



# REZ Readiness Assessments Summary Report

Central Queensland and Callide

September 2024

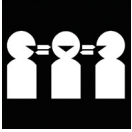
**QUEENSLAND ENERGY AND JOBS PLAN**

Power for generations



**Queensland  
Government**

## Interpreter statement



The Queensland Government is committed to providing accessible services to Queenslanders from all culturally and linguistically diverse backgrounds. If you have difficulty in understanding this document, you can contact us within Australia on 13QGOV (13 74 68) and we will arrange an interpreter to effectively communicate the document to you.

### **REZ Readiness Assessments Summary Report: Central Queensland and Callide** © The State of Queensland (Department of Energy and Climate)



<http://creativecommons.org/licenses/by/4.0/deed.en>

This work is licensed under a Creative Commons Attribution 4.0 Australian Licence. You are free to copy, communicate and adapt this work, as long as you attribute by citing 'REZ Readiness Assessments Summary Report: Central Queensland and Callide'.

September 2024

## Acknowledgement of Country

The Queensland Government acknowledges the Traditional Custodians of Country throughout Queensland and their connection to land, sea and sky.

We pay our respects to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander people today.

The Queensland Government acknowledges the continuous living culture of First Nations Queenslanders — their diverse languages, customs and traditions, knowledge and systems.

The Queensland Government acknowledges the role that First Nations people have in the delivery of Queensland's energy system and is committed to ensuring they benefit from the development of a new, clean energy system. As we work together to deliver a clean, reliable and affordable energy system, the Queensland Government is committed to genuine partnerships and meaningful engagement with Queensland's First Nations people.

The work was commissioned as part of our commitment to strong engagement with Aboriginal and Torres Strait Islander communities, staff and stakeholders. The Department of Energy and Climate works with and in communities to build a sustainable and prosperous future for all Queenslanders. Building communities strengthens connections and creates a sense of belonging. Local First Nations graphic design artist Casey Coolwell-Fisher created the design. Casey is a Quandamooka Nunukal woman of Minjerribah (North Stradbroke Island). With her husband, Roy (a Wakka Wakka man from Cherbourg), they created their company CHABOO as a way to share their stories through their artwork.





# Contents

Acknowledgement of Country .....	2
Our renewable energy vision for Central Queensland .....	4
1. Queensland’s energy transformation .....	5
2. Renewable Energy Zones .....	6
3. REZs in Central Queensland .....	7
4. REZ Readiness Assessments .....	9
5. Community and stakeholder insights .....	11
6. Transport and logistics .....	16
7. Workforce and economy .....	18
8. Housing and social infrastructure .....	20
9. Planning and regulation .....	22
10. Cultural heritage .....	24
11. Environment .....	25
12. Waste and circular economy .....	26
13. Conclusion .....	27





# Our renewable energy vision for Central Queensland

To ensure Central Queensland's diverse industries can thrive and capitalise on opportunities from a decarbonising economy through the development of Renewable Energy Zones, bringing benefits to local communities through coordinated planning and investment.

# 1. Queensland's energy transformation

## 1.1 Introduction

In September 2022, the Queensland Government released the Queensland Energy and Jobs Plan (QEJP) to set a clear vision and pathway for transforming Queensland's electricity system. Under this plan, Queensland is on track to become a renewable energy superpower, with legislated targets in place to achieve 50 per cent renewable energy by 2030, 70 per cent by 2032 and 80 per cent by 2035.

To meet these goals, the Queensland Government is building Renewable Energy Zones (REZs). As outlined in the Queensland REZ Roadmap, REZs will play a key role in delivering clean, affordable and reliable energy for generations by coordinating the connection of around 22 gigawatts (GW) of renewable energy to the grid.

To maximise the benefits and mitigate any potential impacts of REZ development, the Queensland Government engaged with local communities and key stakeholders through REZ Readiness Assessments in Central Queensland and Callide. This report summarises the outcomes of these assessments, laying out a series of actions to best support local communities across the region to realise the benefits of REZ development.

## 1.2 The role of Central Queensland in the energy transformation

Queensland's transformation to renewable energy will help deliver jobs, new industries and new investment across Central Queensland. As the industrial powerhouse of the state, Central Queensland has an important role to play in decarbonising Queensland's economy and capitalising on the opportunities created by new industries. Recognising the region's significance, the Queensland Government, in partnership with Queensland Electricity Transmission Corporation Limited (Powerlink), identified four potential REZs in Central Queensland: Callide, Calliope, Capricorn and Isaac.

## 1.3 The role of Callide in the energy transformation

Set to be the state's first declared REZ, Callide is at the forefront of Queensland's energy transformation. Located within the Banana Shire Local Government Area (LGA) with a rich heritage in power generation, Callide's skilled workforce and existing network infrastructure are vital assets in the shift to clean energy development.

As an established energy production hub, the Callide Power Station's transition away from conventional energy sources to renewable alternatives is integral to reducing the state's carbon emissions and fostering a greener economy. The move to producing renewable energy in the Callide area is not only crucial for combating climate change but also vital to strengthening the local economy as traditional industries are phased out due to changing demands from a decarbonising world.

## 1.4 Building on the positive legacy of coal and agriculture

The coal industry has delivered tangible benefits to the Central Queensland and Callide communities for multiple generations. The Queensland Government is committed to continuing this legacy, and as the global demand for coal declines, renewables will play an important role in supplementing economic investment activities into the region.

Agriculture will continue to underpin the region's identity and be a central pillar of the local economy. As illustrated throughout this report, the Queensland Government is committed to ensuring new renewable energy infrastructure can coexist with the agricultural industry, including through the exploration of emerging sectors such as agrivoltaics.

## 2. Renewable Energy Zones

A Renewable Energy Zone, known as a REZ, is an area that is strategically planned to connect multiple clean energy generators in a coordinated way, delivering better outcomes for Queensland communities and industries.

By connecting around 22 GW of renewable energy to the grid, REZs are critical to ensuring Queenslanders have access to stable and affordable energy in the long-term.

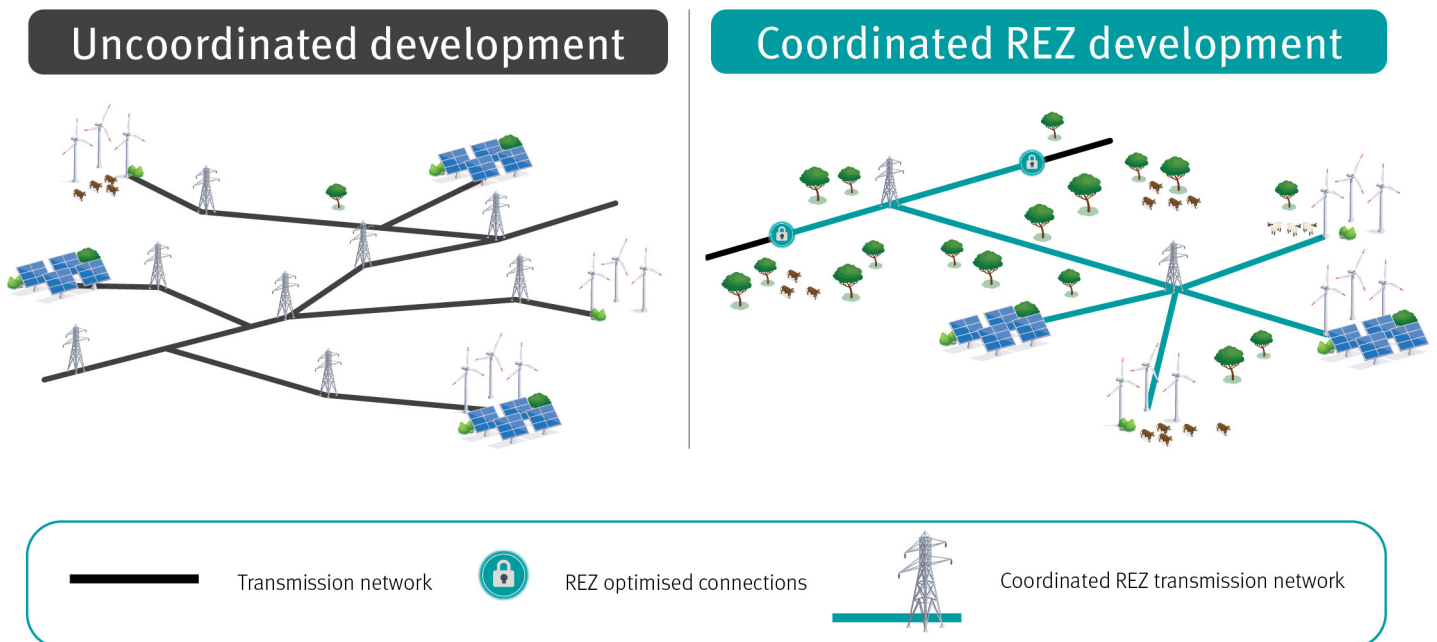
There are 12 potential REZ locations identified across Queensland. These initial locations will be further refined over time in partnership with communities.

In April 2024, Queensland Parliament passed the *Energy (Renewable Transformation and Jobs) Act 2024*, enshrining Queensland’s REZ framework into law to ensure better coordination of energy infrastructure while delivering long-term benefits for communities. The Queensland Government is also embedding REZ planning into regional plans to ensure a coordinated approach to the energy transformation and better coexistence outcomes.

