Climateworks CENTRE

Strengthening industrial prosperity through coordinated energy planning

A Gladstone case study

OCTOBER 2026

ACKNOWLEDGEMENT OF COUNTRY

We acknowledge and pay respect to the Traditional Custodians and Elders – past and present – of the lands and waters of the people of the Kulin nation on which the Climateworks Centre office is located, and all of the Elders of lands across which Climateworks operates nationally. We acknowledge that sovereignty was never ceded and that this was and always will be Aboriginal land. More information.

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ABOUT US

Climateworks Centre bridges the gap between research and climate action, operating as an independent not-for-profit within Monash University. Climateworks accelerates ambitious, evidence-based action for net zero in Australia and Southeast Asia.

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Executive summary

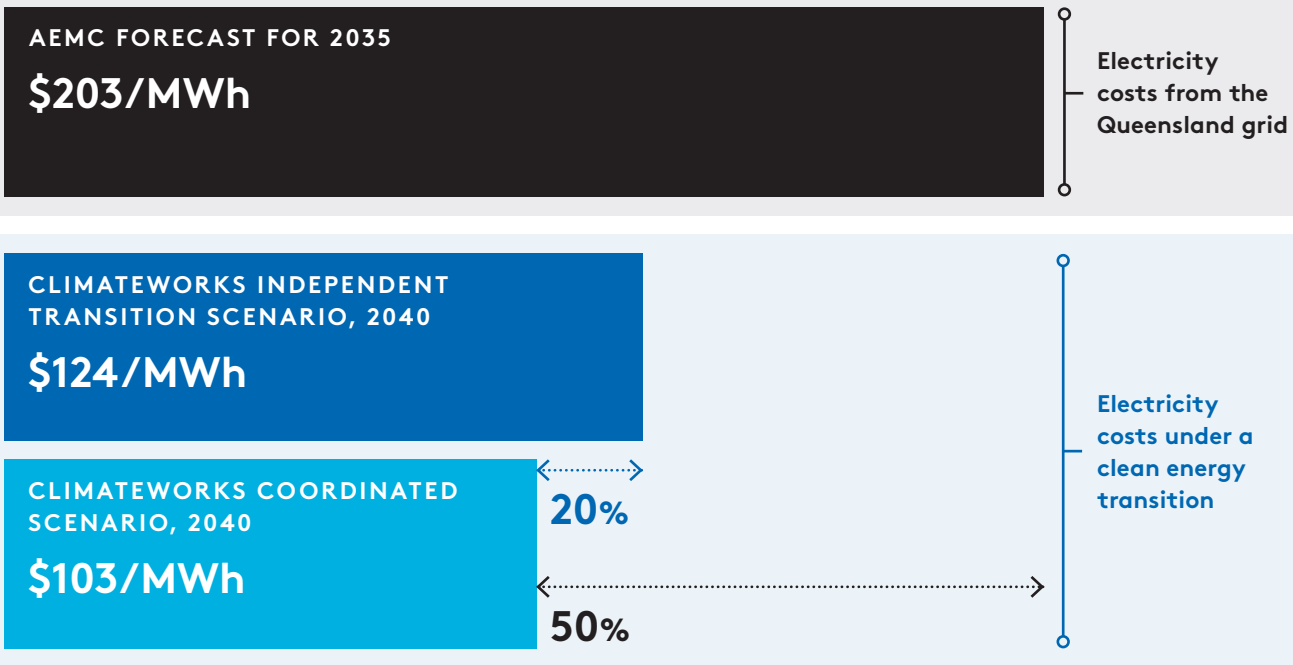
Industrial regions require a rapid transition to clean energy to secure long-term economic resilience and remain competitive in a global market shaped by decarbonisation targets. However, current whole-of-system energy planning approaches do not facilitate the rollout of renewable energy at the scale or pace required by these industrial regions. Modelling approaches that inform whole-of-system plans, such as the Australian Energy Market Operator's (AEMO) *Integrated System Plan* (ISP), lack the mandate to capture detailed regional and facility-level information needed to support this transition.

To provide the certainty that industry and renewable developers need to bring forward investment, top-down modelling, such as that used to inform AEMO's ISP, can be complemented by regional energy planning approaches. This issues paper details what a coordinated approach to regional energy planning could look like for Central Queensland through an Industrial Precinct Energy Plan (IPEP). An IPEP sets out both the projected energy demand for a region and the least-cost infrastructure pathway needed to meet it, including generation, storage, transmission and opportunities for industrial flexibility.

We modelled two pathways for a clean energy transition in Gladstone. In one, industries go at it independently, each building its own renewable generation, storage and supporting infrastructure. In the other, industries work together through shared infrastructure and orchestrated, flexible energy use. The difference is significant.

Our findings show that a clean energy transition (dark blue bar) can reduce electricity costs for industries compared to a business-as-usual grid (black bar) in Queensland. But when industries work together (light blue bar), these cost savings are even greater.

FIRMED, SYSTEM LEVELISED COST FORECASTS (EXCLUDING TRANSMISSION):



When industries coordinate by sharing infrastructure and using electricity more flexibly, the result is a smaller, smarter and cheaper clean energy system. The coordinated approach reduces both total system costs and electricity prices for industries by 20 per cent compared to an independent approach.

These savings are achieved by avoiding unnecessary infrastructure build-out, reducing the amount of solar capacity needed by 22 per cent, wind by 9 per cent and battery storage by 50 per cent. A coordinated build-out also means that what infrastructure is built is used more efficiently, with 40 per cent less electricity curtailed and wasted.

However, regardless of the approach taken, our modelling shows that the cost of firmed electricity under a clean energy transition can outcompete business-as-usual grid prices in Queensland from the early 2030s – saving industries up to 50 per cent in electricity prices.

For industry, the message is clear: waiting to transition could mean paying more for energy, while planning the transition together can reduce costs and provide greater certainty.

This is where IPEPs can play a critical role in supporting industries across Australia's regions. It can potentially lower costs, provide greater investment certainty and ensure energy security. Accelerating this development, however, will require clear decisions on responsibility for the design and delivery. States and territories are well placed to lead the design of an IPEP methodology so that regional plans can be seamlessly integrated into national frameworks like the ISP.

Responsibility for the delivery of an IPEP may vary between regions. In Queensland, where the state government has called for the private sector to lead renewable infrastructure and investment, a representative body that brings together industry and community stakeholders in each industrial region could be one option for coordinating delivery.

While this issues paper focuses on Gladstone in Central Queensland, the principles of regional energy planning explored here can be applied across Australia's industrial regions to support their continued competitiveness, resilience and prosperity. The opportunity is not simply to switch to clean energy. It's to plan for it together – and to build it more efficiently, for a lower cost.

Faster deployment of renewable energy is crucial to accelerating industrial decarbonisation

Industrial decarbonisation is critical to the long-term economic resilience of Australian manufacturing, which competes in a global market subject to volatile fossil fuel prices and shaped by Paris Agreement targets.

It is particularly important in Australia's regions, where industry contributes significantly to economic prosperity.

Climateworks Centre found that five key industrial regions (Hunter Valley, Illawarra, Gladstone, Kwinana and the Pilbara) contributed a combined $166 billion to Australia's gross domestic product in 2022. At the same time, these emissions-intensive regions together contributed about one-eighth of Australia's total emissions (Climateworks Centre 2022).

