



APPENDIX R ECONOMIC IMPACT ASSESSMENT

Canyonleigh Battery Energy Storage System

Economic Impact Assessment

PREPARED FOR
X-Elio Aus2 Pty Ltd

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Canyonleigh Battery Energy Storage System

Economic Impact Assessment

0711340



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EXECUTIVE SUMMARY

X-Elio Aus2 Pty Ltd (the Applicant) is seeking approval for the construction, operation, and decommissioning of the Canyonleigh Battery Energy Storage System (BESS) (the Project), a renewable energy development located in Brayton, New South Wales (NSW) 2579. The Project is situated within the Goulburn Mulwaree Local Government Area (LGA) and is proposed to commence construction in late-2026, with commissioning and operation anticipated in 2027.

This report assesses the potential economic impacts of the construction and operation of the Project on the regional and state economy using Input-Output (IO) analysis. It has been prepared to support and inform the Environmental Impact Statement (EIS) for the Project. The Project impacts have been assessed in accordance with the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning, Housing and Infrastructure (DPHI) and in line with the relevant legislation and guidelines. The SEARS for the Project were issued on 12 December 2024 (SSD-78247462).

POTENTIAL BENEFITS DURING THE CONSTRUCTION AND OPERATION PHASES

The Project will support economic activity that benefits the regional and state economy during both the construction and operation phases. During the construction phase, agricultural production on the construction site will be disrupted, with potentially minor impacts also anticipated on neighbouring properties. The Project has proposed to work with neighbours to minimise any disruption. Based on our assessment the economic benefits of the Project will outweigh the loss of agricultural production.

Increased economic activity in the regional and state economy arise from:

- Expenditure in the region and state on non-labour inputs to production;
- Direct employment of local labour or in migration of labour;
- Temporary increases in the local resident population; and
- Expenditure of wage income in the local economy.

Most of the economic impact will be in the Construction sector and Electricity sector with significant flow-on effects to the Manufacturing, Professional and Scientific services and Financial and insurance services. Our analysis estimates the Project will stimulate increased annual total economic output of:

- \$165 million during the construction phase for the regional economy,
- \$184 million during the construction phase for the state economy,
- \$92 million during the operation phase for the regional economy,
- \$112 million during the operation phase for the state economy.

Our analysis estimates the Project will generate:

- 106 Full Time Equivalent (FTE) jobs annually during the construction phase in the regional economy,
- 125 FTE annually during the construction phase in the state economy,
- 7 FTE jobs annually during the operation phase in the regional economy,
- 8 FTE jobs annually during the operation phase in the state economy.

The Project represents significant economic benefits to the region and the state. It is likely that some employment will be from outside the region, given the limited labour force available. Current unemployment in the Goulburn Mulwaree LGA is 4% which provides limited labour force flexibility for the Project. There are less than 1,500 people currently employed in the construction industry. It is expected that during the construction phase the labour force will reside in Goulburn (50%) and outside of the social locality (50%) (Environmental Resources Management (ERM), 2024).

MANAGING THE COMMUNITY IMPACTS OF INCREASED ECONOMIC ACTIVITY

Given the prevailing local market conditions, this investment, and renewables investment more broadly, may have unintended negative impacts on the local community. Whilst this Project is relatively small, any negative impact will be amplified by the cumulative impact of similar projects within the vicinity of this Project. Notably, whilst incoming labour will increase the local resident population and drive increased economic activity, it may also result in:

- Tension within the currently tight housing market. Goulburn Mulwaree LGA has a 0.66% rental vacancy rate. With a sudden influx of labour for this and other projects, housing demand is likely to outstrip supply. This can lead to higher rents and potential crowding out of current residents, as housing markets are typically slow to respond to large changes.
- Pressure on services, entertainment, transport and retail where there is scarcity. Unlike the housing market, many of these pressures are likely to be temporary, as markets can adjust quickly. An exception to this is health services and public transport, which can take longer to adjust.
- Wage pressure and labour shortages across the regional economy, as renewable projects compete with local businesses across multiple industries for skills. This could have inflationary impacts as higher operating costs are passed through to end users in the local communities.

These impacts are sensitive to the balance between Drive-In Drive-Out (DIDO) and localised labour adopted by this Project and other renewable energy projects in the region. The Applicant has collaborated closely with local councils and communities to mitigate the above risks associated with an increase in economic activity. Mitigating measures may include:

- Creating commutable routes (private shuttle busses) to the Project from the wider region to alleviate housing pressure
- Prioritising employment opportunities for current residents,
- Sourcing local inputs for production where possible,
- Establishing benefit sharing schemes within the local community,
- Working with neighbours to minimise agricultural disruption during the construction and operation phases.

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APPENDIX A THE INPUT-OUTPUT FRAMEWORK OVERVIEW

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ACRONYMS AND ABBREVIATIONS

Name	Description
<i>Terminologies</i>	
Applicant	X-Elio Aus2 Pty Ltd
Project	Canyonleigh Battery Energy Storage System
Project Area	The area to which the development application applies. This area encompasses temporary and permanent Project infrastructure, and additional areas that have been excluded from the project design.
Development Footprint	Maximum area directly impacted area by Project construction and operation. The Development Footprint is located entirely within the Project Area. It includes all temporary and permanent development, and all areas where vegetation may be removed during project construction and operation of the Project until decommissioning.
<i>Acts</i>	
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
<i>Acronyms and Abbreviations</i>	
ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industrial Classification
BESS	Battery Energy Storage System
CGE	Computable General Equilibrium
DIDO	Drive-in drive-out
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
ERP	Estimated Residential Population
FIFO	Fly-in fly-out
FTE	Full time equivalent
ha	hectares
IO	input-output
kV	Kilovolt
LGA	Local Government Area
MW	Megawatt

Name	Description
MWh	Megawatt hours
NSW	New South Wales
O&M	Operations and Maintenance
REIA	Real Estate Institute of Australia
SA	Statistical Area
SSD	State Significant Development
SCADA	Supervisory Control and Data Acquisition
SEARs	Secretary's Environmental Assessment Requirements

1. INTRODUCTION

1.1 PROJECT OVERVIEW

X-Elio Aus2 Pty Ltd (the Applicant) proposes to construct and operate the Canyonleigh Battery Energy Storage System (BESS) (the Project), a renewable energy development situated at 962 Canyonleigh Road, Brayton, New south Wales (NSW). The Project is proposed to commence construction in mid-2026, and commissioning and operation is anticipated from 2027.

Brayton is located within the Goulburn Mulwaree Local Government Area (LGA), which is in the Southern Highlands and Shoalhaven geographical area. The key land use in the area is centred around rural living and agricultural operations. The Project is located approximately 8 kilometres (km) northeast of Brayton, 34 km northeast of Goulburn and 112 km northeast of Canberra. Goulburn is the closest urban centre to the Project.

The Project Area covers approximately 130.60 hectares (ha), with a Development Footprint of approximately 21.53 ha. The proposed Project is anticipated to consist of a 300 Megawatt (MW) / 1,200 MW hours (MWh) BESS facility. It will be connected to an existing substation via an underground 330 kiloVolt (kV) transmission line to connect to the existing Marulan Substation (Environmental Resources Management (ERM), 2024).

A summary of the Project component is presented in **Table 1-1**, and the Regional Locality is shown in **Figure 1-1**.

TABLE 1-1 PROJECT SUMMARY

Project Element	Summary
<i>Project Elements</i>	
BESS	- One BESS with 300 MW / 1,200 MWh storage capacity. - Located on Lot 2341 DP 622834 and Lot 12 DP 727493.
Electrical Reticulation Infrastructure	- The Project will connect to the existing Transgrid 330 kV Marulan Substation located on Lot 2341 DP 622834. - New proposed step-up substation will connect from 33 kV to 330 kV underground feeder/connection line, which leads to existing Marulan substation.
Access	The Project will be accessed via three site access points, located on Canyonleigh Road.
On-site Supporting Infrastructure	- Temporary construction and laydown area; - Permanent Operations & Maintenance (O&M) facility including: - A control room; - Storage facilities; - Supervisory Control and Data Acquisition (SCADA) facilities; - Car parking; - Basic office and associated amenities; and - Utilities and waste facilities.

