



# Electricity and Energy Sector Plan

Discussion Paper Response

April 2024

## About the Investor Group on Climate Change

The Investor Group on Climate Change (IGCC) is the leading network for Australian and New Zealand investors to understand and respond to the risks and opportunities of climate change. IGCC members have more than \$35 trillion in global AUM (Assets Under Management), and \$5 trillion in local AUM. They include Australia's largest superannuation and retail funds, specialist investors and advisory groups. Their beneficiaries include more than 14.8 million Australians, and millions more New Zealanders. IGCCs work is funded by members' fees, philanthropy, partnerships, and sponsorship from supporters who understand the power of capital to support climate action.

## The Consultation

IGCC welcomes the release of the Electricity and Energy Sector Plan Discussion Paper (henceforth EESP) and recognises it as an opportunity to shape a decarbonised economy for Australia, which necessitates a clean, renewable energy supply for the economy, homes, communities and industries. IGCC has long advocated for detailed sector by sector decarbonisation plans to support a least cost transition to net zero emissions. IGCC understands that these Sector Plans come at a time where a new 2035 Nationally Determined Contribution (NDC) will be set under the Paris Agreement. IGCC encourages the Government to set a 1.5 degree-aligned 2035 NDC to anchor the Sector Plans, providing an orderly pathway to achieve its Net Zero by 2050 Plan.

IGCC will outline an approach for the Government to develop an investible EESP, prepared in consultation with the membership and key partners.

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## Stated objectives of the Sector Plan

**IGCC supports the objectives identified by the Government in the Discussion Paper.** Recognition that mobilising investment must be a key component of the EESP is welcomed, noting that it is estimated to be at the scale of between \$50-\$200 billion annually through to 2050<sup>1</sup>, depending on what outcomes the Government seeks in transforming the Australian economy.

IGCC recommends that policy should begin with aspirational *outcomes*<sup>2</sup> and mobilising investment should not be an outcome itself but integrated as a lever to achieve the outcomes. IGCC welcomes the outcomes stated by Prime Minister Albanese in his “a future made in Australia” speech<sup>3</sup>, and emphasises the following points:

1. Clean and affordable energy for all Australians; including for households, communities and industries.
2. Well-equipped workforces to transform Australia into being a renewable energy superpower.
3. Strong social infrastructure to support Australian communities in the transition to a net-zero society.
4. That under-represented communities are prioritised for social benefit sharing.

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<sup>1</sup> <https://www.ceda.com.au/newsandresources/news/economy/ceda-economic-and-policy-outlook-2024>

<sup>2</sup> See CDPs paper on purpose-driven policy responses: <https://cpd.org.au/work/setting-direction-a-purposeful-approach-to-modern-industry-policy/#:~:text=Modern%20industry%20policy%20is%20a%20purpose%2Ddriven%20approach%20where%20governments,complex%20challenges%20demand%20complex%20responses.>

<sup>3</sup> <https://www.pm.gov.au/media/future-made-australia>

## Outcomes must drive an investor-grade Sector Plan

Investors are concerned that the world is not on track to meet the goals of the Paris Agreement, noting that the first Global Stocktake revealed a significant dearth of action across mitigation and adaptation. IGCC welcomes the Government support for the phase out of fossil fuels in energy systems by 2050 and an acceleration of clean energy deployment to replace them as part of the Global Stocktake undertaken at COP28.<sup>4</sup> Whole-of-economy and systems-wide policies are now required for Australia achieve this outcome.

A least cost, whole-of-economy transition requires long-term policy clarity for investors, as they have a responsibility to generate returns for their shareholders and beneficiaries over multiple decades. Policy clarity, backed by clear demand signals and by public-private financing strategies, can de-risk new technologies and markets for investors, so that they can invest at the pace and scale required to meet Government decarbonisation targets. Investors rely on Governments to set phaseout dates for fossil fuels and policies to drive clean energy replacements, so that they have clarity around where to allocate funds. An uncoordinated transition will increase economic costs and lead to ongoing capital flight to markets with well-planned transition policy in place.

