5 km)

‘There’s a bushfire that popped up this morning - in the bush on the site and people cannot go in there. People are really scared about the fires.’ – Survey Respondent: Neighbouring Landowner (within 2.5 km)

The increased risk was deemed to be from the perceived flammability of the solar panels and the BESS, the amount of grass that would have to be maintained within the Project Area. Neighbouring residents suggested that being provided with additional infrastructure to support firefighting efforts would minimise the risk of fire spreading into their properties from the Project Area.

'What worries me more than the view of the panels is the heat they generate. In September 2023 I already made a 000 call as a bush fire was burning your solar farm site....[it was] coming towards my property.' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'Are these panels and battery flammable? What are the chemicals in each of them?' – Survey Respondent: Community Member

'[One major concern I have is] do the burning batteries give off toxic gas and have the rural fire brigades and neighbouring farms been given information for this?' – Survey Respondent: Neighbouring Landholder (between 2.5 km and 5 km)

'if there is grass under the [solar] panel, they can light up easily.' – Survey Respondent: Community Member

'WITH what frequency the grass will be mowed [on the Project Area]? who would be in charge of that?' - Survey Respondent: Community Member

'Mowing often won't be possible, is wet and flooded most of the time - it had just dried now.' Community Information Session

Concerns around fires were heightened during the community information sessions as attendees discussed their experience with a major fire that occurred in 2019, in nearby Rappville and Myrtle Creek affecting the local community and environment (see **Appendix C**). The Bushfire Risk Assessment Study conducted by BlackAsh Bushfire Consulting acknowledges the history of bushfire in the area and notes that the Project is within Bushfire Prone Land²⁶ and that bushfire is a key impact for the proposed Project. Whilst there is every possibility of severe²⁷ fire behaviour occurring at this site over a predicted 30 year asset life, BlackAsh Bushfire Consulting states that the risk to life can largely be mitigated through good project planning requirements and a robust and ongoing emergency management planning for the site (BlackAsh Bushfire Consulting, 2023).

'People are genuinely scared about the risk of fire, we are concerned about the technology involved in the solar panels and the batteries, and we don't trust that there has been rigorous testing....where is the proof that these have been tested?' – Community Information Session

'People you know that that's [bush fire risk] a very sensitive issue for people out there... it was really severely affected in the bushfires. Obviously, most of the outfield villages were burned down, and so you know, I find people there's a lot of trauma in that landscape with regard to fire risk...' – Interviewee

²⁶ An area of land that can support a bushfire or is likely to be subject to bushfire attack.

²⁷ The fire behaviour index (FBI) is a scale of potential fire behaviour. It ranges from zero to 100-plus. Fire agencies use the FBI to inform decisions about the fire danger rating for a district, along with information about other conditions.

Research demonstrates that there are a number of residual impacts experienced by communities following a natural disaster including, but not limited to, psychological, social, economic, ecological and infrastructure impacts (Rogers et al., 2021; Beyond Blue, 2021; Cutter et al, 2008). This research also demonstrates that disaster survivors, such as those who attended the community information session, can feel more prepared for the next disaster if they are actively included in any planning and preparation in the local area (Werbelloff, Johnston, Fisher & Wickes, 2022). Strategies to increase inclusive planning practices include disaster affected communities sharing crucial local knowledge and skills to inform decision making about disaster preparation and responses (Werbelloff, Johnston, Fisher & Wickes, 2022). Stakeholders at these sessions, and in one key informant interview, reinforced this localised approach and the need to share transparent fire mitigation strategies, in consultation with the local Rural Fire Service and community, and work towards collaborative solutions.

Ark Energy is committed to developing a Bushfire Management plan in collaboration with key stakeholders such as the Northern Rivers Bush Fire Management Committee and local Rural Fire Service district staff and brigades, which will allow for appropriate measures to be developed to mitigate bushfire risks. This will also include managing vegetation on the property that does not include the use of harmful chemicals, due to the proximity to sensitive waterways. Provision of further information to neighbouring landholders and the community on key aspects of the Bushfire Management Plan is also recommended.

It is also noted that Ark Energy has revised the solar farm layout to reflect concerns regarding the fire risk of the BESS and have increased the APZ along the northern and western sides to 100 m, though this will result in a small amount of additional vegetation clearing. As a result, more than 90% of the solar arrays and the BESS will be more than 100 m from potentially hazardous vegetation with the majority of the site unlikely to be impacted directly by bushfire impacts other than wind, smoke and embers (BlackAsh Bushfire Consulting, 2023).

Table 4.24 demonstrates the social impact of the Project construction and operation on fire management and safety.

Table 4.24 Social Impact Ranking – Fire Management and Safety

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Reduced levels of personal and public safety due to fire risk given proximity to natural features such as state forests/farmlands and past fires reported on site.	Host Landholders	Construction & Operation	Possible	Minor	Medium
	Neighbouring Landholders	Construction & Operation	Possible	Moderate	Medium
	Broader Community	Construction & Operation	Possible	Minor	Medium
	Special Interest Group (Environmental)	Construction & Operation	Possible	Minor	Medium

Source: (Umwelt, 2024).

4.6.2 Flood Management and Safety

Flood management and safety was raised during stakeholder engagement with concerns relating to the suitability of the site due to its flood prone nature, the potential for dispersal of flood water to change/alter as a result of upgrades to Avenue Road and Project infrastructure and the proposed fencing acting as a dam collecting debris and increasing risk to local fauna. Concerns regarding flood impacts had also previously been raised during scoping consultation by neighbouring landholders.

*‘Flooding will create a volume of water under the panels, how you going to deal with that?’
– Community Information Session*

‘Even with drainage, the water is still going somewhere, are you putting on someone’s else property then’. – Community Information Session

Concerns related to roads being sealed, which changes/alters the way that water flows [rainwater]

‘Are modellings considering the roads sealed for the water flows?’ – Community Information Session

‘What type of fencing will be used; will it create a dam effect during a flooding event trapping debris and creating a risk for wildlife who are then trapped in the flood water.’ – Small Group Briefing

The Flood Impact Assessment (FIA) prepared by Arcadis (2024) has assessed and identified flooding constraints to assist in the development of the Project’s layout and configuration. The assessment has outlined that the Project site exhibits varying levels of flood risk. The flood modelling demonstrated that parts of the Project Area are subject to significant inundation. The assessment found that the proposed BESS and other Project infrastructure are in a low flood risk area while Avenue Road and the proposed O&M facility were in a high flood risk area (refer to Section 6.11 of the EIS for further details).

Mitigation recommendations include consideration of a safe route between areas of operations and site residences will minimise construction workforce risk as well as the development of a Flood Response and Action Plan.

Further design revisions have included relocation of the O&M facility to the north of the flood impacted land. Ark Energy is investigating the use of alternative fencing options to ensure compliance with Australian standards, reduce the risk of collision from local wildlife, and to manage any impacts of a flood event on the surrounding community and ecology.

Table 4.25 outlines the social impact ranking of impact of the Projects construction and operational phases on flooding management and safety.

Table 4.25 Social Impact Ranking – Flooding Management and Safety

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Reduced levels of personal and public safety due to flooding risk and potential impacts to roads, proximal property and fauna.	Host Landholders	Construction & Operation	Unlikely	Minimal	Low
	Neighbouring Landholders	Construction & Operation	Possible	Minor	Medium
	Broader Community	Construction & Operation	Unlikely	Minimal	Low
	Special Interest Groups	Construction & Operation	Possible	Minor	Medium

Source: (Umwelt, 2024).

4.6.3 Loss of Environmental Values

Throughout consultation the importance and value of the environment in and surrounding the Project Area was highlighted by stakeholders. During the scoping phase, stakeholders raised concerns regarding impacts to biodiversity. Changes to valued environmental assets during construction and operation of the Project were also raised as concerns.

The potential impact of the Project on disturbing the habitat and ecological systems, particularly local flora, fauna and habitats, received an average rating of 5.7 out of 7, with 85% of respondents stating this impact to be significant to them.

'One threatened species project by a particular type of gecko that's only known to that area they've been active on, you know, doing surveys and ensuring that their threats to that species are managed... there's also the coastal emu population and they're really important to that community, it's that like the last remaining coastal emu population on the North Coast and they take their custodianship of those birds very seriously' – Interviewee

'We have a lovely farm with beautiful surroundings, and you want to come in and take it away. Not to mention the wildlife. Are they meant to climb over the high fences you are proposing to put up. That's in very poor taste. What an absolute waste of good farmland.' – Email Correspondence: Neighbouring Landholder

'...there would be quite a level of scrutiny into renewable energy development in the area just due to the importance of both agricultural and you know conservation values in that landscape' – Interviewee

'The natural environment [is so important] – it's part of what makes our community. Native wildlife and flora. Wildlife being able to go too and fro, as they have done for eons. No prison like chain mail and razor wire fences.' – Survey Respondent: Neighbouring Landholder (between 2.5 km and 5 km)

'[Where are the] studies into wildlife on the proposed site to be sure koalas and emus will remain in the area' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

The Project Area and surrounding area is characterised by its proximity to a national park, state forest and conservation areas, which are utilised for recreational activities and deemed valuable for their natural ecological and aesthetic attributes.

‘Kids from town use the adjoining forest for their quad bikes – will their access be stopped? There is nothing for them to do in town (Casino) so they often come out here’. – Community Information Session

‘There are important areas of conservation in the area and a lot done to try and protect places like the Bungawalbin...like protecting from feral pigs and cane toad incursion... and protecting the coastal emu.’ – Interviewee

Ark Energy is proposing a vegetation corridor across the Northern Boundary of the Project to enable fauna connectivity between Ellangowan State Forest and Bungawalbin State Forest. The vegetation corridor will also double as a visual and noise screen between the Project and nearby residents.

Table 4.26 demonstrates the social impact of Project construction and operation on environmental values and the social impact ranking.

Table 4.26 Social Impact Ranking – Environmental Values

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Changes to interaction with, and enjoyment of, valued environmental assets adjacent to the Project Area used for recreational activities e.g. Bungawalbin National Park or State Forest and Ellangowan State Forests.	Neighbouring Landholders	Construction & Operation	Unlikely	Minimal	Low
	Broader Community	Construction & Operation	Unlikely	Minimal	Low
	Tourist/ Visitor/ Users of State Forests	Construction & Operation	Possible	Minor	Low
	Special Interest Group (Environmental)	Construction & Operation	Likely	Minor	Medium
Degradation of assets of environmental values, and impacts to flora and fauna.	Neighbouring Landholders	Construction	Possible	Minor	Medium
		Operation	Unlikely	Minor	Low
	Broader Community	Construction	Unlikely	Minimal	Low
		Operation	Unlikely	Minimal	Low
	Special Interest Group (Environmental)	Construction	Possible	Minor	Medium
		Operation	Possible	Minor	Medium
	Decommissioning	Possible	Minor	Medium	

Source: (Umwelt, 2024).

4.6.4 Reduced Visual Amenity and Scenic Value of Landscape Features

Visual amenity and scenic value of key landscape features in and around the Project Area were highly valued by stakeholders. During the scoping phase neighbouring landholders raised concerns regarding the

visual impact of the Project from their properties. These concerns were further raised during the EIS/SIA phase. Concerns raised related to the disruption of the visual amenity of the area, changes to key scenic assets such as rural area, open space, green areas due to the development of the Project.

During community information sessions, stakeholders stated that the solar farm would disrupt the visual amenity of the area and for the local community. In the survey, respondents were asked to identify the best lookouts/ public viewing areas in the local area, as well as any key landscape features surrounding or within the proposed Project Area, which they felt were significant.

Table 4.27 summarises the key unprompted landscape features highlighted by respondents and how many times they featured in the survey responses. Rural areas, open spaces and bushland were the most frequent responses (N= 17) alongside coastal features within a one hour drive, such as lookouts and beaches (N=6).

Table 4.27 Key Lookouts/ Public Viewing Areas and Valued Landscape Features

Key lookouts/ public viewing areas and valued landscape features	Frequency
Rural Areas- e.g. Shannon Brook	7
Evans Head- Headland, Razor Back Lookout, Beach	6
Open Space	5
Bushland	5
Farming/ Agriculture	2
Byron Bay	1
Lennox Head	1
Mrytle Creek	1
Creeks & Water Holes	1
Pikapene	1
Pinnacle Border Ranges	1

Source: (Umwelt, 2024).

The focus on the natural elements of the landscape was also evident when survey participants were asked to rate the scenic value of surrounding landscape features. As illustrated in **Figure 4.8**, when promoted respondents attached a high scenic value to landscape features including rivers/creeks, hills and ridgelines, natural/ undisturbed landscape and grazing land, all obtaining a high rating by over 70% of respondents.

Similarly, landscape features of scenic value, as assessed in the Landscape and Visual Impact Assessment (Moir Landscape Architecture, 2024) also included rivers/ creeks, natural/ undisturbed landscapes, agricultural land, and hills and ridgelines.

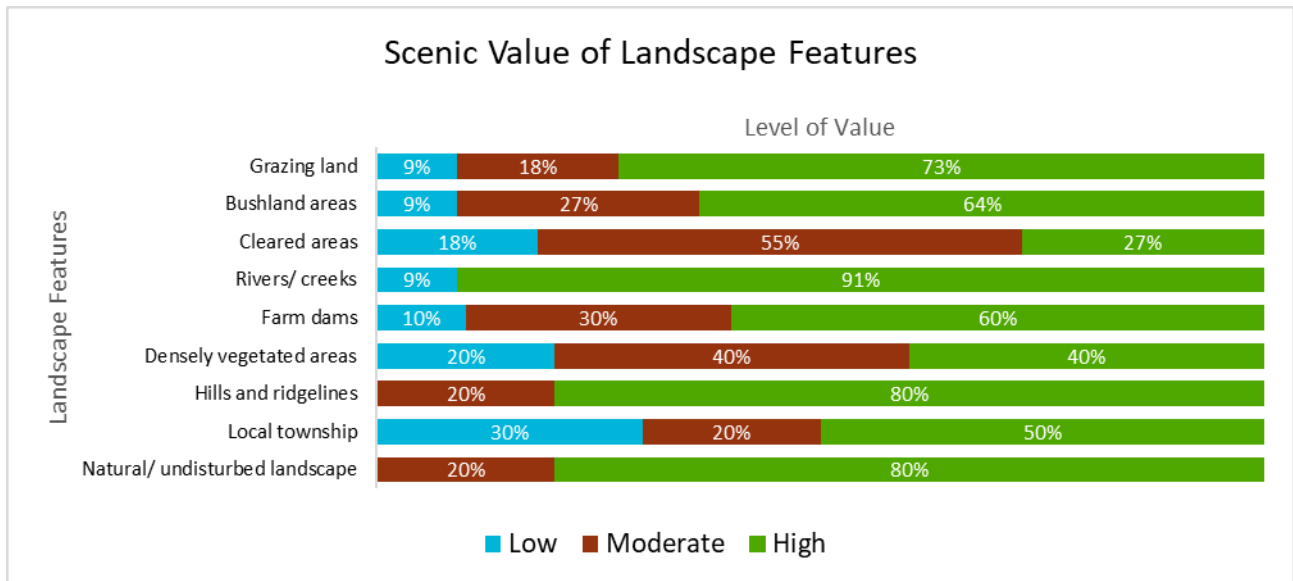


Figure 4.8 Survey Participants Rating of the Scenic Value of Landscape Features

Source: (Umwelt, 2024).

When promoted 85% of respondents to the survey (N=27) ranked negative impacts on landscape and visual amenity as significant to them, with a weighted average of 6.0 out of 7. Visual impacts of the solar farm were further raised during other engagement mechanisms including interactions between Ark Energy and neighbouring landowners during face-to-face meetings and via email.

Survey participants provided further descriptions about valued landscape features, including where they would often take visitors. Some also expressed concern about how the visual amenity that these features facilitate would be altered by the installation of the solar farm:

‘I take them [visitors] to my back fence line where you can see the mountains, I also go here [to my backyard] to check the weather (it’s looking south and this is where major storms come from)’
 – Survey Respondent: Neighbouring Landholder (within 2.5 km)

‘Normally we have a look around the whole area with the different creeks and water holes...Water that runs down into the creeks after rain that feeds our irrigation dams.’ – Survey Respondent: Neighbouring Landholder (within 2.5 km)

‘[I enjoy going to] Myrtle Creek to enjoy the peace and quiet of the area...’ – Survey Respondent: Community Member

‘[I enjoy] the farmland, not many homes, lots of open space to see, no ugly structures to see’
 – Survey Respondent: Community Member

Some participants stated that the development of a solar farm in a predominately agricultural area surrounded by forests and a national park would drastically change their relationship with the area and that ‘traditional’ mitigation measures for reducing the impact of the solar panels on visual amenity would not suffice.

‘No, even putting in screening trees wouldn't be enough to make it [the Project] more appealing. Move the solar farm elsewhere.’ – Survey Respondent: Neighbouring Landholder (within 2.5 km)

‘Don't put up high [ugly] and repulsive fences...[keep] visual and natural [i.e. native] flow. Self-closing gardens and drainage and wildlife corridors that aren't an eyesore. Walking paths (with bollards) to keep out motorbikes and cars.’ – Survey Respondent: Neighbouring Landholder (between 2.5 and 5 km)

A neighbouring stakeholder and community resident indicated that they were not opposed to the solar farm and made some suggestions to reduce impacts to visual amenity.

‘Plant some trees to make it look more natural.’ – Survey Respondent: Neighbouring Landholder (Within 2.5 km)

‘I like the look of solar panels. Keep the property tidy, allow natural fauna to coexist as much as possible.’ – Survey Respondent: Community Member

The Landscape and Visual Impact Assessment (LVIA) (2024) prepared by Moir Landscape Architecture has assessed the existing landscape character, scenic quality and visibility of the Project. The LVIA has determined that there are 27 non-associated residences within 4 km of the Project Area, 26 of these residences were assessed to have a low visual impact rating and 1 receptor was assessed as having a moderate visual impact. The assessment concluded that the impacts to surrounding public and private receptors is likely to be acceptable with implementation of the proposed mitigation measures. As previously discussed, Ark Energy has proposed a 30-metre biodiversity corridor along the northern boundary of the Project. This boundary borders the closest neighbouring landholders, and as such the corridor may reduce visual impacts to these residences, however some have raised concerns that this corridor will increase the fire risk and vegetation close to their boundary and would not assist in reducing the perceived levels of glint and glare they will experience. The biodiversity corridor will increase vegetation along the northern boundary of the Project Area. However, as detailed in the Bushfire Threat Assessment, the APZ between the biodiversity corridor and Project infrastructure exceeds all guidelines and requirements including Planning for Bushfire Protection (2019).

Table 4.28 demonstrates the social impact of visual amenity and scenic value of landscape features impacted due the construction and operation of the Project and the social impact ranking.

Table 4.28 Social Impact Ranking – Visual Amenity and Scenic Value of Landscape Features

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Changes in visual amenity and enjoyment of the natural environment given perceived industrialisation of the landscape	Host Landholders	Construction & Operation	Very Unlikely	Minimal	Low
	Neighbouring landholders (1 moderate receptors from LVIA)	Construction & Operation	Possible	Moderate	Medium
	Broader Community	Construction & Operation	Very Unlikely	Minimal	Low

Source: (Umwelt, 2024).

4.6.5 Social Amenity Impact Associated with Noise

Consultation with stakeholders raised some concerns regarding the generation of noise during the construction and operation of the Project, particularly the BESS, with most of the concern focused on the potential for increased noise pollution during construction, noise generated by increased traffic, and cumulative impacts should all 3 planned solar farms be constructed concurrently. Such issues were also raised in the scoping phase of the Project. The impact of noise during construction was ranked an average of 5.8 out of 7 with 78% of respondents considering it to be a significant impact, with an average ranking of 5.2 out of 7 relating to operational noise, with 74% considering this a significant impact.

Stakeholder correspondence between neighbouring landholders and Ark Energy has highlighted concerns regarding noise pollution which may be generated during the construction, operation and decommissioning of the Project. Additional concerns of traffic noise associated with heavy vehicle movements, construction noise relating to earth works and the cumulative noise generated from the solar farm infrastructure, associated with the rotation of the panels and humming of power lines.

The Noise and Vibration Impact Assessment (NVIA) (2024) prepared by Umwelt has assessed the potential noise and vibration impacts associated with the construction, operation and decommissioning of the Project; with low frequency and impulsive noise not expected to be generated by the Project during operation. Potential impulsive noise events may occur when circuit breakers are triggered but these would only be in emergency situations and anticipated to occur very rarely. The operational noise levels are predicted to comply with the day, evening and night-time noise limits at all external sensitive receivers not involved with the solar farm Project. Construction noise scenarios assessed in the NVIA, found that during some stages of construction there is a predicted exceedance of noise for some neighbouring landholders. Implementation of mitigation measure further described in Section 6.7 of the EIS, once implemented would see these impacts deemed to be acceptable. Two neighbouring landholders along Avenue Road may experience an increase in early morning traffic noise, however management measures such as restriction of speed limits, car-pooling use of buses may the minimise number of vehicle movements. The neighbouring landholders would need to engage as part of the neighbour benefit program.

Table 4.29 demonstrates the social impact to social amenity due to noise impacts associated with the construction and operation of the Project and social impact ranking.

Table 4.29 Social Impact Ranking – Noise Impact

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Reduced social amenity due to potential noise during construction and operation	Host Landholders	Construction	Very Unlikely	Minimal	Low
		Operation	Very Unlikely	Minimal	Low
	Neighbouring Landholders	Construction	Likely	Minor	Medium
		Operation	Unlikely	Minimal	Low
	Broader Community	Construction	Very Unlikely	Minimal	Low
		Operation	Very Unlikely	Minimal	Low
	Users of environmental assets such as Bungawalbin National Park/ State Forest and/ or Ellangowan State Forest	Construction	Unlikely	Minor	Low
		Operation	Very Unlikely	Minimal	Low

Source: (Umwelt, 2024).

4.6.6 Waste Management

Waste management relating to the Project included concerns raised by stakeholders during consultation in both the scoping and SIA/EIS assessment, these concerns included issues relating to the waste generated through repairs to infrastructure components, decommissioning and the capacity of local waste management infrastructure to support the Project.

Participants at the community information sessions raised concerns regarding the adequacy of physical infrastructure in the local area to treat and store the waste created from the solar farm during operations and in the decommissioning phase.

‘Solar panel life? disposal of panels at end of life...’ – Survey Respondent: Neighbouring Landholder (5 km or more)

Further questions regarding damage to solar panels and disposal and repair were raised during the community information session. Electronic correspondence between Ark Energy and a local community member further raised concerns regarding the recycling of the solar panels and the overall lifespan of solar panels.

Currently, about 80 million solar PV panels are installed in Australia, 90% of which are silicon solar panels. By 2030, solar panels are expected to create a cumulative waste volume of more than 500,000 tonnes and more than 1.1 million tonnes in 2040 from the rise in solar power from both homes and solar farms (Energy Magazine, 2022). Current mitigation measure in other states in Australia designed to control or prevent solar panels from going to landfill include, landfill bans for solar panels in Victoria; recycling of old panels; and tracking a panel’s serial number to provide information about the whole life cycle of a panel (Energy Magazine, 2022).

Table 4.30 outlines the social impact of the Project on waste management in the local area’s waste infrastructure.

Table 4.30 Social Impact Ranking – Waste Management

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Inadequacy of physical infrastructure in the local area to facilitate management of the waste created from the solar farm during operations and in the decommissioning phase	Local Government	Operation & Decommissioning	Possible	Moderate	High

Source: (Umwelt, 2024).

4.7 Engagement and Decision-Making Systems

Impacts relating to this category refer to whether stakeholders are able to provide input to the planning and assessment process. This refers to whether they experience procedural fairness, are informed, and can meaningfully influence decisions in relation to the Project, and are able to access complaint, remedy, and grievance mechanisms.

4.7.1 Ability to Inform the Project's Planning and Decision Making

Ark Energy recognised the need for ongoing and transparent engagement with key stakeholders and the local community to ensure the enhancement of positive social impacts and the minimisation and mitigation of negative social impacts.

Throughout the engagement process members of the broader community advocated for Ark Energy to provide regular opportunities for engagement, acknowledging community preferences for personal face-to-face engagement with members of the team who could answer technical questions across a range of impacts. One community member commented in the community information session that it had been beneficial to have one key point of contact, the Project Manager, for community members to raise questions and concerns throughout the Project's planning and application process and would like to see this continued throughout. Currently Ark Energy is to fill the role of a local community engagement officer based with the Richmond Valley LGA.

Some stakeholders wanted to see further information provision, in a manner that ensured that they were kept informed of the progress of the Project and any design updates, with an emphasis on providing relevant and up to date information, preferably in open forums such as community information sessions and with those 'most' impacted. This has been also raised by local activist group, Locals Against Richmond Valley Solar Farm which have stated that the lack of community consultation by the proponent has been a key issue throughout the planning and assessment process.

'Much more community consultation needs to be put in place to listen to our community. Compensation also needs to be spoken about.' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'More consultation with houses in the area' – Neighbouring Landowner (between 2.5 and 5 km)

Furthermore, some local stakeholders felt that they did not have enough input into the decision-making process, stating that there should be more landholder and community involvement and dissemination of information, with a genuine opportunity to influence Project design.

It is worth noting, that the majority of these comments were provided either earlier on in the engagement process prior to extensive community information sessions and/ or by those stakeholders who feel most affected by the Project, such as proximal landholders. It should also be noted that Ark Energy has undertaken a range of consultation activities as outlined in Section 5.0 of the EIS and made a number of design amendments as a result of technical report outcomes and stakeholder concerns raised during engagement, some of which are evidenced in this SIA.

'Ark Energy have not been open and honest with the community as the footprint has changed and not a lot of people knew' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

'There has been not enough detailed information given to us in regard to this project I am disappointed at the lack of consultation and have a number of concerns.' – Survey Respondent: Neighbouring Landholder (between 2.5 km and 5 km)

'Just show up now and again. Be involved. Not in a convoy of shiny Ute's and crisp uniforms. Break the ice. Be low key.' – Survey Respondent: Neighbouring Landholder (within 2.5 km)

One stakeholder, from the broader community, suggested that as renewable energy projects were new to the area, community engagement undertaken as part of the Project could provide an opportunity to ‘*maybe showcase the solar farm and the technology*’. This was a focus of the community information sessions where a Senior Manager in Energy Storage from Ark Energy was available to take questions and poster boards and information sheets were prepared to provide an overview of the technology.

Ark Energy’s CSEP has guided the engagement and consultation undertaken throughout the assessment phase, including mechanisms used to engage with proximal landholders and community stakeholders (refer to **Appendix D**). Ark Energy also provides regular Project updates on a dedicated website and has a dedicated 1800 number. The website also includes contact details for the Project team should stakeholders wish to contact the team and/or register their interest in receiving Project updates via email, and an expression of interest process for the community to register interest in providing services for the Project. Furthermore 16 survey respondents requested to receive Project updates either through email or by post.

Key design changes that Ark Energy has applied based on community feedback include:

- Increased APZ’s across the site in particular on the northern and western boundaries of the BESS.
- Development of a dual-purpose vegetation corridor to provide biodiversity connectivity and visual amenity.

Table 4.31 outlines the social impact of the Project on stakeholders in regards to engagement mechanisms and ability to participate meaningfully in decision-making.

Table 4.31 Social Impact Ranking – Engagement and Decision-Making Systems

Impact	Affected Parties	Phase	Likelihood	Magnitude	Social Impact Ranking
Heightened levels of community outrage associated with perceived inability to inform the Project’s planning and decision-making processes.	Neighbouring Landholders	Planning & Construction	Almost Certain	Minor	Medium
	Broader Community	Planning & Construction	Unlikely	Minimal	Low
	Special Interest Groups	Planning & Construction	Possible	Minor	Medium
Enhanced capacity to participate in decision making through knowledge sharing about the technology employed as part of the Project and contribution to climate change efforts, in an accessible and inclusive format.	Broader community	Planning, Construction, Operation & Decommissioning	Unlikely	Minor	Low+
	Special Interest groups	Planning, Construction, Operation & Decommissioning	Possible	Minor	Medium+

Source: (Umwelt, 2024).

4.8 Cumulative Impacts

The NSW Guideline for *Large-Scale Solar Energy* (DPIE, 2022), states that the cumulative impacts of solar farms on the community must consider changes to biodiversity, socio-economic and construction traffic and refer to the *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPIE, 2022). Cumulative impacts are *'a result of incremental, sustained and combined effects of human action and natural variations over time and can be both positive and negative. They can be caused by the compounding effects of a single project or multiple projects in an area, and by the accumulation of effects from past, current and future activities as they arise'* (DPIE, 2022).

Both positive and negative cumulative impacts were raised by stakeholders during the community information sessions, interviews, and surveys given the potential for development of two additional solar farms in the area. Positive impacts included greater opportunities for local employment, training and procurement, with potential negative impacts relating to impacts on way of life, health and wellbeing, livelihoods, surroundings and accessibility. All stakeholders acknowledged that any renewable energy project in the area should be planned in an integrated way.

'We are now referring to this as 'Solar Farm Way' instead of 'Summerland Way' due to the number of solar farms moving into the area [3] – they are taking over our community. We moved here to be self-sufficient, to grow our food, live off the land, give our children an upbringing where there is freedom in a natural environment – our natural environment is going to be destroyed and industrialized. For them its business, for us it's a lifestyle and who we are and what we want to provide for our children.' – Community Information Session

As further detailed in **Appendix C**, a Facebook community group called Locals Against Richmond Valley Solar Farm has been established due to concerns regarding the rise in solar farm development in the local area. However, it is assumed that due to the development of solar farms in the area being relatively new for many stakeholders consulted, cumulative impacts were not raised in the same frequency as has been the case for other solar farm developments located within the NSW Renewable Energy Zones.

5.0 Social Impact Evaluation

This section provides an evaluation of the social impacts identified in relation to the Project, with the aim of assessing the anticipated changes to the current social baseline, due to the Project proceeding. Supplementary secondary insights have also been compiled to further contextualise, benchmark, and qualify the matters raised to inform the evaluation of each social impact.

As outlined in **Section 2.0** and **Appendix D**, a range of perceived social impacts have been identified in relation to the Project, that require prioritisation for assessment and appropriate management and/or enhancement. It should also be noted that social impacts are often not mutually exclusive, with higher order impacts such as population change, resulting in second order impacts such as impacts on sense of community and service provision.

As noted in the SIA Guideline, the definitions and scale assigned to each of the likelihood and magnitude categories need to be relevant to the impact that is being evaluated and justified in the SIA; and where possible the consequence scale should be based on established measures and standards. The evaluation of social impact significance has involved four main steps as outlined in **Figure 5.1**.



Figure 5.1 Social Impact Evaluation Process

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In line with the process defined above, the following sections assess the technical and perceived social concern/interest in relation to the positive and negative consequences that may be experienced by stakeholders due to anticipated impacts/changes associated with the Project and have been categorised in line with the social impact categories outlined in the SIA Guideline (DPE, 2023).

Table 5.1 presents a summary of the social impact evaluation with the justification and proposed management and enhancement strategies. As shown in **Table 4.1** the colour blue has been used to represent the Significance Rating of impacts, while the symbol + has been used to indicate positive impacts. Community-generated strategies and opportunities are denoted with the abbreviation (CG).

It should be noted that the residual social risk ratings represent the risk post implementation of mitigation measures, with proposed mitigation and enhancement strategies outlined at **Section 6.0** included to address any residual social impacts.

It is also important to note that unlike in the context of other technical studies undertaken as a part of the environmental impact assessment, there are no thresholds in the social space, with the identification of possible consequences largely made qualitatively. Therefore, the social risk assessment is also informed by the socio-economic baseline data, outcomes of relevant literature and research studies and experiences with other projects, outcomes of consultation and findings of technical studies; with a conservative approach taken in assigning ratings.

