

Queensland

Good jobs

Better services

Great lifestyle



2023 Queensland Renewable Energy Zone Roadmap

Energising our regions and industries

RELEASED IN DRAFT FOR CONSULTATION

ROADMAP | July 2023



2023 Queensland Renewable Energy Zone Roadmap

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Interpreter



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 13 QGOV (13 74 68) and we will arrange an interpreter to effectively communicate the report to you.

www.qld.gov.au/languages

Aboriginal and Torres Strait Islander peoples should be aware that this document may contain images of deceased persons.



The work above 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 Public Works will work 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 Minjerrabah (North Stradbroke Island). With her husband, Roy (a Wakka man from Cherbourg), they created their company CHABOO as a way to share their stories through their artwork.

Acknowledgement of Country

In the spirit of reconciliation, 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, present and emerging 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 peoples have in the delivery of Queensland's current energy system and is committed to ensuring they benefit from the new energy system. As we work together to deliver a clean, reliable and affordable energy system for Queensland, the Queensland Government is committed to genuine partnerships and meaningful engagement with Queensland's First Nations peoples.

“Renewable energy is bringing new jobs and opportunities to regional communities, including high-value battery manufacturing, critical minerals, biofuels, hydrogen and materials recycling.”

- The Honourable Mick de Brenni MP
Minister for Energy, Renewables and Hydrogen and
Minister for Public Works and Procurement

Contents

REZ vision	1
Executive summary	2
Have your say	5
Part 1: Overview	7
Introduction	8
Identifying a REZ	13
Improving local outcomes	15
Part 2: REZ development process	19
Strategic direction	21
Stages of development	23
Part 3: Roadmap to 2035	29
Southern Queensland	31
Central Queensland	37
North and Far North Queensland	43
Part 4: Outside the REZ regions	51
Part 5: REZ Delivery Body	55
Part 6: Further REZ facts	57
Next steps	63
Glossary	65

This document is for information purposes only and does not constitute investment advice.



Our REZ vision

Our Renewable Energy Zone (REZ) vision is centred around fostering a thriving clean energy economy, creating job opportunities across the state and reaching our renewable energy targets through coordinated energy infrastructure planning and investment.

REZ delivery will support Queensland industries to decarbonise and energise regional areas by ensuring benefits flow back to local communities. Through coordinated, transparent and collaborative development processes we will deliver on the broader vision of clean, reliable and affordable energy providing power for generations as outlined in the Queensland Energy and Jobs Plan.

Queensland is on track to become a renewable energy powerhouse.

This draft 2023 Queensland Renewable Energy Zone Roadmap (the Roadmap), outlines the pathway for connecting 22 gigawatts (GW) of new wind and solar generation to provide clean, reliable, affordable power for generations.

It is a key component of the over \$60 billion [Queensland Energy and Jobs Plan](#) (QEJP) and meeting the state's clean energy targets of 50 per cent by 2030, 70 per cent by 2032 and 80 per cent by 2035.

But more importantly, it is a key way Queenslanders can shape how renewables are developed to benefit their communities.

Across the Southern, Central, and Northern (including North and Far North Queensland) regions, there are 12 potential future REZs to be developed across three phases to 2035. A REZ is an area with strong wind and sun that is developed in a coordinated way to lower costs and improve local community, environmental, and cultural heritage outcomes.

REZs are critical to ensuring Queenslanders have access to affordable energy in the long term, as well as creating regional job opportunities, and lowering Queensland emissions. They will deliver a steady pipeline of approximately 4,000 direct ongoing renewable energy construction jobs¹. These jobs are part of 100,000 direct and indirect jobs expected by 2040 detailed in the QEJP to build our [SuperGrid](#) and in emerging green opportunities like renewable hydrogen, battery manufacturing, resource mining and metal refining.

New Queensland laws are being developed to establish the framework for declaring and developing Queensland targeted REZs. This framework, outlined in this document, aims to prioritise community collaboration, balance opportunities and impacts, and deliver long-term benefits.

Feedback on this draft Roadmap will guide the development of these REZs including proposals to:

- Boost mechanisms to assess REZ impacts and opportunities by developing a new REZ Readiness Assessment process.
- Empower communities to shape outcomes, including the involvement of new Regional Energy Reference Groups.
- Generate long-term benefits and invest in local priorities to create a positive energy legacy for regional communities.

This draft Roadmap will also help to improve long-term regional planning and coordination for renewable energy. As new opportunities emerge over time, such as the growing hydrogen sector or connection of the North West Minerals Province through CopperString, additional REZs may be identified. It is anticipated that this Roadmap will be updated every two years to capture these opportunities.

To understand the opportunities and impacts of future REZ development, we will be immediately allocating at least \$6 million to strategically assess 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, across the three regions.

This will inform planning for individual REZ declarations and feed into other Government planning processes.

Submissions on this draft Roadmap can be made until Friday 22 September 2023 and will be incorporated into the final Roadmap.

¹ All REZ job estimates throughout this document are average renewable energy project construction jobs over the course of REZ development. These figures are based on UTS best practice estimates.
Source: https://www.racefor2030.com.au/wp-content/uploads/2023/03/FINAL-ISP_Workforce_Rev1-1.pdf.

The Queensland Government is seizing the opportunity to energise our regions and industries

We're guided by seven principles for the energy transformation

The draft Regional Energy Transformation Partnerships Framework is open for consultation until 22 September 2023 on seven principles for empowering local voices and local choices.

- Drive genuine and ongoing engagement
- Share benefits with communities
- Buy local, build local
- Increase local jobs and secure work
- Preserve Queensland's environment
- Empower First Nations peoples
- Build local capacity



We're boosting our institutions and standards

- Development of the REZ Readiness Assessment process to create opportunities and manage impacts
- Review of the planning framework for renewable energy
- Support from the Office of the Coordinator-General to ensure timely and coordinated energy sector outcomes
- Greater role for key institutions in supporting community with coexistence information
- Bioregional planning with the Commonwealth Government
- Developing policies for offshore wind, end-of-life and recycling of renewable components

We're supporting community involvement

- Working with Local Government and First Nations stakeholders to empower regional communities and capture benefits of renewables investment
- Establishing Regional Energy Reference Groups for improved coordination and consultation
- Developing a Community Engagement Renewable Energy Developer Guide
- Working with Queensland Farmers' Federation (QFF) to develop a Renewable Energy Landholder Toolkit
- Leveraging existing government relationships with communities, landholders, First Nations peoples and key stakeholders to capture insights
- Hosting engagement activities and participating in regional shows and events

We're creating long-term benefits for regional communities

- Creating nearly 4,000 ongoing direct renewable energy construction jobs as part of 100,000 direct and indirect jobs expected by 2040
- Coordinating infrastructure investment across government with the Regional Economic Futures Fund (REFF) and Local Economic Opportunities (LEO) networks
- Potentially combining community investment schemes to maximise opportunities
- Building two new transmission and training centres across the regions
- Delivering the Job Security Guarantee
- Infrastructure investment in telecommunications to connect our regions to high speed internet

Have your say

We are consulting on this draft Roadmap until Friday 22 September 2023. Questions for consideration have been listed on page 58 to guide submissions, which can be made to REZRoadmap@epw.qld.gov.au.

Timeline of key activities



September 2022

Queensland Energy and Jobs Plan and SuperGrid Infrastructure Blueprint released.

- Outlines Queensland's vision for clean, reliable and affordable energy providing power for generations, with new renewable energy targets of 70 per cent by 2032 and 80 per cent by 2035.
- Action 1.4 of the Energy and Jobs Plan commits to the coordinated development of an additional 22 GW of large-scale wind and solar by 2035 in REZs across Queensland.



October 2022

Draft Regional Energy Transformation Partnerships Framework released for consultation.

- Outlines seven principles for empowering local voices and local choices to guide the energy transformation in Queensland. Consultation currently underway, with community and industry input into final principles for energy transformation. You can complete the online survey to have your say.

Complete the survey



June 2023

Exposure draft Energy (Renewable Transformation and Jobs) Bill released for consultation.

- Outlines the targets, infrastructure frameworks and accountability mechanisms to deliver the Queensland Energy and Jobs Plan including the REZ Framework.
- Feedback gathered from industry, community organisations and individuals with consultation closed on 30 June 2023.
- New laws intended to be introduced to Parliament in late 2023.

WE ARE HERE



July 2023

Release of this document, the draft 2023 REZ Roadmap for consultation.

- Outlines Queensland's pathway to better coordinate renewable projects and infrastructure in REZs to optimise investment and bring online an additional 22 GW of wind and solar by 2035.
- Provides more information to communities on future REZ development and seeks feedback on priorities for communities. Submissions open until Friday 22 September 2023.
- At least \$6 million allocated to undertake strategic assessment of regions to understand readiness for REZ development.

Respond to questions



Late 2023 / early 2024

Planned release of outcomes for communities from engagement on the Regional Energy Transformation Partnerships Framework and final 2023 REZ Roadmap incorporating feedback from submissions and community consultation.



2024

New Energy (Renewable Transformation and Jobs) Act in effect and first REZ declarations underway supported by detailed community engagement. Regional Energy Reference Groups formally established.



2025 and beyond

First update to the SuperGrid Infrastructure Blueprint and REZ Roadmap in 2025 with further updates every two years.



Part 1: Overview

Locations for REZs leverage strong wind and abundant sunshine, along with other qualities suitable for renewable energy development. Each REZ will be strategically planned and developed to ensure an optimal mix of generation sources connected by efficient transmission infrastructure.

Coordinated development of energy infrastructure improves the ability to manage local impacts while creating a positive energy legacy in regional communities including new jobs and opportunities. These opportunities include emerging sectors such as battery manufacturing, critical minerals, biofuels, hydrogen and materials recycling.

A cleaner energy future is also fundamental to combating climate change and reducing climate extremes that often hit our regional areas hardest such as droughts, heatwaves, bushfires and floods.

Introduction

A coordinated, transparent and collaborative approach for developing renewable projects and energy infrastructure will achieve better economic, social and environmental outcomes across the state.

That is why Queensland is developing REZs. REZs will facilitate the connection of 22 GW of new renewable energy development to meet Queensland's need for clean, reliable, and affordable electricity for homes, businesses and industries into the future. Coordinated development within targeted REZs will result in a smaller overall network footprints and improved local outcomes.

The Queensland Government, working with Powerlink Queensland, has identified 12 potential REZs across the Southern, Central, North and Far North Queensland regions.

The indicative location, size and timing of these REZs is based on analysis of available network capacity, renewable resources, project pipelines, investor interest, land use, and optimal network expansion.

The Queensland REZ Framework detailed in this draft Roadmap follows a four-stage process to developing REZs:

- Planning
- Declaration
- Construction and operation
- Commissioned.

This Framework will be enabled in legislation through the draft Energy (Renewable Transformation and Jobs) Bill, scheduled for introduction to Parliament in late 2023.

To support REZ development, this Roadmap includes a proposed approach for undertaking strategic regional assessments and detailed local assessments of opportunities and impacts of REZ development. These **REZ Readiness Assessments** will evaluate the long-term outlook and also look at each specific REZ as it is declared.

To understand the opportunities and impacts of future REZ development, the Queensland Government has immediately allocated at least \$6 million to undertake a strategic assessment of the three regions. These assessments will look at the potential implications for infrastructure, transport, housing and accommodation, workforce, supply chains, waste management, other land uses, and social infrastructure, as well as local industry and First Nations peoples' considerations. Information from these assessments will inform planning for individual REZ declarations including Detailed REZ Readiness Assessments at the time of declaration, and feed into other Government planning processes.

New **Regional Energy Reference Groups** will provide valuable input to shape priorities during these assessments and throughout the development of REZs.

Additionally, there is an opportunity to improve coordination of **community investment schemes**. The Queensland Government is seeking views from stakeholders on the potential establishment of a coordinated fund to which renewable energy developers could contribute. This could support investments in local priorities for REZ communities focused on creating a positive energy legacy shaped by the Regional Energy Reference Groups.

The Queensland Government is seeking feedback on these aspects of REZ development. Key questions for consultation include:

1. What should the strategic and detailed REZ Readiness Assessments focus on to maximise local opportunities and manage impacts from REZ development?
2. How should Regional Energy Reference Groups be established and what role should they play in setting local investment priorities and shaping REZ outcomes?
3. Should there be a coordinated scheme in place to invest in local priorities to leave a positive legacy for REZ communities and how should this operate?
4. What else do we need to consider for REZ development in Queensland?

In addition to consulting on these elements of REZ development, the draft Roadmap provides transparency to communities on the likely locations of future REZs. This will support coordinated local planning efforts.

Community feedback will inform the final 2023 REZ Roadmap. It is anticipated the Roadmap will be updated every two years, aligned with the SuperGrid Infrastructure Blueprint, to reflect the latest market outlook and enable long-term planning for renewable development. This includes incorporating REZs into the state planning framework through regional plans and infrastructure planning processes.

Over time, each potential REZ will be declared for consultation and development by the Minister for Energy under the new legislation. As this occurs, more granular planning activities will be undertaken including community engagement on specific infrastructure proposals by the REZ Delivery Body (intended to be Powerlink Queensland) and connecting renewable energy projects. Importantly, as new opportunities like hydrogen emerge, additional REZs may be needed to meet increasing demand for clean energy.



Queensland's new-industry development strategy

The Queensland Government recently released the Queensland new-industry development strategy that looks to capitalise on decarbonisation opportunities².

To underpin this strategy the government is developing regionally specific infrastructure and land use plans aligned with the economic and social aspirations of each region.

The creation of these plans will complement the work of a newly established LEO Network, which will work with local communities to assist with economic transition. The government will also work with communities to prepare place-based regional transformation strategies to guide the implementation of the \$200 million REFF.

Outcomes and recommendations from REZ Readiness Assessments could help to inform these strategies to ensure the needs of regions hosting future energy infrastructure are captured.

The government will also continue to work with the Commonwealth Government on the establishment and work of the new Net Zero Authority.

² <https://www.statedevelopment.qld.gov.au/industry/queensland-new-industry-development-strategy>

REZs are focused on unlocking new areas of the Queensland shared transmission network that supplies the majority of Queensland homes and businesses.

For Queenslanders living in regional and remote communities, including First Nations communities, work is also underway to ensure everyone has an opportunity to share in the benefits of the energy transformation.

A Remote and First Nations Clean Energy Strategy is being co-designed by First Nations communities and the Queensland and Australian governments. Additionally, a microgrid pilot fund has been established to improve resilience of electricity supply in regional and remote communities.

We are actively working to connect Queensland's North West Minerals Province to the national electricity grid through the construction of CopperString 2032 an approximately 840km transmission line from south of Townsville to Mount Isa.

This project, being delivered by Powerlink, the publicly owned Queensland transmission provider, will eventually link the Mount Isa grid to the broader shared network, opening up possibilities for future REZ development.

We are also working with Powerlink and its subsidiary QCN on how best to connect Queensland's regions to high-speed internet using the fibre optic cables that run along transmission infrastructure.

These initiatives, combined with REZ development, are critical to delivering clean, reliable and affordable power for generations for all Queenslanders no matter where they live.

Queensland's REZ Framework

Queensland renewable energy targets of 50 per cent by 2030, 70 per cent by 2032 and 80 per cent by 2035 will be established in law.



The **SuperGrid Infrastructure Blueprint** will be updated every two years with the optimal infrastructure pathway to achieve the targets.



The **REZ Roadmap** provides information on the indicative location, size and timing of REZ development, and will be updated in-line with the SuperGrid infrastructure Blueprint.

The **REZ Readiness Assessments** will evaluate the local opportunities and impacts for REZ communities and implications for enabling infrastructure to support REZ development.

Regional Energy Reference Groups provide input to assessments and shape local priorities for investment including through a potential coordinated investment scheme.

Potential **coordinated investment scheme** to coordinate community investment and invest in legacy programs.

Powerlink, as the **REZ Delivery Body**, will engage with host communities as each targeted REZ is declared for consultation and development.

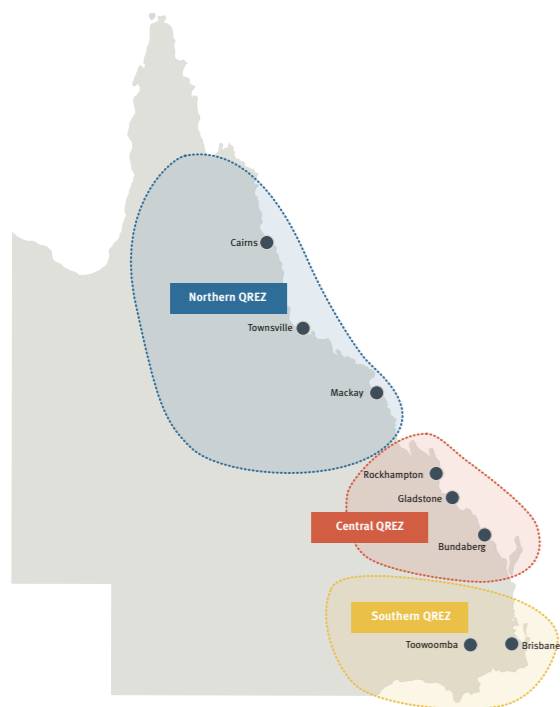


In-flight REZ

In-flight REZs are renewable energy developments that are already progressing under the existing National Electricity Rules with some degree of coordination and may be converted to a declared REZ in the future.