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<sup>4</sup> <https://minister.dcceew.gov.au/bowen/speeches/cop28-umbrella-group-closing-statement>

## Principles to guide sector decarbonisation plans

IGCC developed a piece of research that detailed a set of eight principles that can guide the development of the Sector Plans, to ensure that they are investible.<sup>5</sup>

1. *Limiting temperature rise to 1.5 degrees.*

- a. Acute and chronic climate hazards will impact the value of investments and endanger financial system security, risking the retirement savings of millions of Australians. **Sectors must be allocated the decarbonisation task in line with 1.5-degrees of warming, with Electricity and Energy Sector being the priority vehicle to reduce emissions across the economy.**

2. *Credibility – which will involve:*

- a. Broad consultation with investors on potential sources of capital and return expectations for financing decarbonisation activities
- b. Whole-of-economy policy and support for sub-sectors, regions and priority technologies;
- c. Policy objectives for which solutions are designed – the EESP must identify what a net-zero electricity system and energy industries look like for Australia, and work backwards from there;
- d. Identifying how roadblocks in electricity system decarbonisation impact other sectors
- e. Transparency on all assumptions made in the EESP, and the inclusion of projected outputs across sectors and time;
- f. Assessments of physical climate related impacts, including on new and established energy infrastructure/industry.

3. *Comparability to commonly accepted international transition pathways.*

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<sup>5</sup> <https://igcc.org.au/investable-sector-climate-plans-are-crucial-to-clean-energy-competitiveness/>

- a. Transition planning is becoming a crucial aspect of investment decision-making.
  - b. Institutional investors operate across jurisdictions and will require comparable plans to make investment decisions; clear and stable plans will make it easier for investors to identify good opportunities to invest Australia's transition.
4. *A focus on emission reduction within each sector, and limited reliance on offsets.*
- a. **A near zero-emissions energy system is possible and preferable to reduce embodied emissions in other sectors. Offsets should only be used to address any residual emissions. Policy support should not be given to carbon capture and storage in the electricity sector.<sup>6</sup> Policy support for this technology should be limited to hard to abate sectors and for geological storage to draw down atmospheric CO<sub>2</sub>.**
5. *Comprehensiveness and granularity expressed in terms of both absolute emissions reductions and relevant production/activity intensity reductions, at the sub-sector and activity level.*
6. *Active identification and presentation of options to co-deliver capital with the private sector towards R&D, social capital and just transition, across the spectrum of energy use cases.*
- a. Options to co-deliver capital must be realistic, demonstrating an understanding of expected returns on investment.

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<sup>6</sup> <https://igcc.org.au/wp-content/uploads/2022/03/IGCC-corporate-transition-plan-investor-expectations.pdf>

- b. In general, public funds should be used to de-risk and crowd in private investment into pre-commercial technologies and industries that face significant barriers to commercialisation as a result of historic policy instability. Different supporting policies will be needed at all levels of the capital stack to get technologies from the R&D to deployment scale required to attract institutional investment.<sup>7</sup>
7. *Five-yearly updates to reflect changes in technology costs, new scientific findings, international developments, and the impacts of domestic policies.*
- a. Renewable energy technologies have consistently and significantly declined in cost while increasing in efficiency.
  - b. Sector Plans must be dynamic but maintain the same or stronger long-term objectives (e.g. no backsliding).
  - c. Part of being dynamic will require a consideration of how each sector and sub-sector interacts with each other.
8. *Identification of pathway sensitivities to changes in core assumptions, as well as identification of key areas of uncertainty; e.g. how and to what extent Australia will become a renewable energy export superpower.*
- a. Australia securing its place as a renewable energy superpower depends on the decarbonisation needs of key trade partners and potential new partners.
  - b. If Government wants to achieve specific industrialisation aims, feasibility studies and policy clarity must be presented to investors before they can allocate capital confidently.

