



Super-powering the energy transition in Australia: A policy blueprint to facilitate superannuation investment

November 2023

Overview

Australia has many comparative advantages when it comes to the transition to net zero. It has world-leading low-cost wind and solar resources, a vast land mass and reserves of critical minerals. It has a trusted profile as a global commodities, agricultural and energy exporter. Its economy is underpinned by strong capital markets, including one of the largest pools of retirement savings in the world.¹

Achieving net zero and transforming Australia into a renewable energy superpower will require investment on a massive scale – around A\$12 billion a year on average between now and 2050 in the electricity sector alone² and more than A\$40 billion a year to decarbonise other sectors of the economy and grow energy-intensive export industries.³

Much of this investment will be capital-intensive with long time horizons – a good match for Australian superannuation funds which are able to offer long-term financing. Superannuation funds have a clear-eyed focus on achieving the appropriate risk-adjusted returns in line with our duty to act in the best financial interests of superannuation fund members. With the right policy settings and pipeline of investment opportunities, superannuation can be a significant source of capital for the Australian energy transition, helping workers achieve a dignified retirement in a more sustainable world.

Since 1990, industry superannuation funds have been investing in infrastructure, with a track record of investing in businesses delivering essential services to the community. These now include growing Australian and global investments in clean energy and related businesses, such as wind and solar generation, transmission and distribution, batteries, hydrogen and district heating.

Industry superannuation funds own strategic infrastructure assets that will be needed to support net zero export industries, such as seaports, airports and connecting rail.

We also own and engage with some of the largest energy and resources businesses in Australia through listed equities investments, with superannuation funds holding over a third of the Australian Stock Exchange by market capitalisation.⁴

After more than a decade of policy uncertainty in Australia, we have welcomed action in climate and energy policy at state and Commonwealth level and record public investment in cleaner, cheaper and more secure energy. But the Australian energy transition still risks falling behind as investors find more compelling opportunities overseas.

The energy transition has created a global competition for capital. Since the launch of the Inflation Reduction Act just over a year ago, the United States (US) has seen eight years' worth of clean energy investment, equivalent to more than US\$270 billion.⁵ By 2032, the Act is expected to have facilitated an estimated US\$3 trillion in clean energy investment.⁶ Other jurisdictions, including the European Union (EU),

With the right policy settings and investment opportunities, superannuation can be a significant source of capital for the Australian energy transition.



Ausgrid community battery

¹ Thinking Ahead Institute (2023). Global Pension Assets Study 2023, p. 14.

² Australian Energy Market Operator (AEMO) Integrated System Plan (2022). AEMO's Step Change scenario estimates investment of \$320 billion is required by 2050 to decarbonise the National Electricity Market (NEM).

³ Australian Industry Energy Transitions Initiative (AIETI) (2023). The "coordinated action with exports sensitivity" scenario estimates that investment of \$1.3 trillion will be needed in energy and industry between 2025 and 2050.

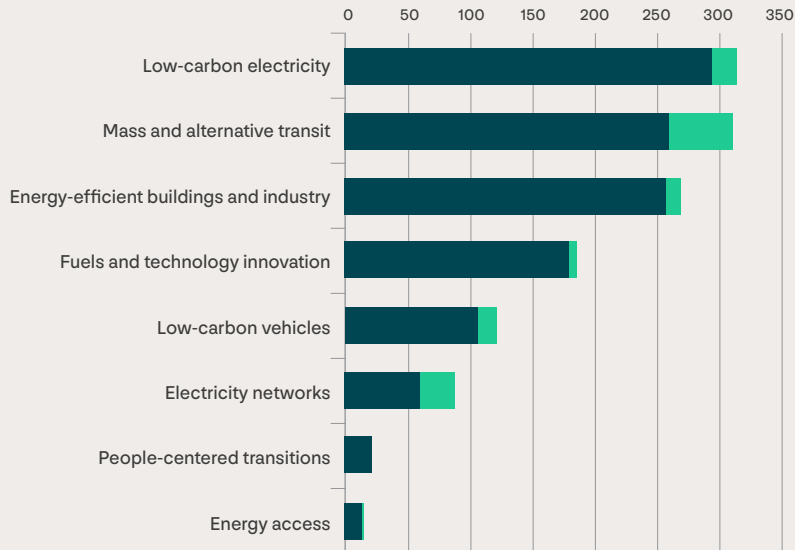
⁴ Rainmaker Information (2021). Institutional Roundup Report, Volume 25 Number 3.

⁵ World Economic Forum (2023, 29 August). "What to know about the impact of the US Inflation Reduction Act," at: <https://www.weforum.org/agenda/2023/08/us-inflation-reduction-act-energy-news-stories-august-2023/>.

⁶ Goldman Sachs (2023, 17 April). "The US is poised for an energy revolution." at: <https://www.goldmansachs.com/intelligence/pages/the-us-is-poised-for-an-energy-revolution.html>.

FIGURE 1

GOVERNMENT CLEAN ENERGY INVESTMENT SUPPORT ENACTED SINCE THE START OF THE COVID-19 PANDEMIC, BY SECTOR (BILLIONS USD)



Source: International Energy Agency. The light blue bars represent spending since 2020 and the dark blue bars represent additional support announced in the first half of 2023.

Canada and Korea have announced or are developing significant policy packages to support investment in clean energy and associated technologies. Since 2020, governments have allocated US\$1.34 trillion for clean energy investment support, with the US accounting for around one quarter.⁷

Capital is flowing to places with more attractive investment opportunities, strong climate and energy policies and growing demand for clean energy and low carbon goods and services. Australia can't afford to be left behind.

This does not mean Australia need to replicate the approach of other countries. Rather we should make the most of our comparative advantages with an ambitious and proportionate response, including policies, such as those outlined in this blueprint, to make Australia a renewable energy superpower.

The Government's recent announcement that it will expand the Capacity Investment Scheme is welcome. It will provide much needed revenue predictability for investors in renewable generation and battery

projects, and help channel the capital needed to achieve its 2030 targets for emissions reduction and renewables deployment.

In developing this blueprint, we have worked together to identify barriers to investment across a range of critical sectors and opportunities to deliver the energy transition at least cost to taxpayers and households.

These recommendations build on policies and concessional finance facilities already in place or under development, and would complement the sustainable finance policies under development by the Commonwealth Government with the objective of mobilising capital for climate solutions and modernising financial markets. They address the following:

- **Transforming our electricity system.**

Transmission, distribution, dispatchable storage (including batteries) and renewable energy generation are critical for Australia's energy transition. Australia urgently needs to expand all four to get more of the cheapest form of

⁷ International Energy Agency (2023, June). "Government Energy Spending Tracker: June 2023 update," at: <https://www.iea.org/reports/government-energy-spending-tracker-2>.

energy into the system, firm this generation, electrify transport, and build the capacity needed for Australia to become a renewable energy superpower.⁸

We set out recommendations for making transmission investment opportunities more competitive and reducing the costs that are recovered from consumers; providing incentives recognising the role that batteries of all sizes can play in enhancing system capacity and grid reliability.