Climateworks' previous work found that industrial emissions could be significantly reduced by decarbonising industrial heat, largely through a combination of electrolytic (green) hydrogen and electrifying fossil-fuel-dependent processes using mature technologies (Climateworks Centre 2025a). This previous work also identified a key barrier to implementing these technologies: industries are hesitant to make the significant upfront investment required for electrification or hydrogen generation assets. Among other barriers, this hesitancy reflects uncertainty about whether the necessary electricity generation and storage infrastructure will be available to power these assets.

We identified two key bottlenecks that can slow the rollout of renewable energy:

1. Current energy planning approaches do not adequately capture electricity demand signals from industrial regions.

The Australian Energy Market Operator (AEMO) does not have the mandate to plan for the specific needs of Australia's industrial regions. This means that its modelling in the Integrated System Plan (ISP) may underestimate both the scale and pace of the increased energy demand needed to meet the decarbonisation ambitions of Australia's industrial regions (Climateworks Centre 2025b). Underestimating demand can reduce confidence in the business case for renewable energy infrastructure, either through a perceived lack of offtakers or limited clarity about when additional infrastructure will be needed. As a result, industrial demand for clean electricity is often met through a project-by-project procurement process that requires lengthy negotiations between individual industrial facilities and renewable energy developers. This approach can slow the deployment of new generation and storage infrastructure, and limit opportunities to reduce costs through larger-scale development.

2. Current energy planning approaches can produce suboptimal land-use decisions that conflict with other societal outcomes like the protection of nature or continued agricultural productivity.

A further challenge is ensuring renewable energy can be deployed quickly while also meeting environmental, community and land-use objectives. Environmental approvals are a critical part of achieving these outcomes, helping to identify and manage impacts on biodiversity, communities and other land uses. However, these assessments can take place well after other planning and permitting processes have begun, without earlier strategic guidance on where renewable energy development is most appropriate. As a result, projects can enter lengthy assessment processes before ultimately being found unsuitable. RenewMap found that approvals under the Environment Protection and Biodiversity Conservation (EPBC) Act have taken an average of 17 months for wind projects and eight months for solar projects in recent years (Matthews 2025).

Strengthening the competitiveness of Gladstone with a low-cost energy transition

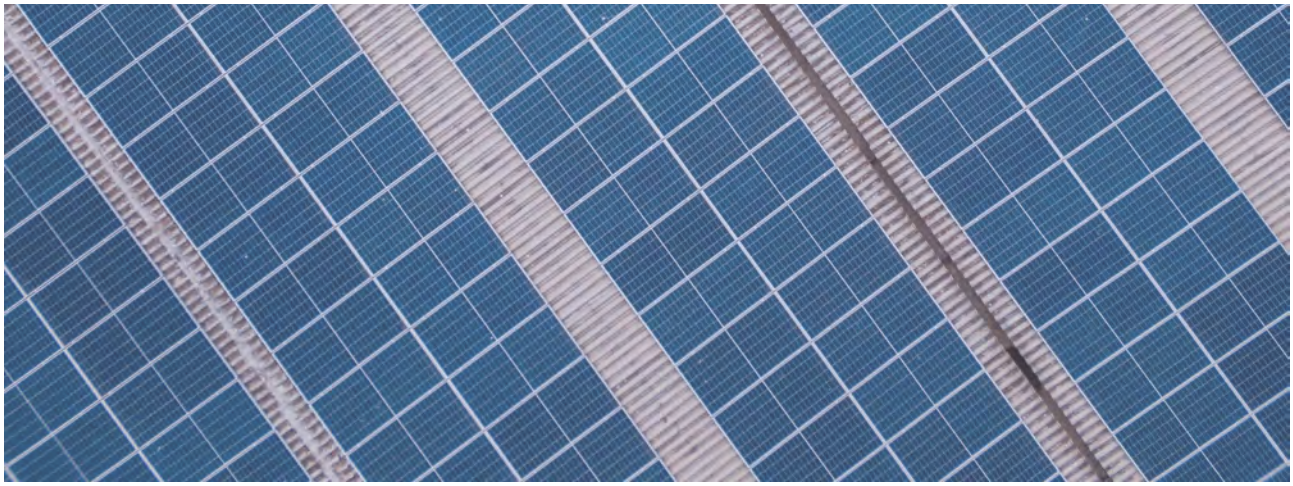
The industrial region of Gladstone, in Central Queensland, produces heavy manufacturing products such as alumina, aluminium, clinker, cement, lime and chemicals. Production is concentrated between three companies: Rio Tinto, Orica and Cement Australia. The region produces roughly one-third of Australia's alumina exports, manufactures chemicals essential to the mining sector and hosts Australia's largest cement plant. As a result, Gladstone plays an important role in both domestic manufacturing and Australia's exports. Gladstone's industries also contribute significantly to the local economy, with manufacturing accounting for around two-thirds of regional exports and 4,800 out of Gladstone's 30,600 jobs, making it the region's largest source of employment (REMPLAN Region Profiles and Explorers n.d.).

Climateworks' previous publications have shown that both governments and industries can support the long-term competitiveness of Gladstone and regions like it through decarbonisation. Without a planned transition, industries could face increasing pressure from:

+ higher and more volatile gas prices, which have steadily risen since 2015 when large-scale exports began (The Australia Institute 2025)
+ a long-term rise in electricity prices, driven by both the increased build-out of transmission networks and use of costly gas-fired generation to meet peak demand (Plumb and Davis 2010; Australian Competition and Consumer Commission 2017)
+ reduced demand for Australian products as foreign markets increasingly introduce carbon pricing policies that favour lower-emissions goods.

Together, these trends could increase costs for manufacturers and affect the jobs and economic activity they support. Industrial leaders have already highlighted the impact of high domestic gas and electricity prices on the competitiveness of Australian industry (van Onselen 2025; Moore 27 February 2025). Geopolitical or shipping disruptions and the shocks they send through global fossil fuel markets have added to these pressures.

A clean energy transition can help reduce exposure to fossil fuel price volatility and safeguard Australia's sovereign manufacturing capacity. To capture these benefits, the transition will require careful planning to ensure it is fast and delivers low-cost electricity. This issues paper uses Gladstone as a case study to explore what such a transition could look like and the planning approaches that can help make it possible.



Industrial Precinct Energy Plans can ease these renewable energy bottlenecks while supporting the whole country's land use needs

Climateworks has previously called for place-based energy planning to support the decarbonisation of Australia's key industrial regions through Industrial Precinct Energy Plans (IPEPs) (Climateworks Centre 2026).

An IPEP sets out both the projected energy demand for industries in the region and the clean energy infrastructure needed to meet it, including generation, storage and transmission, and opportunities for industrial demand flexibility. It draws on detailed, facility-level information to reflect the specific characteristics of each region.

By capturing detail at the facility level, IPEPs can give greater insight into the electricity demand from industrial regions

IPEPs complement the whole-of-system, 'top-down' modelling that underpins current energy planning, including AEMO's ISP. While top-down models provide valuable system-wide insights, they rely on sector-wide assumptions and do not capture insights from asset-level or facility-level modelling. As a result, energy demand and supply data from whole-of-system modelling may provide less certainty for regional investment decisions, or for identifying opportunities for coordination between industrial facilities.

IPEPs can help build confidence among industry and investors by providing a common view of future energy needs. This is developed through a 'bottom-up approach' from a detailed understanding of regional energy demand and supply requirements. IPEPs can demonstrate that there will be sufficient industrial demand to support offtake for new renewable energy infrastructure. They can also show that there will be a reliable and affordable renewable energy supply to support industry's decarbonisation agenda. In doing so, they can reduce uncertainty across the energy infrastructure planning system and enable coordinated approaches that can lower transition costs through shared infrastructure and resource management. They could enable governments, industry, AEMO, transmission network companies, investors and communities to work from a consistent understanding of future energy requirements and build infrastructure ahead of industrial demand.

