

2023/24

# Annual Progress Statement



*The Annual Progress Statement is an independent assessment of the energy transformation in Queensland undertaken by the Queensland Energy System Advisory Board*



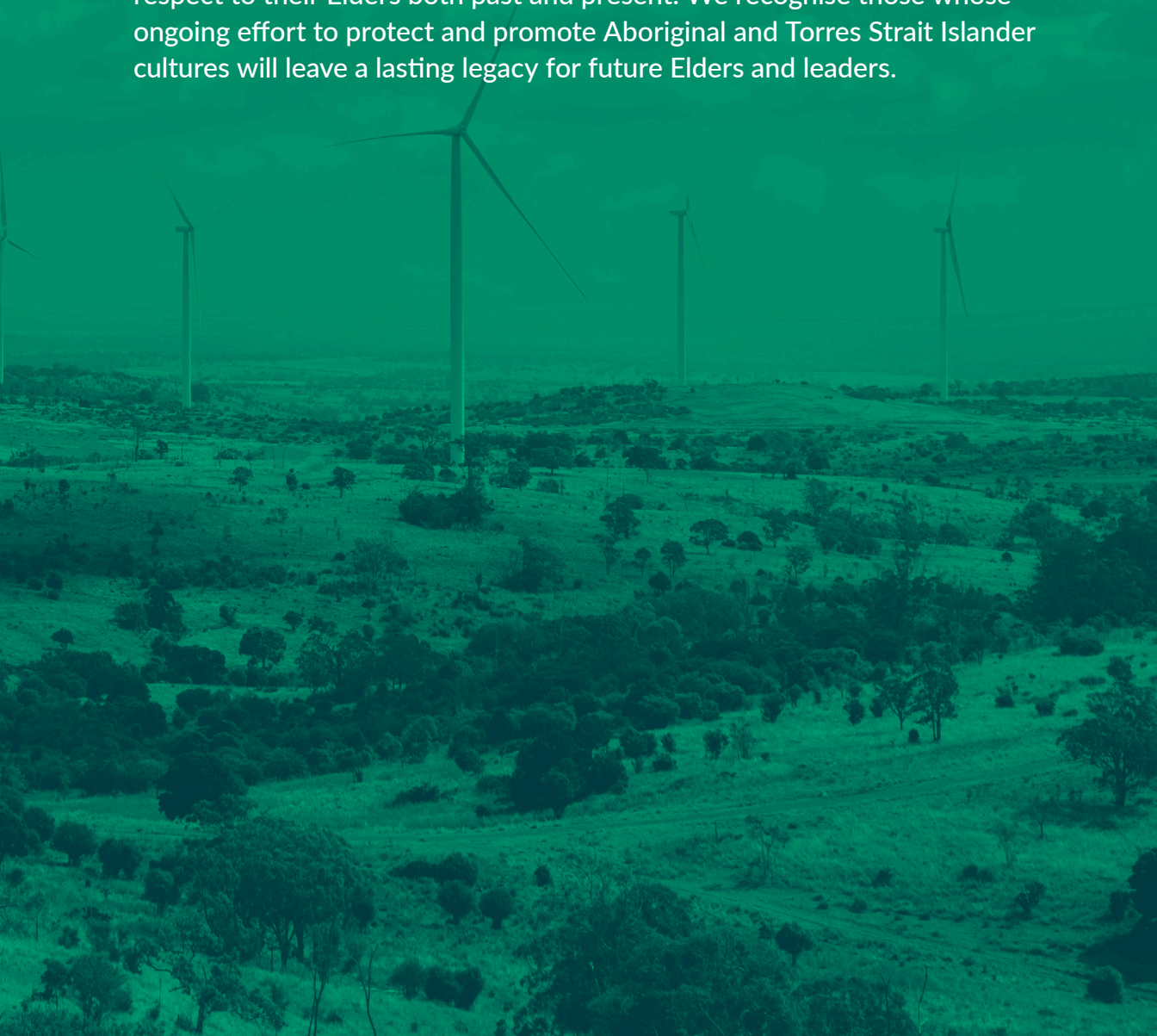
**Queensland  
Energy System  
Advisory Board**



The Board acknowledges Aboriginal and Torres Strait Islander peoples as the first peoples of Queensland and honours their deep and ongoing connection and custodianship of the land, the water and the sea.

Queensland owes much of its electrification to unpaid and underpaid work completed by Aboriginal and Torres Strait Islander peoples. The Board acknowledges the past injustices and historic claims of Aboriginal and Torres Strait Islander workers whose employment, wages and savings were controlled and stolen by the state.

The Board also acknowledges the rich culture of Aboriginal and Torres Strait Islander peoples which has existed for more than 65,000 years and pays respect to their Elders both past and present. We recognise those whose ongoing effort to protect and promote Aboriginal and Torres Strait Islander cultures will leave a lasting legacy for future Elders and leaders.





# Contents

<b>Foreword</b>	4
<b>Meet the Appointed Board Members</b>	5
<b>Context</b>	6
<b>Introduction</b>	7
<b>Proposed approach to assessing progress</b>	8
Overview of renewable energy target methodology	8
<b>Progress towards supporting communities</b>	10
Case Study: Microgrids in First Nations communities	11
Local Voices	11
Local Choices	12
Case Study: Clean Energy Hubs	13
Case Study: Decarbonising remote and First Nations communities	13
Local Benefits	14
<b>Progress towards Queensland's renewable energy targets and building the SuperGrid</b>	15
Renewable Energy Targets	15
The Queensland SuperGrid	16
Renewable energy generation	16
Renewable energy zones	18
Storage, firming and dispatchable capacity	19
Major network transmission and system strength	21
<b>Progress towards implementing government policies</b>	22
Future focus	22

# Foreword



**A**s Chair of the Queensland Energy System Advisory Board, I am pleased to present the first Annual Progress Statement on Queensland's energy transformation.

The Queensland Government has an ambitious agenda to decarbonise the State's electricity system by 2035. The Queensland Energy and Jobs Plan and Queensland SuperGrid Infrastructure Blueprint, released in 2022, outline the actions and pathway to deliver clean, reliable and affordable power for generations.

The Board acknowledges that Queensland's energy transformation requires significant public and private investment in large-scale renewable energy, storage and firming, and network infrastructure, mostly in regional communities. This cannot occur without maintaining an attractive investment environment and without demonstrating tangible benefits for host communities and First Nations peoples.

This Annual Progress Statement provides an update on progress towards achieving the legislated renewable energy targets and on the broader energy transformation. It highlights some of the key achievements in the last financial year, and signals where further action may be needed to support the shift to a clean energy economy.

I look forward to working with the Queensland Government as Chair of the Queensland Energy System Advisory Board to provide advice to Government on the State's energy transformation.

A handwritten signature in black ink, appearing to read 'Leanne Bond', written in a cursive style.

**Ms Leanne Bond Hon FIEAust FTSE FAICD**

Chairperson

Queensland Energy System Advisory Board





# Meet the Appointed Board Members

## Leeanne Bond Chair of the Board

Leeanne Bond is an Engineering Executive, Independent Non-Executive Company Director, Board Chair and Advisory Board Member. Leeanne has over 30 years' experience in the energy sector through engineering projects and professional services, with expertise in energy and resources, business strategy, and infrastructure and governance of major projects. Leeanne is an Independent Non-Executive Director at Aurecon Limited, the Australian Academy of Technological Sciences and Engineering Limited and CRC One Basin Limited.