- **Reducing transport emissions and supporting net zero mobility.** Transport represents the fastest growing source of domestic emissions and is projected to be Australia's largest source of emissions by 2030.⁹

Backed by superannuation capital, Australian capital city airports are working to reduce operational emissions and support the decarbonisation of aviation. We recommend that the Commonwealth Government supports the development of a local sustainable aviation fuel (SAF) industry by establishing production incentives, a SAF certification framework and a market for trading SAF credits.

We also set out recommendations that would support the faster rollout of electric vehicle (EV) charging infrastructure, including by allowing electricity network businesses to support Australian drivers and businesses through a regulated framework for kerbside charging.

- **Planning and coordinating the net zero transition across the economy and supporting emerging net zero industries.** Forward-looking policy action and coordination across the economy will help reduce transition, technology and other risks faced by long-term institutional investors like superannuation funds and help build a pipeline of investment opportunities. As Australia's trading partners pursue net zero, it is also imperative that governments support the development of new and diversified export markets to secure Australians' access to well-paying jobs and a high standard of living into the future.

Increased superannuation investment could meaningfully accelerate the energy transition, help Australia achieve its net zero targets and power more businesses and households with cheaper energy. It could also improve Australia's energy security and ensure that critical energy and other infrastructure assets are owned by Australians with returns flowing back to millions of workers through their superannuation accounts.

If Australia doesn't get this right, the costs now and into the future will be significant. For households and businesses, a slower and disorderly energy transition will mean higher costs. This will be felt not only through increased impacts of climate change on people's lives and livelihoods but also through higher energy bills and a more unreliable energy supply. For communities at the front line of Australia's energy transition, it will mean the lost opportunity to develop industries that could sustain our national prosperity in the decades to come, especially when other countries are moving quickly to establish industrial capacity, skills, markets, supply chains and trading relationships. Superannuation funds and their members have a stake in this too, of course, with the impacts of climate change presenting material risks to long-term investment returns.















We look forward to continuing to engage with Australian governments on policy settings that will enable investment in Australia's energy transition.

⁸ Australian Energy Market Operator (AEMO) (2022, 6 September). "AEMO CEO delivers address at the Clean Energy Council CEO Forum," at: <https://www.aemo.com.au/newsroom/news-updates/aemo-ceo-delivers-address-at-the-clean-energy-council-ceo-forum>.

⁹ DCCEEW (n.d.). "Reducing transport emissions," at: <https://www.dcceew.gov.au/energy/transport>.

SUMMARY OF RECOMMENDATIONS

Transforming our electricity system

1	Deliver new transmission lines to connect renewable energy zones with consumers	Responsibility
1.1	Enable distribution network service providers, with the right performance, safety and workforce record, to deliver greenfield transmission projects.	 
1.2	Reduce the impact of new transmission infrastructure on consumers' energy bills through concessional finance or availability payments for new projects.	 
1.3	Develop a national plan for the roll-out of transmission infrastructure, to: <ul style="list-style-type: none"> cut lengthy planning and approval processes carry out early consultation with affected communities provide fair compensation to landowners explore opportunities for communities to benefit from new clean energy infrastructure, and attract and train the skilled workers Australia needs to deliver the energy transition. 	 
2	Accelerate investment in batteries	Responsibility
2.1	Deliver the expanded Capacity Investment Scheme.	 
2.2	Incentivise investment in community and distribution-level batteries through regulatory change.	 
3	Provide longer-term certainty for investment in renewable energy generation	Responsibility
3.1	Work together to manage and reduce system planning and integration risks in the National Electricity Market.	 
3.2	Procure Power Purchase Agreements to provide long-term stable revenue streams for renewable electricity, to complement the expanded Capacity Investment Scheme.	
3.3	Work with port owners to develop or upgrade existing ports to support the transport and logistics needed to enable the construction of offshore wind farms.	 
3.4	Support investment in landfill gas projects by providing clarity on their eligibility to generate Australian Carbon Credit Units beyond 2026.	

STATE GOVERNMENT

COMMONWEALTH
GOVERNMENT

SUMMARY OF RECOMMENDATIONS (CONTINUED)

Reducing transport emissions and supporting net zero mobility

4	Develop a local sustainable aviation fuel industry	Responsibility
4.1	Introduce a production tax credit to help develop a domestic industry.	●
4.2	Establish a certification framework.	●
4.3	Develop a market which enables credits to be recognised and traded.	●
5	Support delivery of electric vehicle charging infrastructure	Responsibility
5.1	Remove regulatory barriers to investment in kerbside electric vehicle charging infrastructure.	● ●
5.2	Drive the uptake of electric vehicles in Australia through continued consumer incentives for new electric vehicle purchases and legislated nationwide fuel efficiency standards.	● ●

Planning for the transition and growing net zero industries

6	Support the growth of net zero industries and investment opportunities through ambitious, long-term policy	Responsibility
6.1	Ensure that sector pathways and the national net zero road map, currently under development, are clear, comprehensive, credible, developed in consultation with investors and backed by long-term policies.	●
6.2	Support the development of early stage, higher risk net zero technologies and industries through publicly funded research and development as well as public financing facilities.	● ●
6.3	Support the growth in sectors where Australia can lead, such as advanced manufacturing of generation and storage technologies, refining and processing critical minerals, renewable hydrogen and green metals like green iron, steel and aluminium.	● ●
6.4	Develop a coordinated national approach to increasing the supply of skilled workers essential to the energy transition, which could include enhancing existing wage subsidies or introducing tax credits for apprentices in critical clean energy occupations to deliver good quality jobs with fair labour conditions.	● ●
6.5	Explore opportunities to promote the use of local content in clean energy supply chains and support emerging industries capable of supplying Australian-manufactured inputs – such as steel, aluminium and critical minerals.	● ●

STATE GOVERNMENT

COMMONWEALTH
GOVERNMENT

1. Deliver new transmission lines to connect renewable energy zones with consumers

The National Electricity Market (NEM) covering eastern and southern Australia is one of the world's longest interconnected electricity systems, incorporating about 40,000 km of transmission lines and cables. Three-quarters of these were installed before 1970.¹⁰ The NEM now needs an additional 10,000 km of transmission lines by mid-century to connect renewable generation, batteries and pumped hydro with the households and businesses that rely on it.¹¹

The Integrated System Plan produced by the Australian Energy Market Operator (AEMO) sets out the priority transmission links that are needed, but delivery of these projects has been delayed by lengthy planning and approval processes, community opposition, supply chain constraints and rising costs. Capacity in the grid to connect additional renewable generation is diminishing, which means that transmission is becoming the key bottleneck to progressing Australia's energy transition and achieving an 82 per cent share of renewables by 2030, in line with the Government's target. Unblocking transmission will require unprecedented coordination and partnership across governments, network providers, investors and local communities.