BOX 1

Industrial Precinct Energy Plans are a key pillar of a net zero industrial precinct approach to decarbonisation

Climateworks' research in heavy industry decarbonisation has shown that Gladstone and regions like it could benefit from adopting a 'net zero industrial precinct' (NZIP) approach (Climateworks Centre 2025b). NZIPs take a place-based approach to rapidly transition existing industries and build new green exports, and do so through the central tenets of shared infrastructure, coordinated actions and investment, and enabling policy. The approach relies on understanding each region's comparative advantages and unique characteristics, and using them to inform concrete actions, such as developing an Industrial Precinct Energy Plan.

An NZIP approach supports Australia's communities by providing access to secure jobs, new skills and support for social infrastructure. Working to reduce emissions across an entire NZIP, rather than one company at a time, could set regions up for success.

IPEPs can help energy planners make informed land-use decisions for renewable energy

Renewable energy is a keystone for least-cost industrial decarbonisation. Even so, an IPEP needs to plan for new generation and storage sites while meeting whole-of-Australia targets. These include protecting and restoring biodiversity, continued support for agricultural production and delivering benefits for regional communities.

By providing a credible and robust evidence base, scenario-based spatial modelling can support energy planners to make better decisions. This modelling helps identify land that is better suited to development and where the broader region can simultaneously achieve environmental and economic objectives. Spatial modelling could be the first step in prioritising areas for further investigation, directing more resources to where they are needed.

Scenario-based spatial modelling can also inform regional priorities and place-based investment strategies while prioritising environmental or economic security. Decisions informed by this modelling could significantly speed up planning and permitting assessments for new renewable projects and accelerate the rollout of renewable energy.

We discuss in greater detail how spatial land-use modelling can support decision-making when integrated into federal, state and IPEP-based energy planning frameworks in a separate Climateworks publication (see *Unlocking industrial decarbonisation through integrated land-use planning*).

Climateworks has recently developed a modelling methodology that can inform Industrial Precinct Energy Plans

An IPEP would be developed through close consultation with state and territory governments, the region's industries and transmission companies. Together, these stakeholders can supply the region-specific information needed for a bottom-up approach to energy planning. This approach captures each industry's decarbonisation potential and ambition, enabling the development of long-term energy demand scenarios for the region's large energy consumers. These scenarios can then be used to identify least-cost pathways for deploying energy supply infrastructure.

To support this process, Climateworks has developed the Industrial Precinct Energy Solver (IPES) model. Further details on the model, assumptions and methodology are provided in the *Integrated energy planning methodology report*. In summary, the model determines the least-cost infrastructure deployment pathway to meet an industrial region's energy demand, detailing:

+ the type and scale of infrastructure needed
+ the location and timing of infrastructure deployment
+ the costs associated with the pathway.

For Gladstone, the IPES model identifies infrastructure deployment pathways that meet the region's industrial energy demand. These pathways are aligned with an ambitious decarbonisation scenario adapted from our previous work (Climateworks Centre 2025b, 2025a). Under these pathways, industrial electricity demand reaches roughly 30 terawatt hours (TWh) per year by 2040. The model finds the cheapest pathway by balancing the configuration and location of generation and storage technologies.[1]

The locations for renewable energy sites in our Gladstone infrastructure deployment pathways are informed by whole-of-Australia land-use outcomes. These include biodiversity, agriculture, land restoration and decarbonisation pathways aligned with Climateworks' well-below-2°C scenario in our *Decarbonisation scenarios 2023* report (Climateworks Centre 2023a).

The findings in this report are based on a scenario analysis using the IPES model. They identify how Gladstone's industries could access the renewable energy infrastructure they need to decarbonise, while minimising costs and supporting broader land-use outcomes. The findings demonstrate how early development of an IPEP can help guide a timely, coordinated and cost-effective rollout of renewables.

1 These technologies are composed of utility solar and wind generation, two-, four- and eight-hour batteries, hydrogen electrolysers, hydrogen storage tanks and thermal energy storage. Locations are identified only for wind and solar generation, are limited to new-build sites within Queensland, and accommodate land use for energy generation infrastructure to meet the demand of the rest of Queensland. Energy demand and supply is modelled at the hourly level. Limitations are imposed to ensure that generation placement aligns to transmission capacity under AEMO's 2026 draft ISP ' Step Change' scenario.

By unlocking opportunities for shared infrastructure, Industrial Precinct Energy Plans can enable a lower-cost clean energy system

To explore the opportunities created by an Industrial Precinct Energy Plan, we modelled two pathways for Gladstone's clean energy transition.

In the first, industries invest in renewable energy independently without coordinating efforts (the 'Independent transition' scenario).[2] In the second, industries coordinate through shared infrastructure and orchestrated, flexible energy use (the 'Coordinated' scenario). Comparing these scenarios helps identify the additional benefits delivered within a coordinated regional energy plan.

Net zero industrial precincts (NZIPs) are designed to capture the benefits of coordination between industrial facilities through shared resources and infrastructure. Our modelling shows that this approach can reduce both electricity costs for individual facilities and the total cost of the infrastructure required. While this issues paper focuses on Gladstone, coordination among facilities could deliver similar benefits in other industrial regions.

2 In this scenario, there is no sharing of infrastructure, and the largest energy consumers are able to obtain the cheapest available generation through greater purchasing power.

Electricity delivered through a clean energy system can outcompete domestic grid prices in Queensland

Under the 'Independent transition' scenario, from the early 2030s, electricity from new-build renewables is cheaper for Gladstone's industries than grid electricity in Queensland under a business-as-usual approach.

In this scenario, the least-cost clean pathway involves building 10.6 gigawatts (GW) of new solar and wind across Queensland by 2040, along with supporting storage and hydrogen infrastructure (Figure 1).[3] The total build-out costs $52 billion by 2040, with a system levelised cost of electricity (SLCOE) of $124 per megawatt hour (MWh) in that year.[4]

BOX 2

A 'system levelised cost of electricity' represents the full cost of infrastructure needed to meet total demand

