Blueprint Institute

Breaking new ground

Challenges and opportunities of a changing energy landscape in regional Australia

Central Queensland

Contents

This series

This paper is part of a series exploring the specific challenges and opportunities facing those regions housing the majority of Australia's coal assets. We take a close look at each region, reviewing local economic opportunities in the context of a changing economic mix. This research equips policymakers with the information necessary to act and embrace the potential of our regions. The series builds on two of our past releases—*From the ground up: A Blueprint for economic diversification in regional Australia*, and our *Voices from the regions* polling. These papers drew on international examples, as well as the perspectives of local communities, to recommend a cohesive policy framework to renew economies, by empowering communities and supporting workers through the shift to a clean energy economy.

About Blueprint Institute

Every great achievement starts with a blueprint.

Blueprint Institute is an independent public policy think tank established in the era of COVID-19, in which Australians have witnessed how tired ideologies have been eclipsed by a sense of urgency, pragmatism, and bipartisanship. The challenges our nation faces go beyond partisan politics. We have a once-in-a-generation opportunity to rethink and recast Australia to be more balanced, prosperous, resilient, and sustainable. We design blueprints for practical action to move in the right direction.

For more information on the institute please visit our website: blueprintinstitute.org.au

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Executive summary

Decarbonisation at a domestic and global level is challenging the employment and prosperity Central Queensland has traditionally derived from coal industries. However, strong opportunities exist in the emerging clean energy economy that could lay a bedrock for sustained prosperity in the region. Capturing this potential requires a targeted and proactive policy approach that leverages Central Queensland's entrenched advantages and unleashes a new era of growth.

Regional communities in Central Queensland—including the federal electorates of Flynn, Dawson, and Capricornia—have long formed a cornerstone of our economy. Housing significant coal assets, they have brought power into our homes and businesses, foreign capital to our shores, and provided employment to thousands of Australians.

Across the country, a massive change is already underway. Coal-fired generators are encountering increased competition, with most facing expedited retirements—unable to compete with ever-cheaper renewable energy. The days of insatiable global demand for Australia's thermal coal exports are also numbered. COP26 has galvanised international support for decarbonisation and coal is one of the main targets. With unanimous agreement to "phase-down" coal-fired generation secured at Glasgow last October, even China and India are now pursuing net-zero agendas.

This shift should be met with optimism, not trepidation.

"Economic diversification is underway in Central Queensland, new opportunities in renewable energy and critical minerals mining exist in swathes, but more must be done to secure the region's long-term future in a net-zero world."

– David Cross, CEO

Central Queensland can prosper in the clean energy economy. The only question is whether policymakers have the courage and foresight to help local communities capitalise on emerging opportunities.

Few nations in the world share our combination of sunshine, wind, and access to financial and human capital. In addition, we possess an abundance of rare earth elements and critical minerals such as lithium—an essential input into the production of clean energy assets like batteries and critical technologies like computer chips.

These opportunities exist in Central Queensland.

Blueprint's modelling indicates that approximately 11,700 new jobs in renewable energy projects will be created in Central Queensland over the next five years. Of these, 730 are permanent, long-term positions. Clean hydrogen production for the next generation of Australian industry will additionally create a cumulative 270 jobs by 2025. These are all new jobs, drawn only from projects that are registered with the regulator and have commenced construction, or have clear construction dates and funding routes.

But in order to secure enduring prosperity for Central Queensland, we must do more. Based on current commitments, renewable energy projects alone will not create nearly enough employment to offset the 17,000 coal industry jobs at risk in the region. Nor will these projects ensure that the knock-on effect of this change is mitigated. Moreover, the vast majority of renewable jobs are short-term construction positions, with far fewer long-term stable jobs in maintenance and operations.

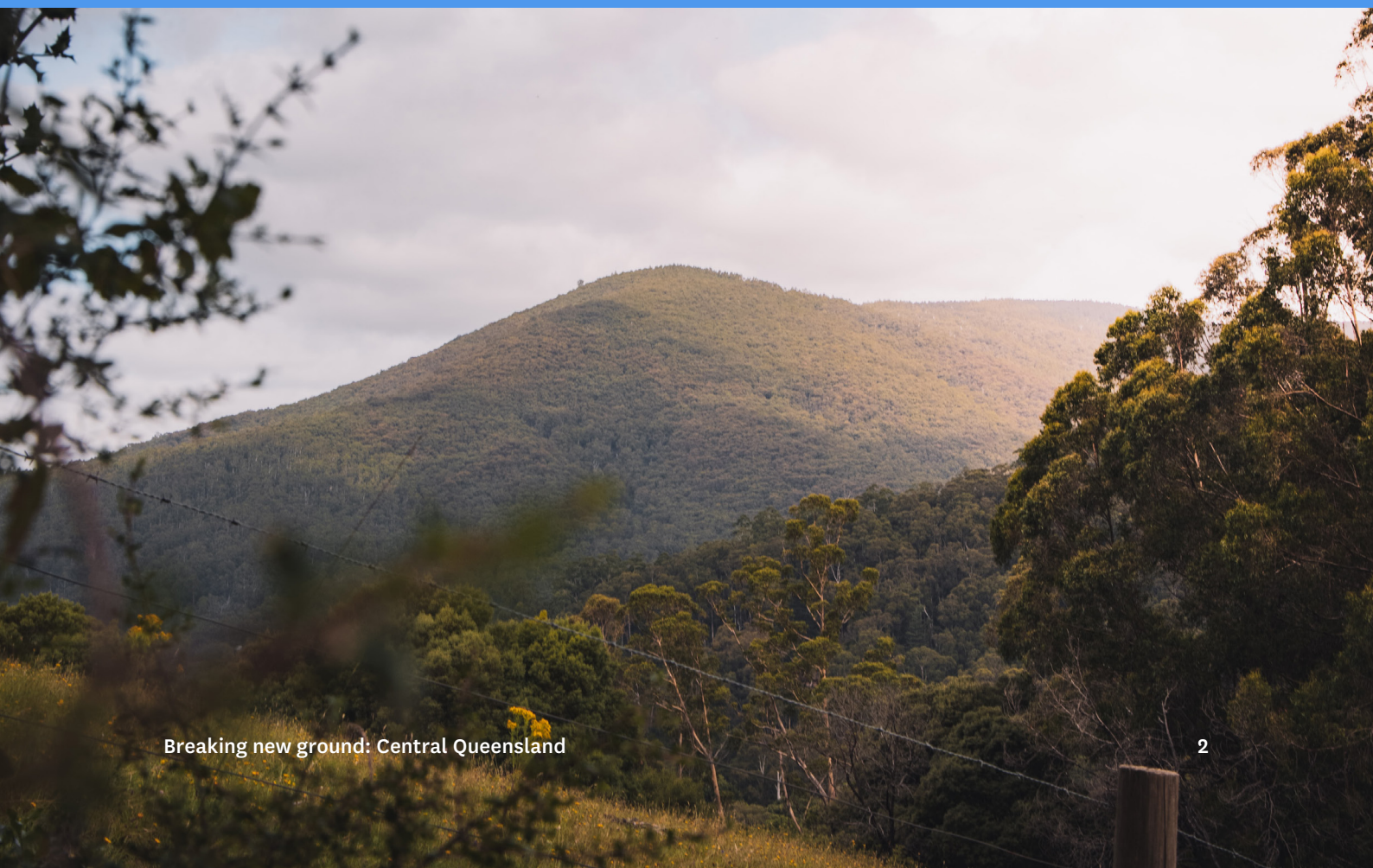
The diversification of local employment beyond renewables—to areas such as clean industry development, critical minerals mining, and the auxiliary industries that support them, as well as other emerging sectors—will be necessary to provide meaningful and stable employment to the region's communities and to support Australia's broader economic growth. This report also explores the opportunities that are available to the region beyond renewable energy generation.