In years to come, the [Queensland SuperGrid Infrastructure Blueprint](#) (the SuperGrid Blueprint) and the [Queensland Renewable Energy Zone Roadmap](#) may identify additional potential REZs, in line with Queensland household energy needs and future industries.

There is already a strong pipeline of proposed renewable projects in Queensland. The approach to REZs in Queensland provides a framework for improved coordination in connecting the projects that Queensland needs, while managing impacts holistically and growing local opportunities.

Figure 1: Illustration of the impact of moving from uncoordinated development to coordinated REZ development



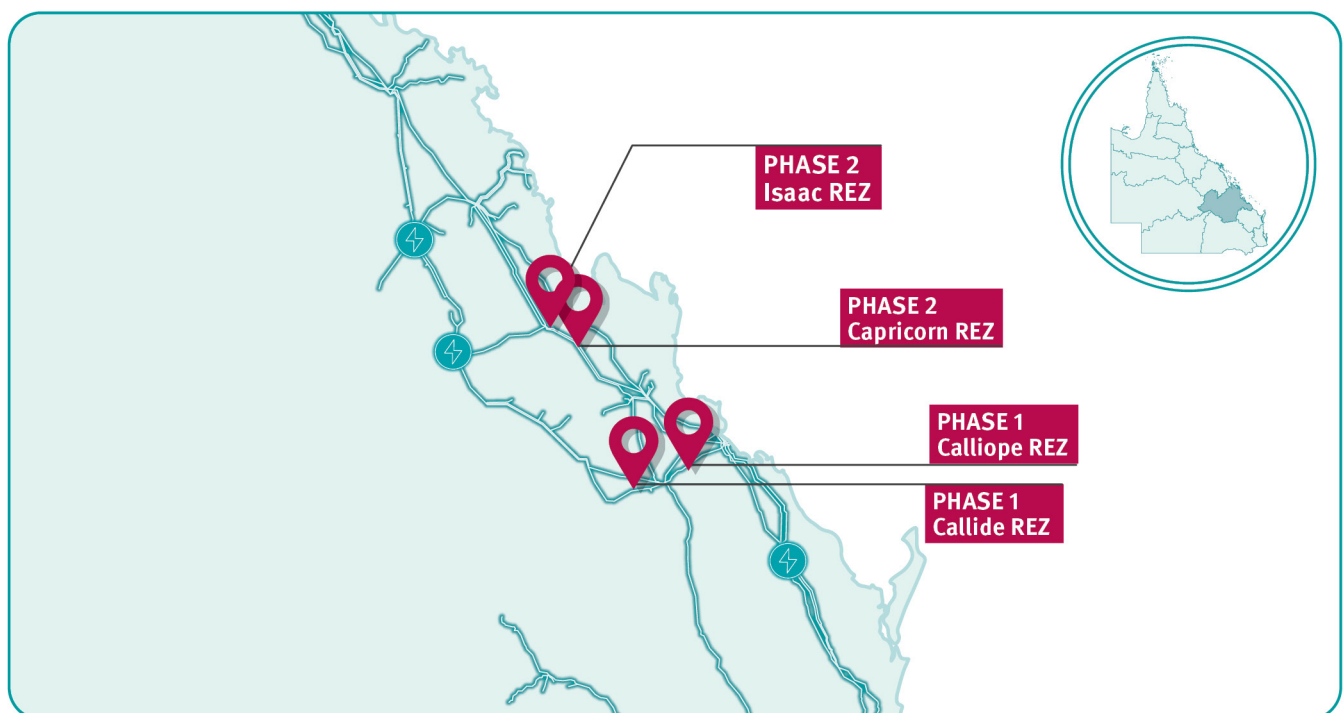
### 3. REZs in Central Queensland

*With its diverse and expanding economy, central Queensland is well-positioned to benefit from the energy transformation.*

Central Queensland has some key advantages and opportunities for REZ development, with existing infrastructure, a growing demand for clean energy sources from industry and a skilled workforce.

To coordinate the planning and development of clean energy infrastructure in the region, the Queensland Government worked with Powerlink to identify four potential REZs: Isaac, Capricorn, Calliope and Callide, which are indicated in Figure 2.

Figure 2: Potential REZs in Central Queensland



These REZs are expected to create 1,350 direct construction jobs during development and generate up to 8.2 GW of renewable energy.

This increase in renewable energy generation will help meet the rising energy demand in the region, such as from Boyne Smelters Limited which represents around 10 per cent of the state’s total energy demand.

To support Central Queensland’s growing clean energy workforce, Powerlink has established the interim Gladstone SuperGrid Training Centre and Transmission Hub. The centre accommodates various roles, including community and cultural relations, project management, field staff, health and safety officers, training personnel, engineers, support services and tradespeople. Since opening in May 2023, the hub has been instrumental in developing the critical skills required for the ongoing transformation.

The region’s world-class ports, including the publicly owned Port of Gladstone and the Port of Bundaberg, make Central Queensland a critical location for future industrial decarbonisation activities and the development of a hydrogen industry.

In recognition of future economic activities in the region, and to support heavy industry development, the Queensland Government, through Powerlink Queensland, is delivering the Central Queensland Grid reinforcement project. This will form the foundation for flow-on benefits and cements the region as a future renewable hydrogen powerhouse.





*Stanwell Clean Energy Hub artist impression, Rockhampton, Queensland*

### 3.1 Callide REZ

Anticipated to be the first REZ declared in Queensland due to advanced renewable energy developer activity and mature project development, Callide REZ is at the forefront of the renewable energy transformation.

Callide is well-suited to host a REZ due to its spare network capacity, minimal transmission investment required and abundant renewable energy resources, particularly wind. Located close to the towns of Banana and Biloela in the Banana LGA, the Callide REZ is expected to generate 2 - 2.6 GW of renewable energy.

Callide has significant existing energy infrastructure, with the Callide Power Station having played a crucial role in delivering reliable energy across the state for decades. With the Callide B Power Station set to transition to a clean energy hub from 2028 as it reaches end-of-life, the renewable energy projects planned for the REZ will help maintain a stable, affordable energy supply for the state.

The Callide Power Station will continue to play a role in Queensland’s energy system as it transitions into a clean energy hub. This means it could potentially host large scale batteries, new renewable generation onsite, and/or a hydrogen-ready gas peaking plant, supporting an ongoing workforce.



## 4. REZ Readiness Assessments

### 4.1 Overview

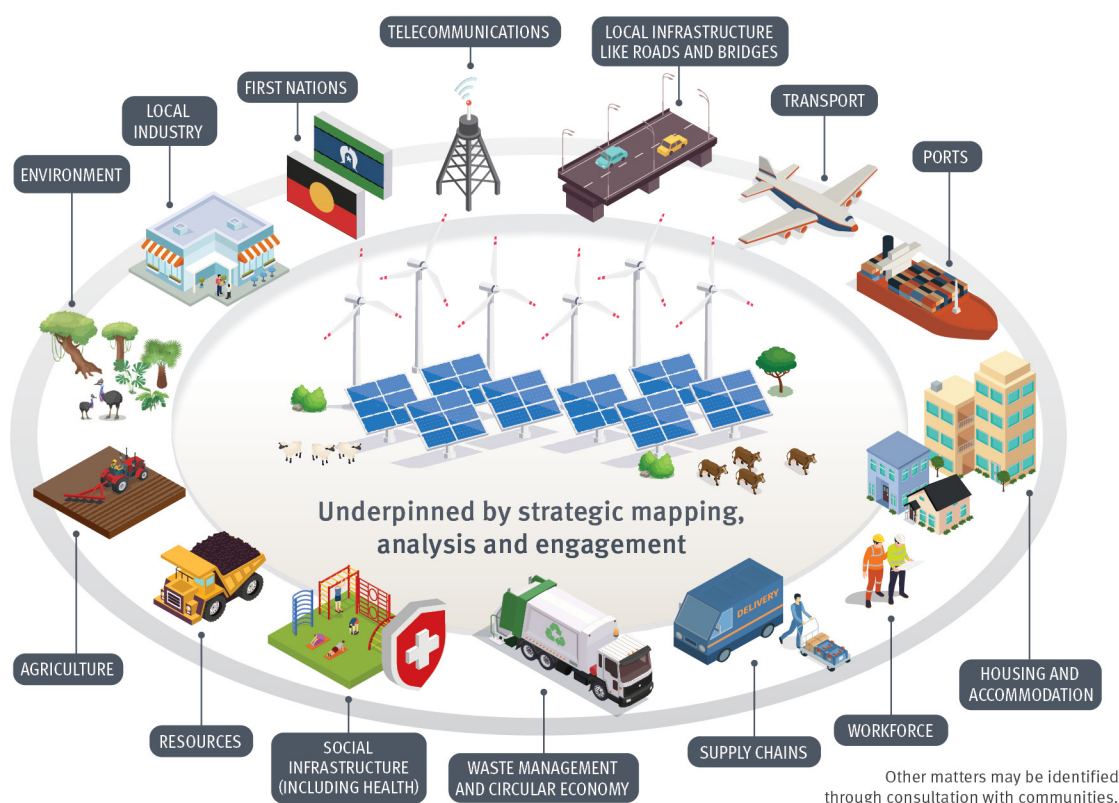
A REZ Readiness Assessment is a tool to identify opportunities in regions as part of renewable energy development, as well as mitigations for cumulative impacts of development.