Project Element	Summary
	• New and/or upgraded internal access roads; • New and/or upgraded drainage system; and • Security fencing and lighting.
Off-site Supporting Infrastructure	• Waste and wastewater disposal facilities • Existing communications network • Existing transport network and minor roadworks, including: ◦ Canyonleigh Road between the intersection with Brayton Road and the site access will be resurfaced where required and in consultation with Goulburn Mulwaree Council; ◦ Brayton Road / Canyonleigh Road intersection will require a Basic Right Turn treatment to access Canyonleigh Road from Brayton Road, including a temporary hardstand and temporary signage relocation; ◦ Installation of sealed hardstand and mountable kerb at the intersection of Botany Road / Bunnerong Road (Matraville, NSW); and • Quarries for construction material (as required).

1.2 PURPOSE OF THIS REPORT

This report has been prepared to evaluate the direct and indirect economic impacts of the Project and inform the Environmental Impact Statement (EIS) submitted in support of a State Significant Development (SSD) application (SSD-78247462) under Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The Secretary's Environmental Assessment Requirements (SEARS) for the Project were issued by the NSW Department of Planning, Housing and Infrastructure (DPHI) on 12 December 2024.

1.3 ASSESSMENT GUIDELINES AND REQUIREMENTS

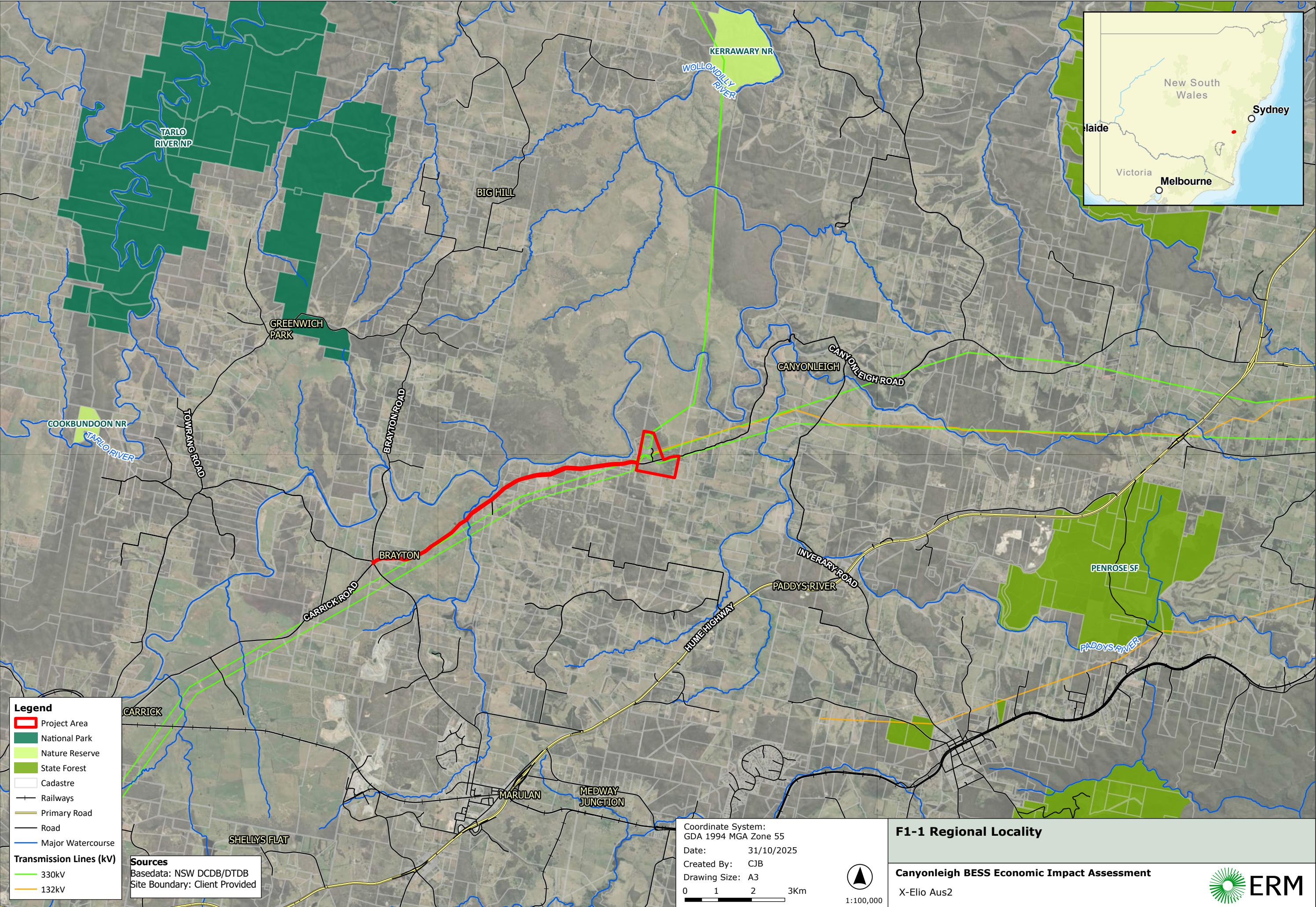
This report has been prepared in accordance with the requirements of the NSW DPHI which are set out in the Large-scale solar energy SEARs (DPE, 2022a). The SEARs outline matters which must be addressed in the EIS, with the following requirements pertinent to this economic assessment:

- **Economic** – *including an assessment of the economic impacts or benefits of the project for the region and the State as a whole and provide details of any proposed voluntary benefit sharing, having regard for the Benefit-Sharing Guideline 2024 and Private Agreement Guideline 2024.*

1.4 STRUCTURE OF THE REPORT

This report is structured as follows:

- **Section 2** outlines the methodology used for the Economic Assessment.
- **Section 3** provides background context about the regional economy.
- **Section 4** assesses the economic impacts of the construction phase of the Project on the regional and NSW economy.
- **Section 5** assesses the economic impacts of the operational phase of the Project on the regional and NSW economy.
- **Section 6** considers potential cumulative impacts on the regional and State economy given other projects in the region.
- **Section 7** provides details of the proposed benefit sharing scheme.
- **Section 8** provides conclusions of the assessment.



2. METHODOLOGY

2.1 OVERVIEW

An Input-Output (IO) analysis has been undertaken to evaluate the potential economic impacts of the Project on the regional and state economy. The IO analysis provides a quantitative assessment of the direct and indirect economic effects during the construction and operational phases of the Project. In addition, other potential economic considerations are addressed qualitatively to determine the broader economic influence of the Project.

2.2 STUDY AREA

The Study Area for the regional economic impact assessment encompasses the Goulburn Mulwaree LGA. The neighbouring LGAs of Yass and Wingecarribee (Estimated Residential Populations of 17,240 and 52,489, respectively) will provide a base for some of the labour force during the construction phase (Australian Bureau of Statistics, July 2021-June 2026). It is anticipated that there will be some economic impact distributed across these LGAs, and provisions made for income leakage beyond the Goulburn Mulwaree LGA.

The Goulburn Mulwaree LGA has been selected as the focus due to its direct association with the Project's location and anticipated economic influence. It represents the primary geographical area where the economic effects from the construction and operation of the Project are most likely to be concentrated. Analysis of this region captures the economic interactions, workforce movements, and supply chain activities associated with the Project, and reflects the most significant benefits or impacts, such as employment opportunities, infrastructure development, and changes in local economic activity. Impacts on the broader statewide economy are also assessed.

TABLE 2-1 STUDY AREA FOR ECONOMIC ASSESSMENT

Economic boundary assessed	ABS statistical area
Regional economy	Goulburn Mulwaree LGA
State economy	NSW

2.3 INPUT-OUTPUT ANALYSIS

An IO framework is an established methodology to assess economic impacts from changes to the economy, including large projects that result in an increase in production in an industry sector. We use a proprietary IO model to assess the direct and indirect economic impacts of the construction and operational phases of the Project on the regional and state economy.

Our IO model is based on the latest Australian Bureau of Statistics (ABS) data to underpin the relationships and structure of the economy. The first step of our analysis is to develop an IO model that reflects the regional and state economy. We use regional employment and state production to calibrate the IO models to reflect the regional and state economic structure.

The second step of our analysis is to calculate the direct impacts of the Project. Direct impacts are estimated based on data received from the Applicant on employment, energy generation and storage and annual revenue generation.

The third step of our analysis is to calculate the indirect impacts of the Project. This includes the flow-on effects from an increase in household income (through wages), expenditure on intermediate products and production.

Our analysis determines which industries in the economy benefit the most from the Project and the overall change in gross output, value added, household income and employment.

