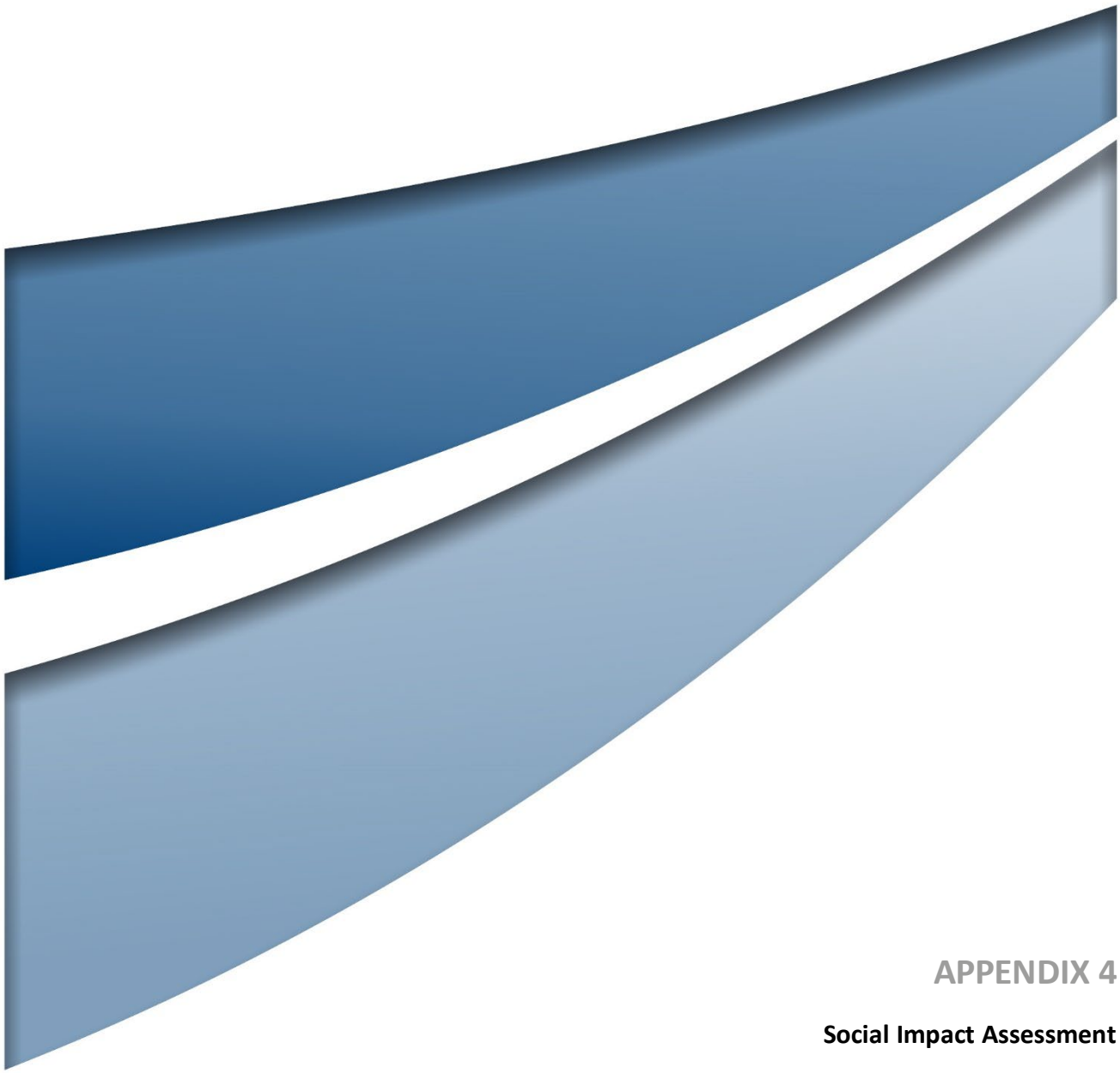

APPENDIX 4

Social Impact Assessment

umwelt
Environmental & Social Consultants

energy estate

HYDROSTOR

SILVER CITY ENERGY STORAGE

Social Impact Scoping Report

FINAL

July 2022

SILVER CITY ENERGY STORAGE

Social Impact Scoping Report

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Energy Estate and Hydrostor

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Report No. 21982/R02
Date: July 2022

Environmental & Social Consultants

This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work, and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
1	Sheridan Coakes	18/05/2022	John Merrell	24/05/2022
2	Sheridan Coakes	01/07/2022	John Merrell	06/07/2022

Abbreviations

Term	Definition
ABS	Australian Bureau of Statistics
A-CAES	Advanced Compressed Air Energy Storage
ARENA	Australian Renewable Energy Agency
BHCC	Broken Hill City Council
BOCSAR	Bureau of Crime Statistics and Research
CAES	Compressed Air Energy Storage
CSEP	Community Stakeholder Engagement Plan
DPE	Department of Planning and Environment
CEFC	Clean Energy Finance Corporation
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
FTE	Full-time equivalent
IER	Index of Economic Resources
IRSD	Index of Relative Socio-Disadvantage
km	Kilometres
LGA	Local Government Area
NEM	National Energy Market
NSW	New South Wales
NTSF	North Tailings Storage Facility
PHIDU	Public Health Information Development Unit
RIT-T	Regulatory Investment Test
SCES	Silver City Energy Storage
SEAR's	Secretary's Environmental Assessment Requirements
SEIFA	Socio-Economic Indexes for Australia
SIA	Social Impact Assessment
SISR	Social Impact Scoping Report
SSD	State Significant Development

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1.0 Introduction

This Social Impact Scoping Report documents the process and outcomes of the scoping phase of the social impact assessment for the Silver City Energy Storage (SCES) Project (hereafter referred to as the Project). It forms part of the Project's Request for Secretary's Environmental Assessment Requirements (SEARs) lodged with the New South Wales (NSW) Department of Planning and Environment (DPE). As the Project is for the purpose of electricity generating works with a capital investment of more than $30 million it is therefore classified as State Significant Development (SSD) as defined under State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) and will require development consent under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

This Report has been prepared in accordance with the DPE Social Impact Assessment Guideline (2021) and represents Phase 1 of the SIA for the Project. Phase 2 of the SIA will form part of the detailed environmental impact assessment (EIA) process and will be incorporated in the Environmental Impact Statement (EIS).

1.1 Project Overview

Energy Estate Pty Ltd and Hydrostor Australia Holdings Pty Ltd, as a joint venture are proposing the Silver City Energy Storage (SCES) Project (the Project) which uses Hydrostor's proprietary advanced compressed air energy storage (A-CAES) technology to provide large-scale long duration energy storage for Broken Hill and the wider NSW region.

A-CAES technology uses energy from the gird when it is plentiful to compress air from the atmosphere and recovers and stores the heat of compression while injecting the compressed air into an underground cavern. The air remains in the cavern, sealed under pressure from the water in the reservoir. When needed to generate electricity, the compressed air stored in the cavern is then released and combined with the stored heat recovered from the compression process and discharged through an air turbine which generates the required electricity. The technology is designed to provide a long-term clean energy storage solution that does not use fossil fuels or hazardous materials.

The SCES Facility is proposed to be co-located on the Potosi Mine site approximately 3 kilometres (km) northeast of Broken Hill providing for another valuable use for this current mining land. The Project also includes a proposed 220kV electricity transmission line which is approximately 16 km long around the southern boundary of the City of Broken Hill to connect to an existing Transgrid substation to the southwest of the city. The Project Area encompasses all aspects of the Project (refer to **Figure 3.1**).

The NSW Governments Electricity Strategy and Electricity Infrastructure Roadmap (Electricity Strategy) identifies Broken Hill and the surrounding region as suitable for both solar and wind energy production zones. These renewable energy zones are intended to provide a vital role in delivering affordable, reliable energy to help replace the State's existing power stations as they come to their scheduled end of operational life. Over 250 MW of variable renewable energy generation, which has connected to the grid in the Broken Hill area in recent years, is currently being curtailed and subject to significant revenue reductions as a result of local electricity network reliability issues. Broken Hill is also currently supported by two back-up diesel fired turbines which operate during both planned and un-planned outages. These diesel fired turbines are approaching the end of their operational life.

Transgrid has sought to address energy reliability supply issues to Broken Hill through the Regulatory Investment Test for Transmission (RIT-T) process. In the report issued May 26, 2022 Transgrid identified the project as the best option for addressing the RIT-T issue in Broken Hill. The summary report identified the Project as the preferred approach to addressing the current reliability issues through providing the lowest cost reliability options, significantly enhancing system strength and network operation, while transitioning to a renewable resource. The Project will replace the existing diesel fired turbines and also enable greater renewable energy connection improving the economics of renewable energy development and encouraging future renewable energy projects in the region.

The Project was also selected as one of only six projects in the Pre-investment study category of the NSW Emerging Energy Program (EEP). The project has received funding from the EEP as well as private investment and is supported by the Australian Renewable Energy Agency (ARENA).

The SCES facility includes the construction of an approximately 300 ML water reservoir and approximately 250,000 cubic metre underground cavern approximately 600 m below the surface with air and water shafts that will connect the cavern to the topside infrastructure. The geology of the Potosi Mine site is well understood and preliminary geotechnical investigations indicate the geological conditions are suited to the Project. The existing Potosi underground entrance and underground workings will be utilised to provide access to the proposed underground cavern reducing the level of excavation required.

The Project will provide peak power of 200 MW and approximately 1600 MWhr of energy storage capacity. Through consultation with TransGrid a reserve capacity of 50 MW will be built into the system, able to deliver 6 hours of uninterrupted dispatchable power, available at all times, to address reliability issues at Broken Hill. The Project will also dispatch energy into the National Energy Market (NEM).

The Project will be co-located on the Potosi Mine site and while the Project will interact with the existing mining operations, no change is proposed to any existing development consents applicable to the existing mining operation as part of the Project. All associated excavation works to establish the underground cavern will be undertaken as part of this Project. The Project will benefit from a long-term land agreement with Perilya which will cover the full operational life. This agreement will also cover the use of mining machinery and personnel to construct the Project however no mining is proposed as part of the Project.

The Project will provide significant investment in the local and regional economy through the construction and operation phase and benefits to local and regional supply chains. Providing approximately $1 billion in investment over the 50-year project life and generation of approximately 750 direct and indirect jobs during the construction and 40 enduring jobs during the operations phase.

2.0 Methodology

2.1 Social Impact Assessment requirements

This Social Impact Scoping Report has been prepared in accordance with the NSW Government's Social Impact Assessment Guideline (DPE 2021) as part of the environmental impact assessment process, as per **Figure 2.1.** Further detail on the NSW planning framework can be found in the Scoping Report (Umwelt, 2021).

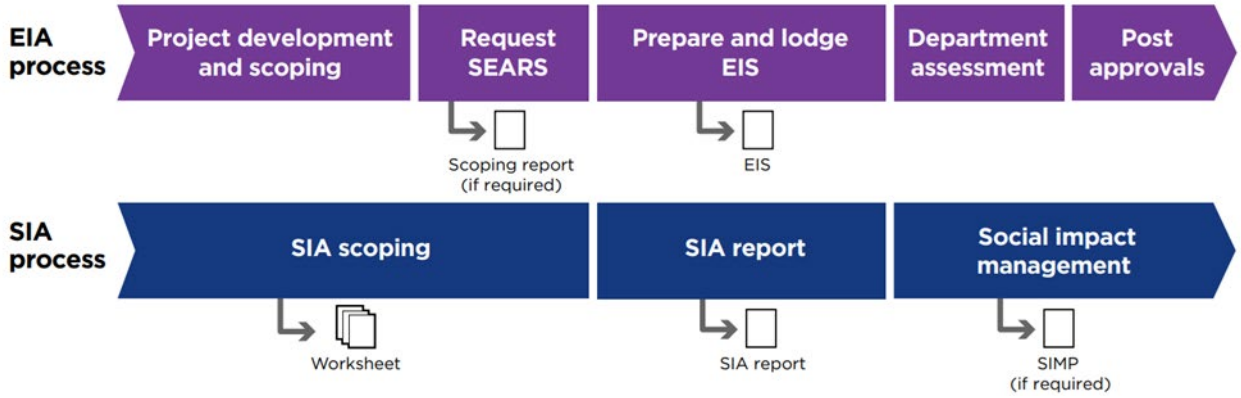

Figure 2.1 SIA and EIA Process

It is a requirement of the SIA Guideline that the SIA Scoping be completed and the findings incorporated into the proponent's Scoping Report and Request for SEARs, and that the SIA Scoping Report includes the following:

- an understanding of the Project's social locality
- initial analysis of the defining characteristics of the communities within the Project's social locality, including any vulnerable groups (the social baseline)
- initial evaluation of likely social impacts for different groups in the social locality
- any Project refinements or approaches to Project development in the early phases of Project planning that will be undertaken in response to likely social impacts
- how the engagement strategy will help to identify and assess social impacts
- the proposed approach for undertaking the SIA process.

Figure 2.1 (above) provides an overview of the key SIA program phases of which this report relates to the Scoping Phase.

According to the SIA Guideline, and as outlined in **Figure 2.2**, social impacts can be grouped into several categories and may involve changes to people's way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods, and decision-making systems.

Figure 2.2 Social Impact Categories

© Umwelt, 2021 (Derived from: DPE, 2021)

2.2 Defining the Social Locality

A baseline social profile gathers knowledge from both primary and secondary data sources to understand the existing social environment in which a project is proposed, and of potentially affected communities. The social baseline profile is a foundational component of SIA, as it provides the basis for assessing and predicting a Project's social impacts.

The SIA Guideline (DPE, 2021) outlines the key components that should be considered in developing a social baseline, namely:

- the scale and nature of the project

- who may be affected, including any vulnerable or marginalised groups
- any built or natural features on or near the project
- relevant social, cultural, and demographic trends and other change processes
- the history of the proposed project and/or development in the area, including community response to previous change.

Statistical areas as defined by the Australian Bureau of Statistics (ABS) and the land tenure composition of properties nearby or proximal to the Project have been used to define the Project's social locality.

Given the location of the Project and the structure of the ABS statistical areas in the far west of NSW, the primary and sole area of interest is the Broken Hill Local Government Area. Where relevant, such data is compared with NSW.

2.3 Social Baseline Profile

The social baseline draws on of a range of indicators and data sources to understand the socio-economic, cultural, and demographic characteristics of the communities within the social locality and is used to determine how the Project may affect different aspects of people's lives (refer to **Figure 2.2**).

Data to inform the baseline, has been gathered and summarised from publicly available secondary datasets, including the most recent Australian Census (2016) and Social Health Atlas of Australia (PHIDU, 2021), as well as through a review of local media, and local, regional, and State government plans and strategies relevant to the social locality.

Statistical and comparative analysis using ABS data has been undertaken at the LGA and state level to better capture key trends and themes relevant to the project. LGA level data is also used to inform regional characteristics and trends relevant to the Project, including regional strategic planning priorities and directives.

Appendix A contains the community profile dataset that has been used to inform the social baseline. The data sources used and key indicators of interest, including a brief explanation of their relevance to the Project is outlined in **Table 2.1**.

Table 2.1 Social Baseline Profile Indicators and Data Sources

Category	Indicator	Source
Political Capital Political representation Political identity Inclusion, voice, and power Democratisation Decision-making systems	Elected representatives and recent political history Traditional Owners and Native Title Claims and Determinations Community strategic planning and development priorities Community perceptions of local governance systems Community priorities and concerns	State representative and electoral information (Parliament of New South Wales, n.d.) NSW Aboriginal Land Council (NSW LALC, 2022) LGA Council Strategic Planning Documents

Category	Indicator	Source
Natural Capital Natural resources (e.g., water, metals, energy) Ecosystems (fisheries, agricultural soils) Beauty of nature (marine reefs, National Parks)	Gross economic value of agricultural industries Gross economic value of mining sector Areas of Native Vegetation Water Resources	Regional Economic Profiles (Department of Primary Industries, 2013; 2021) Local and Regional Strategic Planning Documents NSW National Parks and Wildlife Services (NSW National Parks and Wildlife Service, 2022)
Human Capital Workforce skills and abilities Education and health Vulnerable/at risk groups	Population and median ages Year 12 completion rates Post-secondary education attainment Indigenous status Population Projects Developmental vulnerability Learning or earning Severe or profound disability Aged pension recipients SEIFA Index of Education and Occupation	ABS General Community Profiles (2016) DPE NSW Population Projections (2019) .id Informed Decisions (2022) Social Health Atlas of Australia (PHIDU, 2021) Socio-Economic Indexes for Areas (SEFIA, 2022)
Cultural Capital Worldview Language Traditions and customs Connection to Country Community identity Community values and perceptions of place	Place of Birth Language spoken at home Proportion of the population identifying as Aboriginal and/or Torres Strait Islander Built heritage and tangible heritage items Community perceptions and values	ABS General Community Profiles, 2016 Aboriginal Housing Office (n.d.) Aboriginal Affairs (n.d.) Heritage Management Systems (Heritage NSW, 2021) Local and Regional Strategic Plans
Social Capital Family and neighbours Community networks and inter-relationships Governance Sense of community History and heritage	Living at a different address one year age & five years ago Participation in volunteering Population born overseas & in Australia Family and household composition Prevalence of crime Levels of Psychological Distress SEIFA Index of Socio-economic Disadvantage	ABS General Community Profiles, 2016 NSW Bureau of Crime Statistics and Research, 2021 Socio-Economic Indexes for Areas (SEFIA, 2022) Social Health Atlas of Australia (PHIDU, 2021)
Economic Capital Economic resources Key industry sectors Wealth of individuals, households, and organisations	Proportion (%) of the labour force that are: employed full-time, part-time, unemployed, and trends Proportion of full-time & part-time employment Median household income Sex by selected labour force status Median rental payment Median mortgage repayments Median rent by property type Rental vacancy rate	Small Area Labour Markets (SALM), 2022 ABS General Community Profiles, 2016 .id Informed Decisions (2022) Social Health Atlas of Australia (PHIDU, 2016) NSW State Tourism Statistics (Destination NSW, 2021) Local and regional strategic planning documents

Category	Indicator	Source
	Industries of Employment Tourism Visitation Strategic economic planning SEIFA Index of Economic Resources Herfindahl Index Score	
Physical Capital Built infrastructures Accessibility to key community services and infrastructure Information accessibility Remoteness/isolation	Car ownership by households Commuting distances to work Availability of short-term accommodation Housing tenure characteristics Value of building approvals Financial housing stress Dwellings with internet access Strategic infrastructure planning and development Health services and infrastructure (proximity of health services, resident to GP ratio, availability of specialist services)	ABS General Community Profiles (2016) SQM Research (2022) Social Health Atlas of Australia (PHIDU, 2021) NSW Health (2022) Transport for NSW (2022) NSW Department of Education (2021) Local and regional strategic planning documents

2.4 Stakeholder Identification

Social impact assessment involves the participation and collaboration of people who 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, work, or recreate near the Project
- have an interest in the proposed action or change
- use or value a resource associated with the Project
- are affected by the Project.