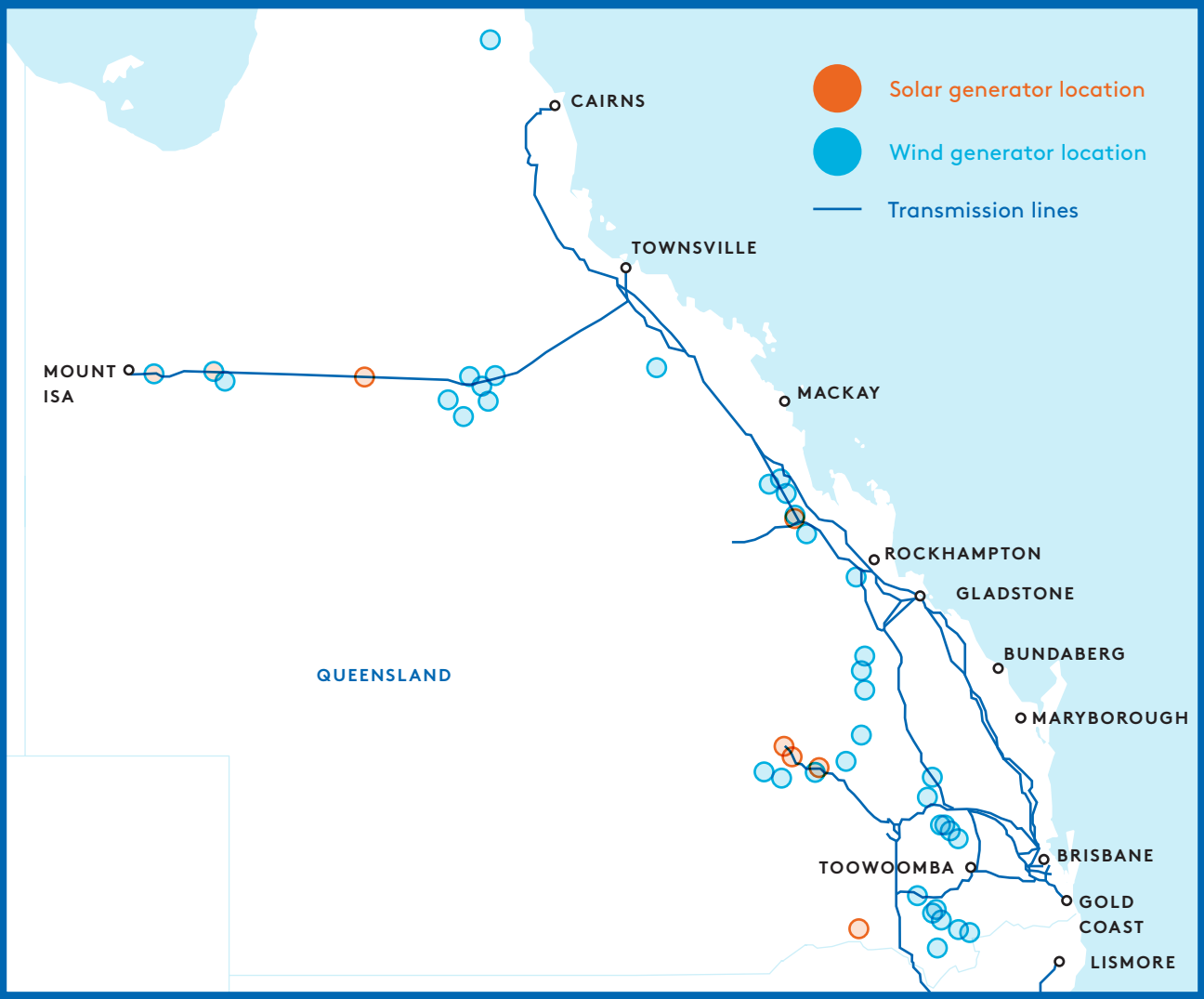
In this report we use the term 'system levelised cost of electricity' (SLCOE). This refers to the average cost of electricity for a full portfolio of electricity generation and storage assets needed to reliably meet the firmed electricity demand of a network.

This metric is used in publications such as CSIRO's *GenCost 2025-26* report (CSIRO 2026). Unlike the levelised cost of electricity (LCOE) for individual technologies, such as hybridised solar, SLCOE accounts for the broader costs of the electricity system. These include the storage and supporting infrastructure needed to ensure electricity is available when and where it is required.

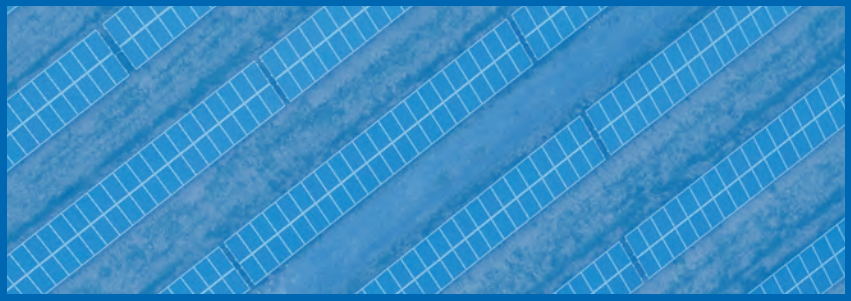
3 This includes generation and storage infrastructure that Rio Tinto has recently contracted (Rio Tinto 2025).

4 This SLCOE is a weighted average of costs to different facilities in Gladstone. Due to different purchasing powers between energy consumers, this cost could significantly increase for smaller energy consumers.

FIGURE 1: Wind and solar farm locations and infrastructure quantities to be built by 2040 under the 'Independent transition' scenario

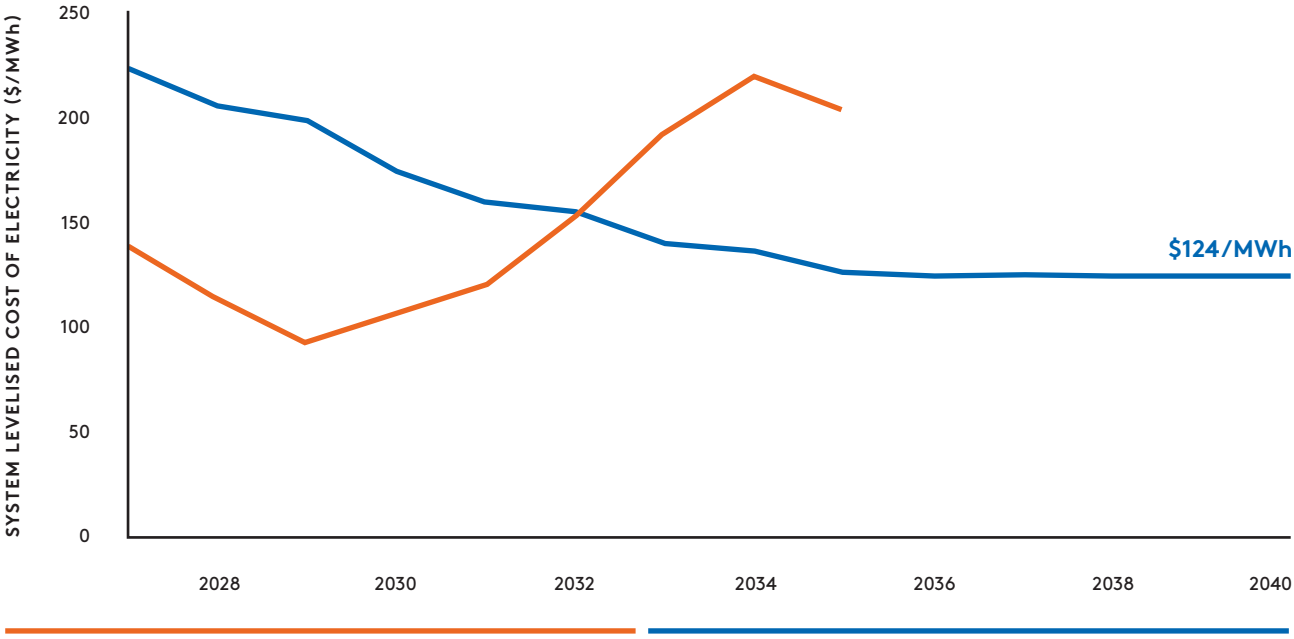


WHOLE-OF-SYSTEM COSTS:	SOLAR:	WIND:	BATTERY STORAGE:
$52B	4.6 GW	6.0 GW	2.2 GW
HYDROGEN ELECTROLYSERS:	**HYDROGEN STORAGE:**	**THERMAL ENERGY STORAGE:**	**2040 SLCOE:**
1.7 GW	3,500 t	5.9 GW	$124/MWh



We compared the SLCOEs from our scenario with the Australian Energy Market Commission (AEMC) modelled wholesale electricity costs for Queensland. This shows that, from early next decade, an ambitious clean energy transition could deliver electricity at costs lower than a grid that continues to rely on coal-fired generation (Figure 2). The AEMC has modelled a sharp rise in Queensland wholesale costs after 2030, driven by a slower-than-expected rollout of renewables, the delay of the Borumba Pumped Hydro project and constraints on gas availability for peak generation (AEMC 2025). In a business-as-usual scenario for Queensland's grid, with no accelerated rollout of renewables to meet industrial demand, industrial facilities could face significantly higher electricity costs.