Table 5.1 Social Impact Evaluation

Social Impact Theme	Project Aspect	Social Impact Description	Extent/Affected Parties	Duration	Level of Stakeholder Concern	Significance Rating			Refinements/ Mitigation/ Management Measures	Significance After
						L	M	S		
Community Way of Life Surroundings	Project construction and operations	Disruption to sense of place due to changes in community values associated with the ecological, aesthetic, amenity attributes and function of the landscape.	Host landholders	C	L	D	2	L	Host landholder agreements include obligation to remove above ground infrastructure. Neighbour agreements addressing personal issues/concerns on a case-by-case basis (CG). CSEP to acknowledge the stages of psychological response to place change in Project messaging and mechanisms. Focus on place-based community benefits (CG).	L
				O	L	D	2	L		L
			Neighbouring landholders	C	H	B	3	H		M
				O	H	B	3	H		M
			Broader Community	C	M	D	1	L		L
			Users of environmental assets such as Bungawalbin National Park and/ or Ellangowan State Forest	C	L	D	1	L		L
				O	L	D	1	L		L
Surroundings Way of Life	Project construction and operations	Changes in visual amenity and enjoyment of the natural environment given perceived industrialisation of the landscape.	Host Landholders	C & O	L	E	1	L	Commitment to a 30-metre biodiversity corridor along the northern boundary of the Project. Consider vegetation screening or landscaping mechanisms within the Project Area or neighbour sites (in direct consultation), that do not heighten anxiety regarding fire risk (CG).	L
			Neighbouring landholders (7 moderate receptors from LVIA)	C & O	H	C	3	M		L
			Broader community	C & O	L	E	1	L		L
Surroundings Way of Life	Project construction and operations	Reduced social amenity due to potential noise during construction and operation.	Host Landholders	C	L	E	1	L	Development of a Noise and Vibration Management Plan prepared and implemented as part of the Construction Environmental Management Plan to identify controls to be implemented during the construction phase. Construction and operational management controls to be developed in consultation with key stakeholders, such as neighbouring landholders and managers of National Park & State Forest. Communication of key Ark Energy contacts from the Construction Team for the community to liaise with as required.	L
				O	L	E	1	L		L
			Neighbouring landholders	C	H	B	2	M		L
				O	L	D	1	L		L
			Broader community	C	L	E	1	L		L
				O	L	E	1	L		L
			Users of environmental assets such as Bungawalbin National Park and/ or Ellangowan State Forest	C	M	D	2	L		L
	O	L	E	1	L	L				
Surroundings Way of Life Accessibility	Project construction and operations	Changes to interaction with, and enjoyment of, valued environmental assets adjacent to the Project Area used for recreational activities e.g. Bungawalbin National Park and Ellangowan State Forests.	Neighbouring landholders	C & O	L	D	1	L	Project design does not inhibit access to recreation activities taking place in the National Park or State Forest (CG). Development of a Construction Environmental Management Plan to identify any controls to be implemented during the construction phase to minimise impacts to users of these environmental assets. Ensure key stakeholders such as Landcare are proactively informed about any planned or unplanned changes to environmental assets as a result of the Project.	L
			Broader community	C & O	L	D	1	L		L
			Tourist/Visitors/Users of State Forests	C & O	H	C	2	L		L
			Special Interest Group (Environmental)	C & O	H	B	2	M		L

Social Impact Theme	Project Aspect	Social Impact Description	Extent/Affected Parties	Duration	Level of Stakeholder Concern	Significance Rating			Refinements/ Mitigation/ Management Measures	Significance After				
						L	M	S						
Surroundings	Project construction and operations	Degradation of assets with environmental value, including flora and fauna.	Neighbouring landholders	C	H	C	2	M	<p>Installation of a vegetation corridor across the northern boundary between Ellangowan State Forest and Bungawalbin National Park/ State Forest.</p> <p>Develop a Biodiversity Offset Strategy.</p> <p>Limit any clearing to that stated in the Construction Environmental Management Plan.</p> <p>Ensure key stakeholders such as Landcare are proactively informed about any planned or unplanned changes to environmental assets as a result of the Project.</p> <p>Further develop, communicate and implement Decommissioning Framework.</p>	L				
				O	M	D	2	L		L				
			Broader community	C	M	D	1	L		L				
				O	L	D	1	L		L				
			Special Interest Group (Environmental)	C	H	C	2	M		M				
				O	M	C	2	M		L				
				D	H	C	2	M		M				
			Surroundings	Operation and decommissioning	Inadequacy of physical infrastructure in the local area to facilitate management of the waste created from the solar farm during operations and in the decommissioning phase.	Local Government	O & D	L		C	3	H	<p>Engagement with Richmond Valley Council to determine capacity of infrastructure to accept construction waste and engagement with relevant waste management service providers to identify appropriate waste management solutions.</p>	L
			Community Way of Life Accessibility	Project construction – peak construction workforce influx (260)	Increased demand for housing/accommodation due to construction workforce influx into the region, affecting accessibility, availability and affordability for other sectors and community members (particularly in key locations where community members remain displaced after the 2022 floods in Richmond Valley LGA and Lismore).	Local accommodation service providers	C	H		B	3	H	<p>Develop an Accommodation, Employment and Procurement Strategy that includes consideration of:</p> <p>Engagement and joint planning with key stakeholders such as housing and homelessness support service providers and accommodation providers to limit impact on local access to affordable housing (CG).</p> <p>Exploring flexible housing options utilising existing temporary housing stock, in the form of fixed or modular housing (CG).</p> <p>Commit to avoiding Lismore as a housing location for an incoming workforce to ensure housing and reconstruction efforts in this locality are not further constrained.</p>	M
Homelessness service providers	C	H				B	3	H	M					
Homeless/At risk of homelessness	C	H				B	3	H	M					
Tourists/ Visitors	C	M				C	2	M	L					
Other key workers (construction workforce following 2022 flooding)	C	M				C	2	M	L					
Broader community	C&O	L				D	2	L	L					
Way of Life Accessibility	Project construction – peak construction workforce influx (260)	Incoming construction workforce causing increased pressure local health care and facilities.	Health care providers	C	M	C	3	M	<p>Include health promotion initiatives as part of a Workplace Health and Safety Plan for the site, and collaboratively develop health related KPIs suitable for the likely workforce profile (eg. smoking cessation, cholesterol).</p> <p>Commit to encouraging the use of Ballina LGA (for GP presentations) and the Lismore Base hospital (for ED presentations).</p>	L				

Social Impact Theme	Project Aspect	Social Impact Description	Extent/Affected Parties	Duration	Level of Stakeholder Concern	Significance Rating			Refinements/ Mitigation/ Management Measures	Significance After
						L	M	S		
Decision making systems	Project planning, approval, construction and operations	Increased distrust/ outrage given the perceived lack of distributive equity in Project benefits (Project developers Vs community; Landholders Vs Neighbours/ Broader community/Region).	Host Landholder	C&O	L	E	1	L	Develop and implement the Ark Energy Community Benefit Fund (CBF) with Richmond Valley Council reflective of the community needs and aspiration and aligned to the NSW Government Draft Benefit Sharing Guideline. If other funds are to be disbursed or investments made in key areas such as training and education, a clear governance structure should be developed and communicated with benefit directed towards those most likely impacted by the Project.	L
			Neighbouring landholders	C&O	H	B	2	M		M
			Special Interest Groups	O	M	C	2	M		L
			Broader community	O	L	D	1	L		L
Community	Project planning, approval, construction and operations	Reduced community cohesion due to differing attitudes and feelings towards renewable energy development in the local community and region.	Host landholders	C&O	L	D	1	L	Continue to implement and iterate the Project CSEP, with accessible opportunities that promote respectful dialogue and co-create knowledge and awareness about the Project (CG).	L
			Neighbouring landholders	C&O	H	B	2	M		M
			Broader community	C&O	M	C	1	L		L
			Special Interest Groups	C&O	M	C	2	M		M
			Local Government	C&O	M	B	2	M		L
Surroundings, Way of Life Health and Wellbeing	Construction and Operation	Reduced physical health and wellbeing due to potential for project components to leach chemicals into the ground/ ground water and generate radiation causing cancer and these effects being compounded by proximity to other solar farms.	Host landholders	C, O	L	D	1	L	Communicate Environmental Management Plans, decommissioning framework and commitments (CG). Procurement of infrastructure components from reputable, ethical sources to reduce risk of any physical health impacts during installation or decommissioning.	L
				D	H	C	3	M		L
			Neighbouring landholders	C, O	H	D	2	M		L
				D	H	C	3	M		L
			Broader community	C, O & D	M	D	1	L		L
			Special Interest Groups (Environment)	C, O	H	D	2	M		L
				D	H	C	3	M		L
			Local Health District	C, O & D	L	D	1	L		L
Traditional Owners	C, O & D	M	C	3	M	L				
Surroundings, Way of Life Health and Wellbeing	Operation	Reduced levels of personal and public safety due to fire risk given proximity to natural features such as state forests/farmlands and past fires reported on site.	Host Landholders	C & O	M	C	2	M	Develop, implement and communicate the Bushfire Emergency Management and Evacuation Plan for the construction and operational phase of the Project (CG). Continue to implement and iterate the Project CSEP to incorporate messaging and mechanisms regarding fire management, highlighting where local insight has been incorporated.	M
			Neighbouring Landholders		H	C	3	M		M
			Broader community		H	C	2	M		M
			Special Interest Group (Environmental)		H	C	2	M		M

Social Impact Theme	Project Aspect	Social Impact Description	Extent/Affected Parties	Duration	Level of Stakeholder Concern	Significance Rating			Refinements/ Mitigation/ Management Measures	Significance After
						L	M	S		
Decision-making	Project planning	Heightened levels of community outrage associated with perceived inability to inform the Project's planning and decision-making processes (C).	Neighbouring landholders	P,C	H	A	2	M	Continue to implement and iterate the Project CSEP to promote respectful dialogue and co-create knowledge and awareness about the Project, incorporating local perspectives and insights. Continue to provide direct access to technical experts and the Project Manager to provide timely responses to any information requests in formats that are accessible to multiple stakeholder types.	M
			Broader community		L	D	1	L		L
			Special Interest Groups		M	C	2	M		L
Health and wellbeing	Project planning, construction	Anxiety/ Stress associated with the introduction of the Project into an environment with reduced adaptive capacity following a series of natural disasters in the area (C).	Neighbouring landholders	P,C	H	B	3	H	Consider prioritising the support of preventative mental health programs in the region as part of the Community Benefit Fund. Train the construction and operational workforce in basic mental health first aid techniques, such as the Rural Adversity Mental Health Program Support Skills.	M
			Mental Health Service Providers	C	M	C	3	M		L
			Special Interest Groups	P,C	M	C	2	M		L
			Broader Community	C	L	D	1	L		L
Health and wellbeing	Project planning, construction	Anxiety/ Stress associated with the uncertainty of the assessment process.	Host landholders	P	L	D	1	L	Continued utilisation of the CSEP through the Project life as well as increase frequency of Project updates for all stakeholders at key Project milestones, prioritising personal and face-to-face consultation (CG). Continue proactive personal engagement with community members and proximal landholders, with the Project Manager (CG).	L
			Neighbouring landholders		H	B	2	M		M
			Broader community		L	D	1	L		L
Culture	Project planning, construction and operations	Limited consultation with the Bundjalung peoples in regards to intangible values connected to, or surrounding, the Project Area could result in: <ul style="list-style-type: none"> Cultural values not considered in decision making. Potential damage to Country. Lack of acceptance of the Project. 	Traditional Owners	P,C,O & D	L	C	3	M	Develop an Aboriginal Cultural Heritage Management Plan (ACHMP) in consultation with Heritage NSW and RAPS. Consider intangible assets/ cultural value mapping as part of this process.	L
			Aboriginal community		L	D	2	L		L
Accessibility Surroundings	Heavy truck movements	Reduced public safety due to further deterioration of local roads (roads previously impacted by flooding and heavy haulage for recovery efforts) and increased volume of traffic.	Road users around Project Area	C	M	B	2	M	Enhancement of Summerland Way along Main Camp Road and Avenue Road. Develop and implement the Construction Traffic Management Plan, including signage and workforce shuttles from key residential locations (aligned to the Accommodation, Employment and Procurement Strategy).	L
			School bus route users on Main Camp Road		M	C	2	M		L
			Local Government		M	B	3	H		M
			State Government		M	C	2	M		L

Social Impact Theme	Project Aspect	Social Impact Description	Extent/Affected Parties	Duration	Level of Stakeholder Concern	Significance Rating			Refinements/ Mitigation/ Management Measures	Significance After
						L	M	S		
Accessibility Surroundings	Project planning, construction and operations	Reduced levels of personal and public safety due to flooding risk and potential impacts to roads, proximal property and fauna.	Host Landholders	C, O	L	D	1	L	Implement Flood Impact Management Plan to consider flood immunity requirements for the access roads, height of the solar panels and location of infrastructure. Develop and communicate detailed planning transport routes with public safety considerations and information disclosure, notifying residents, considering any sensitive user groups.	L
			Neighbouring landholders	C, O	M	C	2	M		L
			Broader community	C, O	L	D	1	L		L
			Special Interest Groups	C, O	L	C	2	M		L
Livelihood Surroundings	Project planning, construction and operations	Reduction in land values due to proximity to solar farm.	Neighbouring landholders	P,C,O	H	C	3	M	Further engagement and ongoing open, transparent, and accessible communication with host and proximal landholders, and broader community. Continued implementation of Host landholder and neighbour agreements.	L
			Real estate agents		L	C	1	L		L
Surroundings	Decommissioning	Disruption to the agricultural productivity values (\$) across the Project lifecycle.	Host landholders	O&C	L	D	2	L	Continued implementation of Host landholder agreements. Consideration of dual land use options including agri-solar.	L
				D	H	C	2	M		L
Livelihoods	Construction and Operations	Increased public liability insurance premiums for neighbouring landholders reducing livelihood.	Neighbouring landholders	C&O	H	C	3	M	Continue to monitor regional, nation and international developments in regard to insurance premiums and commit to transparent communication with neighbouring landholders (CG).	L
Livelihoods+	Construction	Enhancement of local economy and livelihoods due to construction workforce influx and Project activity.	Broader community	C	L	D	2	L+	Develop an Accommodation, Employment and Procurement Strategy that includes mechanisms to support local businesses to be competitive and sustainably service a constructive workforce over the proposed 2-year period.	M+
			Local businesses and service providers		M	B	3	H+		H+
			Local, state and federal government (funding recovery)		M	C	3	M+		M+
			Special interest groups		M	C	2	M+		H+
			Regional businesses and service providers		L	C	3	M+		M+
Community+ Health and Wellbeing+	Project construction & Operations	Enhanced social outcomes for local and regional communities through targeted community benefit sharing and investment initiatives.	Host landholders	O	H	A	4	H+	Alongside Richmond Valley Council co-design a Community Benefit Fund that enhances opportunities for active decision making and participation in the affected communities of interest (CG).	VH+
			Neighbouring landholders		H	C	3	M+		M+
			Aboriginal Stakeholders		M	C	3	M+		M+
			Special interest groups		M	C	3	M+		M+
			Broader community		L	D	2	L+		M+
			Local businesses and service providers		M	C	3	M+		M+
			Local Government		H	A	4	VH+		VH+

Social Impact Theme	Project Aspect	Social Impact Description	Extent/Affected Parties	Duration	Level of Stakeholder Concern	Significance Rating			Refinements/ Mitigation/ Management Measures	Significance After
						L	M	S		
Decision making+ Livelihoods+	Project planning, approvals, construction and decommissioning	Enhanced capacity to participate in decision making through knowledge sharing about the technology employed as part of the Project and contribution to climate change efforts, in an accessible and inclusive format.	Broader community	P,C,O&D	L	D	2	L+	Further engagement and ongoing open, transparent, and accessible communication with host and proximal landholders, and provision of clear communication regarding design amendments/ updates. Continue to implement and iterate the Project CSEP to promote respectful dialogue and co-create knowledge and awareness about the Project, incorporating local perspectives and insights.	L+
			Special Interest Groups		H	C	2	M+		H+
Livelihoods+ Community+	Construction	Local employment opportunities during construction.	Unemployed with appropriate skills looking for work	C	H	C	4	H+	Develop and implement an Accommodation, Employment and Procurement Strategy, that focuses on an anticipated target of 20% local employment and an ambitious target of 40% local employment (CG).	VH+
			Traditionally underrepresented groups in the RE workforce, for e.g. women, young people, Aboriginal and/ or Torres Strait Islander peoples, people with a disability		H	C	4	H+		VH+
			Currently employed, appropriately skilled professionals in the local area		L	C	2	M+		M+
Livelihoods+ Community+	Project planning, construction & operations	Ability to enhance human and economic capital through skill development and training opportunities.	Broader Community	C&O	M	C	2	M+	Develop an Accommodation, Employment and Procurement Strategy to provide opportunities for local training, skills and development to occur across scalable pathways (i.e. mix of apprenticeships, certificate and degree qualifications, short courses) both onsite and at key training centres such as Lismore and Casino (CG). Consider prioritising scholarships for local community members to participate in apprenticeships, training and education as part of the Community Benefits Fund, with a focus on encouraging participation of underrepresented groups (CG).	H+
			Unemployed looking for training opportunities		H	B	3	H+		
			Traditionally underrepresented groups in the RE workforce, for e.g. women, young people, Aboriginal and/ or Torres Strait Islander peoples, people with a disability		H	B	3	M+		
Environment+	Operations	Intergenerational equity given emphasis on RE production and reduction in carbon emissions.	Broader community	O	M	C	3	M+	Construction of the Project.	H+
			Population of NSW		M	C	4	H+		

Source: (Umwelt, 2024).

6.0 Social Impact Management

This section provides further detail on the proposed strategies to be implemented in response to the predicted social impacts associated with the Project and relates to those impacts (both positive and negative) that have been evaluated as significant.

Table 6.1 summaries the social impacts with a residual ranking of high to very high.

Table 6.1 Social Impact Assessment Rankings – Medium to High

Social Impact	Stakeholder	Duration	Initial Significance Ranking	Residual Social Impact Ranking
Enhancement of local economy and livelihoods due to construction workforce influx and Project activity.	Local businesses and service providers	Construction	High+	High+
	Special interest groups		Medium +	High+
Enhanced social outcomes for local and regional communities through targeted community benefit sharing and investment initiatives.	Host landholders	Operation	High+	Very High +
	Local Government		Very High +	Very High +
Enhanced capacity to participate in decision making through knowledge sharing about the technology employed as part of the Project and contribution to climate change efforts, in an accessible and inclusive format.	Special Interest Groups	Planning, Construction, Operation & Decommissioning	Medium +	High+
Local employment opportunities during construction.	Unemployed with appropriate skills looking for work	Construction	High+	Very High +
	Traditionally underrepresented groups in the RE workforce, for e.g. women, young people, Aboriginal and/ or Torres Strait Islander peoples, people with a disability		High+	Very High +
Ability to enhance human and economic capital through skill development and training opportunities.	Broader Community	Construction & Operation	Medium +	High+
	Unemployed looking for training opportunities		High+	High+
	Traditionally underrepresented groups in the RE workforce, for e.g. women, young people, Aboriginal and/ or Torres Strait Islander peoples, people with a disability		Medium +	High+
Intergenerational equity given emphasis on RE production and reduction in carbon emissions.	Broader community	Operation	Medium +	High+
	Population of NSW		High+	High+

Source: (Umwelt, 2024).

Social impact management planning is a key consideration of SIA and ensures that the impacts identified through the SIA process, and through community consultation activities, are managed effectively across the life cycle of the development (Franks & Vanclay, 2013). The selection of strategies has considered those proposed by the community in consultation; industry benchmarking; strategies proposed in the environmental technical studies; and through the social team's experience and expertise in undertaking SIAs for similar projects across Australia.

SIA guidance (DPE, 2023) outlines that mitigation measures to respond to project impacts may be:

- **Performance-based** – identify performance criteria that must be complied with to achieve an appropriate outcome, but do not specify how the outcome is to be achieved, demonstrating why the performance criteria are appropriate.
- **Prescriptive** – that outlines actions that need to be taken or things that must be done, with justification as to why this approach is appropriate by providing scientific evidence or referencing relevant guidelines or case studies.
- **Management-based** – where potential impacts can be satisfactorily avoided or mitigated by implementing known management approaches.

Table 6.2 summarises the social impact management strategies and recommendations for the SIA. **Appendix F** further outlines the implementation of these strategies.

Table 6.2 Social Impact Management Recommendations

Social Impact Management Strategy	Recommendation
Community Benefit Sharing	<p>To further enhance the effectiveness of a Community Benefit Fund and to ensure that place based, and meaningful benefits are realised across the community, it is recommended Ark Energy considers the following:</p> <ul style="list-style-type: none"> • 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. <p>As identified in Section 4.4.5, Ark Energy is aware of the importance of distributive equity and the types of projects and initiatives that could see community contributions delivered to the communities most impacted by their Project.</p>
Community and Stakeholder Engagement Plan	<p>Ark Energy continues to commit to the following measures to further enhance ongoing collaboration with key stakeholders:</p> <ul style="list-style-type: none"> • Regularly evaluate whether the plan is meeting its objectives and to identify any new key stakeholders within the community that may need to be involved as the Project progresses as per the evaluation process outlined in the CSEP. • Further consider how Ark Energy can work with the community to host and/or fund community events to enhance sense of community and connection, in line with community values, needs and aspirations, and aligned to the continuing reconstruction efforts underway in the Richmond Valley and Northern Rivers region. • Facilitate ongoing communication with host and proximal landholders to identify construction access points and enable landholders to effectively plan stock movements and farming activities. • Broaden identification of stakeholders within the plan, to include other local renewable energy proponents/developers where feasible in order to foster collaboration in relation to addressing cumulative impacts of project development within the local area surrounding the Project, particularly in regard to planning relating to workforce housing and accommodation, local employment, traffic movements, etc.
Accommodation, Employment and Procurement Strategy	<p>It is recommended that Ark Energy further considers the following in the development of an Accommodation, Employment and Procurement Strategy that:</p> <ul style="list-style-type: none"> • Facilitate the employment of local residents, with a focus on those with the requisite skill types who are currently unemployed and members of equity groups as outlined in Table 5.1. • Provide education and training opportunities such as sponsoring positions at Casino TAFE and Southern Cross University; working with Training NSW, NSW Skills Board, Regional NSW Council to identify and maximise training opportunities; and ongoing sponsorship of university internships for undergraduates, and scholarships for First Nations tertiary education. • Ensure adequate assessment of workforce composition and suitability, to minimise issues relating to workforce presence in the locality.

Social Impact Management Strategy	Recommendation
	<ul style="list-style-type: none"> • 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 (as listed in Appendix E), 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 (as further detailed in Section 4.5.1). • 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.
Cumulative Impact Management	<p>In considering cumulative social impacts, it will be important to ensure:</p> <ul style="list-style-type: none"> • Consistency in Planning Agreements/ Contributions with Councils and the community benefit sharing approaches adopted across projects to ensure equitable distribution of benefits to local communities that may experience impacts of renewable energy development within Richmond Valley. • Cognisance in relation to engagement/consultation fatigue. Given that three projects are planned and in development, local landholders and community groups are frequently being asked to engage across multiple projects. • Cognisance in relation to mental, emotional and physical fatigue due to a series of compounding natural disasters, experienced both on the Project Area and the surrounding region. The local community are processing the considerable change that has occurred to their surroundings and to the community, and this should always be central to any communication or discussion regarding the Project. • A strategic and planned approach is undertaken to inform workforce housing and accommodation drawing on a reliable source of data and engagement with relevant key stakeholders. Developers should be encouraged to work through accommodation challenges collaboratively with each other and with local Councils and accommodation providers to ensure that any additional social impacts associated with accommodation options/plans are adequately identified and addressed. • Local employment and procurement benefits are realised through appropriate upskilling and training of local residents and through transparent and accessible procurement processes. Proponents should seek to work together, with local employment, training and education providers to support skills and capacity development across the social locality. • Local and regional health services are not adversely affected due to the presence of construction workforce in the region.

Source: (Umwelt, 2024).

7.0 Conclusion

This SIA has documented the social baseline, social impacts and social impact management and enhancement measures associated with the Richmond Valley Solar Farm and forms part of the EIS for the Project.

The SIA has included the compilation of a social baseline profile for the Project, consolidation of community consultation outcomes to inform the assessment of and evaluation of Project related social impacts and opportunities and has made recommendations regarding social impact management planning. The social impact evaluation has been undertaken to inform and support the refinement of Project design and plans to reduce negative project impacts and achieve greater positive project benefits and social outcomes for landholders and communities within the social locality. In summary the SIA found that:

The main positive impacts of the Project include the:

- Creation of direct and indirect employment and income opportunities.
- Contribution to NSW renewable energy targets and the reduction of greenhouse gas emissions.
- Provision of community benefits and initiatives.
- Improvement of local infrastructure and services.

The main negative impacts of the Project include the potential:

- Loss or degradation of agricultural land, biodiversity, and cultural heritage.
- Visual, noise, dust, traffic, and electromagnetic interference impacts.
- Social and demographic changes.
- Economic and employment impacts.

A social impact management planning framework has been outlined with recommendations relating to the development of key social impact management plans. The strategies in the framework include developing and implementing:

- A range of management plans.
- A local participation plan, a workforce management plan, and a community engagement plan.
- A community benefits strategy, a community development fund, and a community partnership program.
- A regional development strategy, a skills and training plan, and a transition and decommissioning plan.

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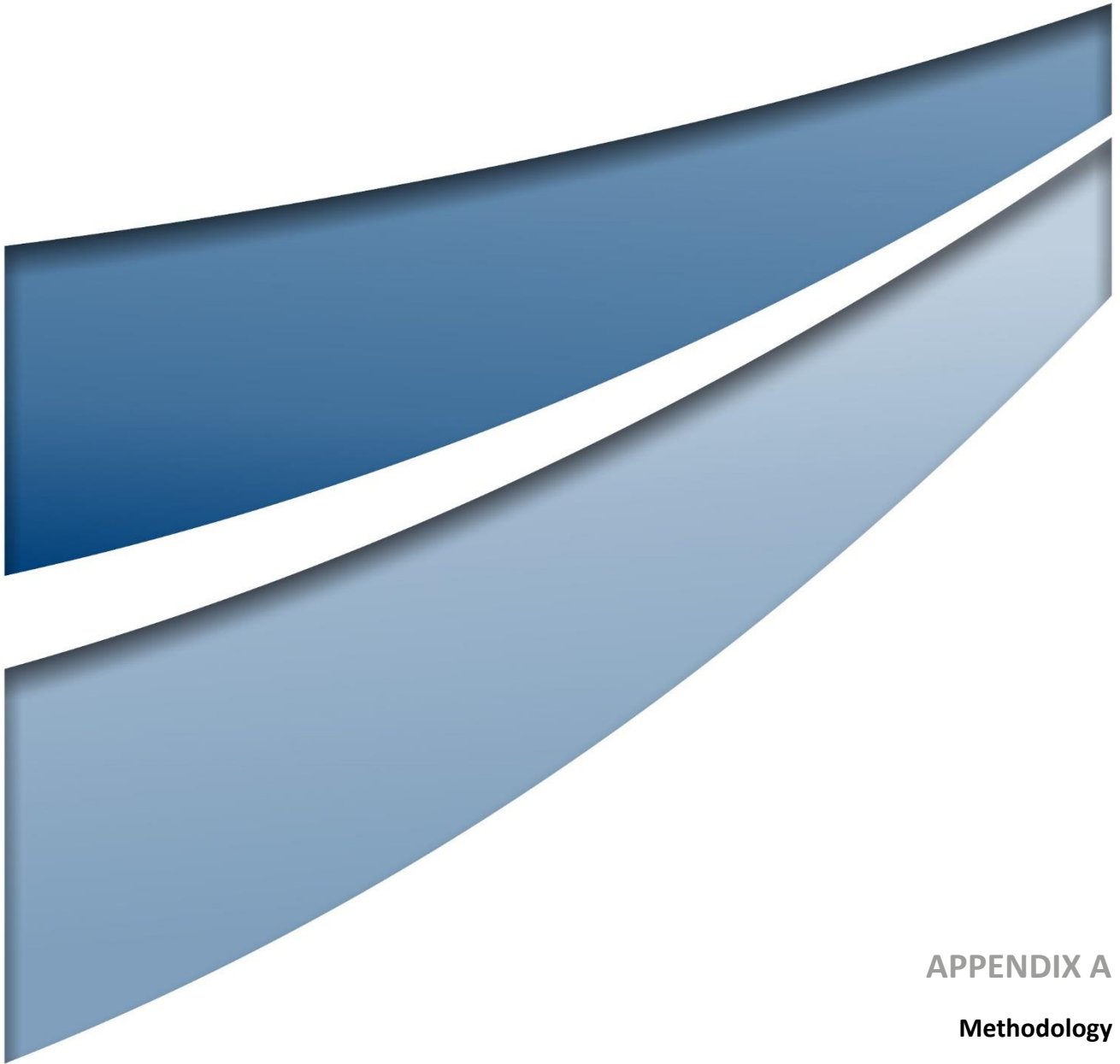
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APPENDIX A

Methodology

1.0 Methodology

1.1 Social Locality and Baseline Development

1.1.1 Defining the Social Locality

The term 'social locality' or 'area of social influence' commonly used in SIA practice refers to the geographies and communities of interest relevant to the SIA. There is no fixed meaning or predefined geographic boundary in determining a social locality, instead, the scale of the social locality should be established on a case-by-case basis, having regard to the nature of the project, and its impacts (DPE, 2023).

The SIA Guideline suggests that the social locality should be defined with consideration of:

- The scale and nature of the project; its associated activities including ancillary works and infrastructure; potential direct and indirect impacts (for example, transport and logistics corridors or property acquisitions); and potential cumulative impacts.
- Who may be affected by the project and how they may be affected; their social, cultural and demographic characteristics; their relevant interests and values; the things that differentiate groups (such as cultural diversity) as well as things that they have in common; and the broader community and public interest.
- Whether any vulnerable or marginalised people may be affected by the project; including people on low incomes; people living with disabilities, chronic medical conditions or in poor health requiring access to services; culturally and linguistically diverse communities; people who are homeless or in insecure housing; people who are unable to represent themselves or other vulnerable people such as elderly people, children or single-parent households.
- Built or natural features on or near the project that could be affected, and the intangible values that people may associate with these features, such as a sense of place or belonging, rural character, community cohesion, connection to Country and value of stories within the cultural landscapes, and use of natural areas and resources.
- Relevant social, cultural, demographic trends or social change processes occurring now, or which have occurred in the past near the project site and in the broader region, including how people have felt or experienced these changes; community resilience; different trends and patterns around issues relating to key social issues including rental affordability, employment, changing land uses, population and demographic change; or experiences of extreme weather and natural hazards.
- The history of the proposed project and the area, and any similar experiences people near the project have had, including change prior to, or created by, the planning assessment process; how people have reacted to early discussions; and how these discussions and other experiences have affected the broader community; and the traditional Aboriginal use of the place, recent history of the place and people and any ongoing traumas.
- Other project developments occurring in the social locality that may result in cumulative impacts.

In defining the social locality for the Project, statistical areas prescribed by the Australian Bureau of Statistics (ABS), as well as the land tenure composition of properties in, or nearby the Project Area, have also been used as a proxy to assist in defining the characteristics of the Project's social locality. The primary communities of interest that comprise the social locality are outlined in Table 3.1 in the SIA report and are further described in the Social Baseline Profile (further details in Section 3.0 of the SIA report).

Social locality definition has also been informed in collaboration with other multi-disciplinary specialists within the team, particularly those specialists working on the visual and economic assessment for the Project.

1.1.2 Social Baseline

The development of a baseline social profile gathers knowledge from both primary and secondary data sources to increase understanding of the existing social environment in which a project is proposed, and of potentially affected individuals and communities. The social baseline profile is a foundational component of SIA, as it provides the basis from which social impacts associated with the Project may be identified and predicted. The social baseline has been developed in accordance with the requirements of the SIA Guidelines.

To understand the communities of interest to the Project and to evaluate their resilience and adaptive capacity to change, a Sustainable Livelihoods or Community Capitals Approach (The Department for International Development (DFID), 2001) has been adopted.

According to this framework, people seek to maintain their livelihood within a context of vulnerability (Coakes & Sadler, 2011). Specifically, threats to their livelihood include shocks (such as sudden onsets of natural disasters, health problems, conflicts, and economic crises), trends (for instance, those relating to the economy, health, resources, and governance) and seasonality (such as cyclical fluctuations in prices or employment). People draw upon these assets to build and maintain their livelihood. A livelihood is considered sustainable '*...when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base*'.

The DFID approach draws on broad categories of community capitals as a fundamental basis to identifying and further enhancing community capacity and resilience. This methodology has been further developed by Coakes and Sadler (2011) for application in SIA practice. The vulnerability of each capital area (human, social, natural, physical and economic) can be assessed through the selection of a suite of socio-economic indicators specific to each capital area to assess a community's vulnerability to change or conversely their adaptive capacity; and has been widely applied within the renewable energy project context. Elements of each capital area are further outlined in **Figure 1.1** with further discussion of these capitals provided in Section 3.4 of the SIA report.

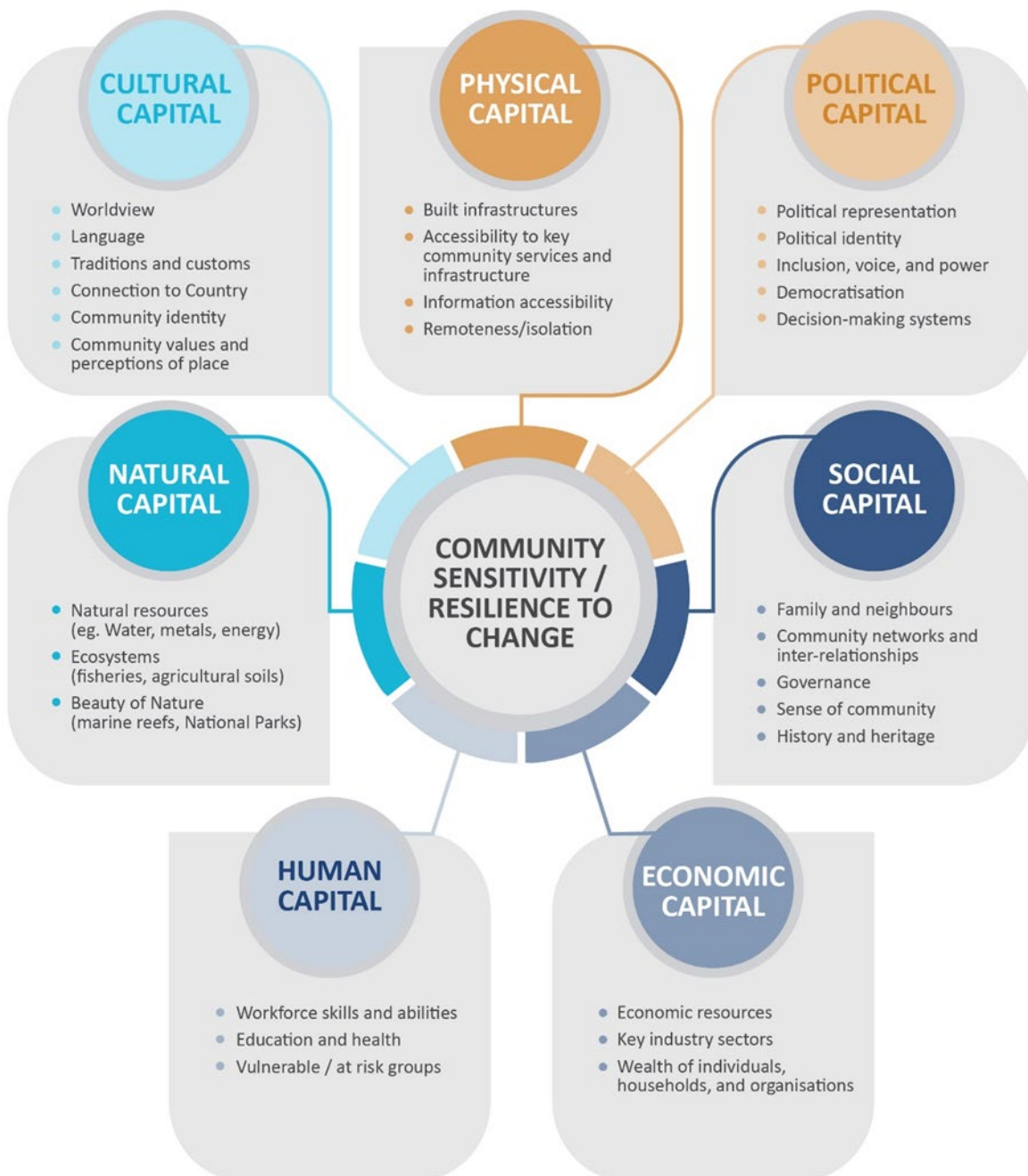


Figure 1.1 Community Capitals Framework

Source: Adapted from Coakes and Sadler (2011).

1.1.3 Data Sources

The social baseline has made use of a range of data sources to understand the socio-economic, cultural and demographic characteristics of the communities within the Project’s social locality, and has included analysis of publicly available secondary datasets, including the most recent Australian Census (2021), as well as a thorough review of local media, government plans and strategies and other literature and data sets.

Statistical and comparative analysis using ABS data has been undertaken at the LGA level to capture key characteristics and trends across local communities. Suburb and Localities (SAL) and Urban Centres and Localities (UCL) level data has also been utilised, with key indicators compiled and data sources outlined themed by key contextual components.

Table 1.1 outlines the social indicators and datasets that have been used to inform the social baseline as well as additional detail on the community capitals analysis.

Table 1.1 Assessment Questions, Indicators and Data Sources

Questions	Relevant Indicators	Data Sources
Natural Capital		
<p>The Living Environment</p> <ul style="list-style-type: none"> • What are the key landscape features in proximity to the Project. How important are these features to residents and their sense of place? • How does weather and climate change conditions impact communities and/ or landowners and will this contribute to delayed project timelines? • How vulnerable/concerned are communities to extreme weather events? <p>Land and Natural Resources</p> <ul style="list-style-type: none"> • Have there been notable changes in land use overtime? • Are there key environmental strengths that support economic, community, or environmental activities that may be impacted by the Project? • Are there any environmental indicators that are a key focus for preserving or improving? Are there any endangered or critically endangered species or ecosystems within the Project boundary? 	<ul style="list-style-type: none"> • Existing climatic conditions. • Key landscape features. • National Parks. • Biodiversity. • Cumulative impacts. 	<p>Government strategic plans Engagement outcomes REMPAN- economic and demographic specialist CSIRO Major Projects Website NSW Land Use Data National Parks and Wildlife Adapt NSW Climate Council Stakeholder Interviews SIA Survey Ark Energy Richmond Valley Solar Farm Feedback Forms Environmental Impact Assessment (EIA)</p>
Human Capital		
<p>Peoples' Capacities and Abilities</p> <ul style="list-style-type: none"> • What is the level of formal education in the community? What are people's qualifications? • Are these qualifications transferrable to the Project? • Who is in the workforce and what is their capacity to work on the Project? • How competitive is the job market? • Where do people work in relation to where they live? How do people travel to work? Could the Project lead to travel disruptions for work commutes? • What gendered roles exist within the regions? Are different genders represented in the existing workforce? What opportunities exist to increase gender equity of employment? • What is the health status of the community? Are there any key health concerns. 	<ul style="list-style-type: none"> • Educational Attainment. • Labour force status, including unemployment. • Age profile. • Industry of employment and occupation. 	<p>ABS Census ABS Labour force ABS Labour market Government strategic plans Small Area Labour Market (SALM) Small Business Count Tourism NSW REMPAN Socio-Economic Indexes for Areas (SEIFA) Stakeholder Interviews SIA Survey EIA</p>

Questions	Relevant Indicators	Data Sources
<p>Community Safety, Hazards, Security and Crime</p> <ul style="list-style-type: none"> • What is the perceived level of safety, and what are the rates of crime? Could the Project exacerbate perceived and actual safety of the community? • Is road safety a major issue for communities? • How safe are properties and livestock? Have there been issues that landowners may be concerned about that could impact their acceptance of the Project and access to their land? 		<p>Ark Energy Richmond Valley Solar Farm Feedback Forms</p>
<p>Economic Capital</p>		
<p>Livelihood Assets and Activities</p> <ul style="list-style-type: none"> • How diverse is the economy? • What is the capacity of the existing workforce? i.e. what is the unemployment rate? • How many people are employed in different industries of employment? • What is the significance of agriculture for the local economy? How does the Project align with this significance? • Is there competition between industries for access to and use of limited land and resources? Does the project have the potential to exacerbate this competition? • What is the representation of small and medium businesses? What industries do small and medium businesses work in? Is there capacity within these businesses to support the construction of the Project? • What are the key drivers of the economy and how have they changed over time? • To what extent are women economically independent/equal? What are individual and household earning capacities? • Do residents receive welfare payments? <p>Housing and Business Structures</p> <ul style="list-style-type: none"> • How competitive is the local housing market? Is access to adequate housing a local issue? Is there capacity for an influx of workforce associated with the Project and others? 	<ul style="list-style-type: none"> • Index of Economic Resource. • Median household income. • Index of Education and Occupation. • Where people travel to work and where people are travelling from. • Existing land use. • Business count. • HERFINDAHL index. • Rates of unemployment. • Median mortgage repayments. • Median rental repayments. • Median house prices. • Rental vacancy rates. • Rates of rent and mortgage stress. 	<p>ABS Census ABS Labour force ABS Labour market Government strategic plans SALM Small Business Count Tourism NSW REMPLAN Department of Social Services SEIFA ABS Census Government strategic plans SQM Research Media Stakeholder Interviews SIA Survey Ark Energy Richmond Valley Solar Farm Feedback Forms EIA</p>

Questions	Relevant Indicators	Data Sources
<ul style="list-style-type: none"> • What is the nature of the local rental market? Are property and rental prices increasing? Will these trends be exacerbated by the Project, increasing the vulnerability of low-income renters? • How many households are currently experiencing housing stress? • How vulnerable are households to interest rates? 		
Social Capital		
<p>Community Values, Uses and Sense of Place</p> <ul style="list-style-type: none"> • What does the community value in the area? • Are there tangible and intangible sites of cultural significance within the Project area? How will the Project impact these? • How does the Project align with peoples' aspirations for their land, the locality and their community? • How is the proposed footprint of the Project currently used and valued by community members? 	<ul style="list-style-type: none"> • Community values and aspirations. • History of community and area. • Rate of volunteerism. • Community and special interest groups, including industry associations. 	Government strategic plans Engagement outcomes Stakeholder Interviews SIA Survey Ark Energy Richmond Valley Solar Farm Feedback Forms Aboriginal Cultural Heritage Assessment Report (ACHAR) Historic Heritage Impact Assessment (HHIA)
Political Capital		
<p>Community Representation and Networks</p> <ul style="list-style-type: none"> • What is the degree to which communities are represented by individuals and groups, including levels of government? • What local governance structures are in place? • What is the socio-political context of the communities of interest? • What level of influence / involvement in decision-making have communities had in other projects of a similar nature? • What issues are being discussed in the public domain through various media channels? How are people hearing or receiving information about the project? 	<ul style="list-style-type: none"> • Levels of government support. • LALCs and Traditional Owners. • State election, political views. • Political figures and relation to project. 	ABC Elections NSW LALC
Physical Capital		
<p>Housing and Business Structures</p> <ul style="list-style-type: none"> • Are there future plans for land releases or changed land use/zoning by Council that will support the development of new housing? If so, what? 	<ul style="list-style-type: none"> • Government housing availability. • Housing tenure type. • Future housing and land zoning. 	ABS Census Government strategic plans SQM Research Media

Questions	Relevant Indicators	Data Sources
<ul style="list-style-type: none"> What is the supply and demand for temporary / emergency accommodation? Is their existing capacity should demand increase associated with an influx of workers? <p>Infrastructure and Services</p> <ul style="list-style-type: none"> What are the key social infrastructure and services that would support a construction workforce? Are there any service gaps that may be further exacerbated by an incoming construction workforce? Are there any focus areas for social infrastructure delivery and how can the Project support this? Is there an expectation that the Project will contribute to a decrease in electricity prices? 	<ul style="list-style-type: none"> Homelessness data. Temporary housing. Commercial buildings. Availability of health care services. Rates of access to health care practitioners. Availability of education institutions. 	Social infrastructure audit Government strategic plans Public Health Information Development Unit (PHIDU) Media ABS Census Engagement outcomes Stakeholder Interviews SIA Survey Ark Energy Richmond Valley Solar Farm Feedback Forms
Cultural Capital		
<ul style="list-style-type: none"> Who are the Traditional Owners and how are they represented? What other groups exist that represent First Nations people? What are the values, histories and aspirations of First Nations peoples within the social locality? What is their ongoing connection to Country and language? Are there tangible and intangible sites of cultural significance within the study area? How will the Project impact these? Is the area culturally diverse? Is there a high proportion of people born overseas? What is the size of the First Nations population? 	<ul style="list-style-type: none"> Indigenous population. First Nations community. First Nations engagement outcomes. Proportion of people born overseas. 	ABS Census ACHAR HHIA Engagement outcomes Government Strategic Plans State heritage inventory Heritage Assessment Media Stakeholder Interviews SIA Survey Ark Energy Richmond Valley Solar Farm Feedback Forms

Source: (ABS, 2021; .idcommunity, 2021; ABS Table Builder, 2021; ATDW, 2023; AirDNA, 2024; BOSCAR, 2024; PHIDU, 2021; realestate.com.au, 2023; CSIRO, 2022)

1.2 Social Impact Evaluation and Management

The SIA has utilised data from a range of sources to identify and develop a layered picture of the potential social impacts arising from the Project. These are based on consideration of the social baseline, community consultation, social research and technical knowledge relating to social impacts of development. All of these are considered in providing an evidence base for the impact ranking. The residual impact is also assessed, following consideration of the mitigation or enhancement measures to be put in place (DPE, 2023) and outlined in **Figure 1.2**.