Our methodology is based on assumptions outlined in

Appendix A. Some key assumptions that will affect the interpretation of results include fixed production ratios, fixed prices and no supply side constraints. These assumptions lead to results reflecting average economic impacts rather than marginal impacts and results are an upper bound of potential economic impacts.

A limitation of fixed prices and production ratios is that any structural changes to the relationship between industries and price impacts are not captured in the analysis. This limitation can be overcome with Computable General Equilibrium (CGE) modelling. However, this would likely lead to opaqueness in a regional analysis and has historically overestimated an economy's ability to adapt to large changes.

A limitation of no supply side constraints is that crowding out effects are not captured in the analysis. Crowding out is when productive resources in the economy are shifted away from their current use due to the introduction of new expenditure. Crowding out is assumed to be outside of the model. Without crowding out effects incorporated in the model, the analysis creates an upper bound on potential economic impacts. We therefore provide a qualitative assessment of crowding out effects in other impacts.

2.4 DIRECT AND INDIRECT IMPACTS

The economic impacts of the Project are categorised into direct and indirect impacts for analysis. Direct impacts are those that result from project expenditure and are the summation of economic impacts across all sectors of the economy. For example, a direct impact of the Project is the wages provided to households as employment compensation. This is referred to as household income within the tables included in this report.

Indirect impacts are those that result from the flow-on effects of expenditure in an industry. For example, an increase in construction output will necessitate inputs from other industries, such as manufacturing. To meet this additional demand, manufacturing will increase its output. This rise in manufacturing output will, in turn, require inputs from various industries, stimulating a further increase in production from downstream sectors. This cascading effect, in total, constitutes the indirect impact of the project.

The key economic indicators that have been used to calculate the direct and indirect economic impacts include:

- **Gross Output** – The total amount of expenditure across all industries in the economy annually.
- **Gross Value added** – The annual value of employee compensation, gross operation surplus, and other taxes on production, less subsidies. This reflects the gross revenue minus input costs (excluding employee-related expenses).
- **Gross Household Income** – The total amount of wage expenditure by the Project annually.
- **Employment** – The total number of Full Time Equivalent (FTE) employees employed annually.

3. DESCRIPTION OF REGIONAL ECONOMY

Characteristics of the regional economy have been explored to provide context for the information provided by the IO analysis. This analysis provides a deeper understanding of the economic structure, workforce distribution, industry composition and key drivers of economic activity within the area. Information is sourced from the ABS and extracted data is provided at different levels of aggregation (i.e., one-digit and four-digit Australian and New Zealand Standard Industrial Classification (ANZSIC)) to deliver an overview of the region and its economic trends.

3.1 RESIDENTS OF THE REGION

Table 3-1 provides various characteristics of the usual residents of the regional economy based on the ABS's Regional Summary and 2021 Population and Housing Census information (ABS 2021). The Goulburn Mulwaree LGA is located within the Southern Highlands and Shoalhaven Statistical Area Level 4 (SA4¹). In 2021, this geographical area had an Estimated Residential Population (ERP) of 160,808 and a labour force of 69,056. The Goulburn Mulwaree LGA constituted an ERP of 32,150 (approximately 20% of the Southern Highlands and Shoalhaven population), with a median age of 41.4 years, and a labour force of 14,988 (approximately 21.7% of the Southern Highlands and Shoalhaven labour force). In 2021, 641 people (approximately 22.1% of the Southern Highlands and Shoalhaven labour force) identified as being unemployed.

As illustrated in **Table 3-1** below, the top occupations of usual residents² in the Goulburn Mulwaree LGA in 2021 were *Community and Personal Service Workers* (14.9%), *Technicians and Trade Workers* (14.8%), *Professionals* (14.7%), *Managers* (12.2%), *Labourers* (12.2%), *Clerical and Administrative works* (11.6%), *Sales Workers* (8.9%), and *Machinery Operators and Drivers* (8.6%).

TABLE 3-1 CHARACTERISTICS OF USUAL RESIDENTS OF GOULBURN MULWAREE LGA

Demographics	Goulburn Mulwaree LGA
Population	32,150
Median Age	41.4
In labour force (no.)	14,988
Unemployed (no.)	641 (4.3%)
Median household weekly income	\$950
Unoccupied private dwellings (%)	12.99%
Median weekly rent	\$320

¹ The ABS defines Statistical Areas Level 4 (SA4) to generally have a population above 100,000 people and provide sufficient sample sizes for Labour Force estimates. In regional areas, SA4s tend to have smaller populations of 100,000 to 300,000 people (Australian Bureau of Statistics, 2024).

² Employed people aged 15 years and over.

Demographics	Goulburn Mulwaree LGA	
Occupations	Total Number	%
Managers	1,751	12.2%
Labourers	1,751	12.2%
Technicians and Trades Workers	2,124	14.8%
Machinery Operators and Drivers	1,234	8.6%
Community and Personal Service Workers	2,138	14.9%
Clerical and Administrative Workers	1,665	11.6%
Professionals	2,109	14.7%
Sales Workers	1,277	8.9%

The main industries and occupations of usual residents are presented in **Figure 3-1**.

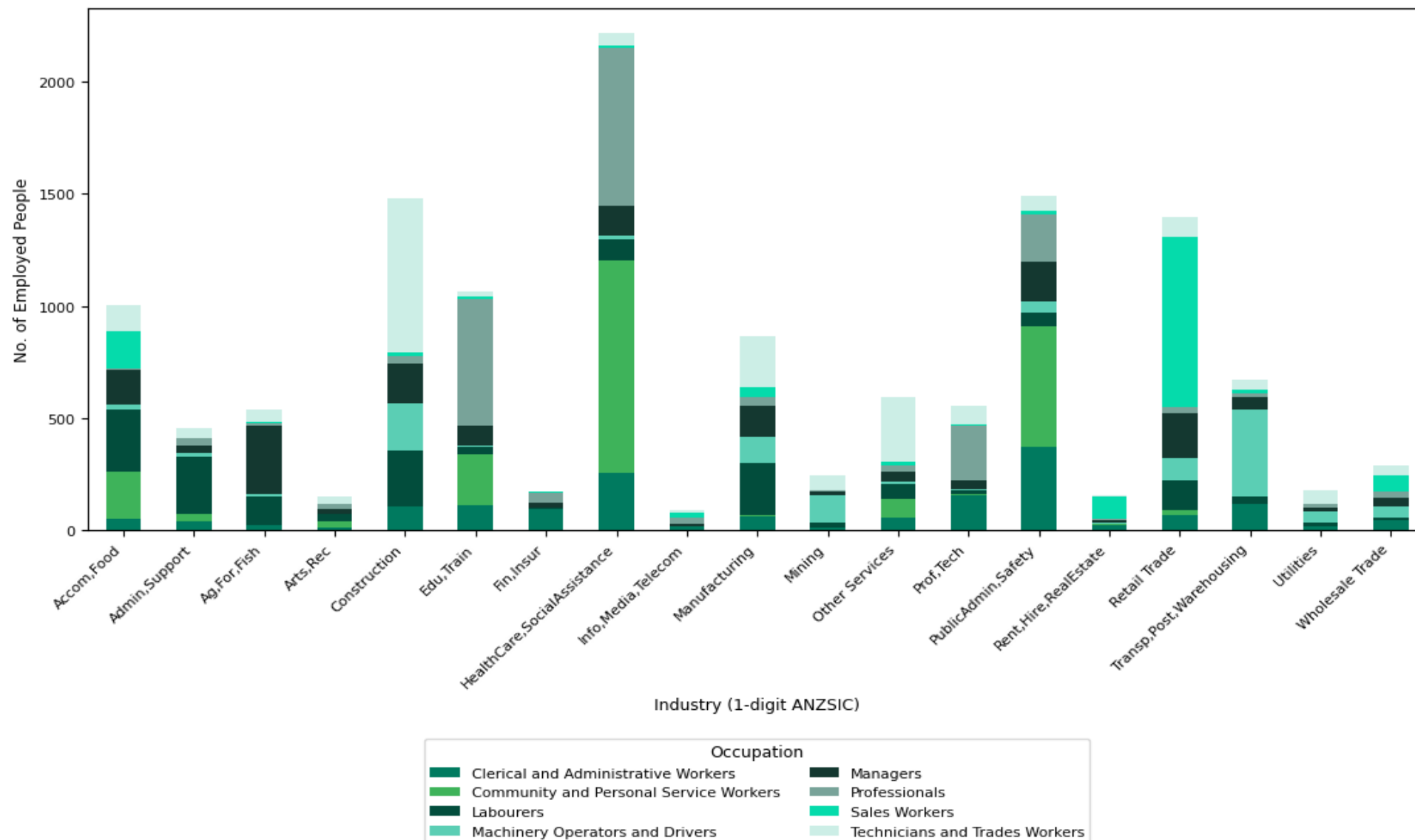


FIGURE 3-1 GOULBURN MULWAREE LGA EMPLOYMENT BY INDUSTRY (ONE-DIGIT ANZSIC) AND OCCUPATIONS

At a finer level, **Table 3-2** indicates the main four-digit ANZSIC industry sectors in which usual residents were employed in 2021 in the Goulburn Mulwaree LGA compared to the total Southern Highlands and Shoalhaven geographical area.