In-flight REZs offer important insights to government, Powerlink and developers, that will inform future REZ development. These were supported through initial funding by the government committed in 2020 for strategic infrastructure investments.

Queensland has three In-flight REZs in development including the Far North Queensland REZ with the Kaban Wind Farm as the foundation project, the Western Downs REZ with the Wambo Wind Farm and the Southern Downs REZ with the MacIntyre Wind Farm.



Detailed map on page 30



Queensland's REZ history

In 2020, as part of the COVID economic recovery strategy, the Queensland Government committed \$145 million to support initial strategic investments in three broad regions across Queensland with renewable energy interest. These were initially called Queensland Renewable Energy Zones (QREZ) regions. This funding helped to establish the In-flight REZ developments by backing storage and transmission infrastructure to support more generation to connect.

Since then, we have refined the framework and definition of a REZ. Regions have also been refined to align with Local Government Areas and 12 potential future REZs identified within these regions.

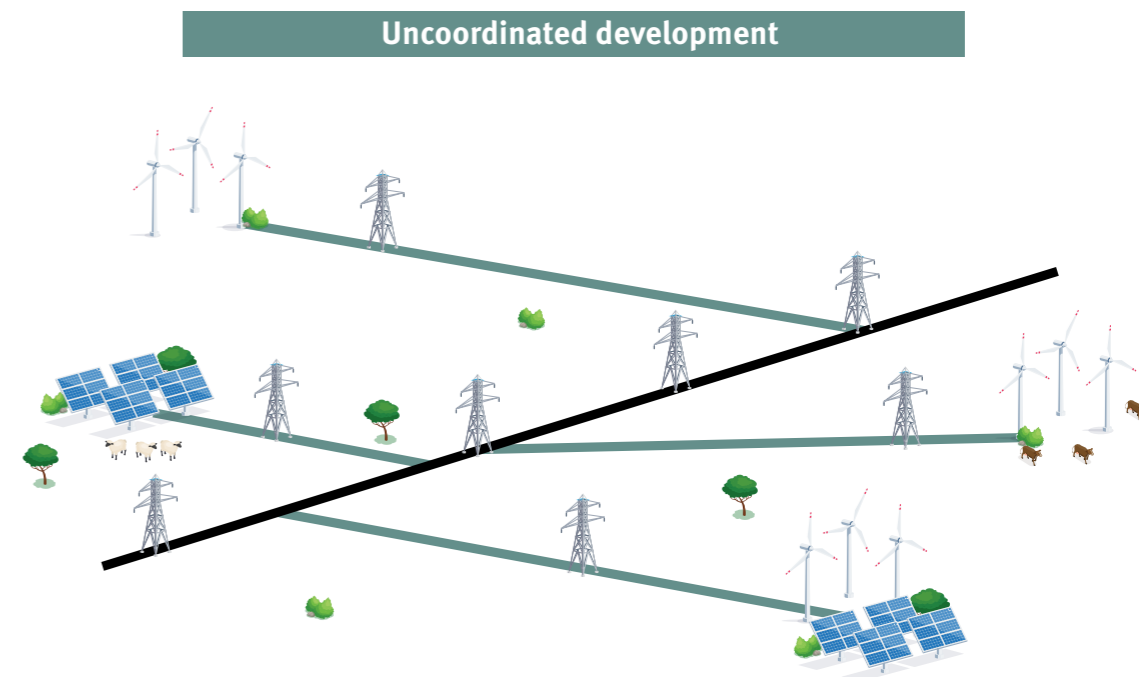
The indicative locations of potential REZ development have been identified based on network capacity, project pipeline and land use analysis. These preliminary locations represent the REZ connection to the shared network, and as each specific REZ is declared for consultation and development, the locations will be further defined and shaped by local input (detailed map on page 30).

Under proposed new laws, Queensland's REZ will be called a 'declared REZ'.

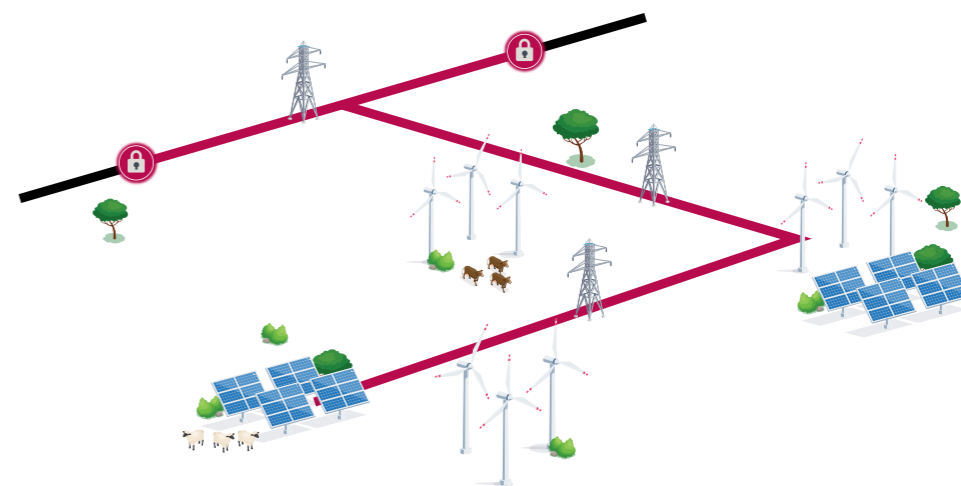
Queensland REZs in practice

Each of the 12 potential future REZs will be declared over time, kicking off a process for consultation and development including an outline of the specific geographical and detailed assessments of local opportunities and impacts.

The proposed REZ Framework will enable the REZ Delivery Body to coordinate and optimise projects connecting in the REZ. This will help deliver the right mix of energy technologies, in the right locations at the right time.



Coordinated REZ development with declared REZs



- Existing transmission network
- Coordinated REZ network
- Access controlled by REZ Delivery Body
- Uncoordinated network development



Warwick Solar Farm, image credit: Sarah Haskmann

Identifying a REZ

The Queensland Government and Powerlink have undertaken initial analysis to determine where potential REZs could be developed. It is important to note that generation and transmission infrastructure will still undergo planning and assessment processes required by all levels of government.

Indicative REZ locations have been identified based on analysis of a range of factors. As Queensland's jurisdictional electricity transmission planner, Powerlink has assessed the network to see where there is capacity to potentially develop REZs and assessed the locations of investor interest where there is already a significant pipeline of projects.

Preliminary analysis was also considered to inform suitable areas for REZ development including:

- proximity to industrial and residential energy customers (load)
- environmental, including ecologically significant areas
- agricultural
- heritage, including Indigenous Heritage
- hazards, including risk of bushfires
- land use, including Priority Development Areas
- mining.

The specific geographical location of a REZ will be further defined at the declaration stage and subject to engagement.

The precise footprint of REZ infrastructure, including network and generation or storage projects, will be subject to detailed community and landholder engagement in line with existing requirements and industry practices for infrastructure development.

Our deep Aboriginal and Torres Strait Islander cultural heritage, unique environmental values and regional landscapes, along with thriving agriculture and resource industries, are all part of what makes Queensland remarkable. The Queensland Government is committed to ensuring that the development of clean energy maximises opportunities for positive co-existence and preserves cultural heritage and local values.

Protecting our environment, cultural heritage, and Aboriginal and Torres Strait Islander lands

There are strong laws in place to protect our environment and to ensure conservation of Aboriginal and Torres Strait Islander cultural heritage and lands. REZ infrastructure, generation, storage and transmission, are still held to the following laws and regulations:

- The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) which helps to protect our unique plants, animals, habitats and places. It is Australia's main national environmental legislation.
- Queensland native vegetation clearing laws which preserve native vegetation that is critical for maintaining biodiversity and preventing land degradation.
- The Queensland Aboriginal Cultural Heritage Act 2003 and the Torres Strait Islander Cultural Heritage Act 2003 which provides effective recognition, protection and conservation of Aboriginal and Torres Strait Islander cultural heritage. A cultural heritage management plan is an agreement between a land user and Traditional Owners, that explains how land use activities can be managed to avoid or minimise harm to Aboriginal or Torres Strait Islander cultural heritage.
- Australian law recognises that Aboriginal and Torres Strait Island people have rights and interests in the land and waters under their traditional laws and customs. The Commonwealth Native Title Act 1993 sets out processes for Native Title groups to negotiate agreements with other parties in relation to the use of land and waters. A key agreement-making mechanism under the Native Title Act is an agreement known as an Indigenous Land Use Agreement (ILUA). ILUAs can allow for 'future acts', such as mining, grazing or renewable development, to be undertaken on land or waters in exchange for compensation to Native Title groups.

The Queensland Government has committed to a review of the planning framework for renewable energy development as part of the Queensland Energy and Jobs Plan. This review is currently being considered by the Department of State Development, Infrastructure, Local Government and Planning.

The Queensland Government is also working with the Australian Government on developing bioregional plans that will transform environmental protection in Queensland.

These plans will better protect areas that matter for the environment and allow for faster development decisions. This includes providing clear signals to industry on areas to be protected, areas that can be fast tracked or areas to proceed with caution. This includes providing clear signals to industry on areas to be protected, areas that can be fast tracked or areas where caution is needed.

Working with landholders

Hosting renewable generation

Landholders who host renewable projects can gain an alternative income stream to support themselves when needed, such as in times of drought. The Queensland Farmers' Federation Queensland Renewable Energy Landholder Toolkit provides information and practical guidance for landholders when negotiating with renewable energy developers. Some landholders may also choose to sell their land to renewable projects.

Hosting transmission infrastructure

Powerlink's processes to develop transmission infrastructure involves extensive landholder and community engagement. This is aimed at identifying the least overall impact transmission option, balancing a range of social, environment and economic factors. Landholders and communities are actively engaged through this process to ensure their insights and property-specific information is taken into account through the development process.

Improving local outcomes

The renewable energy industry is growing at a rapid pace as Queensland, Australia and countries around the world move to cut emissions as part of a decarbonising global economy. REZs will be a key tool for ensuring this transformation is coordinated.

Under new legislation Queensland will appoint Powerlink as the REZ Delivery Body and provide new rules on the process for establishing a REZ (the stages for REZ development are further detailed in Part 2 from page 19).

By enabling the REZ Delivery Body to optimise connections to the network within declared REZs, the Queensland REZ Framework will deliver the right mix of energy technologies in the right locations at the right time. This allows for scale-efficient infrastructure which keeps downward pressure on electricity prices, and minimises local impact.

The Framework also boosts mechanisms to assess impacts, shape outcomes and invest in priorities to improve local outcomes.

The Queensland Government also knows that workforce capacity and capability will be essential to delivering REZs, supporting community involvement and creating long-term benefits for local communities.

As an action under the QEJP and the Queensland Workforce Strategy 2022-2032³, the government will deliver a Future Energy Workforce Roadmap (FEWR) in 2023 that will identify opportunities to build and develop workforce capacity and capability for the energy sector as it transforms.

This work will build on the Hydrogen Industry Workforce Development Roadmap 2022-2032 to support workforce development for the renewable hydrogen industry now and into the future.

³ Source: <https://www.publications.qld.gov.au/ckan-publications-attachments-prod/resources/ff453627-3e2a-4dc5-96c5-a3e7bdf963fa/final-queensland-workforce-strategy-2022-2032.pdf>.

Assess REZ impacts and opportunities: conduct REZ Readiness Assessments

Careful assessment and coordination will be required to ensure communities can seize the opportunities from renewable energy development in REZs and manage cumulative impacts.

The Queensland Government has allocated at least \$6 million to undertake an initial Strategic REZ Readiness Assessment of the three regions where REZs will be developed. It is anticipated this will include studies into:

- opportunities and priorities as part of REZ development across regions
- potential implications for infrastructure, transport, housing and accommodation, workforce, supply chains, waste management, other land uses, and social infrastructure
- community input and perspectives including local industry and First Nations considerations.

Further Detailed REZ Readiness Assessments may be required for future host communities when a REZ is declared with more certainty on the specific geographic footprint.

These Detailed REZ Readiness Assessments will build from the strategic assessments and consider more local opportunities and impacts associated with the specific proposed REZ development.

Outcomes from REZ Readiness Assessments are proposed to inform processes across Government to ensure local communities can best capitalise on REZ development including transport and road planning, regional plans, housing and other planning processes.

CONSULTATION QUESTION:

What should the strategic and detailed REZ Readiness Assessments focus on to maximise local opportunities and manage impacts from REZ development?

Shape outcomes: establish Regional Energy Reference Groups

The Queensland Government has created a REZ Framework that works with landholders, communities, First Nations, industry and regional stakeholders across the four stages of REZ development.

There will be multiple opportunities and channels for local communities to provide feedback on REZs as the government and Powerlink undertake detailed investigations to better understand community readiness and how REZs should be developed at a local level.

Regional Energy Reference Groups are proposed to help in identifying the initiatives that should be supported through community investment schemes, provide input into REZ Readiness Assessments and to advise on opportunities and issues relating to REZs and the energy transformation more broadly.

It is a priority that these reference groups capture the diversity of voices and opinions that make up a local community, with people from diverse positions and backgrounds providing input.

To begin, three Regional Energy Reference Groups are proposed for Southern, Central, and North and Far North Queensland.

CONSULTATION QUESTION:

How should Regional Energy Reference Groups be established and what role should they play in setting local investment priorities and shaping REZ outcomes?

Invest in local priorities: potential coordinated scheme for REZ communities

Queensland's REZ Framework unlocks opportunities for coordination of community investment programs.

Large infrastructure developments often work with communities to make investments into local initiatives such as recreational infrastructure or grant funding for small local projects.

The Queensland Government has a range of initiatives open to communities to invest in legacy programs that will support decarbonisation and the energy transformation such as the REFF.

Through REZ development, there is an opportunity to expand this community investment and target larger investments by pooling funds that will leave a significant positive energy legacy for a region well beyond the construction period.

This could take the form of a coordinated investment scheme which renewable energy projects may make a contribution to alongside their other community programs.

Investment opportunities could be identified through the REZ Readiness Assessment process and guided by priorities identified by Regional Energy Reference Groups.

This would need to complement other State and Australian Government initiatives aimed to support thriving regional communities.

CONSULTATION QUESTION:

Should there be a coordinated scheme in place to invest in local priorities to leave a positive legacy for REZ communities and how should this operate?



Industry involvement

With a unique combination of abundant natural assets and established and innovative industries, Queensland is ready to embrace the opportunity of the energy transformation.

By coordinating the connection of new wind and solar, REZs can leverage economies of scale to efficiently connect more affordable renewable energy into our grid and provide access to competitive clean energy for industries looking to decarbonise.

The industries that fuel our communities such as agriculture, mining, mineral processing and more, need clean, reliable and affordable energy to continue to grow the Queensland economy.

Hydrogen

Queensland is set to be at the forefront of hydrogen developments in Australia. The Queensland Government has already committed more than \$60 million to stimulate the hydrogen industry and support future hydrogen jobs across the state.