Lasting prosperity is attainable in Central Queensland, but it will require broad stakeholder collaboration, and in some cases, targeted government support. The policy framework required to drive necessary diversification in Australia's regions can be found in Blueprint's previous report, *From the ground up*. The report called for:

- The creation of **coal adaptation authorities** to empower local communities, supported by $20 million in initial federal funding, and ongoing support provided from coal royalties collected by state governments.
- The development of a **national coalfield and infrastructure renewal and repurpose strategy** in concert with state and local governments to ensure that existing assets are utilised to help communities pivot and access new opportunities.
- Well-designed **support for workers** through job search and retraining services, delivered by coal adaptation authorities, income insurance support delivered by government, and, where necessary, early retirement packages delivered by business with government support.

The communities of Central Queensland should not be left to carry the economic cost of our collective responsibility to act on climate. Policymakers must provide regional Australians and communities with the knowledge and resources they need to secure their economic future—this means being honest about the decline of coal and proactive in designing policy that can help communities adapt and thrive.

As this series will illustrate, the regions can lead us into a new era of prosperity. The opportunities are there for the taking. Our polling shows that voters in Central Queensland are demanding their leaders step up. We hope that this research enables policymakers to move quickly and embrace these opportunities with confidence.



Central Queensland

Flynn, Dawson, & Capricornia

Central Queensland has long been a key player in the Australian coal industry. It is a geographical region also commonly known as Capricornia—topped and tailed by Mackay in the north and Gladstone in the south. This region consists of the federal electorates of Flynn, Capricornia, and Dawson, which house a mix of thermal and metallurgical coal mines and four coal-fired power stations, set against a picturesque backdrop of rainforests, islands, and coral reefs.

In many ways, Central Queensland embodies the climate paradox of a vibrant local energy and coal mining sector, juxtaposed by the deterioration of its local environment. The 2010–11 Queensland floods were particularly devastating for the region—destroying rail infrastructure and saturated coal stockpiles, and contributing to a $30-billion reduction in Australia's gross domestic product. Residents remain exposed to floods, worsening bushfire seasons, and tourism operators worry about the deterioration of local reefs.

Coal mines and coal-fired generators provide over 17,000 jobs, or 6.8% of total employment across Central Queensland. While its thermal coal sector is not insignificant—including the Stanwell, Callide B and C, and Gladstone power generators, as well as a variety of thermal mines—it is the vibrant metallurgical export industry that dominates Central Queensland's local economy. In the Bowen Basin, the region's key mining hotspot, metallurgical coal represents approximately 70% of total coal production. These reserves feed into the Port of Gladstone, which is host to the world's fourth-largest coal export terminal.

While the export sector is well-served by abundant metallurgical reserves and established rail and port infrastructure, many local industries currently rely on coal for their industrial processes, including alumina refineries and cementing plants. For decades, Central Queensland has provided its vibrant industrial sector with cheap and abundant energy. The region's coal resources have also fed our broader national prosperity, with its four coal-fired generators providing 8.4% of the National Electricity Market's (NEM) capacity. This previously cheap and reliable energy has been an essential input for the success of many businesses and the lower cost of living enjoyed by Australian households for generations.

Fortunately, there are few regions in the world better placed to benefit from the clean energy shift and capitalise on opportunities for growth in renewables and green manufacturing sectors. The existing infrastructure—such as grid connections and transmission capacity—that currently supports coal exports and coal-fired generators is already being repurposed for the benefit of utility-scale solar and wind projects. Similarly, plans are underway to leverage Gladstone's well-established coal port and construct a multi-billion-dollar green hydrogen plant, H2-Hub Gladstone, in an effort to develop a vibrant green hydrogen manufacturing and export industry.

Bowen Basin and Central Highlands

Reaching inland from Central Queensland, the Bowen Basin and the neighbouring Central Highlands contain a colourful patchwork of coal reserves and gas fields. Boasting one of the world's largest deposits of bituminous coal, the Basin contains the most important commercial reserves in the state. Its 40 active coal mines harbour a full spectrum of coal gradings, with a mix of both metallurgical and thermal coal. Much of the mines' output is railed to Mackay and Gladstone for loading and export, predominantly to Asian markets. The mineable lives of these deposits are up to 50 years, but we cannot maintain a misplaced expectation that the coal mining industry is here to stay. International markets are moving away from dependence on coal not only for electricity generation, but also for other industrial processes - including steelmaking.

Coal mining is by far the largest industry of employment for the Bowen Basin and Central Highlands, accounting for 25.3% and 21.7% of employment respectively. Key

coal townships include Moura, Moranbah, Collinsville, Dysart, and Blackwater. Some of these—such as Moranbah—were only developed when mining operations commenced nearby, often constructed by the resource companies themselves. The very existence and history of these communities is tied to coal, and their level of prosperity has closely followed fluctuations in the coal price.

With metallurgical markets likely to remain strong in the short term, these communities face a less imminent adjustment than communities centred around thermal coal and coal-fired generators, as in Gladstone, Rockhampton, and Biloela. Emerging green technologies have yet to mature and replace traditional metallurgical coal-reliant industrial processes in areas like steelmaking. However, it would be foolish to bet against technological development—especially when our leading international coal markets are themselves driving the shift to green steel. For instance, the Japanese government has allocated $25.2 billion to commercialise hydrogen-powered steelmaking technologies by 2030.