Stakeholders for the Project were identified in the early stage of planning to inform the SIA, and also included the identification of any potentially vulnerable or marginalised groups.

Key stakeholder groups that have been consulted or engaged during the scoping phase, and whose engagement outcomes have been incorporated in the SIA, are outlined in **Figure 2.3**. Subsequent phases of the SIA will seek broader involvement across the stakeholder groupings identified and will include consultation with community residents more broadly.

Figure 2.3 Key Stakeholder Groups

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2.5 Community Consultation

Energy Estate and Hydrostor have undertaken early community and stakeholder engagement to build relationships with near neighbours and key stakeholders in relation to the Project, as well as to inform Project design and development. This has assisted in identifying and understanding stakeholder views of the projects the perceived benefits, issues and impacts early in the planning and assessment process.

Table 2.2. details the range of engagement mechanisms utilised to obtain input from various stakeholder groups for the Scoping Report, as well as mechanisms to be implemented in subsequent phases of the assessment program**.** The Community and Stakeholder Engagement Plan (CSEP) (**Appendix B**) outlines the engagement approach and strategy used to inform this Report and the scoping phase of the SIA.

Table 2.2 Engagement Mechanisms

Mechanism	Engagement Objective	Description	First Round of Consultation	Second Round of Consultation
Website	Inform	A dedicated project website page to provide project information and updates	A website was established in April 2022.	The website will be monitored and updated when required across subsequent phases

Mechanism	Engagement Objective	Description	First Round of Consultation	Second Round of Consultation
Project Phone/Email	Inform	A dedicated project community line and email address to enable the community to contact the project team for information or to provide feedback on the project	A phone number and email address were established in April 2022.	The phone number and email address will be monitored across subsequent phases
Media Release	Inform	Media statement outlining key messages for local media	The media statement was developed in April 2021 and distributed to local media agencies in the first round of consultation	Subsequent media releases will be developed when required in the EIS phase
Project Newsletters	Inform	Distribution of project updates and information on project technology to residents in the Broken Hill LGA.	No. 1 – Project overview was distributed in May 2022 No 2 – Information session summary and key questions to be distributed in June 2022	Further Project updates to be distributed during the assessment process. This is planned to include updates on the outcomes of the scoping phase and outcomes of technical assessment studies including the SIA
Information Session	Consult	A drop-in information session to present information and updates on the project with invites distributed to the broader community through a number of mechanisms.	A first session was held in April 2022 and advertised widely through social media, newspapers, radio stations and via a series of fliers distributed at key locations throughout Broken Hill	Further information sessions will be held at subsequent Project phases as required (including pre-EIS lodgement)
Online Survey	Consult	An online survey to gain feedback from key stakeholders and the broader community on the project and community needs and values, to be advertised and distributed through various mechanisms.	A survey was distributed via the project website and information session for the community to complete in their own time and provide written responses	A second online survey to be distributed during preparation of EIS
Project Briefing	Involve	Formal briefings to key stakeholders and government agencies to formally introduce or provide updates on the Project.	Initial Project briefings were undertaken in March and April 2022	Further Project briefings will be undertaken across subsequent phases of the Project

Mechanism	Engagement Objective	Description	First Round of Consultation	Second Round of Consultation
Personal Meeting/Interview	Involve	Telephone, online or in-person meetings with individual key stakeholders or small groups.	One-on-one introductory meetings in April and May 2022	Follow up interviews and meetings will occur during the preparation of the SIA and EIS
Service Provider Survey	Involve	Surveys undertaken via telephone by Umwelt to understand the capacity and demand for services in the area e.g., housing/accommodation, health, recreational, employment etc.	-	Surveys will be undertaken via telephone calls to service providers in Broken Hill.

Table 2.3 outlines the stakeholders that have participated in the scoping phase of the Project's planning and assessment process to date, as well as those who have informed the development of this Report.

Table 2.3 Stakeholders Consulted during Scoping Phase

Stakeholder group	Mechanism used	Number contacted	Number engaged
Proximal landholders	Personal Meetings/ Interviews	7	6
Broader community	Information Session Online Survey	- -	23[1] 10
Aboriginal Stakeholders Groups	Personal Meeting / Interview	2	2
Local government	Personal Meeting / Interview	3	3[2]

[1] Some stakeholders attended the community information session in addition to completing an online survey or personal meeting.
[2] Refers to number of meetings held, rather than number of individuals consulted. All meetings had multiple attendees.

Stakeholder group	Mechanism used	Number contacted	Number engaged
Community and development groups	Community Information Session	1	1
	Personal Meeting / Interview	4	2
Environmental groups	Community Information Session	2	1
	Personal Meeting / Interview	2	1
Local media	Media release	3	-
Project Information Sheet	Project Information Sheet distributed	8,302	-
	Total	8,326	49

Quantitative and qualitative information collected through the consultation and engagement activities in the scoping phase, has been analysed to inform the preliminary analysis of social impacts associated with the Project, as outlined in **Section 4.0**.

2.6 Preliminary Impact Evaluation

As noted above, a preliminary evaluation of the issues and impacts identified during the Scoping Phase (outlined in **Section 4.0**) has been undertaken to understand the level of assessment required for each impact in the EIS/SIA-preparation phase, and to inform Project refinements, design, and detailed planning.

The significance assessment has been undertaken using the risk matrix provided in the NSW DPE SIA Guideline (2021) which considers social impact magnitude and likelihood, as well as key characteristics of impact (extent, duration, intensity or scale, sensitivity or importance and level of concern or interest). A significance rating has been assigned from the perspective of the affected stakeholder group, in addition to a significance rating derived from the risk matrix in the Guideline and defines what impacts will be further investigated and validated as part of the EIS.

2.7 Assumptions or Limitations

The following dot points outline the assumptions utilised in the preliminary SIA scoping assessment, and any limitations in approach at this stage of the Project, to be addressed in subsequent phases. These include:

- No proximal landholders have been identified in the stakeholder analysis to consult as part of the SIA during the scoping phase. Perilya Mine owns seven lots included within the Project area, for both the SCES facility and transmission line. The remaining lots are either Crown Land (owned by various entities), some of which are subject to lease by private companies, plus one privately owned lot. These stakeholders have been consulted by the proponents through the Project planning process and feedback has been included in the SIA as necessary.

- Consultation has been initiated with various Aboriginal stakeholders, however, only early phase consultation has been completed to date. There is a commitment to engage with Aboriginal stakeholders in the assessment phase of the SIA and in the Project's Community and Stakeholder Engagement plan (CSEP) as the Project progresses.

- Efforts have been made to consult the broader community through advertisement of the community information session on local radio and the placement of print adverts in three issues of the local Broken Hill newspaper, through posters and fliers distributed in Broken Hill, and the distribution of the Project Information Sheet to 8,302 Broken Hill community residents via Australia Post's unaddressed mail system. There has been a small amount of interest from broader community residents and groups to date to be involved in the consultation program, with 25 stakeholders attending the initial four (4) hour community information session. Ongoing effort will be made in the assessment phase of the SIA to provide the broader community with the opportunity to engage regarding the Project.

3.0 Social Baseline Profile

This section describes the social baseline profile of the communities defined within the Project's social locality. It provides initial analysis of the defining characteristics of the communities, considering a range of demographic, social and economic indicators as outlined in **Table 2.1**. Further, it considers the natural and physical attributes of the social locality and an understanding of how people currently live, work and recreate in the area, and how they value the area in which they reside.

The following components have been considered in the social baseline for this Project:

- ***Development context*** – a review of recent development history in the local community, including how people have felt or experienced these changes, and different issue trends or patterns.
- ***Geographic and spatial*** – identification of communities of interest and relevant stakeholders.
- ***Socio-political setting*** – an understanding of the relevant governance structures, including those of Traditional Owners and the Local Aboriginal Land Council, and government authorities.
- ***Community capital/assets*** – an assessment of the social, cultural, and demographic characteristics of the identified communities and their resilience and adaptive capacity.
- ***Key community values, issues, and concerns*** – documentation of current community issues and values, as identified in key strategic planning documents, regional plans and/or community studies, as well as through analysis of local and regional media sources.

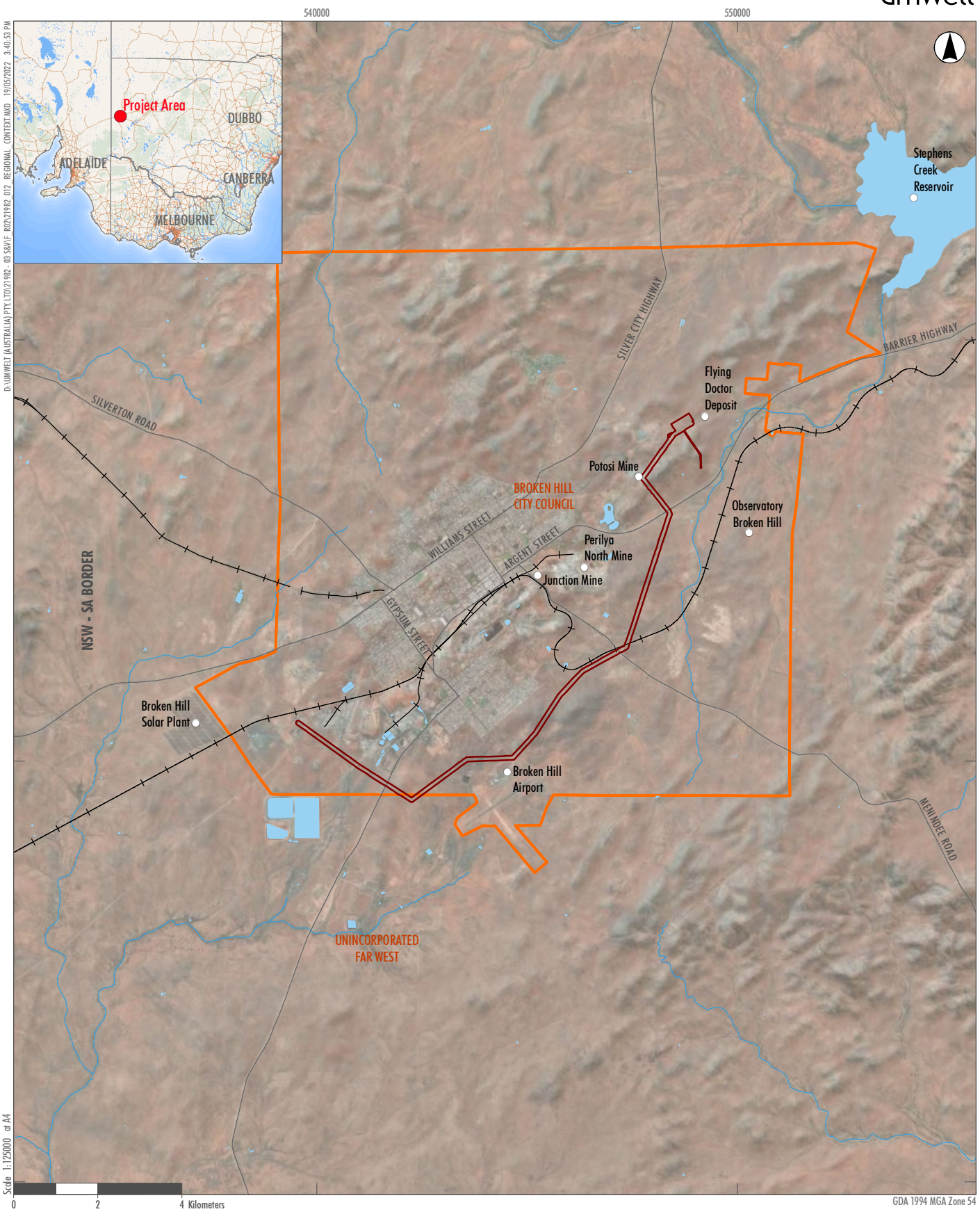
3.1 Local and Regional Setting

The Project is located within the Broken Hill LGA in the Far West Region of NSW. The Far West Region is expansive, covering an area from Lightning Ridge, near the Queensland border, to the Murray River townships near the Victorian border, and along the South Australian Border (NSW Government, 2022). The region has a population of 44,917. Broken Hill is considered the only city within the Far West, with a population of 17,708 in 2016, accounting for almost 40% of the total regional population (ABS, 2016).

The LGA of Broken Hill is approximately 50 km from the South Australian Border (see **Figure 3.1**). The closest capital city to Broken Hill is Adelaide, approximately 500 km away. Sydney is located 940 km away to the east-southeast of Broken Hill.

Far West NSW's economy is significantly focused on mining and agriculture, specifically extensive pasturing. There continues to be a push from state government to improve overall connectivity and infrastructure in the region to develop economic and social capacity within the region and to strengthen local communities (NSW Government, 2022).

The Project is proposed to be located on the Potosi Mine site approximately 3 km northeast of Broken Hill. The proposed 16 km electricity transmission line runs around the southern boundary of the township of Broken Hill to connect to an existing Transgrid substation to the southwest of the town (see **Figure 3.1**).



Legend

- Project Area
- Local Government Boundary
- Waterbody
- Road
- Railway
- Drainage Line

FIGURE 3.1

Social Locality

Image Source: ESRI Basemap (2022) Data source: DFSI (2021)

3.2 Development Context

This section draws on several data sources to build an understanding of the development context within the region, and the social locality in which the Project is based. Understanding the locality's historical response to change assists in predicting how the Project may be perceived and accepted locally; and the degree to which the Project aligns with community values and local sentiment.

3.2.1 Energy Policy in NSW

The energy sector is undergoing a significant structural change due to market forces and changing government policy. Privatisation of fossil fuel fired electricity generation has created a competitive energy market within the sector, and government support for renewable generation has driven the uptake of solar and wind power and reduced demand for coal fired electricity, evidenced through the introduction of federal government policies such as the Renewable Energy Targets and support funding from the Clean Energy Finance Corporation (CEFC) and ARENA.

In late September 2021, the NSW Government announced their Net Zero Plan Stage 1: 2020-2030 that outlines an objective to achieve net zero emissions by 2050 by *'creating new jobs, cutting household costs and attracting investment'* (NSW Department of Planning and Environment, 2021). The document outlines the following priorities:

- Drive uptake of proven emissions reduction technologies that grow the economy, create new jobs or reduce the cost of living.
- Empower consumers and businesses to make sustainable choices.
- Invest in the next wave of emissions reduction innovation to ensure economic prosperity from decarbonisation beyond 2030.
- Ensure the NSW Government leads by example.

At a state level, favourable feed-in tariffs are supporting solar PV installations; with the NSW government roadmap encouraging the phasing out of coal fired power generation.

The proposed Project is consistent with the objectives of the Federal Government's Energy Policy Blueprint (Commonwealth of Australia, 2019) and the NSW Electricity Strategy (DPE, 2019), in maintaining and increasing supply of reliable electricity and improving the efficiency and competitiveness of the NSW electricity market, to address capacity gaps and facilitate investment in demand response and generation technologies.

3.2.2 Energy Storage Infrastructure

Whilst there is significant investment in the pipeline in relation to renewable energy generation projects such as wind and solar, the electricity network needs to be transformed to support the reliability and security of energy being generated from these renewable sources (Clean Energy Council, 2018). The key issue is the intermittent nature of existing renewable energy production, and therefore, dispatchable storage solutions are required to absorb surplus energy during off-peak periods and release it when it is needed to ensure reliability in the National Energy Market (NEM) (Infrastructure Australia, 2021). In this regard, industry groups have called for investment in solutions to prepare the electricity transmission

network, such as inverter-based generation, batteries, and other forms of large-scale energy storage (Clean Energy Council, 2018).

The NSW Government have addressed the intermittency challenges through The Electricity Infrastructure Investment Act 2020, passed in late 2020. The Act aimed to coordinate investment in new generation, storage, and network infrastructure in NSW, focusing on long-term storage that can be dispatched for eight hours or more in duration (Gilbert and Tobin, 2021; Norman & Currie, 2021).

The NSW Government plans to attract $32 billion of private investment over the next 10 years focused on 12GW of renewable generation and 2GW of long- duration storage. Reportedly, at the end of 2020, there were 16 utility-scale batteries under construction in Australia representing more than 595MW of new capacity, with a number of these batteries proposed in NSW (Gilbert and Tobin, 2021). There are also large-scale pumped hydro projects, such as Snowy Hydro 2.0, that are being developed to address energy storage (Norman & Currie, 2021).

However, the lithium-ion batteries that are being developed in Australia, do not provide sufficient long-term energy storage, and have large capital investment costs. Similarly, pumped hydro is often not able to be located on a site that is close to the energy generation and therefore is not economically viable. As a result, compressed air energy storage (CAES) has been flagged as a technology that is well suited for application in Australia and is a low-cost form of long-duration energy storage (Norman & Currie, 2021).

Broken Hill is part of the south-western transmission network and during a planned or unplanned outage of the transmission network, energy is supplied by two back up turbines that run on diesel fuel. However, these diesel generators are being divested and will therefore no longer provide support services to Broken Hill. In addition, there are two renewable energy projects, the Broken Hill Solar Plant and Silverton Wind Farm that provide semi-scheduled, inverter-connected generation. However, these generators cannot provide firm capacity given the intermittent nature of their generation, and are unable to provide energy to Broken Hill given the town is not connected to the transmission network (Transgrid, 2021).

To address this issue, Transgrid went through a process of assessing all credible options for a back-up, reliable power supply for Broken Hill, that is consistent with the Electricity Infrastructure Investment Act 2020 through a Regulatory Investment Test for Transmission (RIT-T) (Transgrid, 2021). In 2020, Hydrostor's A-CAES system was selected by Transgrid, as the preferred non-fossil fuel option, given its ability to provide a reliable energy supply to Broken Hill (TransGrid, 2021).

3.2.3 Community Acceptance of New Technology

Whilst CAES has been flagged as suitable for long-term energy storage and specifically for the requirements of Broken Hill, it is a new technology that is not well-known in Australia.

Given the ongoing climate change debate, the attitudes towards and understandings of climate change and atmospheric emissions of CO_2 have become important in shaping the social acceptance of new energy technologies, such as A-CAES. Indeed, these attitudes and understandings shape the social-psychological, contextual, and technological factors that influence acceptance.

