

Pre budget Submission

January 2024



Overview

[Beyond Zero Emissions \(BZE\)](#) is an independent think tank creating solutions for a prosperous zero-emissions future. We have been solving decarbonisation challenges for more than a decade, and have a range of publications relevant to this submission including [Safeguarding our Future](#) (strengthening the safeguard mechanism), [Renewable Energy Industrial Precincts](#) (REIPs), [The Million Jobs Plan](#), [Export Powerhouse](#), [Deploy](#), [National Supergrid](#), and [Battery Supply Chain](#) and [Commercial EV Supply Chain](#) briefing papers.

BZE supports the [Australian Renewable Industry Package](#), a \$100 billion industry investment package, which is supported by industry, union, First Nations, research organisations and investors to secure Australia's economic future and meet emission reduction targets. The following recommendations facilitate this goal by investing in industrial decarbonisation, the modernisation of the energy system, and key industries and supply chains where Australia has competitive advantage. Additional detail, including costs and job creation can be found in our reports as referenced against recommendations.

High level recommendations

1. Establish a National REIP or clean industry infrastructure authority and develop a national clean industry master plan.
2. Invest \$2 billion of equity funding in cell and non cell battery manufacturing facilities to unlock the full battery and energy storage supply chain.
3. Catalyse onshore manufacturing by introducing production tax credits and other incentives in the battery and energy storage industry and the commercial electric vehicle industry as two priority supply chain opportunities for Australia.
4. Prioritise \$2.6 billion under Rewiring the Nation to fast track transmission and distribution projects that connect renewable energy to at least two REIP locations to enable clean commodity and manufacturing.
5. Develop a National Energy Equity Strategy to ensure that decarbonisation and modernisation of energy systems delivers benefits to all Australians.

BZE commends the Federal Government's commitment to developing sectoral decarbonisation plans. Our detailed recommendations are aligned to the following sectoral

decarbonisation plans: Industry Sector and Energy and Electricity Sector. Forthcoming research will inform BZE's recommendations to additional sectoral decarbonisation plans.

BZE has ongoing research and stakeholder engagement projects relevant to sectoral decarbonisation and welcomes the opportunity to brief ministers and relevant departments on the latest findings and details behind our recommendations.

1. Industry

a. National coordination of clean energy and industry infrastructure

Decarbonising Australia's energy intensive industrial and manufacturing regions is key to ensuring national economic prosperity. These regions are at the epicentre of the deep structural change to our energy and production systems required to meet present, emerging and future market demand for low and zero carbon commodities and manufactured goods.

BZE welcomes the establishment of the Net Zero Authority (NZA), as it represents a significant step in the national coordination of skills and employment opportunities for workers in regions most impacted by the energy and economic transition to a decarbonised economy. We understand that the role of the NZA does not extend to the coordination of infrastructure and investment planning required to build the physical foundations for a clean manufacturing and export industry. Without this, infrastructure coordination remains a critical barrier to decarbonisation.

To address this gap, BZE proposes the establishment of a National Clean Industry Infrastructure Authority (the Authority) to engage with state and regional governments to:

1. Identify infrastructure gaps and needs,
2. Determine and schedule major funding mechanisms and commitments in the national interest, and
3. Coordinate with regional, state and national stakeholders to ensure the timely implementation of projects.

The Authority would consider factors including: national economic and infrastructure priorities for industry establishment and growth; regional disparities, strengths, existing infrastructure and socioeconomic and demographic considerations; and, environmental impacts in their decision-making processes. The key deliverable of the Authority would be a Master Plan for federal and state government investment to ensure an equitable and coordinated economic and energy transition for Australia.