Dimensions		Details needed to enable assessment
Magnitude	Extent	Who specifically is expected to be affected (directly, indirectly, and/or cumulatively), including any vulnerable people? Which location(s) and people are affected? (e.g. near neighbours, local, regional, future generations).
	Duration	When is the social impact expected to occur? Will it be time-limited (e.g. over particular project phases) or permanent?
	Severity or scale	What is the likely scale or degree of change? (e.g. mild, moderate, severe)
	Intensity or importance	How sensitive/vulnerable (or how adaptable/resilient) are affected people to the impact, or (for positive impacts) how important is it to them? This might depend on the value they attach to the matter; whether it is rare/unique or replaceable; the extent to which it is tied to their identity; and their capacity to cope with or adapt to change.
	Level of concern/interest	How concerned/interested are people? Sometimes, concerns may be disproportionate to findings from technical assessments of likelihood, duration and/or intensity.

Figure 1.2 Dimensions of Social Magnitude

Source: (DPE, 2023).

Each Project activity is assessed by its potential impacts on people, through consideration of whether previous investigation of the impact has been undertaken, the potential for cumulative impacts, and the consideration of possible mitigation or enhancement measures to reduce negative impacts and enhance positive impacts.

To prioritise the identified social impacts, a risk-based framework has been adopted. In this regard, stakeholder perception of impact is considered an independent and no less valid component of risk; with stakeholder perceptions often varying between individuals and groups. For assessment, the most common, or what is judged to be the general perception/sentiment of a stakeholder group has been used as a measure of perceived stakeholder risk or impact, as determined through consultation.

The integration of the outcomes of technical ranking (severity/scale) with stakeholder perceived ranking of impacts (intensity or importance), thus affords a true integration of expert and local knowledge in SIA and enables both types of risk to be addressed in the development of impact mitigation, amelioration, and enhancement strategies. This approach is reflected in the new SIA Guideline, where level of concern/interest and intensity or importance are considered (refer to Figure 2.15).

Prioritising impacts in this integrated manner ensures that appropriate assessment and mitigation strategies can be developed that not only address impacts that may require more technical management, but also those impacts that are perceived by stakeholders as of high importance/concern. These perceived concerns are just as important to manage as they have the potential to result in elevated levels of community concerns, complaints and grievances if not addressed appropriately.

The social significance matrix used to evaluate social impacts (refer to **Figure 1.3**) considers both the magnitude of the potential social impact (minimal, minor, moderate, major and transformational) and the likelihood of the impact occurring (very unlikely, unlikely, possible, likely and almost certain) to determine an overall evaluation of impact as ‘low’, ‘medium’, ‘high’ or ‘very high’. **Figure 1.4** and **Figure 1.5** contain further details regarding magnitude and likelihood classifications. Proposed mitigation and enhancement strategies are also considered in determining the residual social impact.

		Magnitude level				
		1	2	3	4	5
Likelihood level		Minimal	Minor	Moderate	Major	Transformational
A	Almost certain	Low	Medium	High	Very High	Very High
B	Likely	Low	Medium	High	High	Very High
C	Possible	Low	Medium	Medium	High	High
D	Unlikely	Low	Low	Medium	Medium	High
E	Very unlikely	Low	Low	Low	Medium	Medium

Figure 1.3 Social Impact Matrix

Source: (DPE, 2023).

Magnitude level	Meaning
Transformational	Substantial change experienced in community wellbeing, livelihood, infrastructure, services, health, and/or heritage values; permanent displacement or addition of at least 20% of a community.
Major	Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.
Moderate	Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.
Minor	Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable.
Minimal	Little noticeable change experienced by people in the locality.

Figure 1.4 Defining Magnitude Levels for Social Impact

Source: (DPE, 2023).

Likelihood level	Meaning
Almost certain	Definite or almost definitely expected (e.g. has happened on similar projects)
Likely	High probability
Possible	Medium probability
Unlikely	Low probability
Very unlikely	Improbable or remote probability

Figure 1.5 Defining Likelihood Levels for Social Impacts

Source: (DPE, 2023).

In impact evaluation, both positive and negative impacts are considered, with slight adjustments made to the approach to reflect positive impacts e.g., level of concern becomes level of interest, severity becomes scale of improvement or benefit, sensitivity becomes importance of the improvement or benefit and the equity of its distribution, etc.

1.3 Consultation Mechanisms

Table 1.2 Consultation Mechanism Conducted During the Scoping Phase and for the SIA/EIS

Mechanism	Objective ¹	Targeted Stakeholder	Description	First Round of Consultation (Scoping)	Second Round of Consultation (SIA / EIS Phase)
Website	To inform the community about key project information and assessment updates and provide an outlet for feedback.	Broader Community	Project website established with a feedback form at http://www.richmondvalleysolar.com.au/	Project website established to provide project updates throughout the Project life for all stakeholders and a mechanism to provide input/ feedback, including an online feedback form.	Project website updated with newsletters and information regarding Project milestones including: <ul style="list-style-type: none"> • Details regarding EIS investigations underway (August 2023). • Advertising the community information sessions (September 2023 and February 2024). • Announcing NSW Government and AEMO Services have awarded Ark Energy's Richmond Valley Battery Energy Storage System (BESS) a Long-Term Energy Service Agreement (LTESA) (December 2023). Four feedback forms were completed by community members utilising the website between 23/09/23- 14/01/24 and these have been included in this SIA.
Letter correspondence	To inform adjacent landowners of the assessment and development process through the provision of Project information and additional opportunity for further engagement	Neighbouring landholders / residents	Letters correspondence containing Project information and key engagement mechanisms.	Introductory letters sent to 41 property owners within 4 kilometres of the Project Area (20 August 2021). Follow up letters to 5 residents and property owners within one kilometre of the Project Area, including residents and properties along Avenue Road and Ermelo Road (19 October 2021). Further follow up letters to 11 residents and property owners considered as likely to be impacted due to proximity or location, including residents and properties along Avenue Road and Ermelo Road (8 February 2022).	127 letters sent directly to stakeholders in response to Project queries and accompanying Project newsletters (January 2023 – January 2024).
	To inform Aboriginal stakeholders of the Project and were invited to register their interest in the Project.	Aboriginal stakeholders	Letter correspondence containing methodology for the ACHAR and project information letter including Project overview, the proposed assessment methods, and the consultation process, as well as the results of a preliminary desktop assessment and details about gathering cultural information.	-	Umwelt contacted twenty Aboriginal Stakeholder Groups providing Expression of Interest Letters to become Registered Aboriginal Parties (RAPs) for the Project. Of these, five Aboriginal Stakeholder groups became Registered Aboriginal Parties (RAPs) for the Project: <ul style="list-style-type: none"> • AT Gomilaroi Cultural Consultancy (Aaron Talbott on behalf of Natalene Mercy, the RAP) • Koori Digs (Corri Currell) • Bandjalang Aboriginal Corporation PBC RNTBC (Tara Mercy) • Lois Cook • Casino Boolangle Local Aboriginal Land Council (Joanne Bolt). (June 2023)

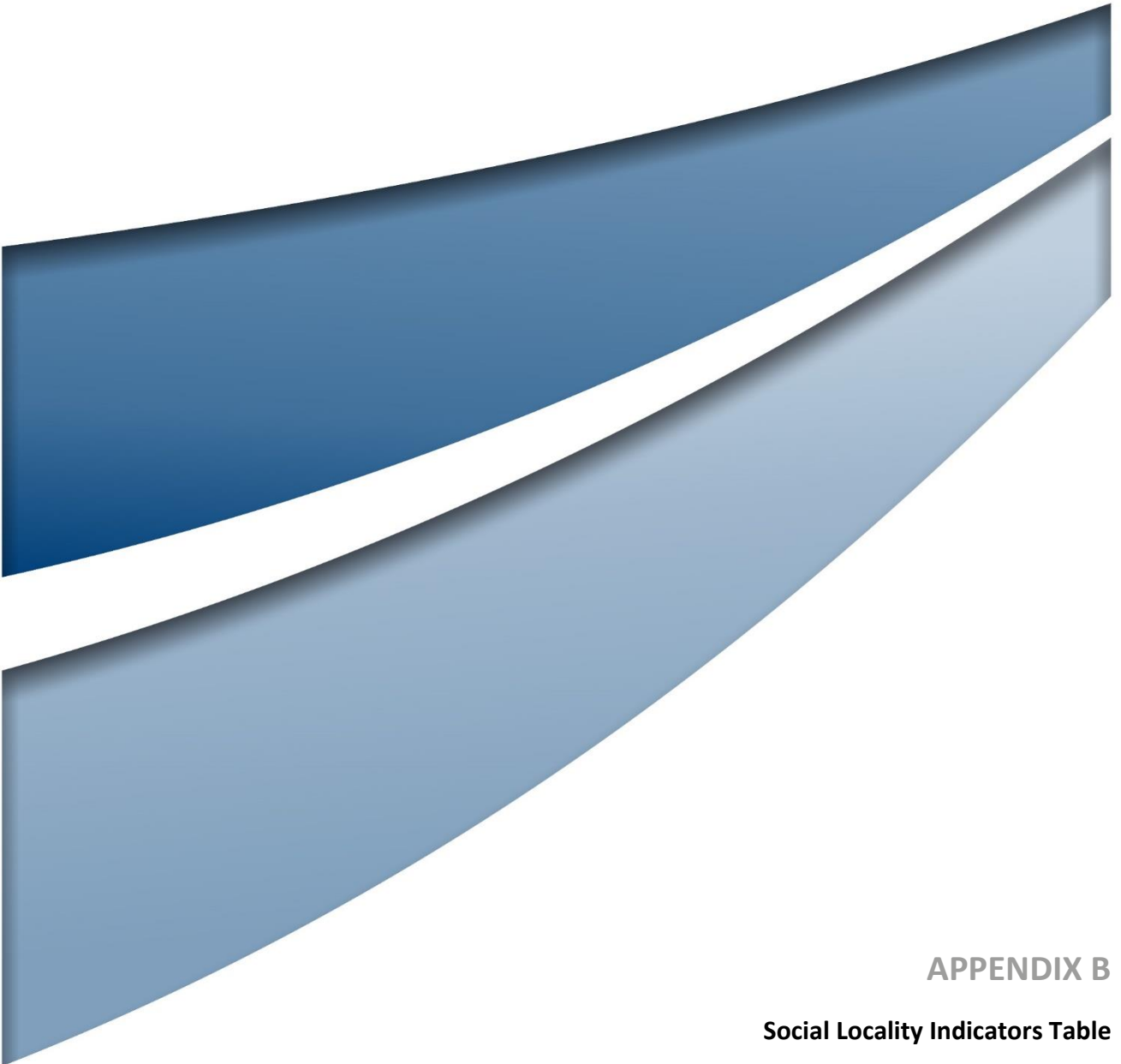
¹ Objectives utilize IAP2's Spectrum of Public participation to assist in defining roles for different stakeholders under the varying mechanisms (IAP2, 2019).

Mechanism	Objective ¹	Targeted Stakeholder	Description	First Round of Consultation (Scoping)	Second Round of Consultation (SIA / EIS Phase)
Local Media	To inform the broader community about key Project milestones and extend invitations to community information sessions.	Broader Community	Utilisation of local media sources such as local radio stations, Council community newsletter, and local community Facebook pages to inform the broader community about the Project and promotional information regarding Project team contact details included with opportunities to provide feedback.	Inclusion of details of the Project and timing of the first community information session on the Council's 'Valley Views' community newsletter, distributed on 14 February 2022. Communicating details of the solar farm project and first community information session via a Facebook post on the Ellangowan Community Hall and 88.9 FM Facebook pages. Interview with the proponent's project manager on 88.9 FM Richmond Valley Radio on 17 December 2021 and 28 January 2022 and ABC North Coast on 10 February 2022.	Media attendance at community information session (8 February 2024).
Newsletter/ Project Updates	To inform stakeholders about key Project milestones and invitations to community information sessions.	Neighbouring landholders / residents Broader community	Newsletters are distributed directly to individuals who have opted in to receive them via the post mailing list or the e-news platform, and via Australia Post unaddressed mailout to localities within 20 km of the project area. Newsletter also distributed in community locations and via an online mailing list, letterbox drop and published online.	Newsletter distributed in the first week of December 2021 via an unaddressed mailout through Australia Post to 1083 residents and a direct mailing list of 43 recipients and email contacts. Project update in the first week of February 2022 to 43 mail recipients including 11 residents identified to have potential impacts, as well as 30 recipients via email.	Over 300 individuals have opted to receive newsletter Project updates. Newsletters distributed in hard copy to registered stakeholders and uploaded to website. Included details regarding: <ul style="list-style-type: none"> • Receipt of SEARs from NSW Government (30 September 2022). • Project update, invitation to community information sessions and link to SIA survey (8 August 2023). • Project update, summary of community information session outcomes and invitation to complete SIA survey (5 October 2023). • Project update and invitation to upcoming community information session (17 January 2024).
Project Information sheets	To inform stakeholders about key information	Broader community	Project information sheets were provided to attendees of the community information session with information regarding the Project and impact assessments including, bushfire, ecological assessment, fire management, community benefits, energy transition, and profiles of Project Team in attendance.		13 varieties on the topics of bushfire, ecological, fire management. Community benefits, energy transition, profiles of the Project Team in attendance of information sheets were provided to community information attendees. (February 2024).
Project posters	To inform stakeholders about key Project aspects and the assessment process.	Broader community	Project posters containing project layouts with relevant technical assessment including bushfire, site constraints, photomontages, EIS assessment process and invitation to complete SIA survey online.		Project posters were displayed during the community information sessions (September 2023 and February 2024).
SIA Survey	To consult with various stakeholder groups to inform the development of the Project, identify impacts and develop mitigation strategies.	Neighbouring landholders / residents Broader community Community and special interest groups	The SIA survey was provided to stakeholders during community information sessions, with an online survey also available for stakeholders to complete. The survey provided to stakeholders during the SIA phase was utilised to collect feedback from residents and local community members about the Project and their experiences of living in their community and the broader region.	-	32 people responded to the SIA survey. All respondents resided in the Richmond Valley LGA and 53% were residents within 2.5 km of the Project Area. Respondents were spread equally across age groups from 18–65 years+, with one Aboriginal and/or Torres Strait Islander participant (the sample was not intended to be representative of the broader population).

Mechanism	Objective ¹	Targeted Stakeholder	Description	First Round of Consultation (Scoping)	Second Round of Consultation (SIA / EIS Phase)
			<p>Questions in the survey related to:</p> <ul style="list-style-type: none"> perceived impacts of the Project their experience with Ark Energy to date community needs and values preferences for engagement. 		<p>A link to the SIA survey was provided in the August and October 2023 newsletter, available at the September 2023 and February 2024 community information sessions and distributed to community stakeholder networks. The survey was hosted on SurveyMonkey and distributed via both QR code and survey link. Stakeholders were also provided with the option to fill out a physical copy of the survey.</p>
Telephone Survey	To consult with accommodation service providers to inform the development of the Project, identify capacity and impacts.	Accommodation Service Providers	<p>A phone survey was conducted with accommodation service providers across the social locality to gain further insight into the current capacity and potential constraints of the providers to house incoming workforces, particularly during Project construction.</p> <p>Contact with approximately 30% of the total number of accommodation providers in the social locality was attempted to gain a broad understanding of capacity and availability of housing in the region.</p>	-	<p>31 accommodation providers were contacted with 10 responses to the survey.</p> <p>Location of accommodation providers:</p> <ul style="list-style-type: none"> Casino: 2 Lismore: 4 Grafton: 1 Ballina: 3. <p>Due to external limitations such as working hours only 15% of the total number of accommodation providers in the social locality were able to be contacted to inform the SIA.</p>
Personal Meetings/ Project Briefings	To involve with various stakeholder groups to inform the development of the Project, identify impacts and develop mitigation strategies.	Local and state government agencies	Personal meetings and briefings to identify any key issues arising from operational activities, suggestions for mitigation and enhancement measures and to share information regarding future planning.	<p>Discussions with the elected and executive members of the Richmond Valley Council.</p> <p>Discussions with Transgrid via phone and email.</p>	<p>Briefing to the Richmond Valley Councillors with the opportunity for Q&A (7 February 2024).</p> <p>Meeting with Richmond Valley Council’s Manager Property & Economic Projects (13 July 2023 and 8 February 2024).</p> <p>Meeting with Richmond Valley Council’s Resilience and Community Grants Coordinator (8 February 2024).</p> <p>Additional meetings were held with NSW Government agencies and are summarised in Section 5 of the EIS.</p>
Project Briefings / Small group meetings	To collaborate with Aboriginal stakeholders and Traditional Owners throughout the assessment and development of the Project	Aboriginal stakeholders and Traditional Owners	Personal briefings to identify any key issues arising from operational activities, suggestions for mitigation and enhancement measures and to share information regarding future planning.	Discussions with Bogal Local Aboriginal Land Council (BLALC) and Bandjalang Corporation.	<p>Consultation with Registered Aboriginal Parties (RAPs) in the preparation of the Aboriginal Cultural Heritage Assessment Report (ACHA) including participation of RAPs in field survey.</p> <p>Further information is provided in Section 6.3.3 of the EIS.</p>
Personal Meetings	To involve neighbouring landholders and residents throughout the assessment and development process through face-to-face engagement.	Neighbouring landholders / residents	Personal meetings to identify any key issues arising from operational activities, suggestions for mitigation and enhancement measures and to share information regarding future planning.	Project meetings with 26 neighbouring landholders (to the north and south-west of the Project Area) at their properties between 15 and 17 June 2022.	<p>In-person meetings with the three landowners on 13 July 2023 to discuss project items such as community consultation, project history, visual impact and road upgrades.</p> <p>Project briefing/ meetings with 29 neighbouring landholders surrounding the Project between 14 and 17 August 2023 and completion of photography to inform the visual assessment.</p> <p>Discussions with landowners focused on visual impact and mitigation measures, bushfire risk, NSW planning process, road upgrades and community benefit sharing.</p> <p>Phone calls with three neighbouring landowners to discuss Project concerns on bushfire risk, insurance liability and community benefit sharing (25 August 2023–4 December 2023).</p>

Mechanism	Objective ¹	Targeted Stakeholder	Description	First Round of Consultation (Scoping)	Second Round of Consultation (SIA / EIS Phase)
Site Visits	To involve Aboriginal Stakeholders in archaeological surveys on the Project Area	Aboriginals Stakeholders	Detailed discussion with site officers was undertaken to understand and document cultural values relevant to the Project Area.	-	Representatives from RAP groups Bandjalang Aboriginal Corporation PBC RNTBC (Elder Warren Williams) and Casino Boolangle Local Aboriginal Land Council (Craig Torrens) were engaged as Site Officers for the archaeological survey. (July 2023).
Stakeholder SIA Interviews	To involve community and special interest groups to understand their concerns and aspirations are considered.	Community and special interest groups	Stakeholder SIA interviews with residents and local community members, services and businesses about the Project and potential impacts, both positive and negative.	NA	Meeting with Border Ranges- Richmond Valley Landcare Network (21 February 2024). Meeting with Casino Tourism Bureau (8 February 2024).
	To involve local businesses and service providers to understand their concerns and aspirations are considered.	Local businesses and service providers		NA	Meeting with Northern Rivers Housing (7 February 2024). Meeting with local accommodation providers (9 February 2024). Email correspondence with Southern Cross University, Engineering course coordinator between 29 January 2024 and 5 February 2024.
Community Information sessions	To involve various stakeholders groups about key Project information.	Broader Community Community and special interest groups Local businesses and service providers	Host community information sessions (to be held at local venues at existing community events) to identify any key issues arising from operational activities, suggestions for mitigation and enhancement measures and to share information regarding future planning.	Community information sessions via the digital platform Zoom at 10 am and 6 pm on 3 March 2022 due to COVID-19 restrictions with 18 attendees.	Community information sessions were held in September 2023. One community information session was held in Ellangowan on 6 September 2023 and another in Casino on 7 September 2023. Session 1: 31 attendees Session 2: 11 attendees Community information session was held on 7 February 2024 in Ellangowan. The session had 50 attendees.

Source: (Epuron, 2022, Umwelt, 2024).



APPENDIX B

Social Locality Indicators Table

1.0 Richmond Valley Indicators

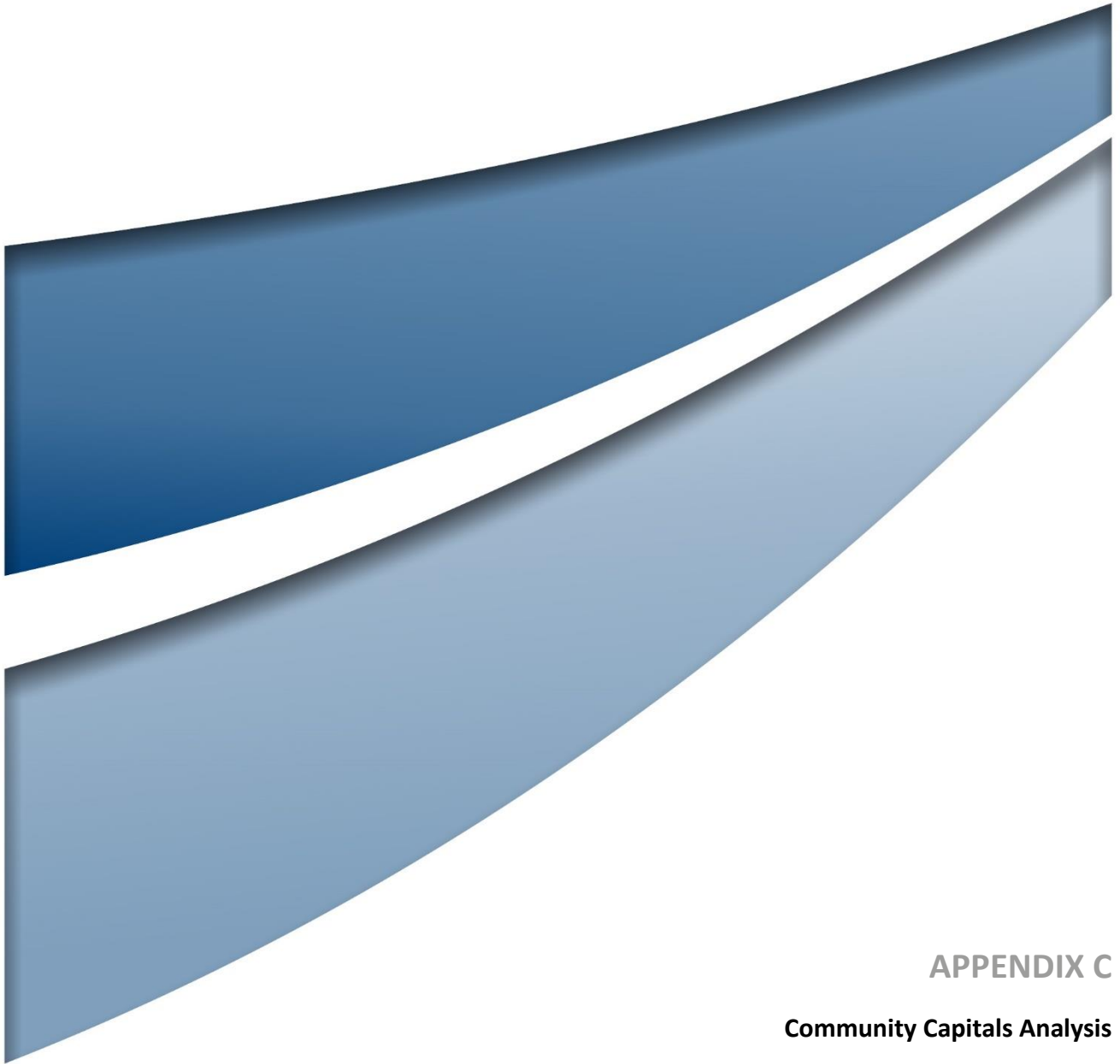
Indicators	SA 11202124527	Lismore UCL	Grafton UCL	West Bungawablin SAL	Ellangowan SAL	Myrtle Creek SAL	Rappville SAL	Casino SAL	Ballina SAL	Clarence Valley LGA	Lismore LGA	Ballina LGA	Richmond Valley LGA	NSW
Year	2021													
Human Capital														
Population	275	27,916	17,155	54	318	92	142	10,930	9,735	27,064	44,334	46,296	23,565	8,072,163
Median Age	57	41	42	49	47	60	49	43	56	49	44	48	46	41
Aboriginal and/or Torres Strait Islander people (% of population)	8.0	6.8%	10.6%	0.0%	3.1%	5.4%	12.7%	10.3%	4.7%	7.8%	5.5%	3.7%	7.4%	3.3%
Highest educational attainment-Year 10 (%)	16%	28%	33%	36%	38%	40%	20%	35%	29%	33%	28%	27%	35%	20%
Highest educational Attainment-Year 12 (%)	8%	45%	33%	14%	18%	8%	25%	26%	40%	32%	45%	48%	28%	58%
Bachelor's degree highest level of non-schooling attainment (%)	5%	8%	4%	6%	3%	0%	0%	3%	6%	5%	8%	9%	4%	11%
Certificate/ s highest level of non- schooling attainment (%)	15%	19%	21%	19%	25%	22%	18%	19%	19%	22%	19%	19%	20%	19%
Field of Study: Engineering and related technologies	-	10%	12%	14%	12%	20%	6%	14%	11%	14%	10%	11%	14%	13%
Field of study: Architecture and building	-	5%	5%	0%	8%	0%	0%	4%	6%	6%	6%	7%	5%	5%

Indicators	SA 11202124527	Lismore UCL	Grafton UCL	West Bungawablin SAL	Ellangowan SAL	Myrtle Creek SAL	Rappville SAL	Casino SAL	Ballina SAL	Clarence Valley LGA	Lismore LGA	Ballina LGA	Richmond Valley LGA	NSW
Year	2021													
SEIFA- Index of education and occupation	2	-	-	3	1	1	1	1	3	1	6	8	1	-
Social Capital														
Proportion of the population who have done voluntary work in the past 12 months	11.8%	13.3%	11.4%	11.1%	14.8%	14.1%	18.3%	9.9%	12.1%	13.2%	14.6%	14.5%	11.4%	10.6%
Family Household	61%	61%	62%	88%	80%	76%	70%	64%	54%	68%	65%	68%	68%	71%
Group Household	7%	5%	3%	38%	4%	0%	0%	3%	4%	3%	5%	4%	3%	4%
Lone person Household	32%	34%	34%	0%	21%	24%	26%	33%	42%	29%	30%	28%	29%	25%
Proportion of the population living at a different address 1 year ago	-	14.4%	14.0%	0.0%	9.4%	4.3%	9.9%	12.6%	14.7%	12.4%	13.0%	14.5%	11.7%	14.7%
Proportion of the population living at a different address 5 years ago	-	38.4%	35.0%	11.1%	20.1%	20.7%	24.6%	33.4%	42.5%	33.0%	34.9%	38.7%	31.4%	37.6%
Proportion of the population living at the same address 5 years ago	-	49.4%	50.4%	50.0%	58.8%	63.0%	50.7%	50.9%	45.1%	52.5%	52.6%	50.4%	53.5%	50.7%
SEIFA- Socio-economic Disadvantage	2	-	-	2	2	1	1	1	2	3	4	8	1	-
Cultural Capital														
Birth Place: Australia (%)	62%	83.4%	86.8%	40.7%	76.1%	75.0%	70.4%	84.7%	78.5%	84.3%	81.8%	81.4%	83.6%	65.4%
Birth Place: Elsewhere (%)	-	9.9%	6.0%	9.3%	7.2%	8.7%	7.7%	5.5%	13.4%	8.3%	10.4%	12.7%	6.0%	29.3%

Indicators	SA 11202124527	Lismore UCL	Grafton UCL	West Bungawablin SAL	Ellangowan SAL	Myrtle Creek SAL	Rappville SAL	Casino SAL	Ballina SAL	Clarence Valley LGA	Lismore LGA	Ballina LGA	Richmond Valley LGA	NSW
Year	2021													
Proportion of households where a non-English language is used (%)	10.3%	7.5%	4.5%	0%	8.3%	0%	9.3%	4.1%	6.3%	4.0%	7.2%	6.4%	4.1%	29.5%
Economic Capital														
Median total household income (\$)	\$866	1,230	1,100	1,187	1,375	850	743	1,044	1,013	1,123	1,319	1,429	1,137	1,829
Labour force participation	30.2%	56.4%	49.2%	20.0%	53.6%	27.9%	35.5%	46.7%	42.8%	46.4%	57.5%	55.5%	49.7%	58.7%
Work full time	47.9%	51.2%	51.8%	112.5%	54.6%	41.7%	38.5%	52.0%	47.8%	50.3%	50.3%	49.2%	52.2%	55.2%
Work Part time	40.8%	37.3%	34.6%	75.0%	30.5%	41.7%	53.8%	35.4%	40.9%	36.7%	38.4%	40.6%	35.8%	29.7%
Unemployed	8.5%	5.9%	7.3%	37.5%	7.8%	16.7%	23.1%	5.3%	4.0%	6.2%	5.1%	3.4%	4.7%	4.9%
Median Mortgage repayments (\$/month)	1,010	1,452	1,300	932	1,286	600	999	1,300	1,733	1,378	1,517	1,950	1,341	2,167
Median rent (\$/week)	250	300	300	200	243	290	225	280	360	310	310	420	295	420
Median rent as a proportion of median household income (%)	28.9%	24.4%	27.3%	16.5%	17.7%	34.1%	30.1%	26.8%	35.5%	27.6%	23.5%	29.4%	25.9%	23.0%
Proportion of the population in Mortgage Stress	0%	12.6%	11.5%	-	6.4%	-	0.0%	12.9%	17.2%	14.1%	13.9%	16.0%	13.7%	17.3%
Proportion of the population in rental stress	0%	42.4%	44.3%	-	88.9%	-	80.0%	40.9%	44.5%	43.4%	41.3%	41.8%	41.5%	35.5%
Herfindahl Index of Industrial Diversity	-	0.01828	0.01732	0.51020	0.08446	0.21000	0.20988	0.02589	0.01878	0.014106	0.01576	0.01355	0.01637	0.01040
Index of economic resources	3	-	-	2	4	1	1	1	1	3	3	8	3	-

Indicators	SA 11202124527	Lismore UCL	Grafton UCL	West Bungawablin SAL	Ellangowan SAL	Myrtle Creek SAL	Rappville SAL	Casino SAL	Ballina SAL	Clarence Valley LGA	Lismore LGA	Ballina LGA	Richmond Valley LGA	NSW
Year	2021													
Physical Capital														
Travel to work by car	65.1%	64%	67%	25%	66%	48%	33%	68%	59%	65%	61%	59%	64%	43%
Total Dwellings	100	12,018	7,362	13	104	34	50	4,571	4,745	24,141	18,477	19,700	9,675	3,199,988
Total Occupied Dwellings	87	11,242	6,817	8	96	34	43	4,266	4,357	20,932	17,154	18,281	8,825	2,900,468
% of total occupied dwellings	87%	94%	93%	62%	92%	100%	86%	93%	92%	87%	93%	93%	91%	91%
Average people per household	2.3	2.3	2.3	2.5	2.7	2.4	2.3	2.3	2	2.3	2.4	2.4	2.4	2.6
Proportion of dwellings owned outright (%)	69.0%	33.0%	35.1%	87.5%	40.6%	58.8%	46.5%	36.7%	35.6%	45.2%	37.6%	41.3%	40.5%	31.5%
Proportion of private dwellings owned with a mortgage (%)	16.1%	30.1%	27.0%	50.0%	49.0%	17.6%	27.9%	27.5%	17.6%	27.4%	31.7%	27.0%	29.8%	32.5%
Proportion of private dwellings being rented (%)	9.2%	33.8%	34.5%	0.0%	9.4%	17.6%	11.6%	31.6%	37.0%	23.7%	27.1%	26.6%	25.5%	32.6%
Rates of GPs per 100, 000 people	-	-	-	-	-	-	-	-	-	97.8	130.5	174.7	93.7	122.4
Rate of Nurses per 100,000 people	-	-	-	-	-	-	-	-	-	908.1	2,629.0	687.8	481.1	1,028.5

Source: (ABS, 2021; PHIDU, 2021; SEIFA, 2021).



APPENDIX C

Community Capitals Analysis

1.0 Community Capital Analysis

1.1 Political Capital

Political capital refers to the individuals, institutions, and systems that contribute to a community’s ability to maintain a governance structure. Political capital can determine the extent to which people are able to participate in decisions that affect their lives, the level of democratisation within a community, and the resources provided for this purpose.

A summary of the political capital relating to the social locality is provided in **Table 1.1**.