Lack of experience inevitably contributes to large and multiple uncertainties when new technologies appear, and thus uncertainty plays a major role in public response and acceptance of these technologies. Accordingly, the primary challenge for those seeking social acceptance of new energy technologies is to

generate knowledge, salience, and trust in the community about the technology, and to address community experiences (both past and present). In this regard van Alphen et.al (2007) have developed six key recommendations or conditions for proponents seeking social acceptance of new technologies, that include:

- a focus on safety
- communication around the nature and timing of the project
- provision of financial stimuli
- provision of information in a simple and community friendly way
- involvement and collaboration with the community
- open and transparent communication.

Brohmann et.al (2007) also outline the need to identify stakeholders and critical issues in early stages of a project; to understand local processes; continually assess progress and community perceptions; use contextually appropriate mechanisms and procedures; and be flexible and adaptable to shifting expectations and circumstances.

Given the current focus and momentum around the energy transition, community and interest group dialogue is increasing, with groups critically analysing the use of technologies, making more concrete comparisons between '*clean'* and '*green'* energy production strategies.

In summary, the Project is relatively complex, with multiple components. Each component will attract interest from stakeholders that either live in the general vicinity of the proposed plant or infrastructure, those that may be directly impacted by the proposed project activities, and/or those that have a significant interest in the topic of energy supply. Consequently, while the social area of influence of the project may be defined geographically, interest in the Project and its outputs, is likely to be wide ranging.

3.2.4 Development History

Broken Hill has a long history of mining, and is the location where the Broken Hill Proprietary Company Limited (now BHP Billiton) first commenced (Broken Hill City Council, 2022). Mining and mining exploration continues in and around the township, with major mining projects in the area including Cobalt Blue/Broken Hill Prospecting, Thackaringa Cobalt Project and Carpentaria Resources Hawson's Iron Project (Australian Mining, 2022). These projects are all set to increase the workforce employed in mining in Broken Hill. The Perilya Mine has been operational since 2002, mining zinc-lead-silver (Perilya, n.d.).

Recently, there has been a focus on increasing renewable energy projects in the region, with the first large scale project proposed being the Silverton Wind Farm, which is located in the Barrier Ranges, approximately 25kms to the north-west of Broken Hill. The 200 MW wind farm was approved in 2009 and has been operational since 2018 (AGL, n.d.). The Broken Hill Solar Plant has also increased energy production in the area. The solar farm has a capacity of 53 MW and is located around 5km southwest of Broken Hill, occupying approximately 140 hectares of crown land (AGL, n.d.). The project has been operational since 2015. Both projects are owned and operated by AGL, with the company recently announcing a $40 million battery to be built on the outskirts of Broken Hill (ABC, 2022). Construction of the battery is set to begin in 2022 and be finished in 2023.

3.2.5 Key Community Values, Needs and Aspirations

During consultation, stakeholders were asked to consider their community values, needs and aspirations. A media review and analysis has also been undertaken to inform this assessment.

Outcomes of this analysis have suggested that there is a strong community desire to increase the availability of a range of different services, infrastructure, and facilities available in Broken Hill. These desires range from an increase in housing options to the need for better health care and emergency services e.g. fire, police/security. Media articles have also reported on long wait times, of approximately 18 months, to access local childcare (ABC, 2022).

Despite the desire for greater access to services, local community members commented on the high level of community cohesion and overall community spirit present in Broken Hill. To continue to enhance community spirit, local community members commented on the desire to increase community events and entertainment, noting the positive impacts of events such as the Mundi Mundi Bash.

The unique characteristics of the area are valued by local community members; however, some would like to see action taken to better 'green' the community, noting the importance of decreasing the impact of dust storms. Broken Hill Landcare are taking action in this regard, seeking to transform Imperial Lakes to a green recreational site (ABC, 2022).

Community members also recognise the need to increase employment opportunities in the area, with a focus on employment for young people across various industries. One community member also commented on the need for programs to assist Aboriginal people, in closing the gap and reducing poverty through employment.

3.3 Sustainable Livelihoods Approach – Community Capitals

To better understand the social locality, and to evaluate community resilience and adaptive capacity, the social baseline has utilised the Sustainable Livelihoods Approach (U.K. Department for International Development (DFID, 2001), and the community capitals approach outlined in the IAIA SIA Guidance (IAIA, 2015), for analysis purposes.

According to the Sustainable Livelihoods framework, people seek to maintain their livelihood within a context of vulnerability. Specifically, threats to their livelihood including 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), with people drawing on these assets to build and maintain their livelihood. Consequently, 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'* (DFID, 2001).

The DFID approach draws on a number of broad categories of community capital as a fundamental basis to identifying and further enhancing community capacity and resilience, with this approach used in many SIA studies (IAIA, 2015) (refer to **Figure 3.2**).

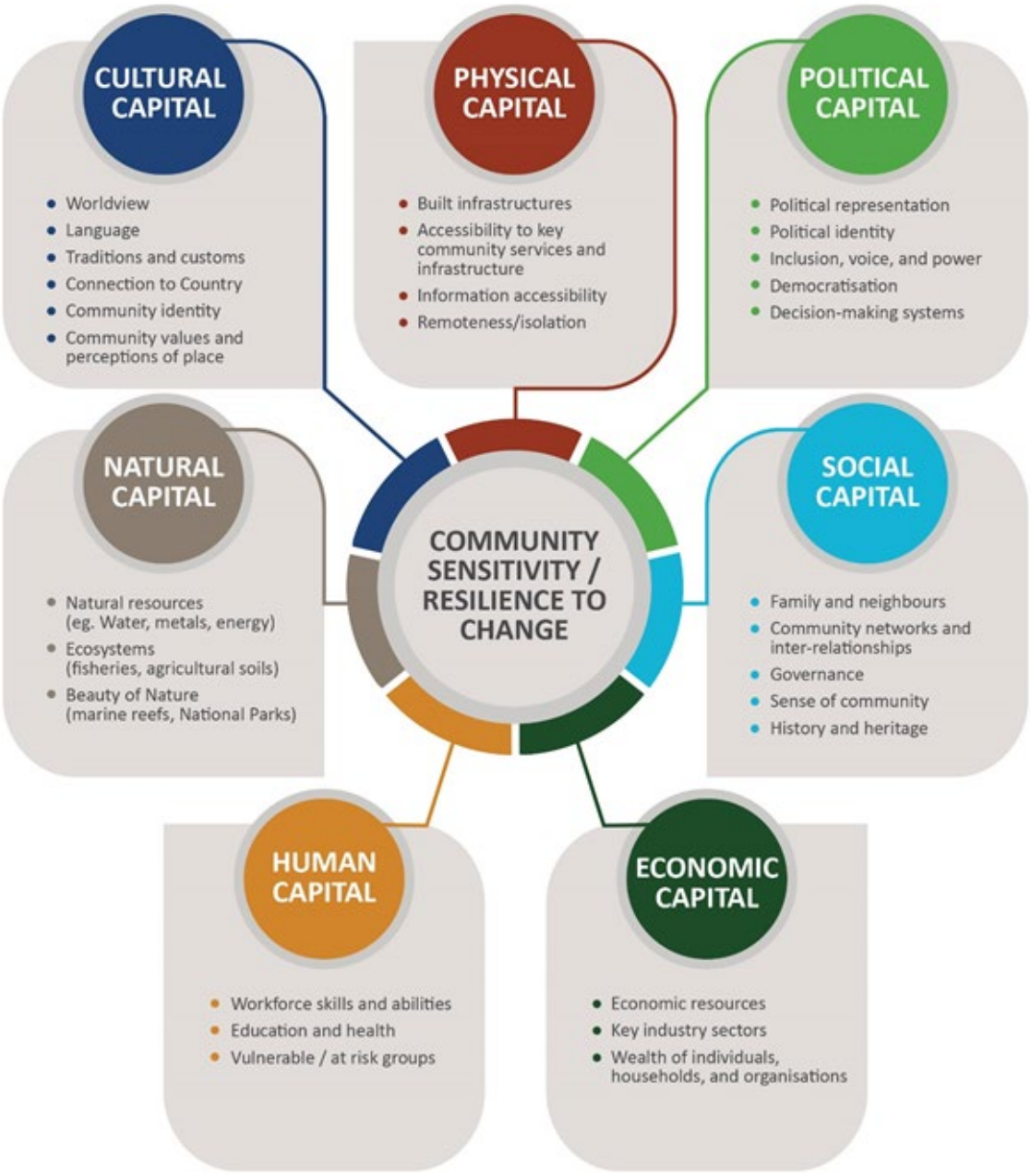


Figure 3.2 Capital Framework

Adapted from Coakes and Sadler (2011)

3.3.1 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 social, cultural, or recreational value. A summary of the natural capital in the social locality is provided below.

The region has a strong reliance on mining. Broken Hill is home to one of the largest lead-zinc-silver deposits in the world. The Potosi mine has been in operation since the late 1800's and is now owned and operated by Perilya (Perilya, n.d.).

There has been a shift to harness the natural capital of the region through investments in renewable energy, with a heavy focus on solar energy. This shift has led to the establishment of the Broken Hill Solar Plant and the Silverton Wind Farm, with Broken Hill City Council, and the Far West region clearly identifying the renewable energy sector as an opportunity for economic and employment growth in the region, as well as providing opportunities for associated industries (Planning and Environment, 2017). Broken Hill City Council are also committed to encouraging industry research into options to supply more of Broken Hill's electricity needs through solar power (Broken Hill City Council, 2020).

Despite the semi-arid landscape of the region, the Far West supports agriculture based on extensive grazing on predominately native pastures (Department of Primary Industries, 2020). The area surrounding Broken Hill largely supports sheep and goat grazing.

The Mutawintji National Park sits to the north-east of Broken Hill and has various walking tracks and Aboriginal stencil art, with the Mutawintji Historic Site having one of the best collections of Aboriginal art in NSW (NSW National Parks and Wildlife Service, 2022). In addition to the areas of Aboriginal cultural significance, the broader region has been recognised as being geologically complex, holding national scientific significance (Department of Agriculture, Water and the Environment, 2022).

3.3.2 Economic Capital

Examining a community's economic capital involves consideration of several indicators, including industry and employment, workforce participation and unemployment, income levels and cost of living pressures, such as weekly rent or mortgage repayments.

The natural assets of the region, and the sustained emphasis on mining has resulted in mining being the largest economic output of all industries, generating $450 million in 2020/2021. There has however been a decrease in the economic output of the area, falling by approximately $345 million from 2016. Construction and electricity, gas and water services also generate a large output for the area, contributing $137 million and $103 million respectively to the economy (.id Consulting, 2022).

Global trends in the mining sector heavily influence the boom-and-bust cycles in Broken Hill with government strategic plans recognising the need to diversify industry (Planning and Environment, 2017) to maintain population and employment.

The unemployment rate within the LGA began falling in late 2016 to reach its lowest level of 2% in September 2020 (SALM, 2022). Despite expecting the unemployment rate to increase after the restructuring of the Perilya Mine workforce, with the loss of over 100 FTE jobs in the region (ABC, 2016), this was not the case, and may be explained by an overall population decline that began occurring in 2016. Following the low unemployment rate experienced in 2020, the unemployment began to rise, reaching 7.1% in September 2021 (SALM, 2022). These rates are in contrast to the overall unemployment in Australia. Australia experienced a sharp increase in unemployment between March and June 2020, slowly declining to its lowest rate of 4.2% in December 2021 (Statista, 2022).

The cost of living in Broken Hill LGA is lower than the state with median weekly rent and median monthly mortgage repayments lower than the state average ($190 median weekly rent in Broken Hill LGA compared to $380 in NSW, and median mortgage repayments of $953 in Broken Hill compared to $1,986 in NSW) (ABS, 2016).

Within the LGA, there is a high percentage of households in which rent repayments are less than 30% of household income, suggesting there is little rental stress. Similarly, 96.9% of households in Broken Hill LGA have mortgage prepayments that are less than 30% of household income (ABS, 2016). The low cost of housing has meant Broken Hill has recently been voted as the most affordable regional suburb of Australia (NSW Government, 2021), despite having a median weekly household income of $965 (that is lower than the state average of $1,486) (ABS, 2016).

Broken Hill's location makes it an integral stop for tourists seeking the 'Outback NSW' experience. Tourism has become an important focus for the Council, seeking to provide experiences that encourage visitation (Broken Hill City Council, 2017) . The Broken Hill Strategic Tourism Plan 2010-2020, whilst not yet renewed, clearly identifies tourism as a target growth area (Broken Hill City Council, 2010). In the year ending December 2021, Outback NSW saw 589,000 visitors (Desination NSW, 2022). Like many places, however, Broken Hill has experienced a decline in tourism following the introduction of COVID-19 lockdowns in early 2020, declining even further in 2021 (Desination NSW, 2022).

3.3.3 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 considers the prevalence of at-risk groups within a community.

The population of Broken Hill LGA was estimated at 17,230 in 2021 (.id Consulting, 2022). Despite an increase in population growth in regional NSW in the past year (0.96% increase), Broken Hill has seen a population decline of 0.24% (.id Consulting, 2022). It is estimated that the population of Broken Hill will continue to decline over the coming 20 years predicted to fall to around 13,650 by 2041 (.id Consulting, 2022).

The median age in Broken Hill is 45 years, compared to 38 years for NSW, with 28.9% of the population aged over 60 years (ABS, 2016). This is higher than the state average of 21.8%. Despite an overall decline in the number of children and working age residents in the LGA, the number of people aged 65 years and over is predicted to continue to increase over the next 20 years, a common occurrence in towns experiencing population decline (NSW Department of Planning and Environment, 2020).

Broken Hill has a significantly higher rate of preventable hospitalisations than the state. In 2019, the area experienced 3675.4 per 100,000 preventable hospitalisations compared to 2064.1 in NSW. The rate of deaths due to cardiovascular disease has seen an overall decline in Broken Hill since the early 2000's. Levels of psychological distress in NSW have been steadily increasing since 2013, however the rates in the Far West Local Health District have been unstable, seeing sharp increases and decreases since 2013. The number of people with self-assessed poor health in Broken Hill is 18.5 ASR[3] per 100, higher than the state rate of 14.1 (PHIDU, 2022).

Broken Hill has a higher proportion of people with a certificate level education than the state (19.7% compared to 14.9%) (ABS, 2016). This is reflected in a lower percentage of people in Broken Hill who have completed a Diploma or bachelor's degree than the state average. These percentages are reflective of the presence of the mining industry within the area, with a high level of technical occupations. Despite the most common occupation in Broken Hill being Professionals, followed by Community and Personal Service Workers, the LGA has a higher percentage of Technicians and Trades Workers, as well as Labourers and Machinery Operators and Drivers than state averages (ABS, 2016).

Also noteworthy is the percentage of individuals whose highest level of education is Year 9 or below, almost double that of the state (16.6% compared to 8.4%) (ABS, 2016). Education reform is a key priority for the greater Far West region, with the NSW Government (2022) highlighting the importance of engaging youth to ensure that they have adequate numeracy and literacy skills to establish future careers and overall wellbeing.

The Socio-Economic Indexes of Areas (SEIFA) Index of Education and Occupation (IEO), a product developed by the ABS ranking relative socio-economic advantage and disadvantage for the LGA reflects the general level of education and occupation-related skills of people within an area, indicative of relative disadvantage compared to other areas in NSW. Broken Hill sits within the first decile, placing it within the lowest 10% of all LGA's across NSW.

The top industry of employment in Broken Hill is Silver-Lead-Zinc ore mining, accounting for 6.8% of the population. A high proportion of workers are also employed in hospitals and aged care residential services (accounting for a combined total of 9.9%).

Further analysis of Broken Hill's existing workforce and field of study gives an indication that there is capacity within the community to support the construction of the Project. **Table 3.1** shows that there is a high level of individuals who have undertaken engineering or related technology degrees, with over 50 people looking for work in this sector.

[3] ASR refers to the age-standardised rate as defined by the ABS, adjusted to eliminate the effect of differences in population age structures over time

Table 3.1 Non-school Qualification: Field of Study

	Architecture and Building	Engineering and Related Technologies	Agriculture, Environmental and Related Studies	Natural and Physical Sciences	Total
Employed, worked full-time	162	735	53	33	982
Employed, worked part-time	50	113	14	8	178
Employed, away from work	17	60	8	0	81
Unemployed, looking for full-time work	9	36	7	0	55
Unemployed, looking for part-time work	0	19	4	0	22
Not in the labour force	114	399	30	18	557

Source: ABS, 2016

3.3.4 Cultural Capital

Cultural capital refers to underlying factors that provide human societies with the means and 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.

Aboriginal and Torres Strait Islander people account for 8.5% of the population of Broken Hill, which is higher than the state average of 2.9% (ABS, 2016). A large proportion of the Aboriginal population that live in the Far West Region of NSW live in small rural communities. The region has the highest percentage of Aboriginal communities of all regions in NSW, with many communities retaining links to Country (NSW Government, 2022).

The Project site is located within the traditional lands of the Wiljakali People. The three major language groups of the Broken Hill Region include Paakanthi, Mayyankapa and Nyiimpaa (Aboriginal Housing Office, n.d.). The Wiljalki people are joint managers of the Mutawintji National Park, the first national park in NSW to be handed back to Traditional Owners. The Mutawintji National Park, located to the north-east of Broken Hill is also home to a collection of Aboriginal rock engraving and ochre stencils.

The Paakantji/Baakantji Aboriginal Cultural Nest, established in 2014, is one of five culture nests in NSW. A Culture Nest is designed to support local communities to revitalise, reclaim and maintain traditional languages through the teaching of these languages in schools (Aboriginal Affairs, n.d.). The base for the Paakantji/Baakantji Cultural Nest is in Wilcannia and includes Broken Hill. These Cultural Nests signify an ongoing connection to Country and culture.

Broken Hill was Australia's first heritage listed city, listed on the National Heritage List since 2015. The Broken Hill Proprietary Company Limited (BHP) was established in the town in 1885, becoming an important contributor to the region's history of mining. This history is reflected in the Line of Lode Miners Memorial.

3.3.5 Social Capital

Various indicators can be used to examine and assess social capital. Such indicators 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.

Most residents in Broken Hill identify as Australian (36.4%), higher than the state average of 22.9%. The next largest ancestry is English (29.35) and Irish (7.2%) (ABS, 2016), implying low cultural diversity within the area. Broken Hill has a much high percentage of residents born in Australia when compared with the state average (87% compared to 65.5%), this high percentage is reflected in the number of people who speak only English at home (88.7% in Broken Hill compared with 68.5% in NSW) (ABS, 2016).

The rate of volunteering is relatively similar across Broken Hill and NSW, with the Far West Regional Plan 2036 recognising the strong sense of, and commitment to, community as an overall strength to be utilised to ensure local solutions to hardship (Planning and Environment, 2017).