Central Queensland is itself helping expedite green steel innovation, with the aforementioned world-leading Gladstone Green Energy Manufacturing Centre planning to double global green hydrogen electrolyzer production.

As long as mining activity remains strong, employment rates and household disposable incomes in Central Queensland's coal communities will eclipse state and national averages. But sooner or later, demand for coal will fade. If Central Queensland is to flourish in the future clean energy economy, we must begin preparing for coal's decline today by helping the region access new economic opportunities.

The task at hand

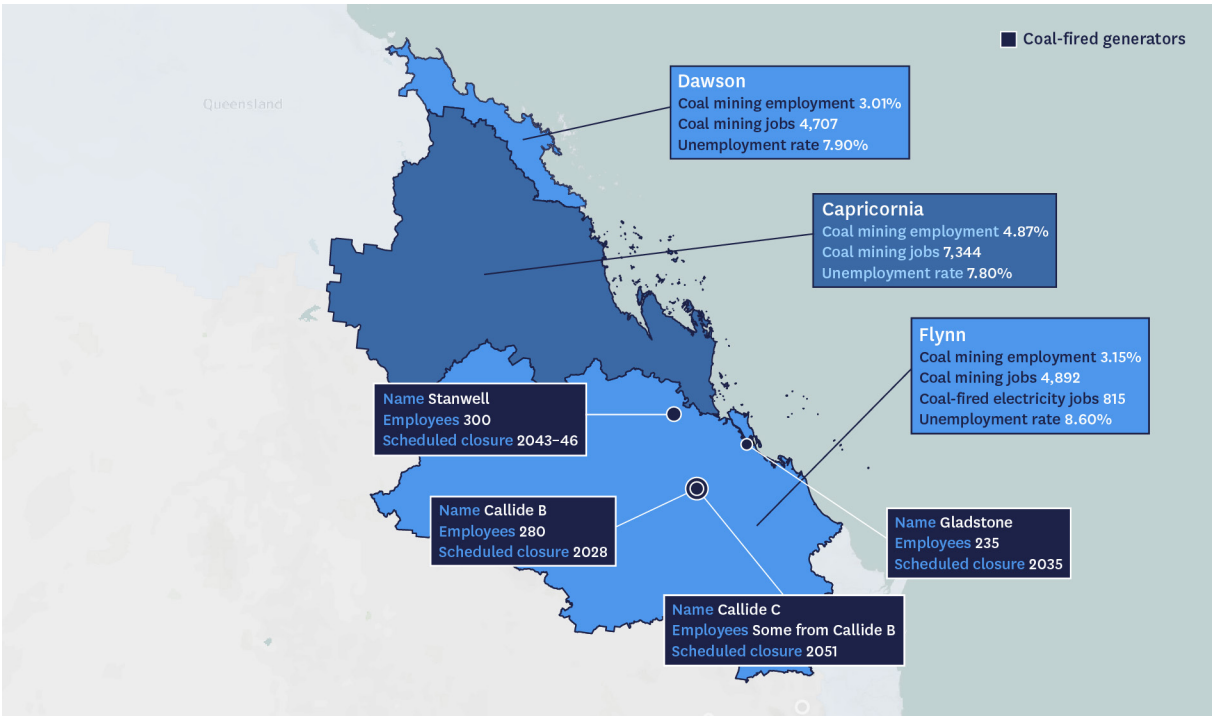


Figure 1 The demographics and coal assets of Central Queensland
Source Australian Bureau of Statistics, Company websites, Blueprint Institute Analysis

While Central Queensland possesses an infrastructure profile that creates opportunities to thrive in the clean energy shift, there is still a significant risk of shocks to the job market and local industry. Anticipating and mitigating these shocks, and positioning the region to grow beyond coal, will require forward planning and proactive, targeted government assistance.

The region faces different outlooks and closure timelines across its thermal and metallurgical coal industries—with the thermal mines and coal-fired generators sharing more immediate downturns. The Callide B station will shut its doors in 2028. The Gladstone power station—one of the oldest in Australia—is scheduled to retire shortly thereafter, in 2035. However, Australian Energy Market Operator (AEMO) modelling found that three of Gladstone's six generators may be phased out sooner—by 2029.

Looming early closures are not limited to Callide B and Gladstone, but are likely to also include Stanwell and Callide C, despite their current proposed retirement dates of 2043 and 2051 respectively, AEMO's projections indicate these timelines should be viewed with extreme scepticism.

In the coming years, Stanwell's operator is looking to run the generator at a reduced level of output, with the possibility of closing some of its units during the midday period. The recent turmoil, reduced supply, and elevated prices in the electricity market may boost coal generators' profits in the short term, but does little to arrest the economics driving their long-term decline.

It is an inescapable fact that coal is one of the most expensive forms of fuel in the NEM—much pricier than renewables. As the electricity market shifts, Stanwell will be increasingly squeezed out of a competitive position in the NEM—forced to sit on standby or even initiate partial closures as renewable penetration increases and drives down wholesale electricity prices. There is little solace to be found in the official retirement dates offered by Stanwell and Callide C. These dates fail to reflect even their operator's public rhetoric, let alone the latest analysis provided by AEMO, which predicts their closures will be brought forward by nine years in their "most likely" scenario.