In the Goulburn Mulwaree LGA, *Hospitals (except Psychiatric Hospitals)* was the most significant industry of employment (5.6%), followed by *Supermarket and Grocery Stores*, *Aged Care Residential Services*, *Takeaway Food Services*, and *Other Social Assistance Services* (3.7%, 3.5%, 3.2%, and 2.8%, respectively).

TABLE 3-2 TOP FIVE INDUSTRY SECTORS OF EMPLOYMENT FOR USUAL RESIDENTS (FOUR DIGIT ANZSIC)

Goulburn Mulwaree LGA	%	Southern Highlands and Shoalhaven geographical area³	%
Hospitals (except Psychiatric Hospitals)	5.6	Hospitals (except Psychiatric Hospitals)	3.4
Supermarket and Grocery Stores	3.7	Supermarket and Grocery Stores	3.2
Aged Care Residential Services	3.5	Primary Education	2.9
Takeaway Food Services	3.2	Aged Care Residential Services	2.7
Other Social Assistance Services	2.8	Takeaway Food Services	2.6

Source: ABS, 2021, Population and Housing Census.

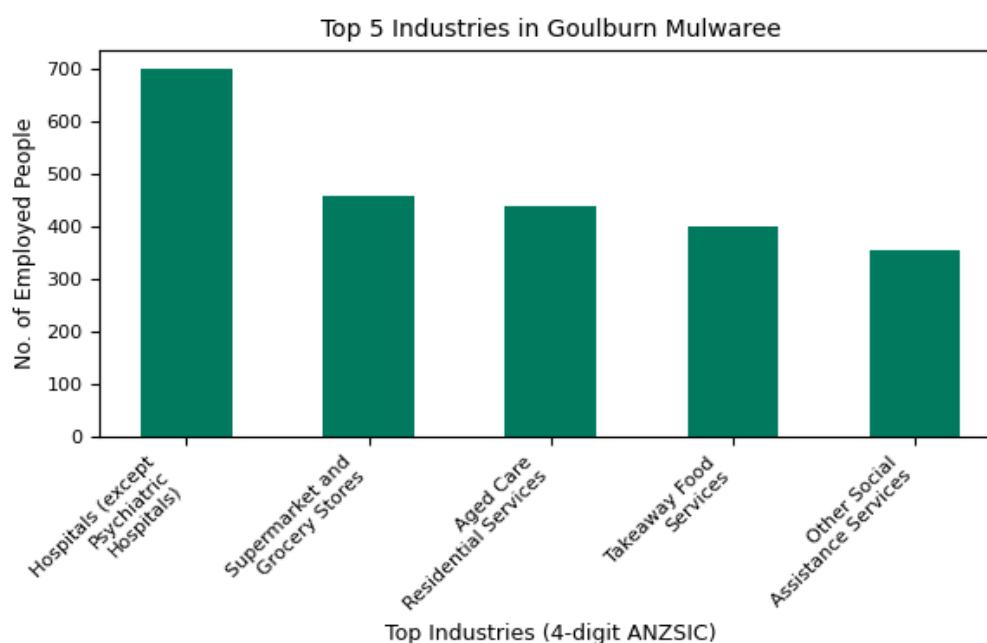


FIGURE 3-2 GOULBURN MULWAREE LGA TOP INDUSTRIES OF EMPLOYMENT

³ The Southern Highlands and Shoalhaven area includes following LGAs: Goulburn Mulwaree, Hilltops, Yass Valley, Upper Lachlan Shire and Queanbeyan-Palerang.

3.2 HOUSING

Based off the ABS 2021 census data of the Goulburn Mulwaree LGA, 4,256 people fully owned their homes, 3,896 people were homeowners with a mortgage, and 3,476 people rented their residences. The median weekly household income was \$950, the median monthly mortgage repayment was \$1,733 and the median weekly rent was \$320. The vacancy rate for the Goulburn Mulwaree LGA is 0.66% with a slightly higher vacancy rate in the suburb of Goulburn, being 0.79% (Real Estate Investar, 2025).

3.3 POPULATION GROWTH

The population in Goulburn Mulwaree LGA has been growing steadily, but at a slower pace than in NSW. The Goulburn Mulwaree LGA is expected to grow at +0.9% per annum (per annum) out to 2041 whilst the aggregate NSW population is expected to grow at +1.2% per annum (NSW Government, 2024). The median age in Goulburn Mulwaree is 41.4 (in 2021) slightly above the Australian average of 38 (in 2021) and the NSW median of 39 (in 2021).

TABLE 3-3 POPULATION GROWTH

LGA	Population				Average Annual Growth Rate		
	2020	2021	2022	2023	2020-2021	2021-2022	2022-2023
Goulburn Mulwaree	31,934	32,150	32,428	32,710	0.68%	0.86%	0.87%

Source: Region Summary (ABS, 2024)

TABLE 3-4 PROJECTED POPULATION GROWTH

LGA	2021	2041	Change	Annual %
Goulburn Mulwaree	32,150	37,819	+4,796	+0.9%
New South Wales	8,097,062	10,070,467	+1,973,405	+1.2%

Source: LGA Population projections 2022 to 2032 (ABS, 2024)

3.4 ECONOMIC STRUCTURE

The economic structure of Goulburn Mulwaree LGA is derived from our IO model for the regional economy. **Table 3-5** outlines the industries with the highest economic output in the regional economy, indicating 46.5% of the total output is derived from five key industries. Construction represents the largest industry in the regional economy in terms of gross output. In terms of value added, the Health Care and Social Assistance industry is the largest contributor to the regional economy and the largest industry of employment in the regional economy (15.7%).

TABLE 3-5 GROSS REGIONAL OUTPUT FOR THE FIVE LARGEST INDUSTRIES IN THE REGIONAL ECONOMY (ANZSIC ONE DIGIT) (\$2024)

Industry	Gross Regional Output (\$m)	Proportion of Regional Economy (%)
Construction	\$286M	11.75%
Public administration and safety	\$248M	10.19%
Health care and social assistance	\$248M	10.17%
Manufacturing	\$195M	8.01%
Retail trade	\$155M	6.37%
Total	\$1,132M	46.5%

TABLE 3-6 GROSS VALUE ADDED FOR THE FIVE LARGEST INDUSTRIES IN THE REGIONAL ECONOMY (ANZSIC ONE DIGIT) (\$2024)

Industry	Gross Value Added (\$m)	Proportion of Regional Employment (%)
Health care and social assistance	\$170M	15.7%
Public administration and safety	\$140M	10.7%
Mining	\$102M	1.7%
Education and training	\$94M	7.5%
Retail trade	\$89M	9.8%
Total	\$595M	45%

3.5 SUMMARY

The Goulburn Mulwaree LGA economy (the regional economy) represents a significant proportion of the Southern Highlands and Shoalhaven geographical area. Goulburn City within the local economy is an important urban centre for regional communities and represents a large proportion of the resident population. It is expected that many employees of the Project will come from Goulburn or choose to reside there if moving from another region, given its services and proximity to the Project.

A main driver of the regional economy is the Health Care and Social Assistance sector which is the primary employer and primary source of gross value added. Construction is also a significant driver of economic activity and the primary source of gross regional output.

The regional economy has low unemployment of 4.3%, indicating that some of the employment for the Project will come from outside the region. This will bring additional economic activity and temporary population growth. Long term, some of the incoming residential population may choose to remain, increasing the overall population growth rate.

As with much of regional NSW, housing pressure is high in the regional economy. The vacancy rate in the region is 0.66%, with approximately a third of the local population currently renting their homes. Any increase in local population is likely to increase housing demand and lead to increased housing pressure.