Delivering new transmission lines will also require a significant uplift in investment. To achieve this, governments and regulators should reconsider how transmission and distribution infrastructure is

planned and delivered. This includes ongoing reform to a regulatory framework that was designed for a system requiring only incremental upgrades and has not, until now, taken transmission and distribution into account as a critical enabler of emissions reductions.¹²

1.1 Enable distribution network providers, with the right performance, safety and workforce record, to deliver greenfield transmission projects.

STATE GOVERNMENT

COMMONWEALTH
GOVERNMENT

Distribution network service providers are an important part of the energy system, with workforce, infrastructure and network capabilities that can be used to accelerate delivery of new transmission infrastructure.

Currently, access to transmission investment opportunities is limited by the current regulatory framework which grants transmission network service providers the exclusive right to deliver transmission projects identified in AEMO's Integrated System Plan.

Enabling distribution network service providers, with the right delivery, safety and workforce record, to deliver larger greenfield transmission projects – backed by industry superannuation investors – will



¹⁰ Nexa Advisory (2023, June). Transmission contestability in Australia at: https://nexaadvisory.com.au/site/wp-content/uploads/2023/06/Nexa-Advisory_Transmission-Contestability-in-Australia-Research-Report-June-2023.pdf

¹¹ AEMO (2022, 30 June). Integrated system plan (ISP) at: <https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp>, p. 61

¹² For example, the Energy Act recently passed in the UK restated the principal objective of the Office of Generation and Electricity Markets (Ofgem), the market regulator, operator and rule maker, to protect the interests of existing and future energy consumers, and added a specific mandate to support the Government meet its legal obligation to get to net zero by 2050. Ofgem (2023, 26 October), "Ofgem welcomes Energy Act getting Royal Assent," at: <https://www.ofgem.gov.uk/publications/ofgem-welcomes-energy-act-getting-royal-assent>. In Australia, the national energy laws were amended in September 2023 to clarify that energy market bodies are to take account of jurisdictional greenhouse gas emission reduction targets alongside existing considerations of price, quality, safety, reliability and security of energy and energy services.

create opportunities to deliver strong risk-adjusted returns for the retirement savings of working people, connect thousands of houses and businesses to renewable energy and deliver jobs.

It would also support value for money, help manage delivery and construction risk and build financial and engineering capacity in the market.

1.2 Reduce the impact of new transmission infrastructure on consumers' energy bills through concessional finance or availability payments for new projects.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

New transmission lines come with significant upfront costs and these will ultimately be recovered from consumers, putting further pressure on households and businesses trying to manage higher energy bills.

Mechanisms like concessional finance or availability payments could enable superannuation investors to deliver returns on workers' retirement savings while limiting the regulated asset base of transmission providers that the regulator takes into account in

BOX 1

Securing the transition with investment in transmission

Our policy recommendations in this paper will help ensure that investors and governments can deliver critical transmission infrastructure without households carrying the burden of excessive energy bills. Policies that enable investment in just one transmission project could:

- enable delivery of a project worth more than A\$1.3 billion
- deliver 2,910 jobs, and
- connect approximately 8GW of renewable energy projects to households and businesses, which would equate to energy for approximately 4.8 million homes.

setting rates of return and pricing. They could include, for example, concessional finance administered by the Clean Energy Finance Corporation under the Rewiring the Nation program, as well as other concessional finance or grants programs. Availability payments from governments for transmission infrastructure could offset impacts on consumers without large-scale upfront public funding being required and without inflationary increases to household electricity bills.

1.3 Develop a national plan for the roll-out of transmission infrastructure, to:

- cut lengthy planning and approval processes
- carry out early consultation with affected communities
- provide fair compensation to landowners
- explore opportunities for communities to benefit from new clean energy infrastructure, and
- attract and train the skilled workers Australia needs to deliver the energy transition.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

Jobs and Skills Australia recently identified that Australia is likely to need approximately 26,000 to 42,000 more electricians in the next seven years, and the clean energy supply workforce will likely need to grow from approximately 53,000 workers today to 84,000 by 2050.¹³

It is important that regulatory frameworks for transmission and distribution service providers, developed before the role of the electricity network in Australia's transition was understood, are reviewed to ensure they do not have the unintended consequence of acting as a barrier to investment in workforce skill development.

A national transmission infrastructure plan could potentially be developed by the forthcoming Net Zero Authority, or through the National Energy Transformation Partnership, under which Commonwealth, state and territory energy ministers have agreed to work together more closely on energy sector transformation, including the delivery of nationally significant transmission.

¹³ Jobs and Skills Australia (2023). The clean energy generation: Workforce needs for a net zero economy.

2. Accelerate investment in batteries

Australia’s energy transition will rely on firmed clean energy – that is, energy that is always available to meet the needs of households and businesses even when renewable energy sources are intermittent. Firing can take many forms, but globally batteries are projected to account for most of future growth in energy storage.¹⁴ Batteries can store or dispatch power at extremely short notice, providing services that are essential to grid stability as more renewables enter the system.¹⁵ Batteries can also be located flexibly and scaled in a more granular way than other types of firming. For example, batteries co-located with industrial facilities can facilitate the decarbonisation of key industries such as aluminium and steel; and community battery systems, tailored to local network conditions, can enable more rooftop solar and electric vehicles to safely enter the grid.¹⁶