Approximately 79% of the population have lived at the same address as they did one year ago. A total of 64% lived at the same address 5 years prior, higher than the state averages of 77% and 54% respectively (ABS, 2016). Communities with low mobility rates often have a strong long term resident base, contributing to a strong sense of cohesion and social networks. In 2021, Broken Hill had a high rate of assault incidents compared to the rate of NSW (2507.4 and 769.7 per 100,000 respectively) (NSW Bureau of Crime Statistics and Research, 2022). Rates of theft is higher in Broken Hill than the rest of the state, as is malicious damage to property and drug related offences. High rates of crime are often associated with low socio-economic disadvantage (ABS, 2010).

The Index of Relative Socio-economic Disadvantage (IRSD) is a SEIFA score prepared by the ABS which ranks areas in Australia according to relative socio-economic disadvantage. A low score indicates a greater degree of disadvantage. Broken Hill has the lowest score of one, meaning there is a high level of relative socio-economic disadvantage compared to other LGA's in NSW.

Broken Hill is home to the Broken Heel Festival, a yearly three-day event held in September celebrating the theatrical anniversary of 'Priscilla Queen of the Desert'. In 2019, the Broken Heel Festival saw a record crowd of 2,000 spectators attend the festival. The Mundi Mundi Bash, an all-aged music festival is also a yearly event. Approximately 9,500 people attend the three-day festival, located approximately 35km's from Broken Hill. These events demonstrate Broken Hill's willingness to support large influxes of people of diverse backgrounds, as well as the capacity of services to support population influx, bringing additional injection into the local economy.

The area has demonstrated support for renewables and environmentally friendly projects, with the broader community and local government recognising the opportunity renewables present in the region. Analysis of consultation outcomes and broader media, also suggests a general level of support amongst the broader community.

Land Care Broken Hill, an organisation with over 360 local members, has recently presented plans to develop the Imperial Lake site near Broken Hill to be a site for recreation and sustainability (ABC, 2022). Foundation Broken Hill is another prominent local organisation within Broken Hill committed to investing in local businesses and employment opportunities to contribute to economic sustainability (Foundation

Broken Hill, 2021) Large organisations such as the Landcare group and Foundation Broken Hill contribute to the overall sense of community in the region.

3.3.6 Political Capital

Political capital refers to the individuals, institutions, and systems that contribute to a community's ability to maintain and uphold 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 below.

The Project area is located within the Broken Hill Local Government Area and is governed by the Broken Hill City Council. Roy Butler, member of the Shooters, Fishers and Farmers Party has been the State Member for Barwon (Parliament of New South Wales, n.d.). Prior to his election, the seat was held by the National Party for twelve years.

The electorate of Barwon is the state's largest electoral district. The Federal Member for Parkes, Mark Coulton, has held the seat since 2007. Mark Coulton is a member of the Nationals. The Parkes electoral district encompasses 49% of the NSW's land mass. The National and Shooters, Fishers and Farmers Parties generally support and advocate for regional areas and industry.

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 NSW Aboriginal Land Council boundaries of the Broken Hill Local Aboriginal Land Council area. Every four years, voting members of Local Aboriginal Land Councils (LALC) vote for a Councillor (Cr) to represent their region at the NSW LALC. The current Councillor of the Western Region is Ross Hampton (NSW LALC, 2022).

As previously noted, the traditional ownership of the land is held by the Wiljakali People, with the group joint managers of the Mutawintji National Park.

3.3.7 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.

Broken Hill has a higher proportion of dwellings that are fully owned without a mortgage than the NSW average. In line with this, Broken Hill has a lower percentage of rented properties, and properties owned with a mortgage than the state (see **Appendix A**).

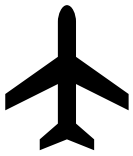
There has been a steady decline in the number of properties listed for sale in Broken Hill since June 2016. At the time of the 2016 census, the unoccupancy rate of private dwellings was more than double that of NSW (ABS, 2016). The area did experience a small increase in properties listed between June 2019 and July 2020 (a peak of 295 properties), however this has again declined to the lowest listing of numbers in January 2022 (SQM Research, 2022).

The residential vacancy rates in Broken Hill have seen an overall decline since mid-2019, dropping to the lowest rate experienced since 2010 in March 2022, with only 6 residential vacancies (SQM Research, 2022). The number of properties listed for sale has also been steadily decreasing since 2013 where there was a total of 499 properties listed. As of March 2022, there were 144 properties listed in Broken Hill, with an average asking price of just over $200,000, which has increased from a low of $146,000 in May 2020 (SQM Research, 2022).

According to the ABS census (2016), a high proportion of dwellings do not have internet access (26.9% compared to the state average of 14.6%). The NBN network was rolled out across Broken Hill in 2018, potentially increasing overall access.

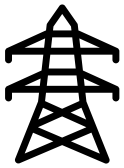
COVID-19 and subsequent border closures during 2020 have impacted the ability of Broken Hill residents to access medical services and treatments in South Australia, prior to the border being reopened and access for medical care allowed (Butler, 2020). Broken Hill Hospital provides emergency services, and a range of in and outpatient services, and is a base for transporting trauma patients to facilities in other parts of NSW and SA (Broken Hill City Council, 2021). The hospital has also recently received a $10 million funding boost which will go towards upgrading the emergency department and mental health unit (NSW Health, 2022). Despite this, the hospital has seen a reduction in staff numbers over the past two years. The Royal Flying Doctors Service Broken Hill Base, the largest base in Australia. also serves an area of about 640,000 sq km's.

Despite high levels of preventable hospitalisation, as explored in **Section 3.3.3**, the estimated number of people who experienced a barrier in accessing healthcare in Broken Hill in the past 12 months is 4 ASR per 100, higher than the state average of 2.5 (PHIDU, 2022). Similarly, the number of people who often have difficulty getting to places with transport is slightly higher in Broken Hill than the state (5.5 ASR per 100 compared to 4.3) (PHIDU, 2022). This could be due to households in the LGA having a slightly lower average of cars per dwelling than the rest of the state (1.5 compared with 1.7) (ABS, 2016).



Broken Hill Airport is serviced by daily flights from Adelaide and Sydney, as well as the regional centres of Dubbo and Mildura. The State and Federal Government have committed $2.45m to the Broken Hill Airport safety upgrade (NSW Government, 2019).

Broken Hill is also accessible by train. The Broken Hill Outback Explorer departs Sydney weekly, with additional regional train and coach services running daily from Dubbo and twice weekly from Adelaide (Transport for NSW, 2022).



Broken Hill is currently supplied energy by a 220 kV transmission line which traverses 260km. When this line is out of service, either due to planned or unplanned outages, Broken Hill relies on two diesel-fired turbines (Transgrid, 2021) for its power supply. In the past, unplanned outages have led to Broken Hill relying on these turbines for a week, with fuel needing to be trucked in from Adelaide. These turbines, owned by Essential Energy, are being divested. Consequently, without the implementation of a new energy system, this divestment will result in disruption to the town's energy during any planned and unplanned outages.

There are ten schools in Broken Hill. This includes both public and private schools, ranging from primary to high school as well as School of the Air, a distance education service for students residing within approximately 300km of the town. The Department of Education offers incentives for teachers to relocate to the area (NSW Department of Education, 2021). Despite these incentives, many schools in Broken Hill struggle to attract teaching staff. This illustrates the difficulties Broken Hill faces in attracting new residents, despite a commitment to increasing the population of the LGA (Broken Hill City Council, 2017)

3.4 Local Challenges and Opportunities

Table 3.2 outlines the key challenges and opportunities for the host LGA as identified from the review of local, regional, and state government reports, strategies and plans, ABS Census data and other secondary data sources, and through community consultation.

Experiences of recent population decline, and the reliance of the town's economy on the mining sector are a key challenge. Through community consultation, it is evident that the community largely support the diversification of industry, and the continued establishment of renewable projects in the region to facilitate further economic and population growth. Of the broader community members surveyed, all rated their level of acceptance of the renewable projects as an 8 (out of 10) or above, reflecting a community understanding of the need to shift from fossil fuels to promote environmental sustainability. One stakeholder commented on the importance of this shift given Broken Hill's history as a mining community. Local Government representatives also commented on the general community support for renewable project development within the community.

Despite support for population growth, the availability and standard of housing in Broken Hill has been recognised as a key challenge needing to be addressed should the community wish to attract a broader demographic. Housing concerns were also noted as a key need by community members during consultation, as was overall access to health services, including medical specialists.

Low levels of education and employment are becoming a key challenge, with local and state governments recognising the need to grow educational opportunities in the area, by both supporting school aged children with numeracy and literacy, but also technical skills development. Increasing access to training opportunities and apprenticeships for young people in the community was recognised by community residents, as a means to not only increase education rates, but also overall employment.

Increasing access to community facilities and recreational activities was also raised as a key need by community members. One stakeholder commented on the potential to increase arts and cultural festivals to showcase Broken Hill to a wider tourist stage.

Table 3.2 summarises the key local challenges and opportunities as identified in **Section 3.3**. by capital area.

Table 3.2 Local Challenges and Opportunities

Challenges	Capital	Opportunities
	Political	• Support for renewables and new developments in the region by local and state government • Political parties that support regional development and advocate for regional areas
• Natural resources have led to a reliance on the mining industry for economic growth • Semi-arid landscape has meant many industries are not viable	**Natural**	• Harnessing natural capital of the region, including wind and solar • Opportunity to become a renewable hub due to the favourable climate • Opportunity to reduce environmental footprint by increasing use of renewable resources
• High proportion of children only completing year 9 or below • Low rates of education and occupation (SEIFA) • More disadvantaged health statistics compared to NSW	**Human**	• High number of technicians and trades people to support development • Drawing on the communities existing strengths to generate employment • Increase training to align with growth industries and foster employment and population growth • Upskilling/reskilling of existing workforce • Attraction of skilled workforce to the region • Increase local employment and women in employment
• Mining history and overall support – community perceptions of repurposing the mine site	**Cultural**	• Ability to draw on a strong sense of community • Rich Aboriginal culture, and continuing connection to Country and language
• Difficulties attracting workers to the area (i.e., teachers, health care workers etc) • Population decline	**Social**	• Community support for sustainable development and renewable energy projects • Strong base of long-term residents
• Dependence on mining and susceptibility to boom-and-bust cycles associated with global markets • Increasingly high rates of unemployment in 2021 • Low median weekly income	**Economic**	• Encourage industry diversification and local investment • Little rental stress • Considered an affordable regional suburb

Challenges	Capital	Opportunities
• Decline in tourism through COVID-19 meaning little growth in an area considered as a target area for growth		• Opportunity to further enhance tourism I the region
• Lack of suitable housing and accommodation • Decommissioning of the diesel turbines and subsequent need **for increased energy security** • Capacity to sustain temporary population influx	**Physical**	• Development of housing that caters to changing demographics and provides more lifestyle choices • Increasing new technologies to cater to demand for energy storage systems • Increasing the efficiency and reliability of utilities and services to the community • Diversification of energy supply through greater renewable energy supply

In summary, based on our understanding of the social locality and the characteristics of the community identified, the Project is:

- located within the Broken Hill LGA, which is continuing to experience population decline, with a recognition that the area needs to reduce its mining dependence and diversify its industry base
- compatible with existing land uses in the area, opportunity for re-use and repurposing of mining land and infrastructure
- consistent with government and community aspirations for the area
- unlikely to result in cumulative impacts on local service providers during the construction phase, however an influx of project workforce may put strain on the limited capacity of local service providers (requires further assessment in Phase 2 of the SIA)
- an option to address critical energy supply issues for the town.

4.0 Perceived and Likely Social Impacts

This section outlines the scoped social issues and impacts (positive and negative) in relation to the Project, as summarised in **Figure 4.1**. Issues analysis has been framed in accordance with the social impact categories outlined in the SIA Guideline and standard SIA practice.

Responses received by community members, and feedback from those in attendance at the community information session were largely positive (as highlighted in green in **Figure 4.1** below). Further detail of the impacts raised are provided in the subsequent sections below.

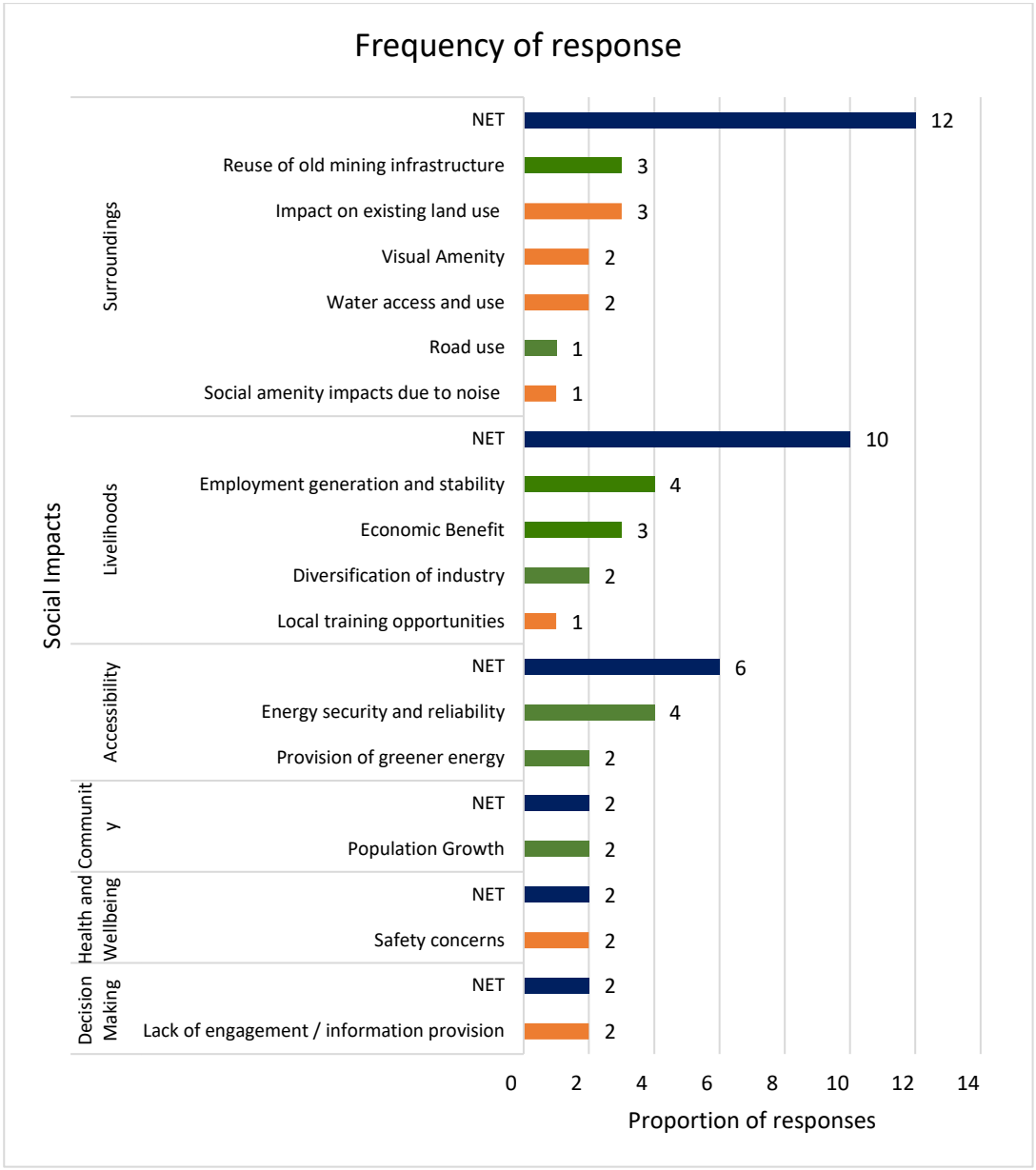


Figure 4.1 Perceived Social Impacts

Source: Umwelt, 2022
Note: Multiple responses allowed. Data based on survey completions (n=10).
Key: Blue = NET response; Green = Perceived positive impact; Orange = Perceived negative impact

4.1 Surroundings

Various concerns were raised in relation to the social impacts that the Project may have on local surroundings, with particular attention to land use, visual amenity, access to water and use of roads, as well as social amenity impacts, because of potential noise associated with the Project.

4.1.1 Land Use Conflict

Given the Project is proposed to be located on the existing Potosi mine site, some stakeholders were concerned about how this may impact on the existing operation of the mine, how the project would coexist, during construction and operation, and any impact on the lifecycle of the existing mining operations. These concerns were reiterated by community members who attended the Community Information Session.

> *How will the Project fit in with the mine? Can they work simultaneously? – CIS attendee*
>
> *Operation of the mine and the construction period of the Project – can this happen simultaneously. How will the mine be impacted when the Project is fully operational? – CIS attendee*

The Project will be co-located on the Potosi Mine site and while the Project will interact with the existing mining operations, the Project can coexist with the mining activities.

Despite multiple stakeholders commenting on the positive aspect of **reusing/repurposing existing mine infrastructure** for the Project, one community member was concerned that this may limit the capacity of the mine to be rehabilitated; with this stakeholder suggesting dedicating alternative areas for mine rehabilitation, particularly tree planting.

> *Using the existing mining infrastructure helps with limiting mine infrastructure wastage and rehabilitation*
>
> *Good to see the mine site repurposed – CIS attendee*
>
> *Occupies space dedicated to tree planting. Provide alternative space for tree planting*

These concerns were further raised by an attendee of the Community Information Session who queried whether the transmission line would also impact the regeneration belt.

> *How does the transmission line fit in with the regeneration belt? – CIS attendee*

This quote refers to the Regeneration Belt of Broken Hill, an area surrounding the township of Broken Hill aimed at reinstating and regenerating natural vegetation.

In relation to this, it is proposed that the transmission line will largely skirt around the existing environmental conservation zones (E2 Zone) located on the southern side of the town and traverses along a short distance of the E2 zone to avoid the airport. Three different route options have been analysed for the transmission line, with the proposed alignment representing the option with least environmental and land use conflict.

A further stakeholder questioned the proximity of the project to the Broken Hill airport.

How will the transmission line impact the airport? – CIS attendee

It is not anticipated that the transmission will impact on the operation of the airport, the alignment has been designed with a variable height and is lower in the areas subject to height limitations associated with the airport operations.

4.1.2 Visual Amenity

Concerns relating to the transmission line extended largely to impacts relating to **visual amenity**. One community member queried if the transmission line could be buried / placed underground, with another raising whether any measures would be applied to mitigate any visual or environmental impacts on the community.

Why can't you put in underground cabling... even if it costs more. It would benefit us more.

Does the Project include compensation to the community for the visual and environmental impact it will have (even though you consider it to be minimal)? – CIS attendee

The detailed design for the transmission line will be developed in accordance with the Transgrid Transmission Line Design Standard (2018) and in consultation with Transgrid as the Project continues.

One local service provider expressed concerns about how the light emanating from the Project may impact their business.