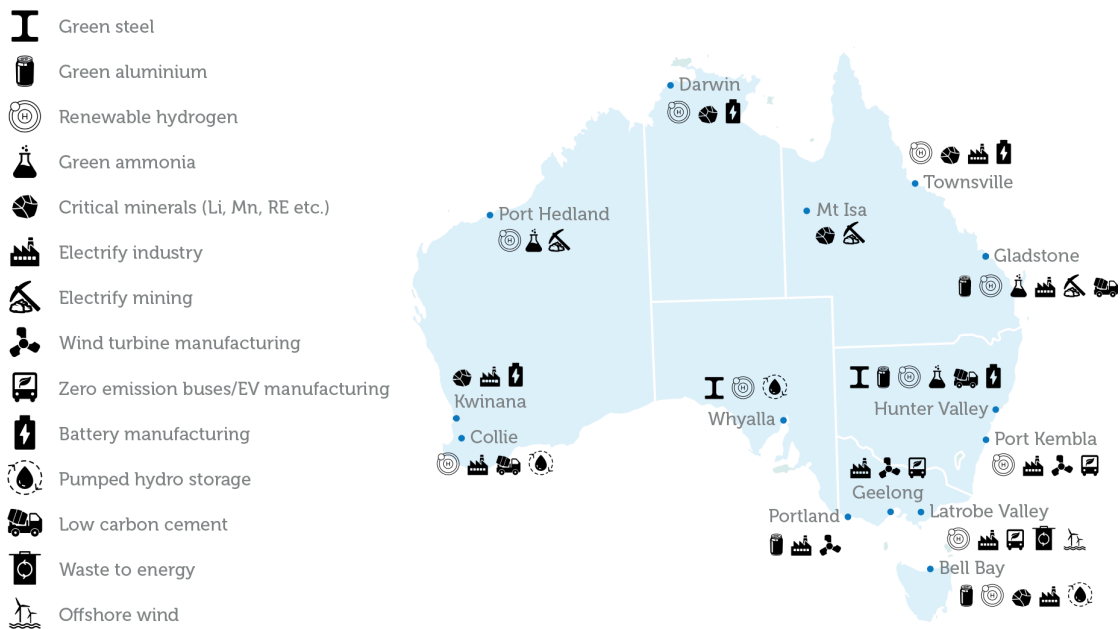
The Authority, working in coordination with the NZA, would ensure that physical infrastructure and assets are developed in parallel with the NZA policy framework to optimise resource allocation, minimise redundancies and maximise the effectiveness of both Authorities.

The Renewable Energy Industrial Precincts (REIP) model developed by BZE, Climateworks, WWF and others is increasingly recognised as a strong framework for decarbonising heavy

industrial regions including Gladstone, the Hunter Valley, Townsville and Kwinana (see Figure 1). With the right support and coordinated planning and investment, this network of Australia’s industrial regions and their supply chains can continue to provide these regions and Australia with economic security and prosperity as the global economy decarbonises.

We strongly support the government’s vision for Australia to become a renewable energy superpower, however there is currently a significant gap between this vision and action on the ground despite stronger national policy settings. Modernising existing assets, and in some cases building new infrastructure in these regions, including ports, roads, water and energy infrastructure is key to delivering the government's Renewable Energy Superpower vision and safeguarding Australia’s competitiveness in a decarbonised global economy.

Figure 1: Proposed locations of Renewable Energy Industrial Precincts (REIPs). REIPs are clusters of businesses and industries which commit to decarbonise and use renewable energy to power their operations.



The following recommendations are designed to accelerate the planning and implementation of infrastructure projects that are critical to industrial decarbonisation.

Recommendation	Detail
<p>1.1 Establish a National REIP / clean industry infrastructure authority and develop a national clean industry master plan.</p>	<p>The Authority would prioritise and incentivise national clean industry investment and develop a national clean industry master plan to build the physical foundations of Australia's zero-emission economy.</p> <p>The Authority would:</p> <ol style="list-style-type: none"> 1. Agree priorities across major energy infrastructure projects with a view to accelerating renewable energy connection to targeted clean commodities and manufacturing hubs and projects