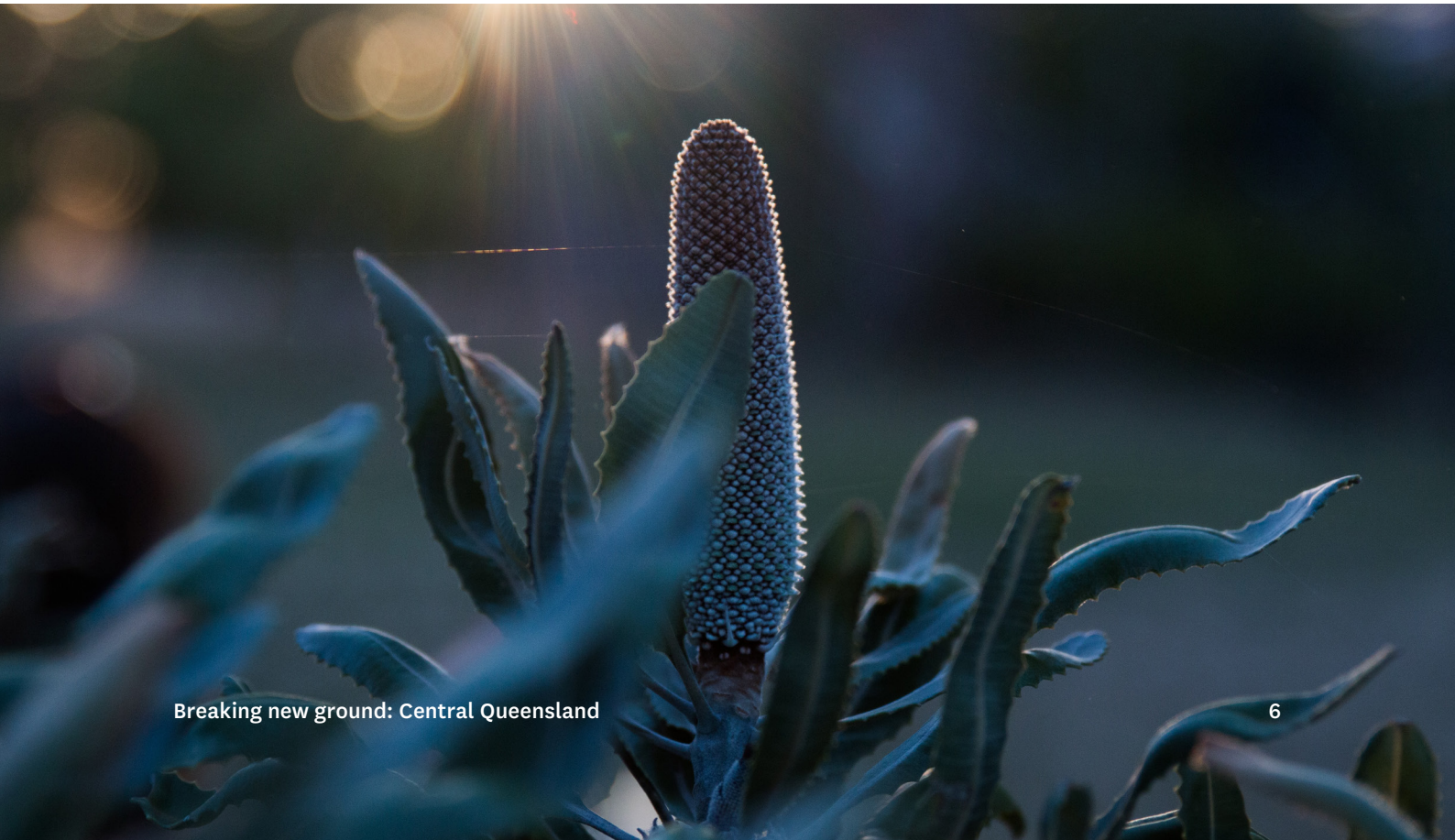
This all suggests that communities in Central Queensland will be caught off guard by unanticipated, early coal-fired generator closures. Collectively, these generators directly employ 815 workers in the region. They deserve policymakers' immediate attention and assistance as coal power rapidly departs our NEM.

The impact of coal-fired generator closures will be felt beyond their direct workforce. As an entrenched industry, the sector has built a range of community support initiatives designed to strengthen local labour force capacity. For instance, Stanwell's operator runs a traineeship program that provides structured opportunities for Rockhampton locals to develop skills in electrical instrumentation, boilermaking, mechanical trades, and warehouse operations. Without policy intervention, Stanwell's closure will create a vacuum in employment and training for the local community.

The fading twilight of coal-fired power in Australia's energy market also imperils Central Queensland's thermal coal suppliers. The region's four coal-fired generators are the largest customers of the Callide and Boundary Hill thermal coal mines. Although they have approval to operate until 2043, these mines will be the next to face significant financial stress as coal generators close. This will also create new challenges for the durability of their smaller industrial customers, including local alumina refineries and Cement Australia, who use the same thermal coal in their production processes.

One particularly vulnerable town in the region is Biloela, a regional township of nearly 6,000 people. Coal mining is the top industry of employment for the wider Biloela area, accounting for 13.7% of jobs, with fossil fuel electricity generation—which includes gas—making up a further 3.3% of the workforce. Without proper planning and diversification, the clean energy shift could be a painful adjustment for local households. Despite lower-than-average high school and tertiary education completion rates, the region's unemployment numbers are low, and median income is above the state and national average—in part thanks to the stable, high-paying coal jobs on offer.

This is much the same for the Gladstone and Rockhampton regional centres, which host the Gladstone and Stanwell power stations respectively. If the region is to maintain its current standard of living into the future, it must diversify and leverage growth opportunities in emerging green sectors as coal declines.



The opportunities—what's on offer?

A variety of new opportunities that can unleash new growth and create sustainable prosperity in Central Queensland. Building on the state government's $3.34-billion Queensland Jobs Fund, a fresh wave of private-public cooperation is already driving new regional development, with ACCIONA recently joining Rio Tinto, Orica, and Alpha HPA in signing the Central Queensland Statement of Cooperation to unlock new opportunities.

Renewable electricity generation

Blueprint Institute's research projects that by 2027 over 11,700 new jobs (including 720 permanent operations and maintenance positions) will be created for regional communities as a result of utility-scale renewable installations (solar, wind, and batteries) at various stages of development across the Flynn, Dawson, and Capricornia electorates. Collectively these assets represent 8,900MW of potential capacity.

This is a deliberately conservative projection, and includes only those projects registered with the regulator (AEMO), with clear construction dates and funding routes. Moreover, these jobs numbers do not include those that will come from rooftop solar installations, which the government projects will constitute up to a third of all grid-connected capacity nationwide by 2030—providing around 2,000 additional jobs throughout Queensland in 2030, with 75% of those based in Queensland's regions. The headline forecasts also exclude over 1,400 potential job-years of local manufacturing work which could be captured depending on local capacity.

Some of the most exciting opportunities are in the broader Gladstone area. The Pacific Solar Hydrogen project—which aims to build a 3,600MW solar and wind farm to power a green hydrogen production facility in Gladstone—offers prospects for construction jobs in the thousands from 2023. Meanwhile, nearby Biloela is a relatively prosperous area blessed with significant wind resources that, if developed, would allow the town to maintain its status as an energy powerhouse in the long term. The 180MW Banana Range Wind Farm is one such proposed installation.