**Mark Carkeet** is a Legal Consultant and former Partner at Minter Ellison, having worked almost exclusively for over 30 years on matters involving the energy and resources sectors. Mark has provided advice to government on energy initiatives.



**Peter Price** has over 40 years' experience in the Queensland electricity Industry. Peter is the Chief Engineer at Energy Queensland and is a member of the Executive Leadership Team, leading on engineering and asset management strategies.



**Jo Sheppard** is the Chief Executive Officer of the Queensland Farmers Federation and former Mayor of the Paroo Shire Council, and has partnered with the Government on energy initiatives that support landholders. Jo has 20 years' experience in roles that support and advocate for Queensland's regional communities.



**Professor Paul Simshauser AM** is the Chief Executive Officer at Powerlink Queensland and a Professor of Economics at Griffith University. Paul has more than 30 years' experience in Queensland's energy sector in generation, retail, energy policy and public administration.



**Kate Summers** is the Principal Consultant of Power Systems at Ekistica, helping to develop and strengthen remote and regional Australia's capability to deliver reliable power solutions in the renewable energy sector. Kate is an experienced power control engineer.



**Leann Wilson** is a Bidjara/Kara-Kara and South Sea Islander Descendent, and is a recognised experienced executive, business owner and First Nations leader. Leann is experienced in facilitation and collaboration between First Nations people and the energy and resources sector.



**Paul Martyn** is the Director-General of the Queensland Government Department of Energy and Climate, and is an ex-officio member of the Board.



**Michael Carey** is the Under-Treasurer of Queensland Treasury, and an ex-officio member of the Board.

# Context

In September 2022, the Queensland Government released the Queensland Energy and Jobs Plan to set a clear vision and pathway for the State's energy transformation. Included in the Plan was a commitment to prepare new legislation that created the infrastructure frameworks for a coordinated, efficient infrastructure rollout, and new governance and advisory functions to guide the transformation, and to support workers and communities. In April 2024, this new legislation was passed.

The *Energy (Renewable Transformation and Jobs) Act 2024* (the Act):

- sets key commitments from the Plan in law, including the three renewable energy targets
- creates the Priority Transmission Investment and Renewable Energy Zones (REZ) frameworks to enable Queensland to deliver the energy transformation at the scale and pace required
- establishes new advisory functions, including the Queensland Energy System Advisory Board, as a new technical expert advisory body to the Government on the energy transformation.

The Board formally commenced on 1 July 2024. It is comprised of a Chair, six appointed board members, the Director-General, Department of Energy and Climate (Department), and the Under-Treasurer, Queensland Treasury.

The Act requires the Board to prepare an Annual Progress Statement for each financial year on:




- the progress made towards achieving the legislated renewable energy targets of 50 per cent renewable energy by 2030, 70 per cent by 2032 and 80 per cent by 2035, as outlined in the Queensland Energy and Jobs Plan
- the progress made on matters that are part of the optimal infrastructure pathway which is in the Queensland SuperGrid Infrastructure Blueprint.

Under section 11 of the Act, the Queensland Minister for Energy and Clean Economy Jobs must table the Annual Progress Statement (prepared by the Board) by 30 September each year in the Legislative

Assembly of the Queensland Parliament. The Annual Progress Statement must also be published on the Department's website.

The Annual Progress Statement provides an overarching perspective on Queensland's progress through the energy transformation in the last financial year. However, it does not provide a report card against all actions in the Queensland Energy and Jobs Plan. The Government provides information on how Queensland is implementing actions under the Plan on its website: [Actions from the Queensland Energy and Jobs Plan | Department of Energy and Climate](#)

## Optimal infrastructure pathway objectives

		
<b>Providing safe, secure &amp; reliable electricity supply</b>	<b>Long-term minimisation of electricity costs</b>	<b>Achieving the Renewable Energy Targets</b>

## Queensland SuperGrid Infrastructure Blueprint

The Queensland SuperGrid Infrastructure Blueprint (the Blueprint) was released alongside the Plan and outlines the optimal infrastructure pathway to achieve the renewable energy targets, while maintaining a safe, secure reliable supply of electricity, and minimising the long-term costs to Queensland consumers. The Blueprint will be reviewed and updated in 2025, and every 2 years after.

## Optimal infrastructure pathway

The optimal infrastructure pathway is defined in the Act as the significant infrastructure projects, including the sequencing and timing of these projects identified in the Blueprint, that each help to meet the optimal infrastructure pathway objectives. It also includes any project that is an eligible Priority Transmission Investment under the Act, and any REZ transmission network.

*The Queensland Energy System Advisory Board has used data prepared by the Department and the methodology tabled by the Minister and published on the Department's website to produce the Annual Progress Statement. The data was verified by the Deputy Director General of the Department.*





# Introduction



PICTURE: LIGHTHOUSE

Queensland has taken significant steps in the past 12 months to transition to a clean energy economy. New legislation has been delivered to provide certainty on the direction and the frameworks for delivery, with the three renewable energy targets now established in law. Achieving Queensland's renewable energy targets will also contribute to the government's new legislated emissions reductions target of 75% by 2035, based on 2005 levels.

The first Annual Progress Statement of the Board provides an independent snapshot of Queensland's progress towards decarbonising its electricity system. It acknowledges the new investment in renewable energy generation, and the efforts to meet the targets, and build a SuperGrid that provides reliable and affordable power for all Queenslanders.

The Annual Progress Statement also provides Queenslanders with information on matters that are important to them. The Statement examines progress against three core areas – communities, infrastructure and policies. This provides a holistic

approach to assessing progress towards the renewable energy targets that will be expanded on in future Annual Progress Statements.

While Queensland has made good progress, more work is required; ongoing collaboration from government, industry, businesses and communities will be vital. Queensland needs to decarbonise its electricity system at a pace and scale not seen before. This can only be achieved by Government, businesses and community working together. The Annual Progress Statement makes clear that Queensland must leverage the opportunities that the transition to a clean energy economy presents to regional communities. This demands a greater policy focus on areas that will make the ambition of the Plan and the Blueprint a reality.

Queensland has many natural advantages and the architecture to build a clean energy economy that is strong and competitive, and meets the needs of Queenslanders. This report is one step towards informing Queenslanders on how we are tracking and how we can move forward with cleaner energy that preserves reliability and affordability for all.

# Proposed approach to assessing progress

The Queensland Energy System Advisory Board is required to monitor and report on progress towards achieving the renewable energy targets. The Act defines Queensland's renewable energy targets as:

- by 2030, 50 per cent of electricity generated in Queensland is generated from renewable energy sources
- by 2032, 70 per cent of electricity generated in Queensland is generated from renewable energy sources
- by 2035, 80 per cent of the electricity generated in Queensland is generated from renewable energy sources.

The Act defines renewable energy sources as solar, wind, biomass, geothermal, hydropower (other than pumped hydro energy storage) and any other source prescribed by regulation. The Act also provides that the methodology for calculating the proportion of electricity generated in Queensland from renewable energy sources is decided by the Minister.

On 29 July 2024, the Minister tabled in the Queensland Legislative Assembly the [Renewable Energy Targets: Methodology](#). This document is also published on the Department's website.