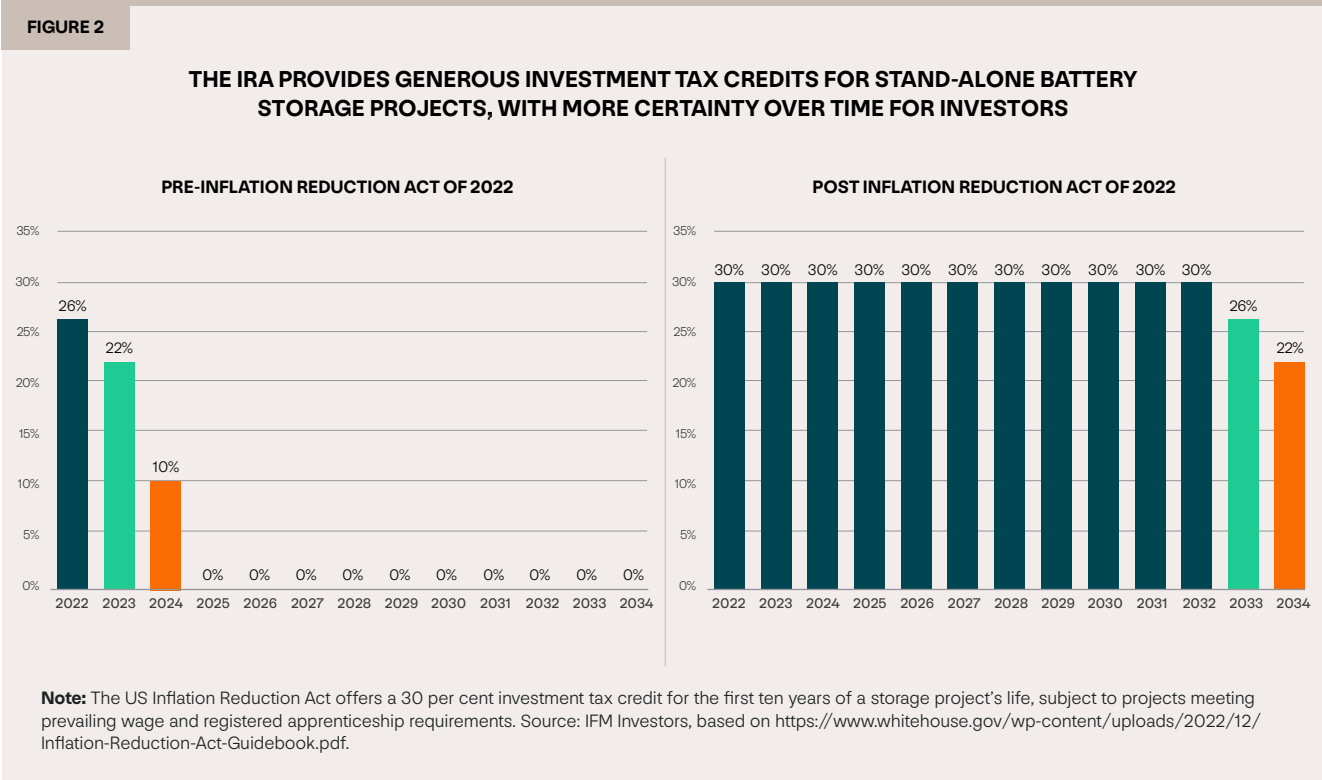
The NEM currently has around 2GW of storage capacity. It needs a cumulative 15GW of storage capacity by 2030 and 61GW by 2050 – that’s thirty times current capacity. But long-term investors face

several barriers to investing in battery storage. All battery projects involve relatively large upfront capital expenditure that needs to be recouped through revenues over the life of the project. Under current regulations and market dynamics, battery project revenues are dependent on volatile intra-day electricity pricing (i.e. selling energy when demand is high and maximising profit from price differentials). In addition, community battery projects face a potential lack of take-up due to key players like distribution networks being unable to participate without regulatory waivers for specific programs or projects.

2.1 Deliver the expanded Capacity Investment Scheme.



The expansion of the Commonwealth Government’s Capacity Investment Scheme is a significant and welcome contribution to underwriting renewable energy generation and storage capacity.



¹⁴ Energy storage. (2023). IEA. <https://www.iea.org/energy-system/electricity/grid-scale-storage>
¹⁵ These services include demand response, frequency control and voltage support.
¹⁶ Lloyd Heathfield & Tim Shue (2023, 25 August). “Home, neighbourhood, grid-scale batteries: What’s the difference and why does it matter?” at: <https://reneweconomy.com.au/home-neighbourhood-grid-scale-batteries-whats-the-difference-and-why-does-it-matter/>.

It will help provide revenue predictability for battery and generation projects, which has been a key barrier for superannuation investors, and help channel capital into the investments needed for Australia to meet its 2030 targets for emissions reductions and the renewables share in the grid.

Given the critical role of battery storage in providing secure, reliable energy, and the role that batteries of various sizes can play in a cost-effective, optimised system, the Capacity Investment Scheme should include community and distribution scale batteries.

The design and scale of the Scheme should also continue to align with state and national net zero targets, AEMO's Integrated System Plan and the forthcoming sector decarbonisation plan for energy.

It is also important that the Scheme include transparent minimum standards for auction participants for workforce skill development and the requirement to deliver good jobs with fair labour standards.

2.2 Incentivise investment in community and distribution-level batteries through regulatory change.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

Australia has the highest level of rooftop solar generation in the world (both per capita and as a percentage of renewables).¹⁷ Left unmanaged, rooftop solar puts increased strain on the grid as it exacerbates fluctuations in aggregate supply and demand. But rooftop solar can play a leading role in Australia's future energy system if it is effectively coordinated via batteries to store energy when it is abundant and supply into the grid at the right time. This can be done via virtual power plants and/or community batteries.

Community batteries are around twice as cost-effective per kilowatt-hour as household battery installations.¹⁸ We recommend that regulatory frameworks be reviewed to support the expansion of batteries located in local distribution networks,

where batteries can be efficiently and rapidly installed alongside existing assets and on existing land. For example, regulations could be changed to allow distribution network providers to lease out spare capacity in community batteries to the grid. In addition, treating community batteries as regulated assets would reduce the required rate of return on investment, lowering costs to consumers. Governments could also explore whether community batteries should be able to access the Capacity Investment Scheme through load aggregation.

BOX 2

Securing the transition with investment in utility-scale and community batteries

Policy recommendations in this paper will help enable investment, deliver appropriate risk-adjusted returns for working people's retirement savings and:

- help ensure energy reliability as we transition to renewable energy sources
- provide secure renewable energy to the industries of the future that will make Australia a green energy superpower, and
- enable homeowners to install more solar and feed this solar energy into the grid to support home electrification and electric vehicle charging.

These policy settings could deliver approximately A\$4 billion of batteries investments in the near term and provide 3GW of firming capacity across utility-scale and community batteries.¹⁹

¹⁷ Australian Trade and Investment Commission (2023). "Solar energy," at: <https://www.globalaustralia.gov.au/industries/net-zero/solar-energy>.

¹⁸ Australian Financial Review (2023, 28 August). "Community batteries hit sweet spot for Ausgrid," at: <https://www.afr.com/policy/energy-and-climate/community-batteries-hit-sweet-spot-for-ausgrid-20230822-p5dykp>.

¹⁹ A cost of around \$4bn for delivering 3GW of firming capacity through a mix of utility-scale and community batteries was estimated assuming battery duration of 2hr and unit costs for large-scale batteries of \$1346/kW taken from CSIRO (2023) "GenCost 2022-23," at: <https://www.csiro.au/en/research/technology-space/energy/energy-data-modelling/gencost>.

3 Provide longer-term certainty for investment in renewable energy generation

Investment in Australian renewable energy generation has supported a steady expansion of capacity over the last decade. In 2022, renewables accounted for 36 per cent of Australia's total electricity generation, a share that has more than doubled since 2017.²⁰ But investors in the sector are experiencing some challenges, and in the first half of 2023 new renewable generation projects in Australia slowed to their lowest level on record.²¹

Investors face a number of risks and uncertainties, including rising project costs; difficulties in securing planning approvals; delays getting new generation connected to the grid;²² a lack of clarity about when coal-fired power plants will be retired and when major offshore wind developments will be delivered; and wholesale electricity prices which are some of the most volatile in the Organisation for Economic Co-operation and Development.²³ Further, with the expiry of the Renewable Energy Target in 2030, the NEM has been lacking a long-term policy mechanism to underpin demand for renewable energy and provide stable, long-term revenue streams.

The expansion of the Commonwealth Government's Capacity Investment Scheme is a significant and welcome contribution to underwriting renewable energy generation and storage capacity.

