



# Social Impact Assessment

FINAL VERSION

**Marri Wind Farm**  
prepared for



**Document Control**

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## Executive Summary

The Marri Wind Farm is a proposed renewable energy development located approximately 20 kilometres south of Dandaragan in the Shire of Dandaragan, Western Australia. The Project will comprise up to 82 turbines with a combined generating capacity of up to 550 MW, supported by a potential battery energy storage system and associated infrastructure. Once operational, the wind farm is expected to generate up to 2,000 GWh of renewable electricity annually—equivalent to around 10% of the South West Interconnected System's demand—and play a significant role in the State's transition away from coal-fired power generation by 2030. The Project will deliver substantial regional investment, creating an estimated \$1.87 billion in total economic output across Australia (including \$1.62 billion within Western Australia and \$1.17 billion in the economic study area) and providing direct and indirect employment during construction, operation, and decommissioning phases.

This Social Impact Assessment (SIA), prepared by Social IQ on behalf of Alinta Energy, provides a comprehensive evaluation of the Project's potential social and economic impacts across its lifecycle. The assessment follows WA EPA guidance on the *social surroundings* factor and applies best-practice SIA methodologies, including social baseline profiling, impact significance assessment, stakeholder engagement, and the development of targeted mitigation and enhancement strategies. The study area is divided into a Local Impact Area (encompassing Dandaragan, Badgingarra, Moora, Gingin, and Lancelin) and a broader Regional Impact Area covering the Shire of Dandaragan and its coastal towns.

## Community Profile and Social Baseline

The social baseline analysis reveals a region defined by small but growing rural communities, with an ageing demographic profile, declining youth populations, and modest levels of cultural diversity. Household structures tend toward smaller and older households, with higher proportions of single-person households compared to regional averages. Distinct First Nations populations are present across the Shires of Dandaragan, Gingin, and Moora, particularly in Moora, where young Indigenous families form a significant proportion of the community. Economically, the region is reliant on agriculture, mining, and tourism, but is diversifying into renewable energy, with several existing or proposed wind projects already located nearby.

Key vulnerabilities identified include limited housing availability, pressure on health services, youth outmigration, and socio-economic disparities between towns. Stakeholder consultation highlighted concerns around housing availability and affordability, access to local services, landscape change, and equitable benefit-sharing. At the same time, communities expressed interest in renewable energy's potential to create jobs, diversify incomes, and rejuvenate local communities.

## Impact Assessment

The impact assessment examined potential positive and negative effects across key thematic areas:

- ▶ **Demographics and Population Change:** The Project may help retain and attract younger residents and workers, but could also increase pressure on housing and local services if not well managed.
- ▶ **Health and Wellbeing:** Indirect health concerns relate to turbine noise, visual amenity, shadow flicker, and perceived impacts on quality of life. Vulnerable groups—including older adults and First Nations communities—require specific consideration. The Project also has the potential to place increased strain on limited local health services.
- ▶ **Housing and Accommodation:** Construction-phase workforce demand may intensify competition in already constrained housing and rental markets, with flow-on effects for affordability.
- ▶ **Socio-Economic Conditions and Human Rights:** Benefits include lease payments, procurement opportunities, and employment; risks include uneven benefit distribution and heightened disadvantage for vulnerable groups if mitigation is inadequate. While the proposed

wind farm is unlikely to pose direct human rights violations, there remains a responsibility to uphold key principles, including non-discrimination, procedural fairness, and community participation.

- ▶ **Land Use and Cultural Heritage:** The site is predominantly cleared farmland, but is located within the Yued Noongar Nation's Country. Cultural heritage values, both Aboriginal and European, require ongoing recognition and protection.
- ▶ **Education and Employment:** Opportunities exist for local workforce participation, training, and skills transfer, particularly for youth and First Nations people. However, specialist workforce requirements and the site's proximity to Perth, may limit local capture.
- ▶ **Local Economy:** The Project will provide a strong economic boost, particularly in the operations phase, through direct spending and flow-on effects, but cumulative impacts of multiple wind farms in the region could place added strain on infrastructure, tourism, and agricultural industries.
- ▶ **Infrastructure and Services:** Increased heavy vehicle traffic, demand for water, and pressure on emergency services are anticipated during the construction phase. Long-term demands are expected to be modest, though cumulative impacts must be managed.
- ▶ **Social Cohesion and Community Values:** Divergent community views on wind farms present risks to cohesion, particularly if benefits are perceived to accrue only to turbine-hosting landowners. However, transparent benefit-sharing and investment in local initiatives could strengthen networks and civic engagement.

Table 1 presents all of the identified residual impacts for the Project, assuming mitigation measures have been effectively implemented. A total of 38 impacts have been identified across key thematic criteria, of which the highest residual rating is minor. Ten potential enhancement opportunities have also been identified.

**TABLE 1 SUMMARY OF RESIDUAL IMPACTS**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
Demographics				
I001	Project has the potential to alienate older residents through inaccessible engagement and communications practices	Negligible	Medium	Negligible
I002	Project has the potential to increase population gender imbalance	Negligible	Medium	Negligible
I003	Project has the potential to exacerbate income disparity through unequal benefit distribution	Negligible	Medium	Negligible
O001	Project has the potential to attract younger workers and families to the region, supporting increasing capacity of local services	Beneficial	Medium	Moderate Positive
O002	Project has the potential to improve workforce inclusion practices for low-diversity workforce	Beneficial	Low	Minor Positive
Health and Wellbeing				
I004	Project has the potential to cause real/ perceived sleep disturbance from turbine noise	Negligible	Low	Negligible
I005	Project has potential to cause stress and annoyance from perceived injustice	Minor	Medium	Minor
I006	Project has potential to cause real/ perceived concerns around infrasound and electromagnetic interference	Negligible	Low	Negligible



I007	Project has potential to impact residents' mental health and wellbeing through changes in the visual landscape	Minor	Medium	Minor
I008	Project may increase actual/perceived mental health and wellbeing risks for vulnerable groups, such as the elderly and first nations	Negligible	Low	Negligible
I009	Project may negatively impact social cohesion due to divided community support	Minor	Low	Negligible
I010	Project may exacerbate existing capacity constraints on local health services	Minor	Medium	Minor
<b>Housing and Accommodation</b>				
I011	Project has potential to place strain on the local housing market due to limited capacity for direct workforce absorption	Minor	Medium	Minor
I012	Project has potential to increase rental market pressure due to influx of workforce	Minor	Medium	Minor
I013	Project has potential to exacerbate accommodation competition between local tourism, community needs and workforce demand	Minor	Medium	Minor
I014	Project has potential to create additional housing stress for vulnerable populations	Minor	Medium	Minor
<b>Socio-Economic Advantage/Disadvantage and Human Rights</b>				
I015	Project has potential to infringe on individual and group human rights through insufficient engagement and participation	Negligible	Low	Negligible
I016	Project has potential to contribute to human rights issues within the supply chain	Negligible	Low	Negligible
I017	Project has potential to create opportunity for human rights infringements.	Negligible	Low	Negligible
<b>Land Use and Cultural Heritage</b>				
I018	Project has potential to impact culturally sensitive aspects of Yued traditional lands, but also creates opportunity for co-management with Yued People	Negligible	Low	Negligible
I019	Project has potential to impact non-Indigenous heritage and tourism sites	Negligible	Low	Negligible
I020	Project has potential to create actual and perceived negative impacts on local environment and wildlife.	Negligible	Low	Negligible
<b>Education and Employment</b>				
I021	Project has potential to create labour competition across cumulative projects and industries, despite good local skills alignment	Minor	Medium	Minor
I022	Project has potential to increase local gendered occupational segregation	Negligible	Low	Negligible
I023	Project may struggle with local recruitment due to limited spare capacity and high existing labour force participation	Minor	Medium	Minor
I024	Project has potential to experience capacity constraints from local training providers	Minor	Low	Negligible
I025	Project has potential to experience capacity constraints from local schools and childcare facilities	Minor	Medium	Minor

O002	Project has potential to tap into strong vocational training base for local hiring	Beneficial	Medium	<b>Moderate Positive</b>
O003	Project has potential to increase local Indigenous employment, with appropriate training opportunities	Beneficial	Medium	<b>Moderate Positive</b>
O004	Project has potential to use local hiring and upskilling to maximise localised benefits	Beneficial	Medium	<b>Moderate Positive</b>
O005	Project has potential to alleviate existing childcare shortages by facilitating additional capacity	Beneficial	Medium	<b>Moderate Positive</b>
<b>Local Economy</b>				
I026	Project has potential to disrupt agricultural land use practices	Negligible	Low	<b>Negligible</b>
I027	Project has potential to impact tourism sector	Minor	Low	<b>Negligible</b>
O006	Project has potential to positively benefit local construction sector through employment	Beneficial	Medium	<b>Moderate Positive</b>
O007	Project has potential to positively benefit local businesses through procurement of goods and services	Beneficial	Medium	<b>Moderate Positive</b>
<b>Infrastructure</b>				
I028	Project has potential to negatively impact local traffic and road conditions	Minor	Low	<b>Negligible</b>
I029	Project has potential to place strain on local water supply systems	Negligible	Low	<b>Negligible</b>
I030	Project has potential to experience electricity grid capacity constraints for project integration	Negligible	Low	<b>Negligible</b>
I031	Project has potential to experience telecommunication gaps and interference, impacting weather forecasts, safety and local residents	Negligible	Low	<b>Negligible</b>
I032	Project has potential to increase demand on emergency services	Minor	Low	<b>Negligible</b>
I033	Project has potential to exacerbate cumulative infrastructure demands	Negligible	Low	<b>Negligible</b>
O008	Project provides opportunities to strengthen regional infrastructure	Beneficial	Medium	<b>Moderate Positive</b>
<b>Social Cohesion and Community Values</b>				
I034	Project has potential to create social division caused by differing community views	Negligible	Low	<b>Negligible</b>
I035	Project has potential to cause strain on local infrastructure and volunteer capacity	Negligible	Low	<b>Negligible</b>
I036	Project has potential to create loss of community trust from top-down decision-making	Negligible	Low	<b>Negligible</b>
I037	Project has potential to create tension caused by limited transparency in benefit sharing	Negligible	Low	<b>Negligible</b>
O009	Project has potential to strengthen local networks through community benefit sharing	Beneficial	Medium	<b>Moderate Positive</b>
O010	Project has potential to increase volunteerism and civic participation	Beneficial	Medium	<b>Moderate Positive</b>

## Mitigation and Enhancement Measures

A suite of mitigation and enhancement strategies has been developed to address identified impacts and maximise positive outcomes across the Project lifecycle. These measures draw on stakeholder feedback, best-practice guidance, and regulatory requirements under the WA EPA *social surroundings* factor. These measures include:

### Community Engagement and Inclusion

- ▶ Deliver tailored engagement materials for older residents, including printed materials, phone updates, and accessible venues for meetings.
- ▶ Establish a dedicated community liaison officer based in the region to provide a consistent point of contact throughout construction and operations.
- ▶ Provide annual public reporting on community benefits, environmental monitoring, and complaint resolution to strengthen transparency and accountability.

### Workforce Participation and Diversity

- ▶ Apply Diversity, Equity, and Inclusion (DEI) recruitment strategies to attract women, young people, and culturally diverse workers, including targeted apprenticeship and traineeship opportunities.
- ▶ Partner with local TAFE campuses and schools to provide industry-relevant upskilling, scholarships, and job-readiness programs.
- ▶ Develop a First Nations engagement and employment strategy in partnership with Yued Traditional Owners, including culturally appropriate training and supplier opportunities.

### Health and Wellbeing

- ▶ Implement voluntary noise and shadow flicker audits for nearby residents, with remediation options such as acoustic insulation, landscaping, or turbine curtailment at sensitive times.
- ▶ Provide accessible and plain-language information sessions on turbine noise, shadow flicker, and infrasound, co-delivered with independent technical experts.
- ▶ While the proposed wind farm is unlikely to pose direct human rights violations, there remains a responsibility to uphold key principles, including non-discrimination, procedural fairness, and community participation.

### Housing and Infrastructure

- ▶ Engage with local Shires and other actors to monitor and offset housing impacts, including contributing to short-term accommodation solutions such as worker camps or modular housing and long-term solutions to alleviate existing housing constraints.
- ▶ Fund upgrades to local roads and intersections affected by heavy vehicle movements, coupled with traffic management and road safety programs.
- ▶ Support investment in emergency services capacity.

### Economic Development and Benefit Sharing

- ▶ Prioritise procurement from local businesses, supported by supplier information sessions and capacity-building programs.
- ▶ Establish a Community Benefit-Sharing Fund, governed jointly with local stakeholders, to invest in initiatives such as community facilities, sport and recreation infrastructure, tourism projects, and cultural heritage programs.
- ▶ Explore options for community co-investment or equity participation models to ensure local residents can share directly in long-term financial returns.



### **Cultural Heritage and Land Use**

- ▶ Undertake consultation with Yued Traditional Owners to ensure views inform decision-making.
- ▶ Support cultural heritage preservation projects and protection of significant sites within and around the Project footprint.
- ▶ Integrate heritage and landscape values into final Project design through sensitive siting, landscaping, and visual buffers.
- ▶ With these measures in place, residual risks are expected to reduce to minor or negligible significance, while positive outcomes—such as increased employment, stronger community facilities and enhanced regional resilience—can be meaningfully amplified.

### **Stakeholder Engagement**

Engagement was undertaken through an online community perception survey, one-on-one interviews, mitigation testing workshops, community drop-in sessions, and meetings with key local government representatives. These activities revealed both support for and concerns about the Project, with housing, community cohesion, visual amenity and local infrastructure capacity emerging as priority issues. Transparent communication, ongoing participation opportunities, and demonstration of tangible local benefits were consistently emphasised as critical to maintaining trust and social licence.

### **Conclusion**

The Marri Wind Farm represents a significant opportunity for Western Australia to progress toward a cleaner energy future, with associated benefits for regional economies and landholders. However, its success depends on carefully managing cumulative impacts, addressing vulnerabilities in housing, community cohesion, visual amenity and local infrastructure and ensuring that benefits are shared equitably across the community. Through proactive mitigation, transparent engagement, and alignment with local values, the Project has the potential to not only minimise adverse social effects but also contribute meaningfully to the long-term sustainability and resilience of the Shire of Dandaragan and surrounding communities.

# 1 Introduction

## 1.1 Purpose and Scope

This report presents the findings of a combined Social Baseline Study and Social Impact Assessment (SIA) for the proposed Marri Wind Farm (the Project). The assessment establishes a clear understanding of the existing social, cultural, and economic context within the defined SIA study area and evaluates the potential social changes arising from the Project's development and operation.

The social baseline documents current population characteristics, community values, and socio-economic conditions, providing a benchmark against which potential Project-related changes can be measured. This approach enables differentiation between changes attributable to the Project and those likely to occur independently (IAIA, 2015).

The impact assessment then identifies and analyses the Project's potential positive and negative effects, taking into account the magnitude of predicted change and the sensitivity of affected communities. The assessment considers impacts across the full project lifecycle—design, construction, operation, and decommissioning—and informs the development of practical mitigation and enhancement measures.

The scope of work, commissioned by Alinta Energy and undertaken by Social IQ, includes:

- ▶ Establishing a detailed profile of existing conditions across thematic areas such as community demographics, land use, economy, infrastructure, social cohesion, and potential vulnerabilities.
- ▶ Identifying and engaging key stakeholders, including local residents, landholders, community organisations, and government representatives.
- ▶ Evaluating potential impacts in line with the WA Environmental Protection Authority's (EPA) *social surroundings* factor.
- ▶ Developing evidence-based mitigation and enhancement strategies to minimise adverse impacts and maximise community benefits.

## 1.2 Methodology

The development of this SIA (including the social baseline study) follows best-practice principles and aligns with WA EPA expectations for assessing social surroundings. A mixed-methods approach was applied to ensure the assessment is evidence-based, participatory, and context-specific. The overarching methodological approach consists of the following four steps:

**1. Secondary Data Analysis:** Review of local and regional government reports, statistical datasets, planning documents, and relevant policy frameworks to establish contextual trends and identify key social indicators.

**2. Primary Data Collection:** Field-based and participatory research methods were used to capture local perspectives and place-based knowledge, including:

- ▶ Semi-structured interviews (in-person and online) with stakeholders.
- ▶ Community perception survey tailored to the study area.
- ▶ Site visits, physical and social mapping, and ethnographic observation.

**3. Impact Significance Assessment:** Potential impacts were evaluated using a significance framework combining:

- ▶ **Magnitude** of change: negligible, low, moderate, high (including beneficial) (Table 2).
- ▶ **Sensitivity** of affected communities or receptors: low to high, based on resilience, interest, and adaptive capacity (Table 3).

Magnitude and sensitivity were cross-referenced in the assessment matrix presented in Table 4 to determine overall significance (major, moderate, minor, negligible). Impacts were first given a

preliminary impact rating, then updated with a residual impact assessment post application of the proposed mitigation and enhancement measures. During this process, opportunities for enhancement of positive project outcomes were also identified and included in the residual impact tables as opportunities.

**4. Participatory Validation:** Stakeholder engagement was used to verify the relevance of significance criteria, test mitigation and enhancement proposals, and ensure community perspectives were accurately reflected in the final assessment. This process supports both regulatory compliance and social licence outcomes.

**TABLE 2: MAGNITUDE CRITERIA**

HIGH	MODERATE	MINOR	NEGLIGIBLE	BENEFICIAL
Effects are likely to be widespread within the project area (regional to national effect).  Effects may be irreversible.  Effects are likely to result in substantial change to the current social situation (without mitigation).	Effects are likely to be widespread within the project area (regional to local effect).  Effects may be long-term* and may affect a large number of people.  Effects likely to be result in noticeable change to the current social situation (without mitigation).	Effects are likely to be localised within the project area (local to site effect).  Effects may be medium-term** and may affect a small proportion of local stakeholders.  Effects likely to be result in perceptible change to the current social situation (without mitigation).	Effects are likely to be localised within the site only.  Effects may be short-term/transient*** and may be experienced only within households or individuals.  Effects are likely to be imperceptible to the current social situation (without mitigation).	Effects likely to benefit more than individuals or single households.  Effects are likely to be positive in the short or longer-term.  Effects are likely to result in noticeable positive change to current social situation (with enhancement).

\* Long-term = 10+ years but not permanent. \*\* Medium-term = 3-10 years. \*\*\*Short-term or transient = 0-3 years.

**TABLE 3: SENSITIVITY CRITERIA**

LOW	MEDIUM	HIGH
Minimal vulnerability and community, item or area has a high ability to adapt to change (or no change required). There is little public interest in this change. High confidence in impact prediction and or potential for effective mitigation. For positive impacts: high capacity to realise opportunities.	Some vulnerability yet community, item or area has some ability to adapt to change (at least in part). There is some public interest in this change. Moderate confidence in impact prediction and or potential for effective mitigation. For positive impacts: reasonable capacity to realise opportunities.	Many vulnerabilities so community, item or area has little to no ability to adapt to change. There is high public interest in this change. Low confidence in impact prediction and or potential for effective mitigation. For positive impacts: limited or no capacity to realise opportunities.

**TABLE 4: RESIDUAL IMPACT MATRIX**

MAGNITUDE	SENSITIVITY		
	HIGH	MEDIUM	LOW
High	Extreme	Major	Moderate
Moderate	Major	Moderate	Minor
Minor	Moderate	Minor	Negligible
Negligible	Minor	Negligible	Negligible

Beneficial	Minor Positive	Moderate Positive	Major Positive
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## 1.3 Legislative and Regulatory Framework

In Western Australia, wind farm developments are subject to a comprehensive regulatory framework encompassing local, state, and federal laws. These regulations address various aspects of planning, environmental impact, and social considerations to ensure responsible and sustainable development.

### 1.3.1 Local Regulations in the Shire of Dandaragan

In the Shire of Dandaragan, local government planning schemes and development policies govern wind farm proposals. Local regulations require that any wind farm development must conform to the Shire's planning instruments, which include provisions for land use, noise management, and visual amenity. Local planning regulations that are relevant to this project include:

- ▶ [Shire of Dandaragan Local Planning Scheme No. 7](#): This planning scheme regulates land use and development within the Shire. It includes provisions relevant to wind farm developments, ensuring they align with local planning objectives and community interests.
- ▶ [Shire of Dandaragan Local Planning Strategy](#): This strategy outlines the long-term planning directions for the Shire, applying state and regional planning policies at the local level. It provides the rationale for zoning and other provisions in the local planning scheme, guiding sustainable development practices.

### 1.3.2 State Regulations and Guidelines

At the state level, the Environmental Protection Act 1986 (WA) is the primary legislation governing environmental protection in Western Australia, outlining the legal requirements for environmental impact assessments, including social impact considerations. The Environmental Protection Authority of Western Australia (EPA) provides a [Framework for Environmental Considerations in EIA](#), which details procedures for conducting environmental impact assessments in Western Australia, including considerations for social impacts.

Additionally, the EPA recommends adherence to the [Environmental Factor Guideline – Social Surroundings](#), which is of particular relevance in regions like the Shire of Dandaragan where the interaction between renewable projects and local communities (including Aboriginal cultural sites) is a critical consideration. This guideline ensures that social, cultural, and environmental values are integrated into the assessment process.

The Western Australian Planning Commission (WAPC) also provides comprehensive guidelines that apply to all wind farm developments. The [WAPC Position Statement: Renewable Energy Facilities](#) sets out criteria for site selection, environmental assessments, and community consultation. These guidelines require that developers conduct thorough environmental impact assessments and proactively engage with local communities to address issues such as visual impact and ecological disruption.

### 1.3.3 Federal Regulations and Guidelines

Federally, the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) plays a key role in the approval of any proposed new wind farm. This Act requires that any wind farm development that might significantly impact matters of national environmental significance—such as threatened species, migratory bird routes, or unique ecosystems—undergo a rigorous federal assessment. For developments in the Shire of Dandaragan, this means that if a proposed project is likely to significantly impact nationally protected biodiversity or environmental features, an EPBC referral will be required.

### 1.3.4 Development Approvals Process

#### *Significant Development Pathway – Part 11B, Planning and Development Act 2005 (WA)*

The proposed Marri Wind Farm qualifies for assessment under the Significant Development Pathway established by [Part 11B of the Planning and Development Act 2005 \(WA\)](#), which came into effect on 1 March 2024. This permanent pathway enables projects of State or regional significance to be determined by the Western Australian Planning Commission (WAPC), with assessment coordinated by the State Development Assessment Unit (SDAU) within the Department of Planning, Lands and Heritage.

Under Part 11B, proponents must undertake a pre-lodgement process with SDAU, after which the application is lodged for formal assessment. The pathway provides a coordinated multi-agency review, public advertising, and an optional design review process. A statutory timeframe of 120 days from lodgement applies, unless an alternative period is agreed. The WAPC may approve a proposal that is not wholly consistent with local planning instruments if it is in the public interest and aligns with State planning policies. Decisions are subject to review by the State Administrative Tribunal.

For renewable energy projects, applications assessed under Part 11B are guided by the [WAPC Position Statement: Renewable Energy Facilities](#), which outlines key siting, environmental, and community considerations relevant to wind farm developments.

While there are clear benefits for the developer to use this expediated pathway for approvals, it is important to also consider a need to clearly communicate the rationale behind this decision to local government jurisdictions, as these stakeholders may feel excluded and/or disgruntled about lost revenue opportunities (from planning fees) and a perceived lack of appropriate engagement and consultation.

## 2. Project Description

Marri WF Pty Ltd as trustee for the Marri WF Unit Trust (the Proponent) is seeking approval to develop Marri Wind Farm (the Project) approximately 20 km south of the township of Dandaragan, within the Shire of Dandaragan. The Proponent is currently a wholly owned subsidiary of Alinta Energy Pty Limited (Alinta Energy).

The Project plans to build up to 82 wind turbines, generating up to 550 MW of power, alongside a potential battery energy storage system (BESS) with a capacity of up to 2,200 MWh, plus related facilities. The Project is located on freehold land. The total area affected by ground disturbance is estimated to be up to 6,000ha, with only limited native vegetation clearing anticipated.

The Project location was selected for development because it is predominantly cleared farmland, has a low population density, and is proximate to existing high voltage electrical transmission lines. The area has an excellent wind resource resulting in efficient production of renewable energy. The agricultural lands are well established having been cleared of native vegetation over time and are ideally suited to co-existence between wind energy production and agricultural primary production.

The State Government has made significant commitments to reduce carbon emissions and address the impacts of climate change. The Project will play a crucial role in advancing the transition to clean energy and reducing carbon emissions. The Project will support the State Government's goal to close State-owned coal plants by 2030 by generating up to 2,000 GWh/yr of renewable electricity, corresponding to approximately 10% of the current underlying electrical demand of Western Australia's South West Interconnected System (SWIS).

### 2.1 Project Location

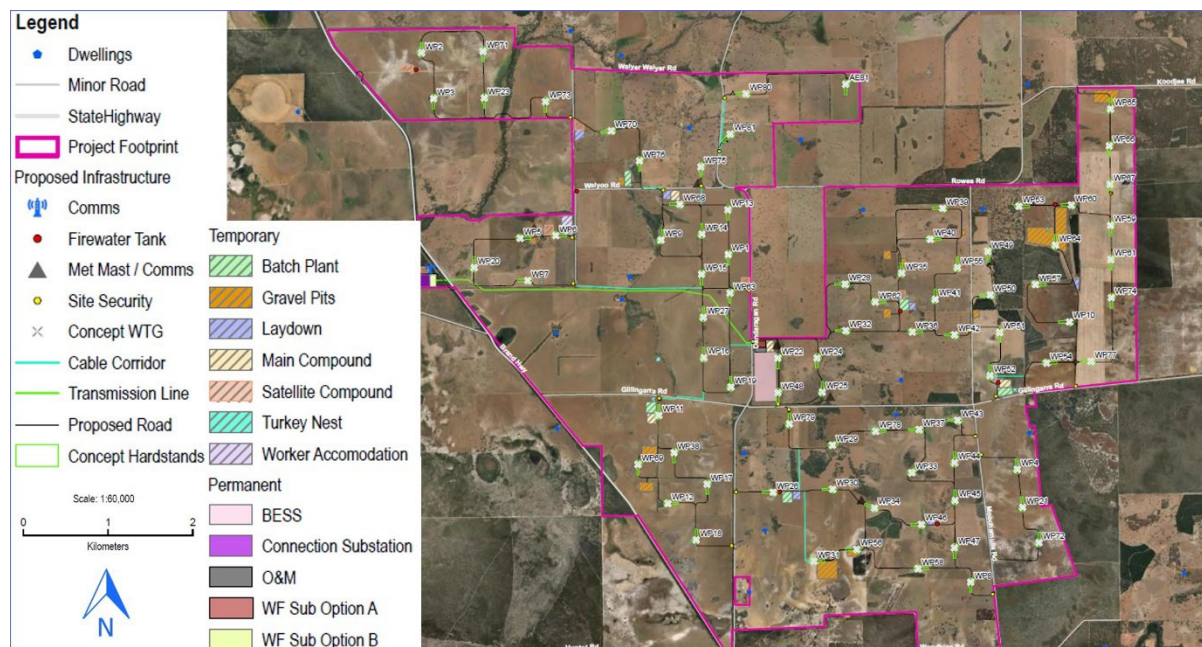
Located approximately 20km south from the township of Dandaragan and 183km north of the Perth central business district, the Project site measures 15 km (east/west) by 11 km (north/south) and covers an approximate area of 12,500 ha with an approximate disturbance area of 6000ha. This area has been previously disturbed by agricultural land use, including paddocks for pastoral activities,



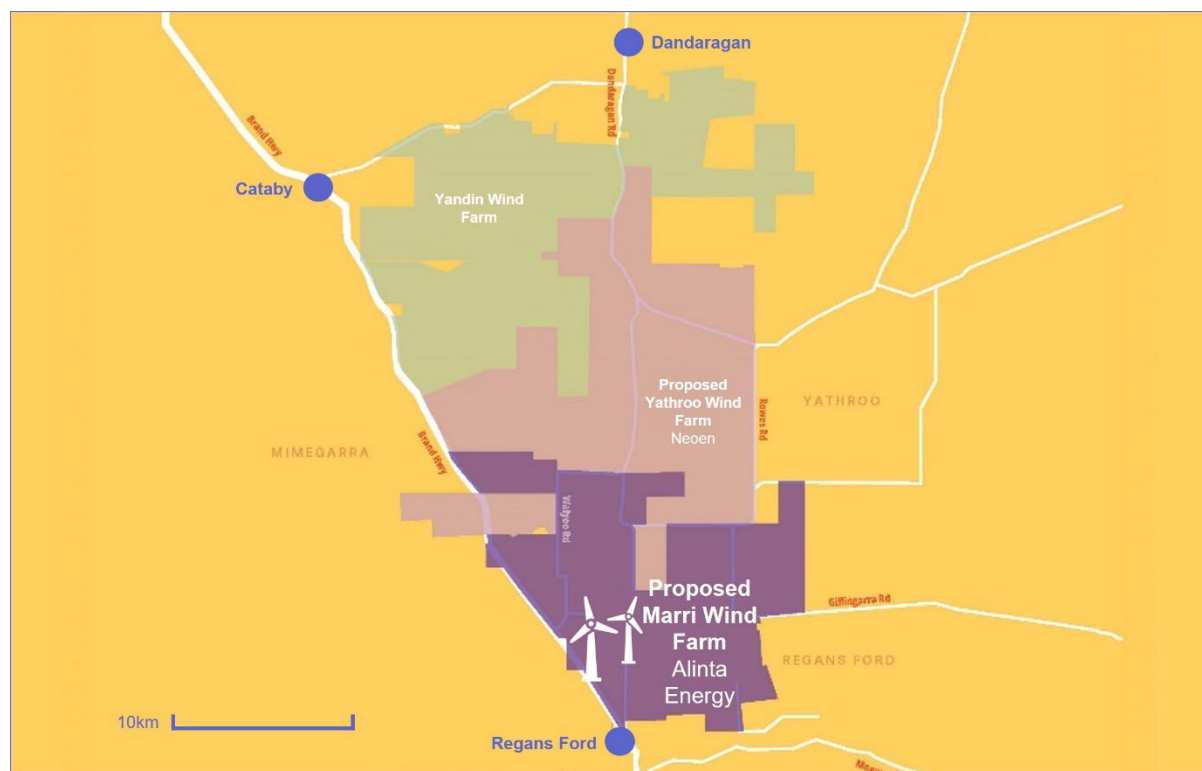
cropping, fencing, unsealed tracks, dams, and other infrastructure. It is located across eight privately owned freehold properties within the Shire of Dandaragan.

Alinta also operates the existing Yandin Wind Farm, located approximately 10km north from the proposed Marri Wind Farm site.