	<ol style="list-style-type: none"> 2. Coordinate and prioritise energy infrastructure, supply chain, advanced manufacturing and innovation investments across state and territories. 3. Prioritise the upgrade of major logistic routes, including for example energy infrastructure to enable transition to commercial electric vehicles and port infrastructure to enable key opportunities. 4. Support industries through tax write-offs, production tax credits, grants, matched funding and other budgetary mechanisms (more detail in section 1b) 5. Establish local procurement policy to aid with early offtake and growth of local skills and manufacturing capability (more detail in section 1b) 6. Capitalise on synergies across existing frameworks including the Regional Investment Framework to ensure community infrastructure was developed in parallel to major economic infrastructure.
<p>1.2 Drop the threshold for Major Project status under the Major Project Facilitation Agency from \$50 million to \$10 million to extend support to medium enterprises within REIP regions.</p>	<p>The Major Projects Facilitation Agency assists major project developers with regulatory approvals. The threshold of \$50 million for projects facing complex regulatory environments excludes medium enterprises, many of which are set to scale given the right support.</p> <p>Reducing the threshold for energy and industry projects within the REIP will assist these projects in understanding the complex regulatory environment.</p>
<p>1.3 Classify renewable energy infrastructure projects servicing REIP regions as nationally significant infrastructure projects under the Major Projects Facilitation Agency.</p>	<p>Status as nationally significant infrastructure will attract additional support to streamline complex regulatory and approvals processes.</p>
<p>1.4 Establish a clean commodity export target with key goals, milestones and actions to achieve the target.</p>	<p>BZE's Export Powerhouse identified Australia's opportunity to grow new clean exports worth \$333 billion per annum, by repowering our industries to meet the surging demand for products such as green steel, renewable hydrogen and ammonia, green aluminium and critical minerals.</p> <p>In 2023 the Federal Government announced the development of a clean export strategy and the development of sectoral decarbonisation plans as part of the pathway to this vision. The clean export strategy should include a clean commodity export target and associated action plan and monitoring framework to achieve these targets.</p>

<p>1.5 Prioritise \$2 billion of under Rewiring the Nation funding to fast track transmission projects that connect renewable energy to at least two REIP locations to enable clean commodity and manufacturing.</p>	<p>Delivering renewable energy to REIP locations is well recognised as the key to unlocking private investment in both renewable energy infrastructure infrastructure and decarbonisation technologies, as well as scaling existing and attracting new industries to regional manufacturing hubs.</p> <p>Prioritising investment to connect at least two REIP locations to large scale renewable energy projects will demonstrate these benefits and provide a proof point for the decarbonisation of industrial regions.</p> <p>BZE's National Supergrid proposes a five-year \$20 billion electricity grid infrastructure investment program for a renewable energy powered economy and society. Further recommendations from the National Supergrid are contained under Section 2. of this submission.</p>
<p>1.6 Prioritise funding under the Safeguard Transformation Scheme to facilities who aggregate their energy demand and invest in shared infrastructure.</p>	<p>Where Government funding is provided there should be a requirement for collaboration and coordination of infrastructure projects.</p> <p>BZE's Safeguarding our Future for the first time quantified the economies of scale and emission reduction benefits of building key infrastructure (transmission and hydrogen pipelines) to meet the energy demand of co-located industries. Key findings include</p> <ol style="list-style-type: none"> 1. Transmission: Replacing five 100 MW transmission lines with one 500 MW line reduces capital costs by 75% (798 million AUD) to 66% (1.996 million AUD) over 100-250 km distances, respectively. 2. Green hydrogen pipelines: Replacing five 50 TJ/day green hydrogen pipelines with one 250 TJ/day pipeline reduces capital costs by 48-62% over 100-250 km distances, respectively. 3. Clustering SGM facilities into a REIPs will generate <ul style="list-style-type: none"> o Gladstone: An extra 200 jobs per year, \$2.4 billion in real economic output and \$597 million in Government revenue by 2050. o Kwinana: An extra 460 jobs per year, \$5 billion in real economic output and \$850 million in Government revenue by 2050.

b. Clean manufacturing supply chains

Supply chain issues due to the pandemic and geopolitical tensions have exposed global vulnerabilities. Governments are now pushing for onshore manufacturing to ensure access to key technologies. Policies like the US Inflation Reduction Act and the EU Net Zero Industry Act are driving investments in clean technology. However, Australia is lagging,

risking the departure of companies for cheaper overseas production. Delaying onshore manufacturing incentives increases the risk of vulnerability to supply chain disruptions and jeopardises energy security and emission reduction targets.