It is important that the supporting policies and implementation mechanisms are in place to support the roll out of the Capacity Investment Scheme.

3.1 Work together to manage and reduce system planning and integration risks in the NEM.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

AEMO's Integrated System Plan sets out what is needed but not necessarily how it will be financed and delivered. Closer cooperation between governments could provide investors greater confidence about the availability of grid connections; the timing and sequencing of new transmission, generation and storage capacity; and consideration of impacts across different geographies, especially across state and territory borders.

3.2 Procure Power Purchase Agreements to support long-term stable revenue streams for renewable electricity, to complement the Capacity Investment Scheme.

STATE GOVERNMENT

Power Purchase Agreements (PPAs) - agreements between a power generator and a customer, typically a retailer or large business - have played an important role in driving renewable energy investment in Australia.

PPAs can complement the Scheme by providing stable revenue streams for generators and helping state and local governments and businesses meet their emissions reduction and sustainability goals.

3.3 Work with port owners to develop or upgrade existing ports to support the transport and logistics needed to enable the construction of offshore wind farms.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

3.4 Support investment in landfill gas projects by providing clarity on their eligibility to generate Australian Carbon Credit Units beyond 2026.

COMMONWEALTH GOVERNMENT

²⁰ CER (2022). "State of Total Renewables," at: <https://www.cleanenergyregulator.gov.au/Infohub/Markets/Pages/qcmr/december-quarter-2022/State-of-Total-Renewables.aspx>; and Clean Energy Council (2023, 18 April), "Australia's big clean energy build hits record highs: Clean Energy Australia report," at: <https://www.cleanenergycouncil.org.au/news/australias-big-clean-energy-build-hits-record-highs-clean-energy-australia-report>.

²¹ Clean Energy Council (2023, August). Renewable Projects Quarterly Report: Q2 2023.

²² Last year, the amount of solar and wind generation being curtailed - that is, stopped from selling into the National Electricity Market (NEM) - went up by 40 per cent because there was not enough transmission capacity to transport it. AEMO (2023, 15 May). "CEO speech at CEDA Rewiring the Nation: Transmission - the vital link to net zero," at: <https://aemo.com.au/newsroom/news-updates/aemo-ceo-speech-at-ceda-rewiring-the-nation>.

²³ Rystad Energy (2023, October). "Trouble down under: Australia's electricity market is the most volatile in the world," at: <https://www.rystadenergy.com/news/australia-electricity-market-most-volatile-in-the-world>. See also AEMO (2023, August). Quarterly Energy Dynamics Q2 2023.

4 Support the development of a local sustainable aviation fuel industry

Like its international counterparts, Australia's domestic aviation industry is targeting net zero emissions by 2050. But aviation is a hard-to-abate sector and Australians have few alternatives to flying to connect with work, holidays and loved ones. There are limits to the emissions reductions that can be achieved through operational efficiencies, and alternative propulsion technologies like direct hydrogen, hydrogen fuel cells and batteries are still in development.²⁴ This means that SAF are the primary decarbonisation lever for aviation in the medium term. The International Air Transport Association has estimated they could contribute around 65 per cent of the emissions reductions required for the global aviation sector to reach net zero by 2050.²⁵

SAF are “drop in” fuels produced from various feedstocks, such as oilseeds, vegetable and animal fats, agricultural produce like sugarcane or sorghum, or carbon dioxide. Australia has sufficient feedstock to produce approximately 5 billion litres of SAF²⁶ and supply around 50 per cent of forecast Australian jet fuel demand in 2025.²⁷ However, Australia lacks refining capabilities and its feedstocks are being exported for refining in other markets such as Europe, the US or Southeast Asia.²⁸ Without a near-term pathway for SAF refining in Australia, there is a high risk that export agreements are extended beyond

2030, further entrenching other markets' dominance in this space and limiting local industry development.

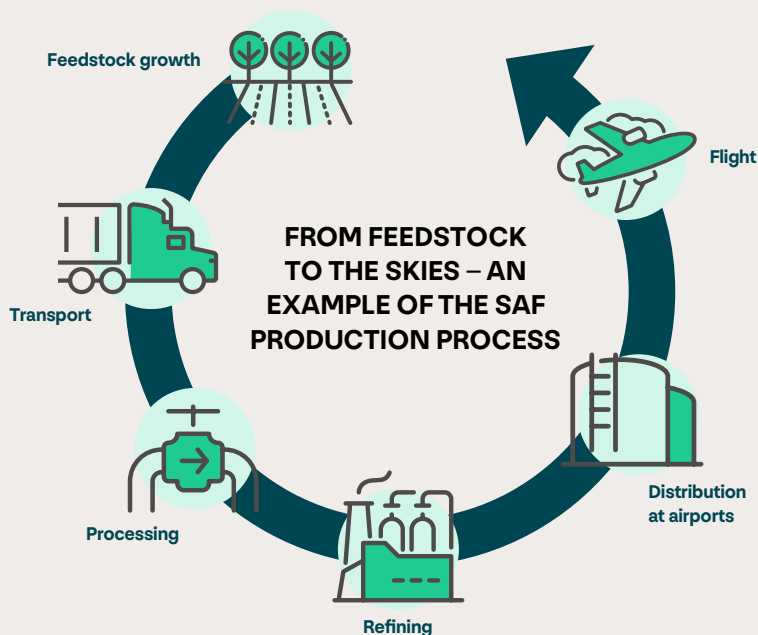
Recently, IFM Investors and GrainCorp announced a joint initiative to explore the use of agricultural feedstocks to produce SAF and assess the potential for a production facility in Australia. Investors will continue to engage with state and Commonwealth governments, as well as the Jet Zero Council and major Australian airports to support the policy solutions needed to enable investment and deliver jobs in a new value-add industry.

4.1 Introduce a production tax credit to help develop a domestic SAF industry.

COMMONWEALTH GOVERNMENT

Building domestic refining capability is critical to establishing a domestic SAF sector. A flat, volume-based production tax credit – a dollar-figure subsidy per litre of Australian certified SAF – is the most direct way to achieve this. Production tax credits have been used successfully in other markets to support investment into renewable fuels and reduce the “green premium” associated with the higher cost of SAF relative to conventional jet fuels.²⁹ The US Inflation Reduction Act includes tax credits for SAF (US\$0.46/

FIGURE 3



Source: Adapted from International Air Transport Association (IATA)

²⁴ LEK (2023). Scenario analysis of the future of Australian aviation, p. 76 and 82.

²⁵ IATA (2023). “Net Zero 2050: sustainable aviation fuels,” at: <https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet---alternative-fuels/>.

²⁶ CSIRO (2023). Sustainable aviation fuel roadmap, p. 63.

²⁷ CSIRO (n.d.). Fuelling Australia's future sustainable aviation industry, at: <https://www.csiro.au/en/news/All/Articles/2023/August/sustainable-aviation-industry-australia>.

²⁸ CSIRO (2023). Ibid., p. 13.