Table 1.1 Political Capital

Key Aspects	Description
Federal Government	<p>The LGA’s of Richmond Valley, Clarence Valley, Ballina and Lismore all reside within the Federal electorate of Page. At the 2022 Federal election the seat was retained by Kevin Hogan MP, from the Nationals (AEC, 2023). Kevin Hogan has opposed Australia’s move toward tripling renewable energy targets with the Coalition backing nuclear energy and stating they will not support new renewable energy targets (Morton, 2023).</p>
State Government	<p>At the state level each LGA falls into a different electorate.</p> <p>Richmond Valley and Clarence Valley sits in Clarence currently represented by the Nationals MP Richard Williamson. Richard Williamson has demonstrated past support for mineral mining. In March 2023 Williamson did not attend or sign a pledge for anti-mining in the region and was only 1 of 2 candidates for the Clarence seat to not support the movement, demonstrating Williamsons favouring of the mining industry over as an energy source (The Echo, 2023).</p> <p>Greens MP Tamara Smith is the state representative for the Ballina electorate. Tamara Smith’s representative website states her support for the transition to renewable energy and calls for more action against the climate crisis (Tamara Smith MP, n.d.).</p> <p>Labor MP Janelle Saffin is the state representative for the Lismore electorate (NSW EC, 2023). Janelle Saffin has previously stated her support for the energy transition but has questioned the consultation process and developers gaining a social license in the community (The Lismore App, 2022).</p>
Local Government	<p>The social locality sits across four LGAs within the Northern Rivers region as outlined below.</p> <p>Richmond Valley Council was formed in February 2000 as a result of the amalgamation of Casino and Richmond River LGA’s. The LGA is approximately 3,050 square kilometres and is made up of 7 councillors including Mayor Robert Mustow and Deputy Mayor Stephen Morrissey (Richmond Valley, 2023). In Richmond Valley Council’s <i>Growth Management Plan</i>, renewable energy is outlined as an opportunity to be harnessed by the community for economic growth in diversifying the economy and providing new job opportunities (Richmond Valley Council, 2023).</p>

Key Aspects	Description
	<p>Ballina Shire Council covers an area of approximately 485 square kilometres. The LGA has an economy based on building, retail, tourism, hospitality, agriculture, and education. The LGA was formed in 1977 with the amalgamation of the Municipality of Ballina and the Tintenbar Shire. The LGA is made up of 10 councillors including Mayor Sharon Cadwallader and Deputy Mayor Eoin Johnston (Ballina Shire Council, 2023). In 2019, Ballina Shire Council declared a climate emergency and adopted renewable energy policies which commit to 100% renewable electricity for its operations and net-zero operational greenhouse gas emissions by 2030.</p> <p>Lismore City Council was established in 1946 and is approximately 1,290 square kilometres. The LGA is made up of 11 councillors including the Mayor Steve King and the Deputy Mayor Jeri Hall (Lismore City Council, 2023). Lismore City Council has demonstrated support for solar farm developments with the construction of one of Australia’s first community-funded, council operated solar farms, after the switching on of a 99 kW rooftop PV system at the Goonellabah Sports & Aquatic Centre in Lismore, NSW (Vorrath, Lismore community solar plant switched on, marking Australian first, 2017).</p> <p>Clarence Valley council was formed in 2004. The council consists of 9 councillors including the Mayor, Cr Peter Johnstone and Deputy Mayor Cr Jess Smith. The 9 councillors are elected every four years (Clarence Valley Council, n.d.). Clarence Valley has demonstrated support for renewable energy and particularly solar farm with interest in developing a mid-scale solar farm and landfill gas to energy plant at the Grafton Regional Landfill. The Council has completed feasibility studies to assess the economic and social viability of the project which aligns with the Council’s goal to be 100% renewable (Clarence Valley Council, 2018).</p>
<p>Traditional Owners and Aboriginal Governance</p>	<p>The NSW Aboriginal Land Council (NSWALC) is the state’s peak representative body in Aboriginal Affairs and is constituted by Part 7 of the Aboriginal Land Rights Act 1983 No 42. The Project Area is situated within the North Coast Region of the NSW Aboriginal Land Councils Boundaries. The North Coast region comprises 10 more localised LALCs.</p> <p>The Project Area is located within Casino Boolangle LALC. The Regional Councillor for the LALC is Cr Dallas Connelly. Dallas Donnelly is Bundjalung and Gumbaynggirr man from Grafton. Figure 1.1 shows the LALC boundaries.</p>
<p>Local activist groups</p>	<p>A local activist group consisting of 63 members on Facebook, Locals Against Richmond Valley Solar Farm has come together due to concern regarding the rise in solar farm development in the local area including that of the Project as well as the location and impacts to the rural amenity and place attachment. The group have created a change.org petition with 251 signatures against the large-scale solar farms in the Northern Rivers Region as of January 2024. The petition highlights particular opposition against the Project due to its location on agricultural land. Furthermore, the petition highlights the cumulative impacts of solar farms on the environment and the ‘green washing’ of the industry. Members of the group have participated in the SIA process and wider engagement program facilitated by Ark Energy.</p>

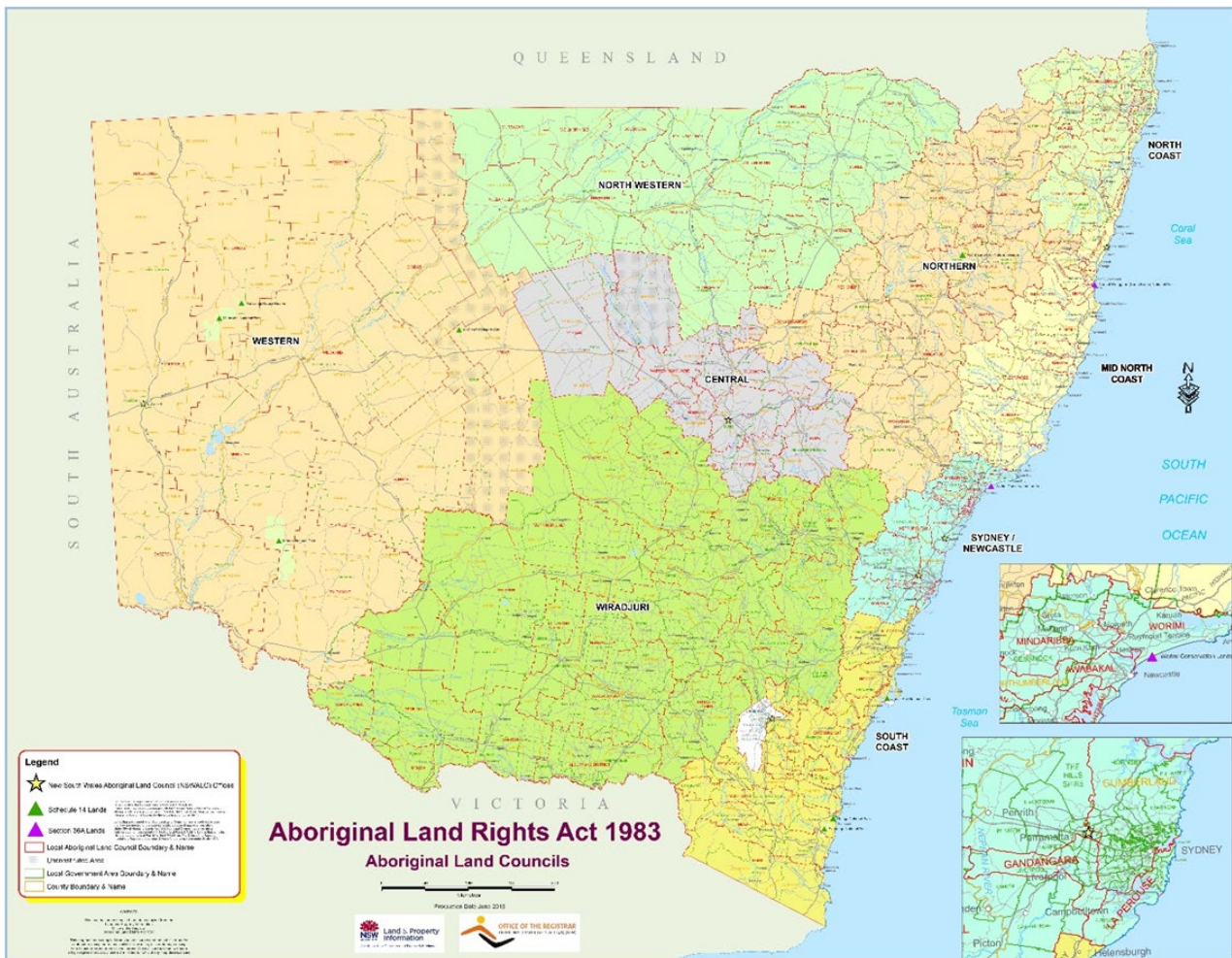


Figure 1.1 Local Aboriginal Land Council Boundaries

Source: (NSW LALC, 2023).

1.2 Natural Capital

Natural capital refers to the natural assets and resources that contribute to community sustainability. Natural capital can include resources such as minerals, land, forests, and waterways, which provide benefit to the community, as well as environmental assets that provide cultural, social, or recreational value.

The natural capital of the Project and surrounds can be characterised as outlined in **Table 1.2**.

Table 1.2 Natural Capital

Key Aspects	Description
Region includes national parks, state forests, conservation areas and beaches	<p>The Northern Rivers area is home to eight national parks and numerous state forests and nature reserves. Richmond Valley LGA contains multiple National Parks, State Forests, rivers, conservation areas, wetlands and various beaches that are well frequented by locals and tourists visiting the region.</p> <p>Ellangowan State Forest is located to the north-west of the Project Area and vegetation connecting to Bungawalbin National Park and Bungawalbin State Forest which borders the eastern boundary of the Project Area.</p>

Key Aspects	Description
	<p>The Ellangowan State Forest offers many recreational facilities for visitors to utilise to explore the area. There are camping spots, 4WD tracks, designated cycling tracks, designated horse tracks, fire/BBQ spots, picnic areas, toilets and wheelchair access (Forestry Corporation, n.d.).</p> <p>The Bungawalbin National Park is included in the Bungawalbin and Yarringully Parks Management Plans. The area is considered significant due to the landscape and catchment, biological contents including regionally significant habitats for fauna/ marsupials, Aboriginal Heritage, and the research and education value of the area for educational programs and tertiary research projects (OEH, 2012).</p> <p>The Bungawalbin and Yarringully Parks and Reserves are part of a large continuous wetland system which contains important floodplain subtropical rainforest, coastal swamp forests and coastal floodplain wetlands (Richmond Valley Council, n.d.). Yarringully was named following consultation with the Bundjalung Aboriginal community and means ‘eel-tailed catfish’. Bungawalbin is the Aboriginal word for ‘a swamp with bulbous-rooted reeds growing on it’ (NSW National Parks and Wildlife Service, 2012).</p>
Highly valued coastal emus	<p>The coastal emus located in the Northern Rivers region, particularly in the social locality such as Bungawalbin are an endangered population. This emu population is found exclusively on the North Coast of NSW. The emus play a crucial role in the region through aiding the dispersal of fruits and seeds over the landscape as well as hold a significant cultural value to local Aboriginal communities. The NSW Department of Threatened Species estimates the population of the emu to be fewer than 50 birds in 2023. Stakeholders have raised the importance of the emu to the community, <i>‘...the coastal emu population and they’re really important to that community, it’s that like the last remaining coastal emu population on the North Coast and they take their custodianship of those birds very seriously’</i>- Interviewee (Interviewee, 2024).</p>
Community value of the natural environment and aesthetic values of the landscape	<p>The natural assets within Richmond Valley attract tourists and provide cultural and historic significance to the community. The area is host to World Heritage Listed national parks, beaches and historic townships. Key areas listed by Richmond Valley Council as key natural assets to the region include Casino, Coraki, Broadwater, Woodburn, Evans Head, New Italy and Rappville (Richmond Valley Council, 2017).</p> <p>The Richmond Valley Hinterland Self Drive tour showcases the country villages of Casino, Woorooloolgen, Hogarth Range, Mallangane, Peace Park and State Forests such as Ellangowan and Bungawalbin with Visit NSW tourism stating these as perfect for bushwalking (VisitNSW, n.d.).</p>
Strong agriculture land use	<p>Richmond Valley LGA is characterised by its land area used predominately used for agriculture, particularly cattle grazing, sugar cane and wheat growing. These land uses are historic and date back to early European settlement from the 1840’s (.idcommunity, 2021). Similarly, Ballina is known for its rural land used largely for grazing, and fruit and nut growing while, Lismore rural land use in the agricultural industry is predominately dairy farming, macadamia nut, tropical fruit and sugar growing and pig farming (.idcommunity, 2021) (.idcommunity, 2021).</p> <p>The township of Casino is known as the beef capital of NSW as it is host to Casino Beef Week which celebrates Australia’s beef industry and rural life.</p>

Key Aspects	Description
<p>Natural disasters becoming more prevalent in the region</p>	<p>The region has seen a rise in natural disasters impacting the area in recent years, including the 2019–2020 Black Summer Bushfires, including the Busbys Flat Fire in Rappville adjacent to the Project Area and the 2022 Northern NSW floods. It has been calculated that these floods are the second worst natural disaster event in Australian history (AdaptNSW, 2023). Table 3.1 in the SIA further details the total areas flooded as well as the impact on residential and agricultural land in the local area.</p>

1.3 Human Capital

The level of human capital within a community is assessed by considering population size, age distribution, education and skills, general population health and the prevalence of vulnerable groups within the community. Further details for can be found in Appendix B. In comparison to NSW, the social locality has the following key characteristics highlighted in **Table 1.3**.

Table 1.3 Human Capital

Key Takeaway	Description
<p>An older and ageing population</p>	<p>The social locality has an older median age ranging from 41 to 60 years, when compared to the NSW median age of 39 years. The localised area of the Project (SA1) has a median age of 57 years, with 28% of the population over 65 years. In the broader social locality, 27% of Clarence Valley, 25% of Richmond Valley LGA, 21% of Lismore LGA and 27% Ballina LGA have a population over the age of 65, which is comparably older than NSW where only 18% of the population is over the age of 65.</p> <p>Richmond Valley, Lismore and Clarence Valley have seen increases in empty nester and retiree age cohorts (60–69 years) between 2016 to 2021, while all of the LGAs have seen an increase in senior (70–84) and elderly aged (85+) cohorts during the same time period indicating an ageing population (.idcommunity, 2021; .idcommunity, 2021; .idcommunity, 2021).</p>
<p>Lower year 12 attainment</p>	<p>Year 12 attainment in the social locality is lower when compared NSW (58%). Year 12 attainment in the social locality ranged from 8% in the SA1 and Myrtle Creek to 48% in Ballina LGA. The low attainment levels can be partially attributed to higher certificate attainment and types of employment available in the social locality such as the Casino Food Co-op and Inghams Chicken Facility further detailed in Section 1.5.</p>
<p>Varying levels of tertiary level education¹ in relevant fields of study for solar farm construction and operation</p>	<p>Relevant tertiary fields of study including engineering and related technologies² and architecture and building³ have been utilised to gain a broad perspective of the social localities capability to provide a local workforce.</p> <p>Data was unavailable at the SA1 level but on a broader scale the social locality was on par with proportion of the population who had studied at a tertiary level in a relevant field. Myrtle Creek SAL demonstrated higher capabilities in engineering and related technologies with 20% of the population who had completed tertiary education in that field compared to 13% in NSW. In the social locality, attainment of tertiary education in architecture and building was on par or above NSW (5%), except for Myrtle Creek SAL and Rappville SAL which had 0% attainment in the field. Section 4.4.4 in the SIA provides further analysis into the regions capabilities to provide a Project work force.</p>
<p>Similar levels of equivalent post-secondary education, with higher concentration in certificate level attainment</p>	<p>The LGAs all have similar post-secondary education levels to NSW (21%). Ballina LGA has the highest (23%) followed by Lismore LGA (21%), Clarence Valley LGA (20%) and Richmond Valley (20%). These can be partially attributed to the lower levels of year 12 attainment as any person over the age of 16 who have exited the school system and continued their education and training through other alternative pathways such as TAFE and vocational education and training (VET) (NSW Department of Education, 2020).</p> <p>The social locality had a high proportion of certificate attainment with 15.6% attainment in the SA1 and Ellangowan SAL (25%) having the highest attainment in the social locality. This is reflective of the high rate of people employed in health care and social assistance and manufacturing industries in the social locality that require certificate level qualifications.</p>

¹ Tertiary fields of study are classified as all fields of study acquired from non-school qualifications ranging from certificate level to post graduate degree.

² ABS Census classification of engineering and relate technologies encompasses fields of study such as mechanical engineering, electrical and electronic engineering and technology, environmental engineering (ABS, 2021).

³ ABS Census classification of architecture and building encompasses field of studies such as building, construction management, building science and technology, landscape architecture and urban design and regional planning (ABS, 2021).

Key Takeaway	Description
	<p>The Clean Energy Council's (CEC) Clean Energy Careers Guide (CEC, n.d.) predicts that approximately 16.7% of a solar farm construction work forces will be electricians (further detailed in Section 4.4.4 in the SIA). In the LGAs approximately a quarter of those who obtained certificate level obtained it in engineering and related technologies² (Richmond Valley, 28%, Clarence Valley 26%, Ballina 25%, Lismore 24%), and is on par with NSW attainment in the same field (27%).</p>
<p>Lower levels of education and occupation in Richmond Valley LGA</p>	<p>The Index of Education and Occupation (IEO) reflects the educational and occupational level of communities utilising SEIFA data based upon 2021 ABS Census. The education variables reflect educational attainment or if further education is being undertaken. The occupation variables are based on the Australian and New Zealand Standard Classification of Occupations (ANZSCO). It classifies the workforce into groups of occupations, skill levels and employment status. Unlike the other indexes IEO does not include any income variables (SEIFA, 2021).</p> <p>Richmond Valley LGA and Clarence Valley LGA are within the 1st decile⁴ of Index of Education and Occupation (IEO). The low score demonstrates the area having many people without qualifications, or many people in low skilled occupations, or many people unemployed, and few people with a high level of qualifications or in highly skilled occupations.</p> <p>In comparison both Lismore LGA (6th decile) and Ballina LGA (8th decile) demonstrated higher status of education and occupation. This can be due to many people with higher education qualifications or many people in highly skilled occupations, and few people without qualifications or few people in low skilled occupations.</p>
<p>Slow or no population growth</p>	<p>The rate of population growth in the LGAs between 2021 to 2041 is expected to be minimal or in fact decline over time. NSW is predicted to have 0.95% annual growth, in comparison Ballina is expected to have 0.81% growth, Richmond Valley 0.30% growth, Clarence Valley 0.24% growth and Lismore is expected to decline by -0.47% annually (NSW Department of Planning, 2021). Lack of population growth in Lismore has been attributed to a reduced stock of appropriate housing options as well as minimal employment opportunities, and an increase in natural disasters (Jackson, 2019). While increases to Richmond Valley's population projections are attributed to the strong industrial and economic growth in the region (Richmond Valley Council, 2023).</p>
<p>Higher prevalence of health conditions</p>	<p>Self-assessed health outcomes of poor or fair are mixed across the study area. Ballina has the lowest level, 13.6 per 100 people, reporting fair or poor health, which is slightly lower than the NSW average (14.1 per 100 people). Lismore (16.5), Clarence Valley (18.5) and Richmond Valley have a higher prevalence than the NSW per 100 respectively (PHIDU, 2021).</p> <p>All three LGA's have higher reported rates of mental illness than the rest of NSW. NSW has a reported rate of mental illness of 9.4 per 100 people, Clarence Valley has the lowest rate per 100 people of 11.6, followed by Ballina with 11.7 Richmond Valley has 12.8 and Lismore has the highest rates per 100 people at 14.4 (PHIDU, 2021).</p>

⁴ Deciles divide a distribution into ten equal groups. In the case of SEIFA, the distribution of scores is divided into ten equal groups. The lowest scoring 10% of areas are given a decile number of 1, the second-lowest 10% of areas are given a decile number of 2 and so on, up to the highest 10% of areas which are given a decile number of 10.

Key Takeaway	Description
<p>A higher vulnerability to negative mental health outcomes due to flooding events</p>	<p>The University Centre for Rural Health (2023) conducted a study in March/ April 2017 to understand the impact of a major flooding event that occurred that year on the mental health and wellbeing of people in the Northern Rivers community. Participants included residents of Lismore, Ballina, Clarence Valley and Richmond Valley LGA. The study, which included 2,500 people, found:</p> <ul style="list-style-type: none"> • Over one-fifth (22%) reported being still distressed about the flood, 16% had probable anxiety, 15% probable PTSD, 15% probable depression and 7% suicidal ideation. Around 27% of people reported at least one of these and about 20% reported two or more of these. • Socio-economically disadvantaged groups such as people identifying as Aboriginal and/or Torres Strait Islander; people identifying as LGBTIQ and people receiving income support were more likely to have their homes flooded and to have to leave their home because of the flood. They were also more likely to have negative mental health outcomes than people who were not in these groups. • Compared with older adults, young people reported more anxiety (27% of 16-<25-year-olds vs 15% of older adults), depression (29% vs 15%), trauma (18% vs 15%) and more worry about climate change (48% vs 34%). • People whose home/business/farm was flooded; and who were still without a home after six months were more likely to have negative mental health outcomes than people who had not had these experiences. • People who were indirectly disrupted (not flooded but reported disruption in access to health and social care; difficulty getting food supplies; were temporarily isolated; were unable to travel to place of work or education; and/or had household utilities interrupted), had worse mental health outcomes than people who were not disrupted.

1.4 Social Capital

Various indicators can be used to examine and assess social capital. Such indicators can include the level of volunteering, population mobility, crime rates, and the demographic composition of the community, such as the percentage of people born overseas, language proficiency etc. Further details can be found in Appendix B. The following provides a summary of the key characteristics of the study areas from a social capital perspective.

Compared to the broader population of NSW, the area of social influence according to social capital aspects is characterised in **Table 1.4**.

Table 1.4 Social Capital

Key Takeaway	Description
A more homogeneous population	The proportion of people born overseas is less than half compared to NSW (29.3%) across the three LGA's. Richmond Valley LGA (6.0%) has the lowest recorded, followed by Clarence Valley LGA (8.3%), Lismore LGA (10.4%) and Ballina LGA (12.7%). Similar trends are evident when households where a non-English language is spoken.
A more settled less transient population	The portion of the population living at the same address five years ago is slightly higher than the NSW average (50.7%). Myrtle Creek SAL (63.0%) and Ellangowan SAL (58.8%) have the least transient populations. Clarence Valley and Lismore LGA (52.6%) are the least transient LGA (ABS, 2021). Lower levels of population transience generally indicate residents are more settled in a specific locality, and in turn may have strong social ties and place-based attachments (Devine-Wright, 2009). However, since the 2021 census higher levels of transience maybe expected in the region as thousands of people were, and continue to be, displaced due to the 2022 floods (McKenna, 2022).
High proportion of people living alone	People in the social locality are more likely to be living alone than across the rest of NSW. Richmond Valley LGA (29%), Clarence Valley LGA (29%), Lismore LGA (30%), Ballina LGA (28%) and the local area (SA1) (31.9%) had higher proportion of lone person households when compared to NSW (25%) and were above the average for Regional NSW (26%) (ABS, 2021). This is partially reflective of an older population whose children no longer live with them.
Lower sense of personal safety	The Richmond-Tweed region is the statistical area utilised by BOSCAR to analyse the five-year trends on crime in NSW. The Project and social locality are located in the Richmond- Tweed region. The region has experienced an increase (+7.1%) in breaking and entering non-dwellings over the past 5 years to September 2023 and a significant increase in motor vehicle theft (+11.7%) in the same period (BOSCAR, 2024). Local news has highlighted the significant increase in break and entering in non-dwellings increase +328.6% between 2020 and 2022 (Shannon, 2022).
Higher proportion of socio-economic disadvantage in Richmond Valley and Lismore LGA	SEIFA combines 2021 ABS Census data such as income, education, employment, occupation, housing and family structure to summarise the socio-economic characteristics of an area. The Index of Relative Socio-economic Disadvantage (IRSD) is a general socio-economic index that summarises a range of information about the economic and social conditions of people and households within an area from SEIFA data. IRSD only includes measures of relative disadvantage.

Key Takeaway	Description
	<p>The SEIFA score for an area range from 1 being the most disadvantaged to five being the least disadvantaged (SEIFA, 2021). It should be noted that no comparison can be made between LGAs and state suburbs on ranking, as rankings are only comparative within each geographic classification. It is important to note that different ABS structures cannot be compared.</p> <p>Richmond Valley demonstrated the lowest decile score of the LGAs for IRSD⁵ out the LGAs followed by Clarence Valley in the 3rd decile. Low deciles indicate higher levels of disadvantage in the community. Similarly, Lismore LGA ranked in a higher decile indicating relative levels of socio-economic disadvantage. Ballina LGA was ranked in the 8th decile indicating minimal levels of socio-economic disadvantage in the community.</p>
<p>High levels of volunteering except in the local area (SA1)</p>	<p>Rates of volunteering can be an indicator of social connection and inclusion in a community (United Nations, 2014). The social locality demonstrated higher rates of volunteering when compared to NSW (10.6%). Rappville SAL (18.3%) and Ellangowan SAL (14.8%) had the highest proportion of the population who had participated in volunteer work in the prior year (ABS, 2021). In the local area (SA1) there were lower rates of volunteerism (11.8%) in comparison to the broader social locality and NSW.</p>

1.5 Economic Capital

Examining a community's economic capital involves consideration of several indicators, including industry and employment distribution, workforce participation and unemployment, income levels and cost of living pressures, such as weekly rent or mortgage repayments. Table 3.10 provides a summary of the key characteristics of the communities within the area of social influence from an economic capital perspective. Compared to NSW, the area of social influence is characterised as follows. Further details of relevant indicators can be found in Appendix B.

⁵ Deciles divide a distribution into ten equal groups. In the case of SEIFA, the distribution of scores is divided into ten equal groups. The lowest scoring 10% of areas are given a decile number of 1, the second-lowest 10% of areas are given a decile number of 2 and so on, up to the highest 10% of areas which are given a decile number of 10.

Table 1.5 Economic Capital

Key Takeaway	Description
<p>Economic impact to Richmond Valley as a result of the 2022 floods</p>	<p>In the 2022 floods in Richmond Valley:</p> <ul style="list-style-type: none"> • 1,200 homes (11.2% of private dwellings), were inundated or severely damaged, with 427 uninhabitable (4.0% of private dwellings). • 1,300 more homes (12.2% of private dwellings) experiencing some damage water & sewer damage. Damages relating to sewerage infrastructure were estimated to be valued \$50 million. Three sewage treatment plants experienced substantial damage and as of April 2022, many assets were yet to be fully assessed. • The initial estimate of road damages was \$100 million due to washouts, landslips, lost bridge spans & damaged culverts. (Sea & Star Advisory, 2022). <p>There are 6 broad economic impacts from flooding which were identified to have the greatest impact to Richmond Valley and the Northern Rivers Region. These included:</p> <ul style="list-style-type: none"> • disrupted production while water subsides and the clean-up takes priority • asset and inventory damage and losses have cut production • labour force losses, as people are temporarily or permanently dislocated from the region, reducing labour supply, production & incomes • reduced consumption, consequent from falls in population, production & income • losses of supply chain disrupting production • deferred or lost development prospects.’ (Sea & Star Advisory, 2022, pp. 3-4). <p>The economic impact of the floods on Richmond Valley's economic production is estimated to exceed \$250 million across 2021/22 to 2022/23 financial years. The construction sector is deemed to have a concentrated risk of jeopardising recovery efforts (Sea & Star Advisory, 2022).</p> <p>As outlined in Section 3.3.1.6 the region has received government funding to support the resilience of the region post 2022 floods and assist in rebuilding lost business and homes. \$150 million has been invested into the NRRI as well as housing buy back schemes to support the community to recover economically.</p>
<p>Lower median weekly household income</p>	<p>All three LGA's have a lower weekly household income than the NSW average (\$1,829). Clarence Valley LGA has the lowest income with \$1,123, followed by Richmond Valley LGA \$1,137, Lismore \$1,319 and Ballina \$1,429 (ABS, 2021). The localised area (SA1) had a significantly lower median weekly household income (\$866) in comparison to the LGA's and NSW. The Richmond-Tweed region has been considered one of the least affordable places to rent in Australia due to the 2022 floods impacting availability of housing as well as an increase in holiday homes in the region. A representative of Social Futures stated, 'the lack of rental availability means people can charge higher rents and still get tenants; because there's such a scarcity of rental accommodation, there's no competition for tenants to go to'. The lower median income with rising cost of living and housing expenses demonstrates further potential vulnerabilities within the communities (Noack, 2023).</p>

Key Takeaway	Description
<p>Higher rates of home ownership</p>	<p>When compared to NSW (64.0%), the social locality had a higher proportion of people who either own their home outright or with a mortgage, with 85.1% in the localised area (SA1). The lowest proportion of home ownership across the social locality is Lismore UCL (63.1%) and the highest being in Ellangowan SAL where 89.6% of the population either own their home outright or with a mortgage (ABS, 2021). Higher levels of homeownership have been related to place identity. Those who own their homes were more likely to become more attached to their homes due to the freedom they have to decorate and re-model their own spaces supporting the development of their identity. This freedom to connect to their homes increases the likelihood of their identity/ personality being incorporated into the structure and therefore increase attachment. In comparison renters in Australia on short-term leases had reported lower attachment to their homes as they were more transient and had less freedom to change their homes to incorporate their identity (Anton & Lawrence, 2014).</p>
<p>Lower and decreasing house prices⁶, coupled with increasing insurance premiums</p>	<p>In March 2024, the median sale price in Richmond Valley LGA was \$485,000 and \$500,000 in Lismore LGA and \$680, 000 in Clarence Valley in comparison both Ballina LGA (\$850,000) and NSW (\$715,000) had significantly higher median house prices (Real Estate Investar, 2024). Lismore SAL has seen a 32.1% decrease in price over the 12-month period of September 2022 to August 2023 which is a significant change in comparison to Grafton UCL which saw a 3.6% decrease, Ballina SAL with a 9.5% decrease and Casino SAL having a 2.3% increase (realestate.com.au, 2023).</p> <p>Median monthly mortgage payments are lower across the social locality, than across the rest of NSW (\$2,167). The highest monthly payments were in the broader LGA area, with Ballina (\$1,950) the highest, followed by Lismore (\$1,517), Clarence Valley (\$1,378) and Richmond Valley (\$1,137). While in the localised area (SA1) the median monthly mortgage repayments were lower than the LGAs and NSW (\$1,010) (ABS, 2021).</p> <p>Though house prices and mortgage repayments were lower in the social locality, the region’s high vulnerability to natural disasters and climate crisis found many locals further marginalised by the current cost of living crisis and the overall housing market.</p> <p>The Climate Council has identified climate vulnerable places in Australia to understand the risks in different suburbs and LGAs. The social locality has been assessed at a high risk for climate vulnerability. By 2030, in Richmond Valley LGA 11.43% of properties are at risk of bushfire and 9.96% are at risk of riverine flooding. In Myrtle Creek SAL 86.96% of properties are at risk of bushfire, while only 15.94% are at risk of riverine flooding. Similarly, in Rappville 79% of properties are at risk of bushfires and 20% at risk of riverine flooding (Climate Council , n.d.). These factors are considered when a risk is applied to insurance premiums, with some localities being deemed uninsurable or experiencing a 28% increase in insurance premiums (Wright, 2023).</p>

⁶ Current median house price data for the townships was not available for West Bungawablin, Ellangowan, Myrtle Creek, and at the LGA level.

Key Takeaway	Description
	<p>In 2023, the Actuaries Institute estimated that insurance costs went up by more than 50% on average for people in high-risk areas⁷. The Institute also found that about 250,000 people experienced ‘insurance stress’, meaning the cost of insurance was higher than 4 weeks rent (Ministers Treasury Portfolio, 2023). The social locality has seen a range of high-risk factors over recent years affecting the cost of living in the region and the ability for residents in the locality to afford to buy houses due to the costly premiums, therefore leaving many people to sell and seek rentals as an alternative (Cassidy, 2023).</p>
<p>Higher levels of rental stress</p>	<p>Weekly rental payments in the social locality are similar or lower than NSW.</p> <p>Average weekly rental repayments in December 2023 for a rental property including house, units and flats for the LGAs of Richmond Valley was \$440 weekly, \$460 in Clarence Valley and \$480 in Lismore which is comparatively lower than Ballina LGA with \$650 and NSW with \$625 for weekly repayments (DCJ, 2023). The most recent data available in 2021 for the localised area (SA1), stated weekly rental payments were \$250, which is lower when compared to the NSW (\$420) during the same annual period (ABS, 2021).</p> <p>Despite the appearance of affordability, the social locality has a high proportion of the population experiencing rental stress when compared to NSW (35.5%). The proportion varies between 40.9% in Casino SAL and 88.9% in Ellangowan SAL (ABS, 2021). Local media has highlighted the current housing crisis in the Northern Rivers Region as a ‘full-blown’ emergency as rents continue to increase while supply decreases and demand increases (Mackenzie, 2021).</p>
<p>Declining levels of unemployment</p>	<p>As shown in Figure 1.3 employment rates across the social locality are varied in September 2023. Clarence Valley LGA (5.0%), Lismore LGA (3.3%) and Richmond Valley LGA (3.8%) have a higher proportion of unemployed people in comparison to Ballina LGA (1.7%). In comparison NSW unemployment rate in January 2024 was 4.1% (data was unavailable for the same period as LGAs). The social locality LGAs have seen a general decline in unemployment between March 2021 and September 2023 except in Clarence Valley which experienced an increase in unemployment (SALM, 2023). The decline in unemployment rates in the region has been attributed to the increase in full-time jobs opportunities (Northern Rivers Times, 2022).</p> <p>Funding from the Commonwealth and NSW Government’s Anchor Business Support Grant Program will support nearly 1,400 jobs in the Northern River Region to get businesses back to normal operations as quickly as possible comes on top of additional support already provided to small and medium sized businesses in the region, and bespoke payments to keep workers connected with their employer as a result of impacts from the 2022 floods (Australian Government, 2022).</p> <p>The following six businesses were offered funding through the program:</p> <ul style="list-style-type: none"> • Manildra Harwood Sugars (Sunshine Sugar) – \$12,660,971. • Social Futures – \$899,360. • Norco Co-operative Limited – \$34,698,362. • McKinlay Enterprises (North Coast Petroleum) – \$4,050,368.

⁷ High risk areas include those which experience higher risk of floods, fires and cyclone events.