**FIGURE 1. PROPOSED PROJECT AREA AND TURBINE LAYOUT**



**FIGURE 2. PROPOSED PROJECT AREA RELATIVE TO ADJACENT EXISTING AND PROPOSED WIND FARMS IN THE REGIONAL**



## 2.2 Project Expenditure

Based on economy modelling conducted by WSP (2025), the Project is expected to generate a total economic output of \$1.87 billion across Australia, with \$1.62 billion within Western Australia and \$1.17 billion in the economic study area (which is slightly broader than the RIA insofar as it encompasses the wider Northern Wheatbelt and Perth regions of Western Australia).

During the development phase, aggregate expenditure is estimated to be AUD\$17.62 million before reaching upwards of \$1.72 billion across the construction phase and total of approximately AUD\$208 million during operations. During decommissioning (planned for 2056) the Project is expected to result in an economic output of AUD\$46.60 million.

## 2.3 Project Design and Capacity

Upon completion, the Project is expected to generate up to 550 megawatts (MW) of clean renewable energy from up to 82 wind turbine generators (WTG). Each wind turbine is predicted to have a generation capacity of between 6-8 MWs.

The WTGs are generally spaced at least 500 metres from each other and will be connected to an onsite substation. Each WTG will have a rotor diameter of up to 182m and a maximum tip height of approximately 255m.

The Project will connect into Western Power's existing 330 kV transmission network, the South West Interconnected System (SWIS), which runs parallel to the western border of the Project area. Once operational it is anticipated that the road network, turbines and supporting infrastructure take up less than 5% of the Project area.

Pending government approvals, construction is expected to start in early 2027 and be completed in 2029.

## 2.4 Project Workforce Profile

This section provides an overview of the Project's workforce profile and includes the anticipated workforce size and duration of employment for major construction and operation activities. The anticipated source of the construction workforce is also provided.

### Construction Workforce

The Project is anticipated to create upwards of 310 direct (and 391 indirect jobs) during the construction phase across the broader economic impact area (which includes Perth and the Northern Wheatbelt region),<sup>1</sup> resulting in a maximum of 701 FTE construction roles per year (WPS, August 2025).

Of the 310 direct FTE and 701 total FTE jobs supported annually within the economic study area during the construction phase, only a portion will be physically present on site. The peak of 310 on-site personnel reflects the direct construction workforce, while the remaining 146 FTEs are distributed across the broader economic study area rather than being concentrated within the RIA itself.

Similarly, of the 701 total jobs supported annually (including indirect and induced employment), a substantial share is expected to be located outside the LGA. This distribution implies that while the Project will generate significant employment benefits, housing demand within the RIA will arise at a lower rate, as many workers will be based elsewhere or engaged in off-site roles.

The workforce will be made up of local and intrastate personnel where possible. For particularly complex work or where the requirement for and availability of specialist skills and equipment is required, interstate or international personnel may be required to fill these roles.

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<sup>1</sup> The economic impact assessment study conducted by WPS in August 2025 is based on an economic impact study area that includes the Shire of Dandaragan, the broader Northern Wheatbelt region and Perth. This study area is broader than the Local Impact Area (LIA) and Regional Impact Area (RIA) used in this social impact assessment.

### **Operations Workforce**

Subject to meteorological conditions, technical and/or commercial constraints, Marri Wind Farm will operate 24 hours a day, every day of the year, for the expected 30year operational life span. The wind farm will not be staffed 24/7 and will likely be attended to during normal working hours with a standby crew on weekends.

The operational workforce will be refined once the turbine supplier is selected, and the final size of the wind farm is determined.

The Project is anticipated to create upwards of 11 direct and 16 indirect FTE roles during the operations phase across the broader economic impact area, resulting in a total of 27 FTE construction roles per year (WPS, August 2025). Capacity for these jobs to be sourced locally from the LIA or RIA is discussed in Section 5.6 Education and Employment.

### **Decommissioning Workforce**

Across the broader economic impact area, the Project is anticipated to create upwards of 77 direct and 93 indirect FTE roles during the decommissioning phase across the broader economic impact area, resulting in a total of 170 FTE construction roles per year (WPS, August 2025). The workforce will be made up of local and intrastate personnel where possible. Again, for particularly complex work or where the requirement for and availability of specialist skills and equipment is required, interstate or international personnel may be required to fill these roles.

## **3. Study Areas**

The SIA study area refers to the geographical localities that will likely experience both direct and indirect benefits and impacts from the Project and its associated activities. For the proposed Marri Wind Farm, the study area has been divided into two tiers of impact/influence.

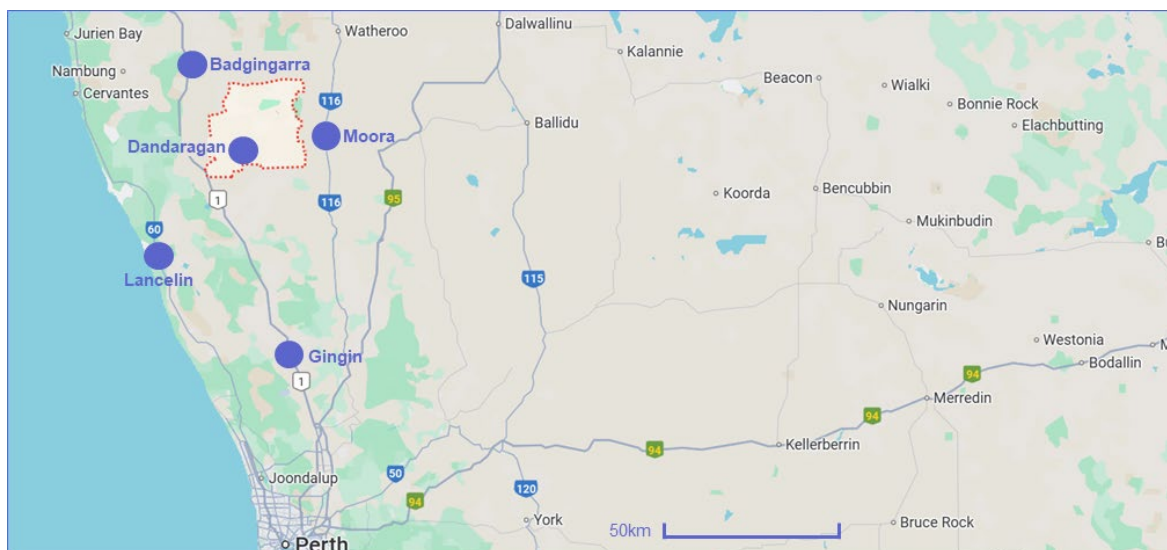
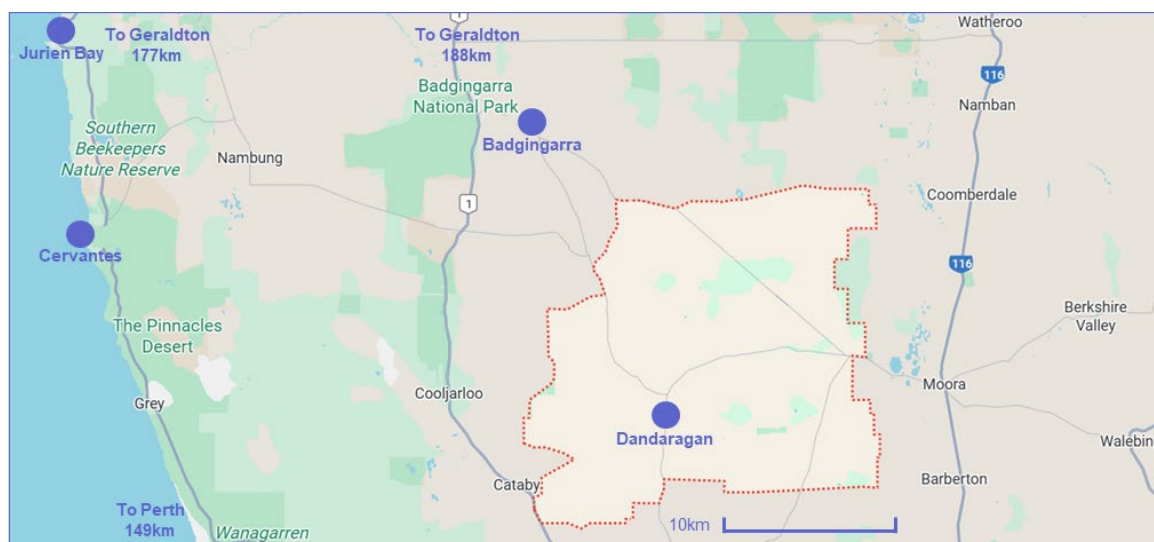
### **3.1 Local Impact Area (LIA)**

Figure 3 outlines the Local Impact Area (LIA), which includes the townships and localities encompassing and directly surrounding the proposed Project site, as well as regional hubs within a 60km radius from the Project. This area will potentially experience both direct and indirect effects of the Project.

Townships located in this impact area include Dandaragan, Badgingarra, Moora, Gingin and Lancelin, as well as the smaller residential localities of Regans Ford, Yathroo, Cataby, Orange Springs, Red Gully and Mindarra. Due to the limited availability of comparable data at the locality level, baseline data for the LIA has been limited to the five townships of Dandaragan, Badgingarra, Moora, Gingin and Lancelin.

### **3.2 Regional Impact Area (RIA)**

Figure 4 outlines the Regional Impact Area (RIA), which consists of the Shire of Dandaragan LGA as a whole, including the coastal hubs of Cervantes and Jurien Bay. This area, located within the broader region surrounding the proposed development, is likely to experience indirect and/or secondary impacts of the Project.

**FIGURE 3: MAP OF THE LOCAL IMPACT AREA (SHOWING PROXIMITY TO PERTH)****FIGURE 4: MAP OF THE REGIONAL IMPACT AREA**

## 4. Community Profile

This section provides an introductory overview to the five key townships located within the LIA. The purpose of this section is to give insight into the social fabric and nature of the townships before providing the more detailed town and locality specific demographic data and trends analysis that form the basis of the social baseline assessment for this impact area. Where information is not available at the township or locality level, data summaries and trend analysis are provided for the broader RIA, which encompasses the whole of the Shire of Dandaragan LGA. Where available, this data is further supplemented by contextual data from the neighbouring LGAs of Shire of Gingin and Shire of Moora.

### 4.1 Key Townships in the Local Impact Area

#### 4.1.1 Dandaragan

Dandaragan is the closest township to the proposed development site, being situated just 20km north of the northern Project boundary. According to the [Shire of Dandaragan Local Planning Strategy](#) (2024), Dandaragan boasts a distinctive community demographic characterised by its rural ambience and agricultural roots, making it one of Western Australia's oldest farming regions. With a population of around 292, the area is renowned for its close-knit community, where a significant portion of residents are involved in broadacre farming, horticulture production, and mineral sand mining. The



demographic composition of Dandaragan trends towards an older population. This is representative of common challenges encountered by rural areas, as younger generations often seek opportunities in urban centres. Despite this trend, the township remains resilient and community-focused, with locals actively engaged in various community, sporting, and social initiatives, aimed at promoting social cohesion and fostering opportunities for the younger demographic.

The economic landscape of Dandaragan is primarily driven by agriculture, emphasising grain production, livestock, and other agricultural products. This reliance on farming has both positive and challenging implications for the community, shaping the local economy and influencing the social fabric. The community is often engaged in discussions and initiatives related to sustainable farming practices and environmental conservation, reflecting a growing awareness of the need to balance economic activities with ecological responsibility (Narvis, 2023). Additionally, efforts are made to diversify the local economy through supporting mineral sand mining and renewable energy initiatives that support local economic opportunities.

#### 4.1.2 Badgingarra

Badgingarra, situated 54km north of the northern project boundary, is considered a vibrant rural community that blends its rich agricultural heritage with sustainable development. The Shire's Strategic Community Plan emphasises enhancing local infrastructure, promoting eco-tourism, and supporting agricultural innovation to bolster economic resilience. The Local Planning Strategy outlines objectives for Badgingarra, including preserving natural assets, improving community facilities, and encouraging population growth through diversified housing options. These strategic initiatives aim to ensure that Badgingarra continues to thrive as a connected, sustainable, and prosperous rural community.

#### 4.1.3 Moora

Moora, situated 40km north of the northern project boundary, serves as the largest town in the LIA and the largest inland service centre between Perth and Geraldton. According to the 2021 Census, the town had a population of 1,591. The local economy is predominantly driven by agriculture, including broadacre crops, horticulture, and livestock farming. Additionally, sectors such as tourism, manufacturing, retail, education, and health contribute to the economic landscape. The [Shire of Moora's Strategic Community Plan 2018–2028](#) outlines a commitment to sustainable climate practices, specifically emphasising the consideration of renewable energy sources. This is articulated in Outcome 2.3, Strategy 2.3.1, which states: "Consider the impact of the addition of renewable energy sources."

To operationalise this strategy, the Shire adopted Local Planning Policy No.1 in October 2024, titled [Renewable Energy Facilities, Associated Transmission and Storage Infrastructure and Future Technologies](#). This policy provides a framework for assessing and approving renewable energy projects, including wind farms, within the Shire. It aims to balance the development of renewable energy initiatives with the preservation of the region's productive agricultural estate and the well-being of the community. Key objectives include promoting responsible development, facilitating community consultation, and ensuring that projects deliver benefits commensurate with their investment and revenue-generating capacity.

#### 4.1.4 Gingin

Gingin, situated 45km south of the southern project boundary, is a historic township in Western Australia's Wheatbelt region that serves as the administrative heart of the Shire of Gingin. As of the 2021 Census, the town had a population of 902, with a median age of 40, reflecting a balanced demographic profile compared to the broader Shire's median age of 50. The local economy is predominantly driven by agriculture, focusing on grain production, livestock, and horticulture. The [Shire's Strategic Community Plan 2024–2034](#) emphasises sustainable growth, infrastructure development, and community well-being, aiming to enhance Gingin's role as a vibrant rural hub.



#### 4.1.5 Lancelin

Lancelin, situated 35km southwest of the southern Project boundary, is a coastal township within the Shire of Gingin that is recognised for its natural beauty and growing role in renewable energy initiatives. The [Shire's Strategic Community Plan 2024–2034](#) emphasises sustainable development, infrastructure enhancement, and community well-being, aiming to bolster Lancelin's position as a vibrant coastal hub. Renewable energy projects, particularly wind farms, are integral to the region's development strategy. Three smaller wind farms have been proposed near Lancelin: West Hills Farm (five turbines), Anderson Wind Farm (ten turbines), and Cowalla Road Wind Farm (five turbines). These projects contribute to the local electricity grid and align with the Shire's commitment to sustainable energy solutions. However, Wangaree Renewable Energy Project Pty Ltd recently applied for development approval to erect a met mast within the Shire and this application was rejected in [February 2025](#) due to neighbour/community opposition, suggesting that there are increasing tensions within the community regarding the expansion of renewable energy projects, particularly where they may present a conflict with local tourism areas. These initiatives underscore Lancelin's evolving identity as a community embracing sustainable practices and renewable energy advancements.

### 5. Integrated Social Baseline Study and Impact Assessment

This section presents the findings of an integrated social baseline study and impact assessment for the Project. It establishes a clear picture of existing social conditions and values in the Local Impact Area (LIA) and broader Regional Impact Area (RIA), then evaluates how the Project may affect these conditions across construction, operation, and decommissioning. Drawing on quantitative data and qualitative inputs (including desktop research and stakeholder feedback), the section is structured to flow from baseline context, potential vulnerabilities and community perceptions to a preliminary evaluation of potential impacts that is followed by corresponding mitigation and enhancement measures and a final residual risk rating. This approach is designed to present all the relevant information for each key topic in the one place to facilitate streamlined information consumption and to support adaptive social performance management and transparent reporting throughout the Project lifecycle.

#### 5.1 Demographics

##### 5.1.1 Population Trends and Projections

Data on the demographic and cultural composition of the LIA and RIA are presented in Table 5.

**TABLE 5: LOCAL IMPACT AREA, REGIONAL IMPACT AREA AND STATEWIDE POPULATION DATA**

	DANDARAGAN	BADGINGARRA	MOORA	GINGIN	LANCELIN	SHIRE OF DANDARAGAN	WA
<b>Population</b>	292	226	1,755	902	857	3,692	2,660,026
<b>Males</b>	53.4%	61.4%	50.4%	49.8%	50.4%	54.3%	49.7%
<b>Females</b>	46.6%	38.6%	49.6%	50.2%	49.6%	45.7%	50.3%
<b>Median Age</b>	51	47	39	47	55	51	38
<b>Aboriginal and Torres Strait Islanders</b>	2.9%	3.5%	9.3%	3.3%	2.6%	2.9%	3.3%
<b>Born in Australia</b>	82.2%	85.0%	83.4%	70.6%	76.2%	79.4%	62.0%

Source: ABS Census Data 2021

### 5.1.2 Population Trend Analysis for the Regional Impact Area

As of the 2021 Census, the Shire of Dandaragan in Western Australia had a usual resident population of 3,692 individuals residing in approximately 2,800 dwellings, with an average household size of 2.14 persons). As of June 30, 2024, the Shire of Dandaragan's estimated resident population reached 3,921, marking a 4.5% increase from the previous year. This growth rate significantly surpasses the 1.5% average for regional Western Australia, indicating a notable demographic expansion in the area.

The median age in the Shire of Dandaragan was 49 years, indicating a relatively mature population. Children aged 0 to 14 years constituted 17.4% of the population, while individuals aged 65 years and over made up 21.5%. Demographic projections also highlight an aging population trend within the Shire. By 2025, residents aged 50 and over were expected to comprise 47% of the total population, with those aged 70 and over accounting for approximately 17%.

Within the Shire, the gender distribution was 54.3% male and 45.7% female. Regarding cultural diversity, 14.8% of the Shire's population were born overseas, which is slightly lower than the 17.8% average for Regional Western Australia.

Collectively, this data provides a snapshot of the demographic and cultural composition of both the local and regional impact areas, reflecting a community with a mature age profile, a higher proportion of males, and a modest level of cultural diversity. Higher levels of males and lower levels of cultural diversity in the region suggest that the Project may need to be considerate of appropriate Diversity Equity and Inclusion (DEI) initiatives to ensure a safe workplace. Additionally, given the older profile, the Project may present opportunities for attracting more young people and families to the region for employment. This could have the positive effect of rejuvenating social and sporting activities, thus boosting community cohesion, locally while also potentially adding pressure to demands for housing and social services such as childcare.

### 5.1.3 Household Composition

#### Local Impact Area

Household composition across the towns of Dandaragan, Badgingarra, Moora, Gingin, and Lancelin exhibit both similarities and distinctions, reflecting the diverse lifestyles and community structures within these regions.

**Dandaragan:** In the township of Dandaragan, household structures reflect a small, relatively stable rural community. The average household size is 2.3 persons per household, which is slightly below the state average of 2.6. While specific percentages for household types are not separately published for the township due to its small population size, general demographic patterns suggest a mix of couple families, both with and without children, and a proportion of older residents, which may contribute to a higher presence of couple-only or single-person households.

**Badgingarra:** Specific data on household composition for Badgingarra is limited due to its small population size. However, the 2021 Census reported 70 private dwellings with an average household size of 2.4 persons. This suggests a mix of household types, potentially including families and single occupants.

**Moora:** In the town of Moora, the average household size was 2.4 persons in 2021. While detailed household composition percentages are not specified, this average indicates a balance between family households and other household types. In the Shire of Moora, 21.9% of households were composed of couples with children in 2021, which is slightly below the 23.8% observed in Regional Western Australia. Single-person households accounted for 28.1% of all households, which is slightly above the regional average of 27.4%. The most common household size was two persons per household, reflecting a balance between family and non-family household types in the area.

**Gingin and Lancelin:** Detailed household composition data for the townships of Gingin and Lancelin is not readily available. the broader Shire of Gingin had an average household size of 2.27 persons in 2021. Approximately 27% of households were single-person households, which is slightly higher than

the 24.9% observed in Greater Perth. The most common household size was two persons per household.

In summary, while specific data varies, these towns generally exhibit a trend toward smaller household sizes, with two-person households being common. The presence of single-person households is also notable, particularly in the Shires of Dandaragan and Gingin. This data is consistent with the presence of older people, in both single and coupled households, and the possibility that there may be single-person households driven to or remaining in the region for work.

### Regional Impact Area

As of the 2021 Census, the Shire of Dandaragan had a usual resident population of 3,692 people living in 2,800 dwellings, with an average household size of 2.14 persons. This figure is slightly lower than the Regional Western Australia average of 2.37, indicating a prevalence of smaller households within the Shire.

In terms of household composition, 17.9% of households were comprised of couples with children, which is below the 23.8% average for Regional WA. Notably, 29% of households were single-person households, slightly higher than the regional average of 27.4%. The most common household size was two persons per household, reflecting a trend towards smaller household units in the Shire. These statistics suggest a community with a significant proportion of smaller households, including singles and couples without children, which may influence local service provision and community planning.

### 5.1.4 First Nations Population and Demographics

Table 6 provides data on the Indigenous populations within the RIA and surrounding LGAs. Based on the 2021 Census, the Indigenous populations in these Shires of Dandaragan, Gingin, and Moora exhibit distinct demographic and socio-economic characteristics.

#### Regional Impact Area (and surrounding LGAs)

Data available indicated that the Shire of Dandaragan is home to 96 Aboriginal and/or Torres Strait Islander people, with a nearly even gender distribution: 49.5% male and 50.5% female. The median age is 34 years, indicating a relatively young Indigenous population. According to available census data, there are 51 Indigenous households, comprising 40 families, with an average household size of 2.8 persons (representing 1.8% Indigenous population within the RIA, when compared against the 3,692 total persons housed in 2,800 dwellings across the Shire of Dandaragan).

In the neighbouring Shire of Gingin available data indicates there are 144 Aboriginal and/or Torres Strait Islander residents, with a gender ratio of 52.8% male and 47.2% female. The median age is 31 years, reflecting a youthful demographic. There are 45 Indigenous households, with an average household size of 3.1 persons.

Available data indicates that the Shire of Moora has the largest Indigenous population of the three LGAs in the Project area, with 732 Aboriginal and/or Torres Strait Islander people living in the shire, with a balanced gender split of 49.9% male and 50.1% female. The median age is 23 years, indicating a particularly young Indigenous population that indicates the presence of many children and young families. Consistent with this trend, there are 289 Indigenous households, comprising 244 families, with an average household size of 3.1 persons.

These statistics highlight the youthful nature of the Indigenous populations across the three Shires, with Moora having the largest population and the youngest median age. Household sizes are generally larger than the national average, reflecting extended family living arrangements common in Indigenous communities. This youthful population may provide opportunities for engaging young First Nations people in project-related training and employment.

**TABLE 6: REGIONAL INDIGENOUS POPULATION AND DEMOGRAPHICS**

	SHIRE OF DANDARAGAN	SHIRE OF GINGIN	SHIRE OF MOORA	WA
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<b>Population</b>	292	1,755	902	2,660,026
<b>Population &amp; Gender</b>	96 people; 49.5% male, 50.5% female	144 people; 52.8% male, 47.2% female	732 people; 49.9% male, 50.1% female	89,000; 50.4% male to 49.6% female
<b>Median Age</b>	34	31	23	24
<b>Households</b>	51 households; 40 families; avg. household size 2.8	45 households; avg. household size 3.1	289 households; 244 families; avg. household size 3.1	average household size 3.2

### 5.1.5 Household Income

Table 7 provides data on the median household income in the LIA, RIA and WA. Data indicates that Dandaragan has the highest household income in the region, at \$1,875pw and Lancelin has the lowest, at \$1,071pw. This is indicative of the types of employment opportunities available in these towns, discussed in further detail in Section 5.6 Education and Employment. High incomes in certain towns within in the LIA suggest that Project-related employment opportunities will need to offer competitive salaries in order to attract local talent.

**TABLE 7: MEDIAN HOUSEHOLD WEEKLY INCOME**

MEDIAN HOUSEHOLD WEEKLY INCOME	
Dandaragan	\$1875
Badgingarra	\$1583
Moora	\$1371
Gingin	\$1603
Lancelin	\$1071
Shire of Dandaragan	\$1305
WA	\$1815

### 5.1.6 Potential Vulnerabilities

Based on this social baseline assessment, the following potential vulnerabilities have been identified with respect to demographics.

- ▶ **Ageing population:** The Shire has a notable proportion of older residents. This demographic trend can lead to increased demand for healthcare services, aged care facilities, and social support systems, and may face mobility or income-related challenges.
- ▶ **Youth outmigration:** Younger people often leave for education or employment in urban areas, leading to reduced local workforce and social support systems.
- ▶ **Indigenous population:** Aboriginal residents may experience greater vulnerability due to systemic disadvantage, including health disparities, housing insecurity, and lower access to services.
- ▶ **Low-income households:** Despite a relatively low proportion of households on fixed or low incomes, higher-than-normal cost pressures in regional areas mean that some families are still vulnerable to rises in fuel, food, and housing costs.

### 5.1.7 Community Perceptions and Stakeholder Feedback

There were no specific questions in the study's community perceptions survey that related directly to demographics; however, stakeholder interviews did reveal some limited concerns about the impact of increased property prices (as a potential result of increased housing demands) pushing out young families in the local region.

### 5.1.8 Preliminary Impact Assessment

The demographic profile of the LIA and RIA reveals a region characterised by small but growing populations, an ageing community, relatively small household sizes, and distinct Indigenous population profiles. These characteristics present both opportunities and challenges for the Project, particularly in relation to local workforce availability, community integration, service demand, and equitable benefit-sharing.

#### *Population Trends and Age Profile*

Given the observed demographic growth in the Shire of Dandaragan—outpacing regional trends—the Project is likely to intersect with an area experiencing renewed development momentum. This presents an opportunity to align workforce and infrastructure planning with ongoing population growth.

The Shire's mature age structure, including a high proportion of residents aged 50 and over, suggests a need for accessible community engagement and Project information that should be tailored to older adults.

Simultaneously, the potential to attract younger workers through Project-related employment could help rebalance the population profile and revitalise local schools, services and community life—though this may also increase pressure on health care, early childhood education, and housing availability.

The higher-than-average male population, likely linked to agriculture and resource-based employment, may be further skewed during construction phases unless gender-inclusive hiring and workplace safety practices are proactively implemented.

Consideration should also be given to the regions relatively low levels of cultural diversity, which may call for proactive inclusion strategies with respect to attracting and safely managing diversity within the Project's workforce.

#### *Household Composition*

Across the LIA, smaller household sizes and a prevalence of single-person households—particularly among older adults—may suggest a community with limited informal care networks and greater reliance on local services. The Project is unlikely to significantly alter these household structures, but an influx of workers, particularly those relocating temporarily or alone, may contribute to demand for short-term accommodation and social connection.

These patterns reinforce the need to consider how the Project might influence social isolation, housing mix, and support services for older or single-person households, even if indirectly.

#### *First Nations Communities*

Indigenous populations across the RIA are younger, with larger household sizes and a strong presence in Moora. These characteristics indicate a potentially valuable, youthful workforce and underscore the opportunity for culturally appropriate local employment, training, and engagement in the Project.

However, the presence of systemic disadvantage and cultural ties to land and heritage require respectful and sustained engagement, guided by principles of Free, Prior and Informed Consent (FPIC). It also highlights the importance of culturally respectful engagement processes and the need for social and economic programs that align with the aspirations and needs of Indigenous families and young people.



### Household Income and Economic Participation

Household income levels are an important indicator of community economic wellbeing, financial resilience, and the capacity of residents to adapt to and benefit from regional infrastructure development. Income also shapes the extent to which households experience impacts—either positive, through employment and investment, or negative, through cost-of-living pressures and housing competition.

Variation in household incomes across the LIA reflects differing economic structures—from higher-income agricultural centres like Dandaragan to lower-income, tourism-based towns such as Lancelin. This has several implications:

- ▶ In lower-income areas, Project-related employment could support financial wellbeing and reduce economic vulnerability.
- ▶ In higher-income towns, competitive remuneration and meaningful career pathways will be necessary to attract skilled local labour.
- ▶ Lease payments to host landowners may contribute to economic stability but could also generate perceptions of inequity in the community. The benefit sharing program is designed to share benefits of the wind farm with the wider community.

These considerations highlight the importance of tailoring employment, engagement, and benefit-sharing strategies to local economic contexts to maximise positive outcomes and minimise social friction.

**TABLE 8: DEMOGRAPHIC PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigations		Prelim. Impact Rating
				Magnitude	Sensitivity	
I001	Project has the potential to alienate older residents through inaccessible engagement and communications practices	C	D	Minor	Medium	Minor
I002	Project has the potential to increase population gender imbalance	C, O, D	I	Minor	Medium	Minor
I003	Project has the potential to exacerbate income disparity through unequal benefit distribution	C, O	D	Minor	Medium	Minor

### 5.1.9 Proposed Mitigation Measures and Enhancement Opportunities

The following mitigation measures are recommended to address potential demographic impacts. They aim to enhance local benefits and reduce risks related to workforce participation, demographic change, community inclusion, and perceived inequalities.

**TABLE 9: DEMOGRAPHIC MITIGATION MEASURES**

No.	Mitigation Measures	Linked Impact / Opportunity
M001	Tailor community engagement methods and information delivery to suit older residents. Include printed materials, in-person forums, and accessible venues.	I001
M002	Apply Diversity, Equity and Inclusion (DEI) strategies in recruitment, operations, and workforce culture to ensure a safe and inclusive environment for women, young people, and culturally diverse workers.	I002; O002
M003	Optimise opportunities for wealth creation in the LIA through local employment, procurement and business development.	I003

Enhancements		
E001	Monitor population shifts linked to project-related in-migration and coordinate with local service providers to anticipate any increased demand on housing, health, and childcare.	O001

### 5.1.10 Residual Impact Assessment

Assuming the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 10 outlines the likely residual demographic impacts from the Project.

**TABLE 10: DEMOGRAPHIC RESIDUAL IMPACT ASSESSMENT**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I001	Project has the potential to alienate older residents through inaccessible engagement and communications practices	Negligible	Medium	Negligible
I002	Project has the potential to increase population gender imbalance	Negligible	Medium	Negligible
I003	Project has the potential to exacerbate income disparity through unequal benefit distribution	Negligible	Medium	Negligible
O001	Project has the potential to attract younger workers and families to the region, supporting increasing capacity of local services	Beneficial	Medium	Moderate Positive
O002	Project has the potential to improve workforce inclusion practices for low-diversity workforce	Beneficial	Low	Minor Positive

## 5.2 Health and Wellbeing

The Shire of Dandaragan offers a range of health services to its residents, addressing various health needs and promoting general wellbeing. Below is an overview of common health issues and the available health services in the region.

### 5.2.1 Common Health Issues

According to the 2021 Census data, the prevalence of long-term health conditions among residents of the Shire of Dandaragan, is as follows:

- ▶ **Arthritis:** Reported by 9.3% of the population.
- ▶ **Mental Health Conditions (including depression or anxiety):** Reported by 7.7% of residents.
- ▶ **Asthma:** Experienced by 4.8% of residents.
- ▶ **Diabetes:** Affects 4.4% of residents.
- ▶ **Heart Disease:** Present in 3.3% of the population.
- ▶ **Cancer (including remission):** Diagnosed in 2.4% of the population.