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<sup>7</sup> <https://igcc.org.au/wp-content/uploads/2023/04/Full-Report-IGCC-Funding-an-Australian-Climate-Tech-Boom.pdf>

## Extended response to Discussion Paper questions

Question	IGCC response
<p><i>1. What actions are needed to attract the required large scale private capital and household investment in the energy transformation, with or without government intervention?</i></p>	<p><b>1.5 degree alignment in post-2030 policy settings</b></p> <p><b>1. IGCC strongly recommends that all policies in the EESP have measurable outcomes for industry, accompanied by incremental targets to net-zero, to be revisited every five years and allotted by sector and major sub-sectors.</b></p> <p>Foundational policy that steers electricity system development must be aligned with 1.5 degrees of warming and extend beyond 2030 for investors to view Australia’s decarbonisation goals as credible. Institutional investors work to ensure that their beneficiaries can have a comfortable financial future – with many retiring around 2050 or even later. The issue is coordination; investors need to see future demand for and revenue from a project or company before committing capital. Government working to the timeframe of 2030 does not provide enough clarity to shift huge amounts of capital towards the decarbonisation task.</p> <p>Preventing warming from exceeding 1.5 degrees will require that the decarbonisation task is divided by sector and sub sector, with targets to set the direction and pace of travel. Policies under the EESP must have measurable outcomes, so that investors are clearly able to identify future market conditions. This will clarify the Government’s positions on how rapidly industry is expected to decarbonise, how long new industries will take to establish, and which emergent technologies it considers to be critical.</p>



**2. IGCC recommends that the EESP supports the growth in sectors where Australia has comparative advantage and secure critical supply chains in an increasing disruptive global environment, such as advanced manufacturing of generation and storage technologies, refining and processing critical minerals, renewable hydrogen and green metals like green iron and aluminium.**

Achieving a decarbonised electricity system necessitates coordinated and massively scaled investment, with public funds being strategically allocated to facilitate private sector capital delivering the bulk of that required (to the scale of some \$421 billion<sup>8</sup>). The EESP is an opportunity to shape globally competitive, proportional and smartly targeted national economic policy that will help avoid further capital flight<sup>9</sup>. An ambitious, fit-for-purpose Australian response in the 2024-2025 budget can unlock long-term economic opportunities while helping meet domestic emissions targets, deliver domestic energy security and kickstart the development of new export sectors where Australia has comparative advantage.

The market's sentiment towards Australian climate policy has improved significant in recent years.<sup>10</sup> However, under current policy settings, investment cannot move quickly enough to achieve Government's stated objectives in the EESP.

Fostering clean industry

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<sup>8</sup> [https://ceig.org.au/wp-content/uploads/2022/07/CEIG-x-Baringa-Report\\_2023-Final.pdf](https://ceig.org.au/wp-content/uploads/2022/07/CEIG-x-Baringa-Report_2023-Final.pdf)

<sup>9</sup> IGCC members have expressed concerns over capital flight from Australia, noting their own move to investing internationally. See [https://www.ifminvestors.com/siteassets/shared-media/news--insights-pdfs/infra-outlook-2024/infra\\_outlook\\_ira\\_final.pdf](https://www.ifminvestors.com/siteassets/shared-media/news--insights-pdfs/infra-outlook-2024/infra_outlook_ira_final.pdf)

<sup>10</sup> <https://igcc.org.au/igcc-membership-increased-to-represent-over-35-trillion-in-global-aum-in-2023-supporting-strong-progress-on-investor-climate-action/>

**3. IGCC recommends that the EESP includes push mechanisms – supporting early-stage development, deployment and commercialisation is more than just pureplay R&D funding.**

*Push mechanisms include:*

- Climate-related targets
- Setting priorities by sector and sub sector – e.g. a 2035 renewable energy target, addressing transmission bottle necks and social licence for new infrastructure
- Loans and grants for projects and start-ups, public equity or government backed VC
- Large-scale demonstration projects
- Public-private partnerships
- Funding workforce development and education – e.g. tying apprenticeships to PPAs, improving on-site conditions for renewables projects
- Funding research facilities
- Corporate R&D tax incentives
- Public financing mechanisms to mobilise private capital – e.g. bridging the capital gap between ARENA and the CEFC (which operates closer to commercialisation).