We were concerned about the visual and noise, but after [hearing more about the Project] we're not too concerned – CIS attendee

4.1.3 Road Use

Road use and traffic concerns were raised by a small number of community members. These concerns varied in nature, with one stakeholder commenting on the potential for the Project to create extra traffic on local roads during the construction period. A further stakeholder raised concerns about the use of *Federation Way* as a transport route for the project, and the potential impact on any Native Title claims associated with this road.

Create extra road traffic during construction

Federation Way may be the road you use. It is currently "up for sale" by Crown Land. [There is a need] to ensure that Crown Lands have cleared Native Title on this road. – CIS attendee

The Project will be accessed directly from the Barrier Highway via the existing Potosi Mine access road. Both the construction and operation phase of the Project will generate additional traffic with the majority of traffic associated with the construction phase utilising the Silver City and Barrier highways. Federation Way is a local road located in the centre of Broken Hill which is unlikely to be utilised in relation to the delivery route. The transmission line will be accessed from multiple locations with an associated easement applied for ongoing maintenance and access. A Traffic and Transport Impact Assessment will be undertaken to assess any potential impact to the existing road network and road users and identify any relevant management and mitigation measures required.

4.1.4 Noise

Social amenity impacts due to potential noise relating to the Project, were of less concern to those consulted. One business owner raised the potential for disruption to visitors, with other questions relating to the types of noise that may be generated in operations e.g., water reservoir.

> *Will much noise be produced? (reference to the water reservoir) – CIS attendee*

The noise level will vary during the construction period of the Project depending on the construction phase and will be temporary. Noise associated with the operational phase is expected to be typical of other power plants with key aspects of the surface infrastructure housed to reduce associated noise. A detailed noise assessment will be undertaken during the EIS phase to determine relevant project-specific noise level requirements and any management and mitigation measures required.

4.1.5 Water Access and Use

Given the location of the Project, and water scarcity in the Far West region, some stakeholders were concerned about water access and use, with one stakeholder making specific mention of the impact the Project may have on Stephens Creek.

> *Water is scarce in this area.*
>
> *{Potential to} Remove water from Stephens Creek?*

Another stakeholder suggested that the Project utilise water currently used by the mining operation (potential to recycle), instead of drawing water from other water sources. Other stakeholders raised concerns about potential contamination issues associated with the water reservoir, seeking information as to how the purity of the water would be maintained.

> *Water area – how do you control contamination?*

In this regard, the initial fill of the reservoir is proposed to be from the Stephens Creeks reservoir, with ongoing water requirements drawn from water recycled from the facility system, water from the mining operations and any residual requirements from the Stephens Creek Reservoir.

4.2 Livelihoods

When considering the impacts on people's livelihoods, several themes were raised by those consulted. Community members welcomed the potential for **employment generation** associated with the Project, particularly during the construction period, given recent rises in unemployment and population decline (as discussed in **Sections 3.3.2** and **3.3.3**). Ideally, community members would like to see local employment and procurement sourced locally, where possible, to benefit the local community.

Stakeholders suggested that the Project could provide **local training opportunities for apprentices** to ensure the community has the capacity to be employed within construction roles, with employment to continue once the Project is operational**.**

> *Jobs during construction*

Employment stability

Some stakeholders saw the Project as being able to positively **contribute to the local economy** and support local businesses through local spend and service procurement.

The economic impact on the town through employment and economic stimulus – CIS attendee

Giving competitive preference to local business.

Set up and use local manufacturing

Despite noting several positive impacts associated with the Project during construction, one community member questioned the local benefit during operations.

It will be a positive for the community during construction, but I can't see much benefit once it is operational. – CIS attendee

Others identified that the project may have positive flow-on effects to **property values** in the area, and consequently **local livelihoods**, due to further industry development. This **diversification of industry** through the promotion of science, advanced technology, engineering, and mathematics, was seen as a key positive impact of the Project. One stakeholder who attended the Community Information Session commented on the opportunity to educate local students, with suggestions provided on how such benefits could be enhanced by the proponent through partnerships with local schools and businesses. Other stakeholders suggested development of a viewing platform or similar display to increase awareness and showcase the technology for residents, and tourists, once operational.

Puts Broken Hill on [the] map of advanced technology.

Partnerships with schools to share info about the project.

Visiting schools - excursions, Outback Astronomy can assist. We've learned that kids help to educate their… parents.

Provides supplementary point of interest for tourists.

4.3 Accessibility

Given current community concerns relating to energy reliability within Broken Hill, due to frequent blackouts, the positive impact of the Project on **energy security and reliability** was frequently raised, as well as the role the Project could play in switching to a "greener energy" source.

Improved supply to renewable energy during night and periods of low wind

Avoidance of frequent blackouts

Energy reliability is central concern and positive for locals

Improve transmission from/to the storage facility and Broken Hill generally

Despite the general recognition that Broken Hill requires greater energy reliability, some community members questioned whether the project was the most effective solution due to current restraints experienced within the electricity grid in the area.

> *There are current issues connecting renewables in the area to transmission lines – how will this be different? – CIS attendee*

> *Issue with grid. Introducing more power suppliers, is it a positive?*

The project will operate as a vital stand-alone reliability solution for the electricity grid and Broken Hill. Utilising surplus energy from the gird will ensure sufficient supply is maintained, whilst also providing additional capacity to the grid to enable additional renewable energy projects to connect. The Project may also encourage the expansion of other renewable energy projects in the future.

Stakeholders welcomed the potential for the Project to work in association with other renewables projects in the area, in particular Broken Hill City Council's community solar farm project. Council representatives echoed the potential for collaboration moving forward.

> *How will the Project be collaborative with Broken Hill Solar and the Broken Hill Community solar project? Interested in having energy from Broken Hill Community solar stored.*

Some community members raised the issue of energy costs, questioning whether such access would translate to cheaper energy prices for the local community.

> *Will the cost of electricity to the consumer beneficially change? – CIS attendee*

4.4 Community

As identified in **Section 3.3.3**, the population of Broken Hill is expected to decline over the next 20 years. In this regard, some stakeholders were optimistic that the Project would contribute to increasing population within the town, by providing employment but also more reliable energy provision.

There was an overall sentiment that given the town's experience of the boom-and-bust cycles of mining, that the Project could contribute to a more diverse industry base. Such views were reiterated by Council representatives, who were accepting of new Projects in the area.

> *It will be good to see the town boom again. – CIS attendee*

> *It will be good for the town, good for its people and good for the environment*

> *Improved community optimism in the town's future.*

Additionally, community members welcomed Energy Estate and Hydrostor's approach to engagement with some stakeholders suggesting community investment programs to support local organisations.

> *Being involved with community*

> *Support for the community and community organisations*

4.5 Decision making

Despite various engagement mechanisms utilised during the scoping phase of the SIA (as identified in **Section 2.5**), and ongoing engagement by the proponents, some stakeholders were concerned that there was a lack of awareness of the Project and its potential benefits in the broader community, and that there needed to be further information provision around the Project and its proposed technology.

> *Not getting information out to the community - at this stage nobody I know has any idea about this project.*
>
> *Local people are totally unaware of the benefits of this project to the town.*

Community members suggested that more frequent distribution of flyers to households, as well as greater advertising across various media platforms, would increase community knowledge of the Project. One stakeholder commented that misinformation had the potential to spread within the local community, with negative consequences for overall acceptance or support for the Project.

> *Television advertising, BDT information advert page and a letter box drop would be a start.*
>
> *Direct flyers to households - cover off with FAQs.*

Some community members also held concerns that this Project, like many others, may not proceed beyond the initial planning stages. One stakeholder at the Community Information Session queried if the Project would go ahead without the backing of TransGrid's Project Assessment Draft Report, which outlines the Project as the preferred option for energy reliability in Broken Hill.

> *Is the PADR agreement still in place / is the Project still a contender? Will the Project still go ahead without it? – CIS attendee People who didn't even come to the public meetings are sure it won't happen, that it is very experimental, and steam trains don't exist anymore, so this is not a good concept. I haven't heard many people talk positively about the idea.*

Future mechanisms suggested to facilitate further information provision and engagement in relation to the Project included emails to key stakeholders, advertisements on radio and in the local newspaper. Website updates, newsletters and community meetings were also seen as effective ways to continue to provide information to the local community to enhance overall acceptance during the assessment process.

> *Once the energy project is understood, the locals will be great ambassadors for you. You will need to work hard, many flyers, many consultations, correct inaccuracies as quick as you can, due to how local rumour snowballs.*

Despite the small amount of interest from broader community residents to date, ongoing efforts will be made in the assessment phase of the SIA to provide the broader community with the opportunity to provide further feedback on the Project. Future consultation will include the distribution of additional information sheets, key stakeholder interviews and an online survey made available to the Broken Hill community.

4.6 Health and Wellbeing

The use of new technology and perception of unknown public safety risks, were of concern to some community members in attendance at the community information session. These concerns were largely centred around the location of the Project in relation to mining operations. However, some stakeholders commented that the engagement that had occurred on the Project to date had reassured them and clarified concern regarding any potential risk.

> *Safety, risk of disasters due to the tech in use.*
>
> *Underground conditions Cavern falling in.*
>
> *Geology and geotechnics of chamber underground – what happens if something goes wrong? – CIS attendee*
>
> *Having a mine work next to underground pressurised air, seems dangerous.*

When stakeholders were asked to consider how they would rate their knowledge of the A-CAES technology, a reasonably low average rating of 4.1 out of 10 was obtained. This is not unexpected given this was the first phase of consultation about the Project which has just been introduced to the community, with more engagement to occurring as part of the assessment process. Some stakeholders commented they would like to see examples of how the technology has/is being used in other places to demonstrate that there is minimal risk. One stakeholder also commented *"[it is] still unknown territory but it provides hope for the advancement of clean and effective technologies*".

5.0 Preliminary Social Impact Evaluation

The scoping phase has identified key issues of relevance to key stakeholders and local community members in relation to the Project.

A preliminary evaluation of the likely social impacts has been developed in **Table 5.1** as part of the SIA scoping phase, with these impacts to be further assessed in Phase 2 of the SIA. In accordance with the SIA Guideline, DPE's social impact scoping tool has been used as a basis for the preliminary impact table.

Table 5.1 Preliminary Impact Evaluation

Project Aspect	SIA Category	Potential Impact on People	Affected Stakeholder Group	Duration/ Timing	Perceived Stakeholder Significance	Possible Project refinements/ management measures	Likelihood	Magnitude	Residual impact significance
Construction and Operations	**Livelihoods Way of Life**	Local employment generation and procurement of local businesses/services resulting in decreased unemployment rates and local economic benefits	Broader community Local businesses Service Providers	Ongoing	High (+)	Development of a local employment and procurement strategy	*Almost certain*	*Moderate*	High (+)
Construction and Operations	**Livelihoods Way of Life**	Increased economic through regional and local spending and service procurement	Broader community Local businesses Service Providers	Ongoing	High (+)	Development of a local employment and procurement strategy	*Almost certain*	*Moderate*	High (+)
Construction and Operations	**Livelihoods Way of Life**	Development of human capital through training and education opportunities	Broader community Students Youth	Ongoing	High	Development of a training and skills development program in collaboration with local education providers	*Possible*	*Minor*	Medium (+)

Project Aspect	SIA Category	Potential Impact on People	Affected Stakeholder Group	Duration/ Timing	Perceived Stakeholder Significance	Possible Project refinements/ management measures	Likelihood	Magnitude	Residual impact significance
Operations	**Livelihoods** **Way of Life**	Local industry diversification, decreasing the community's reliance on mining Opportunity to increase tourism – showcase new technology	Broader community Tourism providers	Ongoing	High (+)	Development of a viewing platform, visitor experience and/or educational project signage	*Likely*	*Minor*	Medium (+)
Operations	**Livelihoods** **Accessibility**	Perceived decrease in access to water	Proximal landholders Industry	Ongoing	Low	Use of SCES Facility and mine recycled water for operations Environmental management measures	*Unlikely*	*Minor*	Low
Operations – Water Reservoir	**Livelihoods** **Health and wellbeing** **Surroundings**	Reduction in access to water due to surface water contamination from the water reservoir	Proximal landholders Industry	Ongoing	Low	Ongoing communication relating to application of Project technology and environmental impacts and mitigation measures	*Unlikely*	*Minor*	Low

Project Aspect	SIA Category	Potential Impact on People	Affected Stakeholder Group	Duration/ Timing	Perceived Stakeholder Significance	Possible Project refinements/ management measures	Likelihood	Magnitude	Residual impact significance
Construction	**Surroundings**	Decreased social amenity in the area associated with construction activities e.g., lighting, and visual impacts, noise	Broader community	Temporary	Low	Environmental management measures Community complaint mechanism	*Unlikely*	*Minimal*	Low
			Proximal businesses Road users	Temporary	Low	Environmental management measures Community complaint mechanism	*Unlikely*	*Minor*	Low
Operations	**Surroundings**	Land use change- impact on existing mining operation	Perilya Broader community	Ongoing for the life of the mine	Medium	Ongoing communication with Perilya Broader communication around respective operational protocols	*Unlikely*	*Minor*	Low
Operations	**Surroundings**	Reuse/repurposing of existing mine infrastructure resulting in reduced construction impacts	Broader community	Ongoing	Medium (+)	Construction management plan	*Almost certain*	*Moderate*	High (+)
Operations	**Community Accessibility**	Reliable energy supply for Broken Hill	Broader community	Ongoing	High (+)		*Almost certain*	*Major*	Very High (+)

Project Aspect	SIA Category	Potential Impact on People	Affected Stakeholder Group	Duration/ Timing	Perceived Stakeholder Significance	Possible Project refinements/ management measures	Likelihood	Magnitude	Residual impact significance
Operations	**Community**	Community investment resulting in community benefit	Broader community Local businesses Service Providers	Ongoing for life of the project	High (+)	Development of a community investment strategy that aligns with funding goals and community need Planning Agreement with Broken Hill Council	*Likely*	*Moderate*	High (+)
Construction workforce	**Accessibility** **Community**	Workforce influx due to construction and subsequent impact on local services e.g., housing, accommodation, health, retail etc	Broader community Service Providers Local Businesses	Temporary	Medium	Assessment of service provider capacity Development of a workforce accommodation and management plan if necessary	*Likely*	*Major*	High
Project Assessment	**Health and wellbeing**	Increased concern surrounding perceived risk (safety) of Project technology	Broader community	Project planning	Medium	Ongoing communication relating to the application of the Project technology, potential risks and mitigation/management measures	*Possible*	*Minor*	Medium

Project Aspect	SIA Category	Potential Impact on People	Affected Stakeholder Group	Duration/ Timing	Perceived Stakeholder Significance	Possible Project refinements/ management measures	Likelihood	Magnitude	Residual impact significance
Project Assessment	**Decision making**	Perceived lack of information resulting misinformation spreading within the community	Broader community	Project planning phase	High	Continued implementation of the CSEP with the consideration of engagement mechanism identified by community members	*Possible*	*Moderate*	Medium
Construction	**Accessibility** **Way of life** **Surroundings**	Social amenity and access issues during construction activities	Broader community Road users	Temporary	Low	Implementation of traffic management plan	*Unlikely*	*Minor*	Low

6.0 Conclusion

This SIA Scoping Report has identified the social locality and has documented preliminary social impacts and opportunities associated with the Silver City Energy Storage Project. The SIA scoping report forms part of the broader Project Scoping Assessment to inform the issue of SEARs by the NSW DPE.

Phase 1 of the SIA has included the compilation of a social baseline profile for the Project, outcomes of early community and stakeholder consultation to inform the scoping of Project-related social impacts and opportunities, and preliminary social impact prediction and evaluation. The preliminary social impact evaluation has been undertaken to inform and support the refinement of Project design and plans to reduce negative project impacts and facilitate the enhancement of positive project benefits.

A detailed assessment of social impacts is required as part of the EIS and should be informed by an ongoing process of community consultation. As part of the EIS, future stages of the SIA for this Project will include a comprehensive prediction and assessment of social impacts and development of relevant strategies to mitigate the negative and enhance the positive impacts associated with the Project. Further SIA and technical environmental impact studies will address perceptions of impacts raised by key stakeholders during this phase.

Subsequent phases of the SIA program will involve the following key activities:

- An update of the baseline social profile so that any further baseline data relevant to the social impacts identified is obtained.
- Further validation of the area of social influence and identification of affected communities and vulnerable groups.
- Provision of feedback to Broken Hill community members and key stakeholders on the outcomes of the issues raised in the scoping phase and communication of the Project's SEARs (once issued), including an outline of the next steps in the assessment process and further opportunities for community input.
- Update of the Project CSEP and further engagement with Broken Hill community members and other key stakeholders on key social impact areas as noted above. This will involve feedback on the outcomes of EIS technical studies and will provide opportunities for input to the development of appropriate management and enhancement measures to address social impacts and residual effects.
- A comprehensive assessment and evaluation of social impacts against existing baseline conditions.