Overall, 32.5% of the Shire's population reported having one or more long-term health conditions, slightly below the state average of 34.9%.

### 5.2.2 Common Health Risks

Health risk data specific to the RIA was not publicly available. Instead, data from the [2024 Northern Wheatbelt Health Needs Assessment](#), which includes the townships of Dandaragan, Moora and Gingin (amongst others) is provided. This region was found to have prevalence rates of risk factors that were considered to be significantly higher than state rates.

In 2017-18, children aged 2-17 years in the region were significantly more likely to be obese (ASR=11%) compared to the state (ASR=7.9%). Moreover, data from the Health and Wellbeing Surveillance System (HWSS) survey 2015-19 indicated that estimated prevalence rates of obesity among adults aged 16 years and over were significantly higher in the region (39%) compared to the state (30%). The region also had higher rates of high blood pressure (22%) and a significantly high rate of people who did no leisure time physical activity (24%).

These health risks, coupled with an ageing population, are likely to place ongoing strain on the capacity of local health services and facilities.

### 5.2.3 Health Services Availability

The primary healthcare facilities and services (including emergency response capability) within the RIA include:

- ▶ **Moora District Health Service:** Situated in the nearby town of Moora, this comprehensive health service is part of the Wheatbelt Region of the WA Country Health Service. It comprises a hospital (including an emergency department), a frail aged lodge, home support services, meals on wheels, and allied and community health services. Visiting specialist services include general surgery, gynaecology, and psychiatry.
- ▶ **Jurien Bay Health Services:** Located in the town of Jurien Bay, this facility provides essential primary and emergency health services to the local community and is open 24 hours. However, as of January 2025, the town is experiencing a shortage of medical professionals, with only two doctors available, down from three. This reduction has particularly impacted the availability of female doctors, affecting services such as women's health ([ABC News](#)).

Additional health and support services are available at the following towns within the Local Impact Area.

#### *Dandaragan Health and Support Services*

- ▶ **Dandaragan Child Health Centre:** Located at the Dandaragan Community Centre, this service offers free maternal, child, and family health services to local residents.
- ▶ **St John Ambulance – Dandaragan Sub Centre:** Offers emergency medical services and first aid training.

#### *Badgingarra Health and Support Services*

- ▶ **Badgingarra Child Health Centre:** Located at the Badgingarra Community Centre, this service offers free maternal, child, and family health services to local residents.

#### *Moora Health and Support Services*

- ▶ **Moora Hospital & Health Centre:** Provides comprehensive health services to the community.
- ▶ **St John Ambulance – Moora Sub Centre:** Offers emergency medical services and first aid training.
- ▶ **Moora Aged Care Support:** Provides support services for the elderly in the community.

#### *Gingin Health and Support Services*

- ▶ **Gingin Community & Child Health Nurse:** Provides health services for children and families.
- ▶ **Gingin Medical Centre:** Offers general medical services to the community.
- ▶ **Gingin Dental Clinic:** Provides dental care services.
- ▶ **Gingin Chiropractic Clinic:** Offers chiropractic services.

#### *Lancelin Health and Support Services*

- ▶ **Lancelin Medical Centre:** Provides general medical services to the community.

### Access to Specialist Health Services

For specialist consultations and treatments, residents often travel to nearby regional centres or Perth. To assist with this, the **Patient Assisted Travel Scheme (PATS)** provides financial assistance to eligible WA country residents who need to travel for specialist medical services not available locally.

Additionally, the **St John WA Jurien Bay** offers a community transport service for residents requiring transportation to medical appointments. This service is suitable for passengers who can travel without assistance or en-route medical support.

### 5.2.4 Summary

In summary, residents in the RIA experience a range of long-term health conditions, with 32.5% reporting at least one, slightly below the state average. However, the broader region shows higher-than-average rates of obesity, high blood pressure, and physical inactivity. While core health services are available locally and in nearby towns, access to specialist care remains limited, often requiring travel to regional centres or Perth, with support offered through programs like PATS and community transport services. These challenges suggest the Project needs to consider the impact of increased workers in the region on local health services but may provide opportunities for the Project to engage with local communities around local health initiatives.

### 5.2.5 Potential Vulnerabilities

Based on the social baseline assessment, the following potential vulnerabilities have been identified with respect to health and wellbeing.

- ▶ **Ageing population:** The Shire has a notable proportion of older residents. This demographic trend can lead to increased demand for healthcare services, aged care facilities, and social support systems, and may face mobility or income-related challenges.
- ▶ **Indigenous population:** Aboriginal residents may experience greater vulnerability due to systemic disadvantage, including health disparities, perceived or real disconnection from land and culture and lower access to services.
- ▶ **Limited local health infrastructure:** While facilities like the Jurien Bay Medical Centre and the Moora District Health Services provide essential services, the Shire faces challenges in maintaining consistent healthcare provision. Attracting healthcare professionals to the area is challenging. Specialist medical care often requires travel to larger regional centres or Perth.
- ▶ **Mental health services scarcity:** Rural communities frequently have fewer mental health professionals, despite higher rates of suicide and substance abuse. This can have implications for any additional psychological distress caused to local residents by direct or indirect impacts of the Project.

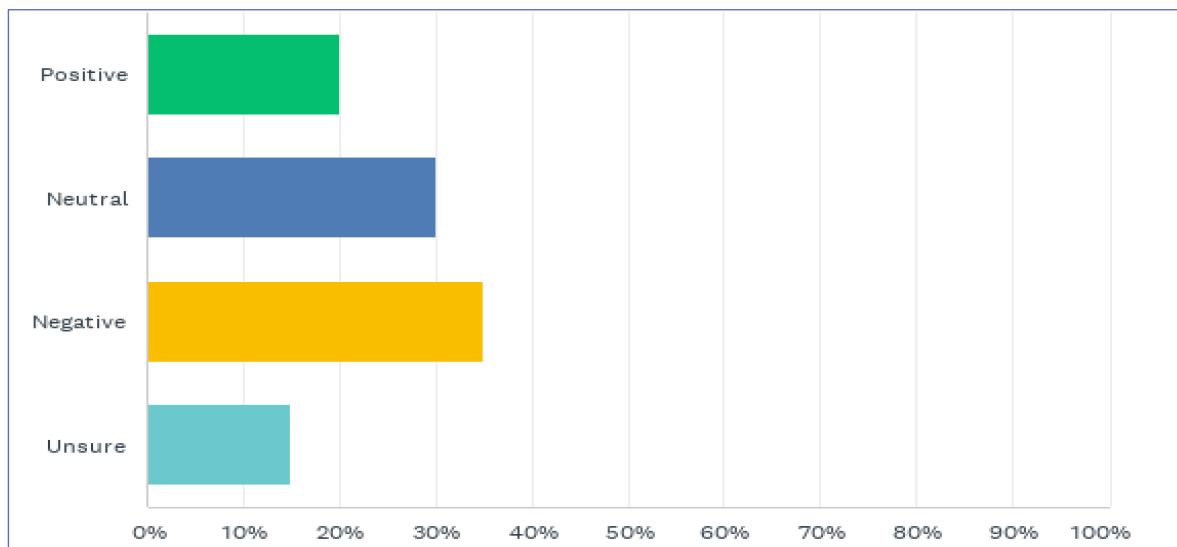
### 5.2.6 Community Perceptions and Stakeholder Feedback

Results from the study's community perceptions survey indicate that 55% of respondents noted concerns about health and wellbeing impacts, with 39% feeling that the Project will have a negative impact on people's health and wellbeing, compared with 22% positive and 28% neutral. Furthermore, 55% of respondents expressed concerns regarding noise from turbines, with 44% also concerned about shadow flicker and electromagnetic fields from turbines. With respect to visual amenity, 16% said turbines would make the landscape more interesting, while 21% believed they would have little impact and 47% believed the presence of turbines would detract from the natural view of the landscape. Additionally, 40% believe that the visual presence of turbines would significantly negatively affect their enjoyment of the local area, compared with 20% who would feel slightly impacted and 35% who felt that it would not bother them.

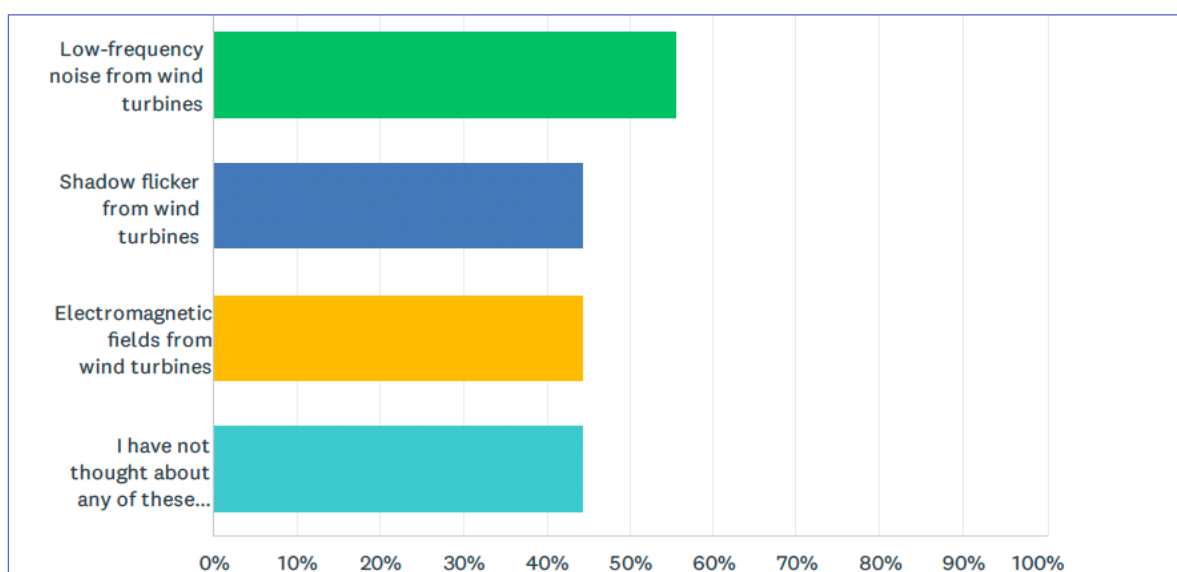
During stakeholder consultation interviews, landowners expressed some concerns around the impact of these potential health issues on their lives but acknowledged that they had come to terms with these as part of their acceptance of participation in the Project. They nevertheless had expectations that the developer would attempt to mitigate any negative impacts to the highest extent possible.

Stakeholder interviews also indicated concern about existing medical and health services capacity in the RIA noting the lack of hospital, medical clinics or ambulance facilities in the LIA and none located close to the Project site.

**FIGURE 5: RESPONSES TO THE SURVEY QUESTION “DO YOU BELIEVE THE MARRI WIND FARM WILL HAVE A POSITIVE, NEUTRAL OR NEGATIVE IMPACT ON THE HEALTH AND WELLBEING OF RESIDENTS IN THE LOCAL AREA?”**

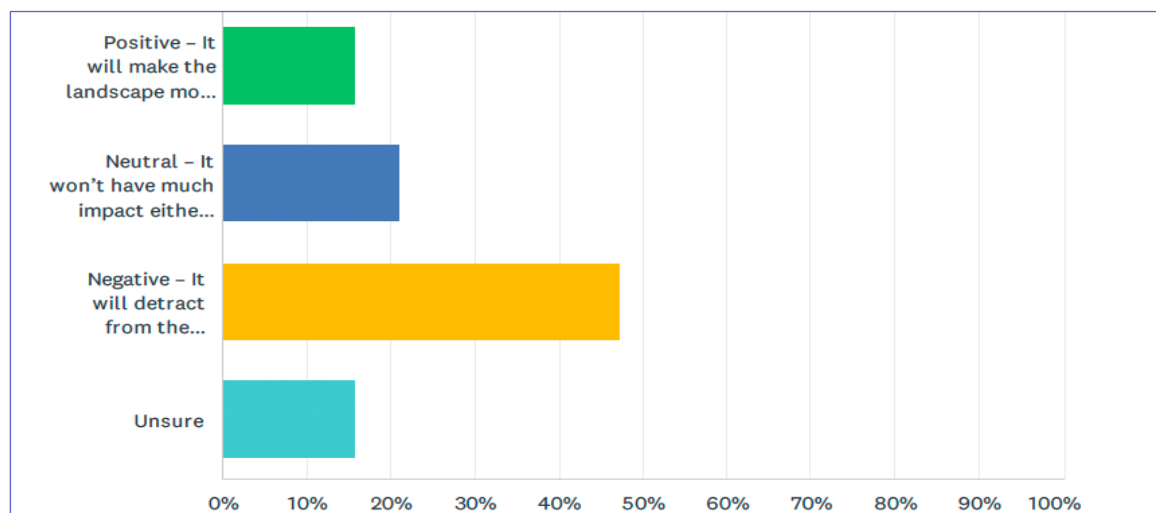


**FIGURE 6: RESPONSES TO THE SURVEY QUESTION “WHAT ISSUES ARE TOP OF MIND FOR YOU (IF ANY) REGARDING THE POTENTIAL IMPACTS OF WIND FARMS ON LOCAL COMMUNITY HEALTH AND WELLBEING?”**

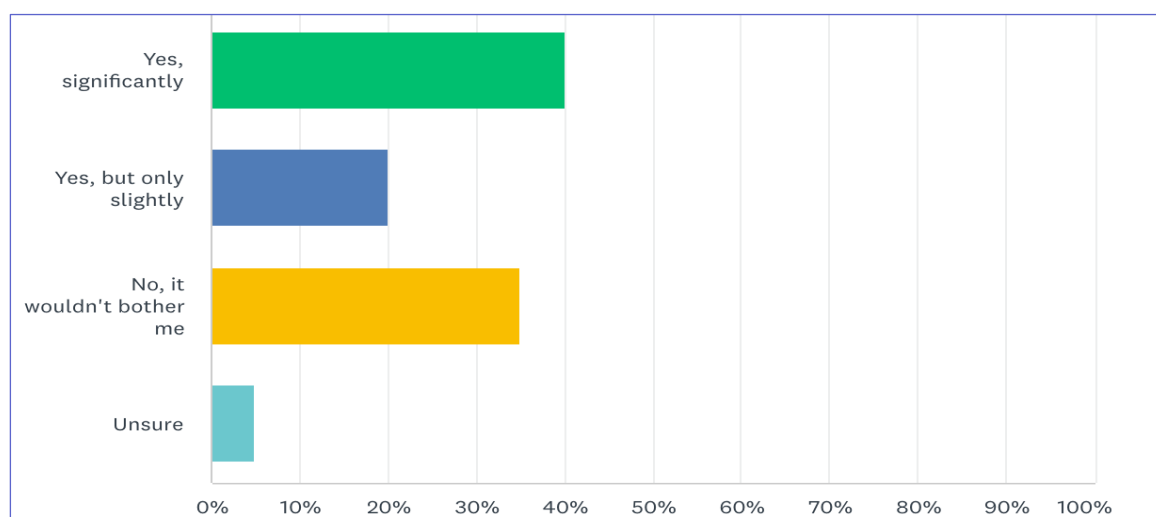




**FIGURE 7: RESPONSES TO THE SURVEY QUESTION “DO YOU BELIEVE THE MARRI WIND FARM WILL HAVE A POSITIVE, NEUTRAL OR NEGATIVE IMPACT ON THE VISUAL AND AESTHETIC VALUES OF THE LOCAL AREA?”**



**FIGURE 8: RESPONSES TO THE SURVEY QUESTION “WOULD THE PRESENCE OF WIND TURBINES AFFECT YOUR ENJOYMENT OF THE LOCAL AREA?”**



### 5.2.7 Preliminary Impact Assessment

This section assesses the potential health and wellbeing impacts of the Project on individuals residing in nearby properties. Drawing on national and international literature, it evaluates both direct and indirect effects of wind turbines, including those related to noise, sleep disturbance, psychological stress, visual amenity, and broader social outcomes. The analysis considers the role of contextual and perceptual factors in shaping resident experiences and highlights relevant mitigation measures.

#### Noise Exposure and Sleep Disturbance

Wind turbines produce a range of sound emissions, including audible noise and low-frequency infrasound. While these emissions are generally within regulatory limits at standard setback distances, community concerns regarding sleep quality and chronic noise exposure remain prominent.

Research by Michaud et al. (2016), conducted as part of the Health Canada Wind Turbine Noise and Health Study, found no consistent link between wind turbine noise and long-term physical health conditions. However, the study did identify a dose-response relationship between turbine noise and self-reported sleep disturbance and annoyance, particularly at higher exposure levels. Other studies

(e.g., Bakker et al., 2012; Jalali et al., 2016) also report that noise can contribute to perceived sleep disruption, though findings are often confounded by individual noise sensitivity and attitude toward the development.

Compliance with the WA Environmental Protection (Noise) Regulations 1997 (Amended 2024) will form a baseline requirement for the Project. However, attention to perceptual and contextual factors influencing sleep and amenity will also be required.

### ***Annoyance, Psychological Stress and Quality of Life***

Annoyance related to wind turbines is widely documented and can contribute to psychological distress and reduced quality of life. Importantly, levels of annoyance are not determined solely by sound pressure levels but are influenced by residents' expectations, perceptions of fairness, visual exposure, and trust in developers and decision-makers (Pedersen & Persson Wayne, 2007; Rand & Hoen, 2017).

Place-based identity and landscape attachment play significant roles in how change is perceived. For some individuals, the introduction of large-scale turbines may be viewed as an intrusion on personal space or community character. Devine-Wright (2009) identifies these reactions as forms of "place-protective action," underscoring the importance of procedural justice and early community involvement in decision-making processes.

### ***Infrasound and Low-Frequency Noise***

Community concerns often include fears about the effects of infrasound and low-frequency noise on human health. Scientific reviews (e.g., Leventhall, 2006; Jakobsen, 2005) have found that infrasound generated by modern wind turbines is well below the threshold of human perception and unlikely to pose a physiological risk.

Nonetheless, some residents continue to attribute symptoms such as dizziness, fatigue, and nausea to turbine-related infrasound. These experiences may be partially explained by the "nocebo effect," where negative expectations and anxiety contribute to health complaints (Crichton et al., 2013). These findings reinforce the need for transparent information-sharing and responsive community engagement.

### ***Visual Amenity and Landscape Impacts***

The visibility of wind turbines can influence perceived quality of life, particularly in rural or scenic settings where changes to landscape character may be viewed negatively. Visual impacts—including shadow flicker, turbine movement, and light emissions—may contribute to stress or dissatisfaction, especially when communities feel disempowered in planning processes.

Preliminary shadow flicker assessment of the Project (Aurecon, 2025) suggests that shadow flicker has been predicted to affect four non-involved residences with the current proposed turbine layout, but for durations within the allowable limits of 30 hours per year (theoretical) and 30 minutes per day. Eight turbines were identified which if moved within their micro-siting zones, may result in the allowable limits being exceeded for three of these dwellings and mitigation may be required. One additional non-involved residence may also be affected by shadow flicker if the closest turbine to this residence is moved within its micro-siting zone, but the predicted duration in this case is within the allowable limit. Shadow flicker has been predicted to affect most of the involved (host) residences.

Preliminary land and visual amenity impact assessments (Aurecon, 2025) indicate the potential for high impact to rural residential settings, particularly where there are open views and limited intervening vegetation and landform. In particular, cumulative impacts from Yandin Wind Farm, Yathroo Wind Farm and the Project could create one continuous area of wind farm production, extending approximately 30 km north along the Brand Highway from Regans Ford / Dandaragan Road intersection. This significant area extends from Regans Ford in the southwest, to Cataby in the northwest, across to Dandaragan in the northeast and down to near the Moore River in the south, creating a large change in the landscape for the workers and residents of this area.

There is the potential for sensitive receptors in this area to feel surrounded by wind turbines, with increased local scale cumulative impacts to occur as a result of the Project. It is noted, however, that most dwellings are associated with one of the wind farm projects, excluding the six identified sensitive receivers that are not part of any wind farm projects located in area. Additional impact from transmission lines should also be considered in future detailed analysis.

### **Social Cohesion and Community Division**

Evidence from both Australian and international studies indicates that wind farm developments can generate social division, particularly where there is perceived inequality in the distribution of benefits or insufficient community consultation (Walker et al., 2014; Rand & Hoen, 2017).

Localised conflicts can exacerbate stress, reduce cohesion, and undermine community resilience. Involving communities in shared decision-making, ensuring equitable benefit-sharing (e.g., community investment models), and maintaining procedural transparency are essential strategies to minimise these risks.

### **Capacity of Local Health Services**

While core health services are available locally and in nearby towns, access to specialist care remains limited, often requiring travel to regional centres or Perth, with support offered through programs like PATS and community transport services. These challenges suggest the Project needs to consider the impact of increased workers in the region on local health services but may provide opportunities for the Project to engage with local communities around local health initiatives.

## **5.2.8 Vulnerable Populations and Equity Considerations**

As identified in the baseline characteristics, some groups may be more vulnerable to potential health and well-being impacts, including:

- ▶ Individuals with pre-existing health conditions (e.g., anxiety, sleep disorders)
- ▶ Those with high sensitivity to environmental noise
- ▶ Elderly residents and low-income households with limited capacity to relocate
- ▶ Aboriginal or First Nations communities with cultural attachments to place
- ▶ Special consideration should be given to these groups within the LIA.

## **5.2.9 Summary**

While current evidence does not indicate direct physiological harm from wind turbine operation at regulated distances, the literature highlights a range of indirect impacts on health and wellbeing. These include self-reported sleep disturbance, psychological stress, and reduced quality of life—often mediated by contextual factors such as noise sensitivity, visual intrusion, trust in decision-makers, and perceptions of fairness. Vulnerable groups, including those with existing health conditions, older adults, and Aboriginal communities, may face heightened sensitivity or reduced capacity to adapt to change.

The Project's ability to mitigate these risks will depend not only on compliance with regulatory requirements, but also on its responsiveness to local values, perceptions, and lived experience. The Project's mitigation measures have been therefore developed to address these indirect impact pathways and support community health and wellbeing throughout the project lifecycle.

**TABLE 11: HEALTH AND WELLBEING PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigations		Prelim. Impact Rating
				Magnitude	Sensitivity	
I004	Project has potential to cause real and perceived sleep disturbance from turbine noise	O	D	Minor	Medium	Minor

I005	Project has potential to cause stress and annoyance from perceived injustice	C	D	Moderate	Medium	Moderate
I006	Project has potential to cause concerns around real and perceived infrasound and electromagnetic interference	C, O	D	Moderate	Medium	Moderate
I007	Project has potential to impact residents' mental health and wellbeing through changes in the visual landscape and shadow flicker	C, O	D	Moderate	Medium	Moderate
I008	Project may increase actual and perceived mental health and wellbeing risks for vulnerable groups, such as the elderly and First Nations	C, O	D	Minor	Medium	Minor
I009	Project may negatively impact social cohesion due to divided community support	C, O, D	D	Minor	Medium	Minor
I010	Project may exacerbate existing capacity constraints on local health services	C, O, D	D, I	Moderate	Medium	Moderate

### 5.2.10 Proposed Mitigation Measures

The following mitigation measures are recommended to address the Project's potential health and wellbeing impacts:

**TABLE 12: HEALTH AND WELLBEING MITIGATION MEASURES**

No.	Mitigation Measure	Linked Impact / Opportunity
M004	Ensure full compliance with noise regulations and conduct ongoing proactive acoustic monitoring, including public reporting of results.	I004; I005
M005	Offer baseline noise monitoring for nearby residences prior to construction.	I004; I005
M006	Offer voluntary noise audits to potentially affected residences during operations and establish a responsive complaints management system.	I005; I005
M007	Provide view-shed maps, shadow flicker monitoring and photo simulations in the consultation process to help residents anticipate changes and discuss potential mitigations.	I007
M008	Implement a targeted, two-way engagement strategy that ensures early, transparent communication and genuine community input into project design and benefit sharing.	I008; I009
M009	Provide information on access to mental wellbeing support especially during construction.	I007; I008; I009
M010	Develop tailored mitigations and support responses for households identified to be at elevated risk of impact (e.g., elderly, low-income, those with health conditions).	I008
M011	Engage directly with First Nations communities and Traditional Owners to understand cultural and health considerations tied to place, using culturally appropriate methods.	I008
M012	Communicate scientific information about noise, infrasound, and health impacts in clear, accessible, and non-technical language, to reduce misinformation and anxiety.	I004; I006; I007
M013	Notify local and regional health service providers to predict and prepare for potential increase in usage of services.	I010

M014	Ensure the Project has sufficient medical and/or emergency response capacity to address worker and contractor related injury and illness. Build project specific capacity to reduce strain on local resources.	I010
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### 5.2.11 Residual Impact Assessment

Assuming that the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 13 outlines the likely residual impact risk to individual and communal health and wellbeing from the Project.

**TABLE 13: HEALTH AND WELLBEING RESIDUAL IMPACT ASSESSMENT**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I004	Project has the potential to cause real and perceived sleep disturbance from turbine noise	Negligible	Low	Negligible
I005	Project has potential to cause stress and annoyance from perceived injustice	Minor	Medium	Minor
I006	Project has potential to cause real and perceived concerns around infrasound and electromagnetic interference	Negligible	Low	Negligible
I007	Project has potential to impact residents' mental health and wellbeing through changes in the visual landscape	Minor	Medium	Minor
I008	Project may increase actual and perceived mental health and wellbeing risks for vulnerable groups, such as the elderly and first nations	Negligible	Low	Negligible
I009	Project may negatively impact social cohesion due to divided community support	Minor	Low	Negligible
I010	Project may exacerbate existing capacity constraints on local health services	Minor	Medium	Minor

## 5.3 Housing and Accommodation

Table 14 provides an overview of key housing, rental and affordability data for the local and regional impact areas.

### 5.3.1 Homeownership and Renting

According to the 2021 Census, 66% of households in the Shire of Dandaragan were either purchasing or fully owned their homes, 18.9% were renting privately, and 2.0% were in social housing. These figures indicate a relatively high rate of homeownership compared to renting within the Shire. Analysis of residential property sales within the Dandaragan LGA, based on *RP Data* from the past two years, indicates a median house sale price of \$551,899, with a mean sale price of \$530,000 (WPS, 2025).

### 5.3.2 Rental Affordability

In 2021, 3.6% of renting households in the Shire of Dandaragan were paying \$450 or more per week in rent. This suggests that a small proportion of renters may be experiencing rental stress, depending on their household incomes.

### 5.3.3 Housing Stock Availability

Housing availability in the Shire of Dandaragan is currently limited, with a low number of properties listed for rent or sale. This scarcity can make it challenging for individuals seeking to rent or purchase homes in the area. In the financial year 2023–24 (up to December), there were 19 residential building approvals in the Shire, indicating ongoing development activity.



**TABLE 14: HOUSING STOCK, HOUSEHOLD SIZE AND HOUSING COSTS FOR THE LOCAL AND REGIONAL IMPACT AREAS**

	DANDARAGAN	BADGINGARRA	MOORA	GINGIN	LANCELIN	SHIRE OF DANDARAGAN	WA
Occupied Private Dwellings	116	45	629	319	311	1253	964,734
Unoccupied Private Dwellings	5	18	163	68	569	1256	118,109
Average Household Size	2.3	2.4	2.5	2.3	2.2	2.2	2.5
Median Weekly Rent	\$200	\$180	\$250	\$295	\$270	\$250	\$340
Median Monthly Mortgage Repayments	\$1200	\$1100	\$1300	\$1644	\$1500	\$1400	\$1842

Source: ABS, 2024

### 5.3.4 Short-Term and Holiday Rentals

As of 2025, there are approximately 252 short-term rental properties available in the Shire of Dandaragan, according to listings on platforms like Airbnb and Stayz. Rental prices vary based on location, size, and amenities. On average, winter rentals cost around AU\$191 per night however, prices can range from as low as AU\$48 to over AU\$500 per night, depending on the property's features and proximity to attractions.

### 5.3.5 Tourism Accommodation

Table 15 provides an overview of the locally available tourism accommodation in the LIA. In total, there is capacity for approximately 222 persons to be accommodated throughout the LIA, however, these include the use of double, twin and triple rooms, and one- or two-bedroom units. Use of these rooms may reduce the total number of people able to be accommodated on any given night based on individual use or group size.

**TABLE 15: CAPACITY OF TOURISM ACCOMMODATION PROVIDERS IN THE LIA**

Town	Venue	Estimated Total Beds
Badgingarra	Badgingarra Tavern	20 persons
	Amble Inn B&B	12 persons
Moora	Shire Caravan Park (chalets only)	~32 person
	Drovers Inn	~8 persons
	Moora Motel	number of rooms N/A
Gingin	Gingin Hotel	~20 person

	Gingin Roadhouse	~20 persons
Lancelin	Experience Holiday Park	~40 persons in cabins
	Lancelin Lodge	~70 persons in cabins

Across the RIA, the current provision of tourism accommodation includes a combined 800 rooms, caravan sites and vacation homes. While the market is very full during peak periods, it is estimated to operate at an annual occupancy of around 50% ([Shire of Dandaragan](#)).

### 5.3.6 Workers Accommodation Camps

To help address some of the accommodation demands and housing pressures from large infrastructure projects in the LIA and RIA, the following purpose-built workers' accommodation camps have been established:

- ▶ **Redgum Village:** Located in Dandaragan, this facility offers accommodation and meal packages for up to 92 workers (in double rooms), catering to various wind farm and other projects in the area. facility offers accommodation for up to 60 workers (in double rooms).
- ▶ **100-Bed Workforce Accommodation Camp:** A development proposal has been approved for Lots 68 & 69 (No.3428 & 3430) Dandaragan Road to support workforce needs in the local area.

These accommodations aim to house transient project workers, thereby reducing pressure on the local tourism operators, the local housing market and ability to maintain housing affordability for permanent residents.

### 5.3.7 Homelessness

As of the 2021 Census, the Australian Bureau of Statistics did not publish specific homelessness figures for the Shire of Dandaragan, likely due to the area's small population and privacy considerations. In regional and rural areas like Dandaragan, homelessness often manifests differently than in urban centres. Rather than visible rough sleeping, individuals may experience 'hidden' homelessness, such as staying temporarily with others, living in overcrowded dwellings, or residing in inadequate housing. These forms of homelessness can be more challenging to identify and address.

### 5.3.8 Summary

The Shire of Dandaragan demonstrates relatively high homeownership rates (66%) compared to private renting (18.9%), with only 2.0% of households in social housing. Median weekly rents and mortgage repayments are notably below the state average, suggesting relatively affordable housing, although limited housing stock and rising short-term rental properties are contributing to constrain availability. While tourism and workforce accommodation options help ease some housing demand, ongoing development and planning are essential to ensure adequate and affordable housing for both permanent residents and incoming workers, particularly in light of pressures from multiple large infrastructure projects.

### 5.3.9 Potential Vulnerabilities

Based on the social baseline assessment, the following potential vulnerabilities have been identified with respect to housing and accommodation.