4. CONSTRUCTION PHASE

4.1 THE PROJECT

The construction phase of the Project will drive economic activity, benefiting both the local, regional and broader NSW economy. This phase is expected to last 18 months, directly employing approximately 70 FTE employees with a peak workforce of 100 FTE employees.

4.2 DIRECT AND INDIRECT IMPACTS

The economic impacts described in this report are calculated across one-digit ANZSIC industry sectors. During the construction phase, direct impacts will primarily flow through to the construction industry, which includes heavy and civil engineering construction, construction services and non-residential building.

The ABS defines the construction division as:

- *Units mainly engaged in the construction of buildings and other structures, additions, alterations, reconstruction, installation, and maintenance and repairs of buildings and other structures.*
- *Units engaged in demolition or wrecking of buildings and other structures and clearing of building sites.*
- *Units engaged in blasting, test drilling, landfill, levelling, earthmoving, excavating, land drainage and other land preparation (Australian Bureau of Statistics, 2006-revision-2.0).*

4.2.1 REGIONAL IMPACTS

On a regional level, most direct impacts generated by the Project are within the construction industry. In total, the direct output from the Project is estimated at \$46.2 million per annum

The annual total impact of the indirect output from the Project on the regional economy is estimated at \$119 million. During the construction phase, this brings the modelled annual impact of the total output from the Project to \$165 million. The IO analysis indicates that the industries with the highest indirect output from the Project (based on a one-digit ANZSIC classification) include Construction, Manufacturing, Transport, Professional and Scientific Services and Administration and Support Services.

The annual value added by the Project to the regional economy is estimated at \$80 million. This is split into \$24 million from direct impacts and \$56 million from indirect annually.

Household direct income is calculated based on the number of FTE employees on average during the construction phase. Peak employment is not used as the economic impacts assessed are average impacts. The average direct impact on household income is estimated to be \$11 million annually. The indirect impact on household income is expected to be \$4 million per annum leading to a modelled total impact of \$15 million per annum on the regional economy during the construction.

The indirect impacts of household income are calculated with an expected leakage rate of 50% from the regional economy. This is because the regional economy is limited in size compared to the wider region. It is likely household income will be spent beyond the regional economy and thus the multiplier effect of household income has been adjusted. This assumption is also reasonable because a proportion of income earners will not reside in the region and hence spend their income outside of the regional economy.

The direct impacts on employment are measured by the expected annual average employment during the construction phase, 70 FTEs. This will flow through the economy and create an estimated additional 36 jobs leading to an overall expected increase of 106 jobs.

TABLE 4-1 AVERAGE ANNUAL ECONOMIC IMPACTS OF CONSTRUCTION ON THE REGIONAL ECONOMY (\$2024)

	Direct Impact	Indirect Impact	Total Impact
Output (\$m)	\$46.17M	\$118.95M	\$165.12M
Value Added (\$m)	\$23.69M	\$56.24M	\$79.93M
Income (\$m)	\$10.86M	\$3.94M	\$14.80M
Employment (FTE No.)	70	36	136

Note: Total impact may differ from the sum of the direct and indirect impact due to rounding in the tables

4.2.2 STATE IMPACTS

The main industries that benefit from indirect Project impacts are Construction, Manufacturing, Professional and Scientific Services, Transport and Financial and Insurance Services.

Value added by the Project to the state economy is estimated at \$95 million per annum. This is split into \$28 million from direct and \$67 million from indirect impacts.

The total impact on household income is \$17 million per annum on the NSW economy during the construction phase. Of which, direct household income is estimated at \$11 million annually.

The indirect impacts of household income are calculated with an expected leakage rate of 15% from the NSW economy. This is to account for expenditure outside of the state that will not create cascading flow-on effects within the NSW economy.

The direct impacts on employment are measured by the expected annual average employment during the construction phase, 70 FTEs. This will flow through the economy and create an estimated additional 55 jobs leading to an overall expected increase of 125 jobs.

The indirect impacts on the NSW economy are larger than those in the regional economy because of the larger multiplier effect in the NSW economy and the reduction in leakage.

The regional and state economic impacts are sensitive to the amount of local expenditure. In this project we have assumed the non-local expenditure for BESS construction is 77% of the total construction costs. This assumption is in line with the locally sourced minimum requirements (DCCEEW, 2022) and reflects the predominately international supply chain for BESS components and limited scope for introducing domestically sourced materials. This results in lower economic benefits as compared to other more locally sourced renewable projects for both the state and regional economy.

TABLE 4-2 AVERAGE ANNUAL ECONOMIC IMPACTS OF CONSTRUCTION ON THE STATE ECONOMY (\$2024)

	Direct Impact	Indirect Impact	Total Impact
Output (\$m)	\$51.13M	\$132.82M	\$183.95M
Value Added (\$m)	\$27.80M	\$67.08M	\$94.88M
Income (\$m)	\$10.86M	\$5.99M	\$16.85M
Employment (FTE No.)	70	55	125

Note: Total impact may differ from the sum of the direct and indirect impact due to rounding in the tables

4.3 OTHER IMPACTS

In this section we describe the impact of the construction phase of the Project on agriculture and housing. Impacts on transport and social community are considered in detail in the respective chapters of the EIS.

4.3.1 AGRICULTURAL IMPACTS

The construction phase of the Project is expected to be 18 months. During this time, it is likely that there will be some disruption to previous agricultural practices, although this is minimised given the existing environment is rated at a very low agricultural potential.

The total Development Footprint of the Project is 21.53 ha, comprising 10.66 ha of pre-developed land (i.e. road and substation) and 10.87 ha of cleared agricultural land used for grazing with minimal vegetation. The 10.87 ha of native/voluntary grazing pasture is the basis for the modelling below. The agricultural production lost as a result of the Project is estimated at \$4,194 per annum based on the average production per hectare of agricultural land in the Goulburn Mulwaree LGA (Australian Bureau of Statistics, 1990-2023). The direct impact on the regional economy due to this loss of agricultural production is \$2,047 annually. The total economic impact of this loss of production is estimated to be \$8,919 annually for the region and \$10,540 annually for the state.

TABLE 4-3 ANNUAL ECONOMIC IMPACTS OF FORGONE AGRICULTURE ON THE REGIONAL ECONOMY (\$2024)

	Direct Impact	Indirect Impact	Total Impact
Output (\$)	\$2,047	\$6,872	\$8,919
Value added (\$)	\$961	\$3,228	\$4,189
Income (\$)	\$330	\$654	\$984
Employment (FTE No.)	0	0	0

Note: Total impact may differ from the sum of the direct and indirect impact due to rounding in the tables

TABLE 4-4 ANNUAL ECONOMIC IMPACTS OF FORGONE AGRICULTURE ON THE STATE ECONOMY (\$2024)

	Direct Impact	Indirect Impact	Total Impact
Output (\$)	\$2,331	\$8,209	\$10,540
Value added (\$)	\$1,095	\$3,856	\$4,951
Income (\$)	\$330	\$798	\$1,128
Employment (FTE No.)	0	0	0

Note: Total impact may differ from the sum of the direct and indirect impact due to rounding in the tables

4.3.2 HOUSING IMPACTS

During the construction phase the Project is expected to employ 70 individuals on average and 100 individuals at its peak. The Project does not anticipate providing any temporary housing for these employees.

TABLE 4-5 LIST OF POTENTIAL TOWNS/CITIES WHERE PERSONNEL WOULD BE BASED AND EXPECTED PROPORTIONS

Town/City	% Workforce	Number of workers local (Peak)	Number of workers non-local (Peak)⁴
Goulburn	50%	25	25
Other	50%	25	25
Total	100%	50	50

Source: X-Elio Aus 2 Canyonleigh – Renewable Projects RFI Spreadsheet v3

The vacancy rate for private dwellings in the Goulburn Mulwaree region is 0.66% with a slightly higher vacancy rate in the Goulburn suburb of 0.79% (Real Estate Investar, 2025). This is significantly below the industry benchmark of 3.0% set by the Real Estate Institute of Australia (Real Estate Institute of Australia (REIA), 2024). A vacancy rate at the benchmark is considered a stable market with supply and housing demand roughly in equilibrium. A vacancy rate below this, as in the Goulburn Mulwaree, indicates strong rental demand.

⁴ This is a distribution for non-local workers for the purpose of economic assessment.