FIGURE 2: Comparison of electricity costs in Climateworks' 'Independent transition' scenario to the AEMC's modelled wholesale costs in Queensland



BOX 3

Guaranteed revenue through power purchase agreements can support the build-out of renewables at the scale that an IPEP requires

In this work, we have assumed that all renewable energy generation assets in our infrastructure deployment pathways are backed by power purchase agreements (PPAs) in the form of a contract for difference (CfD). A PPA is an agreement between Gladstone's industries and individual wind or solar farms to purchase some or all of their available generation at no lower than an agreed-upon price.

PPAs provide long-term revenue certainty for renewable energy developers by guaranteeing offtake, and have been found both in Australia and in international markets to be critical tools for ensuring that renewable projects reach financial close (Leitch 2026). Rio Tinto alone has already secured more than 2.8 GW of PPAs for renewable energy just for its Gladstone operations (Rio Tinto 2026). Through this offtake, PPAs can complement the federal government's Capacity Investment Scheme, such as by addressing the lack of a guarantee for a buyer (Quinnell 2026). The revenue certainty from these PPAs could help developers to secure financing at lower borrowing costs, which in turn can reduce the cost of electricity even further for industrial offtakers.

Compared to an independent transition, coordination and shared infrastructure can reduce the cost of a clean energy transition even further and save billions of dollars

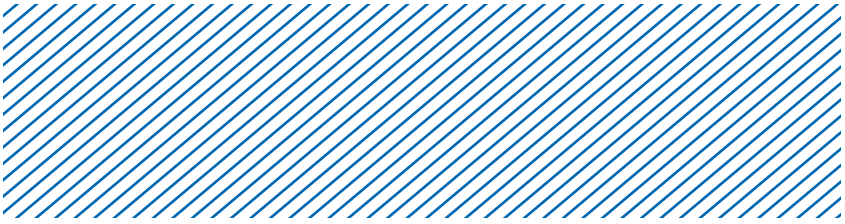
While Climateworks' 'Independent transition' scenario demonstrates the benefits of a clean energy transition compared to relying on a business-as-usual grid, even greater benefits can be realised when facilities coordinate through shared infrastructure and orchestrated energy use.

Our modelling found that an NZIP approach to decarbonisation in Gladstone, in which industrial facilities share renewable energy assets and optimise electricity use, can reduce both total infrastructure costs and electricity prices by up to 20 per cent compared to an independent approach. These findings are based on the 'Coordinated' scenario, which builds on the 'Independent transition' scenario in two ways:

1. It assumes that all assets are shared, so that energy from any generation or storage asset can meet demand from any facility.
2. Energy use across facilities is orchestrated through flexible technologies that allow certain industrial processes to turn their electricity consumption up or down,[5] allowing other facilities to use the surplus energy supply from shared assets.

Under this scenario, the least-cost pathway involves building 9 GW of new utility solar and onshore wind across Queensland by 2040 (Figure 3).[6] The total build-out costs $41 billion by 2040, including $7 billion for hydrogen infrastructure, with an SLCOE of $103/MWh in that year.

For context, the cost of new-build black coal generation capable of meeting the increased industrial electricity demand in our scenario in Gladstone is equivalent to the cost of the clean, firmed electricity infrastructure in our 'Coordinated' pathway. That comparison does not include the cost of coal itself, which could add another $2 billion per year.[7]

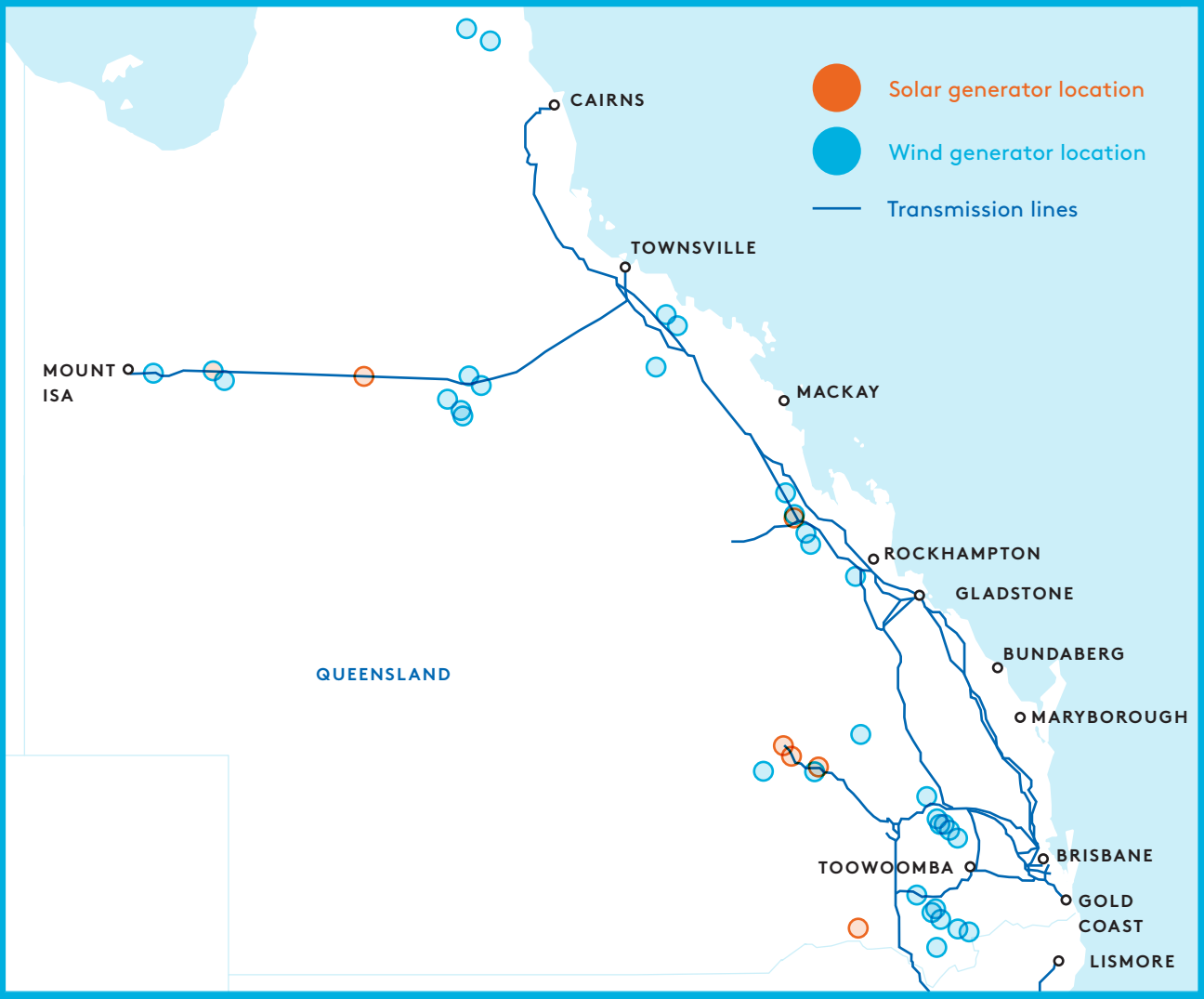


5 These technologies are modelled to affect hourly electricity consumption, while still ensuring that an annual production quota is met.