**4. IGCC recommends that the EESP includes pull mechanisms – creating demand beyond pricing carbon.**

*Push mechanisms include:*

- Targets and standards including sustainable investment schemes and taxonomies

- Targeted subsidies and direct public funding that leverage private investment<sup>11</sup>
- Product standards that ratchet in ambition – e.g. vehicle and energy efficiency standards, zero-emissions product certifications
- Public private partnerships in enabling infrastructure for nascent technologies
- Regulatory requirements to support low-carbon businesses
- Sustainable public procurement
- Stable, durable and consistent policies

**5. IGCC recommends that the EESP includes policies to shape enabling conditions – knowledge sharing and social buy-in is critical to a successful transition.**

Enabling conditions include:

- A well-functioning patenting and publication system
- Knowledge-sharing networks where breakthroughs in one technology improve the research development of other technologies
- Genuine community consultation to ensure the benefits of transition to secure social buy-in<sup>12</sup>

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<sup>11</sup> Some investors see production tax credits as the most direct pull mechanism. See: [https://www.ifminvestors.com/siteassets/shared-media/news--insights-pdfs/233011\\_super-powering-the-energy-transition\\_a-policy-blueprint-to-facilitate-superannuation-investment\\_final.pdf](https://www.ifminvestors.com/siteassets/shared-media/news--insights-pdfs/233011_super-powering-the-energy-transition_a-policy-blueprint-to-facilitate-superannuation-investment_final.pdf)

<sup>12</sup> Recommendations are from IGCCs report on supporting a clean industrial revolution: <https://igcc.org.au/wp-content/uploads/2023/04/Full-Report-IGCC-Funding-an-Australian-Climate-Tech-Boom.pdf>

Investors have been seeking access to investment opportunities that position them with exposure to growth trends in clean emerging markets, however there are very few ASX-listed firms present pureplay exposures to climate solutions or opportunities.<sup>13</sup> Fiduciary duties (and, in the case of superannuation funds, legislation) prevent most institutional investors from accepting below-market capital returns, which means that to invest in emergent technologies, investors must see them as delivering long-term returns. New assets and companies have often found it challenging to find equity and debt financing as they move from R&D through the start-up or pilot phase, making it unlikely that these entities will successfully grow into larger scale commercial enterprises. Targeted policies that address all parts of the capital stack are critical for investors to access new opportunities, thereby diversifying and decarbonising their Australian portfolios.

### Clusters for innovation

**6. IGCC supports the National Net Zero Economy Authority acting as a front door for investment to aggregate within REIPs and surrounding communities.**

Creating the business case for investing in the transition will be made easier if Government creates regions of innovative, decarbonised industry. Clustering industry around renewable energy hubs and industrial zones will assist companies in replacing expensive shared fossil fuel infrastructure. Other benefits include:

- Economies of scale increase productivity and innovation in localised supply chains

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<sup>13</sup> <https://igcc.org.au/wp-content/uploads/2023/04/Full-Report-IGCC-Funding-an-Australian-Climate-Tech-Boom.pdf>

- Reduced costs of transporting goods
- Fast-tracked approvals and circumvention of social license issues
- Increases innovation, leading to the creation of new technologies to invest in and export
- Attract new workforces to communities, keeping the regions thriving – an important factor for social buy-in

It is critical that Governments also include policy that supports social and community infrastructure, to deliver a good transition that fosters vibrant communities and workforces. The energy transition is not just about clean energy, it is also about investment in education, health, childcare and other critical components of local economies.