Key Takeaway	Description
	<ul style="list-style-type: none"> Williams Group Australia – \$3,676,834. Multitask Human Resource Foundation – \$3,314,105 (NEMA, n.d.). <p>While most of these businesses were related to agriculture and manufacturing industries, some were related to construction businesses.</p> <p>In 2021 unemployment in Richmond Valley of Aboriginal and Torres Strait Islander peoples was 11.2% when compared to the broader Richmond Valley population was considerably higher (4.7%). Similarly in Lismore LGA Aboriginal and Torres Strait Islander unemployment was nearly double that of the broader LGA population (10.6% compared to 5.1%) as well in Clarence Valley LGA (14.0% compared to 6.2%) and in Ballina LGA it was more than double (8.0% compared to 3.4%). This demonstrates the gap between the populations in the community and emphasises the vulnerabilities in socio-economic status (AIHW, 2023).</p>
<p>Strong construction, manufacturing and education sectors</p>	<p>All LGA's have strong economic emphasis on construction with each LGA employing at least 7.5% of the working age population in construction. Richmond Valley has a strong manufacturing industry, with 11.8% of the population being employed in manufacturing. According to data derived from REMPLAN the broader Northern Rivers region largest economic output comes from construction and manufacturing. Construction contributes \$6.109 billion in economic output or 15.9% of total economic output in the region. Manufacturing contributes \$5.081 billion or 13.2% of total output (REMPLAN, 2023). As stated previously the construction industry is under great scrutiny in terms of capacity to recover following the 2022 flooding event.</p> <p>The top industries of employment in the localised area are meat processing (12.7%), primary education (7.9%) and beef cattle farming (specialised) (6.3%). The top industries correlate to the predominate land uses including that of the Project Area (further detail in Section 3.3 of the SIA).</p> <p>Top industries of employment for Aboriginal and Torres Strait Islander populations include meat processing (7.8%) in Richmond Valley LGA, hospitals (except psychiatric hospitals (5.9%) in Lismore LGA and other social assistance services (5.1%) in Ballina and (5.0%) in Clarence Valley demonstrating a difference in skill sets when compared to those needed for the construction and operation of a solar farm (refer to Section 4.4.4 of the SIA for further details).</p>
<p>Gender gaps in key solar farm construction industries, i.e. labourers and electricians</p>	<p>Table 1.6 illustrates the difference between males and females employed in key solar farm construction industries of electricians and labourers further detailed in Section 4.4.4. When compared to NSW, Richmond Valley LGA, Lismore LGA, Clarence Valley LGA and Ballina LGA have high difference between sexes employed as labourers. There is a higher proportion of men employed in these key industries demonstrating a large gender gap in these key industries. The large gaps in these industries and more specifically in renewable energy has been attributed to a long history of women not being given employment opportunities in construction, a lack of pathways for women into the industry and limited opportunities for advancement of women who do get a job, which leads to low retention (CEC, 2021).</p>

Key Takeaway	Description																																																																	
	<p>Table 1.6 Key Solar Farm Industries by Gender</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Richmond Valley LGA</th> <th colspan="2">Lismore LGA</th> <th colspan="2">Ballina LGA</th> <th colspan="2">Lismore LGA</th> <th colspan="2">NSW</th> </tr> <tr> <th>Labourers</th> <th>Electricians</th> <th>Labourers</th> <th>Electricians</th> <th>Labourers</th> <th>Electricians</th> <th>Labourers</th> <th>Electricians</th> <th>Labourers</th> <th>Electricians</th> </tr> </thead> <tbody> <tr> <td>Male</td> <td>36</td> <td>80</td> <td>44</td> <td>128</td> <td>29</td> <td>213</td> <td>69</td> <td>181</td> <td>195644</td> <td>37566</td> </tr> <tr> <td>Female</td> <td>5</td> <td>3</td> <td>8</td> <td>7</td> <td>6</td> <td>6</td> <td>4</td> <td>0</td> <td>105325</td> <td>703</td> </tr> <tr> <td>Total</td> <td>41</td> <td>83</td> <td>52</td> <td>135</td> <td>35</td> <td>219</td> <td>80</td> <td>186</td> <td>300969</td> <td>38269</td> </tr> <tr> <td>% of Female</td> <td>12%</td> <td>4%</td> <td>15%</td> <td>5%</td> <td>17%</td> <td>3%</td> <td>5%</td> <td>0%</td> <td>35%</td> <td>2%</td> </tr> </tbody> </table> <p><i>Source: (ABS Table Builder, 2021).</i></p>		Richmond Valley LGA		Lismore LGA		Ballina LGA		Lismore LGA		NSW		Labourers	Electricians	Labourers	Electricians	Labourers	Electricians	Labourers	Electricians	Labourers	Electricians	Male	36	80	44	128	29	213	69	181	195644	37566	Female	5	3	8	7	6	6	4	0	105325	703	Total	41	83	52	135	35	219	80	186	300969	38269	% of Female	12%	4%	15%	5%	17%	3%	5%	0%	35%	2%
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Recovery of Norco in Lismore	<p>The iconic ice cream factory of Norco in Lismore was forced to close due to major damage from the 2022 floods in the region. The re-opening of the factory opened up opportunities for 130 local employees to be re-employed and further opportunities arising in the future. The factory is one of the region’s biggest employers and a key economic asset in the social locality (NSW Government, 2023).</p>																																																																	
Casino Food Cooperative	<p>Casino Food Co-op is Australia’s largest farmer owned world-class meat processing Co-operative. The Co-op has operated in the region since 1933 with over 500 farmer members. The facility has the capacity to process 1,200 cattle per day and employ over 1,000 people from the surrounding region. The importance of the Co-op for the industry and economy was further substantiated during a stakeholder interview ‘...it’s a good thing to have such a large employer [the Co-op]’ (Interviewee, SIA Interview, 2024).</p> <p>The Co-op is currently giving back to the community through two initiatives. The Soil Club is designed to equip farmers with the knowledge, skills and support to improve the quality of their soils and in particular to help maintain the health of the Richmond River. The River Crystal is a similar initiative that is about maintaining the clarity of the river by managing the access cattle have to the water. The project entailed 2,000 trees to be planted to rehabilitate a koala habitat corridor in conjunction with the World Wildlife Fund and other agencies. Furthermore, in response to the 2019 floods which saw many of the community and their workers lose their home the co-op has opened the first meatworks onsite accommodation in Australia, with 60 beds providing solutions for their employees (Co-operative Farming, n.d.). The Co-op has struggled with labour force retention and new employment as the broader processing industry has seen a 40% below average kill rate reducing work.</p> <p>In the 2022–23 financial year the co-op reported a loss of \$11 m with increasing cattle prices and lack of cattle supply being an underlying cause further exacerbated by the 2020 droughts and 2022 floods (Honan, 2023).</p>																																																																	

Key Takeaway	Description
Inghams Chicken Breeding Facility	Ingham’s has invested in the construction of a new breeder farm in Casino in northern New South Wales. The new breeder complex has one rearing farm supplying two breeder (egg-producing) farms. The rearing farm was operational from November 2022, the first breeder farm was opened in April 2023 and the final stage of the construction will be open in early 2024. Once complete, the farms will have the capacity to support the sustainable growth and demand, supplying another 700,000 eggs/ week. The new facility will increase employment opportunities by 45 new positions (Inghams, 2023).
Varying levels of access to IER⁸ in the LGAs	<p>The Index of Economic Resources (IER) focuses on the financial aspects of relative socio-economic advantage and disadvantage, by summarising variables related to income and housing. IER excludes education and occupation variables as they are not direct measures of economic resources as utilised SEIFA data derived from 2021 ABS Census (ABS, 2023). The LGAs of Richmond Valley, Lismore and Clarence Valley demonstrated lower access to economic resources, ranking in the 3rd decile⁹. This indicates the population have many households with low incomes, or many households paying low rent, and few households with high income, or few people who own their home.</p> <p>In comparison Ballina LGA was within the 8th decile indicating her access to economic resources such as many households with high income, or many people who own their home, AND few low-income households, or few households paying low rent.</p>
Agriculturally based tourism	<p>The social locality has a strong agricultural history which has landed the region to be known for events such as Casino Beef Week, local farmers markets, Casino Show and Heritage Machinery Weekend, Casino Truck Show, Nimbin Show, Casino Show, Norco Primex Field Days and more which are based on the region agricultural and rural lifestyles (VisitNSW, 2023).</p> <p>The Richmond Valley Destination Management Plan 2021- 2025 highlights the regions plan to continue to grow, develop and promote Richmond Valley’s natural and built environment to gain a competitive advantage in the North Coast tourism marketplace. Tourism is estimated to contribute \$78 million direct visitor expenditure to the Richmond visitor economy per year (2020). Domestic daytrips account for 59% of visitors to the region and domestic overnight visitors account for 40% of visitors (Richmond Valley Council, 2021).</p>
Higher proportion of vulnerable groups which are pension reliant	<p>Utilising NSW as a benchmark demonstrates on average there is 56.7% of the population aged over 65 receiving an age pension, 4.7% receiving disability support pensions, and 4.7% low income, welfare dependent families.</p> <p>Richmond Valley has a higher proportion of vulnerable groups within the population as demonstrated with the higher proportion of people over the age of 65 receiving an age pension (69.7%), those who receive disability support pensions (11.8%), and low income, welfare-dependent families (9.0%).</p> <p>Lismore has a higher proportion of vulnerable groups within the population as demonstrated with the high proportion of people over the age of 65 receiving an age pension (62.8%), those who receive disability support pensions (10.7%), and low income, welfare-dependent families (9.1%).</p>

⁸ The Index of Economic Resources (IER) focuses on the financial aspects of relative socio-economic advantage and disadvantage, by summarising variables related to income and housing. IER excludes education and occupation variables as they are not direct measures of economic resources. It also excludes assets such as savings or equities which, although relevant, cannot be included as they are not collected in the Census.

⁹ Deciles divide a distribution into ten equal groups. In the case of SEIFA, the distribution of scores is divided into ten equal groups. The lowest scoring 10% of areas are given a decile number of 1, the second-lowest 10% of areas are given a decile number of 2 and so on, up to the highest 10% of areas which are given a decile number of 10.

Key Takeaway	Description
	<p>Ballina also has a higher proportion of people receiving a disability support pension (6.9%) when compared to NSW. Low income, welfare-dependent families (4.6%) and those over the age of 65 years receiving an age pension (57.7%) were comparable to NSW.</p> <p>Clarence Valley has a higher proportion of vulnerable groups within the population as demonstrated with the high proportion of people over the age of 65 receiving an age pension (66.9%), those who receive disability support pensions (11.0%), and low income, welfare dependent families (8.1%) (PHIDU, 2021).</p>
<p>The smaller townships have a higher market concentration</p>	<p>Figure 1.2 illustrates high market concentration of Ellangowan SAL, Myrtle Creek SAL, Rappville SAL and West Bungwalbin SAL. The higher market concentration demonstrates the social locality has a high concentration of a few industries mainly manufacturing and agriculture, forestry and fishing in the LGAs closest to the Project. The higher concentration demonstrates the townships potential susceptibility to changes in the market having a negative effect on the economy. This was further substantiated during a stakeholder interview with concerns regarding the Casino Food Co-operatives monopoly of employment in the area, <i>'it's a good thing to have such a large employer, but it's actually high risk... just the economy was so tied to it'</i> (Interviewee, SIA Interview, 2024).</p>

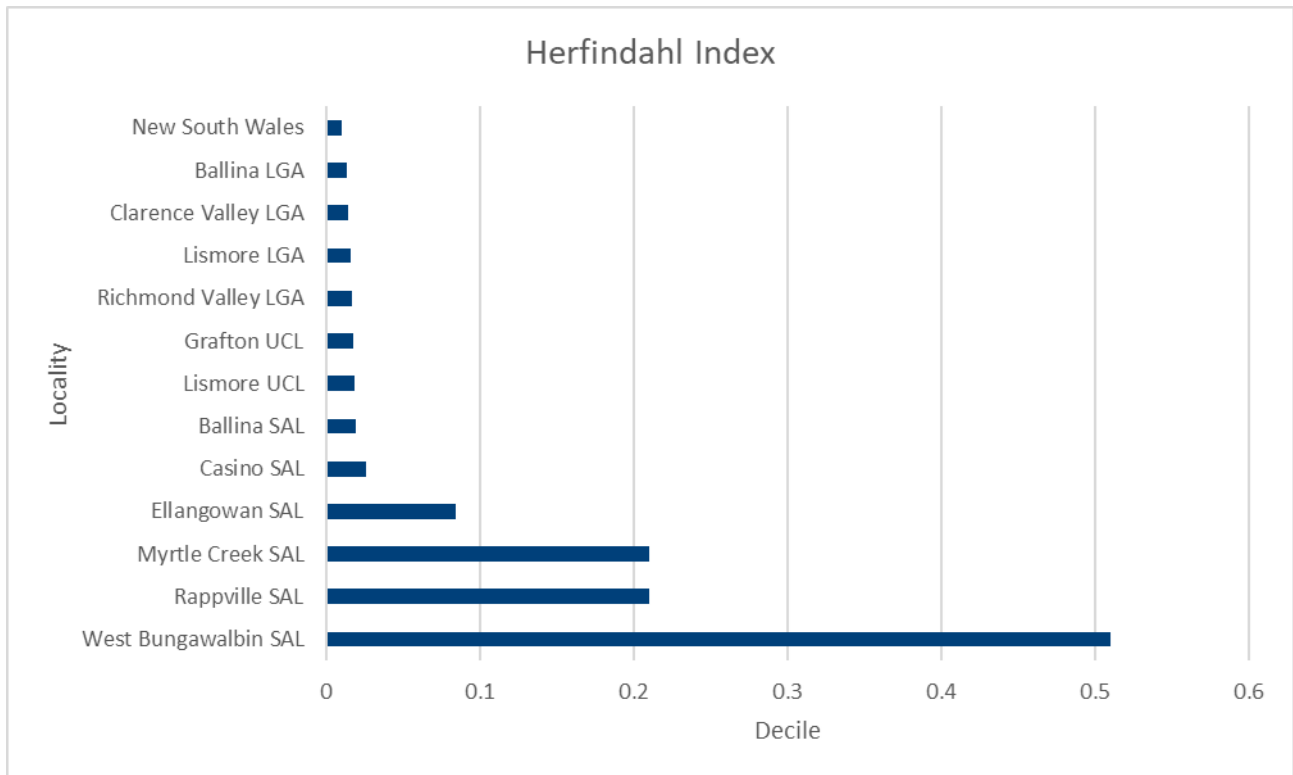


Figure 1.2 Herfindahl Index¹⁰

Source: (ABS Table Builder, 2021).

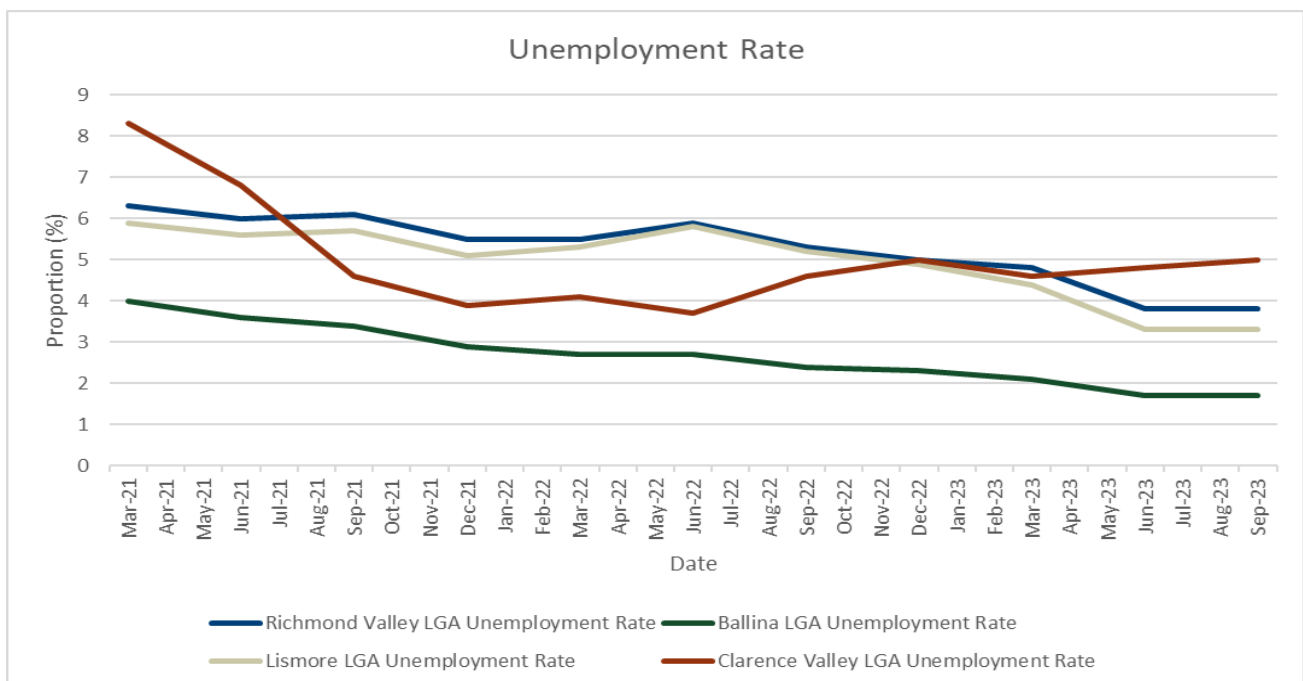


Figure 1.3 SALM Unemployment Rates

Source: (SALM, 2023).

¹⁰ Herfindahl Index is a measure of the competitiveness of a location/regions industries in terms of the market concentration of its participants.

1.6 Physical Capital

Physical or built capital includes provision of infrastructure and services to the community. Within this capital area it is important to consider the type, quality, and degree of access to public, built and community infrastructure (including amenities, services, and utilities) as well as housing. Further details can be found in Appendix B. The area of social locality is characterised in **Table 1.7**.

Table 1.7 Physical Capital

Key Takeaway	Description
<p>Well-connected transport routes</p>	<p>Richmond Valley LGA area is served by the Bruxner Highway, the Pacific Highway and the north coast railway line (with a station at Casino) connecting the LGA to the rest of NSW (.idcommunity, 2021). The Pacific Highway between Woolgoolga and Ballina received \$4.9 billion in funding for 155 kilometres of safer four-lane divided road, with the works being open to traffic in 2020 (NSW Government, n.d.).</p> <p>Ballina Shire is served by the Bruxner Highway, the Pacific Highway and Ballina Byron Gateway Airport with up to 68 flights per week between Sydney, Dubbo, Melbourne, Canberra and Newcastle (Ballina Byron Gateway Airport, 2023).</p> <p>The airport is the closest public airport to the Project Area located a 1 hr 11 min drive away (.idcommunity, 2021).</p> <p>Lismore City is served by the Ballina Highway, the Bruxner Highway (Ballina Road) and Lismore Regional Airport, which has services including pilot training, freight and charter operations, emergency medical transfers, search and rescue and bushfire fighting services, recreational flights, and public transport and is located a 40 minute drive away from the Project Area (.idcommunity, 2021).</p> <p>The region is also connected to major cities through the daily XPT service and the Gold Coast rail service which both stop at Casino and link with coaches which service the surrounding towns. Other services connecting the region to major areas such as Brisbane and Sydney include coaches which run to Lismore (Richmond Valley Council, n.d.).</p> <p>Clarence Valley is served by the Pacific Highway which is a key transport route linking the LGA to north Queensland and south to Sydney and Gwydir Highway which is the east-west corridor that links the inland plains to the Clarence via the New England region. Summerland Way is an inland network that provides an alternative highway route between Brisbane, Casino, Grafton and Coffs Harbour as well as the Project Area. The LGA contains the Clarence Valley Regional Airport located 11km from Grafton and caters charter traffic and general aviation (Clarence Valley Council, n.d.)</p>
<p>Car dominated journey to work</p>	<p>Consistent with a more regional locality, with limited public transport available, the social locality has higher portions of the population using a car as their method of travel to work. In NSW, 43% of people travel to work by car, in comparison the smaller townships such as Casino UCL (68%) Grafton UCL (67%), Ellangowan SAL (66%) and the localised area (SA1) (63.5%) had a significantly higher proportion of people travelling by car to work (ABS, 2021).</p>

Key Takeaway	Description
Social Infrastructure	<p>Casino’s township is a medium service centre which has accommodation, medical facilities, recreational entertainment and dining, social services, three primary schools, two secondary schools and service industries.</p> <p>Grafton is a key regional service centre for the region with infrastructure which supports the local community with services such as accommodation, retail centres, 10 educational facilities and medical and emergency services.</p> <p>Furthermore, Lismore also is a key service township in the region with a range of recreational services, Lismore Airport, hospitals, emergency services and educational institutions (Ethos Urban, 2024).</p>
Limited youth targeted infrastructure and services	<p>In 2019, the NSW Government invested \$700,000 in funding for the Clarence Valley and Richmond Valley after identifying gaps in youth services and activities. The Richmond Valley Mobile Youth Van project run by Mid Richmond Neighbourhood Centre aimed to focus on youth wellbeing, connectivity and assistance in becoming work ready (Clarence Valley Independent, 2020). Other youth services include the Momentum Collective which is a youth service for young people aged 12–25 years based in Casino with the aim to promote healthy lifestyles, safety and connection (Momentum Collective, n.d.).</p> <p>A study conducted by the University Centre for Rural Health for Grassroots Aboriginal health priorities project in the Richmond Valley region found that the local Aboriginal communities identified that the decline in children and youth health and wellbeing was linked to access to services such as sporting field, social activities and access to education as evident in the area (Health from Grassroots, 2019). Stakeholder engagement has further identified a lack of youth social infrastructure in the Richmond Valley region.</p> <p><i>'Not much for young people to do in the town- tend to hang out at McDonalds and KFC after school. There is little apart from sporting clubs/ the pool so if they don't like that there is virtually nothing for them to do'- Interviewee (02/2024).</i></p>
Adequate provision of hospitals within the social locality	<p>Lismore contains 2 hospitals which include:</p> <ol style="list-style-type: none"> 1. Lismore Base Hospital which is a regional referral, level 5 base hospital within the Northern NSW Local Health District that provides a wide range of medical and allied health services. 2. St Vincent’s Lismore which is an accredited private hospital specialising in acute surgical, medical, rehabilitation and palliative care. <p>Ballina contains a District Hospital which provides rural communities in the region a wide range of public healthcare services.</p> <p>Clarence Valley contains the Maclean District Hospital, Grafton Base Hospital and other mental health and general medical facilities (Northern NSW LHD, n.d.)</p> <p>The township of Casino contains the Casino & District Memorial Hospital which provides rural communities in the region public healthcare services including emergency and inpatient services (Northern NSW LHD, n.d.).</p>

Key Takeaway	Description
<p>Mixed availability of healthcare professionals</p>	<p>The rate of GPs per 100,000 people in Richmond Valley LGA (93.7) and Clarence Valley (97.8) was lower than NSW while both Lismore LGA (130.5) and Ballina LGA (174.7) demonstrated a higher rate than NSW (122.4) (PHIDU, 2021).</p> <p>The rate of nurses per 100,000 in Ballina LGA (687.8), Richmond Valley LGA (481.1) and Clarence Valley (908.1) were lower when compared to NSW (1,028.5). Though Lismore LGA had a higher rate (2,629.0) than NSW illustrating the regions higher nurse to person ratio than NSW (PHIDU, 2021).</p> <p>The LGA of Richmond Valley is classified as MM5¹¹, also known as a small rural region (DHAC, 2023). Those classified as a MM5 can find it harder to get medical help and accessing doctors can take longer and cost more. Therefore, the Australian Government provides financial incentives for medical practitioners to live and work in these rural areas to increase supply of GPs. These incentives can reach up to \$23,000 (DHAC, 2023). International Medical Graduates (IMGs) must work in a DPA to be eligible to access Medicare.</p> <p>Utilising the MMM classification, socio economic status and Medicare billing data, the DPA identifies locations in Australia with a shortage of GP services. In 2021, Ballina LGA and Grafton SAL was assessed as 10% above the benchmark in terms of the delivery of GP services, while Lismore LGA (-5% to -10%) and Casino SAL (-5% to -10%) were both below the benchmark for adequacy of GP service delivery (DHAC, 2021).</p> <p>The local media in the LGAs have highlighted a need for funding and staffing to fulfil the community’s health service needs. During the 2022 floods in Lismore there were requests from doctors for government support to rebuild health service businesses in the area to support the community (Herbert, 2022). Ballina District Hospital has experienced staffing issues with a lack of doctors causing patients to be turned away (Richter, 2022). Inability to properly staff health care services continue to impact the region due to the ageing population and the higher proportion of vulnerable groups residing in the social locality.</p>
<p>Low supply and high demand for rental properties</p>	<p>The Northern Rivers region is currently experiencing a housing crisis with the rapid growth of an unregulated short-term holiday letting industry, increases of up to 30% in property values, almost no supply of rental properties for residents and urban buyers flocking to the area during COVID-19 (Tamara Smith MP, n.d.). The housing crisis has been further exacerbated by the 2022 floods. The government-funded property buyback scheme has seen an even tighter rental market and landlords selling their properties (Domain, 2023). New opportunities for land developments have been identified in the CSP in Richmond Valley with projections to build up to 2,000 new homes on flood-safe land (Richmond Valley Council, 2023). Currently in Richmond Valley there is 0.62% rental vacancy rate compared to 1.1% in NSW demonstrating the lack of housing supply in the LGA.</p> <p>The North Coast region rental vacancy rate in June 2023 was 1.8% which is considered an extremely tight rental market causing weekly rents to increase as the market becomes more competitive with low supply and high demand (Ainsworth, 2023) (SQM Research, 2023).</p>

¹¹ The Modified Monash Model (MMM) is how we define whether a location is metropolitan, rural, remote or very remote.

Key Takeaway	Description
	<p>The township of Casino demonstrated low supply and high demand in June 2023 with 28 houses available in the past month with 311 interested renters. Similarly, Lismore township had 18 houses available in the same time period with 208 renters interested and Grafton township had 25 houses available with 268 interested renters (realestate.com.au, 2023)¹².</p>
<p>High occupancy rates in short-term accommodation in the region</p>	<p>The average short-term accommodation rate in Richmond Valley (59%), Lismore (57%), Clarence Valley (52%) and Ballina (61%) between January 2022 and December 2023 had an average of nearly 60% occupancy rate across the region (AirDNA, 2024). Section 4.5.1 further details availability of short-term accommodation with Clarence Valley key service township of Grafton utilised for the impact analysis.</p>
<p>Access to post-secondary educational facilities</p>	<p>The Southern Cross University (SCU) is located in East Lismore with courses in the arts and social sciences, education and teaching, digital media, business and tourism, marine and environmental sciences, engineering and science, health sciences, law and justice, Indigenous knowledge, music and creative arts.</p> <p>The Faculty of Business, Law and Arts is the creator of one of Australia's first fully operational commercial mobile solar generator systems, nicknamed the Sunflower. The design prototype shows that portable diesel generators can be replaced with solar-powered systems. The Sunflower was designed and built at the Lismore campus by a team of audio technology and creative design researchers and technicians working together with the involvement of local Lismore-based solar energy and engineering companies (SCU, n.d.).</p> <p>The School of Engineering at SCU has seen an increase in enrolments in the past 2 years from 2022, this has been related to offering the degrees online and changed the course structure. Engineering has a total of 250 students. The degree is offered in Lismore, Gold Coast and Online. The degree offers a course targeted towards renewable energy systems and smart grid engineering.</p> <p>There is a TAFE located in Lismore, Ballina and in Casino. Richmond Valley Council have engaged with TAFE NSW to upskill more than 20 staff in digital Literacy and WHS training (TAFE NSW, 2022).</p>

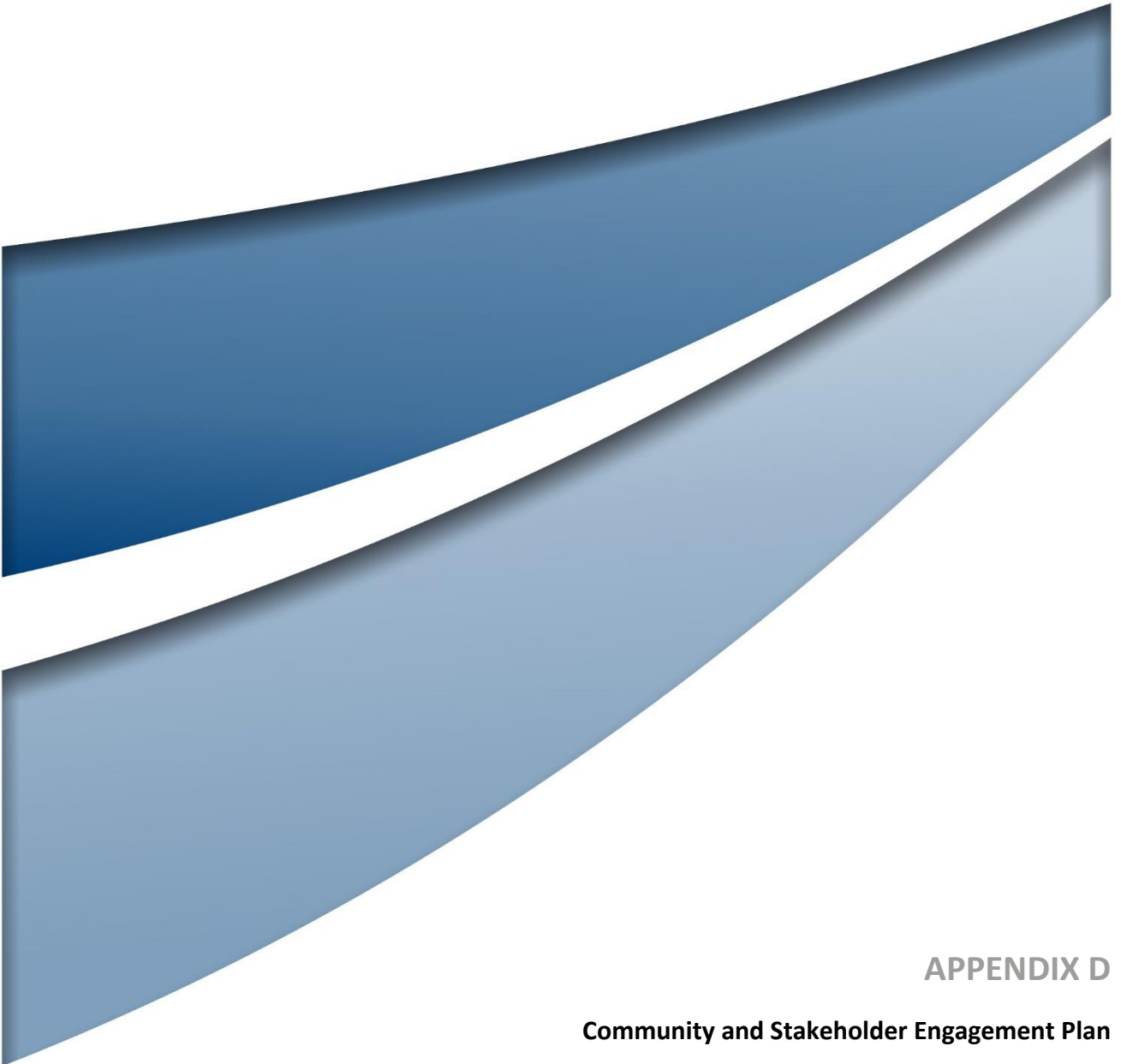
¹² Data was unavailable for the other localities due to the small sample size.

1.7 Cultural Capital

Cultural capital refers to underlying factors that provide human societies with the means to adapt to their environment (Cochrane, 2006). It includes the way people know and understand their place within the world. It may also refer to the extent to which the local culture, traditions, or language, may promote or hinder wellbeing, social inclusion, and development (IAIA, 2015). This section provides a summary of the key characteristics of the social locality from a cultural capital perspective.

Table 1.8 Cultural Capital

Key Takeaway	Description
Higher proportion of Aboriginal and/or Torres Strait Islander population	All of the social locality with the exception of West Bungawablin SAL (0.0%) have a higher proportion of Aboriginal and/or Torres Strait Islander population than NSW (3.3%), with significant populations in, SA1 (8%), Rappville SAL (12.7%) and Grafton UCL (10.6%). The high proportion of Aboriginal and Torres Strait Islander population indicates a higher risk of vulnerability to changes in the community.
Rich Aboriginal cultural heritage	<p>The Northern Rivers Region has a rich Aboriginal cultural heritage with the traditional custodians of the land of the Casino area, or Djanangmum as it is known to Aboriginal people, are the Bundjalung. The area known today as the Northern Rivers was occupied by the Bundjalung-speaking peoples, made up of an estimated 20 different language groups and clans (Richmond Valley Council, n.d.).</p> <p>Richmond Valley Council ward area recognise the Bundjalung of Casino the Galibal clan. The Bundjalung territories and Homelands extend across Northern NSW to Southeast Queensland with the Logan River as the northern boundary and the southern boundary is the Lower Clarence River, encompassing the Project Area (Roberts, n.d.).</p> <p>The Junbung Elders Aboriginal Corporation is the Local Elder Group located in Casino (Roberts, n.d.).</p> <p>Aboriginal events held in the Northern Rivers Region which continues to celebrate the cultural heritage include Reconciliation Week and NAIDOC Week.</p>
Historical agricultural ties within the community	<p>The community of Casino hosts the Norco Primex Field Days annually since 1985. It is known as Australia's Sustainable Farming Expo, with Primex being one of the largest coastal-based agribusiness events. The event attracts over 25,000 attendees over 3 days (VisitNSW, 2023).</p> <p>The Casino Beef Week is a yearly celebration of the area's history in agriculture industry. The event showcases locally grown beef and the communities barbecuing abilities.</p>
Low language diversity	The social locality has low language diversity, this can be attributed to the low proportion of population born overseas in the social locality. Further detail is provided in Section 1.3 . Across NSW 29.5% of households speak a non-English language at home, while in the social locality, 7.2% of people in Lismore LGA, 6.4% in Ballina LGA, 4.1% in Richmond Valley LGA and 4.0% in Clarence Valley speak a non-English Language at home. In the local area (SA1) 10.3% of the population used a non- English Language at home (ABS, 2021). When compared to NSW (29.5%) the proportion of households where a non-English language is used in the social locality ranges from 0% in Myrtle Creek SAL to 9.3% in Rappville SAL.
Italian Heritage	The Richmond Valley celebrates the descendants of New Italy during the anniversary of 50 Italian families who immigrated to Australia in April 1881 with food, wine and music. The area is also host to the New Italy museum and facility which is a volunteer run facility which showcases the history of Italian migration to Australia and the Northern Rivers Region.



APPENDIX D

Community and Stakeholder Engagement Plan

Richmond Valley Solar & Battery Energy Storage System



Community & Stakeholder Engagement Plan

Richmond Valley Solar &
Battery Energy Storage System (BESS)

Northern Rivers, New South Wales

SSD - 41020244

Acknowledgement of Country

Ark Energy acknowledges the Traditional Custodians of the land upon which we live and work, and their continuing connection to lands, waters and communities.

We pay our respects to Elders past and present.

Disclaimer

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To the best of Ark Energy's knowledge, the information contained herein is correct at the time of publishing. This document is subject to change and will be updated as required.

EXECUTIVE SUMMARY

This document outlines the Community and Stakeholder Engagement Plan (CSEP) for the planning and assessment (pre-construction) phase of the Richmond Valley Solar & Battery Energy Storage System (Project).

The Project comprises of the development, construction, operation and decommissioning of a utility-scale solar farm and long-duration battery energy storage system (BESS) within two privately owned properties in Myrtle Creek, in the Northern Rivers region of NSW.

Ark Energy appreciates a high standard of community and stakeholder engagement is critical for the Project's success. The company's approach to this is informed by the International Association of Public Participation (IAP2), the Clean Energy Council's *Best Practice Charter for Renewable Energy Projects* and industry guidelines including the NSW Government's *Social Impact Assessment Guideline* (DPE 2023).

Ark Energy considers a stakeholder to be any individual, group or organisation that is affected by or has an interest in the Project, including:

- Involved and nearby landowners.
- First Nations peoples in particular Traditional Owners and their representative organisations.
- Government at all levels including the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW), NSW Department of Planning, Housing and Infrastructure (DPHI), NSW Environmental Protection Authority and Richmond Valley Council.
- Residents and community members of nearby localities including Myrtle Creek, Ellangowan, West Bungawalbin, Rappville and Casino.
- Non-government, industry and community-based organisations with interests in the area.

A variety of channels and methods will be utilised to engage with the Project's stakeholders including:

- Dedicated enquiry channels
- Direct correspondence
- Project website
- Newsletters and other information materials
- Briefings and meetings
- Site visits
- Community information sessions
- Feedback mechanisms
- Local media
- Local information office
- Community consultative group
- Community participation and investment

ABBREVIATIONS

Abbreviation	Description
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
AHIP	Aboriginal Heritage Impact Permit
AMEO	Australian Energy Market Operator
BESS	Battery energy storage system
CBP	Community benefit program
CCG	Community consultative group
CEC	Clean Energy Council
CSEP	Community and Stakeholder Engagement Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
GW	Gigawatt
ha	Hectare
IAP2	International Association for Public Participation
IPC	Independent Planning Commission
ISP	Integrated System Plan
km	Kilometre
kV	Kilovolt
LGA	Local Government Area
m	Metre
MNES	Matters of National Environmental Significance
MW	Megawatt
NEM	National Electricity Market
NSW	New South Wales
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
REZ	Renewable Energy Zone
SEARs	Planning Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SIA	Social Impact Assessment
SLO	Social License to Operate
SSD	State Significant Development
SSDA	State Significant Development Application
VRE	Variable Utility-scale Renewable Energy

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1 PURPOSE AND SCOPE

Australia's clean energy transition requires large-scale development of new utility-scale generation and transmission infrastructure in rural and regional areas.

Acceptance of new developments by host and nearby communities is integral to success. It is critical for proponents to build and maintain positive relationships with local stakeholders, listen to and involve them during the development process, and ensure that the local community benefits from the Project.

This CSEP outlines the approach and methods for Ark Energy's community and stakeholder engagement during the Project's planning and assessment phase.

It will also form part of documentation for the Project's State Significant Development Application (SSDA) and support the Project's Social Impact Assessment (SIA) and Environmental Impact Statement (EIS).

2 PROJECT OVERVIEW

2.1 Policy Context

There is a recognised necessity, in Australia and globally, for the transition of energy systems to cleaner renewable energy generation at speed and scale. In late 2023 at the UN Climate Change COP28, 200 countries signed an agreement to phase out fossil fuels and agreed to triple renewable energy targets and double energy efficiency by 2030.

In 2020 the NSW Government released its *Net Zero Plan Stage 1: 2020–2030* and *NSW Electricity Infrastructure Roadmap* – a 20-year plan to transform the State's electricity system that aims to support the private sector to deliver 12 GW of new renewable electricity generation and 2 GW of long-duration storage by 2030. NSW has committed to an emissions reduction target of 50% by 2030 and has the objective to reduce emissions by 70% by 2035.

In 2022 the Australian Government set a target for 82% renewable energy in the National Electricity Market (NEM) by 2030 and legislated a national emissions reduction target of 43% (below 2005 levels) by 2030 through the *Climate Change Act 2022*. In 2023 39.4% of Australia's electricity generation was sourced from renewable sources (source: Clean Energy Council, *Clean Energy Australia Report 2024*). In late 2023 the Australian Government expanded its Capacity Investment Scheme to encourage new investment in renewable and clean dispatchable capacity and deliver an additional 32 GW of capacity by 2030 in order to meet its 82% target.

In December 2023 the Australian Energy Market Operator (AEMO) published its Draft 2024 *Integrated System Plan* (ISP). ISP 2024's *Step Change* scenario predicts that coal will exit the NEM by 2038; 57 Gigawatts (GW) of variable renewable energy (wind and solar) and 19 GW of battery energy storage is required by 2030; and 6 GW of new renewable energy generation is required every year for the next decade.

In December 2023 AEMO Services awarded the Project a Long-Term Energy Service Agreement (LTESA) under the NSW Electricity Infrastructure Roadmap.