6 This includes generation and storage infrastructure that Rio Tinto has recently contracted (Rio Tinto 2025).

7 Climateworks analysis, based on CSIRO Gencost capital cost data and the GlobalCOAL Newcastle thermal coal benchmark price of US$130/ton coal

FIGURE 3: Wind and solar farm locations and infrastructure quantities to be built by 2040 under the 'Coordinated' scenario



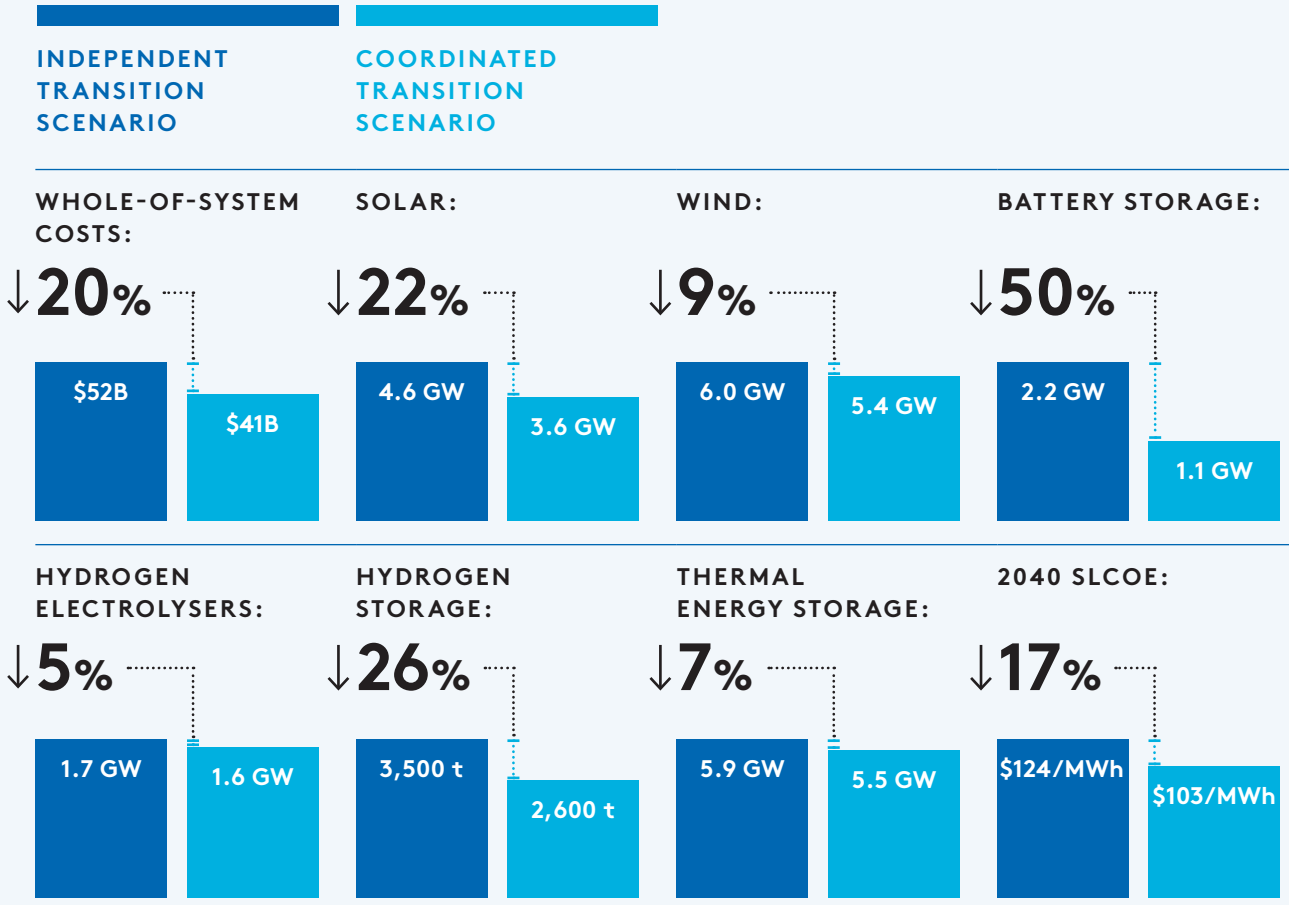
WHOLE-OF-SYSTEM COSTS:	SOLAR:	WIND:	BATTERY STORAGE:
$41B	3.6 GW	5.4 GW	1.1 GW
HYDROGEN ELECTROLYSERS:	**HYDROGEN STORAGE:**	**THERMAL ENERGY STORAGE:**	**2040 SLCOE:**
1.6 GW	2,600 t	5.5 GW	$103/MWh

The 'Coordinated' scenario cuts whole-of-system costs significantly compared with the 'Independent transition' scenario. The cost savings of around 20 per cent – or 11 billion dollars – come largely from a significantly reduced infrastructure build-out (Figure 4). That reduced build-out stems from Gladstone's facilities using generation and storage assets more efficiently. By pooling individual assets into a shared system available to multiple offtakers, the scenario avoids overbuilding to meet each facility's demand. It consolidates the total build-out into a smaller whole.

Industrial demand flexibility also lowers whole-of-system costs. Enabling flexible technologies can reduce facilities' overall electricity consumption during periods of limited generation, such as during evenings or day-long lulls in wind and sunlight. This again avoids an overbuild of assets (largely storage assets such as batteries or hydrogen tanks) that would otherwise be used only to cover these periods of low supply.

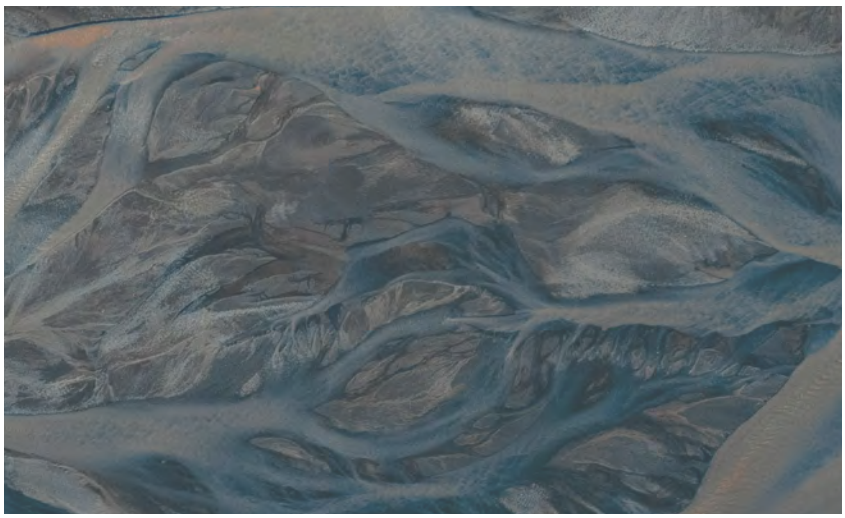
Together, shared infrastructure and demand flexibility not only reduce costs but also improve the efficiency of the energy system, with 40 per cent less electricity curtailed and wasted under a coordinated approach.