This indicates substantial housing pressures in the Goulburn Mulwaree LGA that can be further impacted with a change in the size of the resident population. With the existing low rental vacancy, an influx of workers from outside the region can result in further housing pressures and crowding out of lower income tenants.

The proponent intends to locate only ~25% of the non-local peak workforce in Goulburn as a result and has proposed shuttle busses for non-local employees potentially based in Yass. This may mitigate some housing pressure and congestion

5. OPERATION PHASE

5.1 THE PROJECT

The operation phase of the Project will drive economic activity, benefiting both the local region and the broader NSW economy. The operational phase is scheduled to commence in 2027 for 20 to 30 years.

Throughout the operational life of the Project, no workforce is permanently required on site, as the BESS is designed to function remotely without any intervention. The workforce required periodically for maintenance activities of the project during operations will be equivalent to five FTE employees.

5.2 DIRECT AND INDIRECT IMPACTS

Within the operation phase of the Project direct impacts will be focused predominantly in: Electricity supply, and Electricity transmission, distribution, on selling and electricity market operations sectors.

5.2.1 REGIONAL IMPACTS

During the operation phase, the annual direct output to the region from the Project will be \$55 million. The indirect output in the regional economy is smaller than that of the state economy because of benefits leakage from the region to the broader economy and decreased multiplier effects from consumption within the regional boundary. Annual indirect outputs total \$37 million for the region. In total the economic output of the Project is an estimated \$92 million annually during the operation phase.

The main industries that receive indirect impacts from the Project are Electricity, Gas and Water Supply, Construction, Manufacturing, Professional and Scientific services and Financial and Insurance services.

Value added to the region is estimated at \$31 million per annum over the operation phase. This is split into \$19 million from direct impacts and \$12 million from indirect impacts.

The average direct impact on household income is estimated at \$880,000 annually. The indirect impact of household income is expected to be \$320,000 per annum, leading to a total impact of \$1.2 million per annum on the regional economy during the operation phase.

The direct impacts on employment are measured by the expected annual average employment during the operation phase, i.e. five FTE. This will flow through the economy and create an estimated additional two jobs leading to an overall expected increase of seven jobs.

TABLE 5-1 AVERAGE ANNUAL ECONOMIC IMPACTS OF THE PROJECT ON THE REGIONAL ECONOMY (\$2024)

	Direct Impact	Indirect Impact	Total Impact
Output (\$m)	\$55.00M	\$36.78M	\$91.78M
Value added (\$m)	\$18.63M	\$12.46M	\$31.08M
Income (\$m)	\$0.88M	\$0.32M	\$1.20M
Employment (FTE No.)	5	2	7

Note: Total impact may differ from the sum of the direct and indirect impact due to rounding in the tables

5.2.2 STATE IMPACTS

During the operation phase, the annual direct output from the Project is estimated at \$55 million. The indirect impact on the state economy is larger than that of the regional economy because of a reduction due to both leakage and the lower multiplier effects from consumption. The indirect output totals for the state are estimated at \$57 million per annum. In total the output of the Project is an estimated \$112 million annually during the operation phase.

The main industries that receive indirect impacts from the Project are Electricity, Gas and Water Supply, Financial and Insurance services, Professional and Scientific services, Construction and Manufacturing.

The estimated value added by the Project to the NSW economy is \$38 million per annum, split evenly at \$19 million for both direct and indirect impacts after rounding.

The average direct impact on household income is estimated at \$880,000 annually. The indirect impact of household income is expected to be \$490,000 per annum, leading to a total impact of \$1.4 million per annum on the state economy during the operation phase.

The indirect impacts of household income are calculated with an expected leakage rate of 15% from the NSW economy. This is to account for expenditure outside of the state that will not create cascading flow-on effects within the NSW economy.

The direct impacts on employment are measured based on the expected annual average employment during the operation phase, i.e. five FTE. This will flow through the economy and create an additional three jobs leading to an overall expected increase of eight jobs.

The indirect impacts on the NSW economy are larger than those in the regional economy because of the larger multiplier effect in the NSW economy and the reduction in leakage to areas outside the state boundary.

TABLE 5-2 AVERAGE ANNUAL ECONOMIC IMPACTS OF THE PROJECT ON THE STATE ECONOMY (\$2024)

	Direct Impact	Indirect Impact	Total Impact
Output (\$m)	\$55.00M	\$56.62M	\$111.62M
Value added (\$m)	\$18.63M	\$19.18M	\$37.80M
Income (\$m)	\$0.88M	\$0.49M	\$1.37M
Employment (FTE No.)	5	3	8

Note: Total impact may differ from the sum of the direct and indirect impact due to rounding in the tables

5.3 OTHER IMPACTS

5.3.1 AGRICULTURAL IMPACTS

The total Development Footprint of the Project is 21.53 ha, comprising 10.66 ha of pre-existing developed land (i.e. road and substation) and 10.87 ha of native/voluntary grazing pasture. The operation phase of the Project will result in a permanent area of disturbance that will be incompatible with previous agricultural practices. The negative impact of the lost agricultural production is minimal given the existing environment is rated at a very low agricultural potential.

Following decommissioning, the Project Area will be rehabilitated to the same standard as prior to the construction of the BESS. All infrastructure from the Project will be removed.

5.3.2 HOUSING IMPACTS

Given the small number of employees during the operational phase of the project, there is unlikely to be any crowd out of housing or adverse impacts on the rental market attributable to this Project.

6. CUMULATIVE IMPACTS

6.1 INTRODUCTION

The cumulative impacts of the Project refer to the combined effects when considered alongside other existing, planned, or reasonably foreseeable activities in the area. In the context of the Project, it is important to assess how the construction and operational impacts, when combined with other local developments or factors, could result in a broader economic effect.

6.2 POTENTIAL CUMULATIVE IMPACTS

6.2.1 NEARBY RENEWABLE ENERGY AND RELATED PROJECTS

As indicated in the Canyonleigh BESS EIS, there are several existing or proposed renewable energy projects and other related projects located near the Project Area (Environmental Resources Management (ERM), 2024).

The expected construction timelines of these projects are detailed below in **Table 6-1**. The combined impacts of these projects are likely to lead to cumulative impacts on labour force, resident population, housing and prices.

TABLE 6-1 PROJECT CONSTRUCTION TIMELINES OF NEARBY RELEVANT PROJECTS

Status of Indicative Timing																	Colour Key		
Confirmed (EIS or Developer Web Site)																			
Non Confirmed (incomplete information, Inferred based on existing reporting)																			
Project	2025				2026				2027				2028				FTE	Workforce Source	Notes and SSD/SSI
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Canyonleigh BESS (The Project)																	70 - 100	Goulburn, Moss vale, Bowral, potentially Yass and Canberra	SSD-78247462
Marulan Gas fired Power Station																	380 - 500	Priority in sourcing locally, Goulburn and Moss Vale	Projected commissioning in 2032
Wattle Creek Solar Farm																	96-147	Marulan, Goulburn, Moss Vale, Bowral	In response to submissions phase. SSD-63344210
Wattle Creek BESS																	71	Marulan, Goulburn, Moss Vale, Bowral	As Above (SSD-63345458)
Gunlake Quarry Extension																	70	Local (Marulan)	(SSD-7090)
Cleary Bros Marulan Quarry																	30	Not stated	

Project	2025				2026				2027				2028				FTE	Workforce Source	Notes and SSD/SSI
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Marulan South Limestone Mine Continued Operations Project																	100	Local (Marulan)	(SSD-7009)
Holcim Lynwood Quarry																	Not known	Local and Fly In Fly Out (FIFO) / Drive In Drive Out (DIDO)	
Marulan Solar Farm																	300	Marulan and Goulburn	(SSD-13137914)
Hanworth BESS																	150	Not Stated	SSD-78179499
Bannaby BESS																	150	Not Stated	SSD-78810458
Swallow Tail BESS																	150	Upper Lachlan Shire LGA, Goulburn	SSD-78039972
WSC Marulan Quarry																	Not known	Not detailed	SSD-65146459
Merino Solar Farm																	220-330	Unknown	SSD-59155459

Project	2025				2026				2027				2028				FTE	Workforce Source	Notes and SSD/SSI
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
Gundry Solar Farm																	400 (250 on site during peak const.)	Goulburn, Canberra	SSD-48225958
HumeLink																	1600+*	Yass Purpose built worker accommodation	*Across whole project. SSI-36656827
Kangaroo Valley BESS																	60	Short-term local accommodation being prioritised	SSD-78593964
Willavale Park BESS																	70 - 100	Goulburn, Yass ACT	SSD-78100252
Blind Creek Solar Farm																	300	Temporary workers accommodation, Bungendore, Canberra	Pre-Construction appears to be underway SSD-13166280

6.2.2 LABOUR FORCE

The labour force in the region is expected to be insufficient to meet the demand from the projects in the region. The projects with overlapping timelines include Marulan GT, Hanworth BESS, Bannaby BESS, Swallowtail BESS, Gundary Solar Farm, HumeLink, Kangaroo Valley BESS and Willavale Park BESS. The required FTE for these projects is more than 2,000. As a result, it is likely that some labour will shift industries, individuals outside of the labour force may rejoin, and there may be inward movement of labour from other regions. Given the demand for labour, wage increases may occur depending on whether the shortage can be met at the current wage rate.