- ▶ **Limited housing stock:** Low availability of properties for sale or rent may constrain options for both residents and incoming workers.
- ▶ **Rental market pressure:** Increased short-term and workforce accommodation demand could drive rental price increases and reduce affordability.
- ▶ **Low social housing provision:** Limited availability of social housing (2.0%) heightens displacement risk for vulnerable residents.

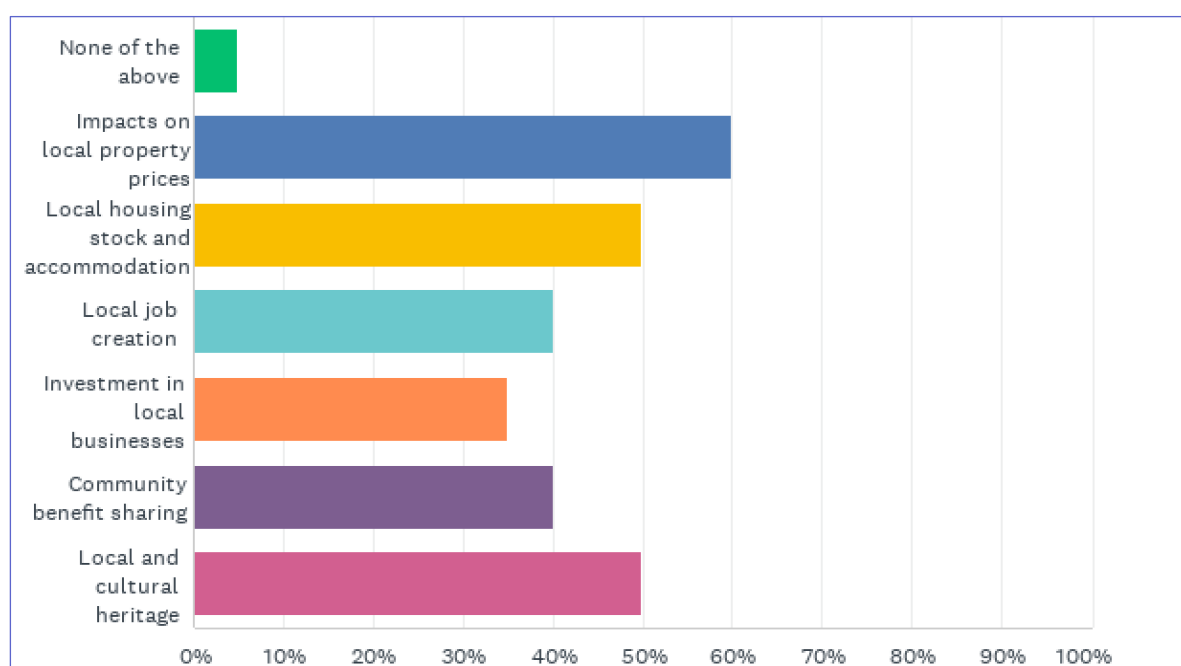
- ▶ **Tourism accommodation competition:** Seasonal peaks in tourism may reduce availability of short-term accommodation for workers.
- ▶ **Hidden homelessness:** Overcrowding, couch surfing, and inadequate housing conditions may mask housing insecurity.
- ▶ **Infrastructure project impacts:** Large-scale developments may exacerbate housing stress without coordinated planning.

### 5.3.10 Community Perceptions and Stakeholder Feedback

Results from the study's community perceptions survey indicate that 60% of respondents hold concerns about the impact of the Project on local property prices, with 50% also expressing concern around limited local housing stock and accommodation. Additionally, 45% of respondents noted the provision of temporary construction workers accommodation as a "top of mind" concern when thinking about the potential impacts of the Project.

During stakeholder consultation interviews, landowners expressed a desire to see purpose-built accommodation camps constructed on land away from the main town to support the construction phase, and stated a preference for local workers to access longer-term operational jobs so that they could be sourced from individuals living within the existing community and existing housing stock.

**FIGURE 9: RESPONSES TO THE SURVEY QUESTION "WHAT ISSUES ARE TOP OF MIND FOR YOU (IF ANY) REGARDING THE IMPACTS ON LOCAL COMMUNITY AND ECONOMY?"**



### 5.3.11 Preliminary Impact Assessment

The potential impact of a large-scale wind farm development on housing and accommodation within the Project area is an important consideration in the broader assessment of social infrastructure and service needs. While the Shire currently exhibits relatively high rates of homeownership and overall housing affordability, several interrelated pressures—stemming from limited housing availability, a growing short-term rental market, and increased demand for workforce accommodation—present challenges that may be exacerbated by major project development, particularly during the construction phase, when a peak of up to 310 on-site personnel will be required to be housed in the area at any given time.

### **Housing Pressure and Workforce Demand**

While housing remains more affordable than the WA average, low turnover in the housing market and modest residential development approvals suggest limited flexibility to absorb sudden increases in demand. An influx of workers during peak construction periods may place additional stress on the already tight rental market, especially in towns where short-term holiday rentals dominate available stock.

Dedicated workforce accommodation camps—such as Redgum Village and proposed new developments—offer an important buffer. However, with other infrastructure projects active in the region, there remains a risk of over-subscription. If accommodation shortfalls arise, this could impact not only workers, but local residents, particularly lower-income households and essential workers.

Given the short duration of construction, temporary labour supply strategies are likely to be appropriate such as arranging short-term accommodation for non-local workers, flexible workforce strategies and sourcing labour from the broader surrounding regions.

### **Tourism Seasonality and Accommodation Constraints**

Tourist accommodation within the LIA offers capacity for approximately 222 people, with significantly more available across the broader region. However, these facilities experience peak-season strain, limiting their use for non-tourism needs. Competing seasonal demands between tourism and workforce accommodation may exacerbate housing insecurity or reduce economic activity if tourists are crowded out.

### **Risks to Affordability and Vulnerable Populations**

Even modest rent increases may challenge low-income households and older residents—particularly given the very limited supply of social housing in the Shire (2.0%). Vulnerable populations are also more likely to be affected by informal and hidden forms of homelessness, such as overcrowding or insecure housing arrangements.

Anticipating and managing these pressures will require ongoing coordination with local housing and community service providers, proactive monitoring of market trends, and contingency planning for temporary housing expansion where needed.

## **5.3.12 Summary**

Overall, the housing landscape in the Shire of Dandaragan is characterised by relatively affordable costs and high rates of homeownership. However, constrained availability, competition from short-term rentals, and limited social housing provisions present vulnerabilities that could be exacerbated by major infrastructure development. While existing and proposed workforce accommodation camps provide important buffers, ongoing planning and coordination with local governments will be essential to ensure that permanent residents are not displaced or priced out of the housing market.

**TABLE 15: HOUSING AND ACCOMMODATION PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigations		Prelim. Impact Rating
				Magnitude	Sensitivity	
I011	Project has potential to place strain on the local housing market due to limited capacity for direct workforce absorption	C, O, D	D	Moderate	Medium	Moderate
I012	Project has potential to increase rental market pressure due to influx of workforce	C, O, D	D	Moderate	Medium	Moderate
I013	Project has potential to exacerbate accommodation competition between local tourism, community needs and workforce demand	C, O, D	D	Moderate	Medium	Moderate

I014	Project has potential to create additional housing stress for vulnerable populations	C, O, D	D	Moderate	Medium	<b>Moderate</b>
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### 5.3.13 Proposed Mitigation Measures

The following mitigation measures are recommended to address the Project's housing and accommodation impacts:

**TABLE 16: HOUSING AND ACCOMMODATION MITIGATION MEASURES**

No.	Mitigation Measure	Linked Impact / Opportunity
M015	Utilise existing (or build new) self-contained, fit-for-purpose workforce accommodation camps to house transient workers and minimise displacement of permanent residents.	I011; I012; I013; I014
M016	Collaborate with local councils, housing providers, and community services to identify vulnerable populations and support housing access initiatives. Establish a housing and rental market monitoring system to track changes in affordability and availability throughout the project lifecycle	I014
M017	Explore opportunities for housing partnerships (e.g. land leases, modular homes) to expand medium and longer-term housing supply to meet community needs. Consider opportunities for repurposing short-term workforce accommodation.	I011; I012; I013; I014
M018	Provide clear policy direction and communication to workers and contractors to ensure use of approved accommodations, including a preference for operations staff to live in the local community where possible.	I011; I012; I013;
M019	Contribute to local housing strategy development by sharing data, demand forecasts, and opportunities for legacy infrastructure investment, including supporting necessary amendments to zoning and planning regulations to expand land for housing.	I011; I012; I013; I014

### 5.3.14 Residual Impact Assessment

Assuming that the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 17 outlines the likely residual housing and accommodation impacts from the Project.

**TABLE 17: HOUSING AND ACCOMMODATION RESIDUAL IMPACT ASSESSMENT**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I011	Project has potential to place strain on the local housing market due to limited capacity for direct workforce absorption	Minor	Medium	Minor
I012	Project has potential to increase rental market pressure due to influx of workforce	Minor	Medium	Minor
I013	Project has potential to exacerbate accommodation competition between local tourism, community needs and workforce demand	Minor	Medium	Minor
I014	Project has potential to create additional housing stress for vulnerable populations	Minor	Medium	Minor



## 5.4 Socio-Economic Advantage/Disadvantage and Human Rights

### 5.4.1 Socio-Economic Indexes for Areas (SEIFA)

The Australian Bureau of Statistics compiles the Socio-Economic Indexes for Areas (SEIFA) to assess the relative socio-economic conditions of communities. The Index of Relative Socio-Economic Disadvantage (IRSD) specifically measures disadvantage, with lower scores indicating higher levels of disadvantage.

Table 18 provides the IRSD Scores for the Local and Regional Impact Areas. In 2021, the Shire of Dandaragan had an IRSD score of 995, placing it slightly below the national average of 1,000. This suggests a moderate level of socio-economic disadvantage across the Shire. The Dandaragan and District area recorded the highest IRSD score within the Shire at 1,023.4, indicating lower levels of disadvantage than other locally situated regional towns. Badgingarra, Gingin and Lancelin all also had IRSD scores above the national average, while Moora had a score of 908.5, reflecting a moderate level of socio-economic disadvantage in this town.

**TABLE 18: IRSD SCORES FOR THE LOCAL AND REGIONAL IMPACT AREAS**

	DANDARAGAN	BADGINGARRA	MOORA	GINGIN	LANCELIN	SHIRE OF DANDARAGAN	WA
IRSD Score	1,023.4	1,010.2	980.5	1,015.7	1,005.3	995	1,011
Decile (Australia)	7	6	4	6	5	4	6
Level of Disadvantage	Low	Slightly below average	Moderate	Slightly below average	Average	Moderate	Slightly below average

### 5.4.2 Human Rights and Security Context

The Shire of Dandaragan is a rural LGA with a strong agricultural base and increasing engagement in renewable energy development. In terms of a localised human rights context, Australia is a signatory to major international human rights treaties<sup>2</sup>, and Western Australia upholds these rights through federal and state legislation.

The region demonstrates a generally high level of civil liberties, including freedom of expression, participation in public affairs, and access to legal recourse. The Shire has a relatively low crime rate of 30/100 ([RedSuburbs](#)). Local policing services focused on property crime, road safety, and community engagement.

There are no significant ongoing security risks, and the area is considered safe for residents and workers. However, Aboriginal heritage is an important consideration in the region, particularly with respect to engagement with Traditional Owners to ensure cultural heritage is protected and Indigenous rights are respected.

### 5.4.3 Human Rights Issues and Wind Farm Developments

There have been various concerns and allegations related to human rights in the context of wind farm developments in Australia, though formal legal findings are limited. These concerns can be categorised into two main areas: supply chain issues and community engagement practices.

<sup>2</sup> These include the *International Covenant on Civil and Political Rights* (ICCPR), the *International Covenant on Economic, Social and Cultural Rights* (ICESCR), the *International Convention on the Elimination of All Forms of Racial Discrimination* (ICERD), the *Convention on the Elimination of All Forms of Discrimination Against Women* (CEDAW), the *Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment* (CAT), the *Convention on the Rights of the Child* (CRC), the *Convention on the Rights of Persons with Disabilities* (CRPD), and the *Optional Protocol to the Convention Against Torture* (OPCAT).

### Supply Chain Issues

Reports have highlighted potential human rights abuses in the supply chains of renewable energy projects, including wind farms. A 2022 report by the Clean Energy Council detailed allegations of forced labour and slavery in the production of components used in solar, wind energy, and battery storage systems. For instance, about 40-45% of the world's solar-grade polysilicon originates from China's Xinjiang region, where approximately 2.6 million Uyghur and Kazakh individuals have reportedly been subjected to coercion and internment. Additionally, significant portions of the world's cobalt, essential for batteries, are mined under conditions associated with child labour and poor working conditions in the Democratic Republic of Congo.

### Community Engagement Practices

Domestically, some wind farm projects have faced criticism over community consultation and land use practices. While not always framed as human rights violations, these concerns touch on issues of procedural fairness and community rights. For example, in Queensland, the \$1 billion Moonlight Range Wind Farm project was recently cancelled by the state government, citing community opposition and environmental concerns, including the need to clear 434 hectares of vegetation and a lack of off-site workers' accommodation ([Guardian, 2025](#)). This decision sparked debate over the balance between renewable energy development and community rights and should act as a warning to the potential challenges faced by other project developers.

#### 5.4.4 Summary

Overall, the human rights and security context in the Shire of Dandaragan supports a stable and respectful environment for responsible development. However, provided examples also show that early and transparent engagement with local communities, including Traditional Owners, is essential to ensure respect for land rights, equitable benefit-sharing, and social licence to operate.

#### 5.4.5 Potential Vulnerabilities

Based on the social baseline assessment, the following potential vulnerabilities have been identified with respect to socio-economic disadvantage and human rights:

- ▶ **Moderate socio-economic disadvantage:** IRSD scores indicate moderate disadvantage in some towns (e.g., Moora), potentially affecting community resilience and project participation.
- ▶ **Economic disparity across towns:** Variation in IRSD scores suggests uneven capacity to benefit from project opportunities.
- ▶ **Cultural heritage protection:** Risk of inadequate engagement with Traditional Owners could impact Indigenous rights and heritage values.
- ▶ **Supply chain human rights risks:** Potential exposure to forced labour, slavery, and child labour in global renewable energy supply chains.
- ▶ **Procedural fairness concerns:** Inadequate or non-inclusive consultation could lead to community opposition and loss of social licence.
- ▶ **Reputational risks:** Allegations or perceptions of human rights breaches—domestically or internationally—could undermine community trust and project acceptance.

#### 5.4.6 Community Perceptions and Stakeholder Feedback

There were no specific questions in the study's community perceptions survey that related directly to socio-economic disadvantage and human rights; however, stakeholder interviews did reveal some concerns around procedural fairness and the equitable distribution of economic benefits throughout the community. This was particularly in relation to the perceived injustice of large economic benefits for landowners, but minimal benefits for others impacted by the Project, such as neighbours or other local residents.

### 5.4.7 Preliminary Impact Assessment

#### Socio-Economic Disadvantage

The LIA and RIA present a mixed socio-economic profile. While the Shire of Dandaragan falls near the national midpoint on the SEIFA Index of Relative Socio-Economic Disadvantage, intra-regional variation is significant. Moora and smaller rural townships such as Badgingarra exhibit characteristics—including lower incomes, lower education levels, and limited service access—that heighten vulnerability to project-related pressures.

Large infrastructure projects can deliver meaningful opportunities in the form of jobs, contracts, and community investment. However, they can also exacerbate existing disadvantage if benefits are unevenly distributed or if indirect impacts—such as housing stress or increased living costs—disproportionately affect lower-income groups. A distributional equity lens is essential to ensure the project supports resilience and opportunity, rather than amplifying social or economic exclusion.

#### Human Rights Context

Human rights risks associated with renewable energy projects typically arise through inadequate engagement, exclusion from decision-making, or unintended consequences for local livelihoods and housing access. While the proposed wind farm is unlikely to pose direct human rights violations, there remains a responsibility to uphold key principles, including non-discrimination, procedural fairness, and community participation.

Respecting cultural heritage, ensuring meaningful inclusion of First Nations people, and monitoring emerging risks to livelihood or housing access will be critical. Embedding human rights considerations into project governance strengthens both ethical standing and social licence to operate. Ensuring socio-economic benefits are equitably distributed—and that affected communities are meaningfully engaged—is central to responsible project delivery.

**TABLE 16: SOCIO-ECONOMIC DISADVANTAGE AND HUMAN RIGHTS PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigations		Prelim. Impact Rating
				Magnitude	Sensitivity	
I015	Project has potential to infringe on individual and group human rights through insufficient engagement and participation	C, O, D	D	Moderate	Medium	Moderate
I016	Project has potential to contribute to human rights issues within the supply chain	C, O, D	D	Moderate	Medium	Moderate
I017	Project has potential to create opportunity for human rights infringements.	C, O, D	D	Moderate	Medium	Moderate

### 5.4.8 Proposed Mitigation Measures

The following mitigation measures have been developed to support inclusive participation, community resilience, and fair treatment of all stakeholders and are recommended to address the Project's socio-economic disadvantage and human rights impacts:

**TABLE 17: SOCIO-ECONOMIC DISADVANTAGE AND HUMAN RIGHTS MITIGATION MEASURES**

No.	Mitigation Measure	Linked Impact / Opportunity
M020	Implement local hiring policies, inclusive procurement practices (including reasonable payment terms for small local contractors), and workforce development programs tailored to disadvantaged communities within the LIA and RIA.	I015

M021	Monitor socio-economic conditions throughout the Project lifecycle, including income levels, employment, and housing stress, to identify emerging risks and adjust mitigation strategies.	I015
M022	Ensure engagement processes are accessible, inclusive, and culturally appropriate—particularly for First Nations people, renters, migrant workers, and those with limited literacy or digital access.	I015; I017
M023	Establish a localised, independent grievance mechanism and social impact feedback loop to identify and resolve community concerns early and transparently.	I015; I017
M024	Apply international human rights principles to project governance, including human rights impact assessment, non-discrimination, free, prior and informed consent, and equitable treatment of stakeholders.	I016; I017
M025	Extend human rights due diligence processes through the supply chain, including contract requirements for modern slavery and other human rights risks.	I016; I017
M026	Prioritise benefit-sharing in lower SEIFA areas through community funds, infrastructure support, or co-investment in services such as education or transport.	I017

### 5.4.9 Residual Impact Assessment

Assuming that the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 18 outlines the likely residual impact risk to socio-economic disadvantage and human rights impacts from the Project.

**TABLE 18: SOCIO-ECONOMIC DISADVANTAGE AND HUMAN RIGHTS RESIDUAL IMPACT ASSESSMENT**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I015	Project has potential to infringe on individual and group human rights through insufficient engagement and participation	Negligible	Low	<b>Negligible</b>
I016	Project has potential to contribute to human rights issues within the supply chain	Negligible	Low	<b>Negligible</b>
I017	Project has potential to create opportunity for human rights infringements.	Negligible	Low	<b>Negligible</b>

## 5.5 Land Use and Cultural Heritage

### 5.5.1 Settlement History

Both the LIA and RIA have a rich history of Indigenous heritage and European settlement.

#### *Indigenous History, Heritage and Land Use*

The area has been home to the Yued people of the Noongar Nation for over 45,000 years. The Noongar people have a profound and deep connection to the land, practicing traditional hunting, gathering, and cultural activities. Numerous significant Aboriginal sites exist within the region, including ceremonial grounds, water sources, and Dreaming tracks (more information at Section 5.5 Land Use and Cultural Heritage). The Noongar people continue to have a strong presence in the area, contributing to local cultural heritage and land management.

#### *The Yued People of Western Australia: A Historical Overview*

The Yued people are one of the many groups of the Noongar language family, residing primarily in the mid-coastal region of Western Australia, including the LGAs potentially impacted by Marri Wind Farm development. Their traditional lands span from the Swan River region, across the coastal plains,

and inland to the foothills of the Darling Range. The Yued people share cultural ties with other Noongar groups, though they have their own distinct traditions, customs, and dialects.

### **Pre-European Contact and Traditional Life**

Before European settlement, the Yued people, like other Noongar groups, lived a semi-nomadic lifestyle, utilising the natural resources around them for survival. They were known for their close connection to the land, hunting, fishing, gathering, and utilising the rich diversity of flora and fauna in the region. Their spiritual beliefs were deeply tied to the land, with Dreaming stories, ceremonies, and songlines reflecting their sacred relationship with nature.

The Yued people also had complex governance structures, with leadership typically provided by elders and respected individuals who guided decisions concerning the community, land use, and spiritual matters. Family and clan groups, based around specific areas or resources, formed the social fabric of their communities.

### **European Settlement and Displacement**

The arrival of European settlers in the early 19th century significantly altered the Yued people's way of life. By 1829, when the Swan River Colony (now Perth) was established, European settlers had begun to encroach on Yued territory. Traditional lands were progressively taken for farming, grazing, and town development. European diseases, alcohol, and violence devastated the Yued population.

The Yued people, like many other Aboriginal groups, faced displacement and were often forced to move to new areas, such as missions and reserves, including the Mogumber Mission, located to the southeast of the Project site. The impact of European settlement significantly disrupted their traditional lifestyles, leading to the loss of land and cultural practices.

### **Land Rights and Recognition**

The struggle for land rights and recognition for the Yued people, as part of the broader Noongar people's struggle, has been long and hard-fought. In the 20th century, as the Aboriginal rights movement gained momentum, the Yued people, along with other Noongar groups, advocated for the recognition of their land rights.

A significant turning point in the fight for recognition came with the *Noongar Native Title Claim*, a legal challenge that sought to reclaim traditional lands and recognition of Noongar people's rights to the land. In 2006, a historic agreement was reached when the *Noongar Land Agreement* was signed, acknowledging the Noongar people's native title rights over the Perth metropolitan area and surrounding regions, including lands in the LGAs of Gingin, Dandaragan, and Moora. This agreement, which was the culmination of years of negotiation, was a significant victory for the Yued and other Noongar peoples, providing recognition and a pathway for compensation and land management agreements.

Despite this progress, many challenges remain for the Yued people, including ongoing struggles for economic development, land restoration, and access to education and health services. These challenges are compounded by the need for greater political representation and involvement in decision-making at local and state levels.

### **Governance and Social Structures Today**

Today, the Yued people continue to maintain strong cultural practices, including language revival programs, cultural ceremonies, and traditional governance structures. The *Yued Aboriginal Corporation*, a key body for representing Yued interests, works to promote the welfare and rights of the Yued community and ensure that their cultural heritage is preserved and respected. The Yued people, through various community organisations and local government partnerships, continue to be involved in land management, including working to protect significant cultural sites and natural landscapes that are integral to their cultural heritage.

Social structures today still centre around community and family, with elders and leaders playing key roles in guiding the community and making decisions regarding cultural matters. The Yued people also actively engage in educational and employment opportunities, though many face significant



socio-economic challenges, including higher unemployment rates and lower educational attainment compared to the broader population.

### ***Cultural Resilience and Future Prospects***

Despite the historical injustices and continuing challenges, the Yued people demonstrate remarkable resilience. Their cultural practices, traditional knowledge, and connection to the land continue to be vital elements of their identity. The Yued people are dedicated to revitalising their language and traditions through cultural education programs and the involvement of younger generations.

In terms of governance, while there has been progress, ongoing efforts are required to ensure that the Yued people's voices are heard in broader political and social discussions. This includes securing more autonomy over their land, fostering economic development initiatives, and ensuring their rights to manage natural resources are respected.

The future of the Yued people will depend on their ability to balance traditional cultural practices with modern opportunities, seeking reconciliation with both the State and Federal governments and the broader community, while advocating for the continued protection of their lands and culture.

### ***Cultural Heritage and Significant Sites – Project Area***

In Western Australia, Aboriginal cultural heritage is currently managed pursuant to the Aboriginal Heritage Act 1972. The DPLH maintain the Aboriginal Cultural Heritage Inquiry System (ACHIS), which is a directory containing locations and information about Aboriginal Cultural Heritage (ACH) in the state.

The proposed Project area lies within the Yued Indigenous Land Use Area (WI2015/009), under the broader South West Native Title Settlement (Determination Reference: WCD2021/010).

Previous Aboriginal Heritage surveys have only covered a narrow corridor through the Project area, with the majority of the area previously unsurveyed (Archae-aus Aboriginal and Historical Heritage Due Diligence Assessment, 2024). Within the previously surveyed areas, the following sites have been identified:

- ▶ One (1) known Registered Site intersects the Project area: Gingin Brook Waggyi Site (DPLH ID 20008).
- ▶ Two (2) Lodged Cultural Heritage Places, and one Historic Cultural Heritage Place intersect the Project area: NATGAS 133 (DPLH ID 5214), GAS PIPELINE 81 (DPLH ID 5484), and Moore River Pools (PCE-06) (DPLH ID 18083).
- ▶ A further 12 Aboriginal Cultural Heritage places, including two Registered Sites, seven Lodged, and three Historic places were found in a broader 5 km search area around the Project area.
- ▶ There are no known listed Historical Heritage places within the Project area.
- ▶ There is one (1) place of local historic heritage significance within 5 kms of the Project Area: Regan's Ford – River Crossing and Tennis Court Site (P03823).
- ▶ There is one (1) place of State Heritage Significance within 12 kms of the Project area: Mogumber Mission (fmr) and Cemetery (P03618).

Ongoing consultation is currently being progressed with the Yued People to ensure that the Project development plan is fully informed in relation to any relevant cultural heritage sites and considerations.

### ***Cultural Heritage and Significant Sites – Regional Impact Area***

Table 19 provides a summary of significant Indigenous cultural heritage sites in the broader regional impact area and surrounding LGAs.

**TABLE 19: SUMMARY OF INDIGENOUS CULTURAL HERITAGE SITES IN THE REGIONAL IMPACT AREA AND NEIGHBOURING LGAS**

LOCATION	INDIGENOUS CULTURAL HERITAGE SITE
Shire of Dandaragan	<b>Yatheroo (Yathroo)</b> Location: Near Dandaragan Significance: The name "Yatheroo" is derived from the local Aboriginal dialect, meaning "meeting place of three roads." The area features a permanent spring, historically significant to the Yued people (Inherit)
	<b>Regans Ford</b> Location: Southern border of the Shire Significance: An area utilised by the Yued Noongar people for over 40,000 years, valued for its diverse habitats and resources (Inherit)
	<b>Two Aboriginal Houses Site</b> Location: East side of Dandaragan Road Significance: Historically associated with the local Aboriginal community; while no structures remain, the site holds cultural importance (Inherit)
	<b>Caro Grave Sites</b> Location: Caro Road, Cataby Significance: Graves of Mrs. Sarah Bashford and her two children; the site is recognised for its local historical significance (Inherit)
Shire of Gingin	<b>Mogumber Mission (Former) &amp; Cemetery</b> Location: 2465 Mogumber Road, Mindarra Significance: Originally established as the Moore River Native Settlement in 1917, this site is a poignant reminder of the Stolen Generations. It served as a government settlement where Aboriginal children from across Western Australia were removed from their families and detained between 1917 and 1951. The site holds significant historical and cultural value (Inherit)
	<b>Moore River (Gabah-daar)</b> Location: Traverses the Shire of Gingin Significance: Known as "Gabah-daar" or "mouthful of water" in the Yued language, the Moore River is a vital water source and holds mythological importance due to its association with the Rainbow Serpent in Noongar belief systems.
Shire of Moora	<b>Moora Aboriginal Camp Sites</b> Location: Various locations within Moora Significance: Identified in the Shire's Municipal Inventory as sites of Aboriginal camps, reflecting the historical presence and movements of Aboriginal communities (West Australia Government).
	<b>Mogumber (Palm Flats)</b> Location: Near Moora Significance: Traditional camping ground for the Victoria Plains Aboriginal people; later became the site of the Moore River Native Settlement established in 1917. (Inherit).
	<b>Moira Well</b> Location: Approximately 1.2 km west of the Moora Post Office Significance: The town name "Moora" is believed to be derived from this well, indicating its importance in Aboriginal nomenclature and usage.

Sources: inherit.dph.wa.gov.au, engage.dandaragan.wa.gov.au, Moora, WA Government, Data WA, dandaragan.wa.gov.au  
 Moorainherit.dph.wa.gov.au

## 5.5.2 European Settlement History, Heritage and Land Use

### European Exploration and Early Settlement (1830s-1900s)

European interest in the area began in the early 1830s, with explorers such as George Fletcher Moore and Robert Dale recognising its agricultural potential. In 1848, William Brockman secured a 6,000-acre lease at Muchamulla Springs. By 1850, James Drummond had established a farm in the region. The name "Dandaragan" was first recorded in 1850, referring to a nearby gully and spring known as "Dandaraga Spring," believed to mean "good kangaroo country" in the local Indigenous language.

### Agricultural Expansion and Infrastructure Development (1900s – 1950s)

The early 20th century witnessed significant growth in wheat and sheep farming, bolstered by government land grants and clearing initiatives. Development of rail and road networks enhanced connectivity, facilitating the transport of goods to markets in Perth and Geraldton. The establishment

of schools, churches, and community halls fostered a close-knit rural community. The town of Dandaragan was officially gazetted in 1958, evolving as a service hub for surrounding agricultural activities.

### *Cultural Development and Tourism (1960s-Present)*

The coastal settlements of Jurien Bay and Cervantes experienced growth from the 1960s, driven by tourism and fishing industries. The construction of Indian Ocean Drive in 2010 further boosted accessibility and tourism. Reflecting the population growth in coastal areas, the Shire's administration centre relocated from Dandaragan to Jurien Bay in 2003. Today, the region continues to blend its agricultural roots with tourism and community-driven development, preserving its rich history while embracing modern growth.

### *Significant Non-Indigenous Historical Sites*

**TABLE 20: SUMMARY OF NON-INDIGENOUS HISTORICAL SITES IN THE REGIONAL IMPACT AREA AND NEIGHBOURING LGAS**

LOCATION	NON-INDIGENOUS HISTORICAL SITE
Shire of Dandaragan	<b>Dandaragan Heritage Precinct:</b> Features historic structures like St Anne's Church (established in 1888) and the Dandaragan Hall, showcasing the town's early European heritage.
	<b>Jurien Bay Old Jetty Site:</b> Associated with early settler Walter Padbury, this site was pivotal for transporting agricultural goods and remains an important archaeological location. Inherit)
	<b>Pinnacles Desert (Nambung National Park):</b> Home to the world-famous limestone formations, the Pinnacles are a significant natural and cultural site, attracting numerous visitors annually. Shire of Dandaragan
	<b>Dandaragan Heritage and Cultural Centre:</b> Houses a collection of farm machinery and tools passed down through generations, reflecting the area's agricultural history. Facebook)

## 5.5.3 Current Land Use

The Shire of Dandaragan encompasses a diverse range of land uses shaped by its coastal proximity, agricultural heritage, and evolving economic activities. The Shire's land use planning is primarily governed by Local Planning Scheme No. 7 and the Local Planning Strategy 2020, which delineates zones and guides development across the region.