FIGURE 4: Reduced infrastructure costs and asset build-out in the 'Coordinated' scenario compared to the 'Independent transition' scenario



THESE SAVINGS ARE ACHIEVED VIA:

+ **Sharing generation and storage infrastructure to reduce what needs to be built**
+ **Demand management practices to bring down region-wide peak demand.**



BOX 4

A coordinated approach is most beneficial to smaller players, but can provide financial benefits even to the largest entities in a region

Smaller industrial entities stand to gain the most from coordination, as an aggregation of entities can collectively increase their purchasing power and reduce both capital and operating costs for new infrastructure.

However, our findings also consistently show a financial benefit for larger energy consumers, like Rio Tinto, in the form of lower electricity costs than they could obtain on their own. While these benefits are not necessarily realised immediately, we generally model payback periods of less than a decade for these large consumers.

The increased efficiency can also help improve social licence. Building less wind and solar capacity, along with less transmission infrastructure to connect these projects to the grid, reduces the overall land footprint of the transition and its impact on surrounding communities.

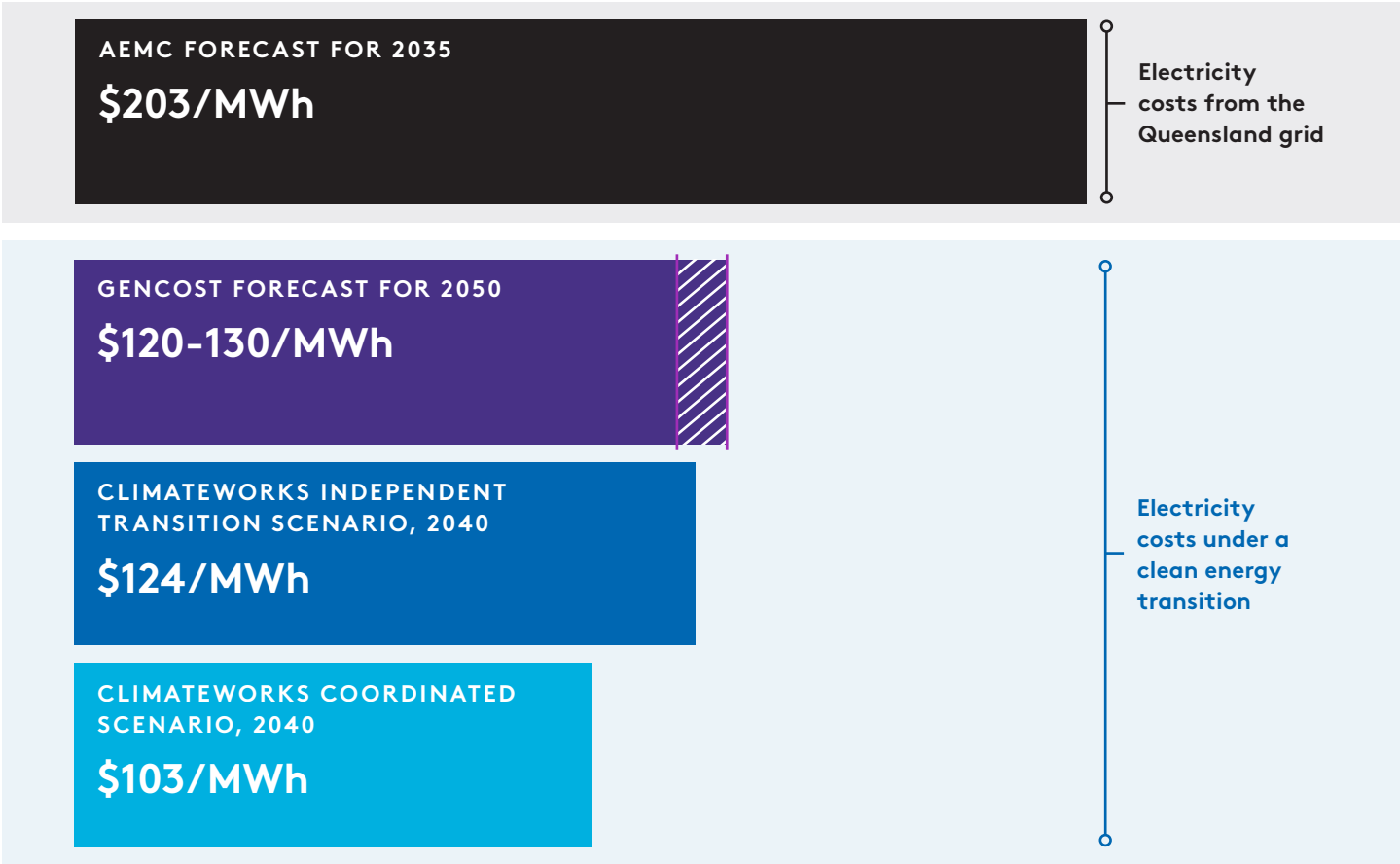
Building at scale with the backing of multiple offtakers may also bring further economic, land-use and technical benefits that were not assessed in our modelling. These include:

+ lower lending rates, leading to lower capital costs for equipment
+ better wholesale PPA prices
+ sharing of operational and maintenance fees
+ reduced land-leasing costs from a smaller, more efficient footprint
+ easier integration of supporting infrastructure, such as battery storage and grid connections.

The benefits of a coordinated clean energy transition are clear when comparing Climateworks' modelled electricity costs with those of other whole-of-system energy planners, like CSIRO and the AEMC (Figure 5). CSIRO's 2025–26 *GenCost* report finds that wind and solar generation, backed by storage and transmission, is the least-cost new-build option for Australia (CSIRO 2026). That report also finds that even in the near-term (2030), new-build utility-scale solar is expected to cost roughly half as much as coal and gas per megawatt-hour, with wind costing around 35 per cent less on average.

CSIRO's predicted cost of electricity of $120–130/MWh under its 'Global NZE by 2050' scenario aligns well with our modelled $124/MWh under the 'Independent transition' scenario. Our findings demonstrate that industrial coordination can further reduce this cost, with a modelled SLCOE of $103/MWh. This represents a 50 per cent savings in the cost of electricity compared to a business-as-usual grid from AEMC forecasts. The economic, land-use and technical benefits of building at scale could drive this cost lower still. Our modelled scenarios, however, should not be taken as a fixed prediction of real-world prices.

FIGURE 5: A comparison of the costs of firmed electricity under different modelling scenarios and from different sources, illustrating the benefits of a coordinated approach to a clean energy transition



State and territory governments could lead IPEPs in collaboration with regional partners to fulfill coordination, governance and advocacy activities

While this issues paper demonstrates the benefits of an IPEP, important questions remain about how to best design and deliver one. These tasks present several challenges. The detailed operational data needed to inform an IPEP is typically proprietary and held in confidence by industry. In addition, the presence of competing businesses within a region could raise concerns about data-sharing and the risk of anti-competitive behaviour (Climateworks Centre 2023b; Schoff et al. 2020).

Many of the key levers for implementing land-use planning and energy infrastructure fall within the legal jurisdiction of state and territory governments. This means these governments are well placed to lead the design of IPEPs for Australia's major industrial regions. Their efforts could be supported by a national IPEP framework, established by the states and territories through the Energy and Climate Change Ministerial Council. Such a framework could:

+ detail a standardised methodology for developing an IPEP, including how inputs are collected and how outputs are produced, to support integration with national energy planning processes like the ISP
+ identify how existing sources of federal funding could support regional energy planners in preparing IPEPs.