²⁹ Climate Power (2023). One year of our clean energy boom, p. 17.

litre tax credit for SAF produced in the US) and these are expected to bring the wholesale market price of SAF down by more than 25 per cent by 2027.³⁰

The eligibility criteria for a production tax credit should be technology-agnostic to allow refiners flexibility to draw on different feedstocks over time depending on availability, cost, location and technological pathways. This would also encourage industry to use different feedstocks and refining methods to reduce the call on land and water resources and drive down the cost and carbon intensity of SAF over time.

The Government could also consider a demand-side mandate (i.e. an agreed percentage SAF blending standard by 2030, such as those introduced in the EU, United Kingdom (UK) and Canada). This would underpin demand for SAF from airlines and provide forward guidance to market participants. Without supply-side incentives, however, a mandate could be difficult and costly for airlines and airports to comply with, with knock-on impacts for the travelling public.

4.2 Establish a certification framework for SAF.

COMMONWEALTH GOVERNMENT

A certification process would track SAF volumes in fuel supplied to airports. The emissions reduction threshold for fuel to qualify as SAF (that is, the emissions reduction relative to conventional jet fuel) should increase over time. In the early years, the threshold should prioritise facilitating industry development and use of Australian feedstocks. In latter years, progressive increases to the threshold would apply downward pressure on lifecycle emissions and encourage optimisation of Australian feedstocks, innovation and supply chain efficiency.

In establishing baseline emissions intensities for different types of SAF, Australia could look to the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). This sets lifecycle emissions criteria for SAF to count towards an aircraft's offsetting requirements or to generate CORSIA carbon credits. This scheme is administered by the International Civil Aviation Organization, the United Nations agency which oversees international aviation, and is intended to apply across all 193 member states, with some exceptions, from 2027.³¹ In the US, SAF eligibility for the production tax credit under the Inflation Reduction Act is predicated on lifecycle emissions being certified under CORSIA or a similar methodology.³²

4.3 Develop a market which enables credits to be recognised and traded.

COMMONWEALTH GOVERNMENT

A transparent and robust market for trading SAF credits could be achieved through the development of a national 'Book and Claim system'. The provision of SAF would generate SAF credits which are 'booked' into a centralised registry. These credits could then be purchased or 'claimed' by parties, such as airlines operating flights departing from airports where SAF is not available and other businesses seeking to offset their carbon footprint. The Book and Claim system could extend to SAF on domestic routes and international routes originating from Australia.

Book and Claim systems are currently available for SAF in the US and UK as initiatives implemented by fuel suppliers.³³

We recommend the Government also take steps to integrate the purchase of SAF credits within the scope of emissions reporting schemes, such as the National Greenhouse and Energy Reporting Scheme.

BOX 3

Securing the transition with investment in sustainable aviation fuels

Superannuation investors are significant investors in Australia's airports, and have a shared interest in working with airlines, governments and other stakeholders to reduce the carbon intensity of Australia's aviation industry. By developing domestic refining capabilities, including through the policy recommendations we have set out, we could support a new high value-add bioenergy industry that could contribute:

- up to A\$10 billion to annual gross domestic product and
- approximately 26,000 jobs by the 2030s with many expected to be in regional areas
- while enhancing Australia's energy security.³⁴

³⁰ Rhodium Group (2022). "A turning point for US climate progress: Assessing the climate and clean energy provisions in the Inflation Reduction Act," at: <https://rhg.com/research/climate-clean-energy-inflation-reduction-act/>.

³¹ Aviation Benefits Beyond Borders (n.d.). "CORSIA explained," at: <https://aviationbenefits.org/environmental-efficiency/climate-action/offsetting-emissions-corsia/corsia/corsia-explained>.

³² Inflation Reduction Act 2022 (US), Public Law No. 117-169, Section 40B.

³³ Air BP (2022). "Book and claim – making SAF more accessible for all," at: <https://www.bp.com/en/global/air-bp/news-and-views/views/making-saf-more-accessible-for-all.html> and Harrington, T. (2023, October 9). "Microsoft and World Energy sign landmark 10-year book-and-claim SAF deal," GreenAir, at: <https://www.greenairnews.com/?p=4916> <https://www.greenairnews.com/?p=4916>.

³⁴ ENEA Consulting, Deloitte (2021). Australia's Bioenergy Roadmap, p. 16. The estimate of 26,000 jobs relates to a potential Australian bioenergy industry which would include jobs directly related to sustainable aviation fuels as well as other fuels such as renewable gas, bioethanol and renewable diesel.

5 Support delivery of electric vehicle charging infrastructure

Cars currently represent the largest source of transport emissions in Australia and these emissions have grown by 25 per cent since 1990. While EV uptake is increasing, Australia continues to substantially lag the global average of market share for new cars.³⁵ As at July 2023, EVs accounted for 8.4 per cent of new car sales in Australia.³⁶ According to analysis by Climateworks Centre, Australians could save more than A\$20 billion in petrol and maintenance costs if EVs made up three-quarters of new car sales by 2030. That's a saving of A\$1,300 in running costs every year for EV owners compared to owners of petrol vehicles.³⁷ In addition to reducing emissions and running costs, higher uptake of EVs would also improve Australia's liquid fuel security by reducing reliance on imported fuels.

Poor availability of charging infrastructure is a barrier to EV uptake. The number of public charging points per EV in Australia is nearly half that of Canada and the UK.³⁸ McKinsey estimates that Australia will need 2.8 million charging points and A\$18 billion in charging infrastructure investments by 2030.³⁹ But investors are reluctant to commit to more charging infrastructure without faster uptake of EVs; and increasing installations of home solar and battery systems may mean that more people are able to charge cars at home with uncertain demand for public charging infrastructure. This can be resolved through policies that recognise charging networks as vital public infrastructure, especially for people such as apartment dwellers who don't have access to off-street charging, and give investors' confidence in their commercial viability.

5.1 Remove regulatory barriers to investment in kerbside electric vehicle charging infrastructure.

STATE GOVERNMENT

COMMONWEALTH
GOVERNMENT

Electricity network businesses could play an important role in providing kerbside charging infrastructure through existing poles and wires and increasing the accessibility of EVs. At the moment, this is not possible due to regulatory structures that were established for different policy priorities and in a different market context. More supportive regulatory



More policy support to drive the uptake of electric vehicles in Australia could incentivise investment in charging infrastructure and save drivers money.

settings could be achieved through the Australian Energy Regulator expanding service classifications for Distribution Network Service Providers (DNSPs) to include the provision of EV charging infrastructure, and allowing providers to at least partially recover infrastructure costs through their regulated asset base. Under this approach, the majority of revenues would still come from customer charging but some costs would be shared by all network users.

The EV charging infrastructure market is unregulated and fragmented with more than a dozen different smart phone applications available for charging stations. This is creating a sub-optimal user experience. Enabling DNSPs to participate in kerbside charging infrastructure would provide an opportunity to standardise billing processes, implement consumer protections and enhance retailer competition by directing charging costs through to household and business accounts.