Developers may also adopt a combination of localised labour hiring and training approaches, combined with Drive-In Drive-Out (DIDO) approaches as may be appropriate for their Project specific locations. The balance between these approaches may alleviate some of the negative impacts on the local community.

6.2.3 RESIDENT POPULATION

As a result of an increase in the labour force in the region, the resident population will grow. It is likely that the workforce required for the slated projects overlapping with this project will be more than 2,000 workers. Given the current population dynamics in the region, this increase in the resident population is likely to be higher than the current underlying rate (+0.9%). The number of nearby projects and ongoing approvals could lead to a proportion of the labour force remaining in the region in the longer term.

An increase in the resident population will lead to economic growth through increased economic activity driven by expenditure on goods, services, accommodation and entertainment. These flow-on effects will boost the regional economy, so long as there is excess capacity to meet demand. In the event of scarcity, there could be an erosion in the quality of services and an increase in the cost of living for existing residents.

6.2.4 HOUSING

The influx of new residents to the region will increase the need for accommodation. Of the five projects in the region with an overlapping time frame, only two have provided indications of the provision of temporary accommodation. The South East NSW region has a vacancy rate below 3% in 2022 (NSW Government, 2022) revealing a rental market already under pressure. Beyond the formal rental market, availability of short-term rentals (e.g. Airbnb) may alleviate some of the housing pressures. In the absence of building temporary housing, it is likely that there will be an increase in housing pressure when new residents enter the region. This could lead to increased rents and the crowding out of lower income tenants.

6.2.5 PRICES

An increase in the resident population and reduction in unemployment, coupled with housing pressure can lead to an increase in prices as demand for goods and services increases. The interconnectedness of the broader region will mitigate this to an extent, allowing for price pressures to ease across a wider geographic footprint. Further, the increase in new residents is foreseeable and will likely lead to increases in the supply of goods and services to meet demand. Prices in these situations tend to adjust quickly and any price increases are likely to be temporary.

7. BENEFIT SHARING SCHEMES

The Project has proposed a model of community benefit sharing in line with the Benefit-Sharing Guideline (NSW Department of Planning, Housing and Infrastructure, 2024). The proposed scheme is guided by the six policy principles for benefit sharing schemes for large-scale renewable projects. These are: benefit-sharing is standard practice, cooperative, transparent, community focused, proportionate and delivers a positive outcome.

The proposed scheme has been collaboratively designed through initial discussions with the local community and council meetings. The proposed scheme includes substantial benefit sharing in the Construction phase mainly through local councils. The proposed benefit sharing scheme for the Operation phase is in development with allocations to be determined through an assessment conducted once construction has commenced.

The proposed scheme is set out below (\$2026):

- **Neighbourhood benefits:** No neighbourhood benefits.
- **Local community benefits:**
 - during the Construction phase: total of \$409,975 over the phase
 - during the Operation phase: total of \$37,204 is to be allocated, however the distribution will be based on an assessment once the Construction stage has commenced.

TABLE 7-1 NEIGHBOURHOOD BENEFITS DETAILS (\$2026)

Name	Details	Total benefit (\$/year)	Phase
None	-	-	-

TABLE 7-2 LOCAL BENEFITS DETAILS (\$2026)

	Details	Scale	Total benefit (\$ lump sum)	Phase
Rural Fire Service (RFS)	Training and Equipment	Canyonleigh RFS Brigade serves region (pop 41,622)	\$30,000	Construction
Pejar Local Aboriginal Land Council (LALC)	Occupational training	LALC serves region (Aboriginal pop 1,579)	\$35,000	Construction
Marulan town	Community group support	Marulan town (pop 1,428)	\$24,000	Construction
Goulburn Mulwaree Shire	Social Housing Fund	Entire LGA (pop 33,112)	\$320,975	Construction
To be determined (TBD)	TBD	TBD	\$37,204	Operation

Table 7-3 indicates the maximum allowable total financial value of the benefit sharing scheme is \$180,000 per annum paid over the life of the Project. The estimated total of the proposed scheme is below this threshold considering the life of this Project as 25 years and therefore assessed to comply with the Benefit Sharing Guideline.

The benefits are front-loaded because of the nature of lump sum payments at the start of the construction phase and operations phase. A more equitable distribution of benefits across time could improve the benefit sharing scheme and ensure longevity in the benefits across the community. The estimated total for the benefits in the Operations phase are low and below that observed in similar projects.

TABLE 7-3 MAXIMUM VALUE OF BENEFIT SHARING (PER ANNUM \$2024)

Development	\$/MW	MWh	Financial Value
Battery	\$150	1,200	\$180,000

\$/MW is stipulated in the Benefit Sharing Guideline NSW (Nov 2024)

Table 7-4 provides documentation listing the private agreements that have been entered into by the Applicant as required by the Private Agreement Guideline.

TABLE 7-4 PRIVATE AGREEMENTS (\$2026)

Landholder Number	Type (landholder or neighbour)	Exclusions	Impact duration
None	-	-	-

8. CONCLUSION

The Project will have a positive economic impact on the regional and state economy during both its Construction and Operation phases. This positive impact will outweigh the temporary disruption to agricultural activity within the region, with significant flow-on effects to the regional and state economy.

Managing the impacts of the growing labour force in the construction industry may present some challenges that need to be carefully managed, particularly when considering the current size of the construction industry within the region. The Project proposes shuttle busses to commutable nearby towns Goulburn and Yass to disperse the impacts of a centralised large workforce on the local economy. The dispersion of the workforce is likely to create positive economic impacts to nearby towns and limit the negative impacts on price increases due to limited demand of services and housing.

Economic gains from the Project can be maximised by working closely with local councils and communities to ensure benefits from the Project are realised and negative impacts reduced. The Project has proposed a benefit sharing scheme involving Marulan town and Goulburn Mulwaree Shire council during the construction phase. The Project intends to support the local community through contributions to the RFS, occupational training and social housing. The Project intends to develop a benefit sharing scheme for the operation phase of the project once construction has commenced through a needs assessment. This will ensure the longevity of benefits for the local community across a diverse set of stakeholders.

9. REFERENCES

- Australian Bureau of Statistics. (1990-2023). *Data by Region*. Australian Bureau of Statistics.
- Australian Bureau of Statistics. (2006-revision-2.0). *E: Construction*. Retrieved January 23, 2025, from ABS Website: <https://www.abs.gov.au/statistics/classifications/australian-and-new-zealand-standard-industrial-classification-anzsic/2006-revision-2-0/detailed-classification/e>
- Australian Bureau of Statistics. (2021, August). *2021 Census All persons QuickStats*. Retrieved 2025, from ABS Website: <https://www.abs.gov.au/>
- Australian Bureau of Statistics. (2021). *Australian System of National Accounts: Concepts, Sources and Methods*.
- Australian Bureau of Statistics. (2021-2022). *5209.0.55.001 Australian National Accounts: Input-Output Tables*. ABS.
- Australian Bureau of Statistics. (2024, June 14). *LGA Population projections 2022 to 2032*. Retrieved from <https://digital.atlas.gov.au/datasets/digitalatlas::lga-population-projections-2022-to-2032/explore>
- Australian Bureau of Statistics. (2024). *Region summary*. Retrieved January 24, 2025, from ABS Website: <https://dbr.abs.gov.au/index.html>
- Australian Bureau of Statistics. (July 2021-June 2026). *Australian Statistical Geography Standard (ASGS) Edition 3*. Retrieved January 23, 2025, from ABS Website: <https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/latest-release>
- Bowen, M. (2024). *Agrivoltaic grazing systems in Queensland*. Queensland Department of Agriculture and Fisheries.
- DCCEEW. (2022). *NSW Renewable Energy Sector Board's Plan*. Retrieved from NSW Climate and Energy Action: <https://www.energy.nsw.gov.au/sites/default/files/2022-09/nsw-renewable-energy-sector-board-plan.pdf>
- DPE. (2022a). *Large Scale Solar Energy Guidelines*. Department of Planning and Environment. Retrieved from https://shared-drupal-s3fs.s3.ap-southeast-2.amazonaws.com/master-test/fapub_pdf/Lisa+Drupal+Documents/16007_DPIE+Large+Scale+Solar+Energy+Guidelines_26-9-22.pdf
- Environmental Resources Management (ERM). (2024). *Canyonleigh BESS Scoping Report*.
- Graham, P. a. (2024). *GenCost 2024-2025 draft report*. CSIRO. CSIRO.
- Jackson, R.W. (2020). *Input-Output Analysis: A Primer. 2nd edn*. WVU Research Repository.
- McLennan, W. (1995). *Information Paper: Australian National Accounts: Introduction to Input-Output Multipliers*. Australian Bureau of Statistics, Catalogue no. 5246.0.
- Miller, R. E., & Blair, P. D. (2009). *Input-Output Analysis: Foundations and Extension (2nd ed.)*. Cambridge: Cambridge University Press.
- NSW Department of Planning, Housing and Infrastructure. (2024). *Benefit-Sharing Guideline*. NSW Department of Planning Housing and Infrastructure.