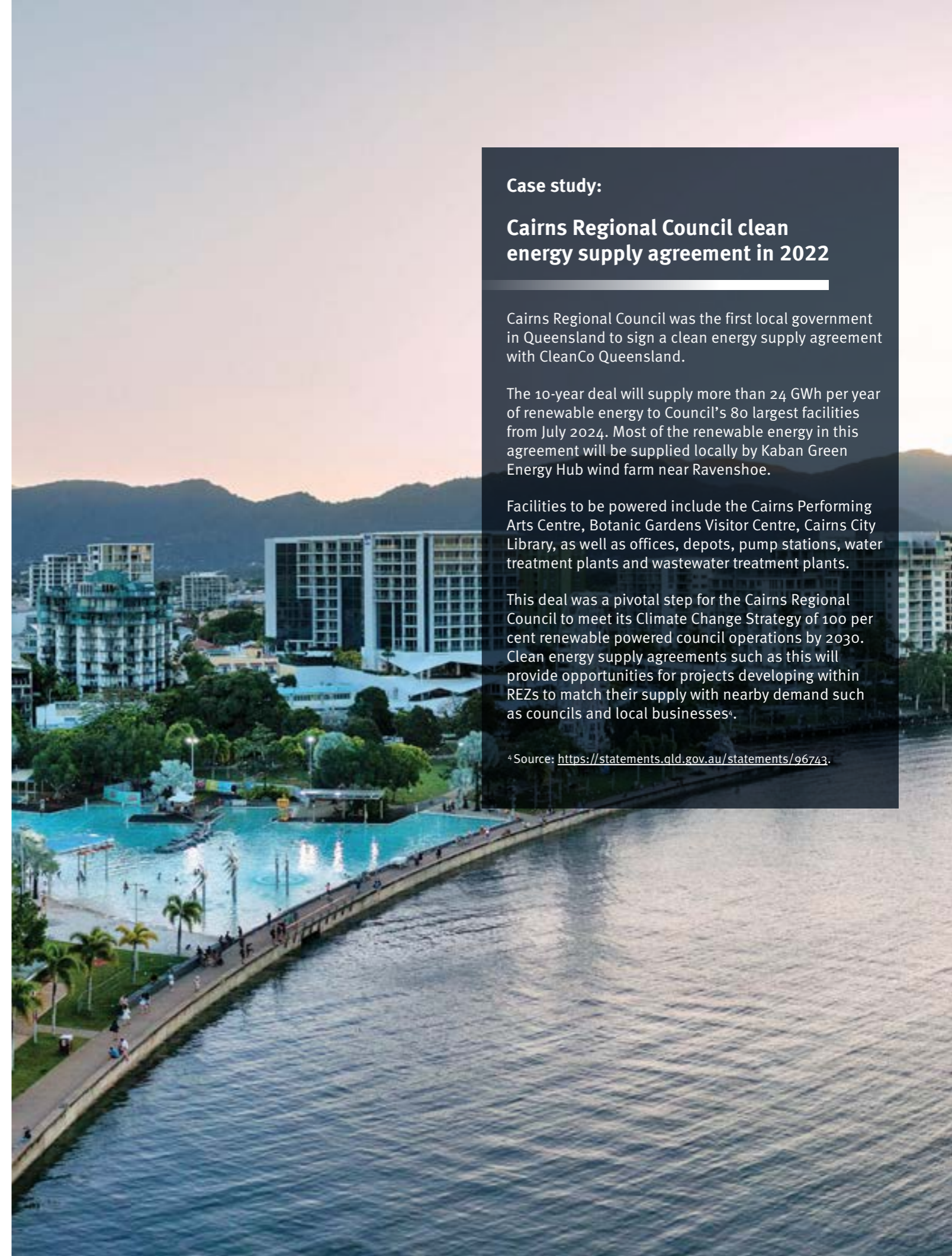
Our hydrogen industry will leverage the REZs, our export capabilities and port infrastructure to deliver world-class clean energy.

Development of our hydrogen industries may lead to the need for additional export oriented REZs in the future.

Clean energy supply agreements

Under clean energy supply agreements also known as Renewable Power Purchase Agreement (PPAs), electricity buyers agree to buy power and/or Largescale Generation Certificates from a renewable energy project at a fixed price over a longer term. These agreements support our industries with clean and affordable energy while supporting the growth of renewable projects powering Queensland homes and businesses.

More projects connecting in REZs will provide opportunities for greater access to clean energy supply agreements to help industry decarbonise over time and remain globally competitive.



Case study:

Cairns Regional Council clean energy supply agreement in 2022

Cairns Regional Council was the first local government in Queensland to sign a clean energy supply agreement with CleanCo Queensland.

The 10-year deal will supply more than 24 GWh per year of renewable energy to Council's 80 largest facilities from July 2024. Most of the renewable energy in this agreement will be supplied locally by Kaban Green Energy Hub wind farm near Ravenshoe.

Facilities to be powered include the Cairns Performing Arts Centre, Botanic Gardens Visitor Centre, Cairns City Library, as well as offices, depots, pump stations, water treatment plants and wastewater treatment plants.

This deal was a pivotal step for the Cairns Regional Council to meet its Climate Change Strategy of 100 per cent renewable powered council operations by 2030. Clean energy supply agreements such as this will provide opportunities for projects developing within REZs to match their supply with nearby demand such as councils and local businesses⁴.

⁴Source: <https://statements.qld.gov.au/statements/96743>.

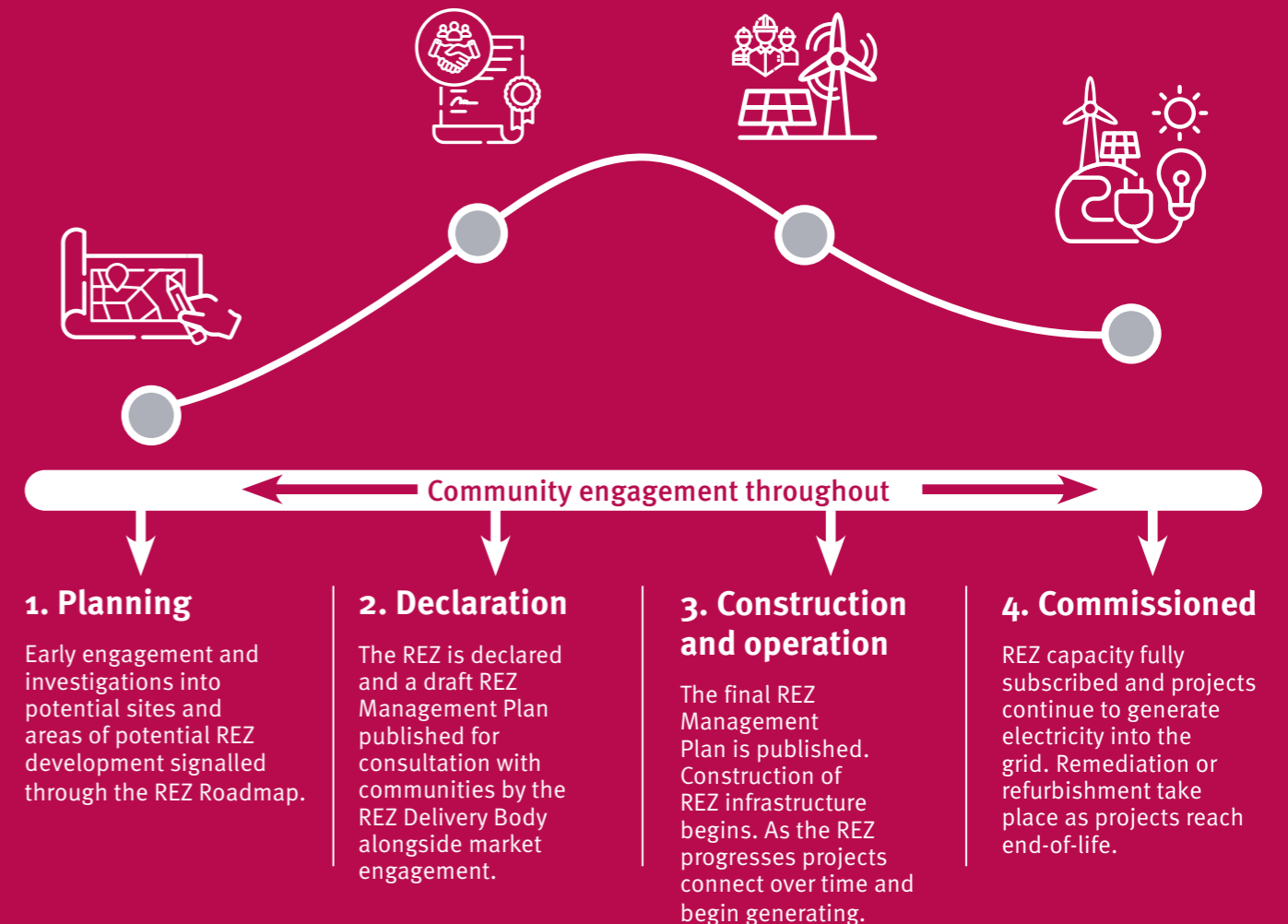


Part 2: REZ development stages

New laws have been proposed to enable the development of REZs in Queensland. Under these proposed laws, Queensland will be able to connect renewable energy in a coordinated way. This means we can ensure the right mix of technologies, in the right locations at the right time.

The REZ development process has four stages; (1) Planning, (2) Declaration, (3) Construction and operation, and (4) Commissioned. Communities, landholders, First Nations peoples and key stakeholders will have opportunities for engagement throughout to shape REZ roll out across the state.

Each REZ across the state will move through the development stages at different speeds – the status of each REZ will be tracked through future Roadmap updates across these four stages. Before an area is identified as a potential REZ there may be early development activities in some communities by renewable energy project developers exploring potential sites and investigating renewable energy resources. The Queensland Government is developing a Community Engagement and Benefit Sharing Developer Guide to improve the practices of developers in Queensland including at these early stages.



Strategic direction

The Queensland Energy and Jobs Plan sets a vision for the transformation of Queensland's energy system including targets for 50 per cent renewable energy by 2030, 70 per cent by 2032 and 80 per cent by 2035.

The Queensland SuperGrid Infrastructure Blueprint (the Blueprint) is a technical document which outlines how much renewable energy, storage (such as pumped hydro and large-scale batteries), and network infrastructure is needed to meet these targets. The Blueprint identified that 22 GW of new wind and solar would be needed by 2035 to be developed in a coordinated way across REZs.

Building from the Blueprint, this draft Roadmap provides more detailed information on the indicative location, size and timing of future potential REZs to connect the required 22 GW of additional renewables to meet Queensland's needs.

Additional REZs may be identified in the future to meet growing demand from hydrogen and other increases to energy demand. As each REZ is declared over time, more detailed engagement will occur around local needs, specific infrastructure, connecting projects and other technical elements.

REZ development includes a range of key stakeholders:

- **Local communities, landholders, Aboriginal and Torres Strait Islander peoples, and local key stakeholders** will be able to provide direct feedback throughout the process to shape REZ development in their region including through new regional energy reference groups.
- **Private and publicly owned energy developers** will continue to develop renewable energy projects across the state and engaged in commercial discussions with the REZ Delivery Body.
- The **Minister for Energy** will have the power to declare a REZ acting on advice from the REZ Delivery Body and government agencies.
- **Powerlink**, Queensland's publicly owned transmission company, will take on a new role known as the **REZ Delivery Body**. It will be responsible for developing REZs including coordinating the connection of multiple projects once a REZ is declared.
- The **Queensland Government** will support assessments of impact through the REZ Readiness Assessment process and have a greater energy focus across strategic planning and facilitation functions.

The current National Electricity Laws (NEL) and National Electricity Rules (NER) allow 'open-access' for generation connections to the shared network. Any new project can connect to the electricity grid at any location if it has the necessary regulatory approvals. Our proposed new laws allow us to deviate from this approach and will result in better outcomes for Queensland by improving coordination of these new renewable project connections. Projects will continue to connect with better coordination of support network infrastructure.

Throughout the development of a REZ, individual projects will still undergo planning and assessment processes required by all levels of government – including addressing Native Title and environmental considerations – in line with their project goals and timelines.

Detailed REZ planning is anticipated to be incorporated into Regional Infrastructure Plans and Regional Plans going forward to ensure strategic alignment between land use and infrastructure planning, and REZ planning processes.

The Government is also undertaking a review of the planning framework to make sure this is fit for purpose for the future.





Stages of development

Each REZ will be tailored to its location, generation mix and surrounding communities, however they will all go through a staged development process.

Early development

Renewable energy developers may be active in an area before it is identified as a potential REZ. For example, developers may be investigating renewable energy resource quality such as wind speeds to inform their portfolio planning activities.

Some developers may choose to set up renewable energy projects outside of a REZ where a specific location has strategic advantages for a developer. This means that some communities could see development not included in this and future REZ Roadmaps. In these cases, projects will still undergo planning and assessment processes required by all levels of government.

The Queensland Government is also working to promote best practice by renewable energy developers as they engage with communities through a Community Engagement and Benefit Sharing Developer Guide that is in development. The Government is also supporting landholders through the Queensland Renewable Energy Landholder Toolkit developed in partnership with Queensland Farmers' Federation.



STAGE 1 Planning

During the 'Planning' stage, the focus of community engagement will be:

- Consultation on REZ Roadmap including general public input, including First Nations, and engagement through Regional Energy Reference Groups when established.
- Renewable energy developers may already be directly engaging with landholders.
- Powerlink may commence engagement with communities on transmission infrastructure options.
- Information collection and collation for Strategic REZ Readiness Assessments.

During this time, individual developers will continue to progress their projects. This might include direct agreements with landholders to access properties to understand project feasibility.

Developers may also negotiate leases or land acquisition with landholders and/or agreements with neighbouring properties.

Importantly, the Queensland Government is focusing on how to improve engagement across the sector including through a developer guide on leading practice community engagement. The guide, intended to be released in 2023, provides developers with practical tools to work with communities to deliver regionally tailored programs, and encourages proactive and innovative community engagement approaches.

Each connecting REZ project must be financially viable, and undertake planning and environmental assessments as part of this planning process. There may be an opportunity during this stage to use mechanisms under the State Development and Public Works Organisation Act 1971 to ensure timely and coordinated outcomes. The Coordinator-General has the ability to facilitate large scale development to ensure economic and social development is achieved while environmental impacts are properly managed.

During this stage the Queensland Government may also initiate work on a Strategic REZ Readiness Assessment. This ongoing process will collect and collate information to guide coordination and other investments.

Powerlink may commence engagement and preliminary studies on transmission options in discussion with developers.

Long-term planning for REZ development will be advanced through Blueprint updates and subsequent REZ Roadmap consultation. Each update will outline the indicative location, capacity and timing of REZ development, with future REZs informed by Powerlink technical analysis of network capacity and investor interest alongside land use analysis.



STAGE 2 Declaration

During the 'Declaration' stage, the focus of community engagement will be:

- REZ Delivery body consults on the draft REZ Management Plan.
- Input from Regional Energy Reference Groups and key stakeholders, including First Nations peoples, on Detailed REZ Readiness Assessments if required.
- Developers will continue direct engagement with landholders.
- Powerlink will continue direct engagement with community and landholders about transmission infrastructure as needed.

During the declaration stage, Powerlink as the REZ Delivery Body under new proposed legislation, will be required to recommend REZ declarations to the Minister for Energy. Powerlink will engage with developers to better understand potential timelines for projects within potential REZs.

Powerlink will provide a draft REZ Management Plan when it recommends declaration of a REZ to the Minister for Energy.

After Powerlink recommends a REZ declaration, the Minister for Energy considers this recommendation, including the submitted materials and may declare the REZ for consultation with community and development. This will kick-off a consultation process to gather feedback on the draft REZ Management Plan and shape the final REZ Management Plan. The declaration means that nominated sections of the transmission network will be managed differently (i.e. no longer open access). Consultation activities with local community including Traditional Owners includes:

1. Commissioning of a Detailed REZ Readiness Assessment if required.
2. Publication of Powerlink's technical draft REZ Management Plan for consultation.

Detailed REZ Readiness Assessment

While the REZ Management Plan is published for consultation, the Queensland Government proposes to work with the local stakeholders (including those on the regional energy reference groups) to further shape priorities as part of the Detailed REZ Readiness Assessment to understand potential cumulative impacts, local opportunities and priorities for legacy benefits.

The Detailed REZ Readiness Assessments will build from the information that was collected and collated during the Planning stage for the Strategic Assessments.

Through this assessment process, recommendations will be identified on what the community might need to be ready for REZ development (for example, social infrastructure, local workforce readiness, transport and logistics, among other considerations).

It is anticipated that outcomes from this assessment will be progressed by relevant agencies and other responsible parties to ensure REZ host communities are well equipped to capitalise on opportunities from renewable energy development and manage local impacts.

REZ Management Plan

The REZ Management Plan is a technical document outlining aspects of the declared REZ including:

- geographical footprint
- REZ transmission network
- connecting capacity
- access arrangements
- generation mix
- other technical elements.

Under the new proposed laws, Powerlink will engage on draft REZ Management Plan and will consider feedback from stakeholders to refine the final REZ Management Plan.

Final REZ Management Plan

Following the consultation period, Powerlink will revise the REZ Management Plan in line with stakeholder feedback and provide this to the Minister for Energy and Treasurer for final decision to proceed. It is anticipated that the final REZ Management Plan and summary of REZ Readiness Assessment will be published by Government indicating approval to proceed with the REZ development.



STAGE 3

Construction and operation

During the 'Construction and operation' stage, the focus of community engagement will be:

- Landholders and Traditional Owners will continue to be directly engaged by Powerlink in line with the staging of the network development within the REZ. This may include final corridor selection and construction activities.
- Ongoing involvement of Regional Energy Reference Groups on progressing recommendations from the REZ Readiness Assessment and priorities for a coordinated investment scheme.
- Developers will continue direct engagement with landholders, and Traditional Owners, in line with project development and construction timeframes and connection and access agreements reached with Powerlink.

In this stage, Powerlink may continue to undertake detailed consultation (including final route selection) and development of REZ transmission depending on the specifications in the REZ Management Plan. Government will continue to support activities in line with recommendations in the REZ Readiness Assessments.

Depending on the network needs of the REZ and specific infrastructure proposals, construction timing will vary across REZs. Powerlink will be working to fully subscribe the declared REZ network infrastructure through commercial negotiations with project proponents. As those commercial negotiations are finalised, projects will connect over time (subject to planning and environmental assessments).

Powerlink will connect generators over time in line with the REZ Management Plan. If there was a coordinated investment scheme, it is anticipated this would be targeted at supporting local capacity building initiatives and legacy projects for the local REZ communities guided by the Regional Energy Reference Groups.

Through this stage, it will be important to maintain ongoing coexistence relationships.