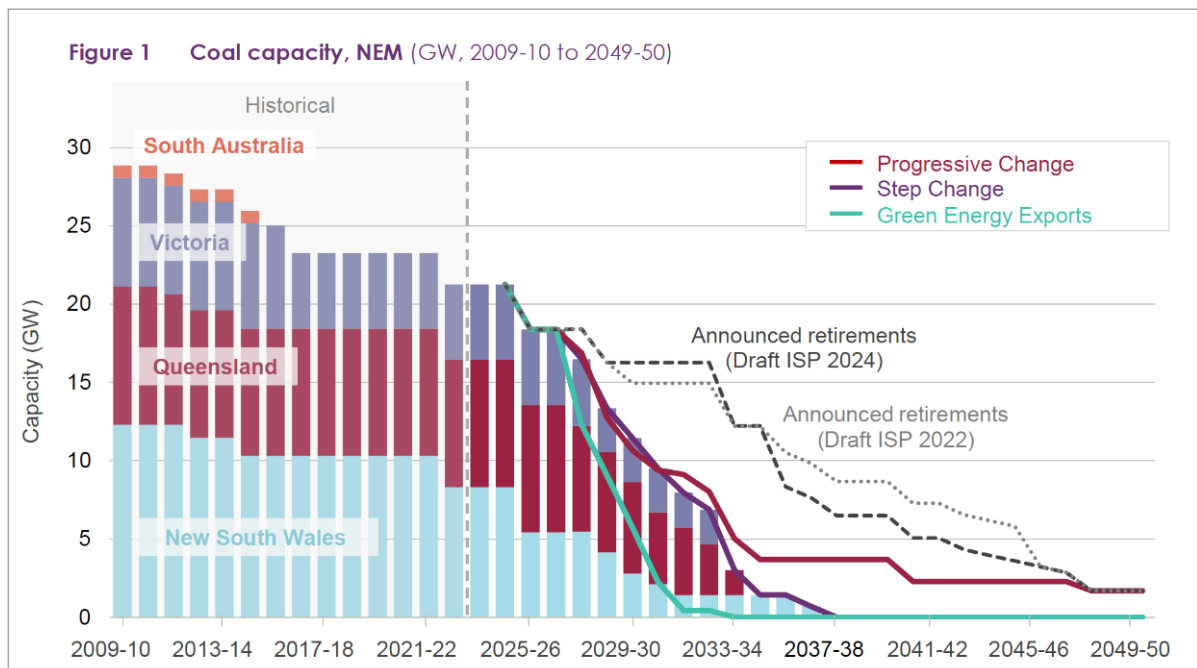


Figure 1 - Coal capacity, NEM, Draft 2024 ISP, December 2023

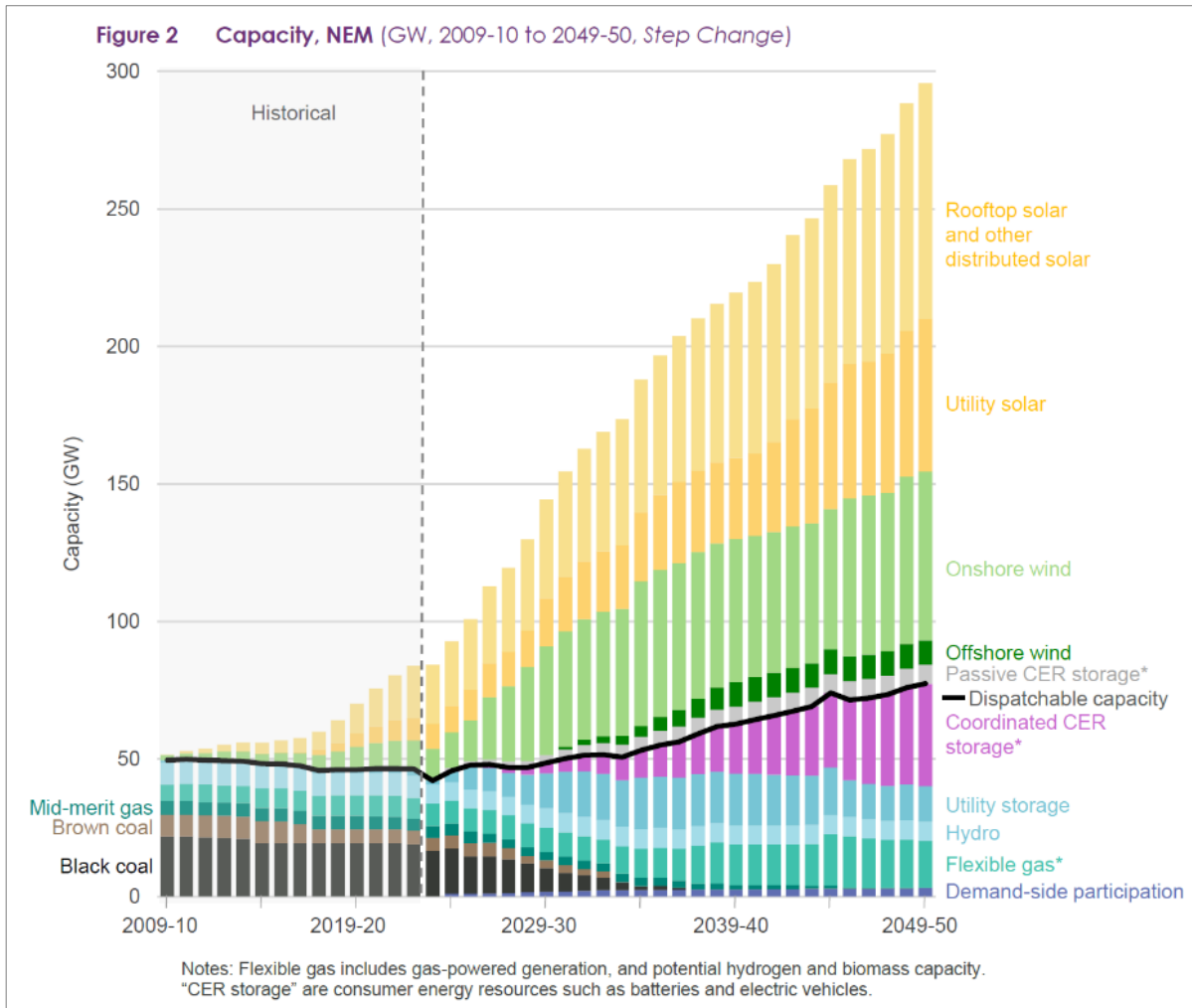


Figure 2 - Capacity, NEM, Draft 2024 ISP, December 2023

2.2 Location

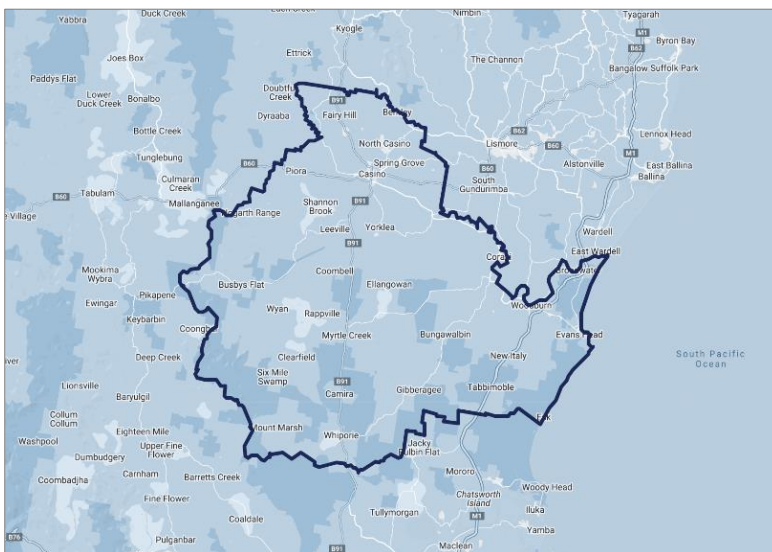


Figure 3 - Richmond Valley Council Local Government Area (LGA)

The Project area is in a rural part of the Northern Rivers region of NSW, within the Richmond Valley Council Local Government Area (LGA).

It is in the small locality of Myrtle Creek (post code 2469), with Rappville ~ 10 km west (post code 2469), Ellangowan ~16 km north-east (post code 2470), West Bungawalbin ~16 km east (post code 2471) and the nearest regional town centre of Casino ~30 km north (post code 2470).

Other regional centres are Grafton 66 km to the south and Lismore 40 km to the north-east.

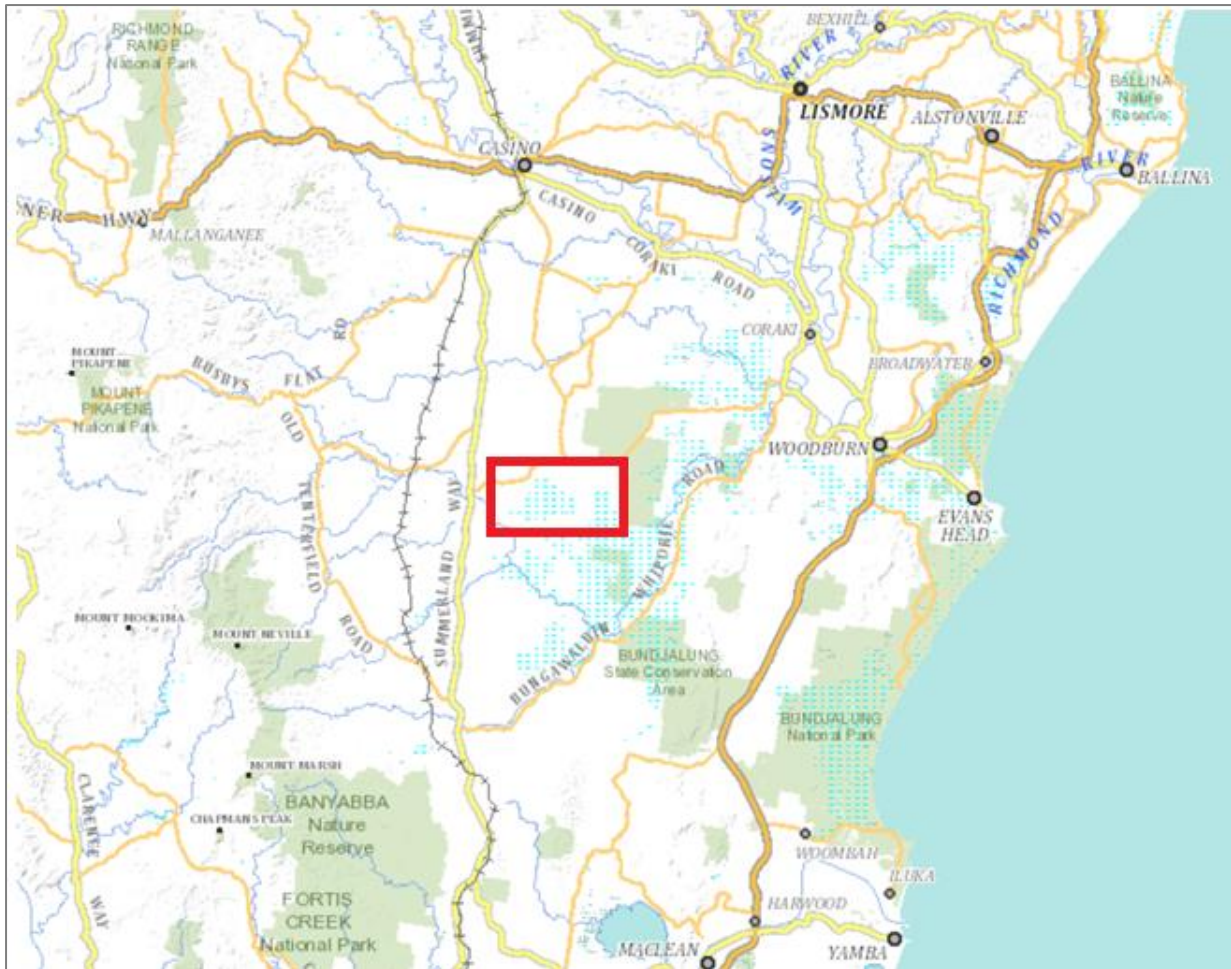


Figure 4 – Project location in region.

2.3 Description

The Project involves two host properties that span either side of Avenue Road. Land to the west of Avenue Road is used for cattle grazing and timber clearing (under a Property Vegetation Plan). Land to the east of Avenue Road was historically used for private native forestry and is now used primarily for cattle grazing.

The site is at an elevation of 1 to 88 m (above sea level) and topography generally slopes to the south-east towards Physics Creek with ridgelines to the southwest, west, north, and east.

Most of the proposed footprint involves remnant cleared agricultural land as 'Category 1 Exempt Land'. Habitat areas within the site are highly fragmented, however some connectivity remains in parts. There are some areas of dense vegetation along the boundaries where the host properties abut the Ellangowan State Forest to the north-west and Bungawalbin State Forest to the east. Densely vegetated areas will be avoided.

The site is well suited for solar energy generation. The solar resource is excellent, and the land is mostly cleared and relatively flat.

The Coffs Harbour – Lismore 330kV powerline intersects the north-west corner for a proximal cut-in location, and it is approximately 275 km via the M1 Pacific Motorway to the Port of Brisbane for delivery of large components, with transport access to the site proposed via Avenue Road.

The Project comprises of a utility-scale solar farm with an installed capacity of up to 500 MW DC and associated infrastructure and a Lithium-ion BESS that would be capable of providing a power capacity of up to 275 MW and energy storage of up to 2,200 MWh over eight hours.



Figure 5 – Aerial view of project area

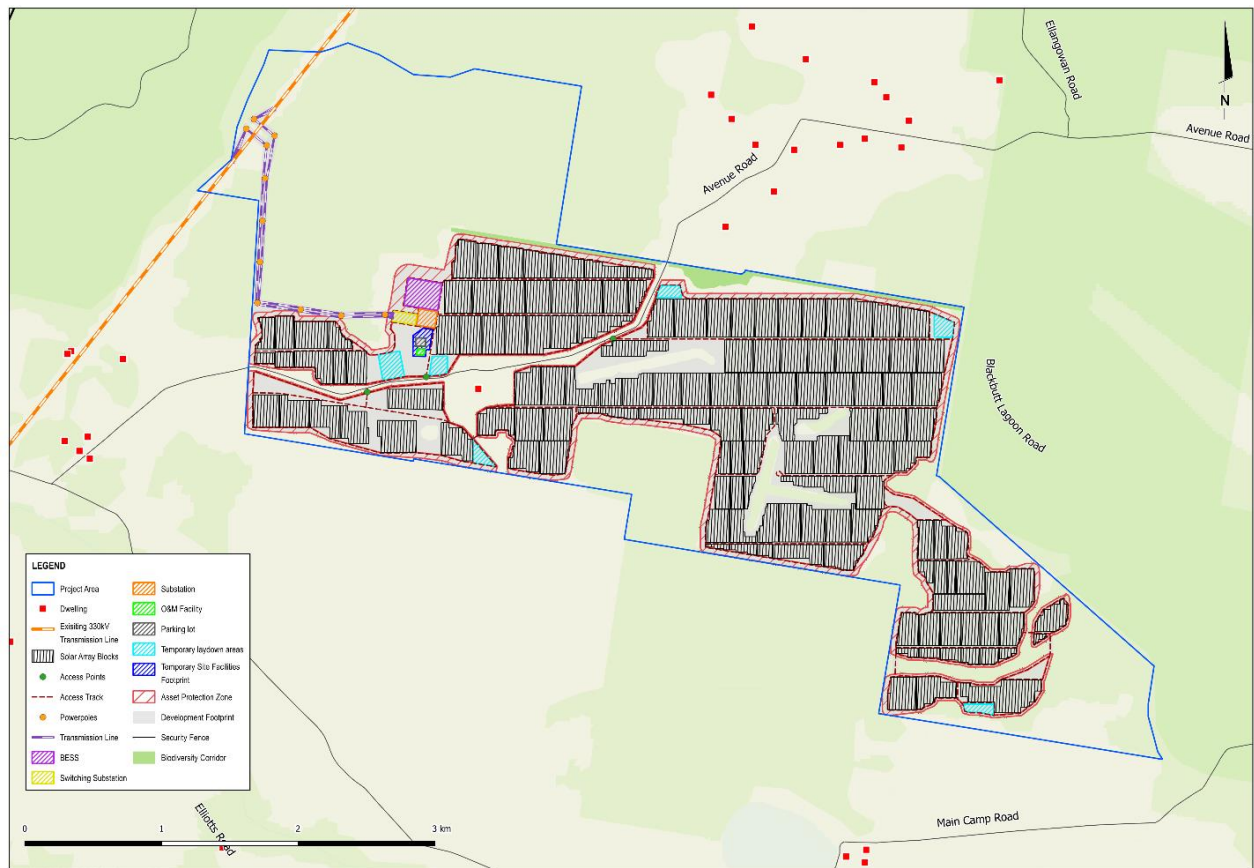


Figure 6 – Indicative project layout



Figure 7 – Photographs of the project area

The host properties encompass approximately 1,475 ha and the development footprint is currently estimated at ~ 803 ha, subject to final design. This comprises of ~ 542 ha for solar panels, 5 ha for the battery system and other areas for access tracks, asset protection zones, substation, laydown areas, operations and maintenance facilities, and additional transmission.

It is intended that any construction disturbance not required for operation will be rehabilitated. The operational footprint is yet to be determined.

The area has a low population density, with two clusters of houses in the vicinity, to the north and to the south-west. Both are rural residential in nature and located around Avenue Road.

2.4 Planning and Approvals

2.4.1 NSW State Significant Development

The Project is considered State Significant Development (SSD). In this case the development application and accompanying Environmental Impact Statement (EIS) will be assessed by the NSW Department of Planning, Housing and Infrastructure (DPHI).

Under the State Environmental Planning Policy (Major Projects) 2005 (SEPP) policy, Richmond Valley Solar Farm is determined SSD by meeting the criteria of *Development for the purpose of an electricity generation facility that: (a) has a capital investment value of more than \$30 million for...solar power generation...* under Section 24 Electricity generation.

The NSW planning and assessment process requires submission of a Scoping Report and request for Planning Secretary's Environmental Assessment Requirements (SEARs), which prescribe requirements for the EIS. Once the EIS has been lodged and formally accepted by DPHI, it is placed on public exhibition for submissions.

At the conclusion of the exhibition period, DPHI may require further information and/or a response to matters raised through a Submissions Report. Dependent on the number and type of submissions received, the project may be referred by the DPHI to the Independent Planning Commission (IPC) for determination. The IPC process involves a public hearing and a further public submission period. Where the IPC makes the final determination, it is binding, and no appeals process is applicable.

As the SSD requirements around Aboriginal cultural heritage are embedded in the approvals process, including through an Aboriginal Cultural Heritage Assessment Report (ACHAR), there is no requirement to apply for a separate Aboriginal Heritage Impact Permit (AHIP).

2.4.2 Commonwealth EPBC Act

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects matters of national environmental significance (MNES). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any MNES without approval from the Federal Environment Minister or the Minister's delegate.

To enable the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) to determine whether assessment and approval under the EPBC Act is required the proposed action was referred to DCCEEW in October 2023.

DCCEEW determined the Project to be a controlled action that will require approval under the EPBC Act. The assessment will be done by the DPHI under the bilateral agreement between the NSW and Commonwealth Governments.

2.4.3 Environment Protection Licence

Following issue of Development Consent, the project will be defined as a 'Scheduled Activity' under Section 17 (as 'electricity works') of Part 1 'Premise-based activities' to Schedule 1 of the *Protection of the Environment Operations Act 1997* (NSW) (POEO Act), and so require an Environmental Protection Licence (EPL). Development Consent must be held before an EPL application can be made.

The approval and regulatory authority for the EPL is the NSW Environment Protection Authority (EPA)

3 COMMUNITY CONTEXT

The Project area is in the Northern Rivers region of NSW, a rural area about 60 km inland in the north-east of NSW and part of the Richmond Valley Council LGA. In the ABS 2021 Census, the Richmond Valley LGA recorded a permanent population of 23,565. The area is known for its agricultural industries and associated food manufacturing, including beef and dairy production, sugar processing, grain, fruits, vegetables, tea tree, timber and the fishing industry. It also has a strong tourism industry and attracts visitors year-round.

The host properties are in the small locality of Myrtle Creek (pop. 92), with settlements of Rappville (pop. 142) ~ 10 km to the west, Ellangowan (pop. of 318) ~16 km to the north-east, West Bungawalbin (pop. 54) ~16 km to the east and the nearest regional town centre of Casino (pop. 10,930) ~30 km north. Other localities to consider are Whiporie (pop. 114) ~20 km to the south (via Summerland Way), Coraki (pop. 1,373) ~25 km north-east and Woodburn (pop. 743) ~25 km to the east.

3.1 Nearest Localities

3.1.1 Myrtle Creek

The Project area is within Myrtle Creek. In the 2021 ABS census Myrtle Creek had 27 private dwellings and a population of 92 with a median age of 60 years old. Myrtle Creek consists primarily of rural residential, agricultural and forestry land. Myrtle State Forest is ~6,020 ha and approximately 11 km south. This state forest has recorded koala populations.

There are several businesses within the Myrtle Creek locality, the largest being Main Camp Natural Extracts, which is located directly south of the site boundary. Historically this property has supported a diversity of industries including timber for ship building, sawing, and trading, and sheep and cattle farming. The use of the property as a tea tree plantation was established in the late 1980s and in 2010 it was acquired by the owners of Main Camp Natural Extracts.



Figure 8 – Main Camp Natural Extracts, Myrtle Creek

3.1.2 Rappville

Located ~10 km west by road from the Project area is Rappville. In the 2021 census Rappville had 35 private dwellings and a population of 142 with a median 49 years old.

European settlers who established the district where Rappville is situated used the surrounding resources for cattle grazing and forestry enterprises. These operations commenced in the 1840s with the addition of

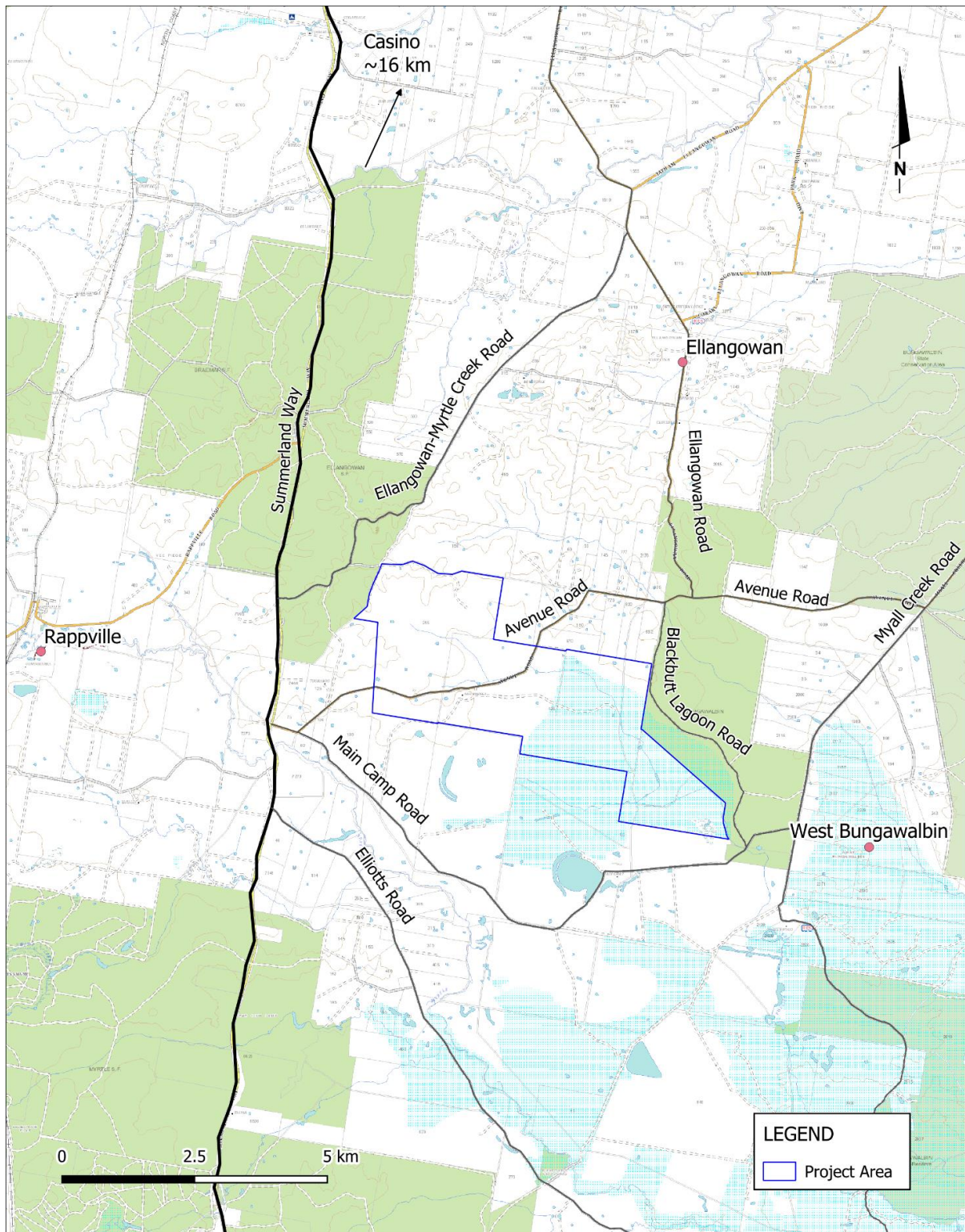


Figure 9 – Project area in locality

dairying in the 1860s. Products were initially transported via road and river until 1903 when the North Coast railway line reached Casino and Grafton. This link promoted the opening of a sawmill near the railway initially called Murray's Siding. With the growing timber harvesting, sawmilling and outbound timber industry a new settlement grew by 1910 containing various amenities such as a butcher, blacksmith, general store, school, church and bakery.

The area that includes Rappville lies in the traditional lands of the Aboriginal Bundjalung Nation.

In October 2019 the village was devastated by bushfire that started in Busbys Flat and burned through the residential area, leading to the loss of around 15 houses. It also destroyed a community hall and resulted in significant damage to the Sydney-Brisbane railway line, loss of local power and telecommunications infrastructure, and closure of road access in several places.

To the north of Rappville is Carwong State Forest which covers an area of about around 610 ha.

3.1.3 Ellangowan

Located ~16 km north-east of the Project area is Ellangowan. In the 2021 census Ellangowan had 80 private dwellings and a population of 318 with a median age of 47 years old.

Ellangowan consists primarily of rural residential, agricultural and forestry land. Ellangowan State Forest borders the west of the suburb and Bungawalbin State Conservation Area borders the east. Bungawalbin State Conservation Area (created in January 2003) is adjacent to Bungawalbin National Park (created in January 1999) which covers an area of 3,730 ha.

In 2014 a local primary school at 1820 Ellangowan Rd, Ellangowan was closed. At the time it had three students.

3.1.4 West Bungawalbin

Located ~16 km east of the Project area is West Bungawalbin. In the 2021 census West Bungawalbin had 6 private dwellings and a population of 54 with a median age of 49 years old.

The locality is highly vegetated with Bungawalbin Nature Reserve (created in February 1977) to the south covering 467 ha. The eastern border of the site boundary is directly adjacent to Bungawalbin State Forest which acts as a wildlife corridor between Bungawalbin Nature Reserve, Bungawalbin National Park and Bungawalbin State Conservation Area.

3.1.5 Casino

Located ~30 km north of the Project area is the city town of Casino. In the 2021 census Casino had 2,790 private dwellings and a population of 10,930 with a median age of 43 years old.

Casino was founded in 1840 as a cattle station named Cassino after Monte Cassino in Italy. The town represents the centre of the Richmond Valley Region and is the primary hub for Richmond Valley Council. It is a thriving rural centre which relies heavily on the region's cattle and local timber industries and is known as 'The Beef Capital of the World'. The Northern Rivers Livestock Exchange is the largest saleyard in northern New South Wales.

Casino would be a source of goods, services, and accommodation. The Summerland Way Expressway (B91), which passes through town, is anticipated to form part of the delivery route.

3.2 First Nations

The people of the Bundjalung Nation are recognised as the Traditional Custodians of the Project area. The Bundjalung Nation is understood to be a large language group (within which were smaller language groups) that stretched from Clarence River in the South to the Albert River region of Queensland, and from Great Dividing Ranges in the West across to the coast on the East.

Marjorie Oakes, a prolific recorder of Bundjalung historical resources, defined 10 sub-groups of the Bundjalung Nation and today there is thought to be up to 20 groups.

Linguistic studies indicate that the Project area is affiliated with Birhim (alternative spelling Birhimbai) people of the Bundjalung Nation, however, anthropologists understand that boundaries between groups

remain 'undefined' and that different groups will often express collective right to speak about different sites and objects across Bundjalung Country.

Indigenous stakeholders are key to consider for socio-economic impacts and benefits, and will be consulted and involved in the Project through specific and tailored engagement mechanisms.

3.3 Observations

There are two main clusters of houses in the vicinity of the Project area, one to the north and one to the west. Both are located around Avenue Road. Surrounding properties include rural residential, small-scale agriculture and forestry.

The residential population in the local area appears to include a mix of single occupants, couples and family households spanning multiple generations. Levels of interpersonal interaction in the community vary and many share information through informal familial and community networks.

Permanent residents have lived in the area from a few years to multiple decades. Most appear to place strong value on the local area and features and are well informed about the locality and its history. They are likely to have a high level of interest in the Project and its potential impacts on the local area.

Many residents in the local area are engaged in full-time work or school and thus may be time-poor, and internet connectivity in the region appears to be somewhat unreliable. This necessitates provision of information and engagement mechanisms that are easily accessible and do not require internet access. Options include local in-person meetings, postal mail, providing direct access to project team members and using optimal venues/locations/formats for local info sessions. There appears to be relatively low levels of cultural, linguistic and ethnic diversity, thus less requirement for engagement mechanisms to address this.

Severe weather events including bushfires and floods have significantly impacted many community members (eg <https://richmondvalley.nsw.gov.au/business/economic-development/rebuilding-the-richmond-valley-councils-plan-to-help-communities-heal/>). This elevates the importance of clear communication around fire/flood risk, mitigation and management, emergency preparedness, and presents the opportunity to improve local capabilities in this area for the benefit of the community.

Most local community members have little or no direct knowledge or experience of renewable energy generation infrastructure, thus may have concerns about what is proposed and find it difficult to trust information from proponents.

3.3.1 Ecological considerations

Areas around the Project area contain several state forests, natural reserves and conservation areas including Myrtle State Forest, Bungawalbin Nature Reserve to the south, Ellangowan State Forest to the west and Bungawalbin State Conservation Area to the east.

Species of note reported to reside in the region include Koalas (*Phascolarctos cinereus*) and Coastal Emu (*Dromaius novaehollandia*).

Many community members feel a strong connection to the local wildlife and natural environment.

4 STAKEHOLDERS

Ark Energy considers a stakeholder to be any person or group that is affected by or interested in the Project.

The following identified stakeholders are relevant to the Project and anticipated to have an interest.

It is expected that more stakeholders will be identified as the Project progresses.

4.1 Community

A community member can be considered to be any person with a connection to areas around the Project site. They may live, work, have family or business interests in the local area.

Landowners and neighbours

- Involved landholders hosting infrastructure and easements
- Owners of adjoining (neighbouring) and nearby properties
- Residents and property owners along the access / transportation route

Residents and local communities

- Myrtle Creek – pop. 92
- Rappville – pop. 142
- Ellangowan – pop. 318
- West Bungawalbin – pop. 54
- Casino – pop. 10,930
- Whiporie – pop. 114
- Coraki – pop. 1,373
- Woodburn – pop. 743

Traditional Owners

- Bundjalung Peoples, represented by the Bogal Local Aboriginal Land Council (Bogal LALC) and Bandjalung Aboriginal Corporation.
- Casino Boolangle Local Aboriginal Land Council

Local Government – including elected councillors and executive leadership

- Richmond Valley Council – host council
- Lismore City Council – adjacent LGA
- Clarence Valley Council – adjacent LGA
- Kyogle Council – adjacent LGA
- Ballina Shire Council – adjacent LGA

Elected government representatives

- Hon Kevin Hogan MP (NP), Federal Member for Page
- Mr. (Richie) Richard Williamson MP (NP), NSW Member for Clarence

Local organisations and networks

- Community groups e.g.
 - Mid-Richmond Neighbourhood Centre (MRNC) Groups
 - Rotary Club of Casino
 - Casino Community Garden
 - Casino Community Men's Shed
 - Lions Club (Casino)
 - Country Women's Association (CWA)
 - Legacy (Casino Division).
- Chambers of commerce and business networks e.g.
 - Casino Chamber of Commerce and Industry
 - Woodburn Business & Community Chamber Inc.
 - Evans Head Business and Community Chamber
- Conservation groups e.g.
 - Border Ranges-Richmond Valley Landcare Network
 - NSW Wildlife Information Rescue and Education Service (WIRES)
- Schools e.g.
 - Rappville Public (Primary) School

Media

- *The Northern Rivers Times*
- *Lismore City News*
- *Northern Star (Lismore)*
- Richmond Valley Notice Board (Facebook)
- ABC Radio
- Richmond Valley Radio 88.9FM
- Mainstream – print, digital, radio, television
- Industry / specialist

4.2 Other Stakeholders

Other stakeholders with interest in the Project include but are not limited to.

Government – determining authorities

- Australian Government Department of Climate Change, Energy, the Environment and Water, Nature Positive Regulation Division and Minister for the Environment and Water
- NSW Department of Planning, Housing and Infrastructure (DPHI)
- NSW Environment Protection Authority (EPA)

Government – departments, agencies, corporations

- Airservices Australia
- Australian Energy Market Operator (AEMO)
- AEMO Services
- Aboriginal Affairs NSW
- Australian Energy Infrastructure Commissioner
- Civil Aviation Safety Authority
- NSW National Parks and Wildlife Service (NPWS)
- NSW Department of Planning and Environment – Crown Lands
- NSW Department of Planning and Environment – Heritage NSW
- NSW Department of Primary Industries – Agriculture
- NSW Department of Primary Industries – Fisheries
- NSW Department of Regional NSW
- Regional Development Australia
- TransGrid
- Transport for NSW

Non-government organisations

- Environment/conservation organisations, eg
 - NSW Conservation Council
- Agricultural industry representative organisations eg
 - National Farmers Federation
 - NSW Farmers Association
- Community advocacy organisations eg
 - RE Alliance
- National peak industry organisations eg:
 - Clean Energy Council (CEC)

Industry / national media

4.3 Potential Concerns

Nearby residents and community members may have concerns about the impacts of the development on their personal interests and community, and changes to the use of local land and natural resources.

The NSW SIA Guideline (DPE 2023) suggests the following categories to identify social impacts: way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods and decision-making systems.

Engagement will prioritise matters of concern, and community sentiment will be monitored to identify these as they emerge. Based on Ark Energy's experience these may include the following:

Issue	Key stakeholders	Potential concerns	NSW SIA Guideline categories
Location	Landowners Neighbours Community members Council	Changes to landscape, amenity Disruption to operations / activities	Way of life Community Culture Surroundings Livelihoods
Timing and preparedness	Landowners Neighbours Community members Council Local businesses	Changes to landscape and amenity Disruption to operations / activities Opportunities for input / involvement	Way of life Community Accessibility Livelihoods
Procedural fairness	Landowners Neighbours Community members Council	Opportunities for input / involvement	Decision-making systems
Visual impacts	Landowners Neighbours	Uncertainty Changes to landscape and amenity	Community Surroundings
Noise (construction)	Landowners Neighbours Community members	Uncertainty Audibility and annoyance	Community Health and wellbeing Surroundings
Health	Neighbours Community members	Stress Component chemicals Pollution	Way of life Community Health and wellbeing Surroundings
Community benefits	Neighbours Community members	Inequitable / fair benefit sharing Personal benefits	Community Accessibility Livelihoods Decision-making systems
Traffic and transport	Landowners Neighbours Those along traffic routes Elected representatives Local councillors Community members	Legacy issues Insufficient information Uncertainty Audibility and annoyance Dust Delays / disruption to operations / activities Opportunities for input / involvement	Way of life Community Accessibility Decision-making systems

Issue	Key stakeholders	Potential concerns	NSW SIA Guideline categories
Disruption to agricultural operations	Landowners and employees Neighbours Community members Elected representatives	Uncertainty Disruption – operations / daily activities Opportunities for input / involvement	Way of life Community Accessibility Health and wellbeing Decision-making systems Livelihoods
Ecology / biodiversity	Elected representatives NGO enviro organisations Community groups Community members Traditional Owners	Uncertainty Insufficient information Clearing of habitat Proximity to national parks Impacts on biodiversity Impacts for key species (MNES) Impact on Totemic species Soil contamination Rigour of assessment regime Management and mitigation plans	Culture Decision-making systems Surroundings
Bushfire	Landowners Neighbours Council Rural Fire Service Community members	Legacy issues Insufficient information Changes to fire risk Access for firefighting Safeguards and management plans	Accessibility Health and wellbeing Decision-making systems Livelihoods
Construction – employment / contracts	Council Community members	Local opportunities Accommodation availability Pressure on rental prices Behaviour	Way of life Community Accessibility Livelihoods
Property values	Neighbours	Negative impacts	Way of life Community Livelihoods
Cumulative impacts	Neighbours Council Community members	Uncertainty Rigour of assessment regime Management and mitigation plans	Way of life Community Surroundings Livelihoods
End of operations	Landowners Council Community members	Decommissioning plans and costs Recyclability of materials Waste management	Way of life Community Surroundings

4.4 Risks

Potential risks to effective engagement and proposed control measures are listed below. In Ark Energy's experience risks are often interrelated and have a causative effect on others, therefore the same control measures can mitigate multiple risks.