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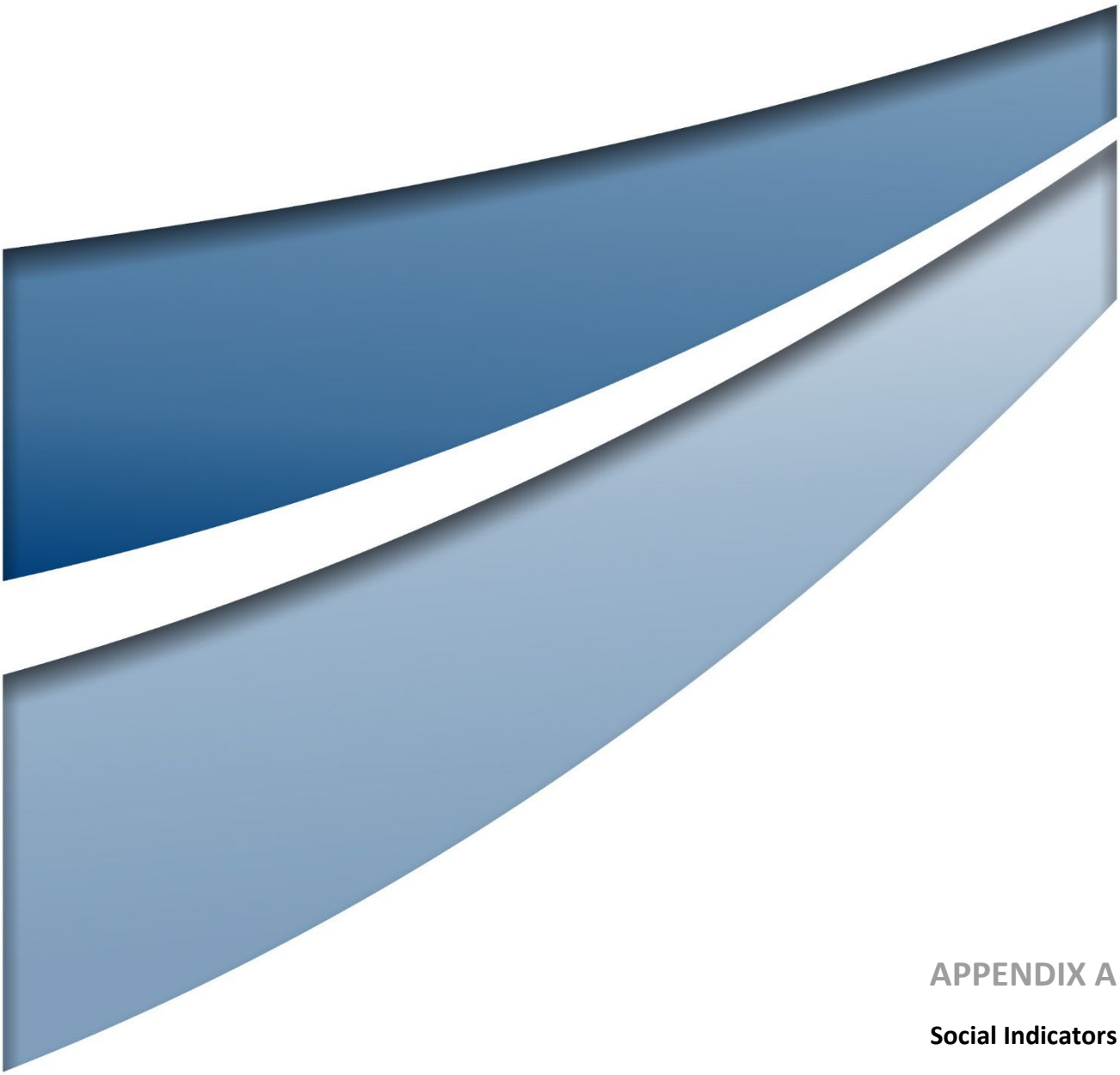
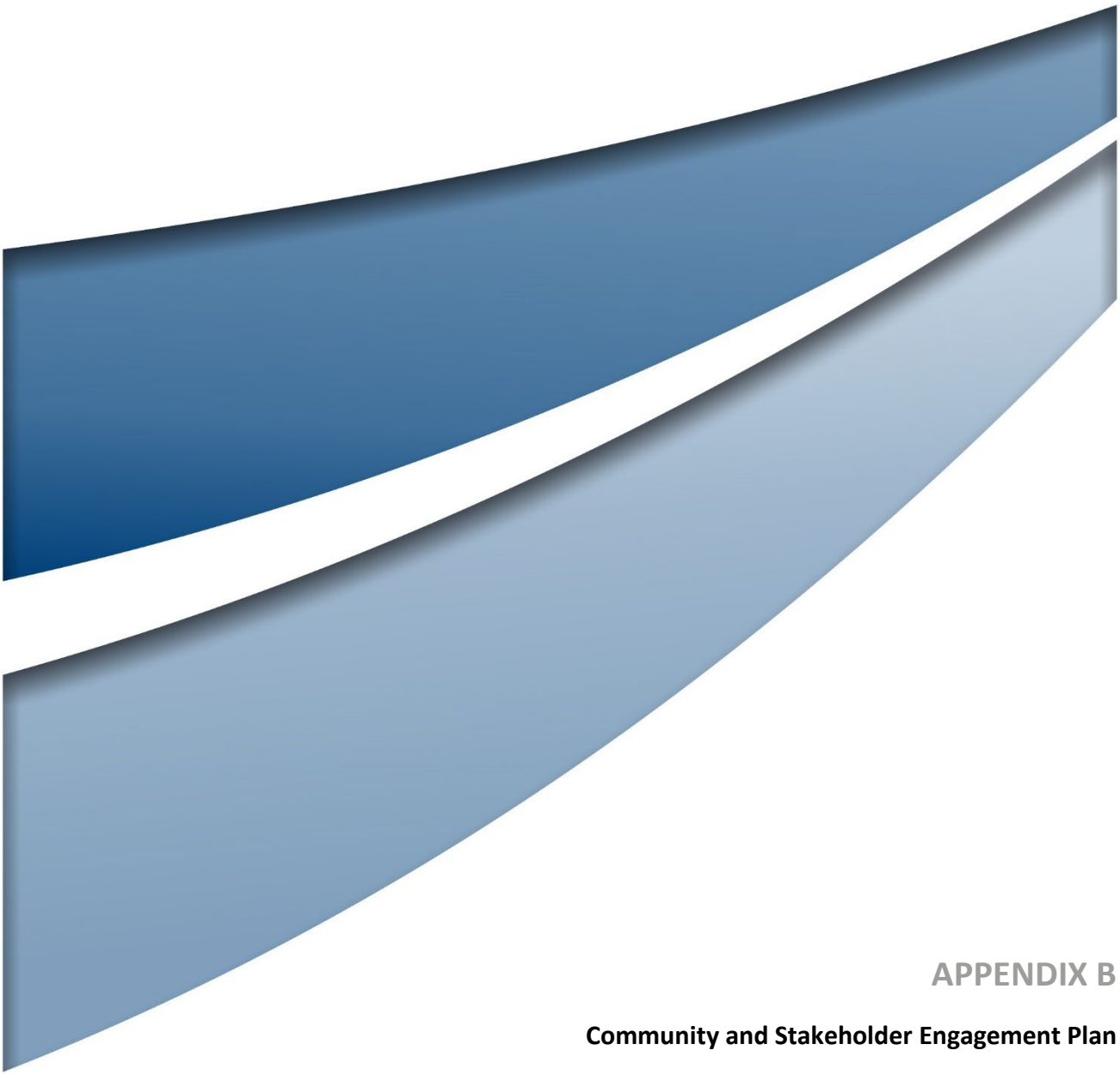


APPENDIX A

Social Indicators

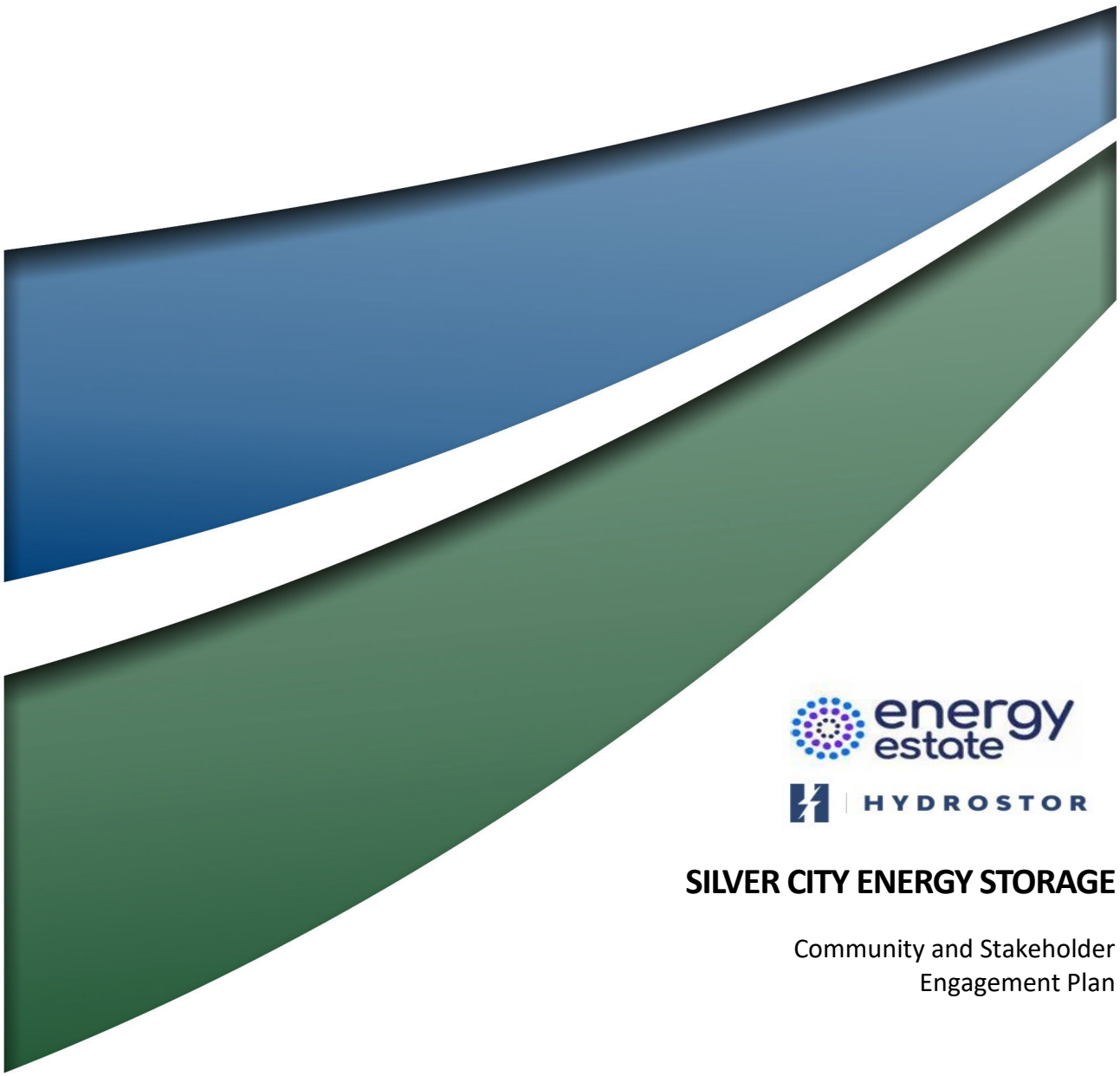
	Broken Hill LGA	NSW
Population Size	17,708	7,480,228
Males (%)	48.7	49.3
Proportion Indigenous Population (%)	8.5	2.9
Median Age	45	38
Bachelor Degree level and above	8.6	23.4
Certificate level IV or III	19.5	14.8
Year 12 or equivalent (%)	8.4	15.3
Year 11 or equivalent (%)	4.4	3.3
Year 10 or equivalent (%)	18.8	11.5
Year 9 or equivalent (%)	16.6	8.4
Proportion of population with the same address one year ago (%)	79	77
Proportion of population with the same address five years ago (%)	65	54
Proportion of population who did voluntary work through an organisation or group in the last 12 months (%)	18.4	18.1
Properties owned outright (%)	42.1	32.2
Properties owned with a mortgage (%)	29.6	32.3
Rented (%)	23.6	31.8
Median weekly rent ($)	190	380
Median mortgage repayment ($)	953	1986
Top industry of employment (Silver-Lead-Zinc Ore Mining) (%)	6.8	0
Top industry of employment (Hospitals) (%)	6.1	3.5
Top industry of employment (Aged Care Residential Services) (%)	3.8	2
Ancestry (Australian) (%)	36.4	22.9
Residents born in Australia (%)	87	65.5
Speak only English at home (%)	88.7	68.5
Dwellings without internet access (%)	29.6	14.6
Country of birth (Australia) (%)	87	65.5



APPENDIX B

Community and Stakeholder Engagement Plan

umwelt
Environmental & Social Consultants



energy estate

HYDROSTOR

SILVER CITY ENERGY STORAGE

Community and Stakeholder Engagement Plan

FINAL

July 2022

SILVER CITY ENERGY STORAGE

Community and Stakeholder Engagement Plan

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Energy Estate and Hydrostor

Project Director: John Merrell
Project Manager: Penelope Williams
Technical Director: Dr Sheridan Coakes
Technical Manager: Rhiannon Jaeger-Michael

Report No. 21982/R02
Date: July 2022

Environmental & Social Consultants

This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	Sheridan Coakes	6/07/2022	John Merrell	6/07/2022

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Tables

1.0 Introduction

Energy Estate and Hydrostor (the proponents) are proposing to develop the Silver City Energy Storage Facility (the Project), which is an Advanced Compressed Air Energy Storage Facility utilising Hydrostor's proprietary technology under a joint venture, at the site of the Potosi Mine north of the City of Broken Hill.

The Project involves the development, construction, operation, and maintenance of a 200 MW and ~1600 MWhr Advanced Compressed Air Energy Storage Facility (A-CAES), comprising of both subsurface and surface infrastructure. The Project will include an approximate 16 km of 220 kV electrical transmission line to connect the facility to the National Energy Market (NEM).

The Project will also be designed to provide 50 MW of reserve capacity for a 6-hour uninterrupted period to Broken Hill to address energy reliability issues.

1.1 Purpose and Objectives

This Community and Stakeholder Engagement Plan (CSEP) outlines the approach, strategy, and implementation program to inform and document the Social Impact Assessment (SIA) and broader Environmental Impact Statement (EIS) for the project's State Significant Development Application (SSDA), to be lodged with the NSW Department of Planning and Environment (DPE).

The purpose of the CSEP is to outline the approach and strategy for community and stakeholder engagement across the Project's planning and approvals phase, to inform the preparation of the Project's SIA and the technical studies (as part of the EIS).

As noted in the NSW DPE SIA Guideline (2021), respectful, inclusive, and meaningful engagement is a fundamental part of project planning and development. Engagement with affected communities and stakeholders provides first-hand insight into what people value and how they expect a project to affect them.

Community and stakeholder engagement is a key component of the EIS and SIA processes, with the DPE SIA Guideline (2021) outlining the following objectives to guide engagement:

- To ensure those potentially affected by a project understand the project and how it will affect them.
- To collect relevant data, evidence, and insights for scoping the SIA to maximise diversity and ensure representativeness of views.
- To understand the interests that people have and how impacts may be experienced (from their perspective).
- To consider the views of people in a meaningful way and use these insights to inform project planning and design.
- To provide opportunities for people to collaborate on project design matters and input to preferred solutions to address impacts.
- To confirm data, assumptions, findings, and recommendations.

- To ensure people know how their input has been considered, and what strategies will be put in place to address their concerns.
- To help understand how other specialist studies prepared for the EIS assist in addressing social impacts.
- To respect people's privacy, allowing them to communicate their views anonymously if requested.
- Given the above, the specific objectives of the CSPE are to:

  - **Identify key stakeholders and communities relevant to the development of the Project.**
  - **Facilitate the genuine involvement of stakeholders in the planning and approvals process as well as in developing responses to positive and negative impacts.**
  - **Support understanding of the project context, including identification of stakeholders and their expectations and aspirations, including identification of any vulnerable or at-risk groups that may be impacted by the project.**
  - **Guide and support a strategic and coordinated approach to engagement, including specific mechanisms, timeframes and responsibilities during the planning and assessment phase of the Project.**
  - **Ensure that community and stakeholder inputs are effectively integrated into the SIA and other technical assessments within the EIS and are considered in the finalisation of the project design.**
  - **Meet regulatory requirements for public, stakeholder and community consultation.**
  - **Collaborate with local stakeholders on local benefit sharing strategies to ensure they are co-designed, targeted, and appropriate to the Project's operating context.**

1.2 Approach and Process

The NSW Government's SIA Guideline (2021) now requires SIA to be undertaken for all SSDs in NSW. SIA is informed by, and relies on, the outcomes of early, and ongoing community and stakeholder engagement through the assessment phase to identify social issues/impacts and develop appropriate strategies to mitigate and/or enhance project impacts.

The approach to stakeholder engagement adopted for the Project is informed by the NSW Government's SIA Guideline (2021), and the NSW Department of Planning and Environment's 'Undertaking Engagement – Guidance for State Significant Projects' (2021). Furthermore, best practice engagement design and delivery will also be guided by the International Association of Public Participation (IAP2) Public Participation Spectrum.

This CSEP outlines the engagement approach to be undertaken in the scoping and EIS phases of the Project.

2.0 Project Overview

The proponents are proposing to build a 200-MW 1600 MW hrs electrical storage facility using Hydrostor's proprietary A-CAES technology. The design of the Project is based on two standardized 100MW turbine / generator modules that will take energy from the NEM during the charging mode and compress air into a section of the existing Potosi underground mine approximately 600 m below ground.

The system is based on Hydrostor's pressure compensated design that uses compressed air to displace water from the underground storage cavity into an above ground water storage reservoir. During the compression cycle, heat generated will be transferred and stored above ground in thermal storage tanks. During the discharge cycle, when there is a demand for the stored energy in the Broken Hill distribution network, operated by Essential Energy, or the NEM, operated by the Australian Energy Market Operator (AEMO), air will be displaced from the underground cavern (i.e. by allowing water from the compensation reservoir to flow back into the underground storage cavity) through the heat recovery system and into two 100MW turbo expander / generator trains to produce synchronous electricity back into the NEM.

As a reliable energy storage solution, the Project is being proposed to address energy reliability and system capacity issues in the Broken Hill area. Currently, the electricity supplied to Broken Hill relies on a single circuit 220kV transmission line from Buronga, a distance of 260 km, that was commissioned in 1979. The transmission line results in a number of issues, particularly:

- When the transmission line is out of service due to maintenance, equipment failure or storm damage the city is cut off from the NSW energy system.
- The transmission line becomes constrained when wind and solar output is optimal resulting in significant curtailment and increased Marginal Loss Factors (MLF).
- The backup supply for the grid at Broken Hill (since the 1980s) has been diesel fuelled turbines, operated by Essential Energy. These turbines are approaching the end of their life cycle and cannot be run in parallel with the 250 MW of renewable energy capacity in Broken Hill, resulting in the loss of this energy supply and heavier reliance on the diesel turbines.

The mix of energy generation across the NEM is rapidly changing. Currently 63% of the NEM's coal and gas assets are scheduled to retire by 2040, with Broken Hill currently being supplied by wind and solar.

While the change towards renewable energy is positive, the Energy Security Board acknowledges the reliance on weather dependant resources within the market is creating system challenges.

Consequently, the Project, provides a new dynamic solution to integrate with renewables, provide dispatchable energy to meet Transgrid's requirements for reliability of power supplies to the City, improving loss factors, and reducing generation curtailments in NSW's southwest energy system.

Project components are summarised below:

- An above ground site (shown in **Figure 2.1** of approximately 600 m x 250 m consisting of:
    - two processing trains of 100MW generation

- a 300 ML surface reservoir
- a switchyard
- a laydown/construction area
- a guard house and offices
- utilities.

- A 250,000 m^3 underground cavern at 550 m below ground.