Beyond Zero Emissions has produced substantial research on the establishment of Renewable Energy Industrial Precincts (REIPs)<sup>14</sup> and on supply chains – batteries<sup>15</sup>, solar<sup>16</sup> and wind (forthcoming). The Australian Industry Energy Transitions Initiative (AIETI), organised by Climateworks Centre, also provides research on decarbonising industry.<sup>17</sup>

**7. IGCC recommends that Government explore market and regulatory changes to support proliferation of VPPs.**

**8. IGCC recommends that regulatory frameworks be reviewed to support the expansion of batteries located in local distribution networks.**

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<sup>14</sup> <https://www.bze.org.au/impact/reips>

<sup>15</sup> <https://www.bze.org.au/research/report/battery-supply-chains>

<sup>16</sup> <https://www.bze.org.au/research/report/solar-supply-chains-briefing-paper>

<sup>17</sup> <https://www.climateworkscentre.org/project/australian-industry-energy-transitions-initiative/>

## Leveraging Consumer Energy Resources

Institutional investors invest across the entire Australian economy and have an interest in rapid electrification of the electricity sector to deliver a least cost economic transition, and reduce emissions and costs of fossil fuels for their investee companies. The Government should consider ways outside of utility-scale renewable energy to bring more clean energy online. Integrating Consumer Energy Resources (CERs) into the electricity system are one such avenue. They also represent a significant business opportunity; the CEFC estimates that if rooftop solar was expanded to cover all available roof space, 179GW with an annual energy output of 245TWh could be added to the grids.<sup>18</sup> Yet there are challenges with integrating CERs.

Rooftop solar is putting increased strain on the grid as it exacerbates fluctuations in aggregate supply. However, it can be coordinated via Virtual Power Plants with community-scale batteries to store energy when it is abundant and supply into the grid at periods of peak demand. Market and regulatory reforms will be essential in supporting an electricity system that has a high penetration of CERs.

## Predicting shifts in supply and demand for Consumer Energy Resources

- 9. IGCC recommends that the Government consider IGCCs recommendations to the Expanded CIS consultation within the EESP.<sup>19</sup>**

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<sup>18</sup> <https://www.cefc.com.au/insights/market-reports/how-much-rooftop-solar-can-be-installed-in-australia/>

<sup>19</sup> <https://igcc.org.au/wp-content/uploads/2024/03/CIS-Expansion-submission-8.pdf>

	<p><b>10. IGCC recommends that Government includes a clear plan for adapting consumer behaviour to become more energy efficient within the EESP.</b></p> <p>For assets that rely on stable earnings, have a long economic life (15+ years) and/or have long development timelines (10+ years) and limited capital turnover, this uncertainty may be a significant barrier to investing. These assets will require continuity in policy, or a form of guaranteed return, or some form of compensation, if changes in policy adversely impact <sup>20[OBJ]</sup>. Capacity Investment Scheme (CIS) pricing mechanisms increase stability on returns, but wholesale renewable energy prices and their interaction with CIS Agreements are still unclear.</p>
<p><i>2. What actions are required to ensure Australia's energy systems can enable increased electrification, while maintaining equity, reliability and security?</i></p>	<p>Targets set the pace and direction of change</p> <p><b>11. IGCC recommends that when the Government sets a new NDC for 2035, that a renewable energy target also be set for 2035, to which an extended (or adjacent) CIS can be aligned.</b></p> <p><b>12. IGCC recommends that the EESP include definitive fossil-fuel generator closure dates to provide certainty on how much long duration storage will be required, and by when.</b></p> <p>The target of 82% renewable energy for the electricity market by 2030 sets the policy direction and scale of change that must occur in the next five years. The CIS is one major policy announcement that seeks to deliver this target and demonstrates the</p>

<sup>20</sup> This support should only be for renewable energy generators, with policy certainty for fossil fuel generators emerging from clear closure dates.

transformative value that clear policy settings have on investment in an industry. Extending the decarbonisation task to net-zero will be critical to bring the sector into alignment with a 1.5 degree pathway and will curate the market signals that indicate to investors where to allocate capital.