A REZ Readiness Assessment provides a clear view of what creating a REZ might mean for a region or local area. This process helps to identify environmental, economic, and social issues and opportunities upfront and determine the suitability or ‘readiness’ of an area to host a REZ.

The assessments are place-based and occur at a strategic regional level and a detailed local level for each of the potential REZ locations where needed. As illustrated in Figure 3, the assessments investigate infrastructure, transport, housing and accommodation, workforce, supply chains, waste management, other land uses, and social infrastructure, as well as local industry and First Nations considerations. These help to identify local infrastructure needs based on a holistic view of the REZ and pipeline of projects in the area.

Through these assessments the Queensland Government will undertake technical analysis and work closely with local communities to ensure local input underpins the assessments and the development of recommendations.

Figure 3: Areas of focus for each REZ Readiness Assessment



### 4.2 Methodology

Through a comprehensive approach, each REZ Readiness Assessment uses a cumulative impact analysis (CIA) and place-based engagement findings to define key impacts and prioritise potential actions. This process ensures that any potential recommendations are tailored to community needs, and that a robust approach to prioritising impacts is undertaken.

Each REZ Readiness Assessment consists of several stages, including:

- **Impact Analysis (Stages 1-3):**
  - **Baseline:** Establishing current trends to benchmark readiness for REZ development.
  - **Scenarios:** Creating scenarios to understand the scope and potential impact of REZ development.
  - **Impact Analysis:** Identifying potential impacts within each technical line of enquiry related to REZ development.
- **Cumulative Impact Analysis and Place-based Readiness Assessment (Stages 4-5):**
  - Bringing together impacts of REZ development across key dimensions of REZ readiness.
  - Validating most critical impacts against community priorities identified in engagement.
- **Recommendations, Monitoring and Evaluation (Stages 6-7):**
  - Proposing actions to mitigate identified impacts and enhance benefits based on the readiness assessment.
  - Developing a framework to track and continuously improve the implementation of REZ readiness initiatives.

The specific focus areas within each technical line of enquiry and a brief description is provided in Table 1.

Table 1: Areas of focus for each REZ Readiness Assessment

Technical line of enquiry	Focus
<b>Community readiness</b>	
Community baseline	Understand current and emerging community concerns.
Social licence	Assess how issues and opportunities impact community acceptance of REZ projects.
<b>Energy network and proponent readiness</b>	
Renewable infrastructure and generator proponents	Evaluate the potential characteristics of network and generator development in the region.
<b>Regional infrastructure and proponent readiness</b>	
Workforce and economy	Analyse employment dynamics and economic opportunities over the life of the energy transformation.
Housing and social infrastructure	Assess the capacity of housing and social services to support renewable infrastructure construction and operation.
Transport and logistics	Determine the ability of transport infrastructure to handle the demands of REZ development.
Waste and Circular Economy	Evaluate the capacity of waste systems to accommodate scale of activity required and explore circular economy opportunities.
<b>Environment and planning readiness</b>	
Environment and cultural heritage	Ensure sustainable REZ development while protecting and minimising impacts to critical environmental and cultural values.
Planning and regulations	Assess if planning and regulatory frameworks are adequate to support efficient energy transformation.

# 5. Community and stakeholder insights

## 5.1 Engagement activities

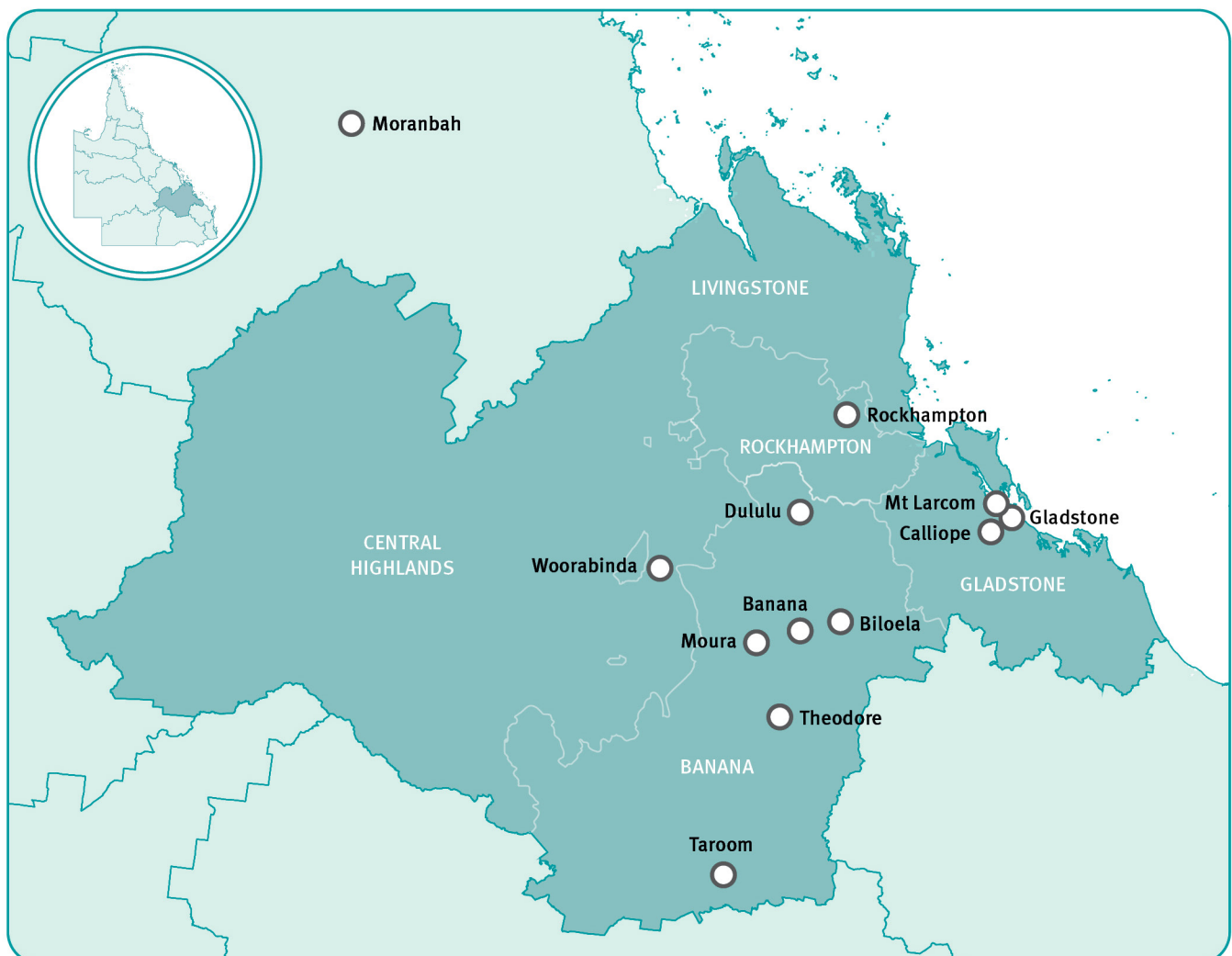
From June to August 2024, the Queensland Government engaged with key stakeholders and community members across Central Queensland to identify key regional priorities and understand what renewable energy development means to local communities. The engagement activities included:

- 10 workshops (including 6 First Nations workshops)
- 24 drop-in sessions
- 4 pop-ups
- 1,000+ conversations.

**This engagement occurred across 12 locations, including:**

- |             |            |               |
|-------------|------------|---------------|
| • Gladstone | • Theodore | • Moranbah    |
| • Calliope  | • Moura    | • Rockhampton |
| • Biloela   | • Taroom   | • Mt Larcom   |
| • Banana    | • Dululu   | • Woorabinda  |

Figure 4: Community and stakeholder engagement locations





## 5.2 Summary of insights

Feedback gathered through various engagement activities converged on the following key insights for what Central Queenslanders view as important for improving local outcomes through REZ development:

### Overview of community and stakeholder sentiment

- General consensus that the energy transformation needs to happen, but it must be carefully managed to ensure a reliable and affordable energy supply.
- Learnings from the gas industry should inform the development of REZs.
- The coal and agricultural industries have delivered ongoing economic benefits for the region and renewable energy development should strengthen and maintain this legacy.

*“The switch to renewable energy has to occur, and if we can do it in a coordinated manner, it would be better for us in the long-term.” – Central Queensland Focus Group Participant*

### Job and training opportunities

- Central Queensland has a strong tradition of self-determination and worker advocacy. This legacy continues today, with a shared focus on protecting local jobs and a deep pride in ensuring the region’s economic prosperity.
- Government needs to strategically manage workforce needs during the construction phase to ensure sustained economic and community wellbeing after construction is completed.
- Small local businesses should have opportunities to tap into the economic investment brought about by development in the region.