## Overview of renewable energy target methodology

The calculation of progress towards, and achievement of, the renewable energy targets in Queensland will be on an electricity generation basis:

$$\text{Renewable energy percentage in Queensland} = \frac{\text{Renewable generation in Queensland}}{\text{Generation in Queensland}} \times 100$$

In this formula, generation refers to energy generated, measured in megawatt-hours (MWh) or gigawatt-hours (GWh).

The calculation aims to include all (as far as practicable) significant generators in Queensland to calculate the renewable energy generation percentage.

The calculation relies on publicly available information from the Australian Energy Market Operator (AEMO) for electricity generation data. Generally, this is generator metered output at 5-minute intervals.

AEMO's data captures most generators of 5 MW and above, unless exempt. AEMO also provides estimates for the generation from rooftop solar PV systems for residential, commercial and industrial customers.

Where AEMO measured output or estimates are not available, the calculation relies on estimates provided by the Department. These estimates are based on the capacity of the plant and standard generation profiles.







## Overview of energy transformation

This Annual Progress Statement takes a holistic approach to outlining how Queensland is progressing toward a clean, reliable and affordable electricity system. It examines progress against three core areas – communities, infrastructure and policies.

### Communities



## Progress towards supporting communities in the transformation

Jobs and economic opportunities

First Nations

Rural and regional communities

### Infrastructure



## Progress towards the Renewable Energy Targets and building the SuperGrid

Renewable generation

Storage and dispatchable capacity

Transmission

### Policies



## Progress towards implementing government policies

Mitigating emerging risks

Maximising opportunities

Areas of future focus

Community support and acceptance for the energy transformation will be critical to its success.

With most of the infrastructure and investment anticipated to occur in regional Queensland, it is vital that regional communities receive tangible, and lasting, benefits.

For this Annual Progress Statement, the Queensland Energy System Advisory Board is using publicly available information on the activities occurring to support regional communities and ensure benefits are realised. Moving forward, the Board will look to develop indicators that can measure the economic benefits, job opportunities that flow from new projects, and the experience and sentiment of regional communities and First Nations peoples.

The Queensland Energy System Advisory Board is also using publicly available data and information provided from the Department to assess progress

towards building the SuperGrid, as outlined in the 2022 Queensland SuperGrid Infrastructure Blueprint. Data about renewable energy, storage, firming and dispatchable capacity and transmission has been assessed and included in this Annual Progress Statement.

Fundamental to achieving the renewable energy targets and optimal infrastructure pathway, is the status of foundational policies to drive the transformation.

This Annual Progress Statement canvasses how government policies are working to address emerging risks to Queensland's energy transformation and to maximise opportunities for all Queenslanders. The Queensland Energy System Advisory Board also provides a forward-looking lens to identify areas where additional effort, actions or policy is required to support the energy transformation.

# Progress towards supporting communities



Queensland’s regional communities must be at the heart of the energy transformation. A range of activities were undertaken in the last financial year to help communities shape the transformation.

In May 2024, the [Community Partnerships and Enabling Frameworks](#) was released, outlining the Government’s commitment to partner with industries and communities to maximise benefits from the energy transformation and drive regional economic opportunities. This partnership approach is guided by eight principles for promoting local voices, local choices, and local benefits.

## Local Voices



Drive genuine and ongoing engagement



Engage, value and involve First Nations peoples

## Local Choices



Build local capacity



Promote diverse economies



Foster environmental resilience

## Local Benefits



Share lasting benefits with communities



Expand workforce opportunities and secure livelihoods



Buy local, build local

**The Community Partnerships and Enabling Frameworks outlines the initiatives underway or recently delivered to support rural and regional communities. Key initiatives delivered include:**

- **Queensland Renewable Energy Landholder Toolkit** - developed in partnership with the Queensland Farmers Federation, to provide information and practical guidance for landholder’s considering hosting a renewable energy project on their property. Through this partnership, the Queensland Government and Queensland Farmers Federation have created the Queensland Ag Energy Hub, a centralised hub of information for farmers and landholders managing the energy needs and requirements of their operations.
- **Powerlink’s SuperGrid Landholder Payment Framework** - an Australian first, the framework was developed to ensure landholders receive fair payment for hosting transmission infrastructure, including providing greater flexibility around the timing of payments and consideration of the variance in property values across different regions. Development of the framework was guided by a dedicated reference group of councils, agriculture groups, large energy user advocates and consumer groups.
- **Coexistence Queensland** - established to provide enhanced information, engagement and education services to Queensland’s rural and regional communities and industry on land access and coexistence issues across the resource and renewable energy sectors.
- **\$10 million Queensland Microgrid Pilot Fund** - delivered to accelerate the deployment and development of resilient power in regional and First Nations communities





## CASE STUDY

### Microgrids in First Nations communities

The Queensland Government established the \$10 million Queensland Microgrid Pilot Fund to support Queenslanders living in regional and First Nations communities by helping them access more resilient electricity as part of the state's energy transformation.

The program is funding feasibility studies and building projects to develop and deliver microgrid projects in Queensland's regional and remote areas, with the first microgrid feasibility studies currently being conducted and due to be completed by the end of 2024.

The Queensland Government is also progressing other initiatives to enable local voices and choices, and to deliver benefits to improve the experience of rural and regional communities through the transformation.

## Local Voices

### Elevating local voices

- **First Nations Engagement and Capacity Building Project** – to ensure First Nations people and communities are engaged with free, prior informed consent, allowing them to actively participate in and benefit from energy infrastructure projects.
- **Code of Conduct** – an Australian-first, mandatory code for renewable energy developers that sets social licence standards for the construction, development, and

operation of new generation projects. This will be co-designed with key stakeholders and regional communities.

- **Best practice guidance** – partnering with the Queensland Renewable Energy Council to improve practice in the energy sector through guidance on community engagement, working with First Nations people and landholders, and health and safety. Will be informed by rural and regional communities.
- **Environmental conservation** – partnering with the Queensland Conservation Council to identify programs that deliver significant environmental benefits.
- **REZ Readiness Assessments** – engaging with local communities to understand what is important to them, and using this feedback to plan for REZs to minimise impacts and meet the priorities of these communities.