STAGE 4

Commissioned

During the 'Commissioned' stage, the focus of community engagement will be:

- Ongoing engagement on coordinated investment scheme.
- Engagement with Regional Energy Reference Groups continues including on end-of-life considerations for REZs if appropriate.

Each REZ will reach full operation at different times depending on the profile of projects in that region, commercial negotiations between Powerlink and developers, landholder negotiations and construction timeframes.

Under the new proposed laws, the REZ coordination arrangements will be in operation for no less than 15 years (although connecting projects will have different project life cycles). At the end of this period, many projects will continue to operate and it is anticipated that at this time, these projects would function just like any other generator currently connected to the Queensland power system.




As individual projects and infrastructure reach end-of-technical-life there are several key considerations. Many projects may decide to re-invest into assets on site extending the life of the project. Other projects may choose to decommission.

It will be vital that projects maximise opportunities for on-site rehabilitation and revegetation. Individual project development approval conditions will also place statutory conditions relating to site decommissioning on a project or be refurbished for continued operation.

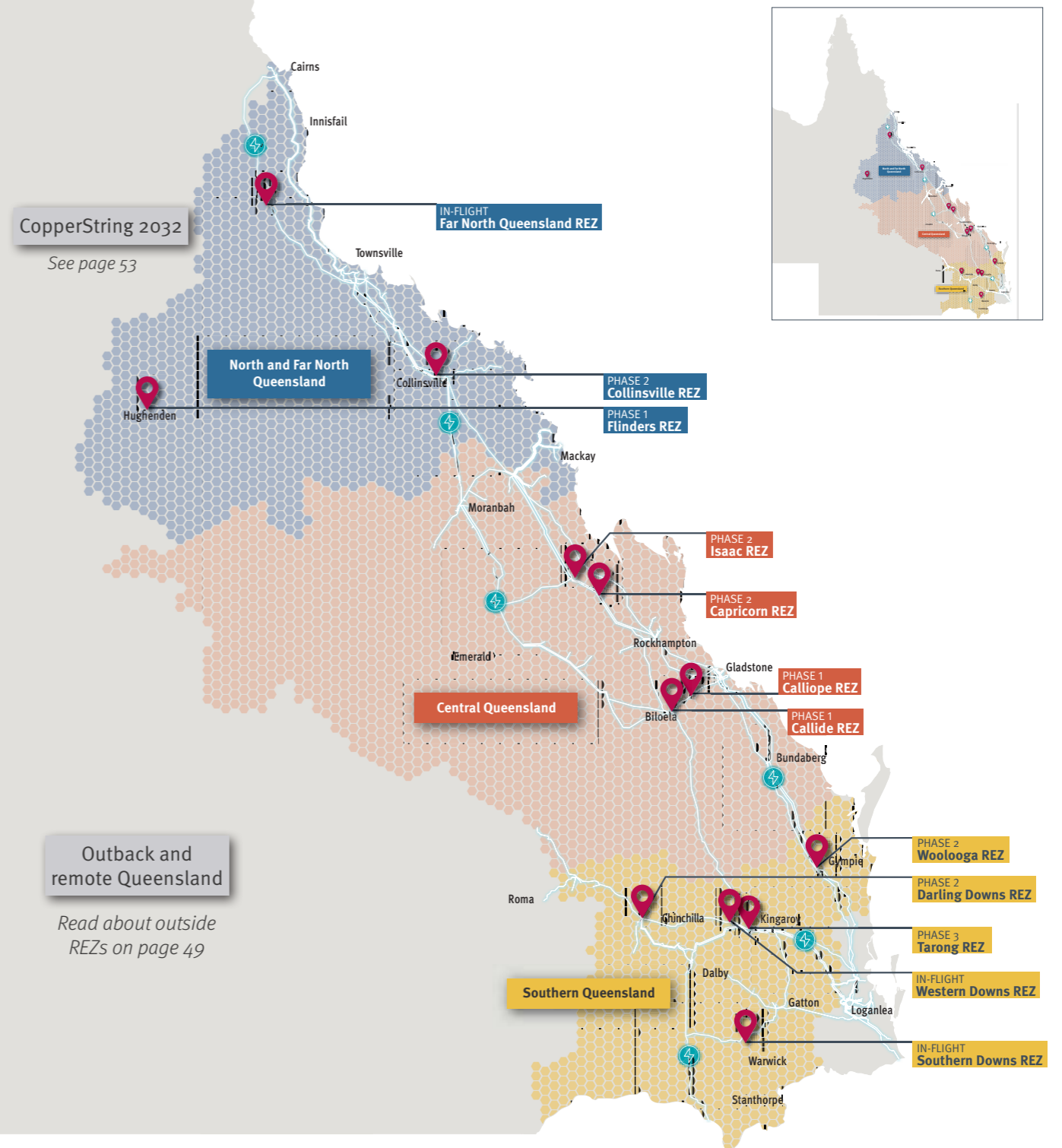



Part 3: Roadmap to 2035


This draft Roadmap outlines three phases for declaring REZs across Southern, Central, and North and Far North Queensland. The timing of these declarations is informed by the sequencing of other large-scale energy infrastructure such as Queensland's SuperGrid backbone transmission upgrades or Borumba and Pioneer-Burdekin Pumped Hydro Projects. Across the three phases, there are currently 12 potential REZs in Queensland. Additional REZs may be identified in future Roadmap updates to meet growing clean energy demand or if recommended by the REZ Delivery Body.

-  **Phase 1 (2022-24)**
Building on our strong foundations
-  **Phase 2 (2024-2028)**
Scaling and expanding opportunities
-  **Phase 3 (2028-2035)**
Preparing for net zero by 2050

Our three regions and 12 potential REZs



MAP KEY
 Existing transmission lines

 Potential Renewable Energy Zones: general area in which REZ transmission will connect to the existing shared transmission network operated by Powerlink.



Southern Queensland

Southern Queensland is renowned for its agricultural production and strong primary industries, including food and fibre production. The region is also home to abundant resources such as coal seam gas, petroleum and minerals, and in recent years has seen an increase in renewable projects, including the construction of multiple large-scale wind and solar farms.

The region is leading the charge in taking action to see local business benefit from renewable investment including Toowoomba and Surat Basin Enterprise partnering with industry to launch supplier portals for wind and hydrogen. Energy intensive agribusinesses in the region are also looking to decarbonise and access affordable and clean renewables.

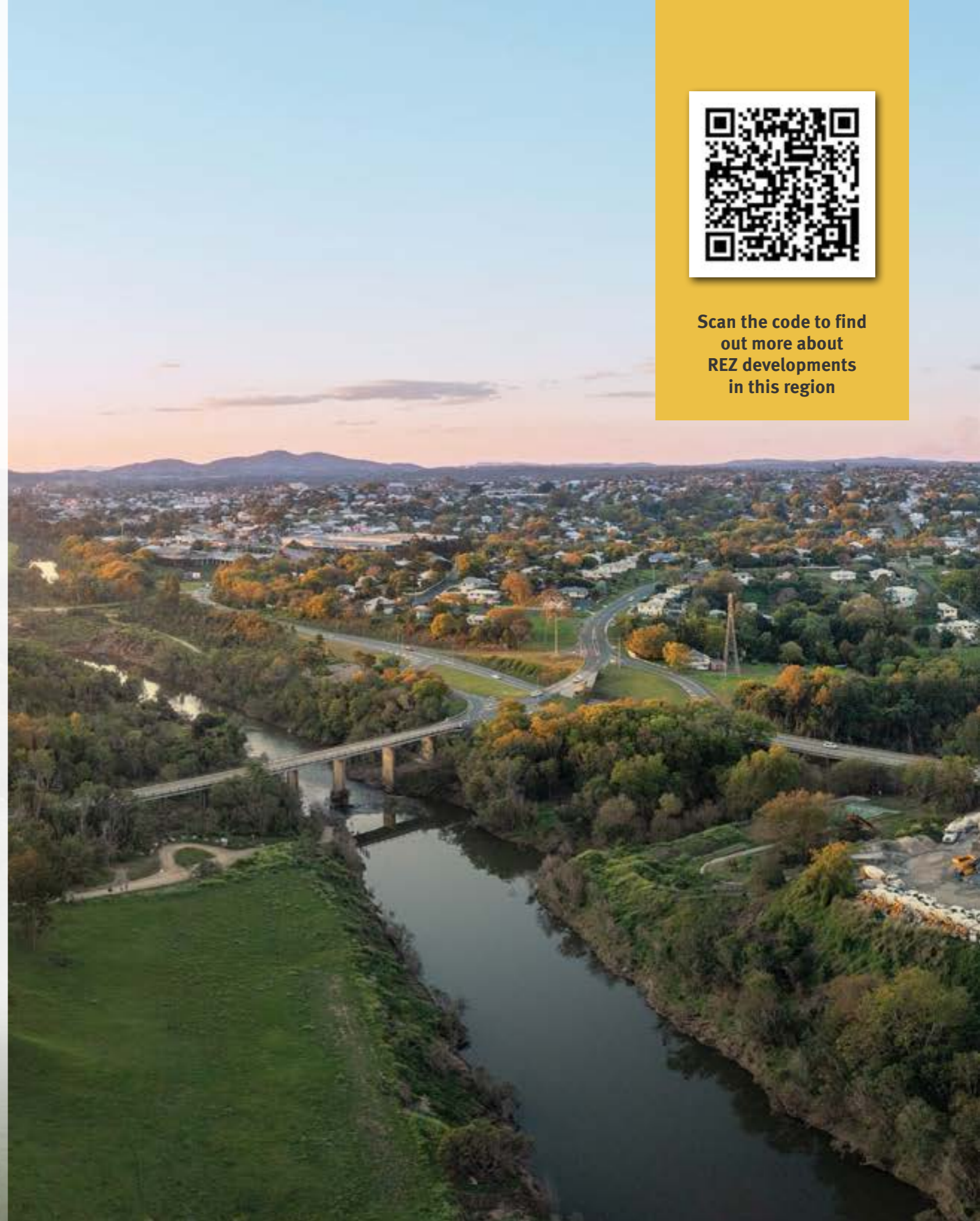
Current renewable projects⁵

- 17 operating wind and solar farms
- Five renewable projects under construction
- 31 potential renewable projects in the pipeline

⁵ Queensland's electricity generation map can be found here: <https://electricity-generation-map.epw.qld.gov.au/>. Renewable projects in this document are accurate as at 20 June 2023.



Scan the code to find out more about REZ developments in this region





Up to 12,200 MW of expected new renewable generation installed in REZs

Creating up to 2,200 renewable energy construction jobs throughout development

Energising Southern Queensland

There are two In-flight REZs already underway and a further three potential future REZs in Southern Queensland.

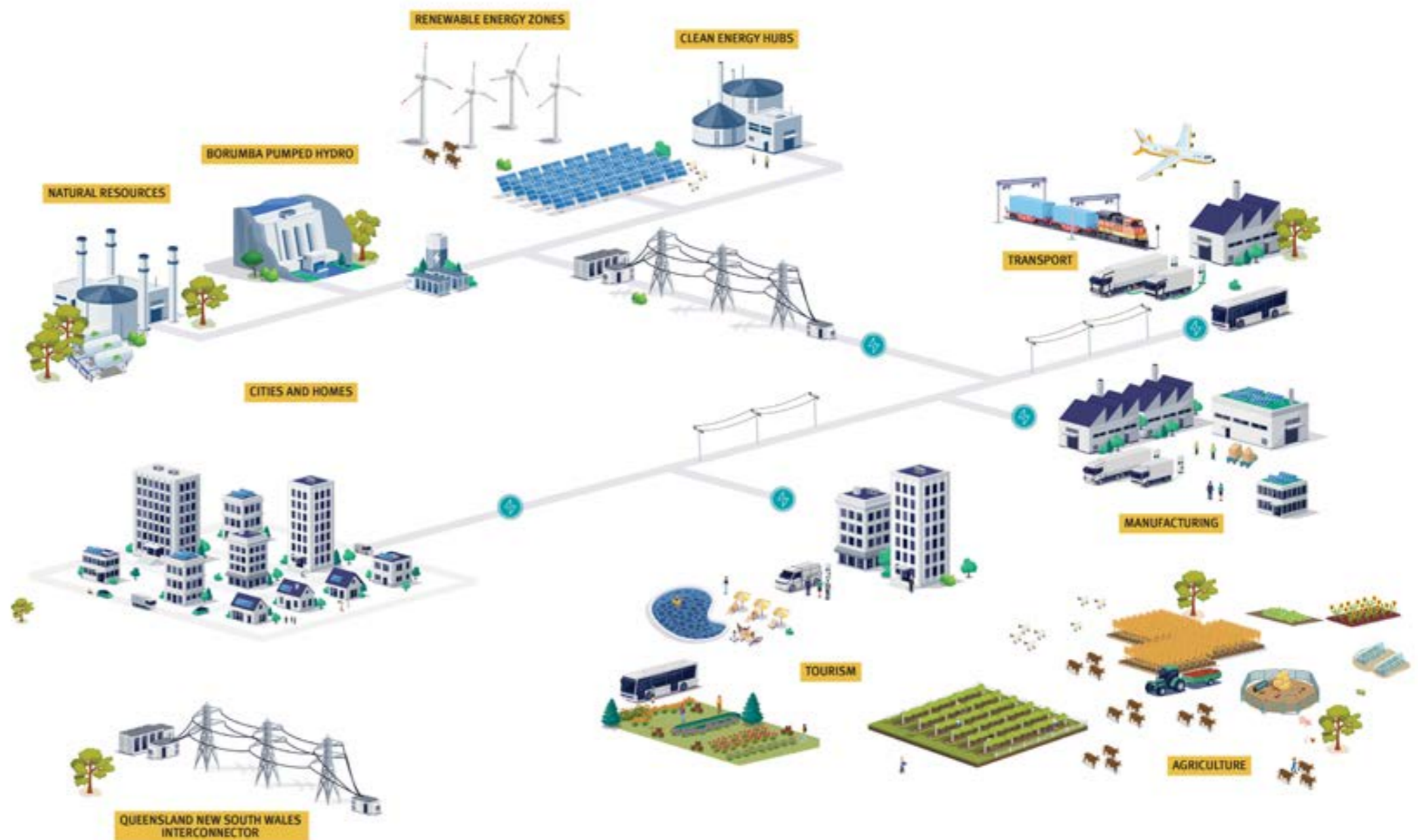
This will create up to 2,200 direct construction jobs during REZ development in this region. Projects within these REZs are expected to be connected incrementally, meaning workers will have sustainable employment opportunities across multiple projects over a number of years.

There will also be clean energy jobs at Kogan Creek Power Station, Tarong Power Station and Swanbank Power Station as these facilities are transformed into future clean energy hubs and an emerging hydrogen sector in the region.

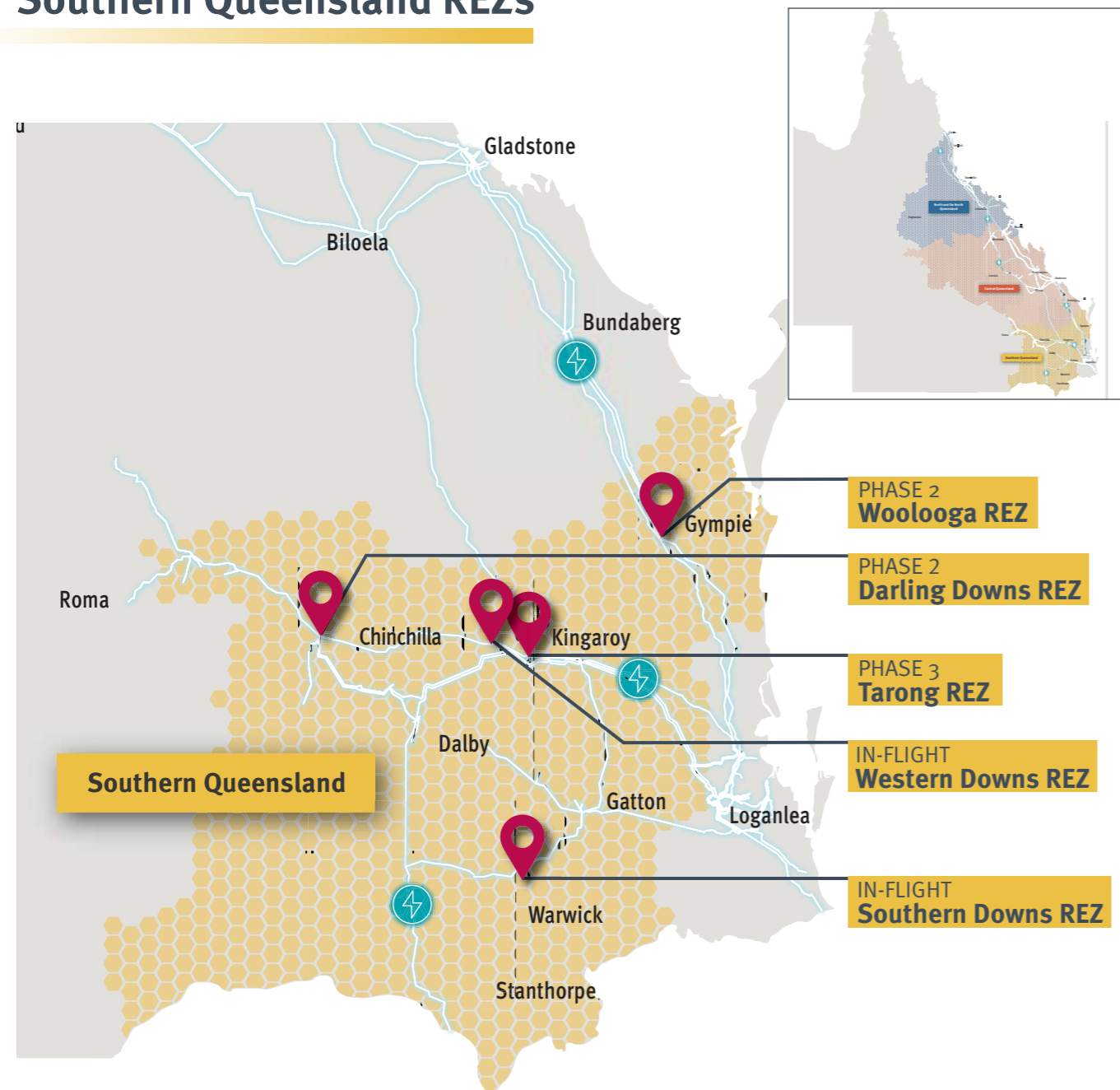
Local advantages for REZ development

The Southern Queensland region has some key advantages for REZ development including:

- History of successful renewable energy projects taking advantage of strong wind and solar resources, and existing energy infrastructure.
- Close to significant energy demand from Toowoomba, Brisbane, Sunshine Coast and Gold Coast. Planned development of the Borumba Pumped Hydro Project providing critical firming and energy storage for Queensland energy reliability.
- Existing supplier portals for wind and hydrogen, hosted by Toowoomba and Surat Basin Enterprise.
- Large agribusiness sector seeking to decarbonise.
- Close to Queensland New South Wales Interconnector (QNI), helping deliver clean energy across the nation.
- Communities who have a strong history of powering our state, being home to the Surat Basin that produces most of Queensland's coal seam gas.