BZE’s [Deploy](#) research identified six key climate technologies that could cut Australia's emissions by 81% by 2030, these are: battery and energy storage, electric vehicles, heat pumps, solar, wind and electrolysers. Building on this, BZE is currently examining the supply chains of these crucial technologies. To date, analysis of the [Commercial Electric Vehicle](#) and [Battery Supply Chains](#) have been completed. These reports show that Australia has the opportunity to:

1. Value-add to our natural resources to deliver greater economic and social benefit.
2. Establish sovereign capability in key supply chains essential to Australia’s energy security and decarbonisation.
3. Increase the complexity of Australia’s economy and deliver thousands of jobs in mining, advanced manufacturing and the circular economy.
4. Leverage Australia’s research and development strengths to maximise the benefits from Australian intellectual property and innovation.

Unlocking these benefits requires government investment. The following recommendations represent key investments under an Australian Renewable Industry Package. Detailed recommendations can be found in our [Battery Supply Chains](#) and [Commercial Electric Vehicle Supply Chains](#) briefing papers.

Recommendation	Description
<p>1.7 Invest in and incentivise the establishment of battery and energy storage, and commercial electric vehicle supply chains</p>	<p>Australia contributes an outsized quantity of the critical minerals essential to the global green transition, however captures very little of their value.</p> <p>In the absence of Government investment and incentives existing and new Australian manufacturers will struggle to establish critical transition supply chains in Australia. To create a level playing field for these supply chains we recommend</p> <ol style="list-style-type: none"> 1. Introducing production tax credits for <ul style="list-style-type: none"> ○ the refining of lithium and active materials used in batteries and energy storage ○ cell and non-cell manufacturing 2. Introduce production tax credits for the onshore production of commercial electric vehicles (buses, trucks and light commercial vehicles) to secure and transition our existing vehicle manufacturing sector and create demand for local battery manufacturers. This will secure 34,000 jobs in this sector. 3. Invest \$2 billion of equity funding in cell and non cell battery manufacturing facilities to unlock the full supply chain. Pre-approving locations within existing clean industry hubs including the Hunter Valley will

Recommendation	Description
	<p>capitalise on existing industry expertise and link to established battery assembly facilities.</p> <p>Government investment needs to be commensurate with the size of the opportunity and the opportunity cost of not onshoring these supply chains. As global markets accelerate their emission reduction strategies, Australia risks being unable to access the key materials and technologies required to meet its energy security and emission reduction objectives.</p>
<p>1.8 Expand existing and establish new partnerships with ASEAN countries and others to ensure that Australia and key trading partners have the inputs they need and to pool demand for Australia's medium scale batteries.</p>	<p>Australia is a small player in global markets, and while offering a large contribution in terms of raw inputs, it risks being unable to secure what it needs to grow an end to end battery manufacturing industry and pool sufficient demand to grow the industry to export scale.</p> <p>To capitalise on Australia's critical mineral wealth and intellectual property BZE recommends the government include energy storage as a priority area in existing and future trade and cooperation partnerships.</p> <p>BZE supports the Climate Energy Finance call to establish a partnership with South Korea as the second largest battery manufacturer to diversify supply chains for key battery components and leverage markets for Australia's emerging medium scale battery industry.</p>
<p>1.9 Ensure the principles of the circular economy are built into critical mineral supply chains for batteries.</p>	<p>Projected medium to long term supply shortages of critical minerals and the material value of components in battery energy storage systems necessitate the need to establish end of life considerations in establishing supply chains.</p> <p>While local and state governments will need to undertake logistics planning for the collection and processing of end of life clean technology, the federal government can act to ensure that feedstock from end of life batteries is prioritised for onshore processing by the battery recycling industry.</p> <p>BZE recommends that the government consider classifying black mass under the Hazardous Waste Act (1989). This will limit export of this valuable resource to volumes beyond what the domestic recycling industry has the capacity to process at any point in time.</p>

2. Energy and electricity sector

The imperative to achieve emission reduction targets, as recommended by the Intergovernmental Panel on Climate Change (IPCC), drives the urgent need to decarbonise our energy systems. Australia's support of fossil fuels contradicts this imperative, diverting

resources away from building the energy infrastructure and economic foundations essential for our future economic prosperity, and social and environmental sustainability.