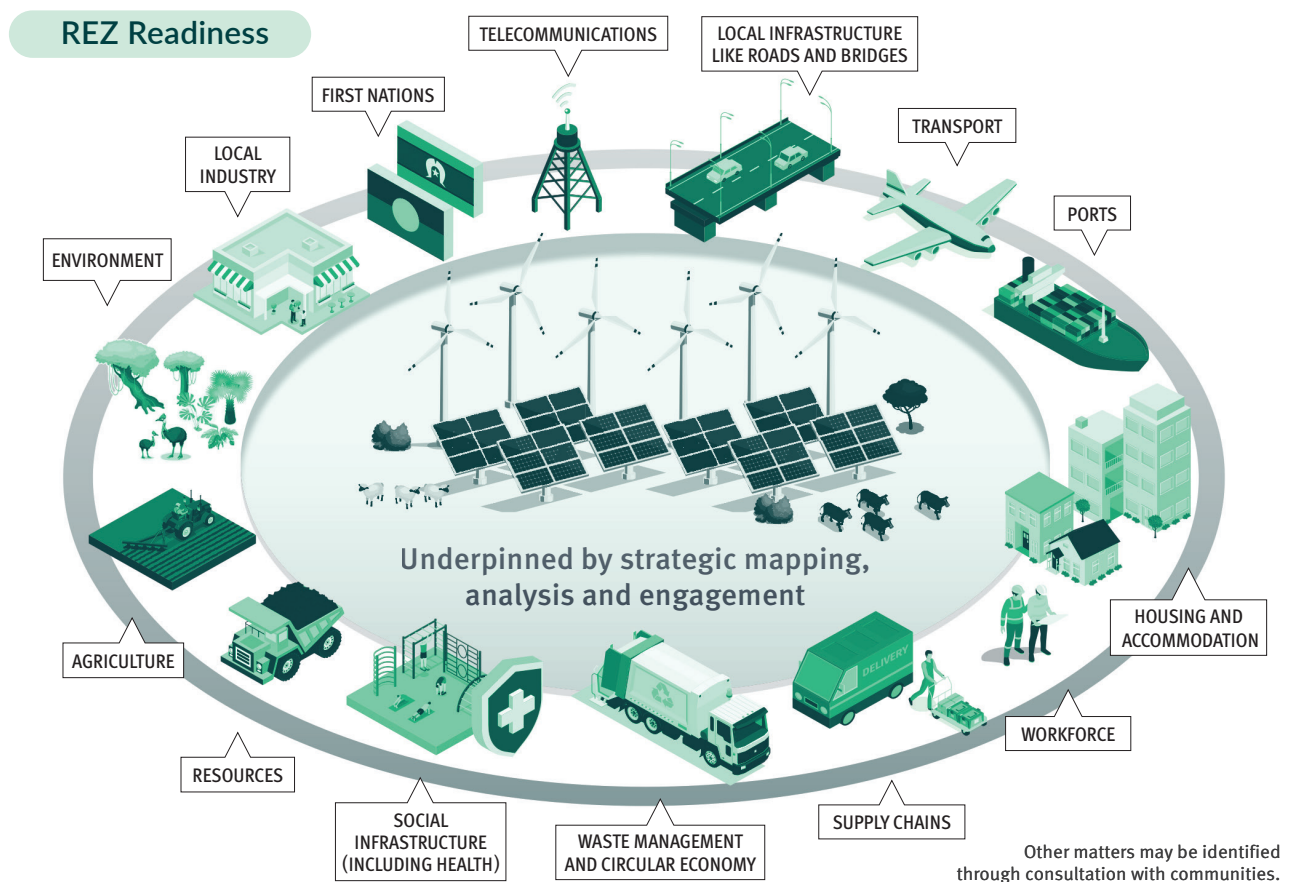


Figure 1: REZ Readiness Assessments investigate the 'readiness' of a proposed REZ, and considers social, environmental and economic factors for the local region.

## Local Choices

### Empowering local choices and ensuring a focus on local priorities

- **Local Council Energy Partnerships** – providing funding to boost the ability of Queensland’s regional councils to engage and work with energy infrastructure developers and obtain benefits for their communities.
- **Remote and First Nations Clean Energy Strategy** – to support Queensland’s 39 remote and First Nations communities to shift to renewable energy. Involves engaging with First Nations people and communities on their priorities for their communities in decarbonising. Community priorities raised include savings on energy bills, rooftop solar, local employment and training, First Nations business participation, ownership and energy efficiency initiatives.

- **Clean Energy Hubs** – Queensland’s publicly owned coal-fired power stations will gradually be converted into clean energy hubs, ensuring these sites continue to be a key part of the energy system and provide local employment and economic opportunities.
- **Training Centre and Transmission Hubs** – \$192 million has been committed to deliver transmission and training hubs in Townsville and Gladstone to support local skill development, and the roll-out of the energy transformation. Interim facilities have already been established, and work is underway on the permanent sites. Permanent facilities will upskill hundreds of energy workers each year to support the delivery of the SuperGrid.





PICTURE: STANWELL

## CASE STUDY

### Clean Energy Hubs

The Queensland Energy and Jobs Plan and Blueprint include a commitment to progressively convert all publicly owned coal-fired power stations into clean energy hubs by 2035.

Master planning and community consultation activities at selected sites are underway. Stanwell Corporation is working to deliver energy storage, new industrial capabilities, and energy job training opportunities at their Stanwell and Tarong clean energy hubs. CS Energy is focused on developing clean hydrogen production, export, and firming at the Callide and Kogan clean energy hubs. CleanCo is also developing a clean energy hub at the Swanbank gas-fired power station site that will trial emerging technologies and provide energy firming.

## CASE STUDY

### Decarbonising remote and First Nations communities

Queensland's 33 isolated networks are microgrid systems that supply electricity to support 39 remote communities throughout western Queensland, the Gulf of Carpentaria, Cape York, throughout the Torres Strait and on Palm and Mornington Islands. Ergon Energy is working collaboratively with these communities to look at ways to integrate more renewable generation, and battery energy storage systems into the electricity supply. Projects commencing in 2024 include a:

- 4.5 MW solar PV installation and 4 MWh battery in Doomadgee in the Gulf of Carpentaria, which is expected to save around 580,000 litres of diesel per year
- 1.7 MW solar farm and 1.5 MWh battery at Boulia in western Queensland, which is expected to save around 360,000 litres of diesel each year.



PICTURE: YURIKA

- 1.2 MW solar system and 1 MWh battery at Burketown in North West Queensland, which is expected to save around 270,000 litres of diesel each year
- 850 kilowatt (kW) solar system and 1 MWh battery at Windorah in Central West Queensland, which is expected to save around 150,000 litres of diesel per year.

Additionally, as part of Ergon Energy's commitment to decarbonising remote communities, Thursday Island's wind farm has been refurbished to extend its life by around 15 years.





## Local Benefits

### Working with communities to embed tangible lasting benefits

- **Pumped hydro benefits package** – initial \$5 million to re-establish general practitioner services, support township upgrades in Imbil, and undertake feasibility and design work on the Mary Valley Mountain Bike Park and early works of Stage 2 of the Mary Valley Rail Trail. A further \$30 million benefits framework will provide further benefits for the local community.
- **Regional Economic Futures Fund** – a \$200 million fund to help Queensland communities to seize new industry development opportunities from decarbonisation. In August 2024, \$17.7 million was allocated to 14 Queensland government and council-led projects for the Central Queensland region.
- **Solar panel recycling** – in partnership with the Smart Energy Council, a solar panel recycling pilot scheme to guide better practice in the renewable energy sector by improving

industry engagement with community. Will enhance opportunities for regional Queensland to directly benefit from renewable energy solutions.

- **Tradies for the Transition** – government strategy for attracting and retaining a skilled workforce in regional areas to support the transformation. Includes actions like the *Queensland Renewable Energy Procurement Policy – Creating Local Jobs* that applies a Buy Queensland approach to energy infrastructure projects to ensure local communities gain maximum benefit from investment.

Implementation of the Queensland Energy and Jobs Plan and Blueprint is still in its early years, and there will continue to be more that can be done to support communities through the transformation. Future Annual Progress Statements will seek to gather further information on progress in rural and regional Queensland, including on community knowledge, understanding and sentiment on the pace and scale of change, and economic indicators that measure benefits for First Nations people and local communities.