IGCC noted in its submission to the expanded CIS consultation that extending its end date beyond 2030 would enable assets with longer lead-times and different system security benefits to be awarded CIS Agreements. Inaccessibility to the CIS may act as an additional barrier to bringing long-duration batteries and offshore wind to market. Investors are interested in diversified opportunities in the energy sector and recognise the role they play in delivering system security; which the entire economy relies upon.

**13. IGCC recommends that the Government engage with port owners to ready infrastructure for offshore wind development, to be coordinated through the Net Zero Economy Authority.**

Offshore wind also faces infrastructure challenges; existing ports need to be upgraded to support the transport and logistics required to facilitate the construction of offshore wind farms. The Net Zero Economy Authority should coordinate this, so that investors and companies have one front-door to communicate and develop operational plans.

**14. IGCC recommends that the Government introduces the REGO Scheme as soon as practical.**

The proposed Renewable Guarantee of Origin (REGO) Scheme represents a unique opportunity to create a sophisticated, modern renewable energy accounting process which can keep Australia abreast with international developments, establishing Australia as a



renewable energy superpower. Products like renewable energy certificates help to increase supply by creating a market for demand, making them a useful tool to de-risk new investments. More granular renewable energy certificates can help consumers concentrate their energy consumption at times when renewables are abundant, incentivising entry of the technologies required to provide clean energy 24/7. IGCC submitted a response to the REGO Scheme consultation last year with recommendations.<sup>21</sup>

### Reforming Planning Authorities

**15. IGCC encourages the Government to consider how regulators or planning authorities can assess new and old energy infrastructure for climate resilience.**

**16. IGCC recommends that planning authorities be better resourced and processes streamlined to accelerate approvals while undergoing deeper consultation with local communities.**

The Clean Energy Investor Group found that In Victoria, planning permit applications for energy generation facilities took an average of 376 days in the 2023 financial year (334 days average so far in 2024). In Queensland, seven wind farms took an average of 190 days for planning approval in 2019- 2021.<sup>22</sup> Lengthy planning approvals processes are a significant issue for investors seeking to reach financial close on projects.

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<sup>21</sup> <https://igcc.org.au/regosubmission23/>

<sup>22</sup> *Delivering Major Clean Energy Projects in Victoria and Queensland: Review of VIC and QLD Statutory Planning Approvals Processes (2024).*

Increased agency staffing and resourcing should be a priority – particularly to improve engagement with First Nations communities, and to assess physical climate risk surveys of proposed energy infrastructure. Regulatory bodies must ensure that critical infrastructure is not built in climate hazard prone areas, considering climate scenarios models that project severe physical risk beyond 2050 when making these decisions.<sup>23</sup> Assessing projects for physical risks should be undertaken in a way that does not unduly delay reaching financial close.

Transmission needs a special focus

**17. IGCC is supportive of a bold transmission development process, with a “build it and they will come” funding approach.**

Transmission development is still a significant concern for investors despite the Government’s Rewiring the Nation program. The NEM needs an additional 26,000km of transmission lines<sup>24</sup> by mid-century; however, projects have been delayed by lengthy planning and approval processes, community opposition, supply chain constraints and rising costs for components.

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<sup>23</sup> [https://assets.infrastructurevictoria.com.au/assets/Weathering-the-storm\\_adapting-Victorias-infrastructure-to-climate-change.pdf](https://assets.infrastructurevictoria.com.au/assets/Weathering-the-storm_adapting-Victorias-infrastructure-to-climate-change.pdf)

<sup>24</sup> Green Exports Scenario under the ISP.

**18. IGCC recommends that distribution network providers, with the right performance, safety and workforce record, be allowed to deliver greenfield transmission projects.**

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. Distribution Network Providers have the means to deliver new transmission projects but are currently prevented from doing so.