Accelerating Australia's energy system modernisation through rapid deployment of renewable energy offers substantial benefits that fossil fuels cannot provide, including:

1. **Energy security:** Decoupling Australia's energy markets from volatile fossil fuel prices, influenced by geopolitical forces, is critical for national energy security. Australia's abundant renewable resources and the maturity of technology solutions for firmed renewable energy solutions provide a clear pathway to achieve this.
2. **Cost of living relief:** CSIRO's latest Annual GenCost report affirmed renewable energy as the most cost-effective energy source for Australia.
 - a. Widespread adoption of renewable energy and decoupling Australia's energy prices from global fossil fuel market volatility can deliver direct relief to households, businesses and industry alike through lower energy costs
 - b. Secondary savings, for example accelerated application of low-cost renewable energy to agricultural production can help mitigate increased farmgate prices and ease cost of living pressures for both rural communities and end consumers.
3. **Energy equity:** Renewable energy can be tailored to the specific energy needs of communities dependent on expensive fuels like expensive fuels like diesel or due to lacking reliable grid access, such as rural, First Nations and remote communities. Investment in the deployment of renewable energy in these communities can provide significant benefits:
 - a. Access and energy reliability: Guaranteed access to energy that is sufficient to maintain healthy living standards, for example thermal comfort and refrigeration for medication and perishable goods.
 - b. Cost of living relief: Access to reliable low-cost renewable energy
 - c. Economic opportunity: Equity ownership, land access benefit sharing, skills development, job opportunities and maintenance contracts
 - d. Energy sovereignty: Remote communities can own renewable energy assets and, with suitable training and support, the ability to maintain these systems within their communities/regions.
4. **Economic prosperity:** Low and zero carbon commodities and goods are the front runners in existing, emerging and future markets. Securing Australia's presence in these markets will prevent penalties under the carbon border adjustment mechanisms and similar import tariffs on high carbon intensity goods, ensuring the competitiveness of Australian exports in global markets.

While the Rewiring the Nation program provides investment for energy system modernisation, there is a need to prioritise investment in key projects to lay the foundation for a modern energy system that improves energy equity and supports the growth of Australia's low carbon economy.

BZE's [National Supergrid](#) report outlined a 5-year \$20 billion accelerated investment program to build these foundations. The recommendations targeted the delivery of low cost reliable (firmed) renewable energy to Australians regardless of where they live or operate their business in parallel with the delivery of emission reductions inline with IPCC recommendations.

BZE commends government implementation of the following key recommendations of our [National Supergrid report](#), including support for:

1. Medium duration battery storage projects through the expansion of the Capacity Investment Scheme to unlock renewables and provide firming capacity
2. New transmission in the Pilbara (WA) region to fast track renewable energy sharing
3. Local innovators to scale up next-gen energy storage technologies.
4. The establishment of a national distributed (consumer) energy resources program through the “National Consumer Energy Resources (CER) Roadmap - Powering Decarbonised Homes and Communities”.
5. The rollout of stand-alone power systems and microgrids to remote and First Nations communities through the Regional Microgrids Program.

The following high level recommendations build on this progress to accelerate the decarbonisation of Australia’s energy and electricity sector to enable the growth of clean industry and ensure a fair energy transition for all Australians.