Southern Queensland REZs



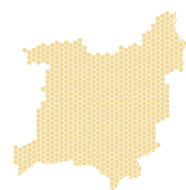
MAP KEY



Existing transmission lines



Potential Renewable Energy Zones: general area in which REZ transmission will connect to the existing shared transmission network operated by Powerlink



Local Government Areas

- Cherbourg Aboriginal Shire
- Fraser Coast
- Goondiwindi
- Gympie
- Lockyer Valley
- South Burnett
- Southern Downs
- Somerset
- Toowoomba
- Western Downs

IN-FLIGHT

In-flight REZs are already underway with key foundation projects in development.

PHASE 2
2024-2028

REZs declared during phase 2 will expand renewable development in regions to better match local demand with projects connecting over time.

PHASE 3
POST 2028

REZs declared during phase 3 will come on line as clean energy demand grows and other large-scale energy infrastructure is developed.

Southern Downs REZ Status: In-flight

- 2,000-2,600 MW expected installed generation
- Up to 400 renewable energy construction jobs throughout development
- Connecting Macintyre Wind Farm

Western Downs REZ Status: In-flight

- 2,000-2,600 MW expected installed generation
- Up to 400 renewable energy construction jobs throughout development
- Connecting Wambo Wind Farm

Woolooga REZ Status: Planning

- 1,800-2,400 MW expected installed generation
- Up to 450 renewable energy construction jobs throughout development

Darling Downs REZ Status: Planning

- 1,600-2,000 MW expected installed generation
- Up to 350 renewable energy construction jobs throughout development

Tarong REZ Status: Planning

- 2,000-2,600 MW expected installed generation
- Up to 600 renewable energy construction jobs throughout development

As new opportunities emerge over time and in line with changing market conditions, additional REZs may be identified in the future and capacities may change.

The Queensland Government acknowledges the Traditional Custodians of country throughout this region and their connection to land, sea and sky. As we work together to deliver a clean, reliable and affordable energy system for Queensland, the Queensland Government is committed to genuine partnerships and meaningful engagement with Aboriginal peoples and Torres Strait Islander peoples.



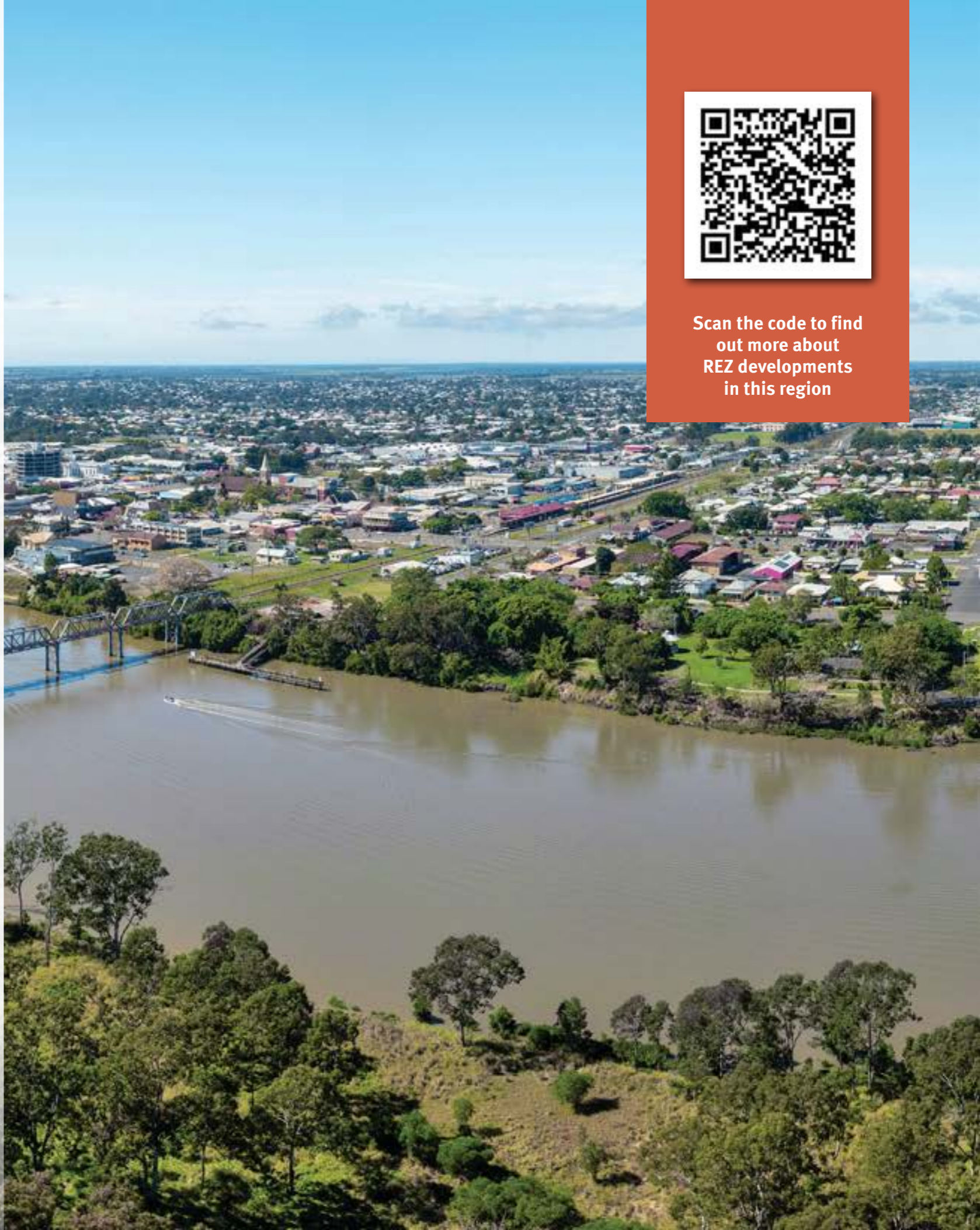
Central Queensland

The region boasts a diverse and growing economy, strongly placed to capitalise on the energy transformation with a growing interest from the hydrogen sector. With more renewables, key regional industries including agriculture, construction, minerals processing and manufacturing will be supported to grow and decarbonise.

A powerful renewable industry in Central Queensland will energise the region with good jobs, sustainable future industries and economic growth opportunities. Coordinating the significant pipeline of new projects will be critical to improving local outcomes from future development.

Current renewable projects

- Nine operating solar farms
- One wind farm already under construction
- 44 potential renewable projects in the pipeline



Scan the code to find out more about REZ developments in this region



Up to 8,200 MW of expected new renewable generation installed in REZs

Creating up to 1,400 renewable energy construction jobs throughout development

Energising Central Queensland

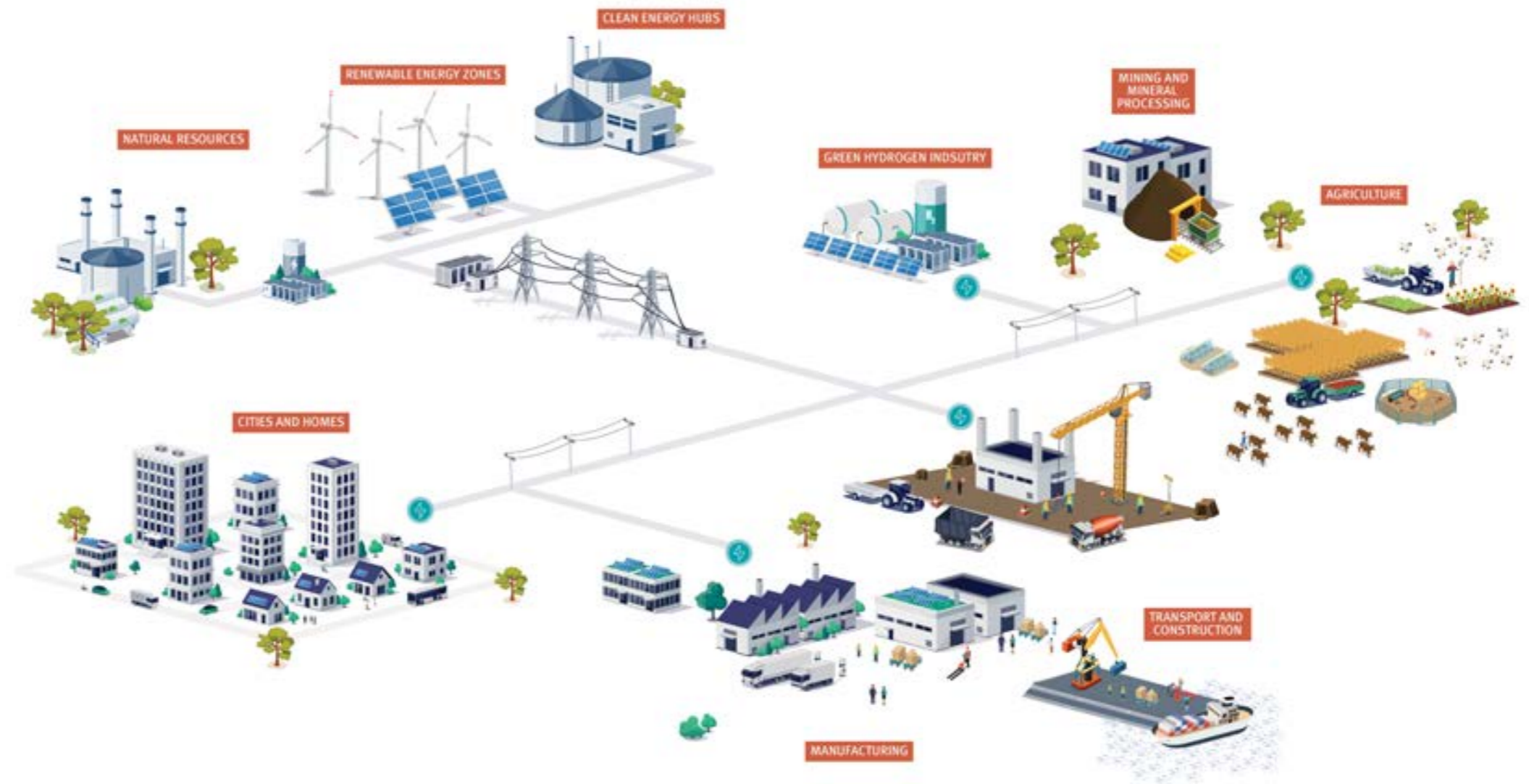
There are four potential future REZs in Central Queensland that will help attract investment into the right areas.

This will create up to 1,400 direct construction jobs during REZ development in this region. These renewable energy projects are expected to connect incrementally, allowing workers to move between projects as they're constructed. Central Queensland have significant clean energy training opportunities.

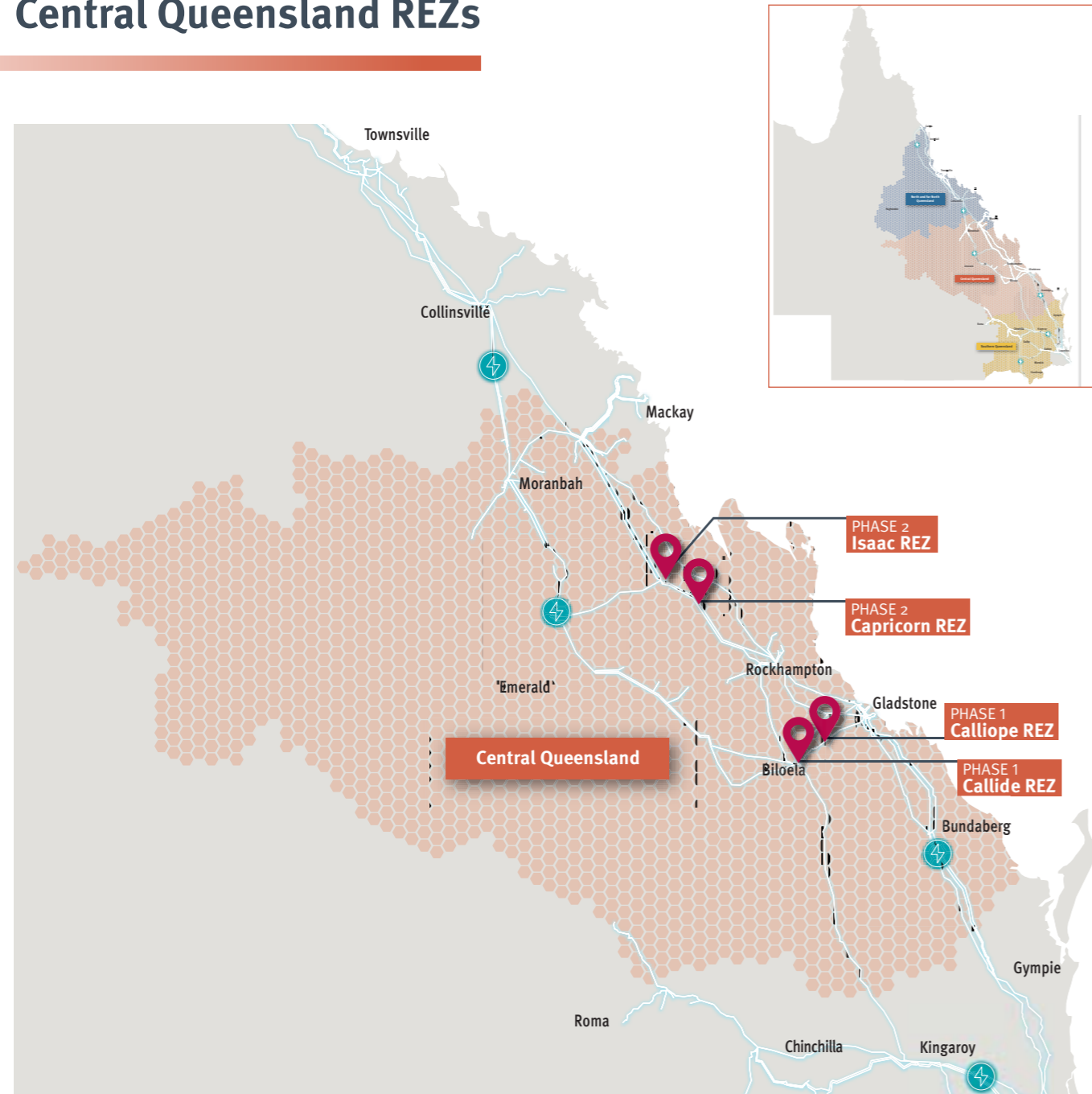
Powerlink opened the interim Gladstone SuperGrid Training Centre and Transmission Hub in May 2023 and is already generating critical skills that will be needed in the transformation. A range of roles will be located at the hubs including community relations, cultural heritage relations, project management, field staff, health and safety officers, training staff, engineers, support services staff and trades people.