Australia has the opportunity to learn from other countries and their approaches to accelerating the availability of charging infrastructure and customer interfaces. For example, the Korean Electric Power Corporation, the largest utility in Korea and responsible for generation, transmission and distribution of electricity, has developed a national charging platform that enables 'plug and charge', giving customers the ability to register their car for auto charging and billing.

³⁵ Electric Vehicle Council (2023). State of electric vehicles, pg. 9

³⁶ Electric Vehicle Council (2023). Ibid., p. 8 and 10.

³⁷ Climateworks Centre (2022, 17 August). Accelerating EV uptake: Policies to realise Australia's electric vehicle potential.

³⁸ IEA (2023). Global EV Outlook 2023, Figure 1.16, p. 48. Australia has a public EV charger to light-duty EV ratio of 1:35, while in the UK and Canada it is 1:19 and 1:20 respectively.

³⁹ McKinsey (2022). Scaling EV infrastructure to meet net-zero targets.

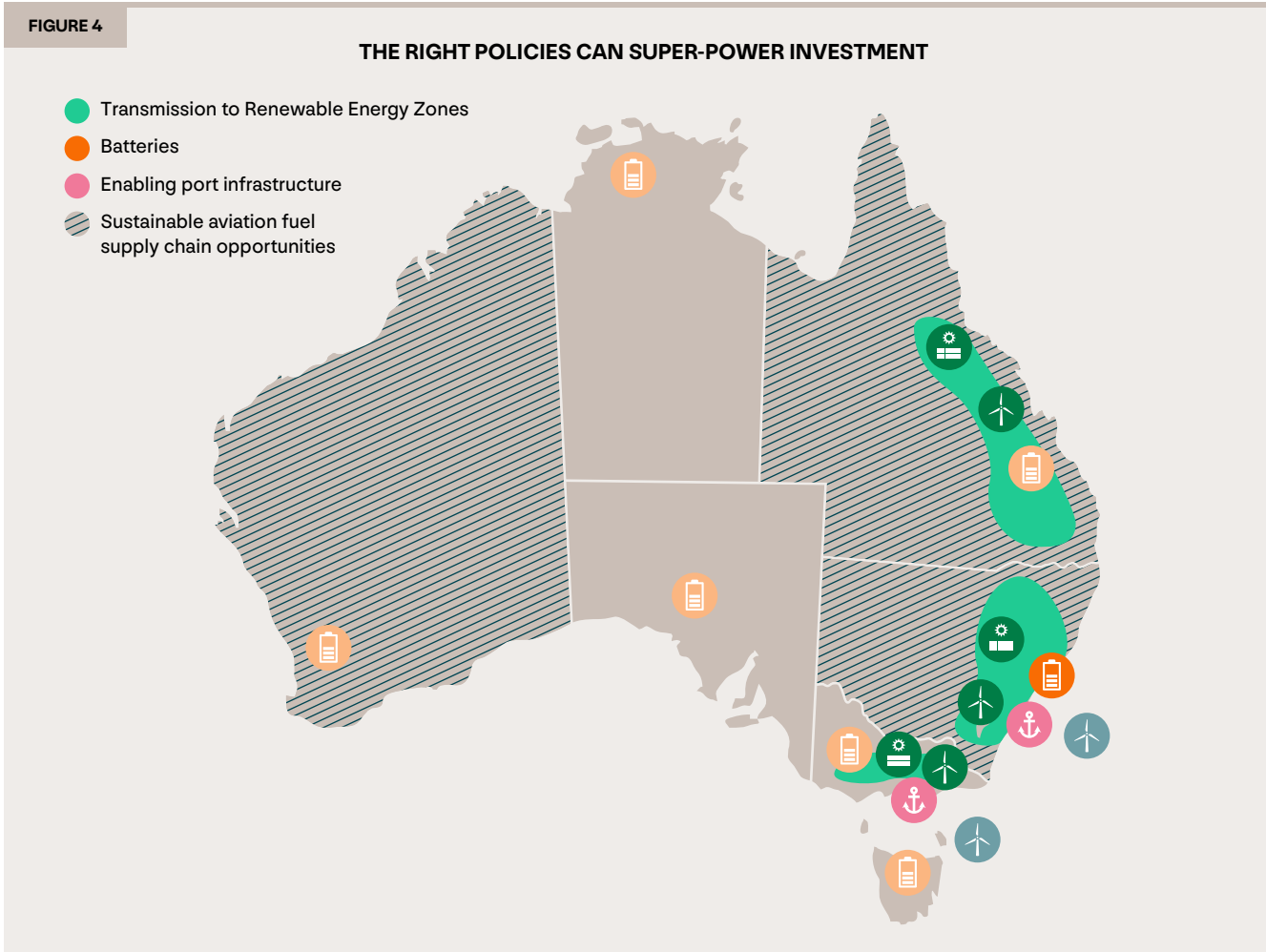
Governments should also consider scope for innovation and how EVs can be integrated in planning, design and procurement for roads. For example, dynamic wireless power technology uses coils positioned under asphalt to transfer energy directly to electric cars, trucks and buses. If this technology is proven viable, electric vehicles could be charged as they drive on a roadway. The technology is being trialled in a few pilots, including in Italy through a collaboration involving Aleatica, a company owned by IFM Investors, at the 'Arena del Futuro', a 1050-metre-long circuit built on the A35 Brebemi highway.

5.2 Drive the uptake of electric vehicles in Australia through continued consumer incentives for new electric vehicle purchases and legislated nationwide fuel efficiency standards.

STATE GOVERNMENT COMMONWEALTH GOVERNMENT

Policies to increase the supply of EV charging infrastructure should be supplemented by continued incentives for consumer uptake of EVs across all states and territories to help Australia catch up relative to other markets.

Further, legislated fuel efficiency standards (effectively, an annual average limit on the average emissions of new vehicles that manufacturers can sell in a given year) would incentivise global manufacturers to bring more EVs to Australia, addressing a key barrier to uptake.⁴⁰ Grattan Institute modelling from 2021 showed that an emissions ceiling for new light vehicles could achieve at least 40 per cent of Australia’s emissions reduction task between then and 2030 at virtually no cost to taxpayers.⁴¹



⁴⁰ Climateworks Centre (2022, 17 August). Ibid.

⁴¹ Marion Terrill, Ingrid Burford & Lachlan Fox, Grattan Institute (2021, 24 October), The Grattan car plan: practical policies for cleaner transport and better cities.

6 Support the growth of net zero industries and investment opportunities through ambitious, long-term policy

While the most immediate opportunities for superannuation investment are in critical energy infrastructure – particularly transmission and batteries – these will open up the pathway for investment opportunities in the domestic economy and the value-added export industries of the future.

Superannuation investors are already supporting the growth of new and emerging net zero industries, such as through investments in listed critical minerals producers, private equity investments in energy-related technology-based service providers and early stage investments in offshore wind and hydrogen. Relative to the total investments held by superannuation funds, however, these tend to be small and it is challenging for funds to identify investment opportunities in these sectors that meet risk and return hurdles.