## 5.5.4 Agricultural Land Use

Agriculture remains a cornerstone of the Shire's economy and land use. The 'Rural' zone, as defined in Local Planning Scheme No. 7, encompasses vast areas dedicated to broadacre farming, including cereal cropping and livestock grazing. This zone supports primary production activities and is integral to the Shire's economic sustainability.

## 5.5.5 Residential and Urban Development

Residential land use is concentrated in the Shire's main townsites: Jurien Bay, Cervantes, Dandaragan, and Badgingarra. Jurien Bay, as the regional centre, has experienced recent growth in residential development, supported by infrastructure and services. The Shire of Dandaragan's Local Planning Strategy outlines areas for future residential expansion to accommodate anticipated population growth and housing demand. Key areas identified include:

- ▶ **Jurien Bay:** The strategy emphasises infill development and expansion in the northern and southern parts of the town, guided by the Jurien Bay City Centre Strategy Plan.
- ▶ **Cervantes:** Future residential growth is planned through infill and expansion to the north and south of the townsite, as detailed in the Cervantes Town Centre Future Land Use Concept Plan.
- ▶ **Dandaragan:** The townsite and surrounding areas are earmarked for residential development to support local population growth.
- ▶ **Badgingarra:** The strategy identifies potential for residential expansion within the townsite and its environs.

These plans aim to ensure sustainable development, efficient land use, and the provision of necessary infrastructure to support growing communities.

### **5.5.6 Industrial and Commercial Zones**

Industrial activities are primarily located in designated zones within Jurien Bay and Cervantes. These areas support light industrial operations, including manufacturing, logistics, and service industries. Commercial land use is focused on town centres, providing retail, hospitality, and professional services to residents and visitors.

### **5.5.7 Tourism and Recreation**

Tourism is a significant land use and economic driver, leveraging the Shire's natural attractions such as the Pinnacles Desert and coastal amenities. Land is allocated for tourism-related developments, including accommodations, recreational facilities, and eco-tourism ventures. The Shire collaborates with neighbouring local governments to manage coastal recreation tracks, enhancing access and sustainability.

### **5.5.8 Environmental Conservation and Public Use**

Significant portions of land are reserved for environmental conservation, including national parks and nature reserves. These areas protect biodiversity and cultural heritage while offering recreational opportunities. Public use reserves accommodate infrastructure such as roads, utilities, and community facilities, ensuring the delivery of essential services.

### **5.5.9 Renewable Energy Projects**

The Shire has become a focal point for renewable energy initiatives, particularly wind farms. Projects like the Yandin (operated by Alinta) and Warradarge Wind Farms occupy substantial land areas within the 'Rural' zone. These developments are integrated into the land use framework, balancing energy production with environmental and community considerations. More detail the impact of planned and existing renewable energy projects is provided in Section 6, Cumulative Impacts.

### **5.5.10 Future Land Use Planning**

The Local Planning Strategy outlines strategic directions for land use, emphasising sustainable development, economic diversification, and environmental stewardship. Key initiatives include:

- ▶ Promoting infill development in existing townsites to optimise infrastructure use.
- ▶ Identifying and rezoning land for future residential, industrial, and commercial needs.
- ▶ Enhancing tourism infrastructure while preserving natural assets.
- ▶ Supporting renewable energy projects through appropriate zoning and policy frameworks.

### **5.5.11 Current Land Use Within the Project Boundary**

Current land use within the Project boundary is all agricultural land that is zoned as rural land. Alinta Energy has entered into land use agreements with eight landholders within the Project boundary and are in the process of negotiating neighbour agreements with approximately 35 neighbouring landowners adjacent to the Project boundary. These include approx. 10 hobby farmers/ lifestyle regional blocks along Woodbine Road, Regans Ford on the southern boundary,

Within the Project boundary, some landowners have consented to the placement of turbines closer than normally required 1500m from the dwellings on their property. Similarly, while Western Australian regulations require that there be no wind turbines within 1500m of a dwelling considered to be on neighbouring properties, some neighbouring landowners have consented to turbines being closer as part of their land use agreement negotiations. Other neighbours are still in the negotiating phase.

### **5.5.12 Potential Vulnerabilities**

Based on the social baseline assessment, the following potential vulnerabilities have been identified with respect to land use and cultural heritage:

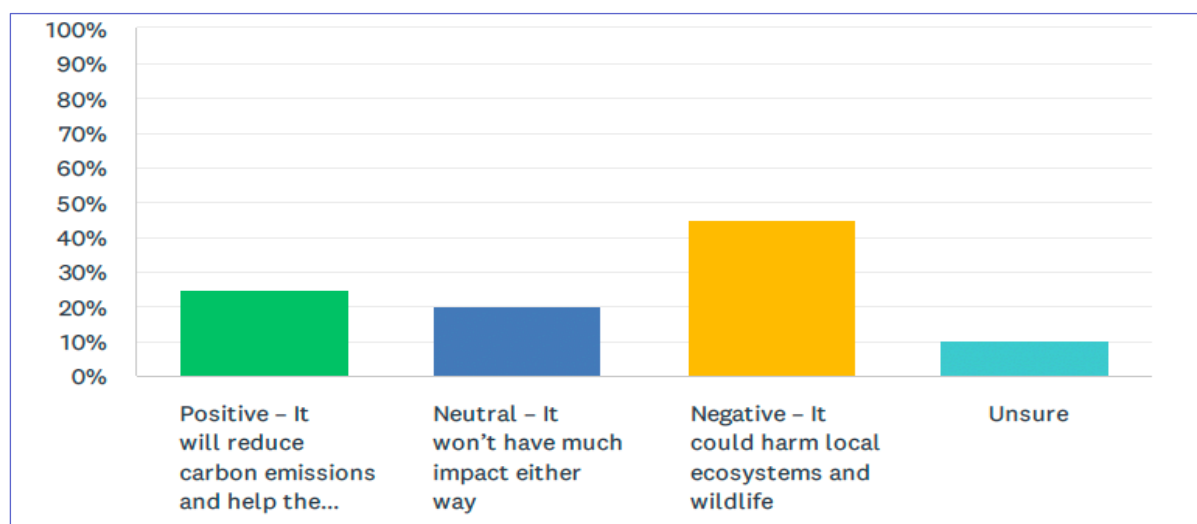
- ▶ **Cultural heritage protection:** High density of Aboriginal cultural heritage sites within and near the Project area increases the risk of disturbance without careful management.
- ▶ **Indigenous rights and land access:** Ongoing negotiations with Yued Traditional Owners require culturally appropriate engagement and adherence to Free, Prior and Informed Consent (FPIC) principles.
- ▶ **Limited heritage survey coverage:** Large portions of the Project area remain unsurveyed for Aboriginal cultural heritage, creating potential for unrecorded site disturbance.
- ▶ **Balancing land uses:** Competing demands between agriculture, renewable energy, tourism, and conservation require coordinated land use planning.
- ▶ **Proximity of turbines to dwellings:** Consents for reduced setbacks from dwellings may raise amenity and wellbeing concerns among neighbouring landowners.
- ▶ **Perceived inequity in land agreements:** Different terms or benefits for participating and non-participating landowners may cause community division.

### 5.5.13 Community Perceptions and Stakeholder Feedback

Results from the study's community perceptions survey suggest the 50% of respondents are concerned about the preservation of local and cultural heritage values within the region. The survey also focused more broadly on environmental impacts and concerns, with findings indicating that 45% of respondents feel the Project will have a negative impact on the local environment, while 20% are neutral and 25% believe the impact will be positive through the reduction of carbon emissions. Figure 10 further outlines respondent sentiments with respect to concerns around impact on local vegetation, ecosystems, wildlife and current and future agricultural land use.

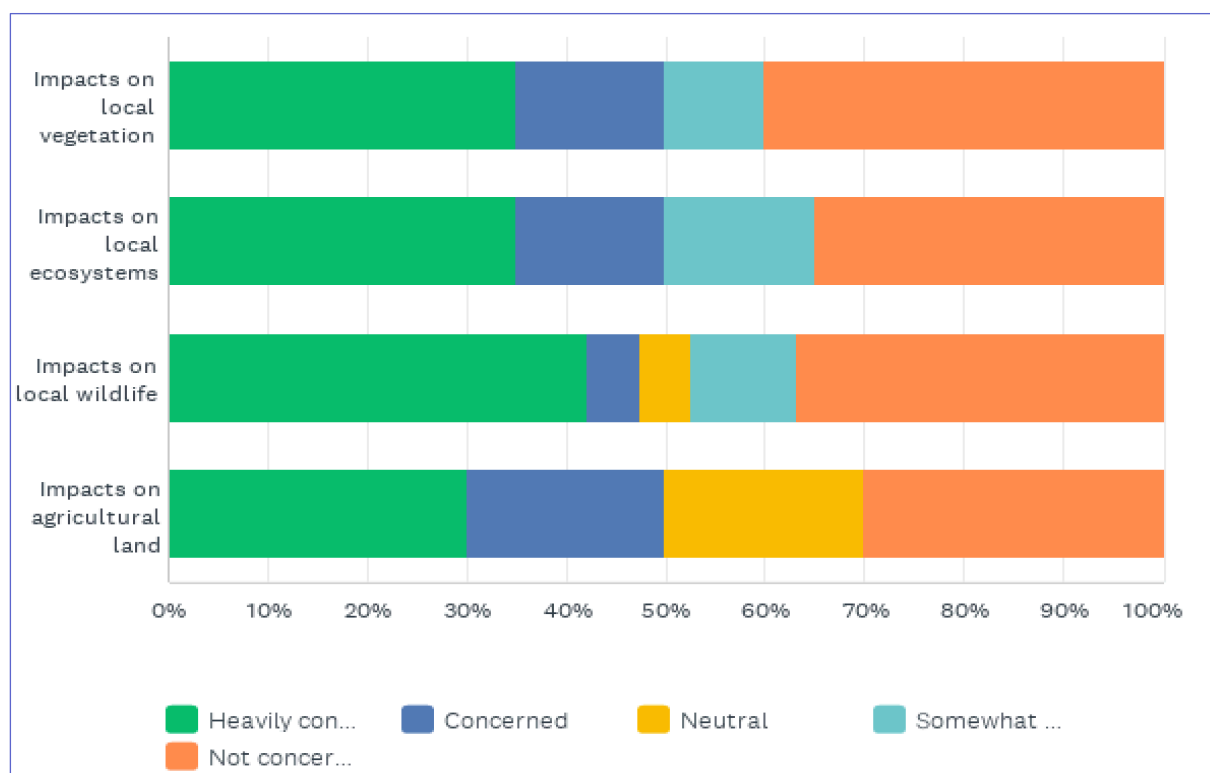
During stakeholder consultation interviews, community members expressed concern over the potential impacts of the Project on local wildlife and their associated habitats, including its impact on local bird and bat populations.

**FIGURE 10: RESPONSES TO THE SURVEY QUESTION "DO YOU BELIEVE THE MARRI WIND FARM WILL HAVE A POSITIVE, NEUTRAL OR NEGATIVE IMPACT ON THE LOCAL ENVIRONMENT?"**





**FIGURE 11: RESPONSES TO THE SURVEY QUESTION “IN RELATION TO THE MARRI WIND FARM PLEASE RATE YOUR FEELINGS ON THE FOLLOWING:”**



#### 5.5.14 Preliminary Impact Assessment

##### *Indigenous Cultural Heritage and Land Use*

The Project area is situated on the traditional lands of the Yued people, who maintain enduring cultural, spiritual, and land management connections. Several Aboriginal heritage sites are registered or lodged within and around the Project boundary. Incomplete heritage assessments and any failure to engage appropriately with the Yued people could result in site disturbance or regulatory non-compliance. However, the Project also presents an opportunity for collaborative land stewardship, cultural site protection, and employment or training pathways through formal agreements and co-management.

##### *Post-Contact History and Heritage Values*

The region holds significant non-Indigenous heritage from early agricultural settlement, including sites like the Dandaragan Heritage Precinct and Mogumber Mission. Although the Project avoids direct intersection with State-listed places, it exists within a cultural landscape valued by both Indigenous and non-Indigenous communities. Respect for these shared histories and consultation with local heritage groups is advised to avoid indirect impacts and foster trust.

##### *Land Use Compatibility and Rural Amenities*

The Project is located entirely within land zoned ‘Rural’ and is currently used for broadacre farming, which supports compatibility. However, some adjacent landowners, including lifestyle residents and hobby farmers, may experience amenity impacts. While some have consented to reduced turbine setbacks, others remain in negotiation and/or opposition to the Project. This dynamic highlights the importance of respectful dialogue, documented agreements, and mitigation measures to manage visual, acoustic and environmental impacts, among other things.

##### *Strategic Growth and Settlement Patterns*

Although the Project is not located within planned growth areas such as Jurien Bay or Cervantes, long-term settlement expansion and regional planning objectives should still be considered.

Maintaining consistency with the Shire's Local Planning Strategy and preserving regional amenity will help minimise land use conflict and build alignment with broader development goals.

### **Cumulative Impact and Tourism Sensitivity**

The Shire of Dandaragan is emerging as a renewable energy hub, and the cumulative impact of multiple projects—particularly on visual landscapes and tourism appeal—must be managed carefully. Attractions like the Pinnacles Desert and Moore River hold symbolic and economic value. Thoughtful turbine siting, positive public messaging, and potential integration of renewable tourism elements could help protect this identity while promoting sustainable development.

### **Cultural Heritage and Environmental Impact Sensitivity**

Survey results and stakeholder feedback indicate that a significant proportion of the community is concerned about the Project's potential impact on local cultural heritage and environmental values. Half of respondents expressed concern over heritage preservation, while 45% believe the Project could negatively affect the local environment, particularly vegetation, ecosystems, and wildlife. Addressing these perceptions through targeted engagement, clear mitigation strategies, and transparent environmental monitoring will be critical to maintaining community confidence and support.

### **5.5.15 Summary**

The Project is broadly consistent with existing zoning and land use planning frameworks. However, it intersects with a multi-layered cultural, historical, and residential landscape. Key risks include potential impacts to Indigenous heritage, rural residential amenity, environmental concerns and cumulative effects on tourism and landscape values. The Project's mitigation measures have been designed to address these risks while supporting inclusive engagement and land use coexistence.

**TABLE 21: LAND USE AND CULTURAL HERITAGE PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigation		Prelim Impact Rating
				Magnitude	Sensitivity	
I018	Project has potential to impact culturally sensitive aspects of Yued traditional lands, but also creates opportunity for co-management with Yued People	C, O, D	D	Moderate	Medium	<b>Moderate</b>
I019	Project has potential to impact non-Indigenous heritage and tourism sites	C, O, D	D	Moderate	Medium	<b>Moderate</b>
I020	Project has potential to create actual and perceived negative impacts on local environment and wildlife.	C, O, D	D	Minor	Medium	<b>Minor</b>

### **5.5.16 Proposed Mitigation Measures**

The following mitigation measures are recommended to address the Project's land use impacts:

**TABLE 22: LAND USE AND CULTURAL HERITAGE MITIGATION MEASURES**

No.	Mitigation Measure	Linked Impact / Opportunity
M027	Conduct ethnographic and archaeological surveys in partnership with the Yued people and develop a Cultural Heritage Management Plan (CHMP) to avoid or manage cultural heritage impacts.	I018
M028	Implement a Cultural Heritage Avoidance Protocol using GIS-mapping and on-site Aboriginal monitors during construction. Provide cultural awareness training developed and delivered in conjunction with Indigenous representatives.	I018

M029	Respect the 1500m turbine setback guideline wherever feasible, and document exceptions transparently. Offer Neighbour Agreements with clear benefit-sharing mechanisms.	I018; I019
M030	Ensure agricultural coexistence through a Construction Environmental Management Plan (CEMP), with access agreements, dust suppression, and post-construction land restoration.	I020
M031	Consider undertaking a Tourism Impact Assessment and collaborate with tourism stakeholders to mitigate visual dominance from key sites, where relevant. Explore interpretive signage or visitor access opportunities.	I019
M032	Consult any local heritage groups and comply with the Heritage Act 2018 for protection of European and local historical landmarks. Avoid indirect impacts through early site planning.	I019
M033	Contribute to cumulative impact assessments across energy projects. Coordinate with regional planners and proponents where possible to manage development staging and shared infrastructure use.	I018; I019
M034	Conduct sufficient environmental, flora and fauna surveys and studies and communicate findings transparently to local community members and residents.	I020

### 5.5.17 Residual Impact Assessment

Assuming that the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 23 outlines the likely residual land use impacts from the Project.

**TABLE 23: LAND USE AND CULTURAL HERITAGE RESIDUAL IMPACT ASSESSMENT**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I018	Project has potential to impact culturally sensitive aspects of Yued traditional lands, but also creates opportunity for co-management with Yued People	Negligible	Low	<b>Negligible</b>
I019	Project has potential to impact non-Indigenous heritage and tourism sites	Negligible	Low	<b>Negligible</b>
I020	Project has potential to create actual and perceived negative impacts on local environment and wildlife.	Negligible	Low	<b>Negligible</b>

## 5.6 Education and Employment

### 5.6.1 Educational Facilities

The following data provides a summary of early learning, primary and secondary schools, as well as TAFE providers, in the LIA:

#### **Dandaragan**

There are no childcare facilities in the township of Dandaragan. Residents rely on private babysitting services.

**Dandaragan Primary School:** Caters to 47 enrolled students from Kindergarten to Year 6. The school is well-resourced with teaching materials, information and communication technology, a library, and equipment for hands-on and play-based learning. Several students travel to and from the school via a locally provided bus service.

#### **Badgingarra**

There are no childcare facilities in the township of Badgingarra. Residents rely on private babysitting services.

**Badgingarra Primary School:** Established in 1965, the school is located 8 km from the town of Badgingarra. Current enrolments include 18 students, many of whom are transported daily by bus.

### **Moora**

There are three childcare facilities in the township of Moora. These services are used by families through the LIA and RIA, often requiring significant travel time from towns in the LIA to access these services.

**Moora Primary School:** A Level 4 Independent Public School currently catering to 106 students from Kindergarten to Year 6. Established in 1897, it is one of the oldest primary schools in Western Australia. The school community is drawn from the Moora townsite and surrounding rural areas.

**Central Midlands Senior High School:** Currently offers education from Year 7 to Year 12 to 196 students, providing a wide range of academic and vocational subjects. The school is located in Moora.

**Moora Residential College:** Provides accommodation and care for up to 48 students attending Central Midlands Senior High School.

**Central Regional TAFE – Moora Campus:** Located in Moora, this campus serves as the hub for training and education in the Northern Wheatbelt region. It offers courses in areas such as agriculture, business, community services, and information technology.

### **Gingin**

There are three childcare facilities in the township of Gingin. These services are used by families through the LIA and RIA, often requiring significant travel time from towns in the LIA to access these services.

**Gingin District High School:** Caters to 361 students from Kindergarten to Year 12. The school emphasises literacy and numeracy in early education and offers specified learning areas in secondary education.

### **Lancelin**

There is one childcare provider in the township of Lancelin. These services are used by families through the LIA and RIA, often requiring significant travel time from towns in the LIA to access this service.

**Lancelin Primary School:** A Level 3 Independent Public School educating 91 students from Kindergarten to Year 6.

## **5.6.2 Educational Attainment**

Aggregated educational attainment data for each of the towns in the LIA is provided in Table 24. As of the 2021 Census, the Shire of Dandaragan exhibits a diverse educational profile among its residents aged 15 years and over. Approximately 10.6% have attained a Bachelor degree or higher, while 8.1% hold an Advanced Diploma or Diploma. Notably, 16.9% possess a Certificate III qualification, and 2.8% have a Certificate IV. Additionally, 13.4% have completed Year 12, and 16.7% have completed Year 10 as their highest level of schooling

**TABLE 24: HIGHEST LEVEL OF EDUCATIONAL ATTAINMENT FOR THE LOCAL AND REGIONAL IMPACT AREAS (PERCENTAGE OF POPULATION OVER 15)**

	DANDARAGAN	BADGINGARRA	MOORA	GINGIN	LANCELIN	SHIRE OF DANDARAGAN	WA
Bachelor or Higher Degree	10.6%	14.0%	8.1%	13.4%	12.7%	9.3%	23.8%
Advanced Diploma or Diploma	8.1%	6.0%	4.0%	8.2%	7.1%	7.0%	9.3%
Certificate III	16.9%	8.7%	14.6%	16.0%	15.0%	17.3%	13.9%
Year 12	13.4%	22.0%	17.6%	13.8%	15.2%	13.3%	15.5%
Year 10	16.7%	8.7%	16.7%	19.5%	16.4%	17.3%	11.3%
Year 9 or Below	7.6%	3.3%	7.8%	6.6%	6.3%	9.1%	5.4%

### 5.6.3 Educational Attainment by Gender

As of the 2021 Census, 14.9% of females in the Shire of Dandaragan have attained a Bachelor degree or higher, while 10.1% hold an Advanced Diploma or Diploma and 15.7% have a vocational qualification. This is compared 6.5% of males with a Bachelor degree or higher, 6.2% with an Advanced Diploma or Diploma and 30.0% with a vocational qualification. These figures indicate higher levels of post-school tertiary education for women in the area, compared with higher levels of vocation-specific qualifications for men. These gendered differences are largely consistent with averages for the broader area of regional Western Australia.

**TABLE 25: HIGHEST OF EDUCATIONAL ATTAINMENT BY GENDER FOR THE REGIONAL IMPACT AREAS (PERCENTAGE OF POPULATION OVER 15)**

	FEMALES SHIRE OF DANDARAGAN	FEMALES REGIONAL WA	MALES SHIRE OF DANDARAGAN	MALES REGIONAL WA
Bachelor or Higher Degree	14.9%	17.6%	6.5%	9.6%
Advanced Diploma or Diploma	10.1%	9.4%	6.2%	6.0%
Vocational	15.7%	18.9%	30.0%	30.4%
No Qualification	46.2%	41.4%	41.8%	39.7%
Not Stated	13.2%	12.8%	15.6%	14.3%

### 5.6.4 Local Workforce Skills and Capacity

This educational and skills landscape suggests a workforce with a substantial proportion of individuals holding vocational qualifications, particularly at the Certificate III level. Such qualifications are often

aligned with trades and technical skills, which are pertinent to sectors like construction and maintenance. The presence of these skills within the community may support local employment opportunities in various industries.

In the context of renewable energy developments, such as the proposed Marri Wind Farm, the existing skill sets among residents could be advantageous. For instance, during the construction phase of the Yandin Wind Farm, many local and regional businesses supplied services, and continue to service the operational site. These projects often require a range of skills, including electrical, mechanical, and civil expertise, which may align with the qualifications held by the local workforce.

Furthermore, the Shire's strategic plans emphasise sustainable development and community well-being, aiming to enhance local employment and training opportunities. By leveraging the existing educational and skill base, the LIA and RIA are positioned to both support and benefit from ongoing and future renewable energy initiatives.

### 5.6.5 Employment Rates

Aggregated employment data for each of the towns in the LIA is provided in Tables 26 and 27. In 2021, the Shire of Dandaragan had a labour force of 1,573 employed individuals aged 15 years and over. Approximately 95.6% of persons in the labour force were employed. Of these, 58% were engaged in full-time employment, while 33% worked part-time. The remaining 9% were employed but did not specify their working hours. The unemployment rate stood at 4.4%, slightly higher than the Regional WA average of 4.2%.

**TABLE 26: LABOUR FORCE PARTICIPATION IN THE LOCAL AND REGIONAL IMPACT AREAS (PERCENTAGE OF POPULATION OVER 15)**

	DANDARAGAN	BADGINGARRA	MOORA	GINGIN	LANCELIN	SHIRE OF DANDARAGAN	WA
Total Labour Force (Participation Rate)	71.0%	69.3%	56.8%	58.9%	51.9%	56.8%	63.9%
Not in the Labour Force	23.4%	11.3%	30.6%	35.4%	38.5%	32.4%	29.8%
Not Stated	7.1%	18.7%	12.3%	6.1%	10.0%	10.7%	6.3%

**TABLE 27: EMPLOYMENT STATUS OF LABOUR FORCE IN THE LOCAL AND REGIONAL IMPACT AREAS (PERCENTAGE OF POPULATION OVER 15)**

	DANDARAGAN	BADGINGARRA	MOORA	GINGIN	LANCELIN	SHIRE OF DANDARAGAN	WA
Employed Full-time	68.2%	68.3%	59.9%	55.7%	54.3%	57.1%	57.1%
Employed Part-time	22.3%	25.0%	28.9%	33.7%	30.7%	24.9%	32.0%
Employed Away from Work	6.1%	7.7%	5.6%	8.2%	13.3%	4.5%	5.8%
Unemployed	3.4%	5.8%	5.9%	1.7%	1.9%	4.0%	5.1%



### 5.6.6 Indigenous Employment Rates

In 2021, the Shire of Dandaragan had an Indigenous labour force participation rate of 63.9%. Approximately 93.5% of persons in the labour force were employed. Of these, 50% were engaged in full-time employment, while 24.1% worked part-time. The remaining 12% were employed but away from work. The unemployment rate stood at 7.4%, which is higher than the standard unemployment rate for all persons. In the absence of town specific data, aggregated Indigenous employment data for each of the three LGAs in the broader Project region is provided in Table 28.

**TABLE 28: EMPLOYMENT STATUS OF LABOUR FORCE IN THE LOCAL AND REGIONAL IMPACT AREAS (PERCENTAGE OF POPULATION OVER 15)**

	SHIRE OF DANDARAGAN	SHIRE OF MOORA	SHIRE OF GINGIN	WA
In Labour Force	63.9%	44.9%	59.3%	84.1%
Employed Full-time of those in Labour Force	50.0%	40.9%	50.0%	48.9.1%
Employed Part-time	24.1%	26.1%	24.1%	26.2%
Unemployed	7.4%	29.5%	11.1%	15.9%

### 5.6.7 Workforce Characteristics

Aggregated occupational data for each of the towns in the LIA is provided in Table 29. The Shire of Dandaragan's workforce is characterised by a diverse occupational distribution, reflecting its strong and varied local economy. Key occupational categories include Managers (20.3%), Labourers (18.5%), and Technicians and Trades Workers (14.5%), followed by Clerical and Administrative Workers (10.7%),

Machinery Operators and Drivers (9.3%), and Professionals (8.7%). Smaller yet significant proportions are employed as Community and Personal Service Workers (6.6%) and Sales Workers (5.2%). This distribution highlights the Shire's economic reliance on agriculture and tourism and supports a generally low unemployment rate within the region.

Low levels of unemployment in the Shire of Dandaragan may suggest a limited availability of workers, which could have implications for local employment initiatives and opportunities. However, higher levels of technicians and trade operators, coupled with machinery operators and drivers, may be indicative of existing industry and skills within the area that could offer a useful resource for the Project to access regarding the prospective workforce. While the ABS provides comprehensive data on employment and demographics, it does not detail the number of seasonal or drive-in drive-out (DIDO) workers at the local government area level. This data will need to be collected via independent workforce studies if required.

**TABLE 29: OCCUPATIONS IN THE LOCAL AND REGIONAL IMPACT AREAS (PERCENTAGE OF EMPLOYED POPULATION OVER 15)**

	DANDARAGAN	BADGINGARRA	MOORA	GINGIN	LANCELIN	SHIRE OF DANDARAGAN	WA
Managers	29.9%	27.5%	12.4%	18.5%	13.6%	21.0%	12.3%

Professionals	12.6%	7.8%	11.4%	11.3%	9.2%	11.8%	11.3%
Technicians and Trades Workers	9.2%	12.7%	16.5%	13.5%	12.2%	14.6%	13.5%
Community and Personal Service Workers	2.3%	0%	11.8%	6.5%	7.2%	7.3%	6.5%
Clerical and Administrative	11.5%	9.8%	12.7%	12.5%	6.4%	9.9%	12.5%
Sale Workers	1.7%	0%	8.0%	5.8%	3.6%	5.8%	5.8%
Machinery Operators and Drivers	19.0%	7.8%	12.4%	15.0%	9.7%	11.9%	7.7%
Labourers	8.6%	24.5%	13.9%	16.8%	34.2%	16.2%	9.4%

### 5.6.8 Potential Vulnerabilities

Based on the social baseline assessment, the following potential vulnerabilities have been identified with respect to education and employment:

- ▶ **Gendered qualification trends:** Higher tertiary education rates for women and higher vocational qualifications for men may affect workforce participation patterns.
- ▶ **Lower tertiary attainment:** Bachelor-level education rates below the WA average may limit access to specialised roles.
- ▶ **Limited spare workforce capacity:** Low unemployment and high labour force participation may restrict availability for new project roles.
- ▶ **Skills gaps for specialised roles:** While vocational skills are strong, some technical or professional positions may require external recruitment.
- ▶ **Higher Indigenous unemployment:** Above-average Indigenous unemployment rates indicate the need for targeted employment and training programs.
- ▶ **Seasonal and DIDO workforce uncertainty:** Lack of data on transient workers may complicate workforce planning.

### 5.6.9 Community Perceptions and Stakeholder Feedback

Results from the study's community perceptions survey suggest that 40% of respondents are concerned about local job creation. This was accompanied by concerns relating to the presence of temporary construction workers in the local area (40%) and the movement of these workers within the region (55%).

During stakeholder consultation interviews, landowners and community members also expressed a desire to see jobs go to existing local members of the community where possible, and for additional training opportunities to be offered to local people. Several stakeholders also raised concerns about the very limited availability of childcare in the area, and the impact this could have on women's participation in and ability to benefit from employment opportunities from the Project.

### 5.6.10 Preliminary Impact Assessment

The LIA demonstrates a strong foundation in vocational training, supported by a network of educational institutions and a diverse local workforce. However, regional variation in educational attainment, gender disparities in qualifications, and socio-economic vulnerabilities highlight the need for targeted workforce development and inclusive employment strategies.

#### *Educational Facilities and Attainment*

The LIA is well serviced by primary, secondary, and vocational institutions, including a TAFE campus. However, it is lacking in sufficient early learning and childcare facilities that can be used to support local families in general, and women's workforce participation in particular. While rates of higher education are below state averages, vocational qualifications—especially at the Certificate III level—are prevalent, reflecting the region's alignment with trade and technical sectors. Town-level variation is evident: Badgingarra shows high Year 12 attainment, while Moora and Lancelin have higher proportions of residents whose education ends at Year 10 or below. Tailored local training initiatives will be important to address these disparities and support equitable access to project benefits. Strengthening school-to-industry pathways will support long-term regional capacity and encourage young people to pursue careers in clean energy. However, Increased demand for TAFE and VET services could strain local providers if not planned for, particularly if multiple projects coincide.

#### *Gendered Educational Attainment and Workforce Participation*

Educational and occupational pathways remain gendered: women in the Shire of Dandaragan are more likely to hold tertiary or diploma-level qualifications, while men dominate in vocational fields. Workforce strategies must respond to this divide, ensuring that both genders can access employment opportunities across technical, administrative, and support roles. Initiatives that broaden women's participation in trades and promote equitable access to project-related training are particularly important.