*“After the boom comes the bust ... we need to smooth the transition and create opportunities for long-term investment and industry in Central Queensland.” - Rockhampton resident*

### Local infrastructure and services

- Upgrades to local infrastructure, such as housing and roads, is important to ensure communities are ready to host large-scale renewable energy projects.
- Housing availability is a major issue in Biloela, with concerns that a surge of construction workers might exacerbate this.
- Reinvestment of renewable energy proceeds should go towards enhancing local services and infrastructure, such as roads and healthcare.
- Improving local healthcare across the region is important with some residents needing to travel long distances to access services.

*“The roads and infrastructure we have aren’t set up for that kind of thing.” – Central Queensland Focus Group Participant*

### Engagement and community benefits

- Communities want to see ongoing, transparent engagement and deeper education on what REZs mean for them.
- Landholders want more support negotiating with developers and managing neighbouring projects.
- Community benefits should be clearly defined and informed by local community priorities.
- Benefit funds from renewable energy developers should be pooled to maximise the benefits for the community.
- REZ host communities should benefit from lower electricity costs in return for hosting local REZ infrastructure.
- Improving digital and telecommunications infrastructure is crucial to meet community and industry needs.

*“Communication with the community needs to be constant...even if there are no real updates. It’s the regular contact that builds trust.” - Moranbah resident*

#### **Environment, agriculture and land-use planning**

- Impacts to the local environment need to be carefully managed, including visual amenity and end-of-life considerations.
- Agriculture is important to the region, and community members want assurances that impacts to prime agricultural land will be mitigated. Opportunities for coexistence between agriculture and renewables should be explored, including research into agrivoltaics.

*“We need to invest more in renewable energy as our reliance on coal isn’t sustainable, and we must preserve natural resources.” – Biloela Focus Group Participant*

### **5.2.1 First Nations Insights**

First Nations peoples highlighted the importance of ongoing education and engagement around REZs, and the opportunities and benefits arising from renewable energy development. While there is limited awareness of REZs, REZ Readiness Assessments and the energy transformation more broadly, First Nations peoples are ready and willing to be involved.

Communities raised some concerns about environmental issues, focusing on the protection of water quality, the well-being of local wildlife, and the potential disturbance of sacred sites. These concerns are tied to the integrity of the land, which is intertwined with ancestral Dreamtime stories and cultural heritage. These concerns underscore the importance of ensuring that future engagement with First Nations peoples allows governments and developers to properly identify, consider, and assess the cultural and environmental value of any proposed development site.

Future engagement with First Nations peoples must be early, genuine, and ongoing, with opportunities for First Nations peoples to have a say in decision-making. This engagement should enable First Nations peoples to realise the benefits of the energy transformation.

Culturally tailored education, training and upskilling opportunities, as well as benefits delivered through community-owned renewable projects, were seen as crucial in ensuring First Nations peoples can capitalise on the opportunities arising from the energy transformation.

Feedback gathered placed an especially strong emphasis on empowering local Indigenous businesses to actively participate in development of projects, particularly through involvement in procurement and tendering processes. First Nations communities are eager to shape industry practices, particularly in relation to cultural heritage management. By fostering this involvement, the goal is to build capacity and create enduring economic benefits for First Nations peoples.

The Queensland Government recognises the importance of respectful engagement with Traditional Owners to properly understand the governance systems, current agreements, and the implications and benefits of renewable energy development for First Nations communities.

## 5.3 Social licence research

*This research was conducted in June and July 2024 through surveys in Central Queensland (410 respondents) and Callide (385 respondents) and five focus group sessions with stakeholders aged 18-69.*

As part of REZ Readiness Assessments, residents in Central Queensland and Callide were asked a series of questions about renewable energy development.<sup>1</sup> The goal was to better understand how residents perceive the benefits and challenges of the energy transformation and REZs, with the findings being used to help inform our assessment recommendations.

Findings revealed differing perspectives on REZs in the community. Notably, 48 per cent of respondents in Central Queensland supported the idea of a REZ and 41 per cent believed that the long-term benefits of the energy transformation would be worth the potential short-term disruptions of development. However, 38 per cent saw the long-term benefits as not worth the disruptions.

When considering the potential benefits of REZs, 56 per cent of respondents understood that there would be benefits for their local community, while 30 per cent thought benefits would not remain local. 54 per cent saw personal advantages of REZ development, while 41 per cent doubted they would see any personal benefit. Overwhelmingly, 71 per cent of respondents believed REZ development would benefit Queensland overall.

Residents across Central Queensland and Callide identified several key potential benefits and impacts of REZ development, presented in Table 2 :

*Table 2: Key benefit and impact themes*

Potential benefits	Perceived impacts
<ul style="list-style-type: none"> <li>• Reduced energy bills and cost-of-living relief</li> <li>• Increased employment and training opportunities</li> <li>• Reduced environmental impacts</li> <li>• Potential infrastructure improvements</li> <li>• Opportunities for local businesses to benefit</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts on other land uses and environment, including wildlife and agriculture</li> <li>• Visual amenity</li> <li>• Strain on existing infrastructure</li> <li>• Challenges in upskilling or employing the local workforce</li> <li>• Addressing community needs, like childcare, hospitals, and education</li> </ul>

To maximise these benefits and mitigate potential impacts, Central Queensland residents saw a strong need to draw on the positive economic practices of the coal and agricultural sectors. This includes ensuring effective community engagement, addressing local priorities, and ensuring that benefits of the energy transformation are widely and tangibly shared throughout the region.

Ultimately, these insights underscore the importance of giving communities the opportunity to voice their opinion on the rollout of the energy transformation. The Queensland Government will continue to work closely with communities to ensure that the benefits of REZ development are felt locally and that key concerns are mitigated.

## 5.4 Government response

In addition to REZ readiness initiatives, the Queensland Government is responding to stakeholder and community member feedback through a range of measures.

<sup>1</sup> Respondents were generally able to select from a series of responses in the survey, including for example: ‘Strongly agree’; ‘Somewhat agree’; ‘Neither agree nor disagree’; ‘Somewhat disagree’; ‘Strongly disagree’.



### Developer Code of Conduct

In April 2024, the Queensland Government committed to developing a mandatory Code of Conduct to ensure renewable energy developers are meeting minimum standards on a range of issues, and engage genuinely with communities, including First Nations peoples.

The code is being developed in collaboration with industry and key stakeholders and there will be opportunities for further engagement later this year.

### Coexistence Queensland

The Queensland Government established Coexistence Queensland (formally GasFields Commission Queensland) to better support the co-existence of renewable energy projects, agriculture and other industries.

Coexistence Queensland will provide information, engagement and education services to the community and industry on land access and co-existence issues across both the resources and renewable energy sectors.

### Improved telecommunications

Powerlink, in partnership with Queensland Capacity Network (QCN), are investigating opportunities to improve access to high-speed internet and mobile phone coverage to regional areas hosting transmission infrastructure and REZs through the SuperGrid Telecommunications Program.

### Appointment of a Jobs Advocate

As legislated in the *Queensland Energy (Jobs and Transformation) Act 2024*, the Queensland Government is looking to appoint a Queensland Renewable Energy Jobs Advocate to work with local communities and advise the Minister on opportunities for employment and workforce development.

The Jobs Advocate will also facilitate collaboration between community members and renewable energy developers to ensure the project is delivered in consultation with the community.

### Establishment of REZ Local Reference Groups

In partnership with Powerlink, the Queensland Government will work to establish REZ Local Reference Groups for each specific REZ, in line with the development timelines in the REZ Roadmap.

REZ Local Reference Groups will consist of community and stakeholder representatives who will provide critical input on emerging coexistence issues and the energy transformation.

#### REZ Readiness Assessment initiatives

Following the findings from these assessments, the Queensland Government has committed to initiatives designed to support local communities and continue ongoing engagement. These include:

- \$5 million of seed funding to establish a pilot community legacy fund to provide ongoing benefits to communities hosting REZ development. The REZ Local Reference Group will inform investment priorities for the fund.
- \$1.8 million to develop an education program about renewable energy, with a focus on Central Queensland. This will include local forums, identification of local champions, educational materials and myth busting.
- \$0.5 million to continue tailored engagement and partnerships with First Nations peoples in the Central Queensland region.
- \$3.5 million to develop electricity-focused industry incentives in the Biloela Industrial Precinct linked to the development of the Callide REZ, to encourage investment in the region.
- \$0.5 million to work in partnership with Banana Shire Council to develop a REZ local procurement strategy to connect the local supply chain and local businesses with REZ opportunities.

## 6. Transport and logistics

*The capacity of existing port, road, and other transport systems to accommodate renewable energy development associated with REZs was assessed.*

The Queensland Government is actively planning for transportation and logistical requirements of renewable energy projects while ensuring maintenance of an effective and safe transport system for all industries and the Central Queensland community. Construction of renewable energy projects involves transporting over-size, over-mass (OSOM) components like wind turbines from ports to generation project sites within REZs.