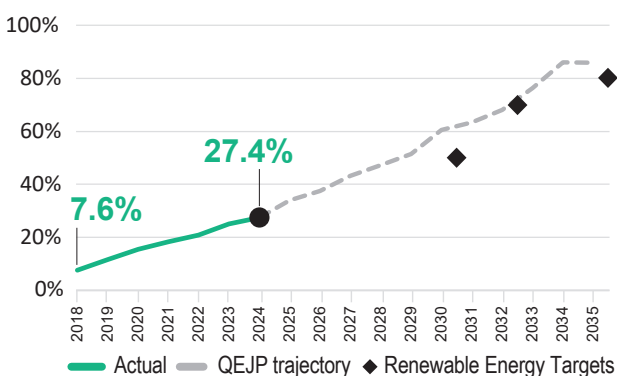
# Progress towards Queensland's renewable energy targets and building the SuperGrid



## Renewable Energy Targets

In 2023-24 financial year, renewable energy accounted for 27.4 per cent of the total share of electricity generated in Queensland. Queensland generated around 19,600 GWh of electricity from renewable energy sources (as outlined in the Act). This is an increase of 15 per cent over the last financial year, and an increase of more than 300 per cent in the eight years since the 50 per cent renewable energy target was first announced in 2015.

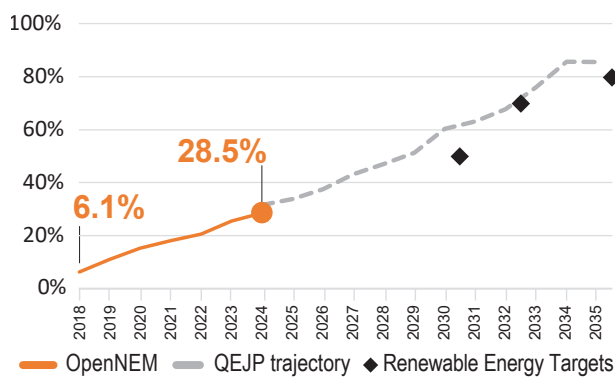
### Queensland is on track to meet its renewable targets



Graph 1: Progress towards renewable energy targets since 2018, and Queensland Energy and Jobs Plan (QEJP) trajectory *Note: percentage calculated using the methodology outlined on page 8; trajectory calculated using [Ernst & Young QEJP Modelling](#).*

As a point of comparison, OpenNEM is a platform that publishes National Electricity Market (NEM) data that is publicly accessible and is frequently used by industry. The OpenNEM data indicates Queensland is at 28.5 per cent renewable energy. This differs slightly from the Department's calculation because the methodology differs in a few respects. The OpenNEM data includes generation from storage (batteries and pumped hydro), whereas Queensland's calculation excludes storage to prevent double counting of generation. Additionally, the Department's calculation includes some bioenergy generation which isn't

captured in OpenNEM data as these non-scheduled generating systems are market exempt. The Department's calculation also includes Mount Isa and other isolated networks (including remote First Nations communities) which are not connected to the NEM and therefore omitted from OpenNEM data.



Graph 2: OpenNEM progress towards renewable energy targets since 2018, and QEJP trajectory based on National Electricity Market (NEM)-connected generation only *Note: % calculated using Open NEM data; trajectory per above graph.*

Queensland is increasing its renewable energy generation at a rate needed to meet the 2030 target.

Queensland has 55 large-scale renewable energy projects (operational, under construction or financially committed) since 2015. Of this, 47 of the projects are operational, amounting to 4,350 MW of generation. The 55 large-scale projects represent more than \$12 billion of investment, an estimated 9,000 peak construction jobs, and more than 16 million tonnes of avoided CO2 emissions each year.

**55** large-scale renewable projects

**9,000** construction jobs

**\$12 billion** in investment

**16 million** tonnes emission avoided

Solar generation represents the greatest share of electricity generated from renewable energy sources. Generation from large-scale solar as well as residential and commercial rooftop solar contributed 20 per cent to the total electricity generation in Queensland in 2023-24 financial year. As of 30 June 2024, there were over 850,000 Queensland homes and businesses with rooftop solar, which collectively have a capacity of 5300 MW. Over 1 in 3 Queensland households now have rooftop solar.

Renewable Energy Source	Share (%)
Solar	9.2%
Rooftop Solar	10.8%
Wind	4%
Other	3.3%
<b>Total*</b>	<b>27.4%</b>

Table 1: Renewable energy sources share of energy generated in Queensland in 2023-24 FY

## The Queensland SuperGrid

The Queensland SuperGrid Infrastructure Blueprint outlines the optimal infrastructure pathway to build the SuperGrid to meet three key objectives:

- achieving the renewable energy targets of 50 per cent renewable energy by 2030, 70 per cent by 2032 and 80 per cent by 2035
- providing a safe, secure and reliable supply of electricity to Queensland consumers
- minimising the long-term cost of electricity for Queensland consumers.

This Annual Progress Statement outlines progress towards delivering the renewable generation, dispatchable and storage capacity, as well as network investments, outlined on the optimal infrastructure pathway in the Blueprint. It focusses on new major investments or activities undertaken in the 2023-24 financial year.

## Renewable energy generation

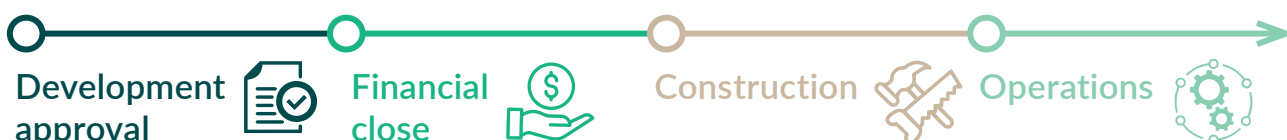
As of 30 June 2024, Queensland has about 10,300 MW of installed capacity from renewable energy sources. This is an increase in 600 MW of installed capacity in the last financial year.

Installed capacity (MW)	Large-scale (>5 MW)	Small-scale (<5 MW)
Solar	3,313	5,300
Wind	1,025	0.5
Hydro	161	14
Bioenergy	486	33
Mt Isa Isolated networks		36
Sub Total	4,985	5,383
<b>Total</b>	<b>10,369</b>	

Table 2: Queensland's electricity generation by source, 2023-24 FY. \*Small-scale solar represents rooftop solar.

In addition to this installed capacity, renewable energy projects reaching financial close and commencing construction in Queensland in the last financial year include:

- \$500 million 480 MW Aldoga Solar Farm by ACCIONA Energia, northwest of Gladstone in Central Queensland. The solar farm will feature up to 820,000 solar modulators and will deliver up to 350 jobs during construction and up to 10 ongoing full-time roles.
- 12.4 MW Amrun Solar Farm, and 8.8 MW / 2.1 MWh battery storage by Rio Tinto near Weipa in Far North Queensland. Once operational, the solar farm and battery will reduce the Amrun bauxite operations diesel electricity consumption by 37 per cent and the annual CO2-equivalent emissions by 14,000 tonnes.
- 94 MW Gunsynd Solar Farm by Metis Energy in Goondiwindi in Southern Queensland.