#### *Labour Supply*

The Shire of Dandaragan has higher-than-average labour force participation and relatively low unemployment, indicating an active but potentially stretched workforce. Intra-regional variation, such as lower participation in Lancelin, may reflect demographic differences including an older or more transient population. These dynamics suggest the need for targeted recruitment, consideration of underemployment, and flexible workforce planning that accounts for both local capacity and seasonal variations.

#### *Indigenous Employment*

Indigenous employment rates vary significantly across the region. While Dandaragan shows relatively strong engagement, Moora reports high Indigenous unemployment and low participation. Without deliberate, culturally responsive strategies, First Nations participation in the project may be limited—missing a key opportunity to support inclusive regional development. The Project can play a constructive role by establishing targeted employment pathways and partnerships with Aboriginal organisations.

#### *Workforce Characteristics and Skills Alignment*

The regional workforce spans a broad range of occupations—particularly in trades, machinery operation, and agriculture—making it well-placed to support construction and operational phases of the Project. However, low unemployment suggests limited surplus labour, and competition from other sectors may constrain availability. Strategic planning is needed to ensure that the project both accesses and strengthens the local workforce, rather than drawing workers away from other essential industries.

#### *Workforce Characteristics and Skills Alignment*

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accesses and strengthens the local workforce, rather than drawing workers away from other essential industries.

### Workforce Demand Predictions

Preliminary data from the Project's Economic Impact Assessment (WSP, 2025) suggest that the total workforce in the Shire of Dandaragan is currently estimated at 1,686. While this is below the total number of workers in the Shire, the entire local labour force cannot be engaged in the Project, meaning a significant proportion of workers will need to be sourced from outside the LIA, including Perth and surrounding regions.

Workforce requirements during the construction phase are projected to peak at approximately 701 FTE jobs per year, however, only a portion of these workers will be physically present on site. Of the 310 direct jobs, the peak of 310 on-site personnel reflects the direct construction workforce, while the remaining 146 FTEs are distributed across the broader economic study area, rather than being concentrated within the RIA itself. Similarly, of the 701 total FTE jobs supported annually (including indirect and induced employment), a substantial share is expected to be located outside the LGA.

In contrast, the Project's operational phase is expected to extend for at least 30 years, creating potential for sustained effects on the local labour market where demand is high relative to the existing workforce. Table 30 presents workforce demand across different industries during the operational phase, the longest phase of the project, and the extent to which this demand can be met locally in the Dandaragan LGA and the broader Economic Study Area. For most industries, the total workforce demand is a small fraction of the existing local workforce. For example, construction services require 7.18 FTE positions, which represents only 4.5% of the 158 workers currently employed in this sector in Dandaragan. Similarly, in professional, scientific, and technical services, the demand of 2.74 FTE is just 27% of the 10 workers in Dandaragan.

This indicates that the LIA is likely to have capacity to meet workforce demand during the operational phase. However, it should be noted that the presence of workers in these industries does not guarantee that they can all be mobilised for the wind farm; these figures provide a means of understanding potential local supply rather than a precise estimate of available personnel.

**TABLE 30: WORKFORCE DEMAND AND SUPPLY FOR OPERATIONS**

Industry of employment	Estimated workforce req. (FTE p.a.)	Dandaragan LGA	% of Dandaragan workforce	Economic Study Area Workforce	% of ESA workforce
Construction services	7.18	158	4.54%	40,399	0.02%
Other repair and maintenance	4.38	0	0%	680	0.64%
Professional, scientific and technical services	2.74	10	27.41%	66,483	0.00%
Non-residential property operators and real estate services	1.54	20	7.72%	11,064	0.01%
Employment, travel agency and other administrative services	1.38	6	23.07%	13,622	0.01%
Wholesale trade	1.19	17	6.99%	26,104	00.00%
Retail trade	0.81	135	0.60%	89,438	0.00%
Rental and hiring services (except real estate)	0.62	0	0%	2,938	0.02%

Electricity generation	0.58	4	14.49%	929	0.06%
Other	6.78				
Total	27.20				

Source: WSP modelling based on ABS National Accounts and Census 2021

### 5.6.11 Summary

The assessment of education and employment conditions across the Project area highlights both opportunities and challenges. While the region benefits from a skilled vocational workforce and established training infrastructure, disparities in educational attainment, gendered workforce patterns, and limited labour availability may constrain equitable participation in project benefits. Encouragingly, workforce characteristics and supply in the LIA suggest potential for local sourcing of ongoing FTE jobs during the Project's long-term operational phase.

Proactive, inclusive, and locally tailored mitigation measures will be essential to ensure that the Project contributes meaningfully to workforce development, supports First Nations and underrepresented groups, and strengthens long-term regional capacity. By aligning employment opportunities with the existing occupational base and regional priorities, the Project can maximise its contribution to local economic development while mitigating potential labour market tensions.

**TABLE 31: EDUCATION AND EMPLOYMENT PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigation		Prelim Impact Rating
				Magnitude	Sensitivity	
I021	Project has potential to create labour competition across cumulative projects and industries, despite good local skills alignment	C, D	D	Moderate	Medium	Moderate
I022	Project has potential to increase local gendered occupational segregation	C, O, D	D	Minor	Medium	Minor
I023	Project may struggle with local recruitment due to limited spare capacity and high existing labour force participation	C, O, D	D	Moderate	Medium	Moderate
I024	Project has potential to experience capacity constraints from local training providers.	C, O, D	D	Moderate	Medium	Moderate
I025	Project has potential to experience capacity constraints from local schools and childcare facilities.	C, O, D	D	Moderate	Medium	Moderate

### 5.6.12 Proposed Mitigation Measures

The following mitigation measures are recommended to address the Project's educational and employment impacts:

**TABLE 32: EDUCATION AND EMPLOYMENT MITIGATION MEASURES**

No.	Mitigation Measure / Enhancement	Linked Impact / Opportunity
M035	Engage with regional employers and training providers early to coordinate skills development and minimise disruption to existing industries.	I024

M036	Provide information to local and state government regarding the limited availability of local childcare and capacity of local schools to assist with planning for family in-migration associated with project operations.	I025
M037	Ensure competitive wages and flexible working conditions to attract local talent in high-employment areas.	I021; I023
M038	Monitor labour market constraints such as transport, accommodation, and family responsibilities, and adjust plans accordingly where possible.	I022; I025
M039	Engage with TAFE to co-develop short-term, project-aligned training and job-readiness programs.	I024
M040	Implement local employment strategies with service providers, including recruitment targets and transparent job advertising.	I021; I023
M041	Require major contractors to report on local hiring and training outcomes as part of their project obligations.	I021; I022; I023
M042	Implement a workforce development monitoring plan that tracks local hiring, diversity, and training outcomes, reported annually.	I021; I022; I023
<b>Enhancements</b>		
E002	Support scholarships and mentoring to increase local participation in renewable energy careers. Support school engagement programs on renewable energy careers, including presentations, site visits, and mentoring links. Sponsor STEM and career exploration initiatives for regional high schools.	I021
E003	Encourage gender-equitable access to training and job opportunities through targeted outreach.	I022
E004	Promote Indigenous employment pathways through recruitment, training, and mentoring. Collaborate with Aboriginal Corporations and Indigenous employment providers to implement culturally safe recruitment and workplace practices.	O004
E005	jobseekers from underrepresented groups, such as funding or co-funding licenses and certifications (e.g., white cards, driver's licences).	I022; O004

### 5.6.13 Residual Impact Assessment

Assuming that the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 33 outlines the likely residual education and employment impacts from the Project.

**TABLE 33: EDUCATION AND EMPLOYMENT MITIGATION MEASURES**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I021	Project has potential to create labour competition across cumulative projects and industries, despite good local skills alignment	Minor	Medium	Minor
I022	Project has potential to increase local gendered occupational segregation	Negligible	Low	Negligible
I023	Project may struggle with local recruitment due to limited spare capacity and high existing labour force participation	Minor	Medium	Minor
I024	Project has potential to experience capacity constraints from local training providers	Minor	Low	Negligible



I025	Project has potential to experience capacity constraints from local schools and childcare facilities	Minor	Medium	Minor
O002	Project has potential to tap into strong vocational training base for local hiring	Beneficial	Medium	Moderate Positive
O003	Project has potential to increase local Indigenous employment, with appropriate training opportunities	Beneficial	Medium	Moderate Positive
O004	Project has potential to use local hiring and upskilling to maximise localised benefits	Beneficial	Medium	Moderate Positive
O005	Project has potential to alleviate existing childcare shortages by facilitating additional capacity	Beneficial	Medium	Moderate Positive

## 5.7 Local Economy

### 5.7.1 Predominant Industries by Employment

The Shire of Dandaragan boasts a diverse economy anchored by traditional industries such as agriculture, fishing, and mineral sands mining, with emerging contributions from tourism and renewable energy projects. Employment in the local economy is primarily driven by the following sectors:

- ▶ **Agriculture, Forestry, and Fishing:** Engaging 317 people, this sector accounts for 20.3% of the employed population, reflecting the Shire's strong agricultural base. Estimated value of \$183 million annually to the local economy,
- ▶ **Mining:** Employing 150 individuals, mining represents 9.6% of local employment, indicating the area's resource extraction activities. Significant contributor to the local economy.
- ▶ **Construction:** With 149 workers, the construction industry comprises 9.5% of the workforce, highlighting ongoing development and infrastructure projects, including renewable projects. Estimated value of \$122 million annually to the local economy.
- ▶ **Tourism:** Tourism significantly contributes to the local economy, injecting approximately \$96 million annually and supporting 580 jobs, both directly and indirectly.

### 5.7.2 Agricultural and Fishing

Agriculture stands as the cornerstone of Dandaragan's economy, with a significant focus on sheep, beef cattle, and grain farming. This sector has been the backbone of the Shire's economy for many years, making significant contributions to employment and economic output.

The fishing industry, particularly rock lobster harvesting, also plays a vital role in the local economy. The Shire's coastal location provides access to rich marine resources, supporting both commercial and recreational fishing activities.

### 5.7.3 Mining

Mining is a notable contributor to the Shire's economic landscape, employing a significant portion of the workforce. The region is endowed with various mineral resources, including significant mineral sands deposits, and mining activities have been integral to economic development.

- ▶ **Cooljarloo West Titanium Minerals Project (Tronox):** Tronox Management Pty Ltd is advancing the Cooljarloo West Titanium Minerals Project, situated approximately 30 km west of Cervantes within the Shire of Dandaragan. The project involves dredge mining of three orebodies—Woolka, Harrier, and Kestrel—and necessitates relocating the mining dredge and concentrator from the existing Cooljarloo Mine via a floating channel. The project has undergone environmental assessment by the EPA.
- ▶ **Cataby Mineral Sands Mine (Iluka Resources):** Iluka Resources operates the Cataby Mineral Sands Mine, located near Cataby in the southern part of the Shire. Commissioned in 2019, this

\$270 million project produces ilmenite, zircon, and rutile, supporting local economies including Dandaragan, Capel, and Geraldton.

- ▶ **Dante Reefs Vanadium-Titanium Project (Terra Metals):** Terra Metals is exploring the Dante Reefs polymetallic deposit within the Dandaragan Trough. Recent drilling indicates a Bushveld-type deposit with notable grades of vanadium pentoxide (up to 0.91%), titanium dioxide (up to 26.5%), copper, and platinum group elements.
- ▶ **Dandaragan Trough Potash Project (Potash West):** Potash West has been developing a project in the Dandaragan Trough aimed at producing potassium sulphate and other products. The deposit is considered substantial, with potential for significant resource development.
- ▶ **Atlas Mineral Sands Project (Image Resources):** Image Resources is progressing the Atlas Project, a heavy mineral sands (zircon and ilmenite) initiative located approximately 18 km east of Cervantes. The project encompasses two areas totalling about 71.5 km<sup>2</sup>.
- ▶ **Geothermal Exploration by VRX Silica:** VRX Silica has secured a Geothermal Exploration Permit covering eight blocks in Dandaragan. The permit area includes the Walyering gas field, under development by Strike Energy and Talon Energy. VRX aims to explore geothermal energy to support its silica sand projects and potential green hydrogen production.

These projects are likely to draw on a similar pool of workers, suppliers and services as the Marri Wind Farm development, and should be considered in the context of cumulative impacts of the Project.

#### 5.7.4 Tourism

Tourism has emerged as a significant economic driver, injecting approximately \$96 million into the local economy and supporting over 500 jobs ([Dandaragan Shire](#)). In 2019, the Shire attracted an estimated 560,000 visitors, with the Nambung National Park, home to the Pinnacles Desert, serving as a major attraction. The coastal towns of Jurien Bay and Cervantes also attract tourists for their beaches and marine activities.

#### 5.7.5 Renewable Energy

The Shire of Dandaragan has emerged as a significant hub for renewable energy projects in Western Australia, leveraging its favourable wind conditions and expansive land availability. The construction of renewable energy projects, such as wind farms, has provided a considerable economic boost to the region in recent years. Existing and proposed wind farms provide a substantial contribution to the local economy through job creation, infrastructure development, and community benefit funds. These projects not only contribute to the diversification of the local economy but also position the Shire as a leader in sustainable energy initiatives. Operational Renewable Energy Projects

- ▶ **Yandin Wind Farm:** Commissioned in May 2021, the Yandin Wind Farm boasts a capacity of 214 megawatts (MW), utilizing 51 turbines each rated at 4.2 MW. It generates enough electricity to power approximately 200,000 households annually, connecting to the South West Interconnected System via a 10-kilometer transmission line ([Ratch Australia](#)).
- ▶ **Badgingarra Wind and Solar Farms:** The Badgingarra Wind Farm contributes 130 MW, while the adjacent Badgingarra Solar Farm adds 17.5 MW to the grid. Together, they enhance the region's renewable energy output ([Dandaragan Shire](#)).
- ▶ **Emu Downs Solar Farm:** Complementing the existing wind farm infrastructure, the Emu Downs Solar Farm provides an additional 20 MW of solar power, exemplifying the Shire's integrated approach to renewable energy ([Dandaragan Shire](#)).

In addition to the minerals and metals projects described above, these renewable projects are also likely to draw on a similar pool of workers, suppliers and services as the Marri Wind Farm development, and should be considered in the context of cumulative impacts of the Project.

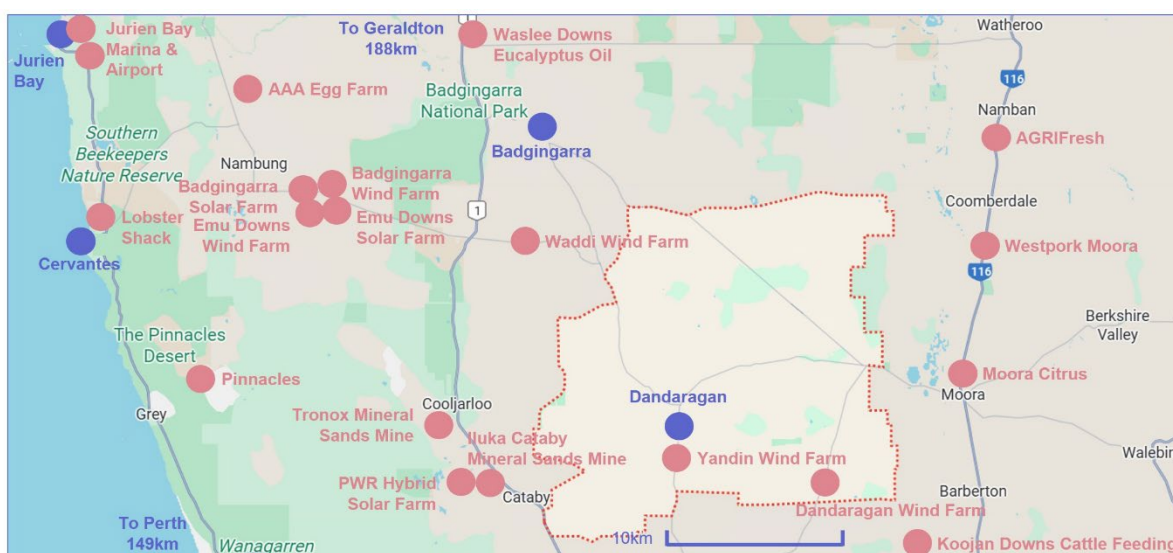
### Economic Contributions of Renewable Energy

Collectively, these renewable energy projects in the Shire of Dandaragan have a combined production capacity exceeding 460 MW, supplying electricity to approximately 381,000 homes across Western Australia. The development and operation of these facilities have stimulated the local economy by creating employment opportunities during both construction and operational phases. For instance, the Yandin Wind Farm's construction phase generated around 150 jobs, with an additional 12 ongoing jobs required in its operational phase.

### Community Benefits Initiatives

Beyond direct economic impacts, these projects have established community benefit funds to support local initiatives. For example, several proposed wind farm projects in the area have indicated an intention to contribute between \$1,000-\$1050 per megawatt of energy generated annually into a community fund, to be used to foster local development and community projects ([ABC News](#), 2025). Alinta have committed to a community benefits contribution of \$1100 per megawatt for the Marri Wind Farm, demonstrating a commitment to supporting local economic sustainability at a rate beyond generally expected contributions.

**FIGURE 11: MAP OF EXISTING WIND FARM PROJECTS AND OTHER KEY ECONOMIC ACTIVITY IN THE SHIRE OF DANDARAGAN)**



Source: Shire of Dandaragan Strategic Plan

### Cumulative Impacts from Future Wind Farm Developments

Looking ahead, there are several potential new wind farm developments in addition to the Marri Wind Farm within the broader regional impact area. The region is particularly attractive to wind farm developers due to its position along the South West Interconnected System transmission route, which is scheduled for significant upgrades by Western Power over the coming year/s ([Western Power](#)). The potential for significant renewable energy generation in the region is also a driver, with the Yandin Wind Farm being recognised as a the best wind farm in Australia for two years in a row ([Alinta Energy](#)). Finally, the region is still characterised by large tracks of agricultural land with fewer separate landowners, making project negotiation and ongoing management potentially less complex.

If fully commissioned, proposed projects may offer significant additional economic contributions and cumulative impacts for local communities. However, it is also worth noting that the renewable projects require lower levels of ongoing employment and local economic engagement than other industries, such as mining, and thus the ongoing long-term cumulative economic impacts may be limited to local landowners, employees and some service providers. These projects include, but are not limited to:

#### Parron Wind Farm

- ▶ **Proponent:** Zephyr Energy Pty Ltd

- ▶ **Location:** Approximately 8 km northwest of Badgingarra, within the Shire of Dandaragan
- ▶ **Capacity:** Up to 489.8 MW from 79 wind turbines
- ▶ **Status:** Development approval granted by the Shire of Dandaragan in December 2024
- ▶ **Details:** The project spans a development area of approximately 8,527 hectares, primarily cleared agricultural land. It includes associated infrastructure such as access roads, electrical cabling, and a substation, connecting to the existing 330kV transmission network.

#### Waddi Wind Farm

- ▶ **Proponent:** Tilt Renewables
- ▶ **Location:** Between the towns of Badgingarra to the north and Dandaragan to the south
- ▶ **Capacity:** Up to 108 MW from 18 Vestas V162-6.0 EnVentus turbines
- ▶ **Status:** Proposed; working towards a financial investment decision
- ▶ **Details:** The project aims to generate enough power for approximately 68,000 homes annually.

#### Yathroo Wind Farm

- ▶ **Proponent:** Neoen
- ▶ **Location:** Near the town of Dandaragan, north of the proposed Marri Wind Farm site.
- ▶ **Capacity:** Up to 500 MW from approximately 80 wind turbines
- ▶ **Status:** Proposed
- ▶ **Details:** The project is part of the growing number of wind farm developments in the region.

Overall, the Shire of Dandaragan's strategic focus on renewable energy has not only diversified its economic base but also reinforced its position as a leader in sustainable development within Western Australia. This diversification of the Shire's local economy represents a blend of traditional industries and emerging sectors in the hope of fostering a resilient and dynamic economic environment.

### 5.7.6 Summary

The Shire of Dandaragan hosts a diverse and evolving economy grounded in agriculture, fishing, and mining, with significant growth in tourism and renewable energy sectors. Agriculture remains the economic cornerstone, engaging over 20% of the workforce and contributing approximately \$183 million annually, while fishing—particularly rock lobster harvesting—adds further economic value. Mining also plays a pivotal role, with active operations and exploration projects such as Iluka's Cataby Mine and Tronox's Cooljarloo West development supporting local employment and service industries. Additionally, tourism has emerged as a major economic driver, generating around \$96 million annually and attracting over half a million visitors to natural attractions like the Pinnacles Desert and coastal towns.

Concurrently, renewable energy has transformed the Shire into a leading hub for wind and solar power in Western Australia, with operational projects like Yandin, Emu Downs, and Badgingarra Wind Farms producing over 460 MW of capacity and contributing to both local infrastructure development and community benefit funds. While renewable projects generate fewer long-term jobs compared to mining, their construction phases have boosted local employment and services. The continued expansion of wind farms, including Parron, Waddi, Yathroo and the proposed Marri Wind Farm, reflects a strategic diversification of the Shire's economy.

Together, these traditional and emerging industries support a resilient and dynamic economic landscape, capable of adapting to changing regional and global demands.

### 5.7.7 Potential Vulnerabilities

Based on the social baseline assessment, the following potential vulnerabilities have been identified with respect to the local economy:

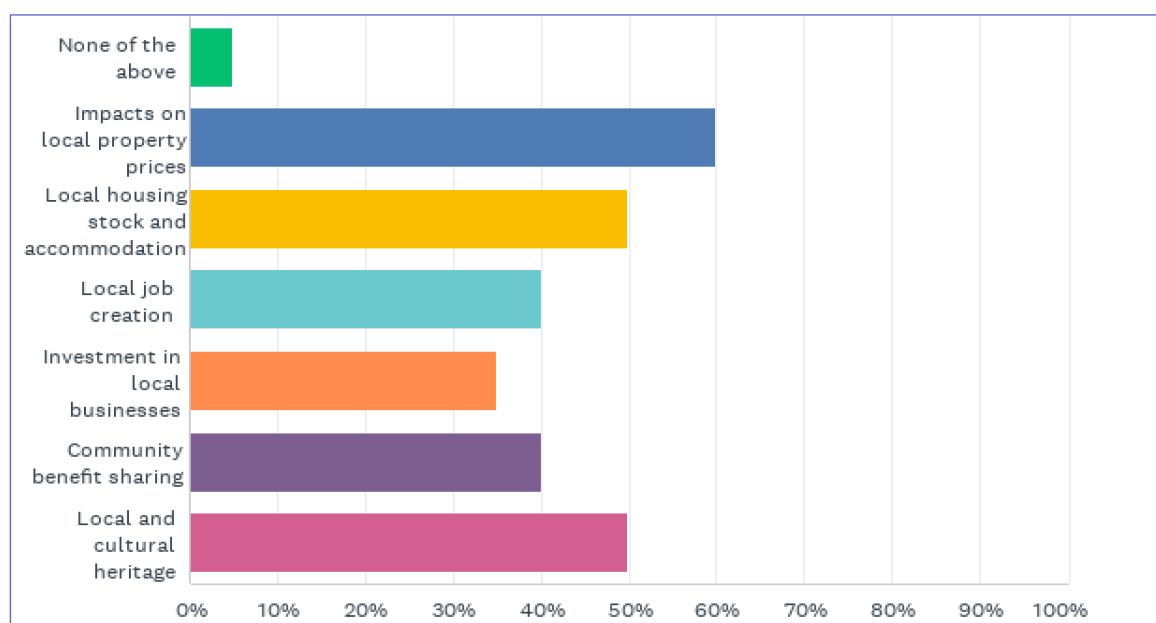
- ▶ **High industry concentration:** Strong reliance on agriculture, mining, and tourism exposes the economy to seasonal, market, and commodity price fluctuations.
- ▶ **Cumulative workforce demand:** Mining, construction, and renewable energy projects draw from the same limited local labour pool, creating competition for skills.
- ▶ **Lower ongoing employment from renewables:** Wind and solar farms provide fewer long-term jobs than mining or agriculture, limiting sustained local economic benefits.
- ▶ **Seasonal tourism impacts:** Visitor-driven employment and revenue are vulnerable to seasonal peaks, external shocks, and environmental conditions.
- ▶ **Supply chain vulnerability:** Heavy dependence on a small number of industries and service providers may affect resilience to disruptions.
- ▶ **Economic inequity risks:** Lease payments and benefits from large projects may be unevenly distributed, potentially creating perceptions of unfairness.

### 5.7.8 Community Perceptions and Stakeholder Feedback

Results from the study's community perceptions survey suggest that 35% of respondents believe the Project will improve the local economy and strengthen the local community, while 20% think it will have a neutral impact and 35% expect it will detract from the local economy and reduce social cohesion. Furthermore, 35% would like to see investment in local businesses and 40% a focus on local job creation. Community benefit sharing was listed as "top of mind" for 40% of respondents. When asked if the provision of socio-economic benefits would make them more supportive of the Project, 45% said it would not bother them or change their opinion of the Project, compared with 20% who said yes, significantly and 15% who said yes, but only slightly.

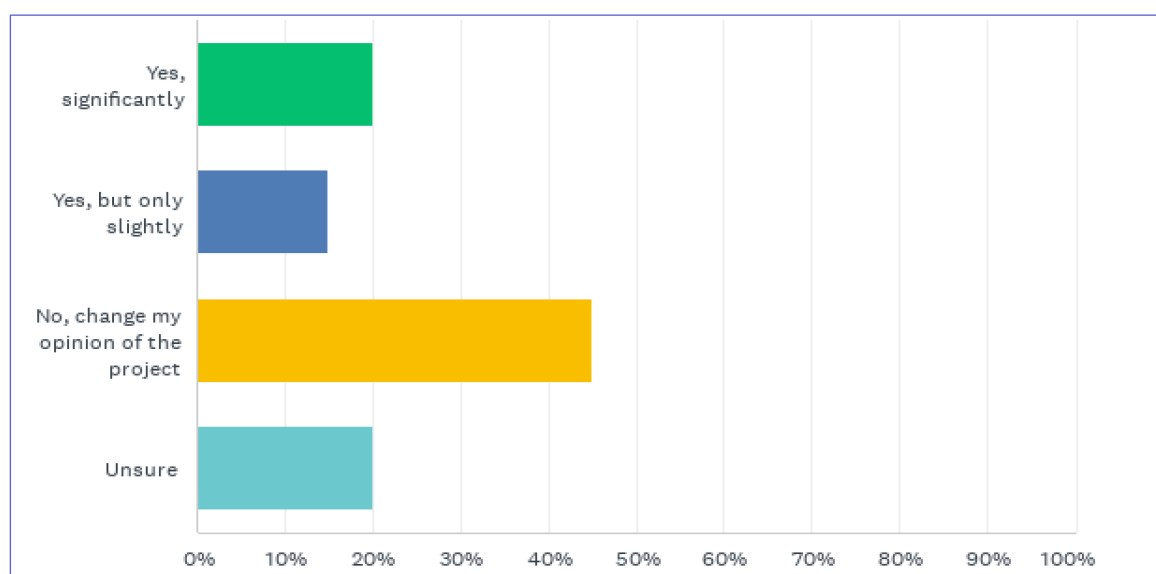
During stakeholder consultation interviews, landowners and community members also expressed a desire to an investment in and use of local businesses, as well as jobs go to existing local members of the community where possible. They also raised concerns about the economic benefits of the community benefits sharing scheme to remain in the local area and not be transferred to the larger coastal towns through distribution to the local shire.

**FIGURE 12: RESPONSES TO THE SURVEY QUESTION "WHAT ISSUES ARE TOP OF MIND FOR YOU (IF ANY) REGARDING IMPACTS ON THE LOCAL COMMUNITY AND ECONOMY?"**





**FIGURE 13: RESPONSES TO THE SURVEY QUESTION “WOULD THE PROVISION OF LOCAL SOCIO-ECONOMIC BENEFITS MAKE YOU MORE SUPPORTIVE OF THE WIND FARM?”**



### 5.7.9 Preliminary Impact Assessment

The Shire of Dandaragan's economy is defined by both its long-standing reliance on agriculture, fishing, and mining, and its emerging strengths in tourism and renewable energy. This diversified economic base positions the region well for investment and development but also presents challenges related to cumulative impacts, labour availability, and equitable distribution of benefits. The proposed Marri Wind Farm will enter this dynamic landscape and should be considered in light of both opportunities and potential pressures.

#### *Sector-Specific Economic Impacts*

**Agriculture and Land Use:** Agriculture remains the most significant employer in the Shire, underpinning local livelihoods and identity. While the Project is not expected to displace agricultural operations, temporary disruptions (e.g., dust, access issues) may occur during construction. Over the long term, careful siting and land access planning will be required to ensure compatibility between renewable energy infrastructure and productive agricultural use.

**Mining and Resource Development:** The presence of multiple mining projects across the Regional Impact Area is expected to draw on a similar pool of workers, contractors, and services as the Project. This overlap may result in competition for skilled labour and logistics support, particularly during overlapping construction phases, contributing to inflationary pressures and strain on local service providers.

**Tourism and Visual Amenity:** Tourism is a growing contributor to the local economy, particularly in coastal areas. Industrial-scale developments like wind farms may influence perceptions of landscape amenity and visitor experience, particularly if located near key natural attractions. Visual and cumulative impact management will be important to ensure tourism values are maintained.

**Construction Sector and Local Business Engagement:** The Project may offer opportunities for local contractors and tradespeople, given the Shire's strong construction and services base. However, realising these benefits will depend on timely information, capacity-building, and support for local businesses to meet procurement standards. Without this, there is a risk that economic benefits may bypass smaller or less-prepared local enterprises.

#### *Cumulative and Renewable Energy Impacts*

The Shire's status as a renewable energy hub brings both prestige and complexity. Projects such as Yandin and Badgingarra Wind Farms have contributed substantial energy generation capacity, and additional proposals—including Marri, Parron, Waddi, and Yathroo—will further expand this cluster.



While these developments create temporary construction jobs and community benefit funds, they offer limited ongoing employment compared to mining. As a result, concerns may emerge around the concentration of benefits (e.g., lease payments to landowners) and the limited long-term economic uplift for other community members.

Proactive planning will be essential to mitigate these risks and ensure the renewable energy sector contributes meaningfully to the broader regional economy.

### 5.7.10 Summary

The Project will operate within a complex and evolving local economy shaped by agriculture, mining, tourism, and a growing renewable energy sector. While it has the potential to contribute to local employment and supply chains, these benefits will depend on coordinated planning and deliberate local engagement. Without targeted strategies, the cumulative effect of multiple large-scale developments may exacerbate pressures on local services and infrastructure, and limit the spread of economic benefits.