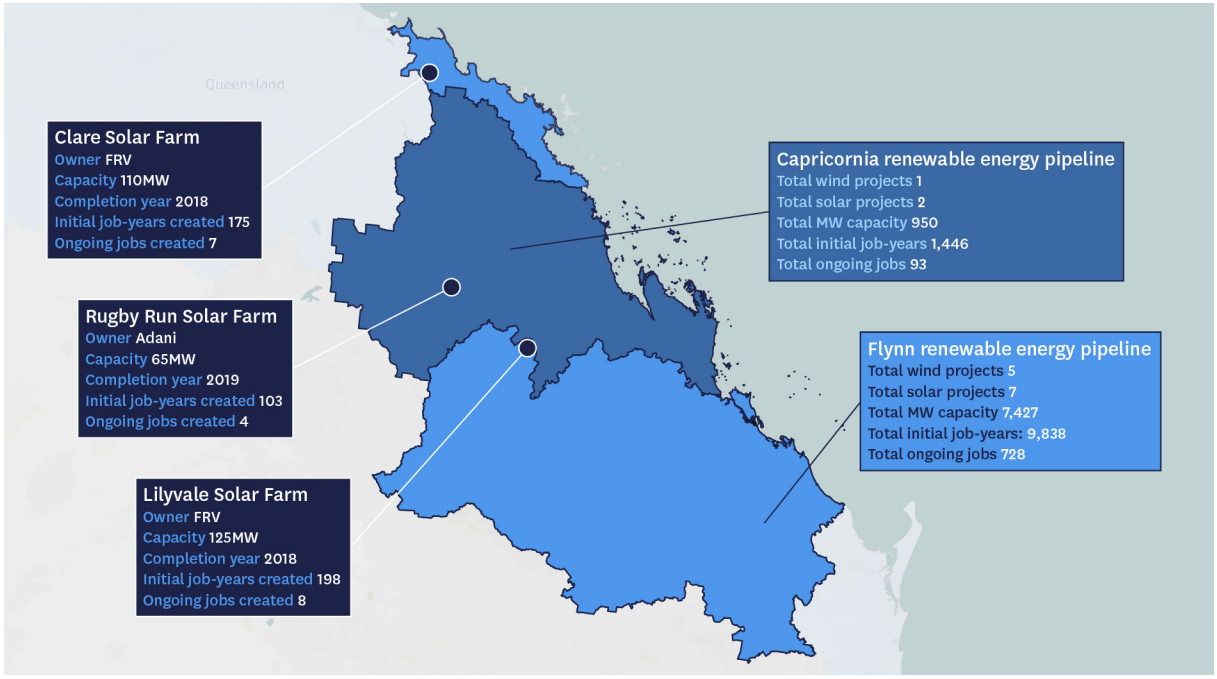


Figure 2 New green opportunities, Central Queensland
Source Company websites, Blueprint Institute Analysis

These projects are a good start. But without further investment in additional renewable developments, these renewable jobs can only partially compensate for the loss of employment as the shift away from coal accelerates.

Renewable developments will account for:

- 160 jobs created in 2022,
- 2,300 jobs created in 2023,
- 5,600 jobs created in 2024,
- 3,000 jobs created in 2025,
- 400 jobs created in 2026,
- and a further 300 jobs in 2027,
- totalling 11,760 total renewables jobs across the next five years.

Figure 3 shows the resulting employment levels from various sources over the immediate five-year time horizon. It illustrates that, unlike South-West Queensland, for example, on the current trajectory, renewable employment across Central Queensland is expected to exceed employment at coal-fired generators, but remain substantially below that of the roughly 17,000-strong coal mining industry. Slated renewables jobs might be enough to soften the impact of initial coal job losses across the next five years, but we will need stronger employment growth in emerging industries to compensate for the more significant, eventual decline of the metallurgical coal sector.

The relative lack of renewable employment projected after 2024 highlights the inadequacy of current commitments. Significantly more investment must be made in job-creating projects in the coming years in order to secure the economic future of Central Queensland.

Fortunately, the region is blessed with the wind and solar resources necessary to become a renewable energy powerhouse.

The trajectory over the past five years has been impressive. In May 2018, just one renewable energy installation was operational within the region. During the same year, the Queensland Government identified that 90% of the state's electricity needs could be met by a combination of utility-scale renewable projects and the spread of rooftop solar.

Today, just four years after the government's forecast, not only are 12 installations operational in Central Queensland, but another 18 solar, wind, and battery projects are slated for development, and the Central Queensland Renewable Energy Zone has received registrations of interest for 67 projects. This trajectory will likely continue to accelerate.

Besides, let us not forget, renewable energy projects themselves are only a fraction of the vast opportunities that are available across Central Queensland. With considered policies to help diversify its economic base, the region can look forward to long-run prosperity.

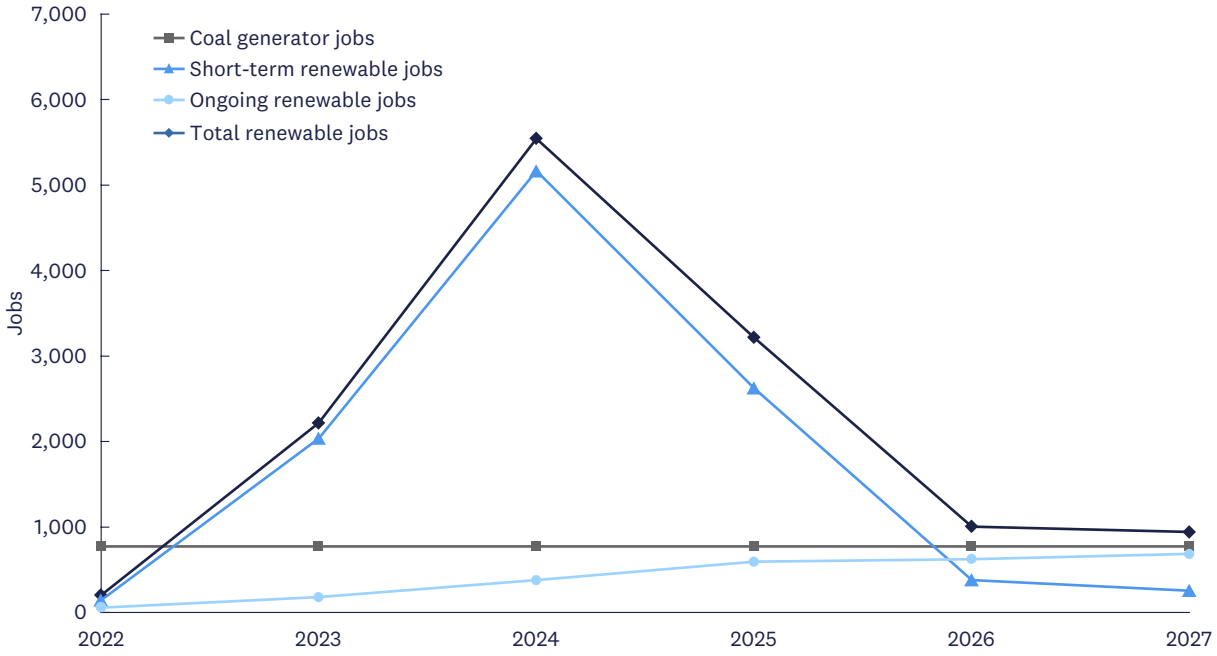


Figure 3 Timeline of employment projections for energy generation in the Central Queensland (2022-27)
Source Blueprint Institute Analysis