Local advantages for REZ development

- Growing clean energy demand in the region, including the Boyne Smelters Limited, which represents around 10 per cent of the state's energy demand.
- Strong wind resource along the Great Dividing Range and solar west of the range.
- An emerging green hydrogen industry including the CQ-H2 project, Queensland's largest renewable hydrogen project.
- World class ports including the publicly owned Port of Gladstone and Port of Bundaberg.
- Skilled workers and communities who have a strong history of powering our state, with the area home to two publicly owned power stations, Stanwell Power Station and Callide B, that will be transformed into future clean energy hubs.



Central Queensland REZs



PHASE 1
NOW-2024

REZs declared in phase 1 are focused on areas with spare network capacity or that require minimal transmission investment to unlock development.

PHASE 2
2024-2028

REZs declared during phase 2 will expand renewable development in regions to better match local demand with projects connecting over time.

Callide REZ Status: Planning

- 2,000-2,600 MW of expected installed generation
- Up to 450 renewable energy construction jobs throughout development
- Connecting Banana Range Wind Farm

Calliope REZ Status: Planning

- 1,500-2,000 MW of expected installed generation
- Up to 350 renewable energy construction jobs throughout development

Isaac REZ Status: Planning

- 1,400-1,800 MW of expected installed generation
- Up to 300 renewable energy construction jobs throughout development

Capricorn REZ Status: Planning

- 1,400-1,800 MW of expected installed generation
- Up to 300 renewable energy construction jobs throughout development

As new opportunities emerge over time and in line with changing market conditions, additional REZs may be identified in the future and capacities may change.

MAP KEY



Existing transmission lines

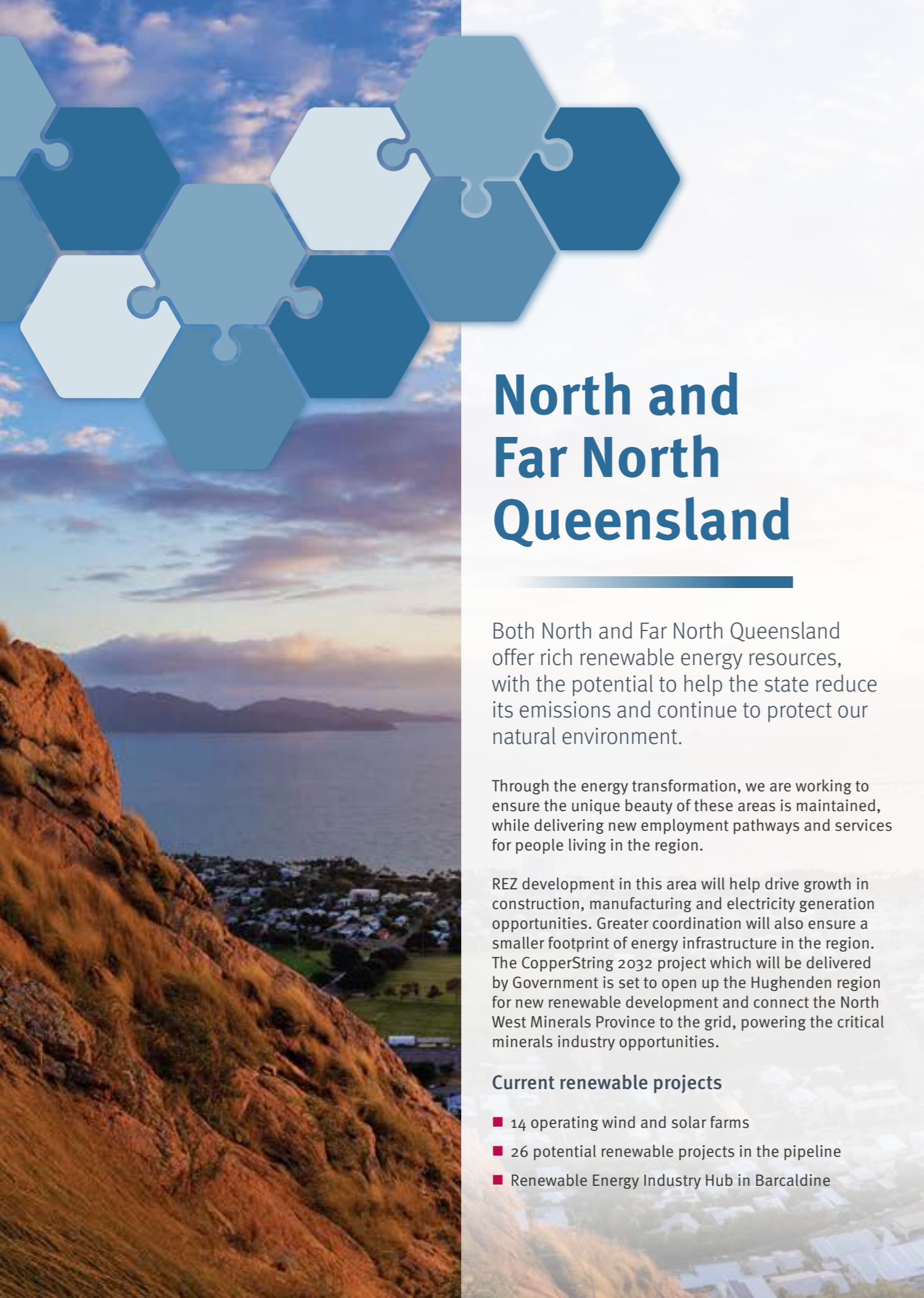


Potential Renewable Energy Zones: general area in which REZ transmission will connect to the existing shared transmission network operated by Powerlink

Local Government Areas

- Banana Shire
- Barcaldine
- Bundaberg
- Central Highlands
- Gladstone
- Isaac
- Livingstone Shire
- North Burnett
- Rockhampton
- Woorabinda Aboriginal Shire

The Queensland Government acknowledges the Traditional Custodians of country throughout this region and their connection to land, sea and sky. As we work together to deliver a clean, reliable and affordable energy system for Queensland, the Queensland Government is committed to genuine partnerships and meaningful engagement with Aboriginal peoples and Torres Strait Islander peoples.



North and Far North Queensland

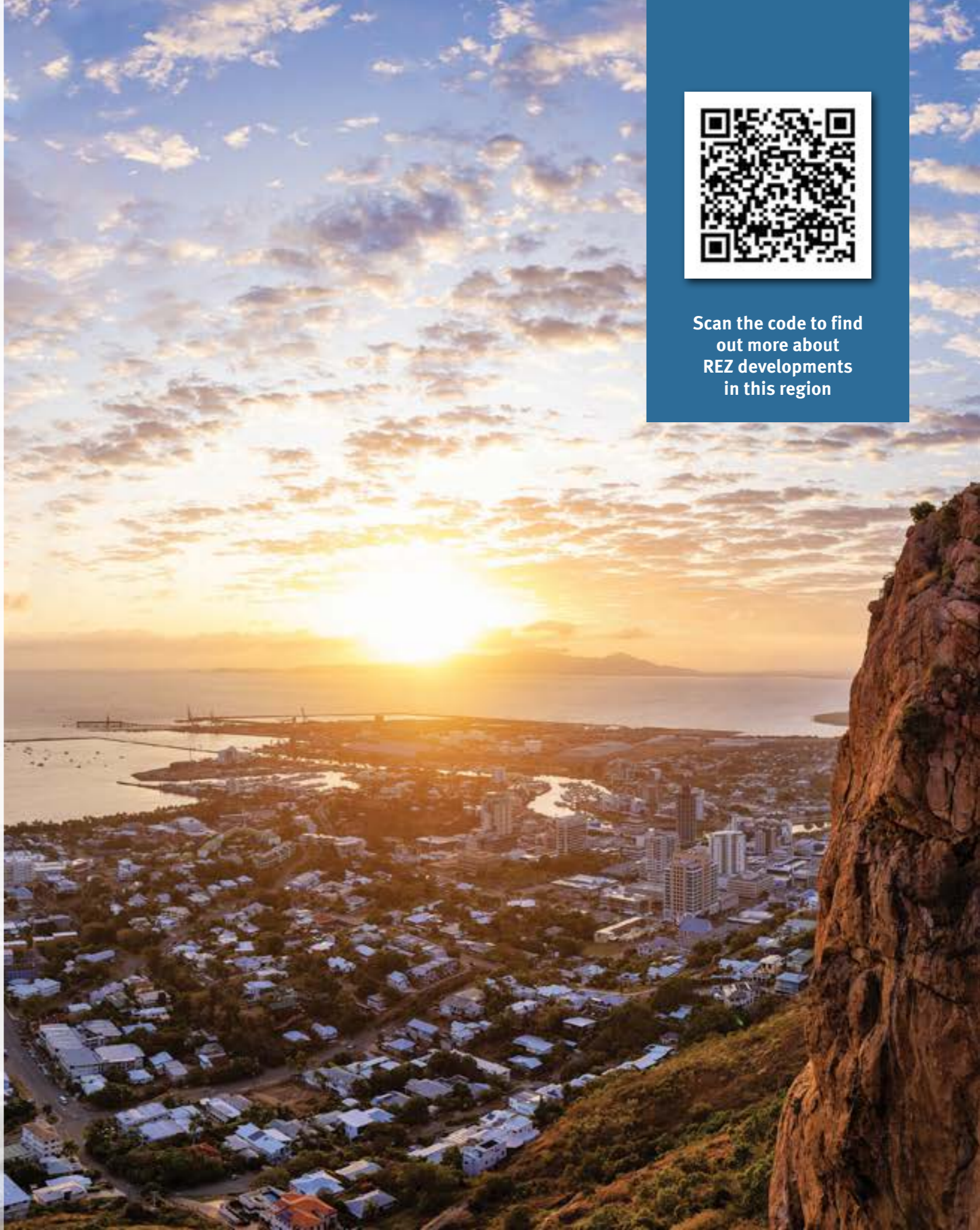
Both North and Far North Queensland offer rich renewable energy resources, with the potential to help the state reduce its emissions and continue to protect our natural environment.

Through the energy transformation, we are working to ensure the unique beauty of these areas is maintained, while delivering new employment pathways and services for people living in the region.

REZ development in this area will help drive growth in construction, manufacturing and electricity generation opportunities. Greater coordination will also ensure a smaller footprint of energy infrastructure in the region. The CopperString 2032 project which will be delivered by Government is set to open up the Hughenden region for new renewable development and connect the North West Minerals Province to the grid, powering the critical minerals industry opportunities.

Current renewable projects

- 14 operating wind and solar farms
- 26 potential renewable projects in the pipeline
- Renewable Energy Industry Hub in Barcaldine



Scan the code to find out more about REZ developments in this region



Kidston Solar Farm, image credit: Genex Power

Up to 5,100 MW of expected new renewable generation installed in REZs

Creating up to 900 renewable energy construction jobs throughout development

Energising North and Far North Queensland

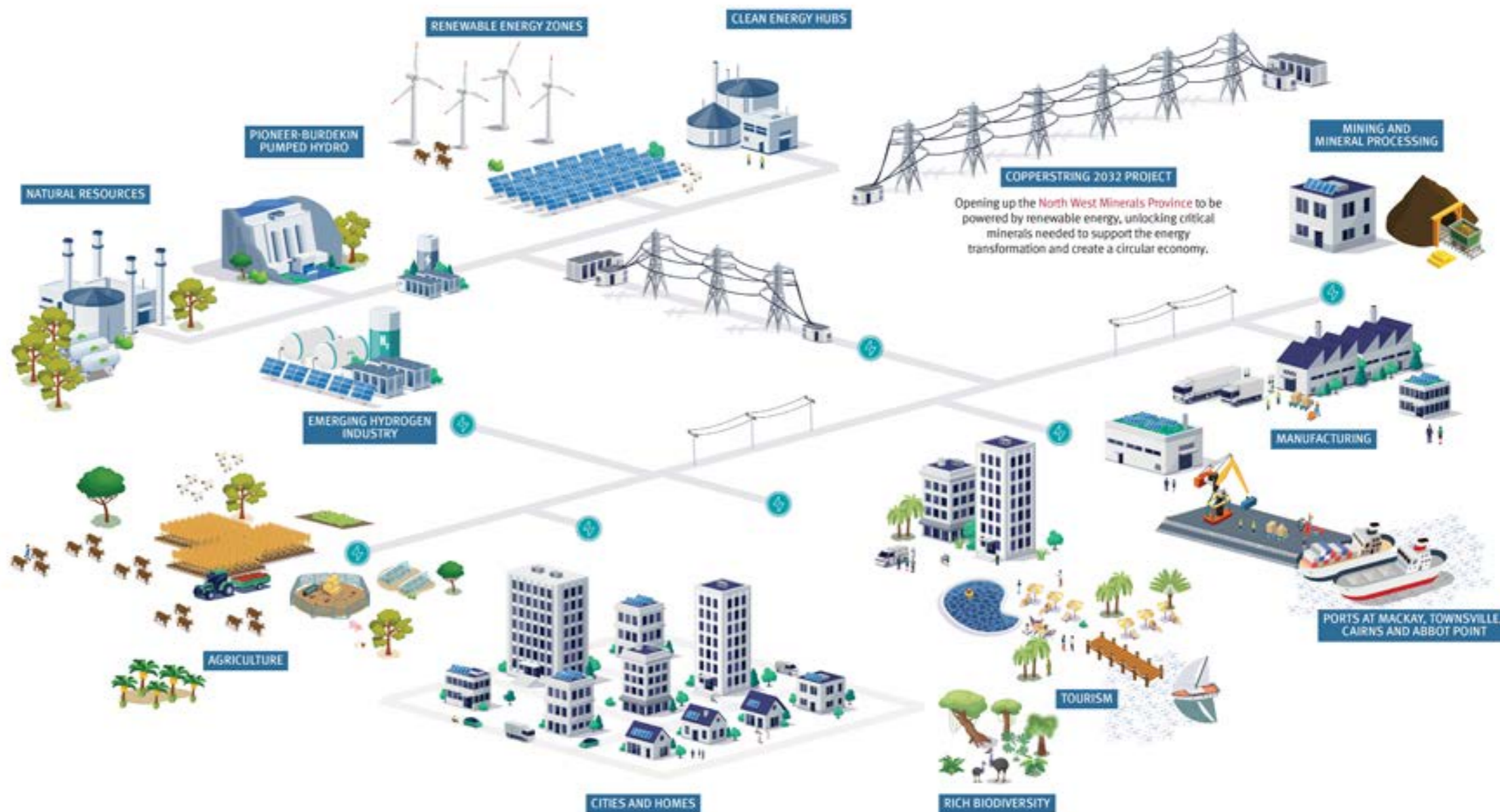
There is an In-flight REZ underway and two potential future REZs to be developed in North and Far North Queensland that will help attract investment into the right areas. This is expected to unlock up to 900 direct construction jobs to support renewable energy projects connecting in this region. Because these REZs will be developed incrementally, workers will be able to transition between different projects within the same area over a number of years.

North and Far North Queensland also continues to offer job opportunities in critical minerals mining and manufacturing, which will be essential for building solar panels and batteries. Importantly, CopperString 2032 will connect Queensland's North West Minerals Province to the national electricity grid through a 840 km transmission line from south of Townsville to Mount Isa. Read more about CopperString 2032 on page 53.