Risk	Potential consequences	Control measures
Inadequate engagement	Lack of awareness / understanding Insufficient opportunity for stakeholders to provide input Misinformation / disinformation Complaints Opposition Process delays	Engagement planning, preparation and implementation as per the CSEP, including: Accessible project team and information Feedback mechanisms and monitoring of community sentiment Ongoing, regular, timely stakeholder engagement Regular information sessions and newsletters
Inadequate consideration of stakeholder / community concerns	Mistrust Misinformation / disinformation Complaints Opposition Process delays	Accessible project team and information Feedback mechanisms and monitoring of community sentiment Ongoing, regular, timely stakeholder engagement Clear communication of identified concerns and how they have been considered / addressed Prompt and fulsome responses to enquiries. Accurate record keeping
Uncertainty / confusion Lack of awareness / understanding	Mistrust Concern Misinformation / disinformation Opposition	Accessible project team and information Ongoing regular, timely stakeholder engagement Easily accessible information Regular information sessions and newsletters Clear communication of identified concerns and how they have been considered / addressed Clear communication about process and opportunities for input. Effective distribution of information materials Prompt and fulsome responses to enquiries.
Internet connectivity	Uncertainty / confusion Lack of awareness / understanding Insufficient information / opportunity to provide input	Use of verbal / offline / printed information, engagement and feedback channels including: Regular information sessions Printed and email newsletters / feedback forms. Effective distribution of information materials
Misinformation / disinformation	Mistrust Uncertainty / confusion	Accessible project team and information

Risk	Potential consequences	Control measures
	Lack of awareness / understanding Concern Complaints Opposition	Feedback mechanisms and monitoring of community sentiment Ongoing, regular, timely stakeholder engagement Regular information sessions and newsletters Clear communication in community materials and reports of identified concerns and how they have been considered / addressed Clear communication about process and opportunities for input. Easily accessible information Effective distribution of information materials Prompt and fulsome responses to enquiries.
Expectation of influence	Mistrust Uncertainty / confusion Lack of awareness / understanding Concern Complaints Opposition	Clear communication about process and opportunities for input.
Process delays	Uncertainty / confusion Concern	Clear communication about timeline and influences.
Organised opponents or opposition groups / campaigns	Misinformation / disinformation Uncertainty / confusion Concern Complaints Process delays	Accessible project team and information Ongoing regular, timely engagement Regular information sessions and newsletters Clear communication in community materials of identified concerns and how they have been considered / addressed Easily accessible information Effective distribution of information materials Prompt and fulsome responses to enquiries.

5 ENGAGEMENT APPROACH

Ark Energy understands the importance and benefits to all parties of effective engagement and consultation, and that stakeholders will focus on the Project team's efforts to build social equity, show integrity, earn credibility and the Project's commitments to share benefits.

The Australian Clean Energy Council states:

"Positive community engagement is vital for the success of any project. Developers who invest time and effort to build relationships with their communities based on trust and respect are those that are most likely to be embraced by their communities."

Ongoing, regular, genuine, proactive, timely and inclusive engagement reflects best practice and helps to reduce uncertainty, manage issues, mitigate risks and optimise outcomes.

The Project team will engage widely, address concerns in a timely and professional manner, clearly communicate opportunities for input and how that input has been considered.

The approach will be tailored to context and responsive to stakeholder understanding, views and preferred ways of being engaged.

Community engagement will be focused on opportunities for interested community members and other local stakeholders to participate, and maximising opportunities for the local/regional community to benefit from the Project in meaningful ways.

Engagement will seek to achieve these goals by:

- Ensuring relevant community members and stakeholders are identified and well informed.
- Identifying community concerns, priorities and aspirations for the Project.
- Enabling interested community members and stakeholders to participate in the decision-making process.
- Minimising adverse impacts from the Project on community members and other local stakeholders.
- Maximising meaningful local / regional community benefits.

As the Project progresses where practicable input from the community and local stakeholders will be incorporated into decision-making to improve Project outcomes and maximise community benefits.

5.1 IAP2

Ark Energy's approach to engagement is guided by the International Association for Public Participation's (IAP2) Core Values, Code of Ethics and Public Participation Spectrum.

The IAP2's Seven Core Values for Public Participation define the expectations and aspirations of the public participation process, and state that public participation:

1. Is based on the belief that those who are affected by a decision have a right to be involved in the decision-making process.
2. Includes the promise that the public's contribution will influence the decision.
3. Promotes sustainable decisions by recognising and communicating the needs and interests of all participants, including decision-makers.
4. Seeks out and facilitates the involvement of those potentially affected by or interested in a decision.
5. Seeks input from participants in designing how they participate.
6. Provides participants with the information they need to participate in a meaningful way.

7. Public participation communicates to participants how their input impacted or changed the decision.

This approach centres on achieving good community-based outcomes and can be described as genuine, timely, relevant, transparent and inclusive.

The IAP2 Public Participation Spectrum provides a framework for considering the practicable level of public participation in decision-making at any given point in the process:

- Inform – to provide balanced and objective information to assist with understanding.
- Consult – to inform and obtain feedback on alternatives or decisions.
- Involve – to work with stakeholders to ensure concerns are considered and reflected in the decision.
- Collaborate – to work with stakeholders to develop alternatives and identify the preferred solution.
- Empower – to place final decision-making in the hands of stakeholders.

Ark Energy commits to **inform** all stakeholders and **consult** relevant and impacted stakeholders on decisions where there are alternatives. Ark Energy will seek also to escalate the level of stakeholder participation to **involve** and **collaborate** where possible. Examples of where this may be possible are in the design of management plans, and community benefit initiatives.

5.2 Best Practice Charter

Ark Energy is a signatory to the Clean Energy Council's (CEC) *Best Practice Charter for Renewable Energy Projects*, a set of voluntary commitments to engage respectfully with communities, be sensitive to environmental and cultural values, and make a positive contribution to the regions in which we operate. The commitments are:

1. We will engage respectfully with the local community, including Traditional Owners of the land, to seek their views and input before submitting a development application and finalising the design of the project.
2. We will provide timely information and be accessible and responsive in addressing the local community's feedback and concerns throughout the lifetime of the project.
3. We will be sensitive to areas of high biodiversity, cultural and landscape value in the design and operation of projects.
4. We will minimise the impacts on highly productive agricultural land and explore opportunities to integrate agricultural production.
5. We will consult the community on the potential visual, noise, traffic and other impacts of the project, and on the mitigation options.
6. We will support the local economy by providing local employment and procurement opportunities.
7. We will offer communities the opportunity to share in the benefits of the project, and consult them on the options available, including the relevant governance arrangements.
8. We commit to using the project to support educational and tourism opportunities where appropriate.
9. We will demonstrate responsible land stewardship over the life of the project and welcome opportunities to enhance the ecological, cultural and /or agricultural value of the land.
10. During the life of the project, we will recycle waste materials where feasible and commit to responsible decommissioning or refurbishment/repowering of the site at the end of the project's life.

5.3 Social Licence

Ark Energy appreciates the concept of social licence is an important consideration for the renewable energy industry's proponents, approval authorities and local communities.

Having or achieving social licence can be considered to mean a local host community is generally accepting of a project. Engagement will aim to achieve social licence, based on the accepted industry definition:

"A level of acceptance or approval continually granted to an organisation's operations or project by the local community." (Boutilier, R. G., and Thomson, I., 2011 [Modelling and Measuring the SLO.pdf](#) [sociallicense.com]).

5.4 Industry Guidelines

The NSW Government's *Social Impact Assessment Guideline* (DPE 2023) *Appendix A – Community engagement* notes that respectful, inclusive, and meaningful engagement is a fundamental part of an SIA and provides first-hand insights into what people value and how they expect a project to affect them.

It outlines the following objectives to guide engagement activities:

- Ensure people likely to be affected are identified and informed to understand how the project may affect them.
- Collect data, evidence and insights to maximise diversity and representation of views.
- Understand the interests people have in the project and how impacts may be experienced from their perspective.
- Consider the views of people in a meaningful way and use these insights to inform project planning and design, mitigation and enhancement measures, and monitoring and management frameworks.
- Provide opportunities for people to collaborate on project design matters and input in to preferred solutions.
- Confirm data, assumptions, findings, and recommendations.
- Ensure people know how their input has been considered and show what measures will be put in place to address concerns.
- Help people understand how other specialist studies prepared for the EIS and proposed mitigation measures address social impacts.
- Respect people's privacy, allowing them to communicate their views anonymously.
- Continue engagement throughout the project to monitor experiences of social impacts and respond as necessary.

Ark Energy is also informed by other guidance published for the Australian context, including:

- *Leading Practice Principles: First Nations and Renewable Energy Projects* (CEC, KPMG 2023)
- *Building Stronger Communities – How community benefit funds from renewable energy projects support local outcomes* (RE Alliance, December 2023).
- *Better Practice Social Licence Guideline* (The Energy Charter, May 2023)
- *Draft Regional Energy Transformation Partnerships Framework* (Queensland Government 2022)
- *Guidelines for Community Engagement, Benefit Sharing and Local Procurement* and associated technical supplements (Renewables, Climate and Future Industries Tasmania 2022).
- *Electricity Infrastructure Roadmap, First Nations Guidelines* (NSW Government 2022)
- *Landholder & Community Better Practice Engagement Guide* (The Energy Charter, Sept 2021)

- *Community Engagement and Benefit Sharing in Renewable Energy Development in Victoria* (DELWP 2021).
- *Industry Guideline for Community Engagement* (SAEPA 2021)
- *A Guide to Benefit Sharing Options for Renewable Energy Projects* (CEC 2019).
- *Community Engagement Guidelines for the Australian Wind Industry* (CEC, 2018)
- *Best Practice Guidelines for Implementation of Wind Energy Projects in Australia* (CEC, 2018).
- *Community Engagement Guidelines for Building Powerlines for Renewable Energy Developments* (CEC, 2018).
- *Enhancing Positive Social Outcomes from Wind Farm Development* and associated briefing papers (CEC 2018).
- *Community Engagement and Benefit Sharing in Renewable Energy Development* (DEWLP 2017)
- The Australian Energy Infrastructure Commissioner's Observations and Recommendations for Community Engagement.
- The Australian Energy Market Commission's community engagement rules for major transmission projects and *National Electricity Amendment (Enhancing community engagement in transmission building) Rule 2023 No. 5*.

Ark Energy also anticipates further guidance under development in the following:

- First Nations Clean Energy Strategy, under development by the Australian Government, First Nations Energy Network and the National Indigenous Australians Agency.
- Queensland Department of Energy and Public Works' final Regional Energy Transformation / Local Energy Partnerships Framework and requirements under revised State Code 23: Wind Farm Development
- NSW Government's Energy Policy Framework and associated guidelines including for transmission, solar energy, benefit sharing and private agreements.

5.5 Principles

In undertaking engagement Ark Energy observes the principles of the IAP2's Code of Ethics and the CEC's Community Engagement Guidelines.

5.5.1 IAP2 Code of Ethics

IAP2's Code of Ethics provides a guiding set of principles for public participation. They are:

1. Purpose – to make better decisions that incorporate interests of all parties.
2. Role of practitioner – to enhance participation in the process.
3. Trust – to build trust and credibility in the process.
4. Defining the public's role – to accurately portray the public's role in the process.
5. Openness – to encourage disclosure of relevant information for decision-making.
6. Access to the process – to ensure stakeholders have opportunity to influence decisions.
7. Respect for communities – to avoid strategies that risk causing conflict in communities.
8. Advocacy – to advocate objectively for genuine participation in the process.
9. Commitments – to ensure all commitments are made in good faith.
10. Support of the practice – to educate about the value and encourage public participation.

5.5.2 CEC Community Engagement Guidelines

The four key principles identified in the CEC's Community Engagement Guidelines are:

5.5.2.1 *Openness*

This means sharing relevant information about decisions and activities in a way that is:

- Clear, so any person can understand it.
- Accurate, so it is consistent and complete.
- Timely, so it is available when requested and can be used to make decisions.
- Honest, so information is available to avoid misleading assumptions.

An open approach enables the community to have a better understanding of the Project, reduces uncertainty and enables Ark Energy to build greater rapport and trust. (Note, this does not affect Ark Energy's right to maintain confidential and private information that might otherwise negatively impact its interests.)

5.5.2.2 *Inclusiveness*

This involves identifying and interacting with all stakeholders to ensure their perspectives are understood and taken into consideration. This means that all relevant groups who are potentially affected by the Project, not only the most visible ones or those who engage, have the opportunity to communicate their opinions, expectations, needs and concerns.

An inclusive approach also means providing the appropriate channels and opportunities to participate in activities related to the Project and the decision-making processes, as relevant to each phase of the Project's lifecycle. It enables Ark Energy to:

- Gain a better understanding of sentiment, thereby facilitate better informed decisions.
- Review performance for continuous improvement.
- Reduce the risk of conflict between Ark Energy and stakeholders, and within communities.
- Produce mutually beneficial partnerships.
- Increase the legitimacy and acceptability of decisions through community involvement.

5.5.2.3 *Responsiveness*

This involves listening and responding to concerns and needs, respecting that every individual has the right to ask reasonable questions about the Project and expect a response.

A responsive approach is particularly important for complaints management. It involves providing mechanisms to collect questions and provide answers in an open and timely manner, and inform individuals about the status of their queries, for example by either one-on-one interactions or public meetings.

Responses should be factual, reflect independent information and involve third parties where relevant. Where Ark Energy does not have the answer, it will provide an explanation to that effect and make an effort to obtain the relevant information.

A responsive approach helps to:

- Better understand communities.
- Identify elements of the Project that might need more proactive explanations.
- Recognise and respond to opportunities (e.g., sponsorship of local events, partnerships with local businesses, etc).
- Address risk issues early or in advance.

5.5.2.4 *Accountability*

This involves the ongoing process of monitoring, evaluating and disclosing information about activities, and the positive and negative impacts.

Accountability means establishing systems to track and communicate decisions, policies, activities and performance over time in a balanced, comparable, reliable, accurate and clear manner, and being proactive to prevent possible risks and mitigate potential negative impacts as consequences of decisions made and activities implemented.

This approach enables Ark Energy to continually analyse and improve its engagement performance, create a better understanding and reduce uncertainty of the Project within the community. Managing uncertainty is a key element for risk and reputation management.

5.5.3 NSW SIA Guidelines

The NSW SIA Guidelines provide more specific and detailed principles for engagement in the renewable energy project development context. They are adapted from Vanclay F. 2003. 'International principles for social impact assessment', *Impact Assessment and Project Appraisal* and Vanclay F. et al. 2015. *Social impact assessment: Guidance for assessing and managing the social impacts of projects*, International Association for Impact Assessment. They are as follows:

Figure 10 – NSW SIA Guidelines principles

5.6 Ark Energy's Goals and Commitments

Ark Energy's own goals and commitments for engagement are aligned to the principles outlined by the IAP2's Code of Ethics, the CEC's Community Engagement Guidelines and the NSW SIA Guidelines.

Engagement goals:

- Ensure community members and other stakeholders are well informed and kept up to date on project status and developments.
- Obtain feedback and provide ample opportunities for community members and other stakeholders to communicate their views, concerns and aspirations for the project.
- Address any issues or concerns promptly.

Principles	Description
Action-oriented	Defines specific actions to deliver practical, achievable and effective outcomes for people.
Adaptive	Establishes systems to respond to new or different circumstances to support continuous improvement.
Culturally responsive	Develops culturally informed approaches and methodologies to ensure Aboriginal and culturally diverse communities are engaged appropriately, and their perspectives, insights and feedback are valued.
Distributive equity	Considers how different groups will experience social impacts differently (particularly vulnerable and marginalised groups, future generations compared with current generations, and differences by gender, age and cultural group).
Impartial	Uses fair, unbiased research methods and follows relevant ethical standards.
Inclusive	Seeks to hear, understand, respect and document the perspectives of all likely affected people. Uses respectful, meaningful and effective engagement activities tailored to the needs of those being engaged (e.g. being culturally sensitive and accessible).
Integrated	Uses and references relevant information and analysis from other assessments to avoid duplication. Supports effective integration of social, economic and environmental considerations in decision-making.
Life-cycle focus	Seeks to understand likely impacts (including cumulative impacts) at all project stages, from pre-construction to post-closure/operation commencement.
Material	Identifies which likely social impacts matter the most for people and/or pose the greatest risk/opportunity to those expected to be affected.
Precautionary	If there are risks of serious or irreversible environmental damage (including harm to people), avoids using any limits on full scientific certainty as a reason for postponing measures to prevent environmental (including social) degradation.
Proportionate	Ensures the scope and scale of the SIA corresponds to the scope and scale of the likely social impacts.
Rigorous	Uses appropriate, accepted social science methods and robust evidence from authoritative and trustworthy sources.
Transparent	Explains, justifies and makes available information, methods and assumptions so that people can see how their input has been considered.

- Work to avoid and minimise the impacts and maximise the benefits of the project for the local community.
- Wherever possible utilise input from community members and other stakeholders to optimise the design of the project.

Engagement commitments:

- Be proactive – connect early in the process and regularly share information so community members and other stakeholders know what is happening and how to interact with the project team and provide feedback on the project.

- Be transparent – be honest and ethical in our dealings with all.
- Seek solutions – engage to understand, explore and collaborate on ways to avoid and minimise impacts and maximise the benefits of the project.
- Be flexible and inclusive – ensure that our engagement provides opportunities for all interested community members to have access to information and project personnel.
- Continually improve – evaluate the effectiveness of engagement and iteratively adapt the approach and activities as required.

Ark Energy also takes a social and ecological net-gain approach to development.

To achieve this, it commits to:

- Iterate the design to avoid and minimise negative impacts to the maximum extent achievable.
- Consult widely – with landowners, ecology stakeholders, First Nations peoples and other local knowledge holders – to collaborate on solutions.
- Find workable compromises with meaningful benefit.
- Invest and collaborate on strategies and commitments for environmental repair such as rehabilitation.
- Develop strategic environmental offsets with tailored management regimes (weed, fire, pests) to improve habitat.
- Maximise opportunities for local and in-region procurement, investment and benefits.

5.7 Priorities

Ark Energy is guided by the priorities set out by the CEC for each phase as outlined below.

5.7.1 Site Selection

Priorities: Understand the social context around the site, map and profile key stakeholders and community concerns. This involves:

- Initial engagement with key stakeholders including landowners (for infrastructure) and neighbours, Traditional Owners, the local council and planning authorities.
- Introducing the Project to key stakeholders, explaining it is at an early stage and of opportunities for input and potential benefits.
- Provide key stakeholders with clear and timely information on the status of the Project and consult them on issues that might be of interest or relevant to them.

5.7.2 Feasibility

Priorities: Prepare a detailed engagement plan, introduce the project to the broader local community and establish two-way communication channels, document interactions, and where practicable factor community input into the decision-making process. This involves:

- Setting up a dedicated project information website and contact details.
- Providing ongoing and multiple channels for feedback.
- Developing a deeper understanding of the expectations and concerns in the community.

- Continuing to provide clear and timely information, and consulting and reporting on issues of interest.

5.7.3 Planning and Approval

Priorities: Create opportunities for input by maintaining and expanding communication channels, establishing mechanisms to gather and respond to feedback, and keeping stakeholders up to date with planning and submission. This involves:

- Creating more opportunities for interactions and feedback.
- Continuing to provide clear and timely information, and consulting and reporting on issues of interest.
- Open and proactive dialogue to address any questions via various methods and tools.

5.8 Personnel

Key personnel responsible for the Project's engagement.

Role	Core responsibilities
General Manager Development (NSW)	Strategic planning Landowner liaison Government relations Stakeholder relations Traditional Owner engagement Community engagement Support – complaints management
Communications & Engagement Team	Strategic planning Government relations Stakeholder relations Traditional Owner engagement Community engagement Support – Complaints management Media relations Newsletters Information materials Website
Richmond Valley Solar Farm Project Team: Project Director, Project Manager, Project Officer	Landowner liaison Government relations Stakeholder relations Community engagement Complaints management
Specialist Consultants	Government relations Stakeholder relations Community engagement

All senior members of the Project team are trained in IAP2, and all members of the Project team are responsible for implementing a high standard of engagement.

Ark Energy also recognises the important role of technical specialists, and the value of involving other internal and independent external specialists, in engagement as part of a wider Project team.

Where practicable and relevant Ark Energy involves specialist consultants in engagement with stakeholders, Traditional Owners, and the community about relevant survey and assessment work. This might include briefings and community information sessions.

6 ENGAGEMENT METHODS

A variety of channels and methods will be utilised for informing and consulting stakeholders including the following.

6.1 Key Messages

Key messages will be carefully developed to ensure information in external communications is clear, consistent and easy to understand in relation to:

- The Project – technical information, description and associated benefits.
- Ark Energy – the company, credentials, experience, portfolio.
- The process – impact assessment, decision-makers and opportunities for participation.
- Topics of interest and potential concern.

6.2 Dedicated Enquiry Channels

A dedicated email address info@richmondvalleysolar.com.au, and 1800 number will be established for general enquiries and divert directly to members of the Project team.

The Project's community engagement team will endeavour to respond directly to enquiries within 48 hours of receipt.

6.3 Direct Correspondence

The Project team will maintain direct and regular correspondence with key stakeholders via telephone and email.

6.4 Project Website

A Project website will be established with the web address richmondvalleysolar.com.au. It will be promoted through all communication materials, and managed internally by Ark Energy's communications team, so content can be updated frequently and quickly, to accurately reflect latest status. It will provide:

- Project overview
- Location and site layout maps
- Online feedback form
- Newsletter archives
- Project team contact details
- Prompts to register for newsletters

6.5 Newsletters

Newsletters will be produced in both print and digital format and people will have the option to receive them by post or email. Newsletters will be issued every few months and / or at key points in the process with content designed to:

- Explain the latest project activities
- Provide the latest site layout map
- Provide key facts about the project
- Explain the steps and project status in the development process
- Highlight opportunities to provide input including information sessions when these are scheduled
- Address identified concerns
- Provide references and links to sources of further information.
- Reflect how stakeholder input has influenced decision-making
- Promote the website address and project contact details

Newsletters will be distributed directly to individuals who have opted in to receive them via post or email, and via Australia Post unaddressed mailout to localities in proximity to the Project area. They may also be distributed via community locations when these are identified.

All newsletters will be available to download from the Project website.

6.6 Information Materials

Information and visual materials will be developed as required and might include:

- Project overview
- Presentations
- Briefing notes
- Information flyers for local venues such as schools, shops, council offices, noticeboards.
- Information sheets for key topics and issues of concern
- Photomontages to illustrate what the Project would look like from selected viewpoints
- Maps

6.7 Briefings and Meetings

Members of the Project team will meet with key stakeholders and stakeholder groups to brief and update them, provide them with opportunities to discuss concerns and provide input, and consult them on relevant topics. This will be most appropriate for stakeholders such as elected government representatives, councils, community groups, NGOs and landowners.

6.8 Site Visits

Members of the Project team will host site visits for interested key stakeholders and stakeholder groups, such as NGO representatives, local government councillors and special interest groups, to contextualise the Project area and more accurately understand potential site impacts.

6.9 Community Information Sessions

Local public information sessions will be held as required, to source local feedback and give members of the public with connection to the Project area an opportunity to engage directly with the Project team.

They will be scheduled at times and locations that are convenient for community members, follow the format of either a presentation followed by an open Q&A session or a drop-in session, and provide attendees with access to a variety of information materials including independent information from third parties on key topics. Independent technical specialists and consultants will also be involved as appropriate.

6.10 Feedback Mechanisms

Multiple and ongoing channels for feedback will be available and used to identify areas of concern and source community input. They will include:

- Invitation to contact the Project team directly at any time promoted in all communication materials.
- Direct engagement.
- Consultation during meetings and presentations.
- Online feedback form on the Project website.
- Printed feedback forms at public community engagement activities such as information sessions.

6.11 Media

Editorial media engagement and advertising insertions in locally distributed publications and social media will be utilised as appropriate, to inform the community of key updates and opportunities to participate in the development process.

6.12 Community Consultative Group

Over the course of the planning and assessment phase a community consultative group (CCG) may be established to provide an important conduit between the community and the Project team. This would comprise of an independent chairperson and voluntary members including representative local community members and representatives for key stakeholders such as Richmond Valley Council and Traditional Owners.

6.13 Local Information Centre

If there is a need and a suitable local resource and venue can be identified, Ark Energy may seek to establish and staff a conveniently located local office and information centre. This would facilitate engagement and provide interested community members and local stakeholders with convenient offline access to project information including maps and information materials, and an easy opportunity to discuss the Project with a representative of the Project team.

6.14 Community Participation and Investment

Pre-construction engagement activities may include supporting local initiatives and community events as a key aspect of community investment. This may be through sponsorships, donations, partnerships or provision of supplies.

The Project team may also participate directly in local community activities or events to build relationships, share project information, and source input.

6.15 Other

Other methods may be utilised as part of the development of the Project's Social Impact Assessment, including the development and implementation of a survey and interviews with identified stakeholders.

7 REPORTING AND EVALUATION

7.1 Record Keeping

Ark Energy uses a specialist software platform for stakeholder relationship management called Consultation Manager. Interactions with stakeholders for the Project will be documented by the relevant Project team member in Consultation Manager.

Consultation Manager enables centralised and easily accessible records of interactions, feedback and issues, and tools to customise data capture to relevant issues, tracking of issues over time and reporting.

7.2 Evaluation

Critical evaluation of engagement activities will be ongoing.

Engagement activity will be reviewed as part of regular project meetings and Consultation Manager will be utilised to track, review and report periodically on stakeholder sentiment and issues.

Areas of review will include efficacy of the tools, techniques and messages used, and opportunities for improvement.

Evaluation will focus on adherence to Ark Energy's principles, goals and commitments for engagement as set out in this plan, in particular:

- Engagement that is timely, open, transparent, inclusive and responsive.
- Ensuring that up to date project information is widely and easily accessible.
- Ensuring that all relevant stakeholders have been identified and given the opportunity to engage directly with the project team and participate in the assessment process.
- Escalating the level of stakeholder participation to involve and collaborate (IAP2) wherever possible, in particular for relevant management plans and community benefit initiatives.
- Enquiries are followed up and responded to in a timely manner.
- Community input is adequately considered and where possible incorporated into the project design and plans to improve outcomes.
- All regulatory requirements relating to community engagement are met.

8 CONCLUSION

This CSEP outlines Ark Energy's approach, principles, goals and commitments for community and stakeholder engagement for the Project.

It includes an overview of the Project and key information to inform engagement planning including a summary of surrounding localities, potential issues and concerns, and risks to effective engagement.

It outlines identified stakeholders, the various engagement methods and techniques that will be utilised throughout the planning and assessment process and how engagement activity will be documented and evaluated.

The CSEP and associated activities will be updated and modified as required.

APPENDIX 1 – ACTIVITY SUMMARY

Key Messages

Key messages will be revised, updated and added to as required. They include:

Richmond Valley Solar & Battery Energy Storage System

Topic	Messages
Project	The Project involves a utility-scale solar farm, battery energy storage system (BESS) and associated infrastructure including underground reticulation, a substation, and operations and maintenance facilities.
Energy generation	The solar farm would have an installed capacity of up to 500 megawatts (MW) DC and the proposed battery is a long-duration large-scale Lithium-ion BESS capable of providing a power capacity of up to 275 MW and an energy storage of up to 2,200 megawatt hours over eight hours.
Site location	The Project area is within two privately owned properties used primarily for cattle grazing in Myrtle Creek in the Northern Rivers region of NSW. The other closest localities are Rappville about 10 km west, Ellangowan about 16 km north-east and West Bungawalbin about 16 km east. The nearest regional town is Casino, about 25 km north.
Site selection	The site is well suited to solar energy generation. It has an excellent solar resource, is mostly cleared, relatively flat and close to existing transmission infrastructure. Solar energy generation is complementary to the current land use, and the surrounding areas have a low population density.
Disturbance (impact) area	Subject to final design, the development footprint within the two host properties would be about 803 ha, including about 542 ha for solar panel arrays, 5 ha for the BESS and other areas for access tracks, asset protection zones, the substation, operations and maintenance facilities, and transmission.
Grid connection	A low voltage (33 kV) underground reticulation system would connect the solar panel arrays to the on-site switching substation. The substation would connect via an overhead transmission line of about 2 km to the existing Coffs Harbour to Lismore 330kV powerline that intersects the north-west corner of the site.
Construction period	It is estimated that the construction period would take approximately 24 months.
Accommodation strategy	The optimal accommodation strategy for non-local construction workers will be determined based on findings from the assessment studies including the Social Impact Assessment, and in consultation with stakeholders like Richmond Valley Council. At

Topic	Messages
	this stage the intention is to accommodate non-local construction workers within one (1) hour's drive of the site.
Power output	The energy generated by the Project will be fed into the grid for the National Electricity Market.
Project lifespan	The initial lifespan of the facility is expected to be about 30 years. At the end of this period the Project may be refurbished or decommissioned.
Is this within a Renewable Energy Zone?	No. The Australian Energy Market Operator (AEMO) and NSW Government have identified a number of Renewable Energy Zones (REZs) to help coordinate efficient development of new generation and transmission infrastructure. However, many new renewable energy projects are also being developed outside of REZ areas to meet clean energy targets. About 70% of the solar energy generation being developed in NSW is not within a designated REZ.
How can local community members benefit?	<p>Ark Energy is committed to creating opportunities and maximising meaningful benefits for residents and communities around the Project area.</p> <p>Local employment and procurement will be prioritised. The Project is expected to create more than 300 jobs and provide a significant boost to patronage for surrounding retail, service and hospitality businesses. After construction, ongoing maintenance and operations would involve about 10-15 full-time jobs.</p> <p>The Project will involve a neighbour benefit program for owners of property near the project area and a significant community benefit program will provide meaningful and lasting benefits for the wider local community.</p> <p>The Project will also provide the opportunity for local community members to benefit from additional support for improved land, fire and biodiversity management regimes as part of development activities.</p>

Ark Energy

Topic	Messages
Ark Energy	<p>Ark Energy is one of Australia's leading renewable energy companies and specialises in the greenfield development, construction and operation of utility-scale wind and solar energy generation and green hydrogen production.</p> <p>It is an Australian subsidiary of Korea Zinc, a top-tier nonferrous metal company and leading green energy and materials provider. Korea Zinc was the first major refiner in the world to join RE100 and commit to powering its global operations from 100% renewable energy by 2050.</p> <p>Ark Energy has a portfolio of 11 projects in development across New South Wales, Queensland and Tasmania, with a total generation capacity of more than 7,000 MW, and also owns a number of operating solar generation assets in the Northern Territory.</p> <p>Ark Energy's team has successfully developed a number of solar energy generation projects including Nevertire Solar Farm (NSW), Clermont Solar Farm (QLD), Katherine Solar Farm (NT), and several smaller scale solar assets in the Northern Territory. Ark Energy also has extensive experience in operating solar farms, with ongoing operation of several solar farms in Australia.</p> <p>Ark Energy is focused on leading the transition to renewable energy, including decarbonising the operations of Korea Zinc, supporting other major industrial and commercial customers to reach their emissions reduction targets, and contributing to the transition of Australia's electricity market.</p>

Topic	Messages
	It is a signatory to the Clean Energy Council's Best Practice Charter for Renewable Energy Projects, a voluntary commitment to engage respectfully with communities, be sensitive to environmental and cultural values, and make a positive contribution to the regions in which we operate.

Planning and approvals

Topic	Messages
Assessment	<p>Utility-scale solar farm developments in NSW with a capital investment of more than \$30 million are considered State Significant Development (SSD) under the NSW <i>Environmental Planning and Assessment Act 1979</i> (the EP&A Act), and subject to a rigorous assessment process managed by the NSW Department of Planning, Housing and Infrastructure (DPHI).</p> <p>DPHI issues Planning Secretary's Environmental Assessment Requirements (SEARs), which detail the general and technical assessment requirements for the project's Environmental Impact Statement (EIS). Key matters that must be addressed in the EIS include biodiversity, heritage, land, landscape and visual, glint and glare, noise and vibration, transport, water, hazards, social impact, economic and waste.</p> <p>The Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) has also determined the proposal to be a controlled action that will require assessment and approval under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). DCCEEW's assessment requirements have been incorporated into the EIS and the proposal will be assessed by DPHI under the bilateral agreement between the NSW and Commonwealth Governments.</p> <p>Once the final EIS has been lodged and considered adequate by DPHI it will be placed on public exhibition. Following the exhibition period and depending on the number and type of submissions received the application will then either be determined by the DPHI or referred to the Independent Planning Commission (IPC) for determination.</p>
How can I have a say and how will my views be considered?	<p>Ark Energy will engage with community members and other local stakeholders through a range of methods to gain a detailed understanding of their views, concerns, issues, and interests in relation to the Project. In addition, concerns can be raised with members of the project team at any time via the online feedback form, email or phone.</p> <p>Input on community priorities and concerns sourced via the engagement program will be an important consideration in the iteration of the Project's design. As more information becomes available through consultation and technical studies, the Project's design will be refined and modified accordingly. As much as practicable, Ark Energy will utilise community and stakeholder input to optimise the outcomes of the Project.</p> <p>The assessment process includes a public exhibition period for the EIS during which time any member of the public can make a formal submission. Submissions and any outstanding issues for the EIS requirements they raise must be considered prior to determination of the application by the DPHI or IPC.</p>

Topics of interest

Topic	Message
Agricultural land use	<p>It is possible for host property owners to combine solar farming with other agricultural land use if they wish to.</p> <p>Work for the Soil, Land and Agriculture Assessment to date suggests the impacts on agriculture will be generally minor, temporary, and limited to the development footprint.</p> <p>It is anticipated that by adopting the principles of impact minimisation including targeted soil and erosion management and effective decommissioning and rehabilitation, the project will have no permanent negative impacts on agricultural resources or productivity.</p>

Topic	Message
Visual impacts	<p>Assessment of the Project's visual impact on the landscape through a Landscape and Visual Impact Assessment is an important requirement for the EIS.</p> <p>The methodology and technical requirements for the assessment are outlined in the DPHI's <i>Technical Supplement – Landscape and Visual Impact Assessment</i>.</p> <p>The visual impact assessment process ensures that assessments are proportionate to the scale and impacts of the development, easy to understand and consider community views and values of the surrounding landscape. The assessment comprises of a landscape character impact assessment (the assessment of impact on an area's cumulative built, natural and cultural character or sense of place), and a visual impact assessment (the assessment of impact on views).</p> <p>One of the tools used for a visual impact assessment are photomontages, which show what the solar farm would look like from representative public viewpoints where it can be seen. Photomontages are produced by technical specialists and involve combining location photographs with a digital representation of the solar farm called a wireframe. Wireframes are produced using specialist industry software and based on precise locations and dimensions of the proposed components to give an accurate and correctly scaled representation.</p> <p>Specialist visual consultants will complete the assessment and it will be available when the EIS is placed on public exhibition by the DPHI.</p> <p>Prior to construction a Landscape Plan will also be developed detailing any plans for landscape and vegetation screening.</p>
Glint and glare	<p>Significant glint and glare impacts are uncommon with large-scale solar energy developments. Solar panels are designed to absorb light and typically reflect less than 2% of incoming sunlight. Glint and glare also occurs only under very specific geometric and atmospheric conditions, and typically for short periods of time. Many solar projects now also use tracking systems that can be adjusted to prevent glint and glare.</p> <p>A glint and glare assessment will be undertaken in accordance with the requirements in Appendix C of the DPHI's <i>Large-Scale Solar Energy Guideline</i>.</p>
Aboriginal cultural heritage	<p>Ark Energy recognises the continuing connection that Aboriginal and Torres Strait Islander Peoples have to their land and Traditional Custodians are important project stakeholders.</p> <p>The Project team is engaging with the project area's Traditional Custodians to ensure the protection and maintenance of cultural heritage on the site and respect to traditional values and culture are upheld.</p>
Flood risk	<p>Ark Energy has commissioned multiple studies to determine flood risk and iterated the Project's design to avoid low-lying areas of the property that are most at risk of flooding.</p>
Energy prices	<p>Renewable energy is the most efficient and cheapest source of bulk energy generation. More is urgently needed to replace fossil fuel sources and meet growing electricity demand. Growth in renewable energy capacity will put downward pressure on wholesale electricity prices and deliver affordable, clean, reliable electricity to households and businesses.</p>