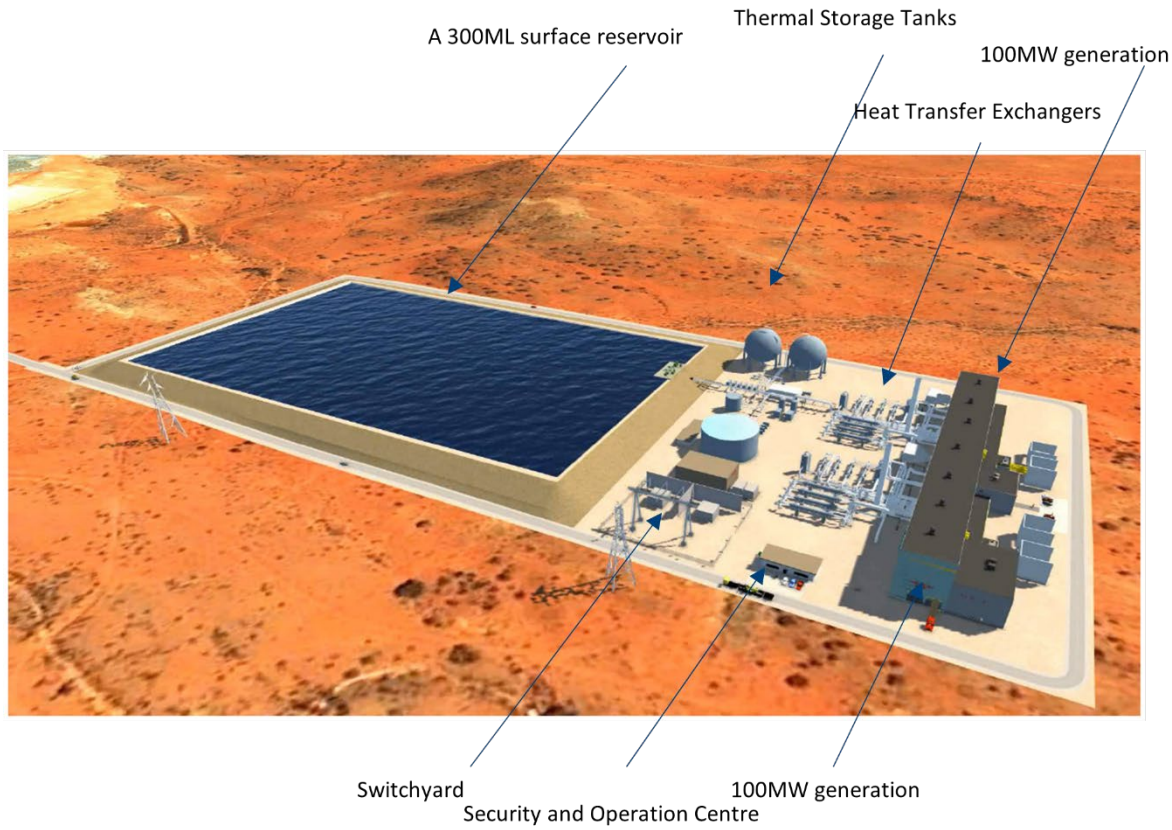


Figure 2.1 Above ground project infrastructure

Source: Hydrostor

The Project is anticipated to employ an average of 260 full time equivalent (FTE) jobs over a 3-year construction period, with a minimum of 750 direct and indirect jobs during this period. Across the 50+ year operational life of the Project, it is expected to support local opportunities, with an average increase of 70 FTE jobs in the Broken Hill region.

2.1 Community Profile and Considerations

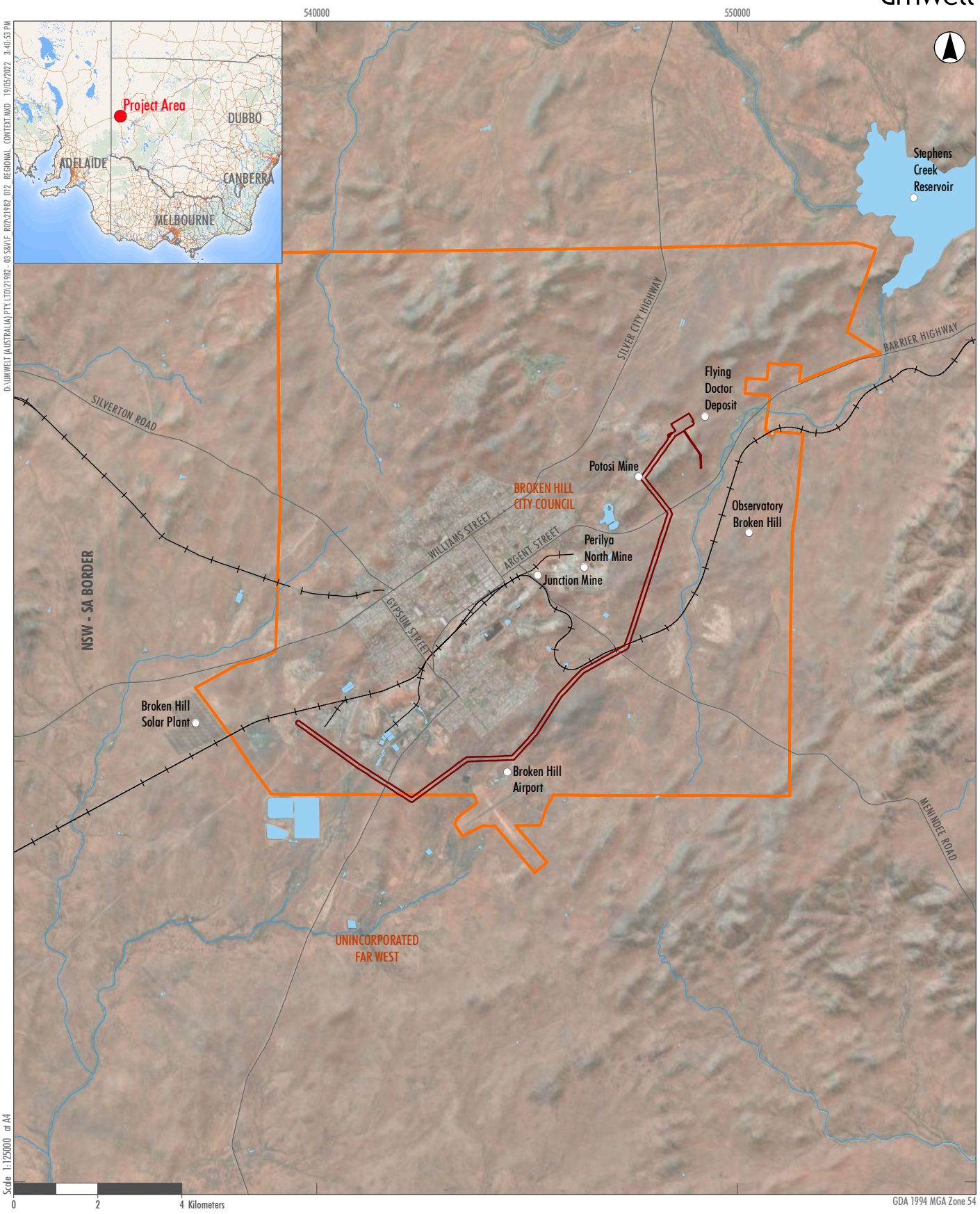
The social locality covers the Broken Hill LGA, however it is likely that the social locality may extend beyond this boundary given the location of ancillary infrastructure and the potential for the Project to draw both construction and operational workforces from other areas.

Initial data has been gathered and summarised from publicly available secondary datasets, including the most recent Australian Census (2016) and Social Health Atlas of Australia (PHIDU, 2021), on the LGA to develop an understanding of the social and economic context in which the Project is located and to identify potentially affected stakeholders and communities.

Table 2.1 outlines some key characteristics of these communities with considerations also noted as a basis to inform engagement planning.

Table 2.1 Community Characteristics and Considerations for Engagement

Characteristics – Broken Hill LGA	Considerations for engagement
Older than average median age (45 years, compared to 38 years in NSW)	May be reluctant to use online engagement mechanisms. More personal mechanisms may be more suitable to facilitate engagement e.g., telephone surveys, personal meetings. Likely to have an interest in the project.
Low proportion of Culturally and Linguistically Diverse communities (3.8% of households speak a language other than English compared to 26.5% in NSW)	Unlikely to require translation of materials into other languages.
High rates of home ownership (71.7% owned outright or with a mortgage compared to 64.5% in NSW)	Landholders are likely to be more invested in outcomes of the project/concerned about the impacts on their property and livelihoods.
Below average (NSW) mobility in most communities (15% with a different address 5 years ago compared to 54% in NSW)	Established communities that are often well connected (resulting in a fast spread of information) and invested in the sense of community in the area.
Higher than average unemployment (8.8% compared to 6.3% in NSW) and technicians and trade workers, and labourers key occupations	Opportunities for the project to provide employment and/or contractor/supplier opportunities, with suitable qualifications for construction and operational work.
The community has experience with past SSD projects	They are likely to have been consulted or made submissions on other projects, therefore, understand the opportunity for participation.



Legend

- Project Area
- Local Government Boundary
- Waterbody
- Road
- Railway
- Drainage Line

FIGURE 2.2

Social Locality

Image Source: ESRI Basemap (2022) Data source: DFSI (2021)

2.2 Social Risk and Mitigation Measures

This section provides an overview of identified local concerns, issues, and interests, of relevance to the Project, sourced from media articles and insights from Essential Energy and Umwelt during previous consultation programs. This information is important to ensure that the engagement program addresses key risks and matters of concern and interest to relevant stakeholder groups, to inform the Project's environmental and social assessment process.

Table 2.2 Potential Social Risks and Proposed Control Measures

High Level Summary of Potential Risks	Potential Consequences	Proposed Risk Control Measures
Inadequate community engagement and consideration of engagement outcomes in project planning and assessment	Increased stakeholder, government, and media scrutiny. Project schedule extended and potential increase in costs as a result of extra effort required to establish relationships/undertake secondary engagement program to reach adequate level of engagement. Lack of awareness/understanding of the project leading to spread of misinformation. SIA unable to adequately identify and assess social impacts based on community engagement.	Full implementation of CSEP. Evaluation of engagement approach. Complete ongoing monitoring of media, community issues, and local stakeholder sentiment to assist in identification of any emerging stakeholder issues. Continue to provide opportunities for information provision and feedback from interested parties. Continue to provide clear, transparent, and proactive communication to stakeholders regarding the project and the assessment process – stages, timing, opportunities for input.
Stakeholder engagement program does not adequately address stakeholders' key interests and concerns	Increased stakeholder, government, and media scrutiny. Lack of trust in the proponents given all stakeholders not consulted. Implications to the robustness of the project. Project schedule extended and potential increase in costs as a result of extra effort required to establish relationship/ address interests and concerns.	Continue to implement the CSEP to ensure stakeholder interests and issues are documented. Continue to update the CSEP to ensure emerging issues are captured and stakeholder identification is refreshed as required. Complete ongoing monitoring of media, community issues, and local stakeholder sentiment to assist in identification of emerging stakeholder issues. Continue to provide an opportunity for key stakeholders to provide feedback, raise issues, concerns and project opportunities.

High Level Summary of Potential Risks	Potential Consequences	Proposed Risk Control Measures
Misunderstanding or misinformation regarding the technology of the A-CAES	Community concern relating to safety or environmental impact. Increased stakeholder, government, and media scrutiny. Lack of trust in the proponents. Project schedule extended and potential increase in costs as a result of extra effort required to establish relationship/ address interests and concerns.	Develop key messages and project information to explain the technology. Communicate use of technology in other projects. Complete ongoing monitoring of media, community issues, and local stakeholder sentiment to assist in identification of emerging stakeholder issues. Continue to provide an opportunity for key stakeholders to provide feedback, raise issues, concerns and project opportunities.

2.2.1 Community Acceptance of New Technologies

Given the ongoing climate change debate, the attitudes towards and understandings of climate change and atmospheric emissions of CO_2 have become important in shaping social acceptance of new energy technologies such as A-CAES. Indeed, these attitudes and understandings shape the social-psychological, contextual, and technological factors that influence acceptance.

Lack of experience inevitably contributes to large and multiple uncertainties when new technologies appear, and thus uncertainty plays a major role in public response and acceptance of these technologies.

Accordingly, the primary challenge for those seeking social acceptance of new energy technologies is to generate knowledge, salience and trust in the community about the technology, and to address community experiences (both past and present). In this regard Van Alphen et al. (2007) have developed six key recommendations or conditions for proponents seeking social acceptance that include:

1. a focus on safety
2. the nature and timing of the project should be communicated
3. financial stimuli should be provided in some form
4. information should be simple
5. the proponent must involve and work with the community
6. and open communication must be employed.

Brohmann et al. (2007), also outline the need to identify stakeholders and critical issues in early stages of a project; to understand local processes; continually assess progress and community perceptions; use contextually appropriate mechanisms and procedures; and be flexible and adaptable to shifting expectations and circumstances.

Given the current focus and momentum around the energy transition, community and interest group dialogue is increasing, with groups critically analysing the use of particular technologies, making more concrete comparisons between '*clean'* and '*green'* energy production strategies.

In summary, the Project is relatively complex, with multiple components. Each component will draw interest from stakeholders that either live in the general vicinity of the proposed plant or infrastructure, that may be directly impacted by the proposed project activities, and/or those that have a significant interest in the topic of energy supply. Consequently, while the social area of influence of the project may be defined geographically, interest in the Project and its outputs, is likely to be broader.

The proposed engagement approach provides the opportunity to provide the community and key stakeholders with a complete overview of the project and its key components and to facilitate an integrated SIA and engagement program to inform the assessment process and ensure that social and community impacts are identified and effectively managed.

The following section outlines the proposed methodology to address the SIA scope requirements for the Project.

3.0 Engagement Strategy

In line with the SIA Guideline, community engagement will be used to identify community's values and aspirations in relation to the project, and to focus the SIA and the broader EIA on key issues of concern for relevant stakeholders and local communities, including opportunities to consider stakeholder feedback in the final design to address and/or enhance project impacts.

The basic principles of effective public participation (IAIA, 2006) will also be applied, to ensure that engagement is:

- relevant to the context
- informative and proactive
- adaptative and communicative
- inclusive and equitable
- educative
- cooperative.

3.1 Stakeholder Identification

Social impact assessment involves the participation and collaboration of people who 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, work, or recreate near the Project
- have an interest in the proposed action or change
- use or value a resource associated with the Project
- are affected by the Project e.g., may be required to relocate as a result of the project.

A stakeholder identification process was undertaken to support the planning and delivery of community and stakeholder consultation to inform the SIA/EIA. This process has involved identifying stakeholders with an interest in the Project, or those that may be directly or indirectly affected by the Project, including any potentially vulnerable or marginalised groups.

The stakeholders noted in **Table 3.1** relate only to the engagement program associated with the SIA, noting that the proponents are conducting their own engagement program with other relevant stakeholders.

Table 3.1 SIA Stakeholders

Affected stakeholder groups	Potential stakeholders	Prioritisation	Level of Engagement
Host Landholders	Landowners upon which Project infrastructure is proposed	High	Collaborate
Proximal landholders	Private landholders proximal to the Project Area (including the SCES Facility and transmission line)	High	Collaborate
Broader community	Residents in the Broken Hill LGA	Medium	Consult
Aboriginal stakeholders	Broken Hill Local Aboriginal Land Council Barkindji Native Title Group Aboriginal Corporation Maari Ma Health Aboriginal Corporation	High	Involve
Local government	**Broken Hill City Council**: CEO, Communications Manager, Mayor and Councilors	High	Consult
Local businesses and service providers	**Accommodation providers:** to snowball sample from conversations with Council	High	Involve
	Local businesses: to snowball same from conversations with Council and Broader Community	High	Involve
	Example Employment providers: Joblink Plus, Sureway Employment & Training, CoreStaff, West State Training Employment Services, Australian Business Apprenticeships Centre	Medium	Consult
	Example Health providers: Broken Hill Community Health Service, Far West Area Health Service, Broken Hill GP Super Clinic, Clive Bishop Medical Centre (RFDS), Nachiappans (GP), Thrive Medical, South Medical Centre, Broken Hill Base Hospital	Low	Inform
	Example Emergency service providers: Broken Hill Ambulance Service, Broken Hill Fire Station, Broken Hill Police Station, Broken Hill State Emergency Service	Low	Inform
Community and development groups	Broken Hill Community Inc. Broken Hill Small Business Association Broken Hill Foundation	Medium	Consult
Environmental groups	Landcare Broken Hill Barrier Field Naturalist Club	High Medium	Involve Consult

3.2 Engagement Mechanisms

The engagement of stakeholders and community groups will include a combination of information provision (inform) and engagement (consult, involve) (IAP2, 2014) mechanisms to:

- Improve knowledge and awareness of the proponents and their activities, the project, and key issues/impacts as they arise.
- Facilitate stakeholder involvement in the identification of issues/impacts, areas of interest/concern and strategies to address the issues raised.

- Engagement mechanisms have been selected based on engagement objectives and previous knowledge of stakeholder engagement preferences. Mechanisms selected will build on previous mechanisms utilised by the proponents, as relevant. **Table 3.2** provides an overview of the mechanisms to be utilised for the project and their engagement objective.

Table 3.2 Engagement and Communication Mechanisms

Mechanism	Engagement Objective	Description
Website	Inform	A dedicated project website page to provide project information and updates
Email	Inform	A dedicated project community email address to enable the community to contact the project team for information or to provide feedback on the project.
Project Information Sheets	Inform	Distribution of project updates and information on project technology throughout the proximal community.
Information Session	Consult	A drop-in information session to present information and updates on the project with invites distributed to the broader community through a number of mediums.
Online Survey	Consult	An online survey to gain feedback from key stakeholders and the broader community on the project and community needs and values, to be advertised and distributed through various mechanisms.
Project Briefing	Involve	Formal briefings to key stakeholders and government agencies, with slide deck to formally introduce or provide updates on the Project.
Personal Meeting/Interview	Involve	Telephone, online or in-person meetings with individual key stakeholders or small groups.
Service Provider Survey	Involve	Surveys undertaken via telephone by Umwelt to understand the capacity and demand for services in the area e.g. housing/accommodation, health, recreational, employment etc.

Table 3.3 outlines the mechanisms that are planned to be utilised to engage with each stakeholder group for the Project.