### Capacity and capability of port infrastructure

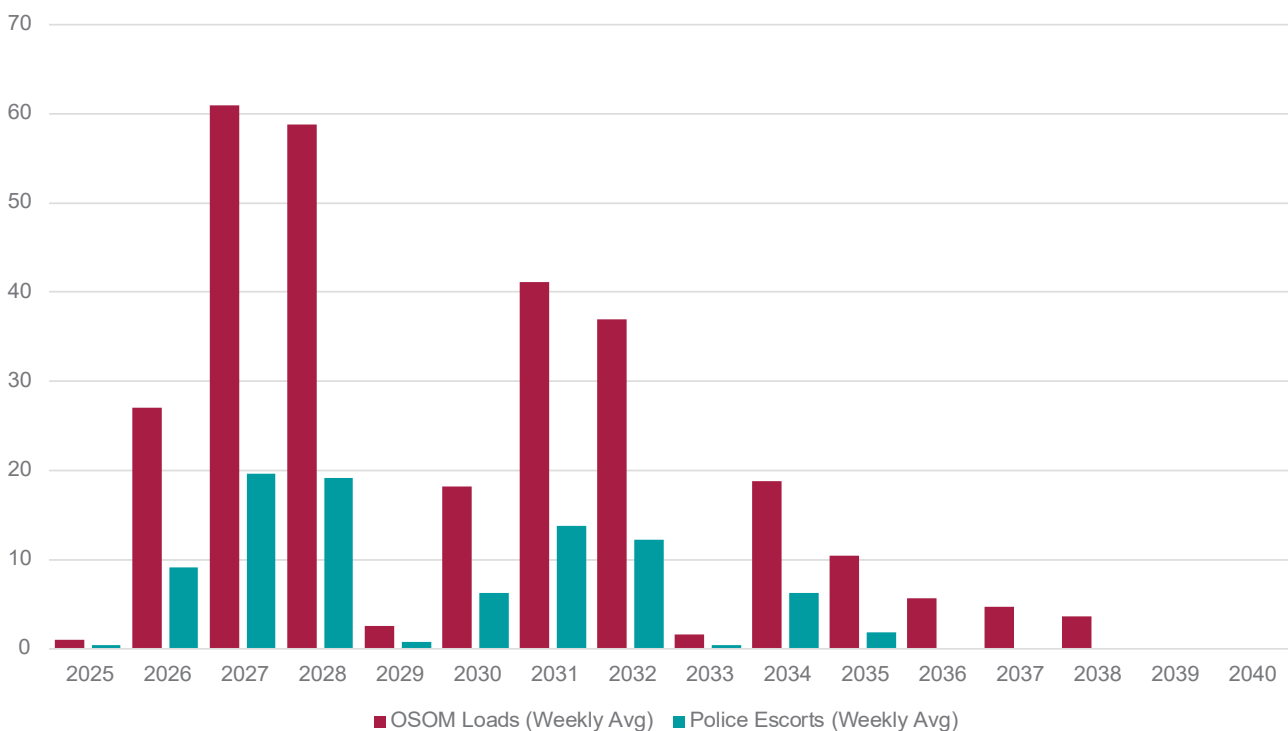
The Central Queensland REZ Region has three major ports (Port of Gladstone, Port of Mackay, and Port of Bundaberg) which provide a key function for the movement of goods and freight across Queensland. There are also ports in neighbouring regions.

While renewable energy developers will make commercial decisions regarding port access, it is anticipated that the Port of Gladstone will play a critical role in supporting the development of REZs in Central Queensland due to its strategic location and capacity to handle oversized loads. However, there are also some limitations associated with transporting oversized loads from the Port of Gladstone because it is located near Gladstone’s town centre. It is likely that additional port capacity in Gladstone or elsewhere in Central Queensland will be required to meet the demand of renewable energy developers.

### Capacity and capability of road networks

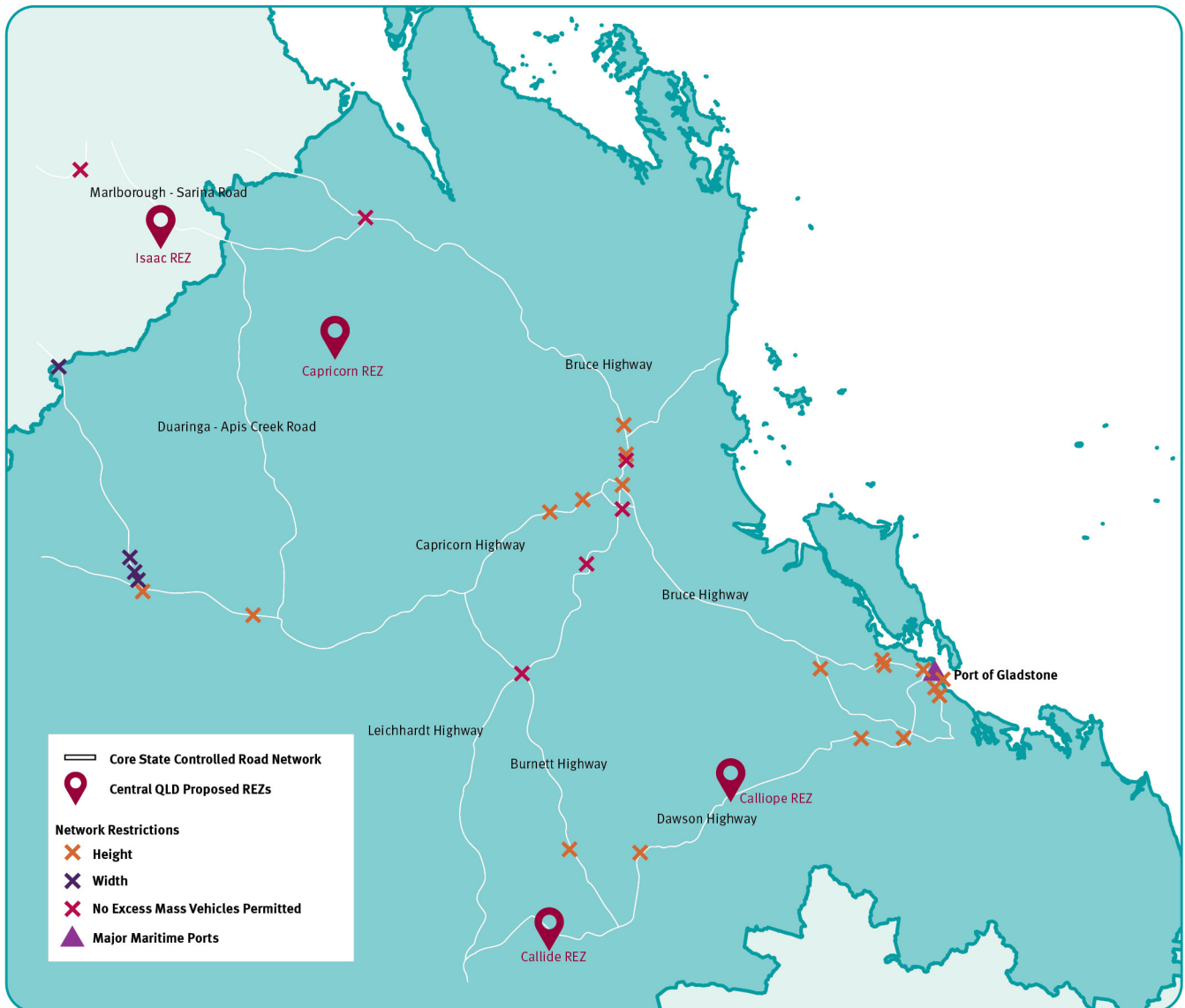
There will be significant OSOM and heavy vehicle loads transported through Central Queensland’s state-controlled road network and on local roads during REZ construction periods. Illustrated in Figure 5, is the modelling of indicative OSOM movements on Central Queensland roads based on anticipated project development activities. To ensure appropriate safety outcomes, the Queensland Police Service escorts OSOM loads and demand for police escorts is also projected to increase.

Figure 5: Indicative average weekly OSOM loads movements in Central Queensland.



There are existing constraints in the road network including bridges, culverts and rail overpasses that may not have been designed to support OSOM transportation. This means the most direct route from port to REZ may not always be feasible without transport network upgrades. Key known constraints are illustrated in Figure 6. Re-routing is expected to be most significant for Callide REZ because it is projected to have significantly more wind generation projects compared to other Central Queensland REZs and due to constraints on the Dawson Highway. Consideration will also need to be given to on-going road maintenance given the increased road usage associated with transporting OSOM renewable energy componentry.

Figure 6: Known network restrictions



### Next steps

The Queensland Government has committed \$3.1 million for the Department of Transport and Main Roads (DTMR) to complete a transport network infrastructure capability and performance investigation, and evaluation of preferred and alternative routes for port to REZ planning and optimisation of transport network operations.