Topic	Message
Electric and magnetic fields	<p>Electric and magnetic fields (EMFs) are found everywhere, including in the natural environment, and are produced wherever electricity or electrical equipment is used.</p> <p>According to health authorities, including the World Health Organisation (WHO) and the Australian Radiation Protection and Nuclear Safety Agency (APRANSA), EMFs from electrical transmission lines are not considered a risk to human health.</p> <p>Leading global health bodies including WHO continue to evaluate research into health effects associated with exposure to EMFs, and APRANSA notes <i>“The scientific evidence does not establish that exposure to EMFs found around the home, the office or near powerlines and other electrical sources is a hazard to human health”</i>.</p> <p>The current standard for human exposure limit to magnetic field levels recommended by APRANSA is 2000 milligauss (mG), set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) in 2010. 330 kV transmission lines generally emit 10-50mG at the edge of a high voltage transmission line easement and 20-200 mG directly under a high voltage transmission line, which is significantly below the international standard for human exposure limit.</p> <p>Potential EMF impacts will be assessed against the <i>ICNIRP Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields</i></p>
Fire safety and management	<p>Ark Energy appreciates that areas around the Project site have been severely impacted by bushfire events and the importance of thorough and leading practice fire risk mitigation, preparedness and management planning.</p> <p>A comprehensive Bushfire Risk Assessment is required for the EIS.</p> <p>In accordance with the NSW guideline, <i>Planning for Bush Fire Protection 2019</i>, a site-specific Bushfire Emergency Management and Operations Plan will also be developed. It will detail robust measures to mitigate bushfire risk including Asset Protection Zones (APZ) for infrastructure, clearances to vegetation, fire fighting access and water.</p> <p>Prior to construction of the solar farm and commissioning of the BESS, Ark Energy will also develop and implement a comprehensive Bushfire Emergency Management and Evacuation Plan and detail emergency procedures for the development and provide a copy of the plan to the local Fire Control Centre, NSW National Parks and Wildlife Service and Fire and Rescue NSW. In addition, prior to commencing construction of the BESS Ark Energy will prepare a Fire Safety Study for the development, to the satisfaction of Fire and Rescue NSW and DPHI.</p> <p>Plans will be developed in consultation with Fire and Rescue NSW, the local Fire Control Centre, National Parks and Wildlife Services and the NSW Rural Fire Service.</p>
Noise	<p>Ark Energy will minimise the noise generated by any construction, upgrading or decommissioning activities on site in accordance with best practice requirements outlined in the <i>Interim Construction Noise Guideline</i> (DECC, 2009) or its latest version and will ensure that the noise generated by the operation of the development during the night does not exceed 35 dB in accordance with the procedures in the <i>NSW Noise Policy for Industry</i> (EPA,2017) at any non-associated dwellings. Ark Energy has undertaken onsite noise monitoring and modelling indicates no noise exceedances at non-associated dwellings. Further details will be highlighted in the Noise and Vibration Impact Assessment.</p>

Topic	Message
Ecology – biodiversity and wildlife	<p>Avoiding and minimising impacts to flora and fauna species that might utilise the Project area is a priority, and a comprehensive and thorough assessment of potential ecological impacts is required by both the NSW and Australian governments.</p> <p>The Project area has been historically used for livestock grazing and forestry plantation. The land is mostly cleared and much of the vegetation is highly disturbed.</p> <p>There are some Commonwealth listed threatened ecological communities, species and migratory threatened species predicted to occur within the project boundary and 10 km buffer, and during preliminary field investigations two threatened fauna species have been observed, the Square-tailed Kite and Grey-crowned Babbler, and no threatened flora species have been identified.</p> <p>Ecological onsite surveys and assessment work will be completed by ecologists and specialist teams and findings will inform iterations to the Project's design.</p> <p>A detailed Biodiversity Development Assessment Report will be included in the EIS. Key matters that must be addressed in the report are identified by the SEARs, including any assessment requirements under the Commonwealth EPBC Act.</p> <p>The Project team is committed to collaborating with stakeholders and host landowners to implement responsible strategies to mitigate construction impacts and a key aim of the project will be to achieve net positive outcomes for biodiversity and key species in the area over the longer term.</p>
Traffic and transport	<p>A Traffic and Transport Impact Assessment is required for the EIS, and comprehensive plans that are compliant with legislation and the local government planning scheme are required for construction and traffic management.</p> <p>Construction can only commence after the detailed engineering design and any necessary road upgrades have been completed. Prior to any road upgrades a Traffic Management Plan will be prepared in consultation with Transport for NSW and Richmond Valley Council, with details on routes, upgrade works, measures to minimise impacts, code of conduct and a flood response plan.</p> <p>A detailed Construction Environment Management Plan will also include measures to mitigate and manage any biosecurity risks and the spread of weeds, including cleaning of vehicles and construction equipment. There will be a particular focus on weeds listed under the <i>NSW Biosecurity Act (2015)</i>.</p>
Health and safety	<p>The metals in solar panels (including lead, cadmium, copper, indium, gallium and nickel) cannot be easily released into the environment. This is because metals such as cadmium telluride (CdTe) or cadmium sulfide (CdS) are enclosed in thin layers between sheets of glass or plastic within the solar panel. Because of this, the use of metals in solar panels has not been found to pose a risk to the environment. To readily release contaminants into the environment, solar panels would need to be ground to a fine dust.</p> <p>Ark Energy will work closely with local State Emergency Services, Fire and Rescue NSW and NSW Rural Fire Service to ensure access requirements to the site can accommodate safe and efficient response by firefighters and first responders.</p> <p>Various reports required for the application to provide for safe construction and operation will take local risks into consideration and include: Preliminary Hazards Analysis, Traffic and Transport Impact Assessment, Noise and Vibration Impact Assessment.</p>

Topic	Message
Property values	<p>To date, there is little reliable evidence that large-scale renewable energy developments influence adjacent land values, particularly for solar energy facilities.</p> <p>A 2020 real estate impact study conducted by the Orion Renewable Energy Group in the US, found that the proximity to the solar farms did not deter sales of nearby agricultural land and residential homes, nor did it deter the development of single-family homes on adjacent land.</p> <p>The study concluded that no consistent negative impact had occurred to adjacent property that could be attributed to proximity to the adjacent solar farm, with regard to unit sale prices or other influential market indicators.</p>
Equitable distribution of benefits	<p>Ark Energy is committed to creating opportunities and maximising meaningful benefits for residents and communities around the project area.</p> <p>Local employment and procurement will be prioritised. The project is expected to create about 327 jobs which is expected to provide a significant boost to patronage for surrounding retail, service and hospitality businesses. After construction, ongoing maintenance and operations would involve about 10-15 full-time jobs.</p> <p>The project will involve a neighbour benefit program for residents near the project area and a significant community benefit program will provide meaningful and lasting benefits for the wider local community.</p> <p>The project also provides the opportunity for local community members to benefit from additional support for improved land, fire and biodiversity management regimes as part of development activities.</p>
Cumulative impacts	<p>To the greatest extent practicable Ark Energy will take cumulative impacts from other known development proposals in the area into consideration. Cumulative impacts related to biodiversity, heritage, traffic, air quality, water quality, noise, visual amenity and waste management will be considered in the assessment. Any environmental management measures for key issues such as traffic and accommodation will be implemented to minimise the cumulative impacts of the Project.</p>
Decommissioning	<p>Solar farms have an operational life of approximately 25-30 years. Options at the end of this period include extending the life of the solar farm via refurbishment, repowering the site with new infrastructure or decommissioning.</p> <p>In accordance with development consent conditions a Decommissioning and Rehabilitation Plan will be prepared and periodically updated to ensure alignment with best practice and available recycling technologies.</p> <p>If the operator decides not to extend or refurbish the solar farm it will be decommissioned within 18 months of ceasing operation. Decommissioning would involve the removal of all above ground infrastructure including solar panels, electrical infrastructure and maintenance buildings, and the site would be rehabilitated and returned to its former state.</p> <p>Lithium-ion BESS can be recycled. Korea Zinc has established a battery recycling business utilising its existing non-ferrous metals refining capability. All of Ark Energy's end of life cells will be recycled within the Korea Zinc Group, resulting in lower environmental impact.</p>

Engagement Methods

Project Website

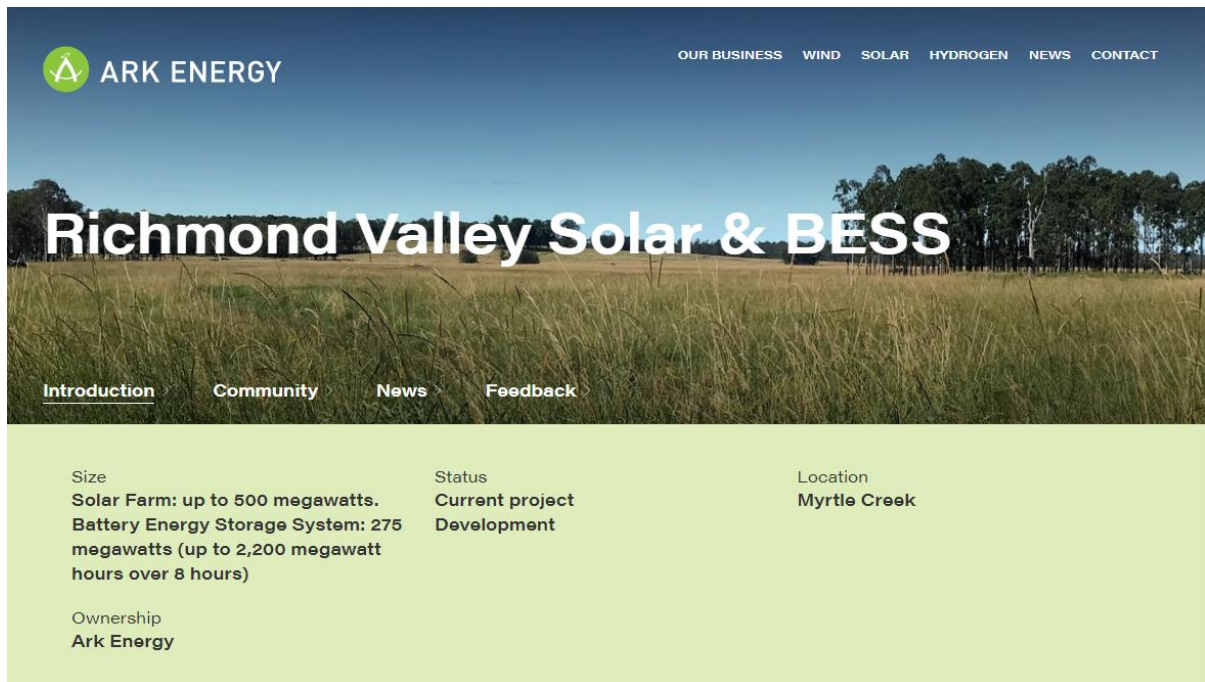


Figure 11 – Project website landing page

Newsletters

To date five Project newsletters have been issued:

- December 2021
- February 2022
- August 2023
- October 2023
- January 2024

Newsletters have been issued via Australia Post unaddressed mailout and directly to subscribers through mail and email.

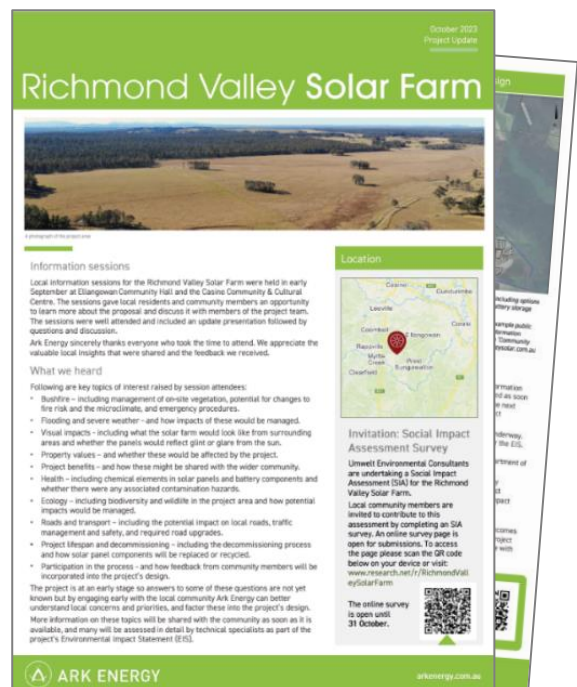


Figure 12 –Newsletter

Information Materials

Various information materials have been produced for the Project including an overview and information sheets for Ark Energy, community involvement, the NSW energy market, fire management, solar panels and battery energy storage systems, and ecology.

The figure displays 12 information sheets from Ark Energy, organized into three rows and four columns. Each sheet features the Ark Energy logo and a title. The sheets are:

- Row 1:**
 - Clean Energy today for a better tomorrow:** Discusses clean energy's role in Australia's energy future, mentioning the National Electricity Market (NEM) and the importance of renewable energy.
 - Involving the Community:** Details Ark Energy's approach to community engagement, including public consultations and feedback mechanisms.
 - Changing Energy Market:** Explains the transition from a coal-dominated market to one with more renewable energy, highlighting the impact on electricity prices.
- Row 2:**
 - Wind & Solar:** Provides an overview of Ark Energy's wind and solar projects, including details on the Richmond Valley Solar Farm.
 - Ways to stay informed & opportunities to participate:** Lists various ways for the community to stay updated and get involved, such as public consultations and community meetings.
 - Green hydrogen:** Discusses the potential of green hydrogen as a clean energy source and its role in decarbonizing the economy.
- Row 3:**
 - Fire Management:** Focuses on bush fire preparedness, including planning, mitigation measures, and the role of the NSW Rural Fire Service.
 - Solar + BESS:** Explains the benefits of solar panels and battery energy storage systems (BESS), covering components, safety, and recycling.
 - Ecology:** Details the measures taken to protect and enhance the local environment, including habitat restoration and biodiversity management.

Figure 13 – Information sheets

Briefings and Meetings

Briefings and presentations have been given to local organisations including Richmond Valley Council and the Richmond Valley Landcare Network.

Site Visits

Site visits have been hosted by the Project team for key stakeholders including neighbours who live within 2 km of the Project area.

Community Information Sessions

Three rounds of public local information sessions have been held to date.

- In March 2022 initial information sessions were held online. These were originally scheduled to be held in person in Ellangowan, however due to flooding and COVID-19 restrictions it was not possible for the Project team to visit the area. Rather than delay until it was possible to visit the area it was decided to host the information sessions online. They were promoted in local media and a Project newsletter. The sessions involved a presentation by the Project team, followed by time for questions and discussion. Two sessions were held and attended by a total of 18 community members. Attendees were interested in biodiversity impacts, flooding, road access and community benefit-sharing schemes.
- In September 2023 information sessions were held in Ellangowan and Casino. They were promoted in local media and a Project newsletter. Each session involved a presentation by the Project team, with questions and discussion throughout. The presentation included an overview of the project, key steps in the planning and assessment process, work done to date and opportunities for community members to participate. The two sessions were attended by a total of 40 local residents and community members.
- In February 2024 an information session was held in Ellangowan. It was promoted in local media and a Project newsletter. The session followed a drop-in format and was attended by technical specialists for fire, social impact and solar panel and battery components, in response to key areas of interest raised by community members in previous sessions. The session was attended by more than 50 local residents and community members.

Consistent with identified potential concerns, community members have raised the following as key matters of interest and concern during public local information sessions. This has informed development of information materials and engagement activities:

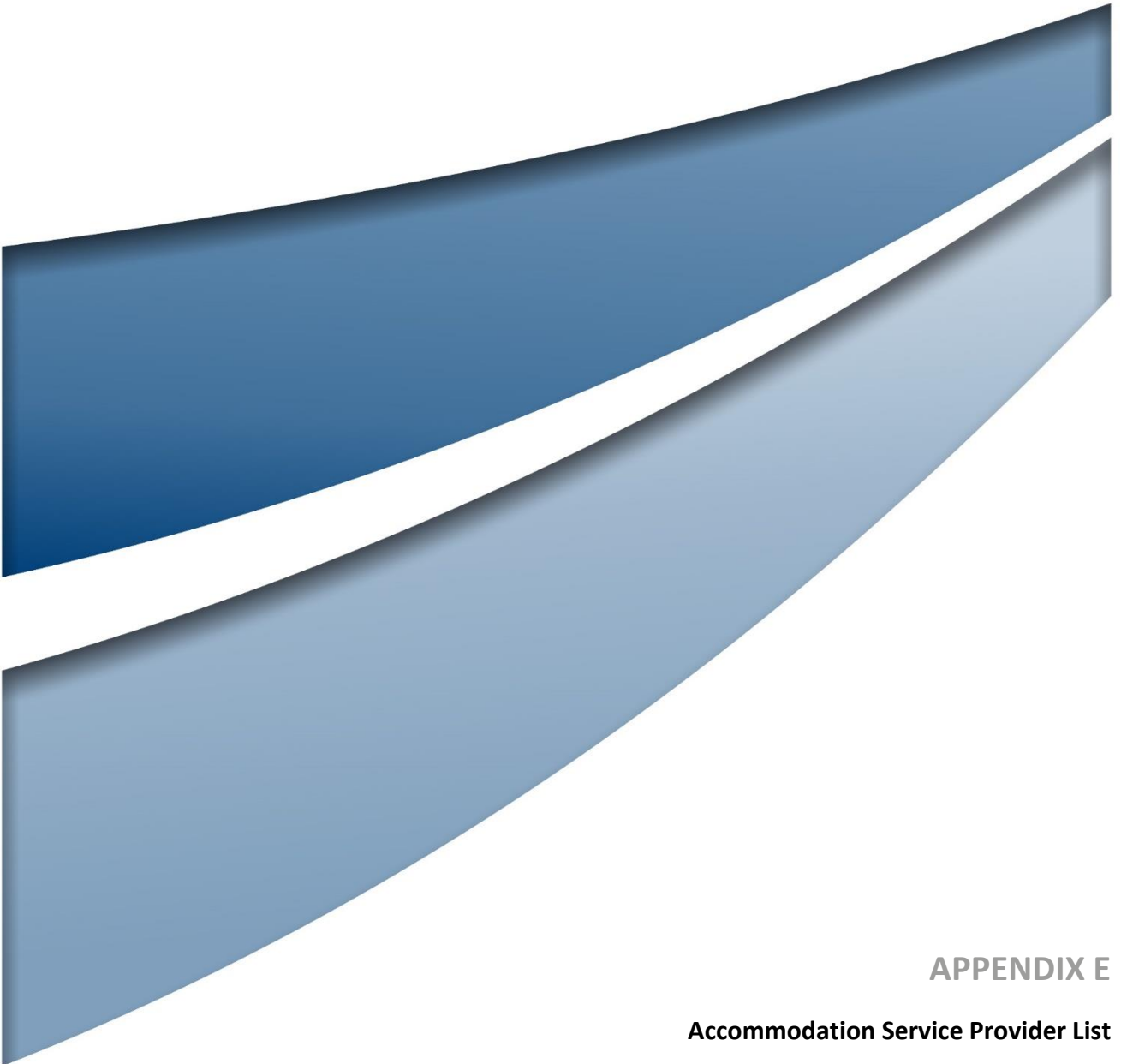
- **Bushfire** – including management of on-site vegetation, potential for changes to fire risk and the microclimate, and emergency procedures.
- **Flooding and severe weather** – and how impacts of these would be managed.
- **Visual impacts** – including what the solar farm would look like from surrounding areas and whether the panels would reflect glint or glare from the sun.
- **Property values** – and whether these would be affected by the project.
- **Project benefits** – and how these might be shared with the wider community.
- **Health** – including chemical elements in solar panels and battery components and whether there are associated contamination hazards.
- **Ecology** – including biodiversity and wildlife in the project area and how potential impacts would be managed.
- **Roads and transport** – including the potential impact on local roads, traffic management and safety, and required road upgrades.
- **Project lifespan and decommissioning** – including the decommissioning process and how solar panel components will be replaced or recycled.
- **Participation in the process** – and how feedback from community members will be incorporated into the project's design.

Stakeholder Engagement Summary

The table below provides an overview of direct engagement with key stakeholders/stakeholder groups up to lodgement of the EIS.

Stakeholder/Group	Consultation
Involved landowners hosting infrastructure and easements	Ongoing engagement through direct correspondence via emails, calls and quarterly in-person meetings.
Residents and owners of properties nearby and along the access route	Ongoing engagement through direct correspondence via emails, newsletter updates, calls and in-person meetings.
Traditional Owners	Ongoing consultation in accordance with the procedures set out in <i>"Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales."</i> (Department of Environment, Climate Change and Water, 2010).
Members of the local community	Ongoing consultation through emails, calls, walk-ins to information sessions held September 2023 & February 2024, in-person meetings, feedback forms and newsletter updates.
NSW Department of Planning, Housing and Infrastructure	Ongoing consultation through emails, and calls. Project update provided in March 2024 via online meeting.
Richmond Valley Council	Ongoing consultation through emails, calls and online/in-person meetings. Project briefings held in-person in July 2023 & February 2024.
Biodiversity Conservation Division	Project briefing provided in July 2023 via online meeting. Site visit conducted in December 2023. Project update provided March 2024 via online meeting.
Crown Lands	Project briefing in August 2023 via online meeting. Ongoing consultation through emails.
DPI Agriculture	Project briefing provided in July 2023 via online meeting.
DPI Fisheries	Project briefing provided in July 2023 via online meeting.
Fire and Rescue	Project briefing provided in July 2023 via online meeting.
Transport for NSW	Project briefing provided in August 2023 via online meeting. Update provided in March 2024 via online meeting.
NSW Forestry Corporation	Project briefing provided in April 2023, project update meetings in October 2023 & March 2024 via online meetings.
North Coast Local Land services	Project briefing provided in January 2024 via online meeting.
Richmond Valley Landcare Network	Project briefing in March 2024 via online meeting.
Lismore City Council	Project briefing provided via email March 2024.
Clarence Valley Council	Project briefing provided via email March 2024.
Ballina Shire Council	Project briefing provided via email March 2024.

Figure 15 – Table - key stakeholder engagement overview



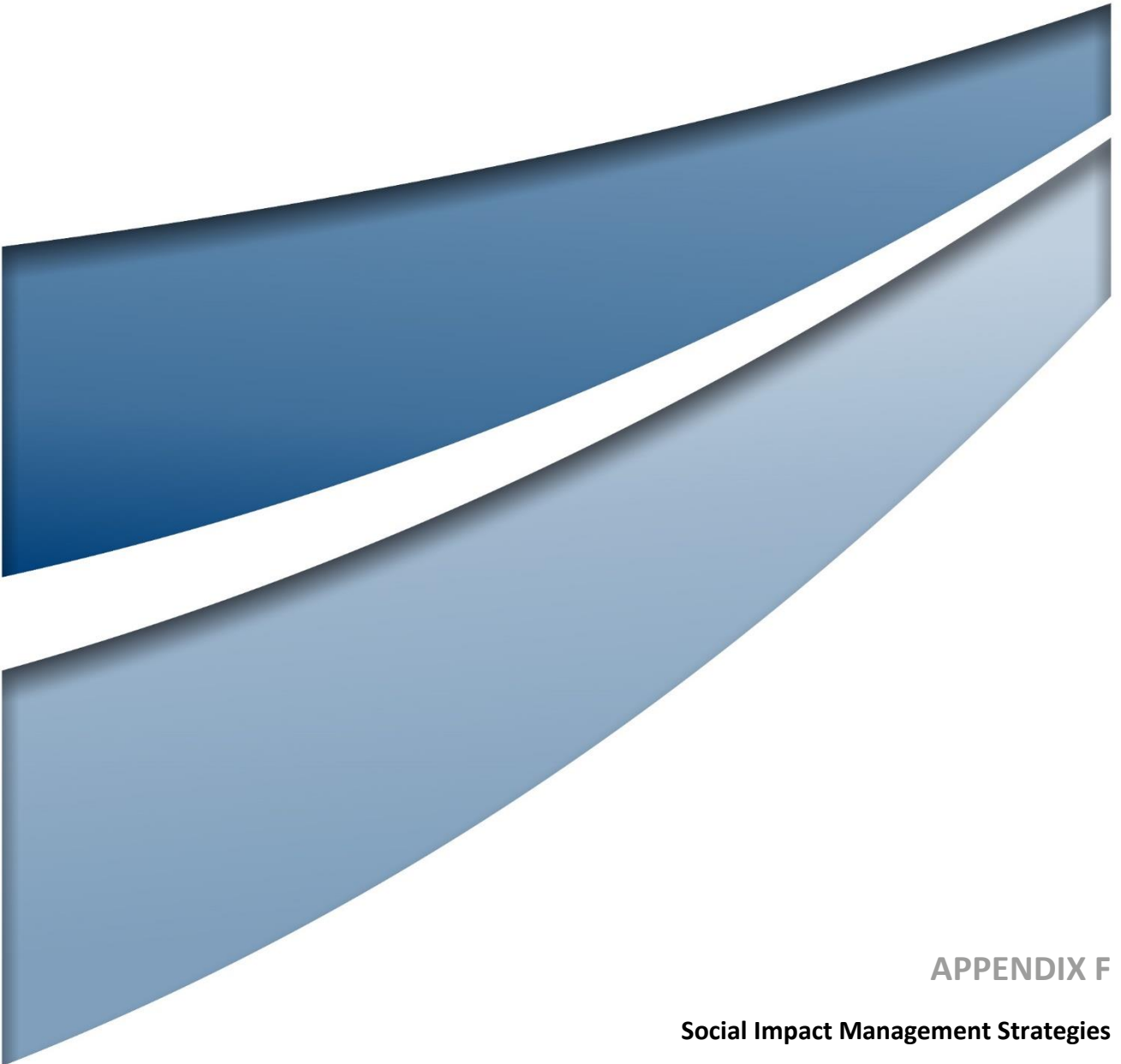
APPENDIX E

Accommodation Service Provider List

1.0 Accommodation Service Providers

LGA	Accommodation Provider
Ballina	Richmond Motor Inn
	Ballina Heritage Inn
	Comfort Inn All Seasons
	Ballina Colonial Motel
	Reflections Holiday Parks Ballina
	Ballina Homestead Motel
	Ballina Waterfront Village and Tourist Park
	MacNicol Cottage
	Ballina Travellers Lodge Motel
	Ramada Hotel & Suites Ballina
	Discovery Parks – Ballina
	Almare Tourist Motel
	Avlon Gardens Motel
	Coast Inn Motel
	River Street Motel
	Riversleigh Guesthouse
	The Cubana Ballina
	Villa Riviera on River Front
	Ballina Holiday Cottages
	Ballina Loft
Ballina Palms Boutique Motel	
Riverside Holiday Apartments	
Lismore	AZA Motel
	Melville House
	Lismore City Motor Inn
	Lakeside Lodge Motel Lismore
	Comfort Inn Centrepoint Motel
	Sisleys Motel
	Lismore Bounty Motel
	Lismore Wilson Motel
	Lismore Centra Caravan Park
	The Sherwood Hotel
	Lismore Private Paddock
	Karinga Motel
	Lismore Fair Dinkum Motel
Grafton	Grafton Sunset Caravan Park
	Crown Hotel Motel
	Royal Hotel South Grafton

LGA	Accommodation Provider
	Abbey Motor Inn
	City Centre Apartments
	Bunkhouse Grafton
	Grafton Greyhound Racing Club Caravan Park
	McLennans Lane River Retreat
	Heritage River Motor Inn
	Grafton Showground Campgrounds
	The Grey House – Grafton
	Ava House
	Grafton Central Motel
	Grafton Lodge Motel
	Artist Cottage at Grafton Regional Gallery
	Hi-Way Motel Grafton
	Grafton by Gateway Lifestyle
Casino	Casino Motor Inn
	Squatters Homestead Motel
	Discovery Parks – Casino
	Clydesdale Motel and Steakhouse
	Clydesdale Motel & Steakhouse
	Commercial Hotel Casino
	Milgate Motel
	The Royal Motel, Casino
River Park Motor Inn	



APPENDIX F

Social Impact Management Strategies

1.0 Social Impact Management Strategies

1.1 Community Benefit Sharing

Community benefit sharing in the context of the renewable energy sector in Australia relates to the establishment of an integrated model within projects to share the rewards of the development proactively and purposefully with local communities (Clean Energy Council, 2019). Outcomes of such a model are seen to contribute positively to the development and sustainability of a region.

Further, as part of the NSW Electricity Infrastructure Roadmap set by the NSW Government (2021), project developers must demonstrate tangible benefits to local communities who host renewable energy projects, beyond the national or regional value of delivering renewable energy and reducing carbon emissions. This is echoed in the NSW Government Draft Benefit Sharing Guideline (2023), currently under review, that recognises that any community benefit sharing initiatives should be designed to bolster the positive social and economic outcomes from projects, so that host communities who experience the most change can more directly benefit from these projects.

The Clean Energy Council of Australia outlines a framework to be considered in developing a Benefit Sharing Scheme for renewable energy projects as follows:

- Establishment of benefit sharing objectives in partnership and consultation with community representatives.
- Research and understanding of community need, interests, and ideas from the community.
- Define the financial scope of the benefit sharing package.
- Plan community engagement process to support the development of the strategy.
- Determine preliminary criteria and 'negotiables'.
- Commence community consultation with an aim of building local networks and relationships.
- Assess, refine, and decide on key components, parameters, criteria, and governance arrangements.
- Establish the strategy and implementation.
- Governance and administration in collaboration with key stakeholders and members of the community.
- Monitoring, evaluation, and continual improvement.

Ark Energy is developing a Community Benefit Fund framework for the Project in consultation with Council. It will include an annual financial contribution for the life of the Project via the existing s7.12 contributions plan, or the development of a VPA.

Section 7.12 of the NSW *Environmental Planning and Assessment Act 1979* (EP&AA) provides for a Consent Authority to apply a levy, as a percentage of the proposed cost of development. There are restrictions involved in s7. 12 in relation to the provision of investment in the community. Any contributions are collected as a means of funding local infrastructure and services, as stated in the Section 94A Contributions Plan:

The Far North Coast Regional Strategy predicts that over the next 10 years, there could be a further 4,000 dwellings and the population of Richmond Valley could grow by as much as 9,000 people. The majority of this growth will occur in Richmond Valley's major town, Casino, and in the coastal village of Evans Head.

As a result, there will be increased demands on a range of infrastructure that the Council provides, which in turn will necessitate the provision of road upgrades, new parks, sports grounds, swimming pools, community centres, walkways and cycleways. Accordingly, the majority of works proposed to be funded by this Plan will occur in Casino and Evans Head.

The works proposed to occur in Casino include upgrades to Queen Elizabeth Park, Colley Park and Crawford Square, upgrades at the Showgrounds, construction of additional footpath and bikeway, and construction of a new car park in the town centre (Richmond Valley Council, 2014, p. 13).

If Ark Energy and the Richmond Valley Council utilise the S7.12 mechanism as opposed to a VPA there is a risk that the CBF contribution will not be centred around the neighbouring landowners and local community due to planning strategies targeted towards growth precincts. Furthermore, the CBF will be unable to be allocated to other funding initiatives, such as scholarships, or targeted road infrastructure upgrade's surrounding the Project Area. It is noted that discussions regarding the CBF Framework are still early and ongoing.

1.2 Community and Stakeholder Engagement Plan

Ark Energy have developed their Community and Stakeholder Plan (CSEP) during the early stages of the EIS process. Umwelt has provided guidance on best practice CSEP development, utilising SIA and community consultation to further advise of targeted mechanisms for engagement.

Consistent and consultative engagement with communities throughout the Project's planning, pre-construction, construction, and operations is critical in increasing social acceptance, developing strong local partnerships and achieving successful, and sustainable Project outcomes. Fairness in the Project's development process requires the establishment and management of processes to ensure that people have meaningful opportunities to influence the design, plans, and outcomes of a development as well as in realising the benefits of the Project.

Ark Energy have outlined that they will continue to prioritise the implementation of the CSEP in the remaining development phase of the Project, and throughout the pre-construction and construction phases should the project be approved. They have also acknowledged that this should be led by a dedicated resource and comprise project-specific stakeholder analysis, mechanisms or methods to be utilised, periodic action plans, targets, responsibilities for implementation, as well as the development of a monitoring and evaluation framework for the Strategy throughout the life of the Project.

The approach for community engagement and public participation continues to be guided by the following industry and government standards and frameworks:

- The International Association for Public Participation (IAP2)'s Spectrum of Public Participation (2018).
- NSW Government's Undertaking Engagement Guidelines for State Significant Projects (2021).

In addition to guidance from:

- Clean Energy Council's Australian Guide to Agrisolar For Large-Scale Solar (2021).
- Draft NSW Government Draft Benefit Sharing Guideline (2023).

1.3 Accommodation, Employment and Procurement Strategy

To directly address and respond to the social impacts and opportunities of the Project as they relate to construction workforce matters, it is recommended that Ark Energy build on the relevant housing and employment data analysed in the SIA to develop, and then implement, a comprehensive Accommodation, Employment and Procurement Strategy prior to commencement of the construction phase of the Project.

This should consider efforts to maximise benefits to the local economy and business community and consider management of the potential cumulative impacts on the local housing/accommodation market that the Project could contribute to, associated with other users, sectors/industries or other development projects in the social locality.

Council and other key stakeholders should be engaged and contribute to development.

1.3.1 Local Employment, Training and Procurement

The Clean Energy Council (2022) recommends a collaborative and coordinated approach across governments, education and training bodies, unions, regional development bodies, and the renewable energy industry to ensure Australia can provide a suitable workforce. Pathways suggested to help facilitate the emergence of the renewable energy workforce include:

- University education.
- Vocational education and training (VET).
- Transitioning from another relevant industry.

Relating to local participation planning (employment, training, and procurement), the Strategy should contain initiatives to proactively enable the maximisation of local employment and sourcing for the Project's construction and operational needs, and could include the following:

- Investigate options for prioritising the employment of local workers.
- Provide training opportunities which are targeted toward local youth, Indigenous youth, those underrepresented in the renewable energy sector, and those wishing to transfer from the agricultural sector to the construction sector.
- Supplier and servicing opportunities for local businesses.
- Understanding existing capabilities within the social locality and the potential for the Project to contribute to build capacity in new areas i.e., up-skilling, re-skilling, and training opportunities for local people.
- Jobs, supplier, and servicing opportunities that target partnerships with local and active social enterprises.

- Mechanisms for local businesses, job seekers and services to register their capabilities and interest in working with the Project to be formalised and widely shared within the social locality.

Actionable targets with associated responsibilities should be contained within the Strategy, including mechanisms to involve local stakeholders in its development and implementation. Key stakeholder groups should include Council, industry associations or business groups, employment and training service providers, community committees or representative bodies and regional development organisations.

Information provision relating to the Project's construction requirements in the pre-construction phase (post development approval) is also critical in embedding a planned and proactive approach to local participation and should therefore also comprise a component of this Strategy, and be implemented in coordination with the Community and Stakeholder Engagement Strategy as outlined above.

Any strategy relating to local employment, training and procurement should be grounded in the capitals assessment as outlined in Appendix C, as this captures the adaptive capacity of the social locality across a range of intersecting indicators of resilience and adaptive capacity. This is particularly relevant in the context of communities recovering and rebuilding from a series of compounding and serious natural disasters.

1.3.2 Construction Workforce Accommodation

The Strategy, as it relates to workforce accommodation, should:

- Be developed during the pre-construction period, in response to regional demands at that time and to ensure preparation ahead of any influx of workers into the local area.
- Be developed in consultation with local stakeholders such as Council, housing and accommodation service providers.
- A critical first step in the development of this Strategy involves detailing the workforce requirements and job profile for the construction phase, to ascertain the planned proportion of locally sourced versus incoming workers. The development of the Strategy is dependent on the number of incoming workers and their staging, in that the more people employed from within the social locality, the less need for accommodation for additional workers, though as highlighted in Section 5.4.4 of the SIA there are some significant constraints in the local area. It is therefore understood that there would be a considerable amount of coordination required during the planning of workforce accommodation requirements and the Project's local employment plans for the construction period.
- Identify measures to ensure there is sufficient accommodation for the required workforce, taking into consideration the cumulative impacts associated with other developments in the region within the same timeframe and the substantial loss of housing following the 2022 floods.
- Focus on measures to ensure there is sufficient accommodation for the workforce associated with the construction phase of the Project, such as through considering whether it is appropriate to disperse workers across multiple locations/towns and across numerous accommodation providers, or by sourcing long-term accommodation as early as possible in the lead up to construction. Measures will need to consider different scenarios due to cumulative impacts associated with other developments in the region within the same timeframe, that can impact on the availability of accommodations across the different towns.

Due to the reconstruction efforts in Lismore, which will continue until at least 2026, it is strongly recommended that the construction workforce is not housed in this location, with this reinforced during preliminary engagement with accommodation providers in this area. This sampling also indicated that providers in Casino, Grafton and Ballina would be interested in further discussions with Ark Energy about providing accommodation solutions.

- Include a program to monitor, review and evaluate the effectiveness of the measures during construction.
- Feedback from interviewees included ideas for Ark Energy and other local solar farm development to utilise temporary modular homes (Pods) which were set up for residents left homeless after the 2022 floods. These modular homes provide temporary housing and can house between one to four people will be supplemented by supporting infrastructure and amenities (Lapham & Rennie, 2022). Furthermore, extensive engagement and collaboration with local accommodation service providers (listed in Appendix E) will inform a strategy that will reduce further strain on the provision of short-term accommodation in the region.

'It would be a good idea for the [solar farm] developer to approach local councils now to find out what exist strategies they have for the pod villages [erected in 7 localities after the 2022 flooding] because they would be ideal workers accommodation...it's a good time to start that conversation. It would be a shame with everything going on with the housing crisis to not repurpose something that has already been established.' – Interviewee

1.4 Management of Cumulative Impacts

It is recognised that a number of impacts raised in Table 5.1 of the SIA report are of a cumulative nature and therefore cannot be addressed by Ark Energy in isolation. There is a responsibility for proponents developing projects in the Richmond Valley and Northern Rivers region, alongside the NSW government, to consider these impacts and develop strategies for appropriate management, mitigation, and enhancement.