Methodology—why we need to be clear when talking about jobs

Many industry groups, and even governments, posit that hundreds of thousands of jobs will be brought to regional Australia because of the growth in various economic opportunities. Energy providers have been prone to careless exaggeration, with Adani claiming in 2015 that its mines would create 10,000 jobs, before admitting later in court that the real number was only 1,463.

All claims of job creation, from governments and business alike, need to be taken with a grain of salt. That's why we have implemented a consistent and rigorous methodology that errs on the side of caution, and only counts those jobs that are highly likely to be created.

Even with the aforementioned distinction between short- and long-term jobs in mind, estimates of so-called employment factors (the number of jobs created per megawatt of installed power) vary widely.

Such estimates are necessarily imprecise and depend not only on the type of renewable technology employed, but also on factors such as site terrain, environmental impact, and local regulations. In order to be as realistic as possible, Blueprint has taken a conservative approach, drawing on the most credible research available. Our methodology is based on a comprehensive 2020 University of Technology Sydney (UTS) study that directly surveyed the Australian renewable industry to calculate employment factors.

Given Australia's relatively high productivity and access to technology, these employment factors were lower than those found by IRENA and others in the broader international literature. In order to maintain reliability over time, UTS also employed cost data to project proportional declines in employment factors over time due to productivity advancement. Finally, the study broke down job types and their prevalence in regional areas to provide estimates of how many of these new jobs could be accessible to regional workers.

On average, we conclude that 2.3 job-years of temporary construction and installation labour are needed to install one megawatt of utility solar capacity in Australia. Each megawatt of utility solar is also projected to require 4.4 job-years of manufacturing (only 0.092 of which are currently serviced by domestic Australian manufacturing) and create 0.11 permanent positions in operations and maintenance. The corresponding numbers for wind power are as follows: 2.8 job-years per megawatt in construction and installation; 1.7 job-years per megawatt in total manufacturing (including 0.377 job-years in Australian manufacturing); and 0.22 ongoing jobs per megawatt in operations and maintenance.

In the case of utility-scale battery technology, while UTS did provide employment factors, they resulted in employment figures that were five to six times greater than those reported by the respective renewable energy firms. In instances where there were no sensible employment factors, we have relied on company reported numbers. Company projections have also been used for hydrogen-related jobs where, due to the relative infancy of the technology in Australia, reliable employment factors were unavailable. These company projections have been cross-checked with relevant international employment figures for other hydrogen projects to ensure that outlandish claims have been discarded.

Renewable technology	Construction & installation (job-years/MW)	Domestic manufacturing (job-years/MW)	Operations & maintenance (ongoing jobs/MW)
Solar	2.3	0.092	0.11
Wind	2.8	0.377	0.22

Table 1 Unadjusted employment factors for renewable energy assets
Source UTS

As technology improves and the cost of solar and wind power declines over time, so too will the number of jobs created by a given installation. Part of this effect is driven by what economists describe as 'learning-by-doing,' where productivity increases as workers gain experience with the tasks involved in the construction and installation of wind turbines and solar panels. Improvements in equipment—for instance, over the past two decades, the average rating of a wind turbine has increased from 0.5MW to 3MW per turbine—have also led to a decline in the number of jobs created per MW of capacity installed. To account for this, we followed UTS' methodology in discounting a renewable technology's employment factors each year on a proportional basis in line with its reduction in cost. For example, since solar power is projected to decline in cost by 5.7% per year from 2020–25, we discounted its employment factor by the same rate.

The second adjustment we made was to ensure we were only capturing regional jobs. Projections indicate that regional workers would be able to access 67% of the immediate construction jobs in wind, 69% of solar construction jobs, 73% of ongoing operational jobs in wind, and 55% of ongoing solar positions. But as industries continue to develop, the potential for even more of these jobs to be housed regionally may continue to grow. By sponsoring programs to retrain and upskill workers, governments can equip local workforces to increase the local share of jobs.

All of this means that a new 100MW solar farm which takes one year to construct in 2022 would be expected to involve approximately 140 regional construction workers and up to eight manufacturing positions for one year. In addition, around five permanent jobs would be created for locals to operate and maintain the solar farm.

As noted, Blueprint has only considered projects that are recorded in official government sources or in the Australian Energy Market Operator's (AEMO) latest database, and can be cross-referenced with other records to ensure their ongoing viability. AEMO's records are particularly reliable given they are the basis for important market decisions and to accurately model the future of the grid. Our triangulation with multiple sources also addresses instances in which some projects proposed five or more years ago are abandoned without updating AEMO.

Other opportunities

Clean industries—finding greener pastures

As coal declines and renewable electricity struggles to deliver a comparable level of employment, it is critical that Central Queensland explore novel industries to uncover new sustainable sources of growth. The region's opportunities extend far beyond renewable generation—it is primed to harness the international growth of clean industry, especially green hydrogen.

The sustainable hydrogen industry is projected to create 170 jobs in 2023 and 100 jobs in 2025. Pending a successful feasibility study, Stanwell's 300MW renewable hydrogen project in Central Queensland could provide over 8,900 jobs at its peak around 2030.

Gladstone—home to the state's largest multi-commodity shipping port and currently the world's fourth-largest coal export terminal—is in a particularly strong position to thrive in a future dominated by clean energy. Gladstone's industry has high energy demands, which along with its established infrastructure, port, and skilled workforce, make it an attractive location for the emerging green hydrogen sector. The port city has been earmarked in the Queensland government's Hydrogen Industry Strategy as a future exporter of green hydrogen.