Governments’ efforts to make Australia a renewable energy superpower should be ambitious about the scale of opportunity and proportionate to the imperative to ensure Australia can lead in the global competition for capital. Policy and investment support for new and emerging net zero industries, including advanced manufacturing of generation and storage technologies, refining and processing critical minerals, renewable hydrogen and green metals like green iron, steel and aluminium will help grow a pipeline of investment opportunities and demand for low carbon good and services.

Skilled workers are essential for Australia’s energy transition. Developing a coordinated national approach to increasing the supply of skilled workers essential to the energy transition could include enhancing existing wage subsidies or introducing tax credits for apprentices in critical clean energy occupations. These incentives should be conditional on delivering good quality jobs with fair labour conditions.

To this end, the forthcoming Net Zero Authority, building on the work of the interim Net Zero Economy Agency, will have a critical role to play in facilitating investment in key regions and supporting workers and communities to benefit from the new opportunities arising from the transition. With the right policy foundations in place, Australia’s economic transition can be a source of secure, quality jobs and economic growth over the next quarter century.

6.1 Ensure that sector pathways and the national net zero road map, currently under development, are clear, comprehensive, credible, developed in consultation with investors and backed by long-term policies.

COMMONWEALTH GOVERNMENT

6.2 Support the development of early stage, higher risk net zero technologies and industries through publicly funded research and development as well as through public financing facilities.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

6.3 Support growth in sectors where Australia can lead, such as advanced manufacturing of generation and storage technologies, refining and processing critical minerals, renewable hydrogen and green metals like green iron, steel and aluminium.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

6.4 Develop a coordinated national approach to increasing the supply of skilled workers essential to the energy transition which could include enhancing existing wage subsidies or introducing tax credits for apprentices in critical clean energy occupations.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

6.5 Explore opportunities to promote the use of local content in clean energy supply chains and support emerging industries capable of supplying Australian manufactured inputs – such as steel, aluminium and critical minerals.

STATE GOVERNMENT

COMMONWEALTH GOVERNMENT

Important Disclosures

The following disclosure applies to this material and any information provided regarding the information contained in this material. By accepting this material, you agree to be bound by the following terms and conditions. The material does not constitute an offer, invitation, solicitation, or recommendation in relation to the subscription, purchase, or sale of securities in any jurisdiction and neither this material nor anything in it will form the basis of any contract or commitment. IFM Investors (defined as IFM Investors Pty Ltd and its affiliates) will have no liability, contingent or otherwise, to any user of this material or to third-parties, or any responsibility whatsoever, for the correctness, quality, accuracy, timeliness, pricing, reliability, performance, or completeness of the information in this material. In no event will IFM Investors be liable for any special, indirect, incidental, or consequential damages which may be incurred or experienced on account of a reader using or relying on the information in this material even if it has been advised of the possibility of such damages.

Certain statements in this material may constitute "forward looking statements" or "forecasts". Words such as "expects," "anticipates," "plans," "believes," "scheduled," "estimates" and variations of these words and similar expressions are intended to identify forward-looking statements, which include but are not limited to projections of earnings, performance, and cash flows. These statements involve subjective judgement and analysis and reflect IFM Investors' expectations and are subject to significant uncertainties, risks, and contingencies outside the control of IFM Investors which may cause actual results to vary materially from those expressed or implied by these forward-looking statements. All forward-looking statements speak only as of the date of this material or, in the case of any document incorporated by reference, the date of that document. All subsequent written and oral forward-looking statements attributable to IFM Investors or any person acting on its behalf are qualified by the cautionary statements in this section. Readers are cautioned not to rely on such forward-looking statements. The achievement of any or all goals of any investment that may be described in this material is not guaranteed.

Past performance does not guarantee future results. The value of investments and the income derived from investments will fluctuate and can go down as well as up. A loss of principal may occur.

This material may contain information provided by third parties for general reference or interest. While such third-party sources are believed to be reliable, IFM Investors does not assume any responsibility for the accuracy or completeness of such information.

This material does not constitute investment, legal, accounting, regulatory, taxation or other advice and it does not consider your investment objectives or legal, accounting, regulatory, taxation or financial situation or particular needs. You are solely responsible for forming your own opinions and conclusions on such matters and for making your own independent assessment of the information in this material. Tax treatment depends on your individual circumstances and may be subject to change in the future.

This material is confidential and should not be distributed or provided to any other person without the written consent of IFM Investors.

Australia Disclosure

This material is provided to you on the basis that you warrant that you are a "wholesale client" or a "sophisticated investor" or a "professional investor" (each as defined in the Corporations Act 2001 (Cth)) to whom a product disclosure statement is not required to be given under Chapter 6D or Part 7.9 of the Corporations Act 2001 (Cth). IFM Investors Pty Ltd, ABN 67 107 247 727, AFS Licence No. 284404, CRD No. 162754, SEC File No. 801-78649.

Netherlands Disclosure

This material is provided to you on the basis that you warrant that you are a Professional Investor (professionele belegger) within the meaning of Section 1:1 of the Dutch Financial Supervision Act (Wet op het financieel toezicht). This material is not intended for and should not be relied on by any other person. IFM Investors (Netherlands) B.V. shall have no liability, contingent or otherwise, to any user of this material or to third parties, or any responsibility whatsoever, for the correctness, quality, accuracy, timeliness, pricing, reliability, performance, or completeness of this material.

United Kingdom Disclosure

This material is provided to you on the basis that you warrant that you fall within one or more of the exemptions in the Financial Services and Markets Act 2000 ("FSMA") [(Financial Promotion) Order 2005] [(Promotion of Collective Investment Schemes)(Exemptions) Order 2001, or are a Professional Client for the purposes of FCA rules] and as a consequence the restrictions on communication of "financial promotions" under FSMA and FCA rules do not apply to a communication made to you. IFM Investors (UK) Ltd shall have no liability, contingent or otherwise, to any user of this material or to third parties, or any responsibility whatsoever, for the correctness, quality, accuracy, timeliness, pricing, reliability, performance, or completeness of the information in this material.

Switzerland Disclosure

This Information is provided to you on the basis that you warrant you are (i) a professional client or an institutional client pursuant to the Swiss Federal Financial Services Act of 15 June 2018 ("FinSA") and (ii) a qualified investor pursuant the Swiss Federal Act on Collective Investment Schemes of 23 June 2006 ("CISA"), for each of (i) and (ii) excluding high-net-worth individuals or private investment structures established for such high-net worth individuals (without professional treasury operations) that have opted out of customer protection under the FinSA and that have elected to be treated as professional clients and qualified investors under the FinSA and the CISA, respectively.

United States Disclosure

This material is for use with institutions only and not for use with retail investors. The material, if presented in the U.S., is offered by IFM (US) Securities, LLC, a member of FINRA and SIPC.

IFM-29NOV2023-3230407