## 7. Workforce and economy

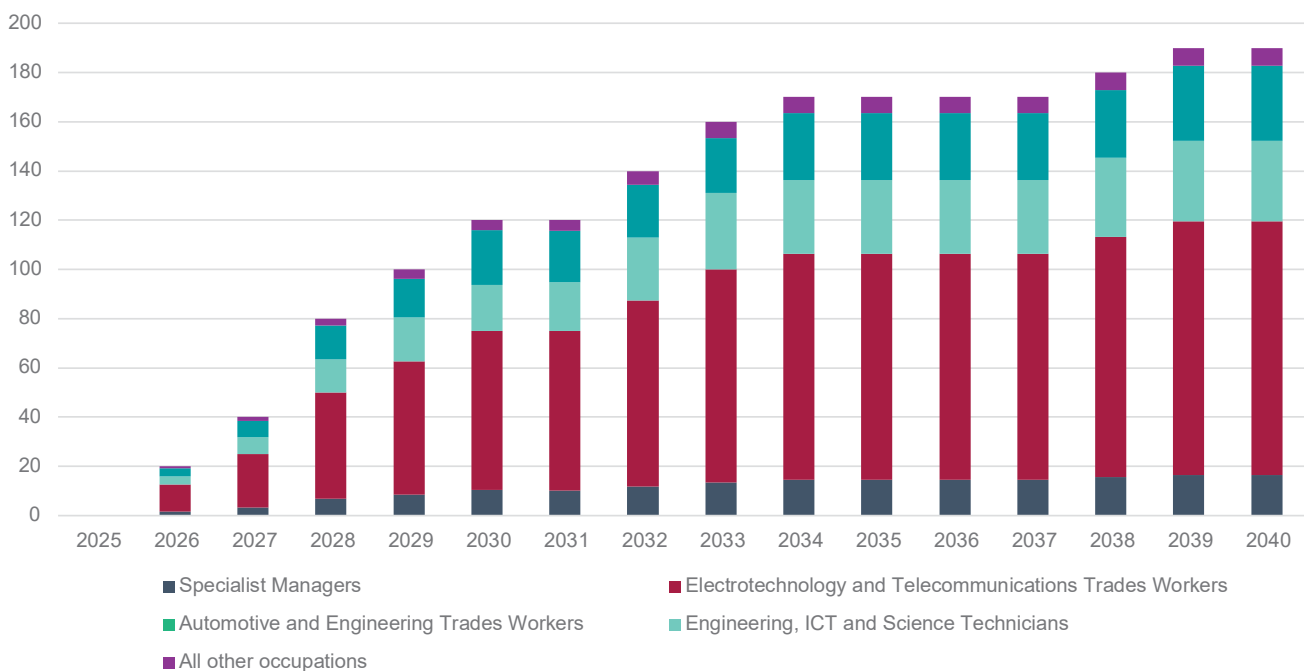
*Workforce needs and opportunities associated with renewable energy development were assessed along with regional economic opportunities.*

Central Queensland’s economy is transforming as part of a global shift to a cleaner, decarbonised economy. Building on the strengths of the region’s valuable natural assets, heaving industry capability, skilled workforce and existing industry base in mining and agriculture, decarbonisation brings economic opportunities to Central Queensland for new and diversified industries.

### Employment opportunities

There will be employment opportunities associated with the construction of new renewable energy infrastructure and site operation. For the Callide REZ, modelling forecasts on average 460 workers may be required per annum over the proposed construction period 2025-2039. There are likely to be peaks in construction workforce required over this period where around 1,150 workers may be on-site, with the first peak set to occur as early as 2028. Operational workforce demand is expected to grow over time with modelling for Callide REZ forecasting around 200 additional jobs could be created. Figure 7 illustrates the potential types of jobs expected to be created for operating renewable energy infrastructure in Callide. As other REZs in Central Queensland are declared, this results in a strong pipeline of anticipated jobs directly associated with the development of new renewable energy infrastructure.

Figure 7: Expected operational employment demand for Callide REZ



Furthermore, it is projected that there will be a growth in jobs across ancillary sectors that support energy workers and the increasing population in Central Queensland, including but not limited to social and health services.

### Workforce availability

While there are substantial opportunities for employment, there may also be challenges associated with workforce availability due to the significant demand for workers not just in Central Queensland but across Queensland and Australia. Particular skills expected to be in high demand include crane, hoist and lift operators.

There is a skilled workforce in Central Queensland that is well-placed to take advantage of REZ employment opportunities. For example, the mining sector employs a range of workers with the skills needed for REZ development.

However, not all workers for renewable energy projects in Central Queensland will be from the region due to the number of workers required and the region’s low unemployment rate. New workers will need to be attracted to the region both on a temporary and permanent basis. Getting the balance right will help manage short-term impacts of REZ construction and achieve long-term economic benefits.

This is not dissimilar to the region’s current employment dynamics where in the mining sector, the region’s largest employer, about 45 per cent of workers come to Central Queensland for work. The construction sector is also mobile, and a small proportion leave the region for work as illustrated in Figure 8. There may be an opportunity for construction workers in the region to find jobs locally.

Figure 8: Workforce movements in Central Queensland by relevant industries (Census 2021)



### New industry opportunities

Central Queensland is a key strategic location that is well-placed to capitalise on the emerging clean industry development. Opportunities and priorities for the region include decarbonised advanced manufacturing, supporting the emerging renewable energy supply chain, and growing Queensland’s hydrogen industry.

The Queensland Government is helping to facilitate new opportunities and has recently released Central Queensland’s regional transformation strategy. As part of the announcement, additional funding for projects will be provided to support the region’s economic future with projects like the development of a Biloela Industrial Estate that will accommodate low carbon emissions industries.

### Next steps

The Queensland Government has committed \$4.4 million to construct the Callide Future Hub, a dedicated learning facility, located near the Callide Power Station. This will include a visitor centre for new technology, e.g. virtual reality training opportunities. The facility will provide training and support services to the community to upskill workers who will help build the renewable energy projects in the region.

## 8. Housing and social infrastructure

*The capacity of the housing market and regional social infrastructure to accommodate the demand associated with REZ construction and operation, and opportunities to achieve legacy housing outcomes were examined.*

The location of the potential Callide and Calliope REZs are mostly within a 30-minute drive of major Central Queensland townships which means existing housing and social infrastructure networks can help support the delivery of these REZs. Notwithstanding this, local impacts and opportunities need to be carefully considered, recognising that Central Queensland’s housing and rental markets face existing constraints. Delivery of housing and social infrastructure for the potential Isaac REZ may be more challenging due to its remoteness and lack of proximity to any major town.

### Temporary accommodation for construction

The development of a REZ will create additional demand for a mixture of temporary and permanent housing. Balancing the mix of temporary and permanent housing solutions is important to avoid any negative long-term housing market impacts and support legacy outcomes.

Not dissimilar to other industries, the construction workforce for REZs will require significant temporary housing. In the Callide REZ, the average annual temporary dwelling requirement is forecast to be approximately 530 between 2025 to 2039. Peak construction period demand is expected to be much higher, whereby over 1,000 temporary dwellings may be required in 2028. Existing temporary accommodation is not likely to have sufficient capacity to service this increased demand, particularly during peak construction years.

The construction peaks for Callide and Calliope REZs are expected to occur much earlier than the construction peaks for the Isaac and Capricorn REZ. This creates an opportunity to explore temporary accommodation that can be relocated to follow demand. There may also be opportunities to design temporary accommodation that can be repurposed in the future to support legacy outcomes such as social housing, tourism opportunities or services to local communities.

### Permanent housing demand

The ongoing operational workforce for the new renewable energy infrastructure will increase the demand for permanent housing. This demand is likely to grow over time as shown in Figure 9 and Figure 10. It is projected that approximately 115 permanent dwellings in Calliope, 175 dwellings in Callide, and about 145 dwellings in Capricorn and Isaac will be required.