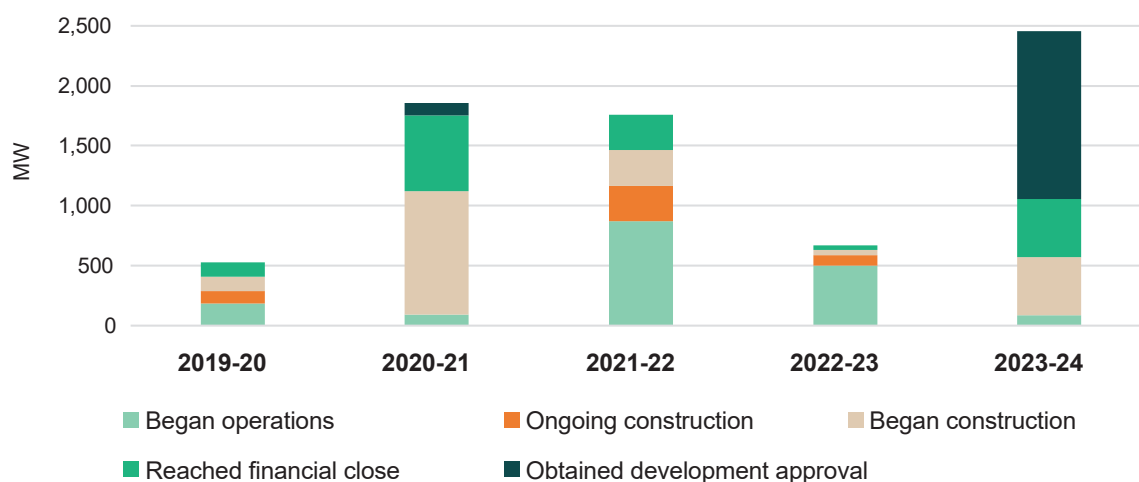






More solar and wind projects are anticipated to be commissioned in coming years, with developmental approvals gained in the last financial year increasing for renewable energy projects. Data indicates that a combined capacity of at least 2,746 MW of solar and wind projects are in the pipeline based on development approvals.

## Solar projects



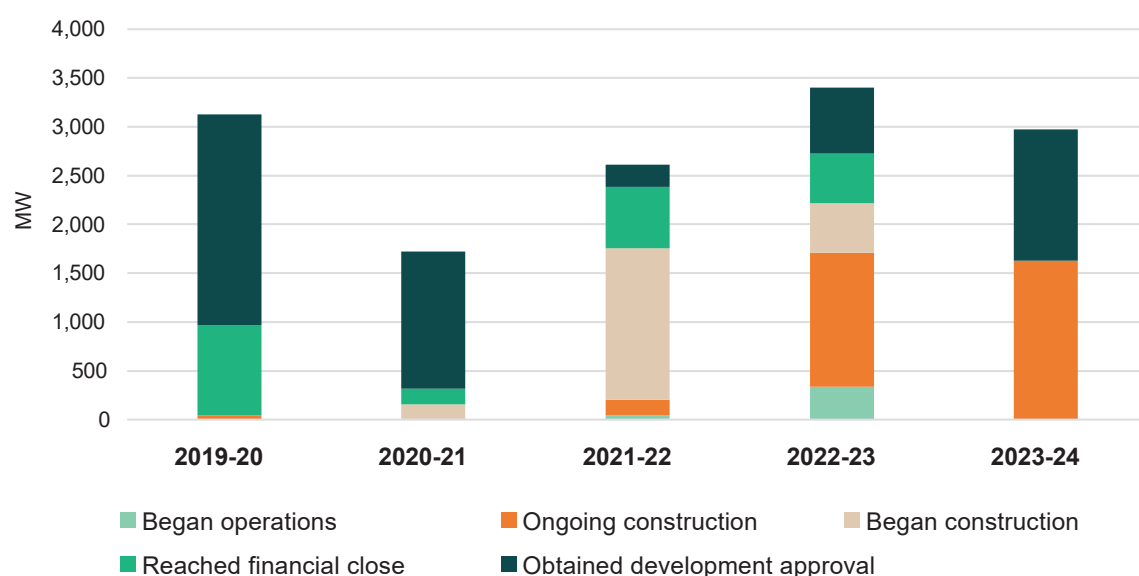
Graph 3: Pipeline for solar farm projects from 2019-20 to 2023-24

### Key Insights

Solar projects have continued to grow over the last four years in Queensland

The increased number of projects in the pipeline will support Queensland to meet its renewable energy targets

## Wind projects



Graph 4: Pipeline for wind farm projects from 2019-20 to 2023-24

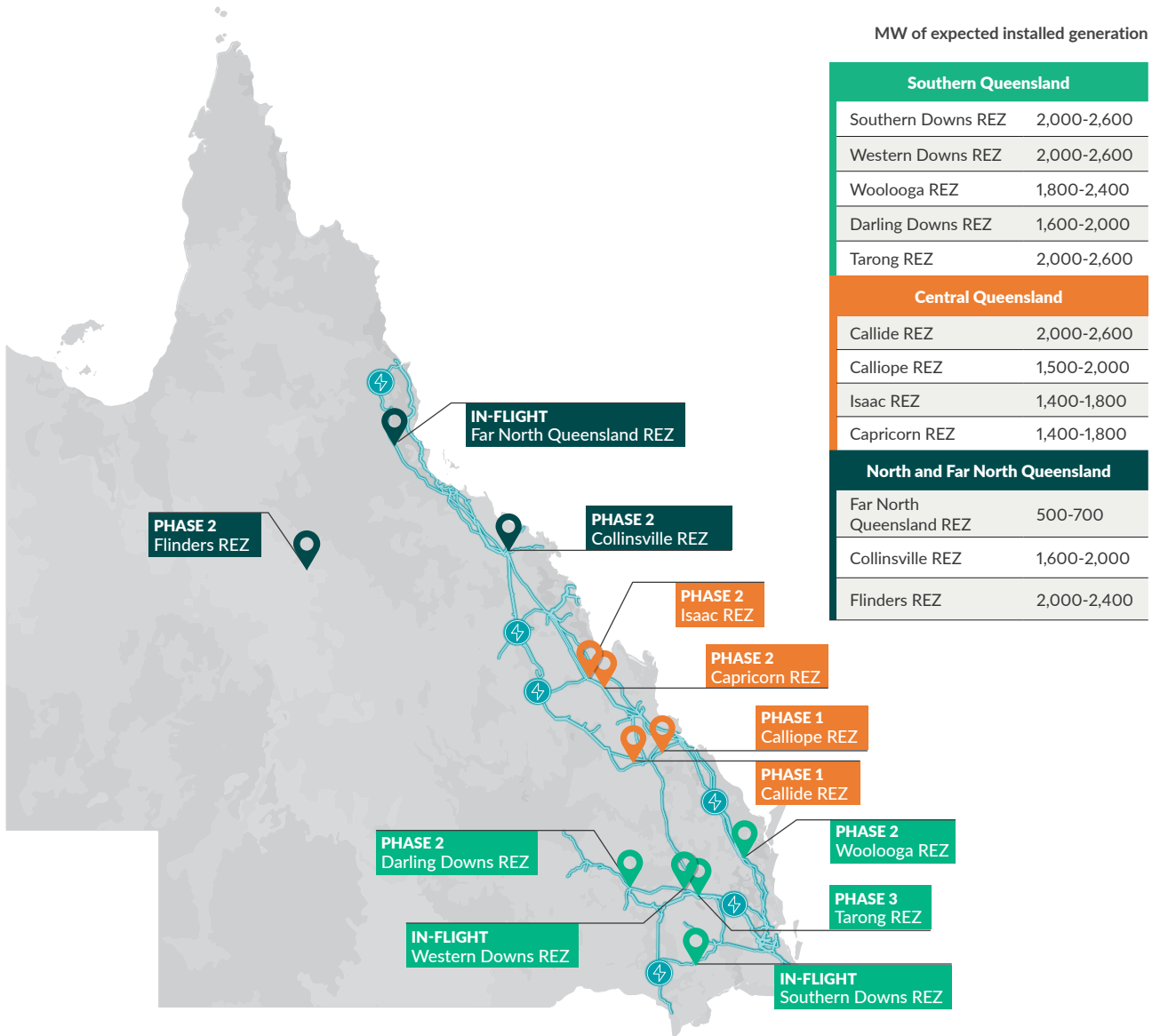
### Key Insights

Lead times for wind projects are longer than for solar projects

Projects require more time to obtain additional approvals at the state and national level before commencing construction