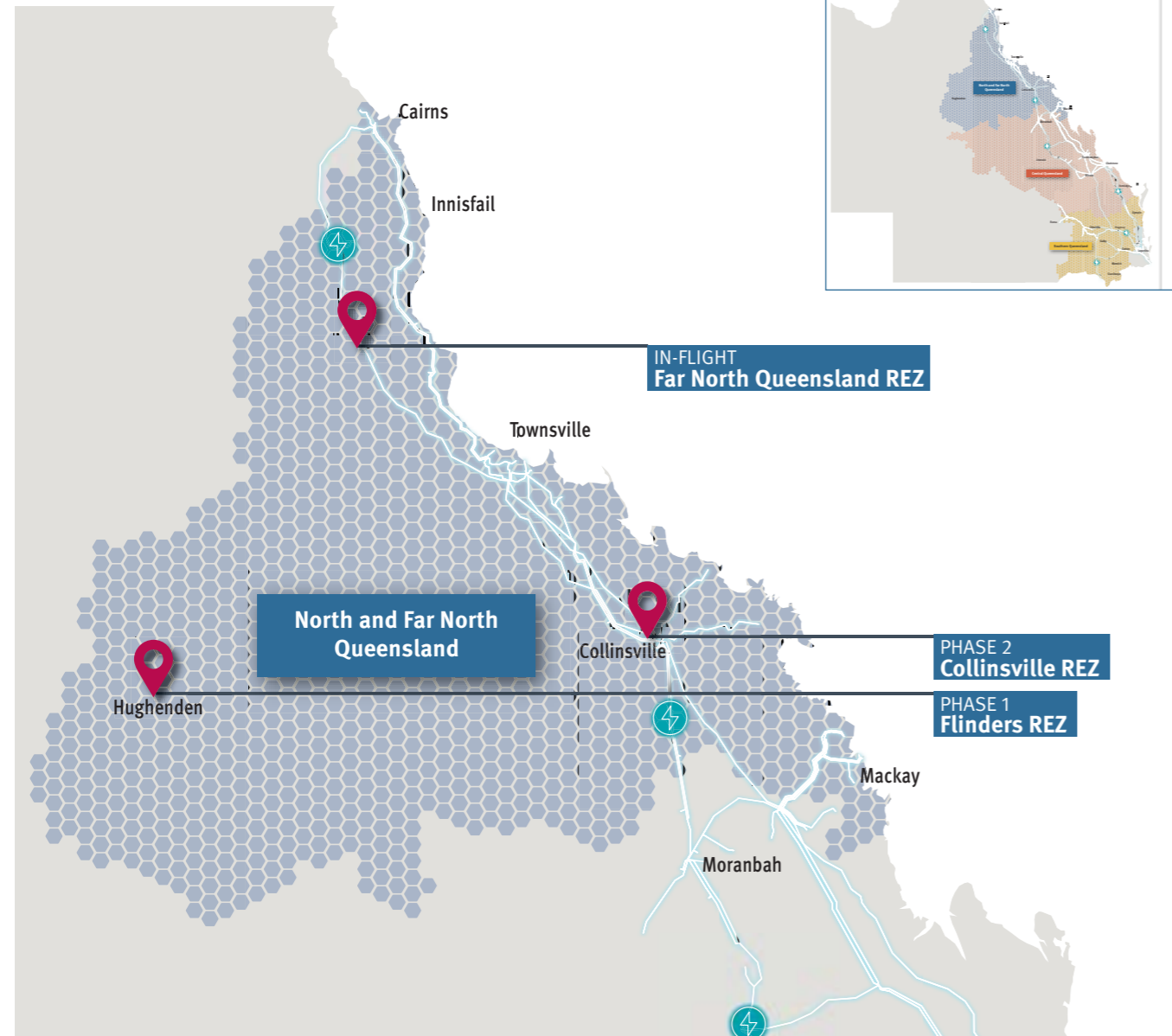
Bioregional planning activities with the Australian Government in this region will be critical to ensuring areas of rich biodiversity like the Wet Tropics and preserved, while there are clear signals for investors in clean energy technologies.

Local advantages for REZ development

- High quality wind resources in Hughenden.
- Planned development of the Pioneer-Burdekin Pumped Hydro Project near Mackay.
- Planned development of the CopperString 2032 project unlocking vast renewable resources near Hughenden.
- Emerging green hydrogen industry including an emerging hydrogen hub in Townsville.
- Local energy demand from Cairns, Townsville and Mackay.
- Publicly owned transport and logistics hubs, with ports to import and export renewable energy parts.
- New transmission and training hub in Townsville to be established by Powerlink to provide opportunities to nurture our pipeline of skilled local people.



North and Far North Queensland REZs



MAP KEY



Existing transmission lines

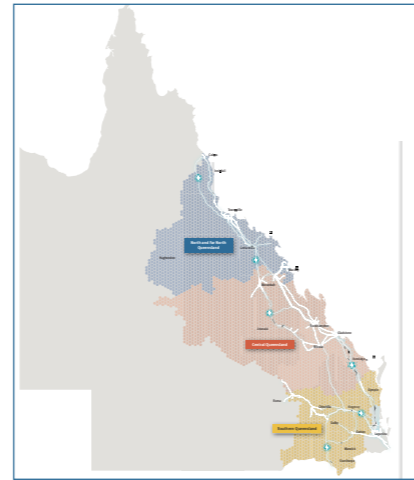


Potential Renewable Energy Zones: general area in which REZ transmission will connect to the existing shared transmission network operated by Powerlink



Local Government Areas

- Burdekin
- Cairns
- Cassowary Coast
- Charters Towers
- Flinders
- Hinchinbrook
- Mackay
- Tablelands
- Townsville
- Whitsunday
- Yarrabah Aboriginal Shire



IN-FLIGHT

In-flight REZs are already underway with key foundation projects in development.

Far North Queensland REZ Status: In-flight

- 500-700 MW of expected installed generation
- Up to 110 renewable energy construction jobs throughout development
- Connecting Kaban Green Power Hub

PHASE 2
2024-2028

REZs declared during phase 2 will expand renewable development in regions to better match local demand with projects connecting over time.

Collinsville REZ Status: Planning

- 1,600-2,000 MW of expected installed generation
- Up to 350 renewable energy construction jobs throughout development

Flinders REZ Status: Planning

- 2,000-2,400 MW of expected installed generation
- Up to 450 renewable energy construction jobs throughout development

As new opportunities emerge over time and in line with changing market conditions, additional REZs may be identified in the future and capacities may change.

The Queensland Government acknowledges the Traditional Custodians of country throughout this region and their connection to land, sea and sky. As we work together to deliver a clean, reliable and affordable energy system for Queensland, the Queensland Government is committed to genuine partnerships and meaningful engagement with Aboriginal peoples and Torres Strait Islander peoples.

REZ Roadmap

REZs in Queensland will be developed over three phases to facilitate 22 GW of additional renewable energy.

The size, location and timing of REZs may change based on analysis of available network capacity, renewable resources, project pipelines, investor interest, land use and optimal network expansion.

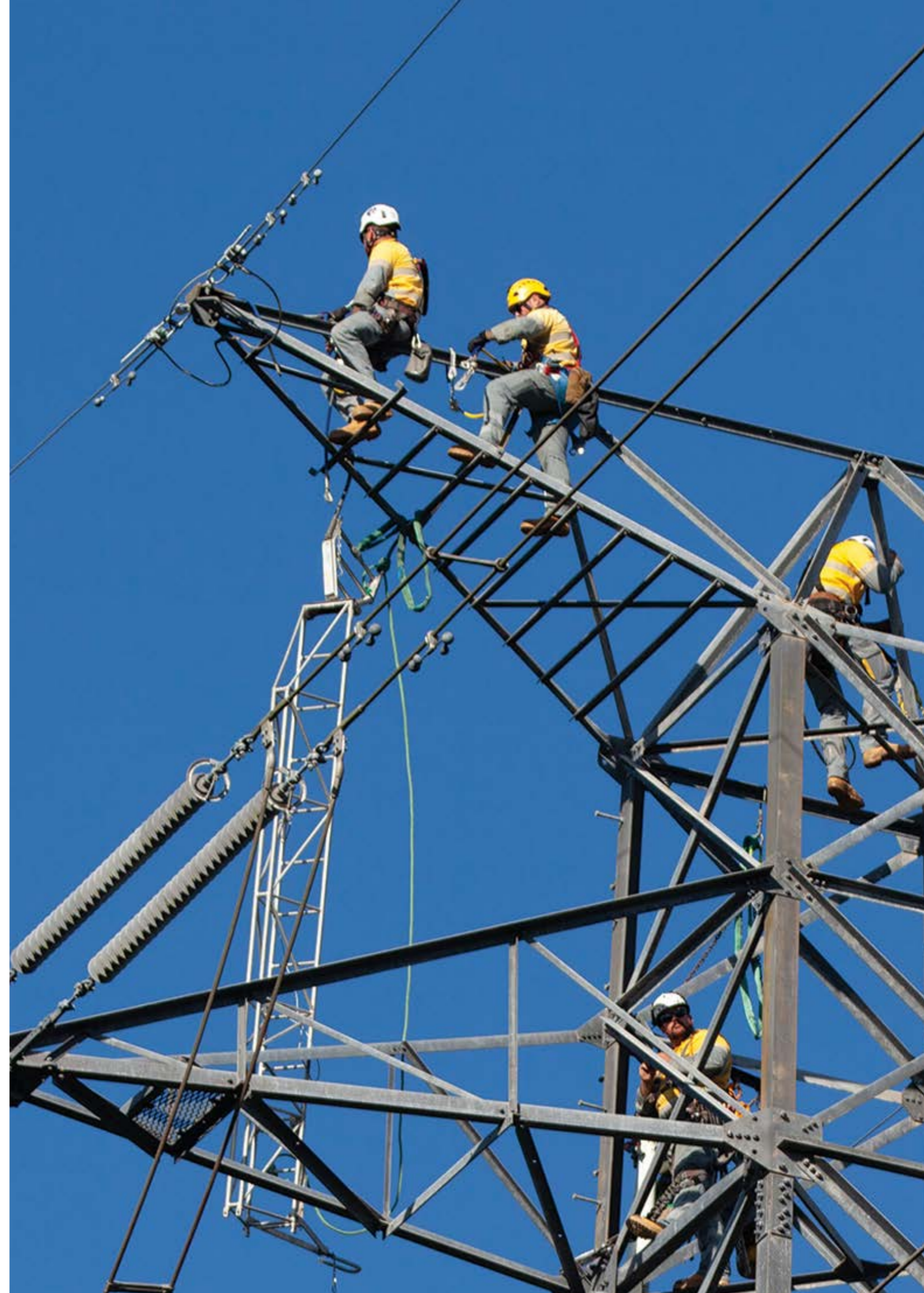
All REZ size, location and timing figures have been provided by Powerlink in consultation with the Queensland Government. Phasing (Phase 1, 2 and 3) is based on estimated REZ declaration timings.

Region	REZ	MW of expected installed generation	IN-FLIGHT	PHASE 1 NOW-2024	PHASE 2 2024-2028	PHASE 3 POST 2028
Southern Queensland	Southern Downs REZ	2,000-2,600	✓			
	Western Downs REZ	2,000-2,600	✓			
	Woolooga REZ	1,600-2,000			✓	
	Darling Downs REZ	1,600-2,000			✓	
	Tarong REZ	2,000-2,400				✓
Central Queensland	Callide REZ	2,000-2,600		✓		
	Calliope REZ	1,500-2,000		✓		
	Isaac REZ	1,400-1,800			✓	
	Capricorn REZ	1,400-1,800			✓	
North and Far North Queensland	Far North Queensland REZ	500-700	✓			
	Collinsville REZ	1,600-2,000			✓	
	Flinders REZ	2,000-2,400			✓	



In-flight REZs

The In-flight REZs within this document are already progressing under the existing National Electricity Rules with a foundation project already in development. An In-flight REZ may be converted to a declared REZ at a later date (see page 10 for more details).





Part 4: Outside the REZ regions

It is vital that all Queenslanders have access to a clean energy future no matter where they live, from the southeast to the far north and outback Queensland. There are a range of clean energy solutions for these different areas across the state to meet the unique opportunities in each location for decarbonising their energy supply.

Regional and remote Queensland covers a vast area of the state and is home to a diverse range of communities with strong links to country, agricultural production, minerals and commercial industries. From outback Queensland to Cape York and the Torres Strait, remote communities have historically often relied on diesel generation as an energy source. Because these communities are not connected to the main Queensland electricity grid, decarbonisation of the main grid will not impact them, and other projects need to be delivered to support them through the energy transformation.

Remote and First Nations Clean Energy Strategy

The Queensland Government, in partnership with remote and Aboriginal and Torres Strait Islander communities and the Australian Government, is co-designing an inclusive Remote and First Nations Clean Energy Strategy which will help us work together towards net zero electricity emissions across Energy Queensland's 33 isolated power stations.

These power stations supply communities located too far away from the transmission and distribution lines of Queensland's main grid. This strategy is planned to be released by 2026 and will help ensure remote and Aboriginal and Torres Strait Islander communities can participate in the energy transformation regardless of where they live.

To support delivery of this, Energy Queensland has been tasked with completing feasibility studies to decarbonise its isolated power stations in each community and to update its isolated networks strategy.

Ensuring that outback and remote communities, including Aboriginal and Torres Strait Islander communities, can share the benefits of clean, reliable, and affordable energy into the future is a critical part of an inclusive energy transformation.

Queensland Microgrid Pilot Fund

We have also committed \$10 million to deliver a Queensland Microgrid Pilot Fund (QMPF) to improve network resilience of regional and Aboriginal and Torres Strait Islander communities.

Microgrids can represent can improve energy resilience and reliability in regional Queensland communities. A microgrid is an electricity system that generates and supplies electricity to multiple customers – such as the households and local businesses within a local area.

The program aims to:

- increase energy and network resilience in regional and remote communities
- contribute to the decarbonisation of these communities, which are generally reliant on diesel generation.

By supporting a pipeline of new microgrid projects through the QMPF, more communities can have access to cleaner, and more resilient electricity. For more information visit [Queensland Microgrid Pilot Fund](#).

Queensland Government Activity	Delivery
Queensland Microgrid Pilot Fund guidelines released	2022
Scope, consult and co-design on Remote and First Nations Clean Energy Strategy	2023 - 2025
Remote and First Nations Clean Energy Strategy released	2026

Case study: Ergon Microgrid

Ergon Energy are currently running several feasibility studies and development projects in remote Far North Queensland communities to investigate how to best decarbonise energy generation in Queensland's isolated networks.

Due to their remote locations and not being connected to the National Electricity Market, these communities have a heavy reliance on diesel generation, and have limited capacity to accommodate additional rooftop solar systems. However, advancements in battery storage and smart solar technologies offer the potential to decarbonise while ensuring network stability.

The feasibility studies and project aims to test and implement technically viable and economic options, before installing them across more isolated networks⁶.

⁶ Source: <https://www.ergon.com.au/network/network-management/network-infrastructure/isolated-and-remote-power-stations/decarbonising-isolated-communities>.

Mount Isa

CopperString 2032 will connect Queensland's North West Minerals Province to the national electricity grid through a 840 km transmission line from south of Townsville to Mount Isa. It will be the largest ever economic development project in North Queensland and the largest expansion of the power grid in Australia.

Connecting Mount Isa will bolster a clean energy industrial ecosystem in North West Queensland and future REZ development in this region. Construction is estimated to support over 750 direct jobs over six years. A critical section of the CopperString transmission line is the connection between Townsville and Hughenden. The Hughenden region is known for its exceptional wind quality, which makes it highly suitable for establishing new wind farms in the region.

The North West Minerals Province could see many new jobs created in critical minerals mining, manufacturing and construction of renewables. The critical minerals found in the North West, such as copper and vanadium, are essential in the production of solar panels, battery systems and electric vehicles. By growing the renewable manufacturing industry in these areas too, North Queenslanders can benefit from every part of the renewable energy supply chain.

Powerlink expects to progress early works on the project in late 2023 ahead of construction commencing in 2024. The project is expected to be completed by 2029.

Queensland Government Activity	Delivery
Copperstring 2032 early development begins	2023
Copperstring 2032 estimated completion	2029

South East Queensland VPP Partnership

In 2023, the Queensland Government announced the investment of \$10 million for 35 neighbourhood batteries to be installed across Ipswich as part of a partnership between government-owned network company Energy Queensland and Origin Energy. The batteries will have the capacity to store energy the equivalent of approximately 600 rooftop solar systems and form part of a system called a Virtual Power Plant (VPP).

A VPP aggregates distributed and customer energy resources, such as rooftop solar and energy storage technology, so collectively they are better equipped in participating in the electricity market and can provide network services. This in turn could lower electricity costs, support the grid and increase the uptake of renewable energy resources in the community.⁷

⁷ Source: <https://www.ergon.com.au/network/network-management/network-infrastructure/isolated-and-remote-power-stations>.





Part 5: REZ Delivery Body

Powerlink is Queensland’s publicly owned Transmission Network Service Provider (TNSP), delivering electricity to more than five million Queenslanders through its transmission network. Its network extends 1,700 km, from Cairns down to the New South Wales border, and comprises 15,345 circuit km of transmission lines and 147 substations.

Powerlink are taking on a new role as Queensland’s REZ Delivery Body. It will be responsible for delivering REZs in line with this Roadmap and Queensland’s Energy and Jobs Plan, including developing draft and final REZ Management Plans, and consulting with communities on REZ design.

Powerlink’s engagement approach for REZs

Powerlink has always held a strong view that engaging with local communities is a vital part of providing its electricity transmission services safely, reliably and cost-effectively. This focus on effective engagement will continue in its role as the REZ Delivery Body.

In delivering REZs, Powerlink will coordinate engagement activities with the Queensland Government and renewable energy project developers to optimise the way communities can influence decision-making.

Powerlink will be responsible for engaging with key stakeholders in the development of REZ Management Plans. The REZ Management Plan engagement will focus on areas such as geographical footprint and access arrangements.

It will also undertake engagement with communities on transmission infrastructure corridor options. In siting its infrastructure Powerlink seeks to identify options that have the lowest overall impact from a social, environmental and economic perspective.

Powerlink acknowledges and respects the ongoing custodianship and cultural connection that Aboriginal and Torres Strait Islander peoples have to their traditional lands. Powerlink will continue to undertake dedicated engagement with Traditional Owners to identify and manage cultural heritage.



SuperGrid Landholder Payment Framework

Powerlink has developed a new framework – the SuperGrid Landholder Payment Framework – that significantly boosts payments to landholders hosting new transmission infrastructure.

Under the new framework, Queensland landholders hosting new transmission infrastructure will receive higher payments. The increase in payments is based on property-specific values and impacts, as opposed to using only a flat rate.

Powerlink is also the first transmission company in Australia to offer payments to landholders with properties adjacent to new transmission infrastructure.

The new payment framework will see an increase in flexibility around the timing of payments, offering an annual payment option, and giving payment estimates to landholders much earlier in the process.