Figure 9: Indicative Callide and Calliope permanent dwelling demand

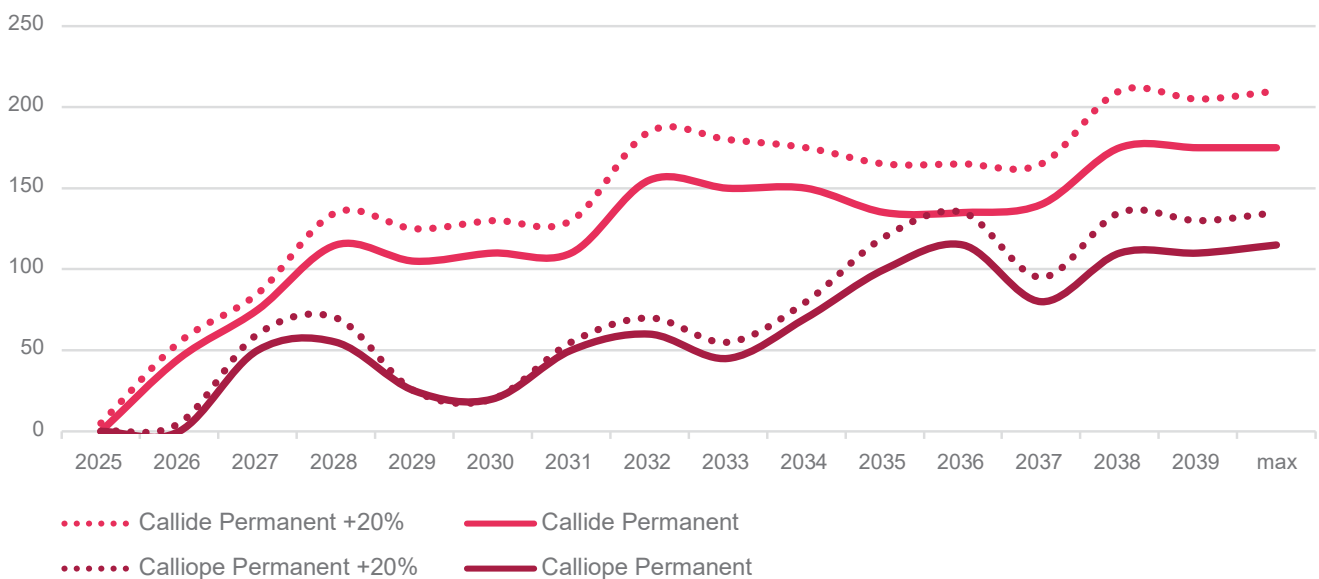
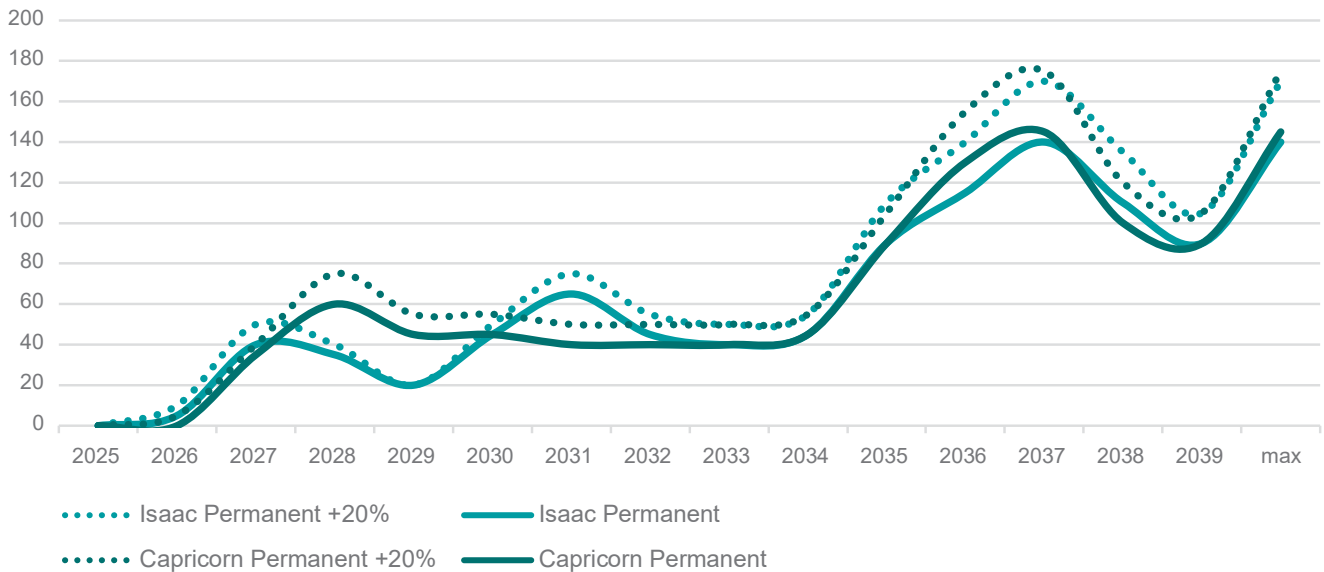


Figure 10: Indicative Isaac and Capricorn permanent dwelling demand



As the Central Queensland REZ workforce progressively arrives, the rate of building may need to increase to accommodate demand. The increased economic activities will have associated flow-on economic and social benefits for towns in the region. For example, housing built to meet a temporary surge in workforce demand could later be transitioned to a social or affordable housing provider, increasing access to affordable housing in the region.

To address the challenge of accommodating the REZ workforce, innovative construction methods could be explored, such as QBuild’s Modern Methods of Construction program. This program focusses on streamlining the design and delivery of modular housing products, which may help alleviate the strain on the region’s limited construction workforce and reduce supply chain challenges.

**Social infrastructure**

Central Queensland’s existing social infrastructure is predominantly well-placed to support new renewable energy development. While built social infrastructure in the region is well distributed, stakeholders confirmed that there have been some shortages in available workers to deliver social infrastructure services. Housing availability is understood to be a key underlying factor contributing to service disruptions.

Therefore, ensuring suitable housing options are available will be important to attract and retain the essential workforce needed to implement and sustain social infrastructure amid the shifting workforce dynamics of the energy transformation.

**Next steps**

The Queensland Government has committed \$1.4 million to support the future workforce transition, including further developing the Biloela Workforce Accommodation proposal and investigating potential legacy housing opportunities.





## 9. Planning and regulation

*Queensland's planning and regulatory framework was examined to consider if it is fit-for-purpose to support an efficient transition to a sustainable energy future.*

The Queensland Government is looking for ways to improve the state's planning processes and regulation to support renewable energy development, enhance coexistence outcomes and minimise impacts on communities.

### **Land use**

Central Queensland comprises a diverse array of land uses, including grazing, native vegetation, productive native forests and conservation areas. The construction and operation of REZs is anticipated to impact approximately 0.5 per cent of land area within the region, and approximately 2.17 per cent in Banana Shire LGA. This anticipated land use will not be exclusive to renewable energy development as there will be opportunities to explore co-existence practices, including through agrivoltaics.

Agrioltaics, the practice of combining solar energy production and agriculture, allows for the simultaneous generation of renewable energy and food production on the same land. By providing shade and reducing heat stress for crops or grazing land, solar panels improve land resilience and potentially reduce the need for water and other inputs. Incorporating livestock grazing on wind and solar farms not only maintains vegetation, reduces fire risks and the need for external maintenance, it also supports animal welfare through the provision of shelter and forage, embodying a more holistic approach to land management.

Making up approximately 87 per cent of the Central Queensland region, agriculture is the dominant land use, reflecting the region's importance in producing food for the state. According to the Department of Agriculture and Fisheries' Land Use Hierarchy Mapping, approximately 15 per cent of the land in Central Queensland is classified as either current or potential high value agricultural land. In recognition of this, there are considerable opportunities to place REZ development outside of current or potential high value agricultural land or adopt the co-existence practices described above.

Environmental conservation is a key priority within the region, with approximately 8.8 per cent of the land consisting of protected areas, such as National Parks. Renewable energy development should avoid these areas to protect the biodiversity, water quality and reduce additional regulatory requirements.



### Existing regulatory frameworks

Renewable energy projects in Central Queensland and Callide could face a complex approval process across various government levels.

Proposed projects may go through different approval mechanisms, depending on the type and scale of development. For example, wind farms are assessed by the Queensland Government's State Assessment and Referral Agency (SARA), whereas solar farm proposals are assessed by the relevant local government planning instrument. Renewable energy projects also have access to the coordinated project pathway, to seek coordinated assessment and outcomes through the Office of the Coordinator General (OCG). This process can be beneficial where a project triggers multiple approvals across State Government agencies. Note, further subsequent approvals under relevant legislation is still required (i.e. *Planning Act 2016*, *Transport Infrastructure Act 1994*, *Nature Conservation Act 1994* etc.).

Many renewable energy projects within Central Queensland will likely need to seek approval under the *Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. These applications are assessed by the Commonwealth Government to ensure impacts to Matters of National Environmental Significance are mitigated, including through offsets. Coordinated projects can be eligible for bilateral assessment under the EPBC Act, allowing the Coordinator-General to assess the impacts of projects on both state and national environmentally significant matters in a single process.

For transmission line infrastructure and substations, a Ministerial Infrastructure Designations (MID) is often the preferred approval pathway. MIDs provide an alternative approval process over the standard local government method for infrastructure purposes, as outlined by the *Planning Act 2016*, the *Planning Regulation 2017*, and the Minister's Guidelines and Rules. While MIDs are applicable for electricity operating works, there are currently no renewable energy projects under consideration.

These assessment pathways have varying timeframes which can impact the timely delivery of renewable energy projects across the region. There may be opportunities to review current regulations to improve the efficiency and timeliness of project approvals while maintaining the integrity of the assessment process.

### Next steps

With \$1 million funding, the Office of the Coordinator-General has committed to undertaking detailed consideration of potential impacts to Matters of National Environmental Significance (MNES) in the potential Callide REZ, working closely with the Commonwealth Government and the Department of the Environment, Science and Innovation. By providing an increased understanding of the likely potential impacts of development, this work will support project assessment and reduce the risk of unacceptable impacts on protected matters resulting in refusal under the *Environment Protection and Biodiversity Conservation Act 1999*. This work will also investigate strategic advance offsets for the REZ to further streamline development of projects, while also improving conservation outcomes.

## 10. Cultural heritage

*The REZ Framework was designed to explore how REZs can be delivered in a way that holistically respects cultural heritage.*

The Central Queensland region has varied levels of cultural sensitivity, with the south-east and central-east having the highest sensitivity. There is also a large part of the region (71 per cent) mapped as ‘unknown’ where there is insufficient information to form conclusions around the risk or likelihood of encountering culturally significant sites or places. Further studies are required to determine the likelihood of intact Aboriginal sites being present in these areas. Considering this, all areas across Central Queensland and the Callide REZ will require careful planning and engagement with relevant parties to ensure cultural heritage is respected and acknowledged.