**19. IGCC recommends that the Government provide concessional finance or availability payments for new transmission projects, which will improve affordability for consumers.**

**20. IGCC recommends that the EESP includes a national transmission infrastructure plan to coordinate projects, engage communities and landowners, and bolster workforce; coordinated via the National Net Zero Economy Authority.**

Policy solutions could include concessional finance administered by the CEFC 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<sup>25</sup>.

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<sup>25</sup> [https://www.ifminvestors.com/siteassets/shared-media/news--insights-pdfs/233011\\_super-powering-the-energy-transition\\_a-policy-blueprint-to-facilitate-superannuation-investment\\_final.pdf](https://www.ifminvestors.com/siteassets/shared-media/news--insights-pdfs/233011_super-powering-the-energy-transition_a-policy-blueprint-to-facilitate-superannuation-investment_final.pdf)

*5. What policy settings and certainty are required to support a fair, equitable and orderly transition for the decarbonisation of both natural gas and liquid fuels?*

## Phaseout dates send strong market signals

**21. IGCC recommends that the Government attach reduction targets for fossil fuel use by sub-sector, to encourage industries with ready solutions to decarbonise first and to provide a business case for investing in renewable fuels.**

Non-grid connected industry will need coordination to decarbonise, particularly in the case where facilities share infrastructure. A coordinated retreat from fossil fuels will provide certainty to suppliers and consumers on costs. Investors will not invest without a clear market for companies to supply to; a fossil fuel reduction timeline will provide a strong business case for investing in renewable fuels like green hydrogen.

**22. IGCC recommends that the EESP includes push, pull and enabling conditions<sup>26</sup> to help ameliorate some of barriers green hydrogen is facing in becoming commercial in Australia.**

In the near-term (i.e., over the 2020s), hydrogen demand will likely come from domestic sources, including chemical production, industrial processes and flexible power generation. Locating green hydrogen production within REIPs would be a good strategy, given that it is more efficiently used where it is produced. Demand for Australian hydrogen production is expected to be predominantly driven by global demand in the medium and long-term, with export demand increasingly dwarfing domestic demand and relying on technology improvements and economies of scale in Australia.

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<sup>26</sup> As mentioned against Question 1 of this submission.

	<p>Investors have noted barriers to the development of a green hydrogen industry, including:</p> <ul style="list-style-type: none"> <li>• Pre-commercial technology and small-scale project risks</li> <li>• Hydrogen investments have long return horizons but high-risk profiles</li> <li>• Difficulties in storing and transporting hydrogen, including the unviability of using existing domestic gas pipelines to transport hydrogen</li> <li>• Costly end-user plant upgrades and retrofits</li> <li>• Slow regulatory and approvals processes<sup>27</sup></li> </ul>
<p><i>6. What actions are required to establish low carbon fuel industries in Australia, including enabling supply and demand, and what are the most prospective</i></p>	<p>Sustainable aviation fuel industries</p> <p><b>23. IGCC recommends that the Government introduce production tax credits for SAF generation coupled with procurement mandates for the aviation sector.</b></p> <p>Emissions reductions via operational efficiencies are limited and alternative propulsion technologies are still in development, meaning that Sustainable Aviation Fuels (SAF) are the primary decarbonisation pathway for aviation in the medium-term. Investors also recognise SAF as being a significant new industry that could provide strong returns. Superannuation investors are significant investors in Australia’s airports, so they have a shared interest in working with stakeholders to reduce the carbon intensity of the aviation industry. By developing domestic refining capabilities, the Government could support a new high value-add bioenergy industry that could deliver over \$10 billion annually in GDP, around 26,000 jobs and improve Australia’s energy security.<sup>28</sup></p>

<sup>27</sup> <https://igcc.org.au/wp-content/uploads/2022/08/Investor-Group-on-Climate-Change-Hydrogen-Report.pdf>