**TABLE 34: ECONOMIC IMPACT PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigation		Prelim Impact Rating
				Magnitude	Sensitivity	
I026	Project has potential to disrupt agricultural land use practices	C, O, D	D	Minor	Medium	Minor
I027	Project has potential to impact tourism sector	C, O, D	D	Minor	Medium	Minor

### 5.7.11 Proposed Mitigation Measures

The following mitigation measures are recommended to address the Project's local economic impacts:

**TABLE 35: ECONOMIC IMPACT MITIGATION MEASURES**

No.	Mitigation Measure	Linked Impact / Opportunity
M043	Develop access protocols with host landholders to minimise disruption to agricultural land uses.	I026
M044	Minimise disturbance to productive land through careful siting and construction. Use underground cabling where feasible to reduce surface disruption. Implement dust control measures during construction and operations.	I026
M045	Engage with any local tourism operators to identify and mitigate potential disruptions.	I027
M046	Communicate project timelines with nearby industries and seek to minimise negative impacts of workforce competition.	I026; I027
M047	Collaborate with other proponents and LGAs to manage cumulative regional effects.	I026; I027
<b>Enhancements</b>		
E006	Prioritise local procurement and contracting to extend economic benefits to small businesses and service providers across the LIA and RIA. Adopt procurement policies favouring local and Aboriginal enterprises where possible.	O006; O007
E007	Conduct supplier briefings and "how to tender" workshops for regional businesses. Develop and distribute a regional business capability directory. Provide targeted inclusion support for small businesses in nearby towns.	O007

### 5.7.12 Residual Impact Assessment

Assuming that the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 36 outlines the likely residual impacts from the Project on the local economy.

**TABLE 36: ECONOMIC IMPACT RESIDUAL IMPACT ASSESSMENT**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I026	Project has potential to disrupt agricultural land use practices	Negligible	Low	Negligible
I027	Project has potential to impact tourism sector	Minor	Low	Negligible
O006	Project has potential to positively benefit local construction sector through employment	Beneficial	Medium	Moderate Positive
O007	Project has potential to positively benefit local businesses through procurement of goods and services	Beneficial	Medium	Moderate Positive

## 5.8 Infrastructure

### 5.8.1 Transportation

#### Road Infrastructure

The Shire maintains an extensive network of roads, with ongoing efforts to improve and upgrade key routes:

- ▶ **Dandaragan Road:** Over the past decade, approximately 25 km of Dandaragan Road have been reconstructed to an 8-meter seal, enhancing connectivity between Brand Highway and the Shire's boundary with Moora. This project was funded through municipal funds and state programs like the Wheatbelt North Regional Road Group and the State Black Spot program ([Shire of Dandaragan](#)).
- ▶ **Maintenance and Upgrades:** The Shire's Works and Infrastructure team is responsible for the construction and maintenance of infrastructure assets, including roads, footpaths, drainage, signage, and lighting. ([Shire of Dandaragan](#)).

#### Public Transport

Public transport options within the Shire are limited, reflecting its rural nature:

- ▶ **Bus Services:** There is no mention of regular public bus services operating within the Shire in the available information.
- ▶ **Community Transport:** While not specified in the available sources, rural shires often rely on community transport services for residents, especially the elderly or those without private vehicles.
- ▶ **School Bus Routes:** Around half the students from Dandaragan Primary School live on surrounding farms, with others from the townsite. Many rely on local school bus routes to get them to and from school.

#### Footpaths and Pedestrian Infrastructure

The Shire has recently invested in pedestrian infrastructure to enhance safety and accessibility:

- ▶ **Path Network:** As of the 2022–2032 Path Network Plan, the Shire has approximately 158,995 m<sup>2</sup> of footpaths, with 109,412 m<sup>2</sup> constructed from concrete ([Shire of Dandaragan](#)).

- ▶ **Signage and Lighting:** Maintenance of road signage and street lighting is part of the Works and Infrastructure team's responsibilities ([Shire of Dandaragan](#)).
- ▶ **Drainage Systems:** Proper drainage is maintained to ensure road longevity and safety.

### 5.8.2 Road Safety

Road safety in the RIA is a concern given the region's extensive road network and rural characteristics. While specific local crash statistics are not publicly detailed, broader data for the Wheatbelt region of WA highlight ongoing challenges related to road safety in this regional area.

According to the [WA Road Safety Statistics for the Wheatbelt Region](#) (2024), between 2019 and 2023, there were 2,604 reported crashes on roads in the Wheatbelt region. Of these, 24% resulted in at least one person being killed or seriously injured (KSI). During the same timeframe, there were 788 people KSI in reported crashes, including 134 fatalities and 654 people seriously injured. This equates to 208.9 people KSI per 100,000 population.

Of those 788 people KSI, 86% were occupants of motor vehicles, 12% were motorcyclists, and 2% were pedestrians. Almost two-thirds (65%) of people KSI were male, 35% were female and 1% had no sex recorded. The three most common age groups of people KSI were 20-29 years old (23%), 30-39 years old (14%), 50-59 years old (14%), 40-49 years old (12%).

People KSI were most often injured in hit object crashes (47%), followed by non-collision crashes (25%) and head on crashes (10%). These events most often occurred on 110 km/h sections of road (75%), followed by 50 km/h sections of road (6%), 100 km/h sections of road (6%) and then 90 km/h sections of road (4%). One in ten (10%) people KSI were involved in crashes at intersections. Over half (52%) of people KSI were involved in crashes on state roads, 43% were involved in crashes on local roads and the remaining 5% were involved in crashes on other types of roads, road-related areas or the location was not recorded.

Analysis of contributing behavioural factors indicate that 24% of people KSI were in crashes where fatigue was suspected to be a contributing factor. Another 24% of people KSI were in crashes where speed was suspected to be a contributing factor, followed by 9% who were in crashes where inattention was suspected to be a contributing factor. Additionally, 7% of motor vehicle occupants KSI were not wearing a seatbelt and 2% of motorcyclists KSI were not wearing a helmet.

The high levels of KSI incidents on local roads, including those that involved fatigue and speed, provide a cautionary tale with respect to effective ongoing heavy vehicle and traffic management as well as the location of housing and accommodation for workers involved in the proposed Project. It also shows that the Project will need to carefully consider its traffic safety management (policies and procedures) to ensure the safety of project workers and other local road users as workers move around the Project and local area. Limiting speed, distance travelled and avoiding high risk areas (such as school bus routes and high-traffic areas) will be important aspects to consider.

### 5.8.3 Infrastructure and Utilities

#### Water Supply

Water services in the Shire of Dandaragan are managed by the Water Corporation and are supplemented by local initiatives to enhance sustainability and resilience:

- ▶ **Scheme Water:** Towns such as Jurien Bay, Cervantes, and Dandaragan are connected to the state's scheme water network. However, events like bushfires can disrupt this supply, as seen in December 2022 when power outages affected water infrastructure, leading to advisories against relying solely on mains water during such emergencies ([Water Corporation](#)).
- ▶ **Irrigation Projects:** To alleviate pressure on scheme water, the Shire received \$85,000 for stage two of the Jurien Bay Irrigation Development Plan. This project aims to supply 200 kilolitres of water annually for non-potable uses, reducing reliance on potable water for irrigation. ([Western Australian Government](#))

- ▶ **Standpipes:** Regional standpipes are available for firefighting, stock watering, and emergency use. For instance, a high-flow standpipe is located at 2 Clark Street, Dandaragan ([Water Corporation](#)).

### Electricity

Electricity in the Shire is primarily supplied through the South West Interconnected System (SWIS), managed by Western Power. As previously noted, the region is also a hub for renewable energy projects:

- ▶ **Renewable Energy Projects:** The Shire hosts significant wind farms, including the Yandin Wind Farm, which contributes substantially to the state's renewable energy capacity. The region's consistent wind patterns make it ideal for such developments ([Alinta Energy](#)).
- ▶ **Grid Capacity:** While the area is suitable for renewable energy generation, there are challenges related to the transmission network's capacity to handle increased loads from new projects ([WA Government](#)).

### 5.8.4 Telecommunications

Telecommunications infrastructure in the Shire is expanding to improve connectivity for residents and businesses:

- ▶ **NBN Rollout:** The National Broadband Network (NBN) is being implemented across the Shire of Dandaragan. Satellite services are available in various areas, with Fibre to the Node planned for Jurien Bay and Cervantes. Fixed wireless broadband is also scheduled for Jurien Bay Heights and Alta Mare ([Shire of Dandaragan](#)).
- ▶ **Fixed Wireless Services:** Companies like [LogicIT](#) are constructing fixed wireless infrastructure in Jurien Bay, aiming to provide high-speed internet to the region.
- ▶ These services and upgrades are notably focused on the coastal towns.

Mobile phone coverage in the RIA varies across the region due to its expansive geography and diverse terrain.

#### **Telstra:**

- ▶ Offers the most extensive coverage in the Shire, particularly in towns like Jurien Bay, Cervantes, and Dandaragan.
- ▶ Provides 4G services in many areas, with some 5G availability in select locations.
- ▶ Coverage may diminish in remote or inland regions due to terrain and distance from towers.

#### **Optus:**

- ▶ Delivers solid coverage in populated areas, including Jurien Bay and Cervantes.
- ▶ 4G services are available in these towns, but coverage can be limited in more remote parts of the Shire.

#### **Vodafone:**

- ▶ Coverage is more limited compared to Telstra and Optus.
- ▶ Primarily serves urban centres; rural and inland areas may experience weaker signals or no coverage.

Further detailed, location-specific coverage information can be found in the [Mobile Coverage Australia](#) checker.

The Shire's vast area and varied topography contribute to inconsistent mobile coverage, especially in remote and inland regions. Natural obstacles like hills and vegetation can impede signal strength. To address these challenges, initiatives are underway to enhance infrastructure. In early 2025, a

development application was submitted for new towers aimed at improving internet and mobile phone coverage in the area.

### 5.8.5 Emergency Services and Disaster Preparedness

The Shire of Dandaragan has established comprehensive emergency services and disaster preparedness strategies to address various hazards, including motor vehicle accidents, bushfires, storms, floods, and coastal erosion.

The Shire is served by several volunteer fire and emergency services brigades:

- ▶ Cervantes Volunteer Fire and Emergency Services Brigade
- ▶ Dandaragan Volunteer Bushfire Brigade
- ▶ Badgingarra Volunteer Bushfire Brigade
- ▶ Hill River Volunteer Bushfire Brigade
- ▶ Jurien Bay Volunteer Fire & Rescue Service Brigade

These brigades are supported by Fire Control Officers and the Shire's Emergency Management Coordinator.

The Shire also collaborates with the Department of Biodiversity, Conservation and Attractions and the Department of Fire and Emergency Services on Local Emergency Management Arrangements (LEMA) including the development of a three-year mitigation plan covering the entire Shire. ([Shire of Dandaragan](#))

There are also the following risk management groups and plans to assist local disaster planning and preparedness strategies and activities within the RIA:

- ▶ **Hazard Reduction Working Group:** This multi-agency group focuses on bushfire risk mitigation through coordinated hazard reduction strategies. ([Shire of Dandaragan](#))
- ▶ **Coastal Hazard Risk Management and Adaptation Plan (CHRMAP):** Addressing the risks of coastal erosion in towns like Cervantes and Jurien Bay, the Shire has adopted CHRMAP in line with State Planning Policy 2.6.

### 5.8.6 Summary

The Shire of Dandaragan maintains a well-developed road infrastructure, with key upgrades such as the Dandaragan Road reconstruction improving regional connectivity. Despite this, public transport is limited, and most mobility relies on private vehicles and school bus routes. Ensuring minimal disruptions to local traffic flow and daily road travel will be an important consideration for the Project, particularly during construction. Regional road safety remains a concern, with high rates of serious crashes linked to speed, fatigue, and rural road conditions.

Utilities across the Shire are generally reliable, with towns connected to scheme water and electricity through the South West Interconnected System, although events like bushfires and blackouts can cause disruptions. Efforts to improve water resilience include local irrigation projects and emergency standpipes. Telecommunications are expanding through NBN rollout and fixed wireless development, though mobile coverage remains uneven, particularly in remote and rural areas.

Emergency services are robustly supported by local volunteer brigades and coordinated disaster planning through Local Emergency Management Arrangements, bushfire mitigation groups, and coastal hazard adaptation strategies. Together, these services enhance community preparedness and resilience to environmental and infrastructure challenges, but may require additional ongoing support to maintain these levels in the face of multiple new project developments.

### 5.8.7 Potential Vulnerabilities

Based on the social baseline assessment, the following potential vulnerabilities have been identified with respect to the local infrastructure:

- ▶ **High regional road safety risk:** Elevated rates of serious crashes linked to speed, fatigue, and rural road conditions.
- ▶ **Limited public transport:** Absence of regular bus services increases reliance on private vehicles and school transport.
- ▶ **Construction traffic impacts:** Potential disruption to local traffic flows, including school bus routes and high-risk areas.
- ▶ **Water supply disruptions:** Vulnerability to bushfire and blackout events affecting mains water access.
- ▶ **Electricity grid constraints:** Potential limitations on integrating additional renewable energy capacity.
- ▶ **Inconsistent mobile coverage:** Patchy telecommunications in remote and inland areas could affect project operations and safety.
- ▶ **Emergency service reliance on volunteers:** High dependence on local volunteer brigades for fire and disaster response.
- ▶ **Exposure to environmental hazards:** Risks from bushfires, storms, floods, and coastal erosion require ongoing mitigation and preparedness.

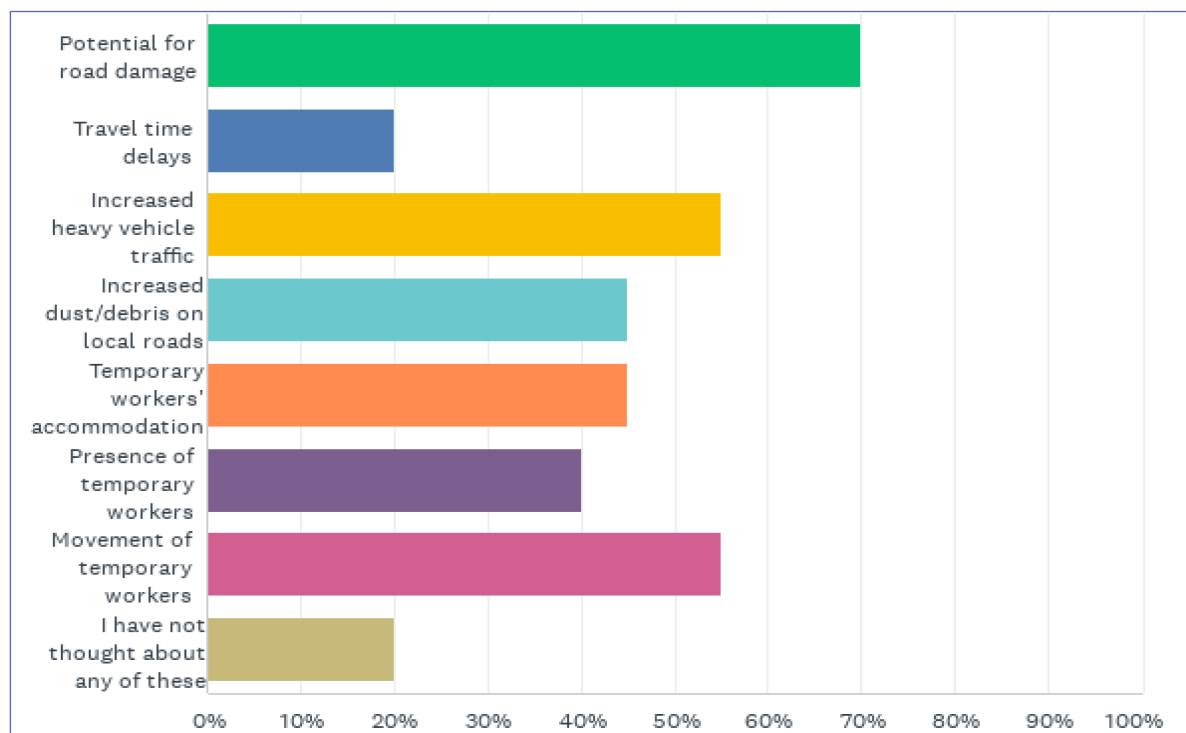
### 5.8.8 Community Perceptions and Stakeholder Feedback

Results from the study's community perceptions survey suggest that 70% of respondents are concerned about potential for road damaged caused by the Project, with another 55% concerned about heavy vehicle traffic in the area, 55% concerned about the movement of temporary construction workers around the local region, 45% concerned about dust and debris on local roads and 20% concerned about travel time delays. Furthermore, 45% were concerned about impacts on local water supply and drainage, 55% concerned about strain on local emergency services and 40% on local utility services.

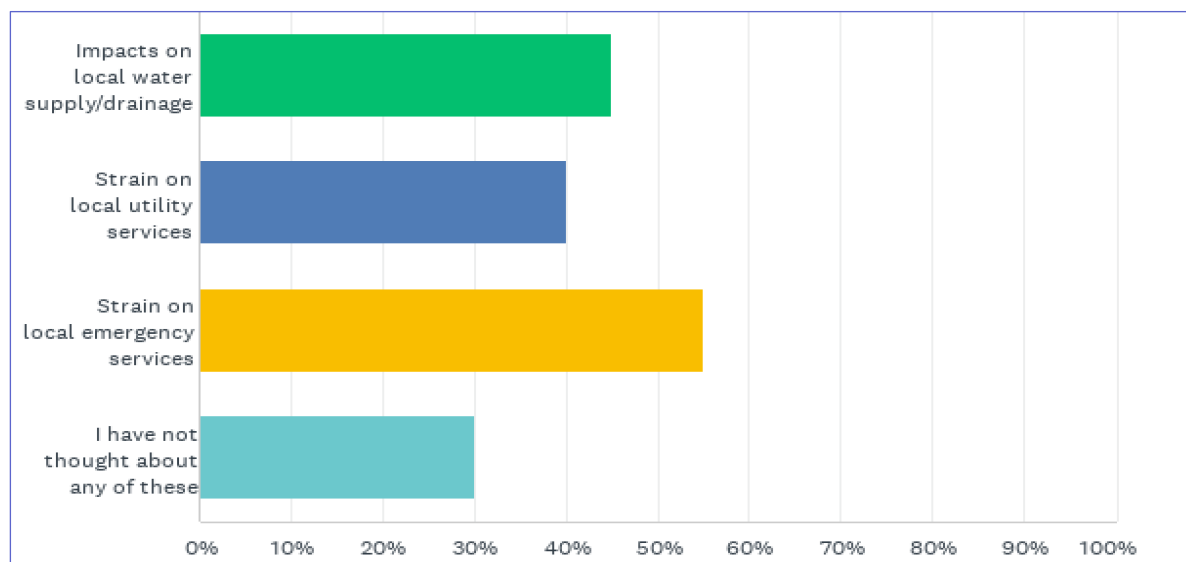
During stakeholder consultation interviews, landowners and community members also expressed concerns about ongoing traffic impacts, additional strain on emergency services and impacts of temporary construction workers (including where they will be accommodated). Concerns were also voiced about the potential impacts of change meteorological conditions as a result of wind turbines and increased risk of bushfire events.



**FIGURE 14: RESPONSES TO THE SURVEY QUESTION “WHAT ISSUES ARE TOP OF MIND FOR YOU (IF ANY) REGARDING POTENTIAL IMPACTS OF TEMPORARY WORKERS AND THE CONSTRUCTION PHASE ON ROAD USE AND TRAFFIC?”**



**FIGURE 15: RESPONSES TO THE SURVEY QUESTION “WHAT ISSUES ARE TOP OF MIND FOR YOU (IF ANY) REGARDING IMPACTS ON LOCAL INFRASTRUCTURE DURING WIND FARM CONSTRUCTION?”**



## 5.8.9 Preliminary Impact Assessment

### Traffic Impacts

The following data is taken from the preliminary traffic impact assessment conducted by Aurecon in August 2025. The study identified the following key findings:

- ▶ **Primary Access:** Brand Highway is the highest-order road providing access into the general area of the sit. The primary intersection from Brand Highway is proposed via either Dandaragan Road or Gillingarra Road—both Shire-managed roads, which then connect directly to project-specific private access roads, or via other lower order local roads (owned by the Shire) and then project-

specific private access roads. Final selection of primary intersection is pending further investigation.

- ▶ **Local Road Network:** Several Council roads will support internal site access, including Koodjee, Moochamulla, Walyer Walyer, Walyoo, and Rowes Roads. Some sections are unsealed or narrow and will require upgrades or condition reporting.
- ▶ **Traffic Volumes:** Existing traffic volumes on the roads surrounding the site are low, though school buses and agricultural vehicles are present.
- ▶ **Construction Impact:** The proposed construction activities identified by this study are expected to add a reasonably small amount of traffic. A daily total of 80 light, 181 heavy, and 8 OSOM vehicle trips (return i.e. in and out) are estimated during the peak of the construction period, which will access various locations dispersed across the site (i.e. not all using the same internal access point). Peak hour traffic during construction is estimated at 40 light, 15 heavy and one OSOM trips.
- ▶ **Operational & Decommissioning Phases:** The site is expected to generate lower traffic volumes during both operational and decommissioning phase compared to the construction period. Decommissioning impacts will be assessed in a future TIA.
- ▶ **Site Access Design:** Both potential access points will require vegetation clearing and temporary hardstands. If Gillingarra Road is selected as the main access road for the Project, this would necessitate upgrades including the intersection with Brand Highway (subject to further consultation).
- ▶ **Internal Layout:** Key intersections and vegetation conflicts within the internal road network have been reviewed. Further refinement and swept path analysis will be undertaken in later stages of the design.
- ▶ **Oversize Transport:** Blade transport vehicles (up to 103.1 m in length) and tower components require route planning with overhead clearance up to 6.8 m. Port-to-site routes from Geraldton and AMC Ports have been identified, with potential modifications required across key turns along each route.
- ▶ **Approvals & Coordination:** Engagement with Main Roads, the City of Greater Geraldton, and other asset owners will be necessary for route approvals and infrastructure modifications.
- ▶ **Traffic Management:** An Oversize Overmass (OSOM) Traffic Management Plan must be approved by HVS prior to component delivery. A Mass Only Assessment will also be required for super-loads once determined (to be submitted to Main Roads HVS).

The Marri Wind Farm is expected to generate moderate traffic impacts during construction, with minimal long-term operational effects. With appropriate planning, road upgrades, and coordination with relevant authorities, the Project's transport requirements can be effectively managed.

### *Water Supply*

The proposed wind farm development is likely to place increased demand on the Shire of Dandaragan's water supply system, particularly during the construction phase. While scheme water is generally reliable in towns such as Jurien Bay, Cervantes, and Dandaragan, the system has shown vulnerability during emergencies—for instance, the 2022 bushfires disrupted pumping due to widespread power outages. The additional water required for construction personnel and machinery may increase the risk of service disruption, especially during extreme weather events. Existing measures such as emergency standpipes provide some resilience, but further planning and coordination with the Water Corporation may be necessary to ensure adequate supply during peak periods.

### *Electricity Supply and Grid Capacity*

Electricity in the region is delivered via the South West Interconnected System (SWIS), and the Shire already hosts several renewable energy projects. However, grid transmission limitations present a

significant constraint for the integration of new projects. This could affect the feasibility and design of the proposed wind farm, particularly in terms of grid connection and power export capacity. Delays or additional costs could arise if infrastructure upgrades are required or if there is insufficient coordination with Western Power and other energy planning bodies.

### **Telecommunications**

Telecommunications infrastructure across the Shire has been improving through the expansion of the NBN and local fixed wireless investments. Nonetheless, gaps in coverage remain—particularly in remote or inland areas where environmental barriers limit signal strength. Peak construction activity may place additional strain on mobile and internet networks, potentially impacting worker communication, remote operations, and emergency response. A development application for a new telecommunications tower near the project site, submitted in early 2025, may offer some relief. However, interim solutions should be considered to ensure reliable connectivity during all phases of the project.

Additionally, the following data provides a summary of the preliminary findings of the telecommunications impact assessment conducted by Aurecon in August 2025:

Two fixed-licence telecommunication towers were identified within 2 (km) of the Project. One is within the site boundary ~0.9 km from the nearest turbine, and Aurecon has calculated that near field interference is expected, and scattering/reflection will most likely occur. The other tower is northwest of the site ~1.9 km from the nearest turbine, and although scattering/reflection for this tower is considered unlikely, Aurecon recommends consulting with the owner of all the licences associated with both towers to determine whether any impacts are expected.

Four licensed towers are located within 20 km of the Project, and interference may occur if communications from these towers cross the Project. It is recommended to consult with the licence operators identified to confirm whether their communications may be impacted.

There are six point-to-point link signals crossing the Project boundary, of which five have potential to be impacted. One link is expected to be impacted by the proposed turbine layout. The owner of this licence (St John Ambulance WA) should be contacted to determine if it is still in use and if any interference is expected.

If so, the affecting turbines may need to be re-positioned. Additionally, Aurecon notes that there are 14 turbines which may cause interference to one or more links if moved within their 300 m micro-siting zones. Therefore, mitigation may also be required if these turbines are moved.

Five broadcasting locations are within 2 km of a turbine, so interference may occur for the point-to-area licences from this site. Three of these are located within the Project boundary. Aurecon recommends consulting with the licence owners and mitigation such as relocating the transmission tower may be required.

Several dwellings are near or within no coverage areas for all mobile networks (Optus, Telstra, and Vodafone) that are available in the area around the Project, and may experience reduced signal resultant of the Project. It is recommended to contact Optus, Telstra, and Vodafone to seek feedback on any potential impact that the Project could have on their services, and if required confirm what mitigation options are available for users, such as a signal amplifier.

Wireless internet for several dwellings within the Project and northeast of the Project may be affected, and mitigation such as switching to satellite broadband may be recommended. Digital television broadcasting transmitters are expected to be impacted by the Project, and therefore a reduced and/or interrupted signal may impact dwellings identified surrounding the Project. Mitigation options to improve signal could include installation of an upgraded antenna or signal booster, or satellite television.

### **Emergency Services and Disaster Preparedness**

The Shire has a well-coordinated network of volunteer emergency services, supported by formal emergency management arrangements and inter-agency planning. However, the scale and nature of

wind farm construction—such as the transport of oversized components and use of heavy equipment—will likely elevate risks related to fire, accidents, and other emergencies. This could place significant additional pressure on local volunteer brigades. The Project must therefore implement rigorous emergency management protocols, fire prevention measures, and work closely with local brigades, the Department of Fire and Emergency Services, and the Shire's Emergency Management Coordinator to ensure adequate preparedness.

### **Cumulative Infrastructure Considerations**

Taken together, these potential impacts highlight the need for a comprehensive approach to infrastructure and utilities planning for the proposed development. While the Shire's infrastructure is generally reliable, it remains vulnerable to capacity constraints and climate-related disruptions. Proactive planning, coordination with relevant service providers, and targeted mitigation measures will be essential. If managed well, the wind farm can also support regional resilience by co-investing in infrastructure improvements—particularly in telecommunications and water supply—that benefit both the Project and the broader community.

### **5.8.10 Summary**

The proposed Marri Wind Farm will interact with several key infrastructure systems within the Shire of Dandaragan, including water supply, electricity, telecommunications, and emergency services. While existing infrastructure is generally robust, the scale and demands of wind farm construction—particularly in remote areas—may amplify existing vulnerabilities. Water supply systems could face increased pressure during peak construction, particularly in emergency scenarios. Electricity grid limitations may affect the project's integration into the SWIS network, while gaps in telecommunications coverage could hinder communication and safety. Additionally, the increased risk profile associated with heavy construction and transport may strain volunteer emergency services.

Cumulatively, these pressures underscore the importance of coordinated planning and early engagement with infrastructure providers. With targeted investment and proactive collaboration, the Project also has the potential to support longer-term regional resilience through co-investment in critical upgrades. The Project's mitigation measures outline strategies to manage these risks and ensure that infrastructure capacity is maintained or enhanced throughout the Project lifecycle.

**TABLE 36: INFRASTRUCTURE AND UTILITIES PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigation		Prelim Impact Rating
				Magnitude	Sensitivity	
I028	Project has potential to negatively impact local traffic and road conditions	C, D	D	Moderate	Medium	<b>Moderate</b>
I029	Project has potential to place strain on local water supply systems	C, O, D	D	Moderate	Medium	<b>Moderate</b>
I030	Project has potential to experience electricity grid capacity constraints for project integration	C, O	D	Moderate	Medium	<b>Moderate</b>
I031	Project has potential to experience telecommunication gaps and interference, impacting weather forecasts, safety and local residents	C, O, D	D	Moderate	Medium	<b>Moderate</b>
I032	Project has potential to increase demand on emergency services	C, O, D	D	Moderate	Medium	<b>Moderate</b>
I033	Project has potential to exacerbate cumulative infrastructure demands	C, O, D	D	Moderate	Medium	<b>Moderate</b>

### 5.8.11 Proposed Mitigation Measures

The following mitigation measures are recommended to address the Project's infrastructure impacts:

**TABLE 37: INFRASTRUCTURE AND UTILITIES IMPACT MITIGATION MEASURES**

No.	Mitigation Measure	Linked Impact / Opportunity
M048	Undertake detailed traffic and access planning in consultation with Main Roads WA, the Shire of Dandaragan, and other asset owners, including selection of the primary intersection, required road upgrades, condition reporting, vegetation clearing approvals, and internal road design refinements.	I028
M049	Develop and implement a comprehensive Traffic and Transport Management Plan covering construction traffic, OSOM/heavy vehicle route planning, swept path analysis, approvals from Main Roads HVS, Mass Only Assessments, and measures to manage interactions with school buses and agricultural vehicles. Establish a community communications channel for traffic-related updates, notifications and concerns.	I028
M050	Implement a Construction Traffic Safety and Road Maintenance Program that designates haulage routes, avoids school bus routes/peak times where possible, applies speed restrictions and temporary signage, enforces driver fatigue management, schedules deliveries outside school drop-off/pick-up periods, and monitors/repairs local roads in partnership with the Shire.	I028
M051	Undertake pre-construction road condition assessments with Main Roads WA and the Shire, formalise a Road Use Agreement covering required upgrades and rehabilitation, and utilise modular/portable access roads where feasible to minimise impacts on the local road network.	I028
M052	Provide shuttle services or pooled transport for construction workers where possible.	I028
M053	Ensure that water sources used for construction and operations are appropriately licenced, monitor usage to prevent over-usage.	I029
M054	Assess grid connection capacity with Western Power and plan for upgrades.. Consider any options for local electricity discounts and distribution improvements to strengthen perceptions of equitable benefit sharing.	I030
M055	Consult and coordinate with all relevant telecommunications licence holders, emergency service operators, and mobile/internet/TV providers (e.g., Optus, Telstra, Vodafone, St John Ambulance WA, Bureau of Meteorology) to identify potential interference impacts, confirm current service use, and agree on mitigation or adjustment requirements.	I031
M056	Implement technical measures as required to address confirmed interference impacts, including re-positioning turbines, relocating or upgrading transmission equipment, installing signal amplifiers/boosters, or supporting alternative service delivery methods (e.g., satellite broadband or TV).	I031
M057	Develop and implement a comprehensive Project Emergency Management Plan aligned with local arrangements, incorporating fire safety training and equipment for high-risk periods, contributions of resources (e.g., funding, equipment) to local emergency services, and proactive sharing of workforce data, site layouts, and access maps with relevant agencies.	I032; I033

### 5.8.12 Residual Impact Assessment

Assuming that the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 38 outlines the likely residual infrastructure impacts from the Project.