Since the announcement of the strategy, investment in green hydrogen facilities across the Gladstone region has taken off. Fortescue Future Industries' Global Green Energy Manufacturing Centre will establish Australia's first multi-gigawatt-scale electrolyser factory. Construction of the factory began in February 2022. For the first stage of this project, 120 jobs will be created through construction and a further 53 positions in operations. Over the course of its lifetime, the factory is expected to generate a total of 300 jobs.

H2U's H2Hub Gladstone, a $1.61-billion industrial complex for the production of green hydrogen and ammonia, is expected to be operational by 2025. The complex is forecast to create over 100 operational jobs. Stanwell Corporation, the Queensland government-owned electricity generator, also has plans to construct the Central Queensland Green Hydrogen Project. The development, which consists of a 3GW green hydrogen electrolysis facility based just south of Gladstone in Aldoga, expects to provide 5,000 new jobs at its peak, and aims to begin production by the middle of the decade before scaling up to full capacity in the 2030s.

Renewable diesel is an emerging clean industry that could be invaluable in lowering the emissions of Australia's transport sector. For Gladstone, this means a new $500-million biorefinery for renewable diesel and sustainable aviation fuel, estimated to generate around 60 direct jobs for the local area.

Critical minerals mining

Out of all workers in Central Queensland, coal miners may believe they have the most to lose in a clean energy future. But a clean energy economy will be in need of miners. Instead of a lengthy retraining process and disruptive career transition, a significant number of the region's coal miners could find their existing skills in high demand in the rapidly expanding critical minerals industry.

Australia has an opening to establish itself as a leading supplier of critical minerals—a globally underdeveloped resource that serves as a key input for low-carbon technologies and other important growth areas like computer chips. The International Energy Agency (IEA) predicts that mineral requirements for low-carbon technologies are likely to double by 2040, and could almost quadruple if the world manages to achieve its Paris Agreement goals.

Australia is already the world's largest lithium exporter, contributing 49% of the world's lithium in 2020. A key component in increasingly important battery technology, lithium is expected to reach a global market size of $162 billion by 2030, growing at a compound annual growth rate of 12.3%. Australia's earnings from lithium exports are forecast to reach $3.8 billion by 2022–23. We are also the fourth-largest exporter of rare earth elements, used in wind turbines and motors for electric vehicles. Key trading partners

like South Korea have expressed interest in our capacity to supply critical minerals so that they can diversify their supply chains away from China.

By 2040, between 5,400 and 9,450 (depending on policy action) new jobs in critical minerals mining are projected in Queensland, with the greatest concentration of known sites clustered around Mt Isa. While this would require Central Queensland residents to relocate or work on a fly-in-fly-out basis, the close industry match could be a big advantage for those currently working in thermal coal mining. With new federal government commitments for a two-billion-dollar loan facility to back critical minerals projects and a further $100 million allocated to incentivise minerals exploration, opportunities in this sector will only continue to grow. The Queensland government is backing this sector at the state level as well. 'New energy economy' minerals were the focus of the 2022–23 Resources Industry Development Plan, with over $40 million committed to discovering, mining, and refining Queensland's critical minerals.

It is also important to note that Australia has active operations only in the early stage of the lithium value chain, namely the mining and refining process. These sectors account for a small proportion of the total revenue within the lithium trade. For instance, if Australia diversified into the production of battery cells and battery pack assembly, it would give us access into an industry worth over $2.3 trillion. As highlighted in Accenture's Future Charge report, Australia's expansion into onshore materials processing and battery production could potentially generate over $7.4 billion in revenue annually and lead to the creation of over 34,000 jobs by 2030.

Broad diversification in the region

In addition to renewable energy and clean industries, Central Queensland is set to benefit from large-scale infrastructure development as part of the Queensland government's effort to unlock growth and jump-start diversification in the region's economy. For example, a $760-million project is in its planning stage at Gladstone Port to expand its capacity and allow greater two-way ship traffic by duplicating its existing Gatacombe and Gold Cutting channels. This development is projected to generate 386 positions in construction and 23 in operations and maintenance.

The largest project in the region, valued at over one billion dollars, is the Rockhampton ring road. The project entails the construction of an 18-kilometre extension of the Bruce highway. The extension will increase accessibility and serve as a link to the city of Rockhampton. To be completed in 2026, the development is expected to create 783 long-term jobs in the area. In addition, the Queensland government has invested in water infrastructure by commissioning the $367-million Rookwood weir project, which will capture valuable water from the lower Fitzroy river, to be channelled toward supporting agricultural and urban growth, whilst simultaneously improving water security. During construction, up to 250 workers are expected to be employed on site.

The two aforementioned projects are small components of the Queensland government's state-wide plan, which includes the development of over 86 infrastructure projects within Central Queensland, and encompasses industries such as healthcare, education, transport, energy, and the arts. Totalling $56 billion over four years, the government's initiative to stimulate the economy following COVID-19 would see the creation of over 46,500 jobs state-wide—including over 30,000 in Queensland's regions, many of which will be within Central Queensland.

Renewable energy, critical mineral mining, and sustainable industry offer a clear pathway for Central Queensland to benefit from the transition to clean energy and sustainable industry. Despite this, it is still critical that government policy supports firms and workers through the inevitable disruption as coal is phased down.

Recommendations

It is crucial that policy settings, determined by federal, state, and local government, reflect the reality that current efforts will be insufficient to counterbalance the eventual loss of employment and economic activity associated with the decline of coal. If Central Queensland is to thrive in the clean energy future, the government must empower local communities and businesses to leverage all available opportunities to grow beyond the limits of coal.

In order to achieve these goals, we recommend that the Federal Government:

- provide $20 million in funding to establish a coal adaptation authority in Gladstone to service the Central Queensland area across Flynn and Capricornia, including other nearby hubs from Rockampton to Biloela. This authority will be staffed primarily by representatives from local communities and tasked with analysing the shift to clean energy and its implications for regional residents. This authority will continuously engage with these communities in order to develop and iterate strategies that respond appropriately to local concerns. It will maintain statutory independence while working with existing governments and agencies where appropriate. The authority will also be responsible for conducting a thorough fact-finding mission, studying local industry and demographics to ensure that any recommendations are data driven.
- offer financial and administrative support to coal mine and generator operators to develop renewal strategies for their infrastructure. In order to support innovative rehabilitation plans, the federal government would match private investment, from the operator or otherwise, up to a value of $100 million per asset. Such a figure is in line with existing government support for energy infrastructure investments, though in this case the benefits for local communities would be far greater. In Central Queensland, this would mean developing renewal strategies for the Callide, Gladstone, and Stanwell coal-fired generators well ahead of their anticipated closures.