- NSW Department of Planning, Housing and Infrastructure. (2024). *State Significant Development Guidelines*. NSW Department of Planning, Housing and Infrastructure.
- NSW DPHI. (2024). *State Significant Development Guidelines*. NSW Department of Planning, Housing and Infrastructure.
- NSW Government. (2022). *Housing Market Snapshots - South and East Tablelands*. Retrieved from Housing Market Snapshots: <https://www.nsw.gov.au/departments-and-agencies/homes-nsw/social-housing-resources/housing-market-snapshots/south-and-east-tablelands>
- NSW Government. (2024, November). *Population Projections*. Retrieved January 24, 2025, from NSW Planning: <https://www.planning.nsw.gov.au/data-and-insights/population-projections/explore-the-data#data-downloads>
- NSW Office of Energy and Climate Change. (2022). *NSW Renewable Energy Sector Board's Plan*. NSW Government.
- NSW Parliamentary Counsel's Office. (1979). *Environmental Planning and Assessment Act 1979*. NSW Government.
- Real Estate Institute of Australia (REIA). (2024). *Real Estate Market Facts*. Real Estate Institute of Australia.
- Real Estate Investar. (2025). *Investment Property Goulburn, NSW, 2580*. Retrieved from <https://www.realestateinvestar.com.au/property/goulburn>

APPENDIX A

THE INPUT-OUTPUT FRAMEWORK OVERVIEW

The IO framework is an equilibrium framework with four general uses. Firstly, it can be used to understand how industries in an economy are inter-related by accounting for relationships among industries in the economy over a given period of time. Secondly, it is useful to assess economic impact of changes in final demand and evaluate how impacts flow through various sectors of the economy. Thirdly, it can be used to calculate the inputs required from each sector due to demands from other sectors of the economy and final demand. Fourthly, it can be used to assist with economic development planning (Jackson, R.W., 2020)

Within the input-output framework there are different styles and types of input-output models (Miller, R. E., & Blair, P. D., 2009). Consistent among all input-output models is a mapping of how goods are used in production across the economy. This mapping allows an understanding of how outputs feed through the economy and their intermediate use in production.

The ERM Energetics' IO model underpinning this economic assessment is used to analyse how a change in production in one sector affects other sectors in the economy and the indirect effects of this change.

METHODOLOGY

Our proprietary IO model is based on the most recent ABS data. We use this data to build an IO table with four quadrants (McLennan, W, 1995).

1. Quadrant 1: The top left quadrant is a matrix that shows the intermediate usage of goods across each sector. The rows represent the inputs required by each sector, while the columns represent the outputs produced by each sector. Each cell indicates the value of inputs used by one sector from another.
2. Quadrant 2: The top right quadrant shows final demand for outputs in each sector, for example household expenditure, capital expenditures.
3. Quadrant 3: The bottom left quadrant is a matrix of primary inputs into production, for instance compensation of employees, taxes and imports.
4. Quadrant 4: The bottom right quadrant shows the contribution of primary inputs into final demand.

The direct coefficients table is derived from the IO table and shows the amount of extra output required from each industry to produce an extra dollar of output in the column industry. These are called the direct impacts.

There is a cascading effect from the direct impacts which is called the indirect impacts. This is because for the extra output in the column industry the row industries must contribute extra production. In turn, this means inputs into the row's industry production need to increase and so on. The indirect and direct effects are captured by the Leontief inverse matrix also known as the total requirements coefficients.

STATE AND REGIONAL ADJUSTMENTS

Industry production level data is provided by the ABS only at the national level. Therefore, adjustments need to be made to translate this data into state and regional input-output models.

The national model uses four-digit ANZSIC categories. To match this with State and Regional data, we aggregate the ANZSIC groupings to one-digit classifications.

Following the aggregation we use Location Quotients (LQ) to adjust the national IO table to a state table and a regional table (Miller, R. E., & Blair, P. D., 2009). The state LQ is determined on each one-digit classification as the proportional share of each industry's output in the state as compared to the national. The regional LQ is determined on each one-digit classification as the proportional share of each industry's employment in the region as compared to the state. The location quotients scale the industries in the economy to match that of the State and the region to ensure that the input-output table reflects the localised economy.

PROJECT EXPENDITURE

Project expenditure is a key variable in the input-output framework. It represents the additional economic activity in the economy that triggers the direct and indirect impacts.

We measure project expenditure from the construction phase using an estimate of capital expenditure based on the size of the project. The CSIRO GenCost 2024 report provides the estimated costs for renewable projects in Australia based upon energy generation and storage (Graham, 2024). To remove imports from the capital expenditure we use the minimum requirements from the NSW Renewable Energy Sector Board's Plan (NSW Office of Energy and Climate Change, 2022).

TABLE A **SUPPLY CHAIN INPUTS: LOCALLY SOURCED MINIMUM REQUIREMENTS**

	Solar	Battery Storage	Wind	Pumped Hydro
Development Phase	49%	23%	40%	66%

Source: (NSW Office of Energy and Climate Change, 2022)

Project expenditure in the operation phase is estimated using annual revenue generation from the Applicant. We use estimated annual revenue generation as an upper bound on direct economic impact.

ASSUMPTIONS AND LIMITATIONS

Although versatile, IO frameworks are based on assumptions that limit the interpretation of results. The main assumptions and associated limitations are listed below (Australian Bureau of Statistics, 2021).



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- Fixed ratios for intermediate inputs and production. An IO model is based on an economic structure as at a given point in time. This necessarily fixes the ratios of inputs and production within the economy based on that point in time. Analysis that extends from the model uses these fixed ratios and therefore results in average effects rather than marginal effects.
- Fixed prices. Similar to fixed ratios, prices in an IO model are fixed at a point in time. This means that changes in the prices of inputs are not considered in the model. Any response to a change in prices cannot be modelled in an input-output model.
- No supply side constraints. It is assumed in an IO model that production inputs can be sourced if required. This can lead to an overstating of impacts.
- Fixed employment proportions. IO models assume employment is perfectly proportional to output over all scales of production. This is related to the assumption of fixed ratios and results in the trade-off between capital and labour being fixed.
- Constant proportions of income for consumption. IO models assume that constant proportions of income are used for consumption. This means that the household budget is spent in the exact proportion to the initial budget even if household income increases. This is a limitation that does not account for income effects on the household budget. E.g. leisure goods may increase in the household budget share when income goes up.

DATA USED

Our input-output model uses the following data sources.

Data set	Input-output model
ABS (2021-2022) 5209.0.55.001 Australian National Accounts: Input-Output Tables [https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-input-output-tables/latest-release#data-downloads], accessed 11 November 2024	National, State, regional
ABS (1990-2023) 5220.0 Australian National Accounts: State Accounts [https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/latest-release#data-downloads], accessed 11 November 2024	State
ABS (2011-2023) Data by Region [https://www.abs.gov.au/methodologies/data-region-methodology/2011-23#data-downloads], accessed 11 November 2024	Regional

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