Recommendation	Detail
New Energy Infrastructure	
<p>2.1 Cease new fossil fuel approvals.</p>	<p>Retirement of existing fossil fuels and cessation of new fossil fuel developments is essential to create certainty for investors, industry and workers to move into industries aligned with a zero emissions economy.</p> <p>The International Energy Agency’s 2021 Global Energy Transition Stocktake clarified that there can be no new oil, gas, or coal projects approved if we are to meet the Paris Agreement commitment of limiting average global temperature to 1.5 degrees.</p> <p>Government approval of these projects undermines the structural change to Australia’s energy and production systems the government is trying to achieve.</p>
Transmission and Distribution	
<p>2.2 Accelerate funding for and streamline approvals for economically significant energy infrastructure projects.</p>	<p>\$2.6 billion investment to fast track transmission (\$2 billion) and distribution (\$0.6 billion) projects to connect at least two industrial heartlands (REIP locations) to renewable energy generation. See recommendations 1.3 and 1.5.</p>

Recommendation	Detail
Energy Storage	
<p>2.3 Raise the current Capacity Investment Scheme (CIS) from 9GWh to 12GWh of firmed energy to catalyse local battery manufacturing.</p>	<p>BZEs recent Battery Energy Supply Chain research demonstrates that a further expansion of the CIS will catalyse local demand for an onshore energy storage manufacturing industry in addition to firming grid operations.</p>
<p>2.4 Include battery storage systems in the Small-Scale Renewable Energy Scheme (SRES).</p>	<p>BZE recommends extending the SRES to accelerate the adoption of battery energy storage in households to build on the success of the scheme to drive rooftop solar over the past decade. It is recommended the SRES be applied to systems up to 15kWh and offer additional certificates to batteries with local content to further support Australian manufacturing.</p>
Energy Equity and Energy Efficiency	
<p>2.3 Develop a National Energy Equity Strategy to ensure that the modernisation of the national energy systems delivers benefits to all Australians</p>	<p>BZE recommends the development of a National Energy Equity Strategy. A National Energy Equity Strategy would provide a transparent framework for Government (Federal, State and Local) to articulate priorities, coordinate investment and monitor impact. As many of these initiatives impact regional and remote communities that are currently reliant on diesel, funding for an energy equity strategy could be appropriated from the current diesel fuel rebate.</p> <p>The First Nations Clean Energy Network, the Australian Council for Social Services, the Community Housing Industry Association and Farmers for Climate Action have undertaken extensive work on energy equity. We encourage the government to review their pre-budget submissions for inclusion in such a strategy.</p> <p>BZE's National Supergrid details targeted funding for the enablers within the electricity network that currently present a barrier to an equitable transition, notably for rural, First Nations and remote communities and community benefit facilities including schools, healthcare clinics and community centres.</p> <p>Key recommendations from the National Supergrid for inclusion in the Strategy include:</p> <ol style="list-style-type: none"> 1. A strong government framework for large scale renewable energy infrastructure projects that ensures delivery is aligned with best practice environmental management, community engagement, and benefit sharing. 2. Grant funding for distribution upgrades that enable electrification of community infrastructure including healthcare centres, schools and community centres.

Recommendation	Detail
	<p>3. Increased support (a tripling of the existing \$125 million) of the Regional Microgrids Program to accelerate the benefits of low cost energy to communities not well serviced now or historically and who are reliant on diesel.</p> <p>4. Low interest loans and incentives to support rural communities and farmers to decarbonise and connect mid-scale renewables (1-5MW) including necessary connection upgrades to unlock new revenue streams.</p> <p>BZE's Million Jobs Plan recommends a target of 2.5 million deep energy and electrification retrofits to existing homes over 5 years – this equates to 500,000 home renovations per year, with priority given to low income groups. The average cost of this work was calculated as \$25,000 to \$30,000 per home, in most cases this cost would be paid back in under 10 years through cheaper energy bills.</p> <p>The Government can enhance the rapid deployment of retrofits by providing concessional or low interest finance to managed energy service providers to deliver against energy efficiency targets.</p> <p>We propose the Strategy includes a household energy retrofit program. This could be implemented through a managed energy service agreement model, where a provider enters contracts with households to deliver retrofits for a set monthly fee, and are responsible for contractors implementing high quality retrofits.</p> <p>A managed energy service provider would be regulated to assure quality installations, providers and products.</p>