## Renewable energy zones

Renewable energy zones, known as REZs, will help address the future needs of Queensland’s electricity system by creating additional network capacity and enabling the coordinated, efficient connection of approximately 22,000 MW of new large-scale wind and solar projects in Queensland by 2035.



In March 2024, the Government released a REZ Roadmap that identifies 12 potential REZs in Southern, Central, North and Far North Queensland. The Roadmap provides indicative timings, locations and expected installed generation for each potential REZ.

For each specific REZ community, a local reference group will be established with membership from

the community, local businesses, and First Nations Elders and leaders to capture views on the REZ.

A new legislated REZ framework is also in place that outlines the process for declaring a REZ and preparing draft and final REZ management plans. Community engagement will be undertaken as part of declaring REZs so that communities can shape REZ outcomes.



### **In-flight REZs under development pre-legislation**

Work has already commenced on in-flight REZs ahead of legislation. In the Southern region, Powerlink has in 2024 completed construction on two switching stations and 65 km of high voltage transmission infrastructure to allow 2,000 MW of electricity to be exported to the grid, with the MacIntyre Wind Farm using half of this amount.

The 923 MW MacIntyre Wind Farm project is under construction near Warwick with operations expected to begin late 2024 or early 2025. This will be the largest wind farm in Australia once completed and is being supported by a 400 MW power purchase agreement (PPA) from CleanCo and a 150 MW PPA with Stanwell.

In the in-flight Western Downs REZ, Powerlink has been engaged to connect the 506 MW Wambo Wind Farm to the electricity network. This will require construction of a double circuit 275 kV transmission line between a proposed substation at Diamondy on the Wambo Wind Farm site tracking east for approximately 47 km and connecting into Powerlink's existing Halys Substation (located 11 km south-east of Kumbia township).

The 506 MW Wambo Wind Farm in the Western Downs is a 50:50 joint venture between Cubico Sustainable Investments and Stanwell and will be constructed in two stages. Stage 1 is due for completion late 2025, with stage 2 following in 2026. Stanwell's interest in the project is backed by a \$455.8 million investment through the Queensland Renewable Energy and Hydrogen Jobs Fund. Stanwell will also dispatch the other 50 per cent of the power generated by the wind farm under power purchase and capacity purchase agreements with Cubico.

### **REZ development post-legislation**

In the Central Queensland region, the Department, in partnership with Powerlink and the Office of the Coordinator-General, has commenced REZ Readiness Assessments at the strategic, regional level for Central Queensland, and at a detailed, local level for the potential Callide REZ.

REZ Readiness Assessments investigate the suitability or 'readiness' of a proposed REZ to host

proposed renewable energy development and considers key issues, impacts and opportunities for the surrounding communities. Community consultation workshops, and community pop-in and drop-in sessions were held in the Central Queensland region in mid-2024, with further workshops held in August 2024. Callide is anticipated to be the first REZ declared under the legislation.

## **Storage, firming and dispatchable capacity**

### **Pumped hydro**

The Blueprint identifies two foundational pumped hydro energy storage (PHES) assets for development – the Borumba and Pioneer-Burdekin projects. In 2022, Queensland Hydro was established to progress the development of these two PHES projects.

Queensland Hydro provided a detailed analytical report to the Queensland Government on the Borumba PHES project. The report, which contains comprehensive engineering, geotechnical, environmental, hydrological, social and commercial studies undertaken in 2022, confirmed the project's feasibility and ultimately informed the Government's investment decision.

As part of the 2023-24 State Budget, the Queensland Government approved proceeding with the Borumba PHES project, subject to environmental approvals and committed \$6 billion in equity funding to the project. The Government also committed \$1 billion in equity funding for the Pioneer-Burdekin Project as part of the State Budget.

Queensland Hydro is in the process of seeking regulatory and environmental approvals for the Borumba PHES project. Investigations into the suitability of the Pioneer-Burdekin PHES site will follow the same process as the Borumba PHES.



**Large-scale batteries and gas**

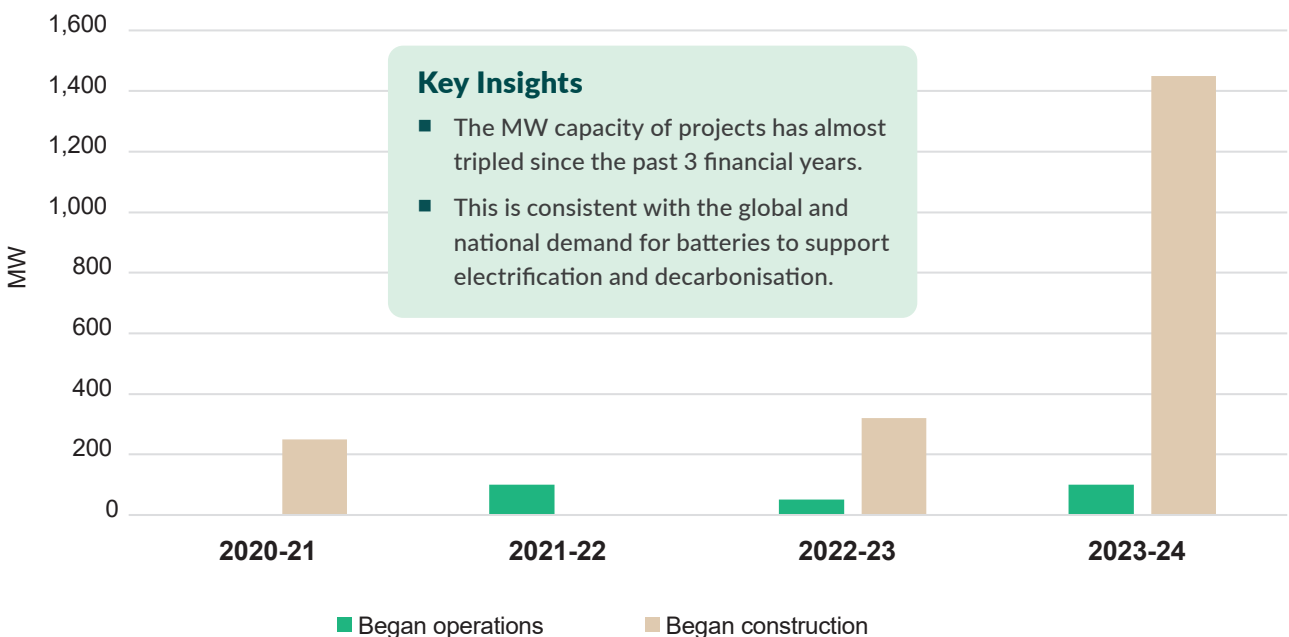
Queensland’s publicly owned energy businesses and the private sector are investing in more storage capacity. In the last financial year, Queensland saw:

- 100 MW / 200 MWh Chinchilla Battery by CS Energy at the Kogan Creek Power Station site near Chinchilla in the Western Downs region begin operations.
- 250 MW / 500 MWh ‘Supernode’ Battery by Quinbrook at Brendale in Southeast Queensland reach financial close. The project has secured an offtake agreement with Origin Energy.
- 200 MW / 400 MWh Greenbank Battery by CS Energy at Logan in Southeast Queensland commence construction.
- 300 MW / 600 MWh Southern REZ Battery by Stanwell at the Tarong Power Station near Nanango in South Burnett region reach financial close and commence construction. The project

will create up to 80 jobs during the construction phase and up to 6 jobs over the operation and maintenance phase.