And that the Queensland government, working together with local governments:

- provide five percent of its collected coal royalties to coal adaptation authorities. In 2019–20 this would have amounted to $175 million. A similar, but smaller, scheme was introduced in April 2021 with the New South Wales Royalties for Rejuvenation program. Such a plan ensures that the royalties collected by the state are approximately proportional to the number of coal workers located there. These revenues would be collected by the state and held in a specific Queensland coal adaptation fund, located within the Queensland's Department of Regional Development, Manufacturing and Water. The funds would then be distributed between the state's various coal adaptation authorities at the Department's discretion. Initially, we imagine this would look like roughly half of the funds (~$87.5 million) allocated each to the South-West Queensland and Central Queensland authorities that we have recommended.
- support coal adaptation authorities to ensure that they can deliver their mission. This would include providing resources and support to enable the authorities to complete thorough fact-finding missions, and establish employment hubs to reduce hiring costs for firms and job-seeking costs for workers in the impacted regions.
- continue to support and investigate the possibility of the green hydrogen industry, to further encourage investment into the Central Queensland region, and to position Gladstone as a global leader in this space.

These recommendations are outlined in greater detail in Blueprint's From the ground up: A Blueprint for economic diversification in regional Australia.

Local perspectives

Interview insights

Interviewing locals on the ground in Central Queensland has revealed the pragmatic attitudes held by many in the community. John* worked for six years at Gladstone power station—first as an apprentice, and later in the maintenance of equipment during a shutdown period in 2018. The town's large harbour was purpose-built for the export of coal and liquid natural gas, with numerous engineering firms providing the necessary contractor support for heavy industry in the region.

John notes the clear contrast between Gladstone, with its diverse range of industry, and Tarong in South-West Queensland, where "all they have is the power station." He emphasises that while the closure of the Gladstone plant would have a limited impact on the region, given the similar work available locally, there would be different implications if coal—including metallurgical—were eliminated completely. He explains that "alumina could not transition their plant—then it becomes a problem."

While Gladstone is more exposed to declines in overall coal consumption—rather than the decline of coal-fired generation in particular—those working in the power station are still at risk. Many workers are part of the "25-year club" and are "[willing] to stay until they turn the lights off." John highlights how the stability of the embedded maintenance job was what appealed to its employees, rather than the high pay—any who aren't "planning to retire [...] want [the plant] to go on longer."

Finally, John recognises that alternative industries—reliant on skill sets similar to those he and co-workers already possess—are new opportunities. He views hydrogen in non-ideological terms as "just another plant". With thermal solar's focus on heat transfers, these employment opportunities would allow him to leverage his existing skills as a mechanical fitter, a profession also shared by many others in the region.

*Names have been changed to preserve anonymity.

Blueprint's *Voices from the regions* poll

Building on John's insights, Blueprint's polling project, *Voices from the regions*, reveals the broad appetite for clean investment across Central Queensland. Our polling, conducted by YouGov, gauged the opinion of communities in the electorates of Capricornia and Flynn on shifts in the energy landscape, government policy on climate, and the recommendations of our *From the ground up* report.

The shared positivity towards the potential on offer from the shift to renewables and new industry is encouraging. Sixty-three percent of respondents in Flynn and 56% in Capricornia agreed that coal mining was not the only viable industry that could provide the majority of high-paying jobs in the area, instead supporting the view that other industries could thrive with proper government support.

How that support should be provided was clear. Sixty-six percent of respondents in Flynn and 63% in Capricornia supported reducing coal and gas subsidies, and investing the proceeds into large-scale renewable energy. Even among coal workers and their households, a majority in each electorate supported this shift. It is hard to think of a clearer signal of the region's priorities. Residents would rather be empowered to seize the opportunities of the new energy economy than prop up declining industries.

Eighty percent of respondents in Flynn and 72% in Capricornia supported the government investing in clean industries such as green hydrogen—unsurprising given Gladstone's global comparative advantage in the burgeoning industry.

Three quarters of respondents in both electorates also supported the provision of government-funded retraining for coal workers made redundant—with locals preferring this policy to one-off payments or other handouts. Workers are not merely seeking to survive the transition, but to develop the skills to thrive in new industries.

Our polling demonstrates just how aware communities in Central Queensland are of the opportunities available to them—and the corresponding need for sound policy to ensure they can be harnessed effectively.

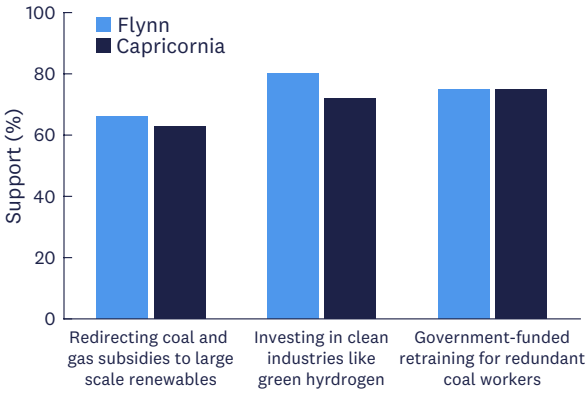


Figure 4 Flynn and Capricornia residents' support for different policies in response to the shift to clean energy

Source Blueprint Institute's *Voices from the regions* poll, conducted by YouGov

Conclusion

There is no denying that our coal industries are now in their twilight, living on borrowed time. The migration of capital from carbon-intensive economic activity to low-carbon alternatives like renewable energy has sounded the death knell for coal's long-standing cost advantage. International financiers and our leading trade partners are all pursuing ambitious climate agendas, threatening the longevity of our export markets.

Rather than burying our heads in the sand, governments must be honest with traditional coal-producing regions and communities, and position them to benefit from a changing economic landscape. Australia's regions have been the cornerstone of our agricultural and resource sectors for many decades. As hosts to many of the country's biggest industries, their success means prosperity for all Australians.

Central Queensland can adapt smoothly to a clean energy economy. It is already beginning to do so. Wind and solar farms are in development across the region, planned green hydrogen facilities in Gladstone and Aldoga hold great promise, and critical minerals mining is a burgeoning industry that can keep miners employed for decades to come.

But the region needs more support. Our projections show that, at the current pace, these opportunities will not develop in time to fully offset the social and economic effects of coal's decline. The good news is that there is still time to act.

In our report, *From the ground up*, we outline how governments can best empower communities, renew economies, and support workers. With well-funded local leadership to unite stakeholders and proactively embrace promising opportunities, Central Queensland can thrive well into the future.