Table 3.3 Mechanisms by Stakeholder Group

Stakeholder Group	Website/ Phone/ Email	Project Information Sheet	Information Session	Project Briefing	Personal Meeting/ Interview	Service Provider Survey	Online Survey
Proximal landholders							
Broader community							
Aboriginal stakeholders							
Local government							
Local businesses and service providers							

Stakeholder Group	Website/ Phone/ Email	Project Information Sheet	Information Session	Project Briefing	Personal Meeting/ Interview	Service Provider Survey	Online Survey
Community and development groups							
Environmental groups							

3.3 Instruments and Supporting Materials

Umwelt will draft and prepare instruments, materials, and tools to be used to support engagement in accordance with the CSEP. These materials, to guide engagement, will be prepared following Energy Estate and Hydrostor's confirmation of the Implementation Plan (**Section 5.0**). Instruments to support engagement activities will include the following:

- **Interview discussion guides** – a suite of discussion guides including a standard discussion template/survey question set, as well as targeted guides for specific stakeholders or community groups. Each guide will likely include up to 5 open ended questions.
- **Service provider survey** – survey instrument to be administered to local service providers, primarily quantitative questions with qualitative questions relating to capacity and community needs.
- **Stakeholder engagement database** – set up of a stakeholder engagement register template in Excel or a related package e.g. Consultation Manager Discussion points for engagement activities are likely to include:
    - knowledge and awareness of the project
    - positive and negative social impacts of the project
    - measures to mitigate and enhance project impacts
    - preferred engagement mechanisms and information requirements
    - community values, needs and aspirations.

4.0 Implementation Plan

Mechanism	Target Stakeholder Group	Objectives	Tasks	Responsibility	Timing
Scoping Phase					
Project Briefing	Local Council	Provide project overview and update, understand interests and concerns	Organise briefings	Hydrostor/ Umwelt	W/C 28/2
			Develop briefing presentation	Hydrostor/ Umwelt	W/C 7/3
			Attend briefings	Hydrosor/Umwelt	W/C 14/3
			Analyse/report on outcomes	Umwelt	W/C 25/4
Information Sheet #1	Proximal landholders Broader community	Introduce the project and the proponents	Draft information sheet content	Umwelt	W/C 21/3
			Review and approve content	EE/Hydrostor	W/C 28/3
			Design information sheet	Umwelt	W/C 28/3
			Review and approve	EE/Hydrostor	W/C 28/3
			Print information sheet	Umwelt	W/C 28/3
			Distribute information sheet	Umwelt	W/C 4/4
Information Session #1	Proximal landholders Broader community Aboriginal stakeholders Community and development groups Environmental groups	Provide project overview, understand interests and concerns, community needs and values, facilitate understanding of project in community	Organise session and supporting materials	Umwelt/EE	W/C 28/3
			Advertise session	Umwelt/EE	W/C 4/4
			Attend session	Umwelt/EE/ Hydrostor	W/C 11/4
			Analyse/ report on outcomes	Umwelt	W/C 25/4
Key Stakeholder Interviews	Proximal landholders Aboriginal stakeholders	Provide project overview, understand interests and concerns, community needs and values, facilitate understanding of project in community	Organise meetings	Umwelt	W/C 11/4
			Undertake meetings	Umwelt/EE/ Hydrostor	W/C 18/4
			Analyse/ report on outcomes	Umwelt	W/C 25/4

Mechanism	Target Stakeholder Group	Objectives	Tasks	Responsibility	Timing
Online Survey	Broader community	Understand interests and concerns, community needs and values from the broader community	Develop survey instrument	Umwelt	W/C 28/3
			Review & approve survey instrument	EE/Hydrostor	W/C 4/4
			Post survey online	Umwelt	W/C 4/4
			Advertise survey	Umwelt/EE	W/C 11/4
			Analyse/ report on outcomes	Umwelt	W/C 2/5
Information Sheet #2	Proximal landholders Broader community	Answer key questions raised in consultation and address uncertainties, distribute link for online survey	Draft information sheet content	Umwelt	W/C 2/5
			Review and approve content	EE/Hydrostor	W/C 9/5
			Design information sheet	Umwelt	W/C 16/5
			Review and approve	EE/Hydrostor	W/C 23/5
			Distribute information sheet	Umwelt	W/C 30/5
Assessment Phase					
Information Sheet #3	Proximal landholders Broader community	Validate outcomes of the scoping phase engagement	Draft information sheet content	Umwelt	TBC pending SEARs
			Review and approve content	EE/Hydrostor	TBC pending SEARs
			Design information sheet	Umwelt	TBC pending SEARs
			Review and approve	EE/Hydrostor	TBC pending SEARs
			Distribute information sheet	Umwelt	TBC pending SEARs
Service Provider Surveys	Service providers	Provide project overview, understand existing capacity, supply and demand trends, community needs and priorities	Develop survey instrument	Umwelt	TBC pending SEARs
			Review and approve survey instrument	EE/Hydrostor	TBC pending SEARs

Mechanism	Target Stakeholder Group	Objectives	Tasks	Responsibility	Timing
			Undertake interviews	Umwelt	TBC pending SEARs
			Analyse/ report on outcomes	Umwelt/ Hydrostor	TBC pending SEARs
Key Stakeholder Interviews	Proximal landholders Aboriginal stakeholders Community and development groups Environmental groups	Validate interests and concerns, community needs and values	Organise meetings	Umwelt	TBC pending SEARs
			Undertake meetings	Umwelt/EE/ Hydrostor	TBC pending SEARs
			Analyse/ report on outcomes	Umwelt	TBC pending SEARs
Information Session #2	Proximal landholders Broader community Aboriginal stakeholders Community and development groups Environmental groups	Provide a summary of EIS and SIA outcomes. Validate interests and concerns, community needs and values.	Organise session and supporting materials	Umwelt/EE	TBC pending SEARs
			Advertise session	Umwelt/EE	TBC pending SEARs
			Attend session	Umwelt/EE/ Hydrostor	TBC pending SEARs
			Analyse/ report on outcomes	Umwelt	TBC pending SEARs
Information Sheet #4	Proximal landholders Broader community	Provide a summary of EIS and SIA outcomes	Draft information sheet content	Umwelt	TBC pending SEARs
			Review and approve content	EE/Hydrostor	TBC pending SEARs
			Design information sheet	Umwelt	TBC pending SEARs
			Review and approve	EE/Hydrostor	TBC pending SEARs
			Distribute information sheet	Umwelt	TBC pending SEARs

5.0 Key Messages

For the assessment phase of the EIS, key project messages will be developed and adapted for communication to targeted stakeholders and community residents. Key messages will be developed in line with the principles and commitments outlined within **Section 1.0** of this document and will be developed to share information related to the Project and its current activities, as well as to respond to stakeholder issues, concerns and interests through the development of the Project.

Key messages will be developed to:

- Provide clear and consistent information relating to the project.
- Clearly articulate project aspects and components.
- Outline the environmental and social impact assessment process and opportunities for engagement.

Key messages have been developed and refined around four message categories as outlined below. These will be used to inform engagement and associated material development.

The proponent – who is Energy Estate? Who is Hydrostor?

The Project – what is the A-CAES? Including details on the Project, quick facts, and project description

The process – the development planning and EIS process, including key milestones and opportunities for engagement and the broader SIA process

Impacts and opportunities – key issues in relation to the Project i.e., social and environmental impacts, stakeholder issues/concerns, opportunities and benefits, engagement preferences and information requirements.

5.1 Who is Energy Estate and Hydrostor?

Question	Message
Who is developing the project?	The project is being proposed as a joint venture between Energy Estate and Hydrostor.
Who is Energy Estate?	Energy Estate is an Australian company which develops and accelerates projects and businesses in the energy sector whose mission is to help drive the transformation of the energy sector. Energy Estate is proud to be the leading developer and strategic designer of advanced industrial precincts across Australia.

Question	Message
Who is Hydrostor?	Hydrostor, a private company founded in 2010 and based in Toronto, Canada, is the world's leading developer of utility-scale energy storage facilities. Hydrostor's proprietary Advanced Compressed Air Energy Storage (A-CAES) product improves on the mature Compressed Air Energy Storage (CAES) technology by eliminating emissions, increasing efficiency, and providing location flexibility. Hydrostor technologies provide long duration, non-emitting, cost-effective energy storage enabling direct replacement of fossil generation, deferral of costly transmission investments and greater integration of renewable generation as the grid decarbonizes. Hydrostor is a renewable energy solution provider with speciality in Advanced Compressed Air Energy Storage (A-CAES) technology. It currently has development activities across Australia, USA, UK, Canada, and Chile.
Where do they have project interests and what is their track record?	Energy Estate, with its key partners, is developing large scale renewable energy and green hydrogen projects in areas such as Central Queensland near Gladstone, at Abbot Point in Queensland, on the Walcha plateau in NSW, in the Hunter Valley in NSW, and in Texas, USA. Hydrostor has current and planned projects across Australia and internationally in the USA, United Kingdom, Canada and Chile. Hydrostor also has an operating A-CAES facility in Goderich Ontario Canada
How many people will they employ?	The Project is anticipated to employ a minimum of 750 direct and indirect jobs in the 3-year construction period, and a minimum of 6 jobs in the operational phase in addition to a further 30 indirect, ongoing jobs across its 50+ year asset life.
How do their projects benefit communities?	Energy Estate and Hydrostor are guided by core principles that place social responsibility and environmental sustainability at the forefront. The Project will back up the reliability of the power supplies to Broken Hill when the transmission line is unavailable by retaining 50 MW nameplate capacity for ~ 6 hr duration or 300MWh of energy in a reserve. The project potentially be a catalysis for additional; renewable energy to be constructed in the Broken Hill area by being able to load shift up to 1200 MWhrs of energy to be delivered to the NEM during non-productive renewable energy periods. The Project is anticipated to employ a minimum of 750 direct and indirect jobs in the 2-year construction period, and a minimum of 6 jobs in the operational phase in addition to a further 30 indirect, ongoing jobs across its 50+ year asset life. The project would result in more than $500M invested in Australia and $250M directly into the regional economy via significant local procurement and $10M of ongoing contribution over the 50+ year plant lifetime.

5.2 What is the Broken Hill ACAES Project?

Question	Message
What is the project?	The Project involves the construction and operation of an advanced compressed air energy storage system (A-CAES). This includes construction of: • Above ground electricity generation and transmission infrastructure • 300ML surface reservoir • 250,000m^3 underground cavern

Question	Message
How does the technology work?	The project uses excess power generated from the grid taken when renewable energy generation is high and consumption is low. This energy is used to create and store compressed air in an underground storage cavern which will be created at the existing Potosi Mine site. This facility is similar to the Huntrof and Macintosh CAES facilities located in Germany and Alabama USA since 1970 and 1991 respectively. These are two large utility scale compressed air energy storge facilities that use similar technology. When power is required, a combination of compressed air, water pressure and heat are utilised to power turbines to generate electricity.
Where is the project?	The project is located on the Potosi Mine Site, approximately 3 km north-east of Broken Hill.
Will the transmission line be underground or above ground?	A transmission line will be required to connect the A-CAES to the existing electricity network via a substation near the south western edge of Broken Hill. Approximately 10 km will be above ground and 2 km below ground (to avoid airspace impacts associated with the Broken Hill Airport)
How much land will it take up?	The Project includes: • Above ground facility will occupy approximately 20 hectares within the Potosi Mine Site. • Additionally, there will be a 12 km transmission line (overhead/underground) to connect to the grid • Underground cavern (approximately 250,000 m^3)
What will the project produce?	The project is a large-scale long-duration energy storage system (200MW/1600MWh). The ACAES will provide a standalone energy reliability system for Broken Hill as well as providing green energy to the grid, including: • 200MW for 8hr storage duration • 50 MW for 6hr reliability reserve
What's the timing of the project?	Operational in 2026
How long will it take to construct?	Total design and construction timeframe is approximately 3 years
Where will construction workers live?	Locally in Broken Hill. Construction will draw on the existing skilled Perilya workforce and local subcontractors for the civil and mining works
How long will it be operational?	50 year operational life

5.3 What is the Assessment Process?

Question	Message
Why am I being contacted?	As part of the approval process for the Project, a SIA, including a community engagement program, will be prepared that addresses relevant guidelines. The engagement program includes consultation with interested parties, affected communities and local representative groups. The outcomes of the engagement program will inform the development of the EIS.

Question	Message
What are the likely impacts – should I be concerned?	Comprehensive assessments will be completed to identify the potential positive and negative impacts of the project and how best to manage these potential impacts. The detailed design of the Project will be informed by these studies to ensure that negative impacts are mitigated to the greatest extent possible, and positive impacts enhanced.
What assessment process is required?	The project is declared as a State Significant Development (SSD) project and will require development consent under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). This involves developing an EIS to submit to the NSW Department of Planning and Environment (DPE). The EIS includes a SIA, in addition to several specialist studies including assessments on effects to visual changes, traffic and transport, air quality, noise and vibration, biodiversity, Aboriginal and non-Aboriginal heritage, surface water and groundwater, hazard and risk, soils and land use.
Who will approve the project?	DPE will make a decision to approve or reject the Project. The Project may get referred to the Independent Planning Commission by DPE should over 50 community submissions be received and/or Council object to the Project, in this case, the Commissioners will assess the Project and make a determination on whether or not to approve the project.
How will the determination consider my concerns?	The feedback received through the engagement program will inform the SIA for the project, and the broader EIS, to be lodged with DPE for assessment.
How long will the approvals process take?	The Project Scoping Report and SIA Scoping Report is expected to be submitted to DPE in May 2022. The EIS and SIA for the Project are expected to be lodged in Q4 2022.
How can I have my say?	The engagement program for the Project includes consultation with interested parties, affected communities and local representative groups through a range of personal meetings, community forums and other mechanisms. People can also learn about the Project through the project website. Further, people can raise queries, receive feedback, and generally express an interest in being informed via the dedicated email.

5.4 Impact and Opportunities Associated with the Project

Question	Message
How will I be affected?	Positioning the A-CAES facility outside of the town of Broken Hill and within an existing mine site provides for separation between the majority of the proposed infrastructure reduces the majority of the potential impacts. The proponents recognise that the siting of the project may still result in some community impacts (both positive and negative) and that impacts may be experienced differently across stakeholder groups. They are committed to working with the community and key stakeholders to identify potential environmental and social impacts associated with their proposed project and to explore relevant strategies to mitigate any negative impacts and enhance positive impacts. The proponents will work to ensure that through the EIS, SIA and associated community engagement process, that community issues are well understood and are addressed, where possible, in project design and planning.

Question	Message
What is the project going to do for residents and the community? How will we benefit?	The proponents are committed to building strong local relationships with key stakeholders and communities as part of their planning and understands the importance of ensuring local participation and community input, to achieve positive local and regional community benefits.
Will the projects make energy cheaper or easier to access in our local area?	The Project will improve access to a reliable energy supply to Broken Hill, by retaining 250-300 MWH of energy in a reserve, and deliver the remainder of the solution, 1200 MWH to trade or sell into the NEM.
How will the project influence climate change?	The project is aligned with the Australian Government's energy policy, through its key objectives of supporting the National Energy Market to provide reliable electricity, developing energy infrastructure that is efficient, and contributing to net reductions in greenhouse gas emissions through replacement of existing diesel-powered electricity back up system. The Project will ensure a greater usage of renewable electricity generates from existing wind and solar projects, whilst also stimulating the development of new Projects. Greenhouse gas emissions associated with the construction of the project will be investigated during the EIS process.
Will the project stop mining at the Potosi Mine?	The Project will be constructed to enable the Potosi Mine to continue operations. The closure date of the mine will be determined by Perilya.
What are the safety and health risks associated with the project?	The project will be subject to detailed design and assessment to provide for safe construction and operation including: • Surface facilities located within existing Potosi Mine site with appropriate separation distances to residential land uses. • New underground workings will be designed and managed by experienced cavern constructors. • The underground cavern will be constructed based on specialised civil design with significant safety factors • Bulkheads used to seal the cavern will enable safe side-by-side operation with Potosi Mine
What is the impact on fauna and flora?	Impacts to fauna and flora may occur as a result of ground disturbance associated with the construction of the proposed infrastructure. A detailed biodiversity development assessment report will be developed for the Project which will assess the impact to flora and fauna and determine appropriate offset requirements applicable to the Project.
What happens to the infrastructure when it is no longer used?	The infrastructure would be decommissioned and removed should the facility no longer be required. A decommissioning and rehabilitation management plan would be developed and implemented prior to closure to manage this process.

6.0 Reporting and Evaluation

6.1 Record-Keeping and Stakeholder Database

A dedicated Stakeholder Database will be established in Microsoft Excel format or nominated database, to record stakeholder interactions and related information throughout the Project's planning and approvals phase. This will include an Engagement Register, where team members will record the contact details of stakeholders, summaries of each consultation undertaken, and any actions that arise from these meetings. This database will be established by Umwelt on an interactive and accessible platform for live sharing with the project team (e.g., SharePoint).

Outcomes and records of each engagement activity will be documented by the team member(s) in attendance. The Engagement Register will be maintained throughout the delivery of the Implementation Plan to ensure consistent tracking and recording of all community or stakeholder engagement activities and outcomes. Information to be recorded will include:

- stakeholder contact details
- consultation activity (including stakeholder engaged, attendees, time, place, mechanism used)
- discussion points
- summary of key outcomes, including any actions arising
- preferences for future engagement.

Following completion of engagement for each phase, outcomes and data obtained will be collated and analysed to identify key impact themes and impact prioritisation. Identified issues or impacts may also be mapped to identify any spatial/geographic patterns in the data obtained.

Outcomes of the engagement will then be collectively summarised in the SIA. Outcomes of the engagement will also be provided to inform relevant EIS technical studies and for further consideration in project design and planning.

6.2 Evaluation

The implementation of the CSEP will be monitored and evaluated on an ongoing basis to ensure the effectiveness of the CSEP in achieving the objectives outlined in **Section 1.1**. The evaluation will be based on ensuring that:

- All key stakeholders and communities relevant to the project have been identified, in particular, vulnerable and at-risk groups.
- All identified and interested stakeholders are provided the opportunity to participate in the engagement program.
- Relevant project information will be provided to all stakeholders and all questions and queries received will be followed up in a timely manner by Umwelt and/or the proponents.

- Regular project team meetings will be held between Umwelt and the proponents to provide required updates and ensure a collaborative and consistent approach to engagement across the project.
- Engagement outcomes and community feedback is meaningfully and adequately considered in the development of the SIA and EIS, and where possible, is used to inform project design and refinements, including the development of local community benefit sharing programs.
- All regulatory requirements relating to community engagement are met.
- Engagement is timely, open/transparent, inclusive, and meaningful.

Mechanisms/methods such as those outlined below, will be used to ensure that the engagement program is on track and is responsive to any changing project issues:

- Proactive contact made with stakeholders identified in **Section 3.2**.
- Prompt project team response and inclusion of stakeholders interested in being involved in the project.
- Fortnightly project meetings to discuss outcomes of engagement progress.
- Fortnightly media monitoring to identify any emerging community issues and concerns.
- Evaluation items utilised in relevant survey instruments and discussion guides to facilitate process improvement.
- Outcomes of the engagement program communicated to project team members.
- Transparent summary of community issues and impacts associated with the project reported in the SIA and used to inform the Project EIS.

Revisions and updates to the CSEP will be made as required, to address any issues raised or ideas for improvement, in collaboration with the proponents.

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