**TABLE 38: INFRASTRUCTURE AND UTILITIES RESIDUAL IMPACT ASSESSMENT**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I028	Project has potential to negatively impact local traffic and road conditions	Minor	Low	Negligible
I029	Project has potential to place strain on local water supply systems	Negligible	Low	Negligible
I030	Project has potential to experience electricity grid capacity constraints for project integration	Negligible	Low	Negligible
I031	Project has potential to experience telecommunication gaps and interference, impacting weather forecasts, safety and local residents	Negligible	Low	Negligible
I032	Project has potential to increase demand on emergency services	Minor	Low	Negligible
I033	Project has potential to exacerbate cumulative infrastructure demands	Negligible	Low	Negligible
O008	Project provides opportunities to strengthen regional infrastructure	Beneficial	Medium	Moderate Positive

## 5.9 Social Cohesion and Community Values

### 5.9.1 Community Networks

The presence of local community organisations, clubs and sporting associations within the LIA helps to strengthen local community bonds and networks. They can also offer local residents avenues to connect with each while engaging in activities that promote positive physical and mental wellbeing. The following section provides an overview of current community organisations within the main five towns of the LIA.

#### Dandaragan

Dandaragan reflects a robust and well-networked community structure. The presence of multiple community organisations—such as the Dandaragan Community Resource Centre (CRC), Arts Council, Cottage Craft Group, Playgroup, and Advance Dandaragan—provides a diverse range of social, creative, and developmental activities. The town also supports a wide array of sporting clubs and recreational infrastructure, contributing to physical wellbeing and community connection.

Key organisations include:

- ▶ **Dandaragan Community Resource Centre (CRC):** Serving as a central hub, the Dandaragan CRC offers a range of services including computer and internet access, video conferencing, educational programs, and Shire services. It also hosts visiting professionals and community events, supporting the economic, social, and business needs of the region.
- ▶ **Dandaragan Community Centre:** serves as a central venue for local events, meetings, and activities, providing facilities that support social, cultural, and recreational engagement within the community
- ▶ **Dandaragan Club:** offers as a local social and recreational venue that provides a gathering place for residents, offering facilities and activities that support community interaction, leisure, and events
- ▶ **Dandaragan Arts Council:** This group promotes and encourages appreciation of the arts within the community by organising programs, workshops, and events.



- ▶ **Cottage Craft Group:** A community group focused on crafting activities, promoting creativity and social interaction.
- ▶ **Playgroup and P&C Association:** Supports early childhood development and parental involvement through organised activities and events.
- ▶ **Advance Dandaragan:** A ratepayer group dedicated to the town's development and community engagement.

### Badgingarra

Badgingarra is a tightly-knit community with essential infrastructure like the Community Centre and a well-established CWA branch. These spaces foster regular interaction, support, and intergenerational connection. Community resilience is further bolstered by active church involvement, playgroups, and junior sporting clubs. Recreational and sporting clubs—including golf and bowling—serve as important social anchors that encourage regular participation and community building.

Key organisations include:

- ▶ **Badgingarra Community Centre:** A focal point for community activities, the Centre provides facilities for events, meetings, and health services. It also serves as a venue for various community groups and functions.
- ▶ **Badgingarra Community Association:** run by a volunteer-led Community Centre Management Committee, comprised of local residents, this organisation supports and coordinates local events, sports, recreational activities, and social groups.
- ▶ **Badgingarra Playgroup:** Operated by parent volunteers, this group offers a regular meeting place for young children and their families, focusing on social development and fun learning opportunities.
- ▶ **Badgingarra Branch of the Country Women's Association (CWA):** This branch aims to improve conditions for people in rural areas, focusing on community support, fundraising, and knowledge sharing. Meetings are held monthly and are open to women of all ages.
- ▶ **Badgingarra Anglican Church:** Part of the Parish of the Turquoise Coast, the church holds monthly services and is involved in various community activities.

### Gingin

Gingin showcases a highly organised civic environment, with a broad spectrum of volunteer-driven groups and service organisations. These include the CRC, Men's Shed, Red Cross, Lions Club, and environmental advocacy groups, reflecting strong networks that address both social inclusion and sustainability. The town's numerous sporting clubs enhance communal life and promote cohesion through regular interaction and community pride.

Key organisations include:

- ▶ **Gingin District Community Resource Centre (CRC):** A non-profit, community-run hub offering information, training, government services, and social inclusion programs
- ▶ **Gingin Men's Shed:** A supportive space for men to connect, share skills, and work on hands-on projects.
- ▶ **Gingin Pensioners Social Club Inc:** Organises social days and meetings for senior residents.
- ▶ **Gingin Playgroup:** Provides early childhood play sessions and parental support.
- ▶ **Gingin Red Cross:** Engages in local humanitarian activities and community support.
- ▶ **Gingin-Chittering Lions Club:** A service club focused on community development and support.
- ▶ **Gingin Water Group:** Advocates for sustainable water resource management in the region.
- ▶ **Gingin Museum & Historical Society Inc.:** Preserves and promotes the local history and heritage of Gingin.

### Moora

Moora is distinguished by its diverse organisational landscape, featuring both cultural (e.g. Performing Arts Centre, Historical Society) and service-oriented groups (e.g. Rotary, Lions, Youth Centre). This suggests a community that values education, intergenerational inclusion, and regional development. Sporting clubs like cricket, swimming, and golf, in conjunction with environmental groups, further highlight the town's resilience through collaboration and recreation.

Key organisations include:

- ▶ **Moora Community Resource Centre (CRC):** Provides access to government services, community information, and hosts various events and activities.
- ▶ **Moora Lions Club:** Engages in community service projects and local fundraising initiatives.
- ▶ **Rotary Club of Moora:** Focuses on community development and international service projects.
- ▶ **Moora Men's Shed:** Provides a space for men to connect, share skills, and work on projects.
- ▶ **Moora Youth Centre:** Offers programs and activities for youth engagement and development.
- ▶ **Moora Historical Society:** Preserves and promotes the local history of Moora.
- ▶ **Moora Performing Arts Centre:** Hosts various cultural and artistic events.
- ▶ **Moore Catchment Council:** Focuses on environmental conservation and sustainable land management.
- ▶ **Central Midlands Agricultural Society:** Organises agricultural events and supports local farming communities.

### Lancelin

Lancelin maintains a vibrant and resilient community profile. The CRC doubles as both a service provider and social hub, and the Lancelin District Community Association leads efforts to enhance live-ability and tourism. Health-focused groups and the Chamber of Commerce contribute to both wellbeing and economic resilience. Sporting clubs and the annual Buskers Festival reflect active community engagement and cultural vitality.

Key organisations include:

- ▶ **Lancelin Community Resource & Visitor Centre (CRC):** Provides services including Centrelink and Medicare assistance, printing, internet access, tourist information, and a gift shop featuring local products.
- ▶ **Lancelin District Community Association (LDCA):** Focuses on enhancing regional amenities and promoting tourism. Organises the annual Lancelin Buskers Festival.
- ▶ **Lancelin Healthy Community Forum:** Aims to support and improve the health and wellbeing of the local community. Engages in initiatives related to food security and community health.
- ▶ **Lancelin Chamber of Commerce and Industry (LCCI):** Dedicated to fostering economic growth and promoting local businesses. Offers networking events and information sessions for business development.

## 5.9.2 Community Sport and Recreation Clubs and Facilities

The townships of Dandaragan and Badgingarra offer the following community sport and recreation facilities and clubs:

### Dandaragan Facilities

- ▶ **Dandaragan Community Recreation Centre:** Situated at the JC Grieve Sportsground, this facility accommodates a range of sports and cultural activities. Features include an oval suitable for football and cricket, tennis courts, netball courts, and a synthetic bowling green.

- ▶ **Dandaragan Golf Club and Course:** An 18-hole golf course is available for enthusiasts, providing a venue for both casual play and organized competitions.
- ▶ **Pioneer Park:** A central community space featuring a playground, BBQ facilities, and the historic rotunda, serving as a gathering point for families and events.

### **Dandaragan Clubs**

- ▶ **Dandaragan Football Club (The Saints):** Competes in the Central Midlands Coastal Football League. Achieved premierships in 1994, 2007, and most recently in 2024.
- ▶ **Dandaragan Bowling Club:** Utilises the synthetic bowling green at the Community Recreation Centre for regular games and tournaments.
- ▶ **Dandaragan Tennis Club:** Hosts social and competitive tennis matches on the local courts.
- ▶ **Dandaragan Netball Club:** Engages members in netball activities, fostering community participation and fitness.

### **Badgingarra Clubs**

- ▶ **Badgingarra Bowling Club:** Established in 1979, this volunteer-run club features a synthetic playing surface and a retractable shade system. It's affiliated with the Central West Coast Bowling League, alongside clubs from Cervantes, Dandaragan, Jurien Bay, and Leeman.
- ▶ **Badgingarra Golf Club:** An 18-hole public course located near Badgingarra National Park, offering a scenic golfing experience in the wheatbelt region.
- ▶ **Badgingarra Junior Sports Club Inc.:** A registered organisation focusing on youth sports development within the community.

## **5.9.3 Sporting Clubs in Other Towns in the Local Impact Area**

The townships of Moora, Gingin and Lancelin offer the following community sporting and recreational clubs and facilities:

- ▶ Gingin Football Club
- ▶ Gingin Netball Club
- ▶ Gingin Hockey Club Inc
- ▶ Gingin Golf Club
- ▶ Gingin Bowling Club
- ▶ Gingin Tennis Club
- ▶ Moora Bowling Club
- ▶ Moora Knights Cricket Club
- ▶ Moora Lakeview Golf Club
- ▶ Moora Swimming Club
- ▶ Lancelin Community & Sporting Club Inc
- ▶ Lancelin Pirates Football Club

## **5.9.4 Volunteering in the Regional Impact Area**

Volunteering is an important indicator of community engagement and cohesion. As of the 2021 Census, the Shire of Dandaragan reported that 24.4% of its population aged 15 and over engaged in voluntary work through an organisation or group. This participation rate is notably higher than the average for Regional Western Australia, indicating a strong culture of community involvement within the Shire.

In comparison, the Shire of Gingin had a volunteering rate of 19.5% among its residents aged 15 and over. While this is slightly lower than Dandaragan's rate, it still surpasses the average for Greater Perth, reflecting a commendable level of civic engagement. Specific volunteering rates for the towns of Moora, Badgingarra, and Lancelin are not readily available, however, these communities host various volunteer-driven organisations, such as community resource centres, emergency services, and social clubs, suggesting active participation in volunteer activities.

Overall, the Shire of Dandaragan demonstrates a particularly high rate of volunteering, underscoring the community's commitment to civic engagement and mutual support.

### 5.9.5 Community Connectivity and Resilience

When viewed collectively, the communities within the LIA exemplify strong community cohesion, connectedness, and resilience. This is evident through the presence of diverse community organisations, active sporting associations, and high levels of volunteer participation. These attributes align with known resilience principles which emphasise the importance of social networks, adaptive capacity, and inclusive participation in fostering resilient communities.

- ▶ **Social Networks and Connectedness:** Each town hosts a variety of community organisations and clubs that serve as hubs for social interaction and support. For instance, Dandaragan's Community Resource Centre (CRC), Arts Council, and various sports clubs provide residents with opportunities to engage, collaborate, and build strong social ties. Similarly, Badgingarra's Community Centre and CWA branch, Gingin's CRC and environmental groups, Moora's Lions and Rotary Clubs, and Lancelin's CRC and community associations facilitate community engagement and cohesion.
- ▶ **Adaptive Capacity and Local Leadership:** The presence of diverse organisations and volunteer-driven initiatives indicates a high level of local leadership and the ability to adapt to changing circumstances. These communities have demonstrated resilience by organising events, supporting local development projects, and maintaining active participation in civic activities. Such adaptability is crucial for communities to navigate socio-economic transitions and potential social and environmental challenges effectively.
- ▶ **Inclusive Participation and Volunteerism:** The Shire of Dandaragan reports a volunteering rate of 24.4% among residents aged 15 and over, surpassing the average for Regional Western Australia. Shire of Gingin also exhibits a commendable volunteering rate of 19.5%. The existence of numerous volunteer-led organisations suggests active civic participation across these towns. Inclusive participation ensures that diverse community voices contribute to decision-making processes, enhancing social equity and resilience.

In summary, the LIA communities demonstrate robust resilience characteristics through strong social networks, adaptive local leadership, and inclusive participation. These attributes not only contribute to the well-being of residents but also position these communities to effectively manage and thrive amidst future challenges and opportunities.

### 5.9.6 Potential Vulnerabilities

Based on the social baseline assessment, the following potential vulnerabilities have been identified with respect to social cohesion and community values:

- ▶ **Reliance on volunteer-led services:** Heavy dependence on volunteer participation may strain capacity during periods of high demand.
- ▶ **Ageing volunteer base:** Risk of reduced capacity if younger generations do not replace retiring volunteers.
- ▶ **Uneven service provision:** Smaller towns may have fewer community facilities and organisations, limiting access to programs and activities.
- ▶ **Sustainability of community organisations:** Volunteer fatigue, funding pressures, or loss of key leaders could threaten continuity of services.

- ▶ **Capacity for crisis response:** While networks are strong, small population size may limit surge capacity in responding to large-scale or prolonged emergencies.

### 5.9.7 Community Perceptions and Stakeholder Feedback

Results from the study's community perceptions survey suggest that 35% of respondents believe the Project strengthen the local community, while 20% think it will have a neutral impact and 35% expect it will reduce social cohesion. Furthermore, appropriate community benefit sharing was listed as "top of mind" for 40% of respondents.

During stakeholder consultation interviews, landowners and community members raised ongoing concerns about the equitable distribution of economic benefits through the community benefits sharing scheme. Concerns were also raised about the potential for the unevenness of financial incentives given to landowners, when compared with neighbouring properties and non-benefiting local residents, to cause tension within the small local community, with one landowner noting that they had already lost friends as a result of their involvement with the project. The bulk of the financial benefits were seen to be going to already relatively wealthy farming properties when compared to others in the community.

### 5.9.8 Preliminary Impact Assessment

The introduction of a large-scale wind farm development in the Local Impact Area (LIA) has the potential to both enhance and challenge the fabric of local community life. This section outlines the likely impacts—both positive and negative—on social cohesion and community values and highlights key considerations for managing these dynamics throughout the project lifecycle.

#### *Strengthening Community Networks and Civic Participation*

Wind farm developments often include community benefit schemes that can provide tangible support to local organisations, sporting clubs, and volunteer-run initiatives. In this context, dedicated funding may be used to upgrade infrastructure, expand community programs, or even establish new groups that reflect shared community goals and values. Such investment can foster stronger community networks and create new opportunities for collaboration across different segments of the population.

Moreover, hosting a renewable energy project has the potential to enhance local identity and pride. In communities with an existing focus on environmental stewardship or innovation, the presence of a wind farm may be viewed as an extension of those values. Where community members are meaningfully involved in project planning, monitoring, or consultation processes, the Project may deepen residents' sense of ownership, belonging, and purpose. Volunteerism and civic engagement can also be bolstered through strategic partnerships, particularly where proponents provide ongoing support to community development initiatives.

#### *Risks of Division and Disconnection*

Conversely, the introduction of a large infrastructure project may generate social division within the community. Differing views on the project's merits—such as perceived economic benefits versus environmental or visual impacts—can create friction between residents, landowners, and community groups. In small or close-knit communities, such divisions can erode trust and unity, potentially leading to long-term resentment or disengagement.

There is also a risk that the Project could overburden existing community infrastructure if not carefully managed. A temporary influx of construction workers or new residents may place additional pressure on local sporting facilities, meeting halls, and social clubs, particularly those already operating at capacity or reliant on volunteers. Without appropriate planning or support, this could lead to wear on infrastructure, volunteer burnout, or reduced access for local residents.

In communities with a strong sense of local identity, decision-making processes perceived as top-down or exclusionary can contribute to feelings of alienation or cultural displacement. If residents believe their concerns are not genuinely considered or reflected in project outcomes, this may damage the relationship between the proponent and the wider community, undermining social license and long-term support for the development.

### 5.9.9 Summary

Overall, the social cohesion impacts of the proposed wind farm will depend largely on how the Project engages with the community, supports local values, and equitably distributes benefits. Proactive and transparent engagement, targeted support for local infrastructure and volunteer groups, and inclusive decision-making processes will be essential for maintaining trust, unity, and social wellbeing throughout the life of the Project.

**TABLE 39: SOCIAL COHESION PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Phase of Project (C, O, D)	Direct or Indirect (D or I)	Prior to Mitigation		Prelim Impact Rating
				Magnitude	Sensitivity	
I034	Project has potential to create social division caused by differing community views and values	C, O, D	D	Minor	Medium	Minor
I035	Project has potential to cause strain on local infrastructure and volunteer capacity	C, O, D	D	Moderate	Medium	Moderate
I036	Project has potential to create loss of community trust from top-down decision-making	C, O, D	D	Moderate	Medium	Moderate
I037	Project has potential to create tension caused by limited transparency in benefit sharing	C, O, D	D	Minor	Medium	Minor

### 5.9.10 Proposed Mitigation Measures

To protect and promote community cohesion and resilience throughout the project lifecycle, the following mitigation and enhancement measures are recommended:

**TABLE 40: SOCIAL COHESION IMPACT MITIGATION MEASURES**

No.	Mitigation Measure	Linked Impact / Opportunity
M058	Develop a Stakeholder Engagement and Communication Strategy including updates, drop-in sessions, and feedback loops.	I034; I036
M059	Appoint a Community Liaison Officer and look to create a Community Reference Group (CRG) with broad representation using existing local community organisations and communication channels that do not overburden already busy local community members. Consider having a CRG that works across multiple wind farm projects in the area to further reduce additional input/engagement burdens on the local community.	I034; I036
M060	Establish a transparent and well-governed community benefit fund that supports local organisations, clubs, and volunteer groups. Allocation should be guided by locally identified priorities and include community representation on decision-making bodies. Explore options for community co-investment or equity participation models to ensure local residents can share directly in long-term financial returns.	I037
M061	Implement culturally sensitive and inclusive consultation strategies throughout all phases of the Project. Engagement should include diverse stakeholders. Particular consideration should be given to offering virtual information sessions and in person sessions in Moora when engaging with First Nations peoples.	I034; I036
M062	Develop guidelines to foster respectful integration of non-local workers into the community, including behavioural expectations, participation in local events, and support for local businesses and activities. Include-company supported worker volunteer hours (similar to existing Iluka model).	I034
M063	Incorporate regular social monitoring into the Project's impact management framework. Indicators may include participation in clubs, volunteer levels, community satisfaction, and conflict resolution data.	I034; I035



Enhancements		
E008	Encourage the participation of local residents and volunteers in project-related roles, such as community liaisons or sustainability ambassadors. Where feasible, provide recognition or financial support for community organisations supporting integration efforts.	I035; O010
E009	Collaborate with local governments and consider how community benefit sharing funds can support the appropriate use, maintenance, and enhancement of community spaces and social infrastructure.	I035; O009

### 5.9.11 Residual Impact Assessment

Assuming that the abovementioned mitigation measures and enhancement activities have been successfully implemented, Table 41 outlines the likely residual social cohesion impacts from the Project.

**TABLE 41: SOCIAL COHESION PRELIMINARY IMPACT ASSESSMENT**

No.	Impact Description	Residual Impact Post Mitigation Measures		Residual Impact Rating
		Magnitude	Sensitivity	
I034	Project has potential to create social division caused by differing community views	Negligible	Low	Negligible
I035	Project has potential to cause strain on local infrastructure and volunteer capacity	Negligible	Low	Negligible
I036	Project has potential to create loss of community trust from top-down decision-making	Negligible	Low	Negligible
I037	Project has potential to create tension caused by limited transparency in benefit sharing	Negligible	Low	Negligible
O009	Project has potential to strengthen local networks through community benefit sharing	Beneficial	Medium	Moderate Positive
O010	Project has potential to increase volunteerism and civic participation	Beneficial	Medium	Moderate Positive

## 6. Cumulative Impacts

### 6.1 Cumulative Social Impacts

The concurrent or sequential development of multiple wind farm projects within the RIA has the potential to generate cumulative social effects that extend beyond those associated with individual projects. Overlapping construction phases may lead to increased traffic, dust, and noise, with associated impacts on rural amenity, perceived safety, and daily activities. This may be particularly impactful during seasonal agricultural activity and peak tourism times. Representatives from the Shire of Dandaragan indicated the possibility that there could be several wind farm developments in construction in the RIA within the same 5-year window. If this were to occur, it is likely that all of the impacts noted for the Project may compound to overwhelm community resilience and local resources.

The repetition of consultation and engagement processes across multiple developments can contribute to community fatigue, and there is some evidence that this is already occurring, potentially demonstrated by the low community attendance at Project information sessions and engagements. Differing perceptions of benefit and burden may exacerbate social division between turbine-hosting landholders and other residents. These dynamics may weaken social cohesion if not appropriately managed.

## 6.2 Cumulative Economic Impacts

From an economic perspective, multiple wind farm projects may deliver significant medium-term benefits through increased local procurement, contracting, and employment opportunities. However, concurrent workforce demands will also place pressure on regional housing markets, with flow-on effects for affordability and availability of accommodation for local households and workers. Agricultural operations may be disrupted by overlapping construction activities, including increased heavy vehicle movements and associated impacts on transport routes and livestock. Local governments may also face increased costs related to road maintenance and service provision if cumulative project impacts are not adequately addressed through negotiated agreements.

## 6.3 Regional Outcomes and Management Considerations

Over the longer term, the concentration of wind farm developments has the potential to reshape the socio-economic profile of the region. Positive outcomes may include diversification of farm incomes, improved economic resilience, and retention of population through increased investment. Conversely, poorly coordinated developments risk entrenching inequities, eroding trust in proponents and decision-makers, and amplifying community concern. Effective cumulative impact management will therefore require strategic planning at a regional scale, transparent benefit-sharing mechanisms, and alignment between proponents, local governments, and State agencies to ensure cumulative impacts are appropriately mitigated and positive outcomes maximised.

# 7. Stakeholder Identification and Engagement

## 7.1 Key Stakeholders

The following section identifies individuals, groups, and organisations with an interest or stake in the proposed development. This includes local landowners, neighbouring residents, business owners, Indigenous groups, and government agencies.

### 7.1.1 Landowners and Neighbours

Alinta has entered into land use agreements with eight landholders within the Project boundary and are in the process of negotiating neighbour agreements with approximately 35 neighbouring landowners adjacent to the Project boundary. These include approximately 10 of hobby farmers/lifestyle regional blocks along Woodbine Road, Regans Ford on the southern boundary.

### 7.1.2 Local Government

A list of key local government stakeholders has been identified and includes the following LGAs:

- ▶ Shire of Dandaragan (primary local government stakeholder group)
- ▶ Shire of Moora (secondary local government stakeholder group)
- ▶ Shire of Gingin (secondary local government stakeholder group).

### 7.1.3 State Government Departments

Alinta have identified and began engagement activities with the following key state government stakeholders:

- ▶ Department of Climate Change, Energy, the Environment and Water
- ▶ Department of Defence
- ▶ Economic Regulation Authority
- ▶ Australian Energy Market Operator Western Australia
- ▶ Department of Biodiversity Conservation and Attractions – Mid West Region
- ▶ Department of Local Government, Sport and Cultural Industries

- ▶ Department of Energy, Mines, Industry Regulation and Safety
- ▶ Powering WA
- ▶ Department of Water and Environmental Regulation / Environmental Protection Authority (Green Approvals)
- ▶ Department of Primary Industry and Regional Development
- ▶ Department of Jobs, Tourism, Science and Innovation
- ▶ Department of Fire and Emergency Services
- ▶ Department of Transport
- ▶ Main Roads Western Australia – Mid-West Gascoyne, Wheatbelt, Heavy Vehicle Services
- ▶ Mid-West Port Authority
- ▶ Western Power
- ▶ Water Corporation
- ▶ Department of Planning, Lands and Heritage
- ▶ Western Australian Planning Commission
- ▶ Tourism Western Australia

#### **7.1.4 Local Businesses, Suppliers and associated Organisations**

- ▶ Wheatbelt Development Commission
- ▶ Western Australian Farmers Federation
- ▶ West Midlands Growers Association
- ▶ Regional Chamber of Commerce and Industry
- ▶ Wheatbelt Business Network
- ▶ Dandaragan Community Resource Centre

#### **7.1.5 Community Groups**

There are several active community groups in both the LIA and RIA with interests in social, environmental, and economic aspects of the proposed wind farm development. A comprehensive list of some of the more prominent organisations is available in *Section 5.9.1 Community Networks*.

#### **7.1.6 First Nations Traditional Owners and Organisations**

A list of key traditional owners and Indigenous stakeholders has been identified and includes the following individuals and organisations:

- ▶ Yued Aboriginal Corporation
- ▶ South West Aboriginal Land and Sea Council

Consultation activities and ongoing negotiations with these groups are currently ongoing.

### **7.2 Stakeholder Engagement**

#### **7.2.1 Project Specific Stakeholder Engagement Activities**

Altina Energy has either undertaken, or plans to undertake, the follow stakeholder engagement activities.

##### **Activities Conducted to Date**

- ▶ Meetings with Turbine Host Landowners, Transmission Line Landowners and Neighbours

- ▶ Meetings with key government stakeholders and departments
- ▶ Hosted 1<sup>st</sup> drop-in session in Dandaragan in Early April 2025. Attended by 32 local residents. Information provided on project design, approvals process predicted social, environmental and economic impacts, community benefits sharing and how to stay informed about the project.
- ▶ Hosted 2<sup>nd</sup> drop-in session in Dandaragan in Early September 2025. Attended by four local residents. Updates provided on project design and approvals process, testing of social, environmental and economic impacts and proposed mitigation measures, information on community benefits sharing and how to stay informed about the project
- ▶ Ongoing fortnightly pop-up office in Dandaragan, since June 2025.

### **Planned Activities**

- ▶ Community Advisory Group
- ▶ Community Benefits Sharing Consultations
- ▶ First Nations Consultations
- ▶ Local Suppliers Information Sessions
- ▶ Employment Information Sessions
- ▶ Additional project information drop-in sessions

Ongoing project-specific engagement activities will continue to be shaped by the recommendations contained within this SIA as well as the Project's social performance strategy and social impact management plan.

## **7.2.2 SIA Specific Stakeholder Engagement Activities**

Stakeholder engagement formed a central component of the SIA process, ensuring that the views, values, and concerns of the local community and relevant stakeholders are incorporated into the assessment. A multi-method approach was adopted to enable broad participation and to capture both quantitative and qualitative insights.

Stakeholder engagement for the SIA was guided by principles of transparency, inclusivity, and responsiveness. Efforts were made to ensure that a wide range of community members, landholders, and relevant organisations had accessible opportunities to contribute, whether through surveys, interviews, or open drop-in sessions. Feedback received has been actively used to inform impact assessment ratings and the development of mitigation and enhancement measures. This approach reflects best practice in social performance and aligns with the WA Environmental Protection Authority's expectations under the social surroundings factor for early, meaningful, and ongoing engagement.

Key activities included the delivery of an online community perception survey, which provided baseline data on community attitudes toward the Project and identified priority areas of concern and opportunity. In addition to the survey, one-on-one consultation interviews were conducted with community members both online and in-person. These interviews provided deeper insights into perceived social and economic impacts, as well as local knowledge regarding existing pressures and sensitivities within the region. Impact assessment rating and mitigation testing interviews were also undertaken to collaboratively evaluate the significance of potential impacts and to test the suitability and effectiveness of proposed mitigation measures. These sessions enabled stakeholders to directly inform the refinement of impact ratings and management strategies.

Broader community engagement was facilitated through drop-in information sessions held within the Project area, providing an opportunity for residents to meet with the Project team, ask questions, and share feedback in an informal setting. Targeted meetings were also held with key local government representatives and agency stakeholders to ensure alignment with local planning frameworks, service delivery considerations, and cumulative impact management approaches. Together, these activities

provided a comprehensive understanding of stakeholder perspectives and informed the development of tailored mitigation and enhancement measures.

Table 42 summarises these activities, their objectives, participants, and key themes. This structure provides a clear record of the engagement process and can be updated with stakeholder details, numbers of participants, and dates as the Project progresses.

**TABLE 42: SUMMARY OF SIA STAKEHOLDER ENGAGEMENT ACTIVITIES**

Activity Type	Purpose	Participants / Stakeholders	Timing	Key Themes / Outcomes
Online Community Perception Survey	Gather broad-based views on community attitudes, values, and concerns	Local residents and landowners, First Nations representatives (anonymous survey)	April – Sept 2025	Levels of support and concern; perceived benefits/risks
One-on-One Consultation Interviews	Obtain in-depth qualitative insights on potential social/economic impacts	Landowners, neighbours and community members (in-person and online)	May-Sept 2025	Local knowledge; lived experience; emerging issues
Impact Assessment Rating & Mitigation Testing Interviews	Test and refine impact ratings; assess appropriateness of proposed mitigation measures	Landowners, community representatives, local leaders	Aug-Sept 2025	Refinement of impact ratings; validation of mitigation
Community Drop-In Sessions	Provide open, accessible opportunity to engage directly with project team	General community (open invitation)	April and Sept 2025	Questions and concerns; information sharing; trust building
Meetings with Local Government Stakeholders	Ensure alignment with planning frameworks and service delivery priorities	Shire representatives, agency staff	April and Sept 2025	Cumulative impacts; infrastructure needs; governance

Key findings and insights from these consultations and engagement activities have been incorporated into the community perceptions and stakeholder engagement section for each of the thematic impact areas outlined in this report.

## 8. Limitations and Constraints

The findings presented in this SIA should be considered in light of several limitations and constraints, including:

- ▶ **First Nations Representatives:** To date, engagement with the Yued Aboriginal Corporation and other community representatives has not been undertaken due to ongoing negotiations. Invitations have been extended. This represents a current gap, as the assessment does not yet include firsthand perspectives on cultural values, potential heritage concerns, or Indigenous rights and interests.
- ▶ **Project Design Status:** The project design is yet to be finalised. Key details that could influence the type, scale, and distribution of social impacts remain uncertain, which limits the ability to assess potential outcomes with precision and limits the availability of project-specific knowledge to inform stakeholder input.

Notwithstanding these limitations, the assessment has been undertaken using established SIA methodologies and best practice approaches, ensuring that the findings remain a robust and credible basis for informing ongoing project planning and decision-making.

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