### Cultural Heritage Management Plans

Under the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003*, any land-use activity within the vicinity of recorded cultural heritage should not proceed without the agreement of the Aboriginal or Torres Strait Islander Party for the area, or by developing a Cultural Heritage Management Plan (CHMP). A CHMP is an agreement between a land user (sponsor) and Traditional Owners (endorsed party), detailing how land use activities will avoid or minimise harm to cultural heritage. There are 188 CHMPs across Central Queensland, dating from 2004-2024, with 13 of these relating to renewable energy projects, and 58 in Callide, with eight related to renewable energy projects. It is anticipated as REZ development progresses across the region, more CHMPs will be developed to protect cultural heritage in Central Queensland.

### Native Title

First Nations communities in Central Queensland have strong and ongoing connections to Land, Sky and Sea Country, and REZ development must respect these connections, including through best practice management of native title rights and interests.

The Queensland Government acknowledges the recognition of native title rights is integral to the REZ development process, requiring close collaboration with title holders. If renewable energy development is proposed on land where native title exists, or may exist, projects must follow the requirements under the *Native Title Act 1993*. In regions with overlapping native title claims, the process of determining who would be appropriate to be consulted is a complex process requiring careful consideration and a detailed consultation strategy. The presence of multiple claims may lead to extended negotiations as it’s crucial to identify and respect the interests and rights of all the First Nations groups involved. REZ projects must take into account these legal and cultural sensitivities.

If the REZ development affects these rights, the native title holders should receive compensation for any loss or changes to their entitled land use. The Queensland Government also recognises that ongoing and genuine engagement with First Nations peoples is vital, regardless of whether native title exists on land proposed for REZ development.

### Next steps

As discussed in Section 5.4, \$0.5 million has been committed to continue tailored engagement and partnerships with First Nations peoples in the Central Queensland region. These funds may be allocated for various collaborative initiatives, which may include cultural heritage preservation, land management, community development projects, education, health initiatives, and local economic opportunities that benefit First Nations peoples.





## 11. Environment

### *How can the REZ Framework efficiently deliver REZs in a way that benefits the local environment?*

Environmental sensitivity mapping was carried out for Central Queensland and Callide, with findings providing the following insights:

- Areas of high environmental sensitivity exist throughout the region and should be avoided.
- Statewide biodiversity corridors exist across the region and need to be treated with care.
- ‘Moderate’ sensitivity areas in the region include areas of local biodiversity importance but may be appropriate for careful development.
- ‘Low’ sensitivity areas are used mostly for farming and growing crops and reflect a lower environmental concern for energy projects if planned appropriately.

Renewable energy development should be located, where possible, in the moderate to low sensitivity areas within the region.

#### **Environmental approvals**

Projects seeking approval under environmental protection laws, such as the EPBC Act, often face delays due to insufficient supporting documentation. Field assessments to gather necessary information can be time-consuming, costly, and logistically challenging. Consideration should be given to conducting regional-scale studies on biodiversity to help expedite approvals and provide comprehensive data early in the process.

#### **Offsets**

As part of the approvals process, it is possible that projects within REZs across Central Queensland will require the delivery of environmental offsets at both national and state legislative tiers. These requirements help compensate any impacts on recognised environmental concerns known as Matters of National Environmental Significance (MNES) – which may include protected species, ecosystems, and heritage sites – and Matters of State Environmental Significance (MSES), which cover regionally important environmental values.

The purpose of these offsets is to counterbalance any potential adverse effects a development may have on significant areas and ensure that the overall ecological equilibrium is maintained or enhanced. Offsets can include activities such as habitat restoration, establishing conservation areas, or other actions that promote the persistence of affected species and their habitats through maintaining and enhancing biodiversity.



The Queensland Government’s objective is to ensure ecologically sustainable development within Central Queensland’s REZs, placing a high priority on preserving distinct local environments. This approach underlines a commitment to sustainable practices, which are integrated into project planning and execution stages. By adhering to such principles, the government endeavours to strike a balance between fostering renewable energy infrastructure development and conserving the intrinsic biodiversity values that characterise Queensland’s natural landscapes.

### **Biosecurity**

The Central Queensland REZ Region is impacted by Weeds of National Significance (WoNS). These invasive species, recognised as some of the most problematic across Australia, are managed under individual strategic plans outlined in the Australian Weeds Strategy 2017–2027.

Although specific spatial data on pest animals in the region is unavailable, it is known that several species—including wild dogs, cats, foxes, feral pigs, cane toads, rats, and rabbits—are present in Central Queensland. Additionally, two noxious fish species are present and listed as restricted matter under Schedule 2 of the *Queensland Biosecurity Act 2014* (Biosecurity Act).

The Biosecurity Act seeks to protect Queensland’s agriculture, environment, economy, and communities from the adverse impacts of diseases, pests, and invasive species. It also promotes collaboration between government, industry, and the community, emphasising proactive measures to safeguard Queensland’s ecosystems, industries, and human health.

For any future projects in the Central Queensland REZ Region, adhering to general biosecurity obligations (GBO) under the Biosecurity Act will be critical. This includes preventing the spread of pests, diseases, or contaminants. LGAs within the region have established biosecurity plans that should be taken into account when designing infrastructure to ensure compliance and protect the area from biosecurity risks.

#### **Next steps**

As discussed in Section 9, the Office of the Coordinator-General has committed to use \$1 million of funding to undertake detailed consideration of potential cumulative impacts to the environment in the potential Callide REZ, working closely with the Commonwealth Government and the Department of the Environment, Science and Innovation. This work will provide an increased understanding of the region’s biodiversity and the likely impacts of development and will investigate strategic advance offsets for the REZ to improve conservation outcomes and streamline project delivery.

## **12. Waste and circular economy**

*The capacity of waste facilities were assessed to accommodate renewable energy development and opportunities for circular economy initiatives were identified.*

The Queensland Government is continually seeking to reduce the environmental impacts of industry by reducing waste and promoting the reuse or recycling of components.

### **Renewable energy infrastructure design expectations**

Designing renewable energy infrastructure with reuse and recycling objectives in mind will support circular economy opportunities, create additional jobs, reduce demand on waste capacity, and support environmental outcomes.

Renewable energy developments can generate significant quantities of waste during their construction and operation. However, developers should aim to design infrastructure to achieve Queensland Government targets for a minimum of 40 per cent of building and civil infrastructure materials to be reused or recycled and 75 per cent of construction and demolition (C&D) waste diverted from landfill by 2025, which increases to a target of 85 per cent by 2030. As technology continues to develop, emerging renewable energy technology may provide greater opportunities for reuse and recycling.

### Capacity of waste facilities for renewable energy infrastructure construction

During construction of renewable energy infrastructure, it is reasonable to expect around 10 per cent of purchased materials to be sent to waste. This can happen due to errors, scope change, over ordering to ensure supply availability and other unforeseen events. Renewable energy developers should develop waste management plans according to state guidelines which should provide for recycling where possible.

Landfill capacity is already constrained in Central Queensland over the medium-term. Local governments have prepared a Regional Waste and Resource Recovery Plan for Central Queensland that identifies the lack of long-term capacity. There is a need to develop new landfill capacity in the region regardless of REZ development. The volume of waste generated by renewable energy infrastructure construction will need to be considered as part of local government plans.

### End-of-life considerations and recycling opportunities

Wind turbines will typically last for 20-30 years, however as technology improves lifespans closer to 30 years will become more common. Solar farms can last up to 30 years. Both wind and solar decommissioning are required to rehabilitate the land used for infrastructure.

Through strategic partnerships, the Queensland Government is identifying opportunities to build new resource recovery industries and activate opportunities for the renewable energy industry. Over time, opportunities for commercial scale recycling will continue to increase. The Queensland Government is already pursuing initiatives to support innovation such as through:

- Recycling and Jobs Fund – Industry Development: This program supports large-scale recycling projects that can demonstrate significant improvement in recycling processes and help to reduce the amount of waste going to landfills.
- Circular Economy Investment Program: This initiative aims to encourage Queensland’s transition to a system that minimises waste and keeps materials in use for as long as possible.

#### Next steps

The Queensland Government has also allocated \$0.5 million to expedite the development of Banana Shire Council’s proposed new waste facility to support increased capacity needed for REZ development and explore recycling opportunities.

## 13. Conclusion

Multiple stakeholders and organisations participated in recent engagement activities across Central Queensland, contributing their time, knowledge and passion for improving the rollout of REZs. The Queensland Government sincerely thanks all of those who participated for their valuable insights.

The feedback, findings and recommendations contained within this report will inform work programs across government to support the readiness of Central Queensland and Callide for future REZ development. With \$25.8 million committed to undertaking a series of REZ readiness actions, the Queensland Government will work collaboratively across government agencies, and with Powerlink and key regional stakeholders, to address local needs and maximise community benefits in alignment with community priorities.

REZ Readiness Assessments are not a ‘set and forget’ exercise. The Queensland Government has committed \$4.1 million to continue to consider a range of critical issues related to transport and other enabling infrastructure including waste, supply chains, and infrastructure funding models. Government will also continue work with Councils to inform master planning for the potential REZs in Central Queensland.

For more information about these proposed initiatives please refer to the REZ Readiness Assessment Actions brochure, available on our [website](#).



**Queensland**  
Government

 [energyandclimate.qld.gov.au/energy/renewable-energy-zones](https://energyandclimate.qld.gov.au/energy/renewable-energy-zones)

 13 QGOV (13 74 68)  @QldEnergyandClimate