<sup>28</sup> [https://www.ifminvestors.com/siteassets/shared-media/news--insights-pdfs/233011\\_super-powering-the-energy-transition\\_a-policy-blueprint-to-facilitate-superannuation-investment\\_final.pdf](https://www.ifminvestors.com/siteassets/shared-media/news--insights-pdfs/233011_super-powering-the-energy-transition_a-policy-blueprint-to-facilitate-superannuation-investment_final.pdf)

<p><i>production pathways?</i></p>	
<p><i>8. What actions are required to ensure workforce requirements for the energy transformation are met, while supporting equitable outcomes?</i></p>	<p>Good jobs and apprenticeships attract workforce to power the transition</p> <p><b>24. IGCC recommends mandating workforce conditions on all public financing support for installers, to ensure that apprenticeships are being offered and working conditions foster high quality jobs.</b></p> <p>A lack of appropriately sized and skilled workforce is a significant concern to investors seeking opportunities in new clean industries. The energy transition will create thousands of jobs, but without significant, targeted, and coordinated investment by Government in the skills and training sector to develop the workforce, this ambition will not be realised.</p> <p>A recent report by Jobs &amp; Skills Australia estimates Australia will require an additional 32,000 electricians by 2030 growing to a further 85,000 workers by 2050<sup>29</sup>. On current modelling and completion rates into the electrical trades, we need an additional 20,000 apprentices to start each year by 2027 to meet the shortfall in the electrical workforce to deliver on current renewables and emissions reductions targets. It is important to demonstrate to communities that jobs in renewable energy are secure and well-paid, to attract people into the sector.</p>
<p><i>9. What actions are required to ensure</i></p>	<p><b>See sections above relating to household electrification upgrades.</b></p>

<sup>29</sup> <https://arena.gov.au/assets/2023/02/skilling-australian-industry-for-the-energy-transition-accenture-report-for-australian-industry-eti-phase-3.pdf>

<p><i>better energy outcomes for people and businesses, and maximise their benefit from the energy transformation?</i></p>	<p><b>25. IGCC recommends that Government consider efficient ways to package electrification financing options with adaptation upgrades.</b></p>
<p><i>10. What social licence and circular economy aspects should be considered as part of the pathway for the energy transformation?</i></p>	<p><b>Just Transition</b></p> <p><b>26. As per IGCC's <i>Investing in Australia's Vital Regions</i> report (2023)<sup>30</sup> it is recommended that Government;</b></p> <ul style="list-style-type: none"> <li><b>a. Develop investible transition plans for emissions-intensive regions and priority sectors that are co-designed with affected communities and workers.</b></li> <li><b>b. Ensure the national Net Zero Authority acts as a 'front door', with information-sharing and convening functions, to improve coordination within and between levels of government and key stakeholders working to transform priority regions and sectors.</b></li> <li><b>c. Address barriers to the growth of businesses in transitioning regions.</b></li> </ul>

<sup>30</sup> [https://igcc.org.au/wp-content/uploads/2023/10/IGCC-Investing-in-Australias-Vital-Regions\\_Report\\_2023\\_online.pdf](https://igcc.org.au/wp-content/uploads/2023/10/IGCC-Investing-in-Australias-Vital-Regions_Report_2023_online.pdf)

**d. Bring timely and targeted financial support to the market to attract diverse capital in response to identified capital gaps.**

**This support should aim to establish a pipeline of investible opportunities for priority regions and sectors.**

Attracting investment to Australia's transitioning regions is crucial for communities and industries to undergo a successful net-zero transformation.

New recycling industries

**27. IGCC recommends the government deliver targeted policies support the establishment of industries to salvage critical minerals.**

Investors also see opportunities in developing recycling industries for critical minerals and renewable energy technologies like solar panels. Recycling industries can provide cheaper inputs for new build, as mining and refining raw materials is expensive. This will improve costs for all industries using these inputs.