For more information on the new payment framework, read the [SuperGrid Landholder Payment Framework](#).



Part 6: Further REZ facts

REZ history and myth busting

The concept of developing a REZ has been around for around a decade. The Australian Renewable Energy Agency (ARENA) funded investigations in 2016⁸ into Renewable Energy Hubs which Dr Alan Finkel then proposed as REZs in Australia as part of the Blueprint for the Future Security of the National Electricity Market⁹.

Since then New South Wales, Tasmania, Victoria and Queensland have all been developing the concept of a REZ in a way that supports the energy transformation in each state.

Below are some myth busters on what a REZ will and won't do in Queensland.

Renewable Energy Zones	
✗ Won't automatically prioritise renewable energy development over other land uses	✓ Will support long term planning for a range of land uses to co-exist
✗ Won't water down existing environmental, development and cultural assessment processes	✓ Will allow for more comprehensive and accessible engagement through coordinated activities
✗ Won't cover large geographic areas that will be overcrowded by renewable energy infrastructure	✓ Will target areas with high quality renewable resources to efficiently coordinate connection of clean energy to the grid alongside other community needs
✗ Won't add costs to consumer energy bills	✓ Will ensure that the cost to connect new generation is borne by the generators in the first instance. Because the Queensland REZ Framework is market-led, REZs will be developed based on market interest
✗ Won't reduce community engagement and opportunities for input	✓ Will create mechanisms for the Queensland Government to engage with communities to deliver long-term benefits
✗ Won't be developed all at the same time	✓ Will be developed over time, ensuring a well-managed impact on workforce and local infrastructure
✗ Won't be delivered without local input	✓ Will be shaped by Regional Energy Reference Groups throughout the lives of the infrastructure

⁸ Source: <https://arena.gov.au/projects/transgrid-new-england-renewable-rehub-feasibility-study>.

⁹ Source: <https://www.energy.gov.au/publications/independent-review-future-security-national-electricity-market-blueprint-future>.



Frequently asked Q&As

Planning

Why is Powerlink the proposed REZ Delivery Body?

As the long-time operator and developer of the State's transmission network, Powerlink has the people, skills and experience for the job.

How do Queensland REZs compare to other states and territories in the National Electricity Market?

Draft legislation to establish Queensland REZs was released for consultation on 3 June 2023.

The proposed law modifies elements of the NEL and NER to allow parts of the Queensland electricity network to be declared a REZ by the Minister for Energy and developed by the REZ Delivery Body. A declared REZ will include nominated sections of the transmission network with connections regulated under a REZ management plan. The REZ Delivery Body will streamline and coordinate the connection of multiple projects within these zones.

The Queensland REZ Framework prioritises the community and economy. The inclusion of REZ Readiness Assessments, Regional Energy Reference Groups and a potential coordinated investment mechanism will unlock more renewable investment, lower total system costs, optimise scale-efficient transmission and maximise long lasting community benefits.

Will the REZ phased development timeline change?

The coordinated planning of the network must be flexible to respond to our changing energy market and new industry developments. The REZ Roadmap will be updated every two years in line with the SuperGrid Infrastructure Blueprint to reflect the latest market outlook.

Each iteration will refine the pathway forward for North and Far North, Central and Southern Queensland enabling long-term planning for renewable development.

How can the community provide input on the REZ declaration process?

Under the new proposed laws, Powerlink will be required to consult on the REZ Management Plan and will consider feedback from stakeholders to refine the final REZ Management Plan.

Alongside the REZ Management Plan, the Queensland Government will be completing the REZ Readiness Assessments with input from the Regional Energy Reference Groups and other key stakeholders.

How have the REZs been named?

REZs have been named to reflect their surroundings. If a REZ will be located nearby a clean energy hub, then the REZ will be named after that clean energy hub to demonstrate how the two will work together. If not, the REZ will be named after the Local Government Area it's located in, or the substation it will connect to.

Costs

How will REZs be paid for?

Under the proposed laws, it is expected that the costs associated with a REZ will be recovered on a commercial basis from REZ proponents as part of their connection and access agreement with Powerlink, with a further decision by Government on any residual costs associated with the REZ.

How do REZs help save money on energy bills?

Once built, renewable energy projects such as wind and solar are relatively inexpensive to run. This means that renewable generators can sell the electricity they produce for less and still be profitable. These savings are then passed down to customer energy bills.

REZs will deliver more renewable projects that will deliver more affordable energy.

REZs will also allow for more coordinated development of the Queensland network to connect these new wind and solar projects. This will keep downward pressure on prices as more projects are built.

Land use

How will coexistence with agriculture and resources be managed?

Locations of potential REZ identified in this Roadmap are based on available network capacity, investor interest and guided by strategic land use analysis. These locations increase positive coexistence opportunities while ensuring lowest cost development to keep downward pressure on electricity prices.

Local and state planning instruments will still apply to all renewable energy projects within a REZ. This includes land use planning and environmental assessments (including Commonwealth environmental approvals), vegetation management, and Native Title and cultural heritage.

REZs will also present opportunities for farmers to host renewable projects, generating secondary revenue for farms. To assist landholders in their negotiations with renewable energy developers, the Queensland Government has partnered with the Queensland Farmers' Federation to produce a Landholder Toolkit.

How will Queensland's clean energy hubs work with REZs?

Queensland is set to transform our publicly-owned power stations into clean energy hubs.

Investments in clean energy hubs could include repurposing generating units into synchronous condensers, building large scale batteries, investing in new renewable generation onsite or investing in hydrogen infrastructure.

Each clean energy hub will be unique, leveraging the skills of the existing workforce, the site infrastructure, and the community and local opportunities.

Where a clean energy hub is located near a REZ, the two will be able to harmonise with renewable energy generated within a REZ to potentially be stored within a clean energy hub.

There are three future clean energy hubs in the Southern region and two in the Central region.

Community investment

What initiatives could be funded through the local investment schemes and when will funds be available?

The Queensland Government and industry has a range of models for local investment schemes. In some circumstances, projects will establish individual funds and processes for providing access to investment. Government also has a track record of setting up impact-driven funds to support communities to benefit from development and change such as the Regional Economic Futures Fund.

A potential coordinated mechanism would receive input from local communities, the REZ Readiness Assessment and seek to align with Queensland's draft Regional Energy Transformation Principles.

As part of the release of the draft REZ Roadmap, we are actively engaging on how a coordinated investment scheme could work. Visit our [Have Your Say](#) website to provide your input.

How can communities benefit from high-speed internet as part of the REZ development process?

The Queensland Government is working with QCN and Powerlink to provide regional Queensland with high-speed internet using the fibre optic cables that run along the top of transmission infrastructure as part of the development of the SuperGrid. This is one of the ways that government is coordinating infrastructure as part of the SuperGrid build.

REZ sizing

How much renewable energy needs to be generated in REZs to meet Queensland's renewable energy targets?

Queensland REZs will enable an additional 22 GW of large-scale wind and solar, which is the amount required to meet our 80 per cent renewable energy target by 2035. The development of REZs is critical to reaching our renewable energy targets as they allow us to coordinate development in the areas most suitable for renewables. REZs do not preclude developing renewable projects outside of a REZ under existing National Electricity Laws arrangements.

What is the difference between the installed generation and network capacity of the REZs?

The potential generation detailed in this REZ Roadmap is the expected installed generation capacity. Efficiently oversubscribing our REZs at certain points allows for optimisation of the existing network. This will minimise the amount of new transmission and additional REZs required to meet clean energy demand. This assumes development at approximately 1.2-1.4 times the network transfer capacity as modelled by Powerlink.

As each REZ is declared, the REZ Management Plan will detail the estimated network transfer capacity and mix of installed generation.

Powerlink, as the proposed REZ Delivery Body, will carefully manage, monitor and coordinate generators within each REZ to ensure energy safety and reliability while leveraging the full potential of renewable energy sources.

How have renewable construction jobs been calculated for REZ development?

The job calculations in this Roadmap document are the assumed renewable project construction jobs that are needed to build out the expected MW capacity from REZ declaration until 2035. These have been calculated in line with the RACE for 2030 Electricity Workforce Projections to 2050.

Developer engagement

How will renewable developers be engaged in the development of REZs?

Powerlink is committed to implementing a market-led, generator-pays REZ model which promotes the appropriate allocation of risk and costs.

The REZ approach delivers benefits for developers by unlocking opportunities for generators to connect to the network, increasing the cost-effectiveness of connecting and optimising the capability of the system. This approach provides significant benefits to developers by facilitating a more coordinated and efficient connection process, with greater transparency, speed and ease in project delivery.

Under the REZ model, Powerlink as the proposed REZ Delivery Body, will make recommendations on the REZ infrastructure to be progressed for further development. Supported by the recommendations, the Queensland Minister for Energy will then declare the REZ, from which point the REZ Framework will be applied to the nominated infrastructure, with information released in a REZ Management Plan. The REZ Management Plan will stipulate the REZ size, target technology and access principles, and will include robust community engagement to refine.

In order to connect into a REZ, developers will need to meet pre-determined criteria relating to their ability to demonstrate good community engagement, social licence to operate, environmental, commercial and technical viability, developer approval status and a proven track record of long-term ownership and operation of projects. Powerlink will continue to work with renewable energy developers on generation opportunities aligned to REZ development.





Next steps

The draft Roadmap is designed to increase transparency for communities on future REZ development while managing uncertainty in the outlook. It provides the opportunity for communities to shape how REZs are rolled out across the state.

The final Roadmap will incorporate feedback from submissions provided to this document.

Questions for consideration

Question 1

What should the strategic and detailed REZ Readiness Assessments focus on to maximise local opportunities and manage impacts from REZ development?

Question 2

How should Regional Energy Reference Groups be established and what role should they play in setting local investment priorities and shaping REZ outcomes?

Question 3

Should there be a coordinated scheme in place to invest in local priorities to leave a positive legacy for REZ communities and how should this operate?

Question 4

What else do we need to consider for REZ development in Queensland?

The Queensland Government invites the community to provide feedback through a submission, focused on these four questions. Email your submission to REZRoadmap@epw.qld.gov.au by Friday 22 September 2023.

In addition to lodging a submission, there are a range of other engagement activities underway on the REZ Roadmap including:

- direct engagement with communities, local governments, Aboriginal and Torres Strait Islander communities, local businesses, business industry, renewable developers and other key stakeholders
- publishing of information on the Department of Energy and Public Works website www.epw.qld.gov.au/about/initiatives/renewable-energy-zones
- Powerlink Consumer Panel
- public events across Queensland.



Have your say on the draft 2023 Queensland Renewable Energy Zone Roadmap

Glossary

Clean energy hubs	Our publicly-owned coal-fired power stations have been the bedrock of the Queensland energy system for decades, and these stations will continue to play a vital role in the new SuperGrid. The Queensland Government will progressively convert all publicly-owned coal-fired power stations into clean energy hubs by 2035. Each clean energy hub will look different, and will leverage the unique characteristics of the sites, network locations, local needs and local communities.
Declared REZ	Under the proposed Energy (Renewable Transformation and Jobs) Bill, the Minister may declare a part of Queensland to be a renewable energy zone (REZ). A REZ will coordinate renewable projects within a targeted area to connect to the network outside the open access environment.
Generator	An organisation that builds, owns, operates and manages a generator of electricity.
Gigawatt	Gigawatt (GW) is a unit of energy measurement, equivalent to 1000 MW. It is often used to describe large amounts of electricity, such as the 22 GW additional renewables needed to reach Queensland's 80 per cent renewable energy target.
Hydrogen	Hydrogen is a clean fuel that, when consumed in a fuel cell, produces only water. Hydrogen can be produced from a variety of domestic resources, including renewable energy like solar and wind. These qualities make it an attractive fuel option for transportation and electricity generation applications. It can be used in cars, in houses, for portable power, and in many more applications.
Megawatt	A Megawatt (MW) is a unit of energy measurement. It can be used to describe the output of individual energy projects or power stations.
National Electricity Law (NEL)	The National Electricity Law (NEL) is contained in a Schedule to the National Electricity (South Australia) Act 1996. It establishes the governance framework and key obligations for the National Electricity Market (NEM), including Australian Energy Market Operator's (AEMO) role and functions, as well as the regulation of access to electricity networks.
National Electricity Market (NEM)	National Electricity Market (NEM) is the wholesale market for the supply of electricity in all states of Australia except Western Australia and the Northern Territory. The output of all electricity generators is aggregated in a pool and supplied as needed to meet demand according to rules set by the Australian Energy Market Commission (AEMC).
National Electricity Rules (NER)	The National Electricity Rules (NER) are made under the National Electricity Law (NEL) and govern the operation of the National Electricity Market (NEM). They determine how companies can operate and participate in the competitive generation and retail sectors, and also govern the economic regulation of electricity transmission and distribution networks.
Open access regime	The National Electricity Market (NEM) has an open access regime in which transmission and distribution businesses have an obligation to deliver a reliable supply (in accordance with set standards and incentive arrangements) to their customers and to make offers to connect all generators and loads that wish to connect to their networks.

Queensland Renewable Energy Targets (QRET)	The renewable energy targets for Queensland are: (a) that by 2030 50 per cent of the electricity generated in Queensland is generated from renewable energy sources; and (b) that by 2032 70 per cent of the electricity generated in Queensland is generated from renewable energy sources; and (c) that by 2035 80 per cent of the electricity generated in Queensland is generated from renewable energy sources.
Queensland SuperGrid Infrastructure Blueprint	The Queensland SuperGrid Infrastructure Blueprint is designed to implement the foundational infrastructure to enable Queensland to decarbonise the existing electricity system and load in Queensland. This Blueprint outlines the optimal infrastructure pathway to transform Queensland's electricity system.
Renewable Energy Zone (REZ)	A Renewable Energy Zone (REZ) is an area with excellent characteristics for renewable energy that is developed in a coordinated way to lower costs and improve local community, environmental, and cultural heritage outcomes. By strategically building new energy infrastructure within REZs, Queensland can unlock the full potential of its renewable energy resources. REZ development is a critical step to ensuring Queenslanders have access to affordable energy in the long term, as well as creating regional job opportunities, and lowering Queensland emissions.
REZ Delivery Body	In Queensland, the REZ Delivery Body will be responsible for providing advice on proposed REZ to government, developing draft and final management plans, consulting with community on technical elements of REZ design.
REZ Framework	The Queensland REZ Framework is the process by which Queensland will be developing REZs. This framework will be legislated under the Energy (Renewable Transformation and Jobs) Bill.
REZ transmission network	REZ transmission network includes a transmission network, or part of a transmission network, within a REZ that renewable energy projects may connect to and use to transfer their energy to the shared network. Under the proposed Queensland legislation, REZ transmission network will be outside the open access regime.
Shared transmission network	Most of the transmission network in Queensland has been built over many decades to transport electricity from generators to homes and businesses. The shared transmission network regulated through the Australian Energy Regulator (AER).
SuperGrid	The SuperGrid is the major energy infrastructure for integration of renewables, firming and storage required for Queensland to meet its renewable energy targets.

Wind and solar fun facts

While many Queenslanders may have seen a rooftop solar system in their neighbourhood or an electric vehicle on the roads, many have not seen a real-life large-scale solar or wind farm. These technologies have improved rapidly over recent decades and new innovations continue to lower costs and improve efficiencies in development. Here are some fun facts about the development of renewable energy and our transmission network.



Queensland is perfectly placed to harness solar power with over 260 days of sunshine a year and one of the world’s highest levels of solar exposure¹⁰

40 solar farms are in operation and 89 are under construction or in the pipeline across Queensland

The first solar panel was invented in 1883, but this early invention could only convert around 1% of the sunlight it captured into usable energy¹¹

The Queensland Government is currently exploring how to recycle solar components at end-of-life with a \$250,000 solar stewardship pilot led by the Smart Energy Council¹²

Wind has been used as source of energy since 200 BC and the first wind turbine was constructed in 1888¹³

Five wind farms are currently operating in Queensland with a further 49 under construction or in the pipeline

One wind turbine can power up to 1,500 homes for a year and offset up to 7,500 tonnes of CO₂ emissions¹⁴

The National Electricity Market operates on one of the world’s longest interconnected power systems - from Port Douglas in Queensland to Port Lincoln in South Australia - a distance of around 5,000 kilometres¹⁵

¹⁰ Source: <https://www.business.qld.gov.au/industries/invest/renewable/advantages>.

¹¹ Source: <https://www.researchgate.net/publication/318410023> The history of using solar energy.

¹² Source: <https://statements.qld.gov.au/statements/97303>.

¹³ Source: <https://www.researchgate.net/publication/265594973> History of Wind Energy.

¹⁴ Source: https://www.epw.qld.gov.au/_data/assets/pdf_file/0011/33131/queensland-energy-plan-summary-report.pdf.

¹⁵ Source: <https://aemo.com.au/-/media/files/electricity/nem/national-electricity-market-fact-sheet.pdf>.



**Have your say on the draft
2023 Queensland Renewable
Energy Zone Roadmap**

 qld.gov.au/energyandjobsplan

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