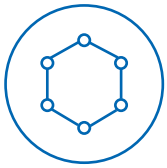
Developed in consultation with industry and regional stakeholders, these plans can set out projected energy demand and supply, transmission requirements and opportunities for industrial flexibility. A shared understanding of each region would help AEMO, transmission network companies and investors work from a consistent view of future energy requirements and build infrastructure ahead of industrial demand.

Who is best placed to deliver an IPEP may vary by location. In some cases, the role could sit with an existing body, such as the relevant state energy department, with an expanded mandate for regional energy planning and coordination. This could be supported through reforms of existing or forthcoming federal funding programs, such as the National Reconstruction Fund or Future Made in Australia, or through adaptations to the Electricity Services Entry Mechanism. Such measures could prioritise common-use energy infrastructure. This would also allow these entities to act as guarantors for energy projects required under an IPEP, providing long-term contracted revenue from the outset.

In states such as Queensland, where the government has called for the private sector to play a pivotal role in delivering new energy infrastructure and investment (Queensland Government 2025), another option may be a regional representative body. This idea has been proposed by organisations such as the Investor Group on Climate Change (Investor Group on Climate Change 2023; Cahill 2022). Such a body would be supported by enabling actions of government and would bring together regional stakeholders, including industry, infrastructure owners, government and community groups. It could coordinate with the Net Zero Economy Authority (NZEA) in relevant regions, and could also coordinate the consultation that state governments would need to undertake with industry and regional stakeholders during the design of an IPEP.

Analysis of industrial regions that have created similar bodies, including DKarbonation in the Dunkirk Industrial Precinct and the Basque Net Zero Industrial Supercluster in the Basque region, shows that these bodies can perform a range of functions that support IPEP delivery (Table 1).

TABLE 1: Critical activities for IPEP delivery that a regional representative body can fulfill

ACTIVITIES	ROLE	IMPACT
Coordination 	**Anchors investment**	Administers and guarantees offtake of renewable energy PPAs on behalf of regional energy consumers, providing long-term revenue certainty
	De-risks private capital	Administers and uses public co-funding to provide the stability needed for private capital
	Translates ambition into certainty	Identifies opportunities for shared infrastructure by holding and aggregating proprietary data from individual companies, and turning these opportunities into synchronised projects
	Maintains momentum	Reduces risk by coordinating demand, infrastructure planning, finance and delivery over time, independently of changes in government
	Enables cross-sector dialogue	Provides a shared neutral platform for competing industries and other regional bodies to proactively address challenges and seize opportunities
Governance	**Defines boundaries**	Fairly assigns costs, benefits and responsibilities by distinguishing between common-use infrastructure and individual company assets
	Establishes a legal framework	Acts as a legally recognised, independent entity to fast-track decisions and manage assets while managing competition law risks
Advocacy	**Streamlines representation**	Acts as a single point of contact for regional stakeholders on planning, investment and coordination activities

Conclusion

Australia's industrial regions will need access to affordable clean energy to remain competitive in a net zero economy. Yet current energy planning approaches are not designed to provide the regional certainty needed to deliver renewable energy infrastructure at the scale and pace required.

Industrial Precinct Energy Plans, as part of a net zero industrial precinct approach to industrial decarbonisation, can overcome this challenge. By combining detailed, region-specific and asset-specific data, an IPEP can provide clearer signals to governments, investors and industries about where, when and what infrastructure is needed.

Using Gladstone as an example industrial region shows how developing an IPEP can help identify opportunities for coordination between industries. Coordination can reduce both electricity costs and infrastructure requirements.

Realising these benefits requires collaboration between federal, state and local governments, as well as regional stakeholders. Embedding IPEPs into Australia's energy planning is an important step towards delivering the affordable, clean energy needed to support the long-term competitiveness and prosperity of Australia's manufacturing sector.

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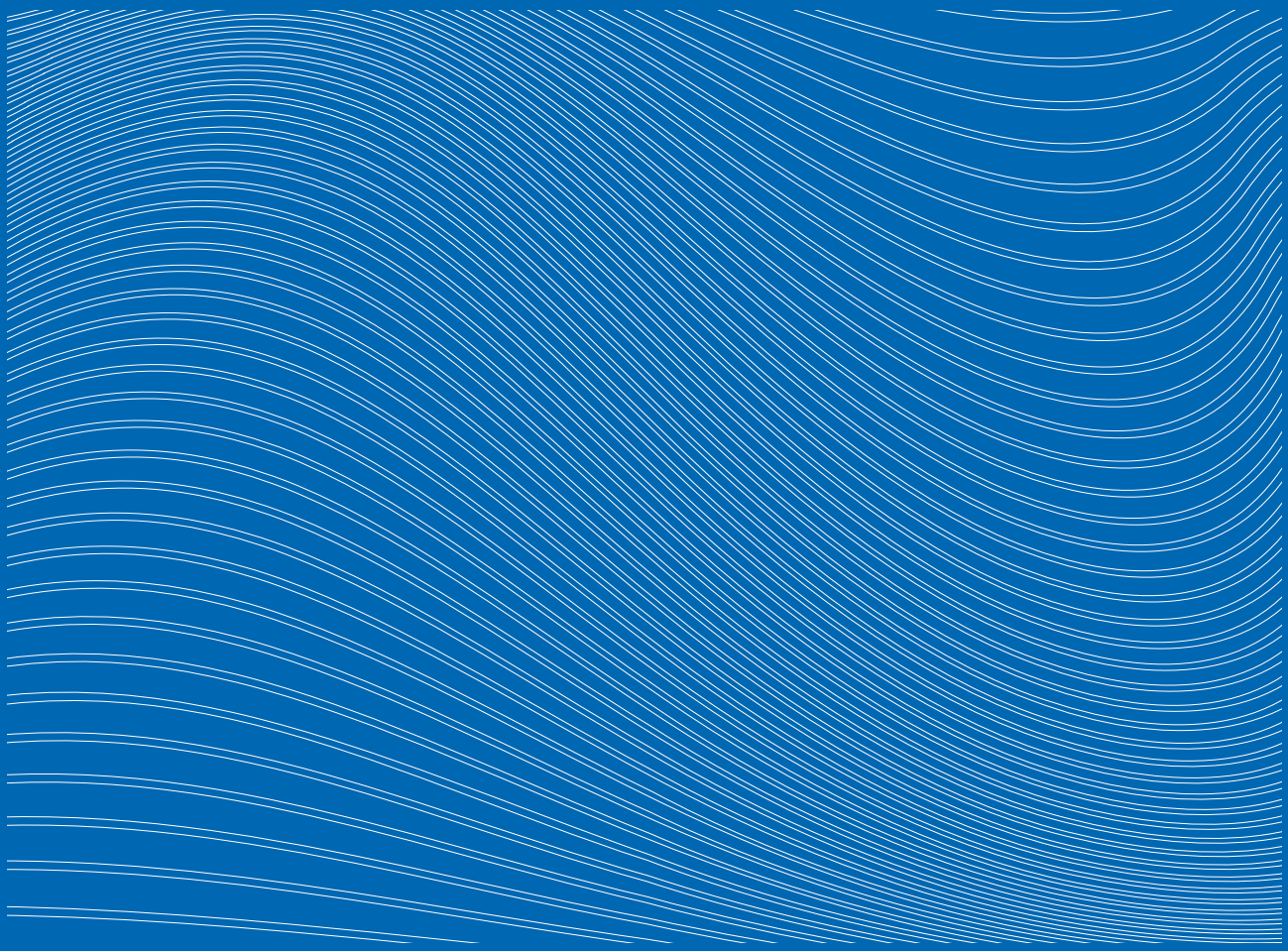

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