- 300 MW / 1200 MWh Central REZ Battery by Stanwell at the Stanwell power station near Rockhampton in Central Queensland reach financial close and commence construction. The battery is supported by \$448.2 million in funding from the State Government’s Queensland Renewable Energy and Hydrogen Jobs Fund.
- 250 MW / 500 MWh Swanbank Battery by CleanCo, in partnership with Tesla and Yurika at the Swanbank Power Station near Ipswich in Southeast Queensland reach financial close and commence construction.
- 150 MW / 300 MWh Ulinda Park Battery by Akaysha Energy near Chinchilla in the Western Downs region reach financial close and commence construction.

Queensland has experienced strong growth in the deployment of large-scale battery technology since 2020-21. This investment coincides with the government’s \$570 million investment and release of the Queensland Battery Industry Strategy 2024-2029 to grow the industry and generate up to 9,100 clean economy jobs



Graph 5: Pipeline for large-scale battery projects from 2020-21 to 2023-24



To support a clean energy future with low emissions gas, CS Energy is developing Queensland's first hydrogen ready peaking plant, the up to 400 MW Brigalow Peaking Power Plant at the Kogan Creek Power Station near Chinchilla in the Western Downs region.

In November 2023, CS Energy signed an agreement with GE Verona to supply hydrogen ready peaking units to the project. Along with energy storage, the Brigalow plant and others under consideration will provide additional low-emission firming capacity to support the deployment of renewable energy.

Once committed projects are all operational, Queensland's aggregate battery and pumped hydro capacity/storage will be approximately 3,000 MW / 12,600 MWh, in addition to 4,000 MW capacity from firming gas turbines.

### Distribution network batteries

At the distribution network level, the Government has committed \$240 million for Energy Queensland to deliver 18 local network-connected batteries. Energy Queensland has a local network connected batteries program (at substations) across Queensland, the neighbour batteries program in the Ipswich region, and is installing community batteries in 12 locations. Energy Queensland has already installed 10 of the 4 MW / 8 MWh local network connected across the state which are at various stages of commissioning. Flow battery projects like vanadium flow batteries are also being piloted.

In June 2024, the Government also announced its investment in community batteries to improve energy storage at the local level, and to allow communities to harness the energy from Queensland's high uptake of rooftop solar during the day, so this energy can be used at night.

Local REZs, which incorporate local distribution network-connected batteries installed and operated by Energy Queensland (Energex and Ergon), are being piloted in Caloundra on the Sunshine Coast and in Townsville in North Queensland. Local REZs will maximise the use of existing network infrastructure, solar and batteries to produce, store, share and use renewable energy locally to benefit Queensland households. This will help to increase renewable energy access for renters, customers experiencing vulnerability and for those households who live in unit complexes.

## Major network transmission and system strength

The Blueprint identified new backbone transmission for Queensland's energy transformation, ensuring that energy can be moved to where it is needed, when it is needed.

The new Priority Transmission Investment framework, under the Act, allows for the identification, assessment and construction of the high voltage, backbone transmission projects needed for Queensland's energy transformation.

Based on the Blueprint, five projects have been identified as eligible to progress through the Priority Transmission Investment framework.



<b>Project 1</b>	Gladstone Project
<b>Project 2</b>	Borumba Connection
<b>Project 3</b>	Central Queensland Connection
<b>Project 4</b>	Pioneer Burdekin PHES and NQ Connection
<b>Project 5</b>	Townsville to Hughenden Connection

The first project to progress through the Priority Transmission Investment framework is the Gladstone Project. The primary purpose of the Gladstone project is to reinforce the Gladstone network to support decarbonisation in the region. Powerlink has undertaken public consultation on the project. Powerlink has prepared a submission to Government on the proposed assessment approach, and advice has been sought from the Australian Energy Regulator. The next step is for the Government to provide Powerlink with an assessment direction for the Gladstone Project.

CopperString 2032, led by Powerlink, is a high voltage transmission project that will connect Mt Isa to the SuperGrid. The project was announced following the release of the Blueprint and the government is developing a bespoke framework to support delivery of the project.



# Progress towards implementing government policies

Achieving the renewable energy targets requires the rapid deployment of energy infrastructure and technologies that are available today and can be delivered in face of real-world constraints.

The Queensland Government is proactively seeking to mitigate risks and maximise opportunities for a successful transition, including in the areas of:

- **Approvals, and other regulatory processes** – with a review of the Wind Farm Code (State Code 23) and accompanying guidelines to protect biodiversity, identify and assess viable haulage routes, improve acoustic criteria, highlight rehabilitation requirements and require proponents to investigate the impact of construction on local workforces and accommodation. The reviewed code is pending approval.
- **Skills and workforce development** – with the release of the [Clean Energy Workforce Roadmap](#) to build the capacity and capability of the workforce, commit to the Equal by 30 campaign to attract and retain women in the energy sector and develop the Energy Jobs portal to increase the visibility of job opportunities at publicly owned energy businesses.

The outcomes of REZ Readiness Assessments will also help to inform government at the local level where further policies or interventions may assist, including in the areas of social licence, infrastructure, transport, and housing and accommodation.

## Future focus

The Board has identified the following emerging areas for government to focus on in the future:

- **Private investment** – facilitating increased investment in Queensland, and in innovative energy technologies to minimise the cost of the transition.
- **Biosecurity** – ensuring energy infrastructure developers manage biosecurity risks and comply with requirements to protect the economy and environment from the impact of exotic pests and diseases because of importation and mass movement of materials and people across the state.
- **Land use** – continuing to improve co-existence with existing land uses such as agriculture, resources, environment and urban development.
- **Community participation** - ensuring First Nations peoples and regional communities are meaningfully supported to engage in and benefit from Queensland's energy transformation, including respecting Native Title and cultural rights and providing access to affordable and reliable electricity.
- **Industry development** - leveraging the talents and resources of regional communities to diversify and grow sustainable local industries and jobs.

### In the next Annual Progress Statement, the Board intends to have more information and data to:

- report on progress against key indicators related to community, infrastructure and policies
- show where Queensland is heading, and identify areas for future focus and emerging risks for future action, where required.







**Queensland  
Energy System  
Advisory Board**

**2023/24 Annual Progress Statement**

SEPTEMBER 2024