Investor Group on Climate Change

Submission:

Senate Inquiry on Residential Electrification

September 2023

About the Investor Group on Climate Change

The Investor Group on Climate Change (IGCC) is a collaboration of Australian and New Zealand institutional investors focused on the impact of climate change on investments. IGCC represents investors with total funds under management of more than $3 trillion in Australia and New Zealand and $30 trillion around the world.

Institutional investors have a fiduciary duty to millions of Australians to generate long-term returns that can be safely enjoyed in retirement. This can only be achieved by responsibly managing climate related risks and the opportunities presented by the transition to a zero emissions economy.

The Consultation

IGCC supports the Government's scalable residential electrification efforts and welcomes the opportunity to provide feedback to this inquiry for the Senate Economic References Committee. The purpose of this inquiry is to identify barriers and opportunities for large-scale residential electrification. Reduced barriers to entry for investors will allow institutional capital to accelerate the pace of Distributed Renewable Energy solutions.

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Key Points

Residential electrification can unlock demand side opportunities via the aggregation of actively controlled distributed energy resources (DERs). Such scaled orchestrated DER opportunities can reduce long term energy price inflation and create long term social, employment, and health benefits for Australian families.

An optimal timeline for Australian residential electrification is one which allows for market entry of sophisticated, data driven enterprises, capable of aggregating residential DERs and scaling their impact.

IGCC members are beginning to investigate such enterprises, with reduced barriers to entry allowing institutional capital to accelerate the pace of these DER solutions. Government should consider streamlining funding for household resilience, adaptation and electrification upgrades, which would facilitate more scaled opportunities for investors.

Introduction

Decarbonising the electricity sector over the next 10-15 years is central to achieving net-zero emissions for Australia by 2050. During this time, Australian homes will electrify, contributing to the 6GW of additional capacity required annually to 2035 to be in-line with least-cost national emissions pathways to net zero emissions.

It is essential that residential electrification eases the transition of the energy grid, with a strategic, incentivised plan able to reduce energy prices, create jobs and improve health outcomes for Australians.

By reducing energy prices through reducing transmission requirements and providing stability during peak events, residential electrification can assist IGCC Members in meeting their own net zero investment targets and deploying more capital to assist in the decarbonisation of the Australian grid and economy.

The IGCC supports the Government's existing efforts to decarbonise Australian households, most notably through the Clean Energy Finance Corporation's Household Energy Upgrade Fund and encourages more efforts to be made.

The IGCC directs the Committee to consider the following responses to the Inquiry's Terms of Reference:

(a) the economic opportunities of household electrification, including to the long-term reduction of energy price inflation

The IGCC recognises the considerable opportunity to reduce long-term energy price inflation via demand side measures, active amongst electrified Australian residencies.

Most notably, the IGCC encourages the investigation and support of orchestrated distributed energy resources (DERs), capable of aggregating residential energy generation, storage, and consumption to provide grid-firming with opportunities for scaling investment and achieving social good. IGCC has previously suggested that such demand-side measures at the residential and community level be considered for Capacity Investment Scheme tendering.[1]

If electricity demand is reduced during critical periods of limited supply – such as winter weeks with low wind and solar outputs – the necessary spend on electricity supply infrastructure will reduce with it.[2] Residential demand, if aggregated and orchestrated can play a role in this. Sophisticated, technology driven companies can scale electrified residencies to reduce demand during critical moments, and consequentially, reduce the transmission spend required to support the growth of renewable energy in the NEM.

Further, balanced investment in such demand side energy management projects will minimise the total cost to society of providing energy services, reducing bills for all Australians. Demand side responses have the capacity to lower bills, reduce emissions, improve equity and energy security, improve business competitiveness, and accelerate the transition to a net zero economy.[3]

Aggregated residential demand, generation, and storage can create new market opportunities for sophisticated investors searching for low-carbon investment opportunities. Such demand side opportunities can accelerate the uptake of household electrification, with investors able to generate a trifurcate of social good by reducing household energy bills, improving health outcomes, and creating jobs, all whilst contributing to the decarbonisation of the grid and Australia meeting its Paris targets.

One such example of new market opportunities is the award-winning Project Edith, a joint collaboration from Ausgrid and Reposit, showcasing the grid's capacity to facilitate technology and

green energy solutions (like Virtual Power Plants (VPPs)) to participate in energy markets while staying within distribution network capacity limits.[4]

Research conducted into the overall benefit of distributed energy resources in the US, modelled commercially available residential load flexibility technologies against a Gas Peaker and utility scale battery when providing 400MW of Resource Adequacy. Excluding societal co-benefits (including emissions reductions, resilience, and social access to clean and affordable energy), the net cost to the utility of providing resource adequacy from the VPP is only roughly 40% to 60% of the cost of the alternative options.[5]

Lastly, given electrified households will have reduced energy bills, saving an estimated $3000 - $5000 annually,[6] residential electrification will inject the saved household capital back into local communities, stimulating economic growth.

The quicker and easier it is for Australian residencies to electrify, the sooner such solutions can be trialled, refined, and implemented. This will reduce transmission costs, provide new investment opportunities for IGCC members, assisting them meet their own decarbonisation targets, and accelerating Australia's own progress towards its national target.

(b) the macro-barriers to increasing the uptake of home electrification, and; (h) solutions to the economic barriers to electrification for low-income households; and; (i) the effectiveness of existing Australian Federal, state and local government initiatives to promote and provide market incentives for household electrification;

The Resilient Building Council and the IGCC have recognised that mitigation and adaptation efforts cannot be considered separate from one another. Homeowners likewise just want better homes; they do not consider home electrification (a mitigation effort, as well as a resilience effort) to be separate from adaptive upgrades like improvements to thermal efficiency. Streamlining financing support for these upgrades for homeowners at critical junctions may increase their uptake.

The IGCC has consulted property managers who are currently packaging these upgrades using a management software that calculates the rate at which existing systems within the home are set to expire and provides information to the new homeowners during their settlement periods. This has been identified as a critical time for upgrades to occur, as properties are vacant, and occupants are more likely to be considering renovations. This system has been effective at increasing the uptake of a range of electrification and resilience activities.

However, feedback from these property managers is that in some cases co-financing exists, but homeowners and tenants are not aware of it. In other jurisdictions, finance support does not exist,

or exists with significant barriers to uptake – such as stipulations for apartment buildings that are difficult for tenants to qualify. There are solutions for scale available. The Government could consider how banks and insurers could reward resilience, such as through social impact or green bonds. The CEFC may consider rebranding for residential adaptation, to join silos of electrification, resilience and adaptation.

The IGCC recently released its physical risk strategy – Road to Resilience[7] – which considers how acute and chronic climate hazards are damaging assets, and how to secure long-term financial returns for beneficiaries of our investor members. Adaptation to and resilience from physical risk is just as important as decarbonisation, especially for housing stock. Buildings have embodied carbon, and when destroyed (or otherwise made unliveable) due to climate change, they must be replaced – the resources for which carry their own embodied carbon. Packaging household electrification with adaptation upgrades will increase the resilience of homes, helping them to be liveable and healthy for residents over the long-term.

(c) the total upfront cost and longer-term benefits of household electrification and alternative models for funding and implementation;

The IGCC welcomes the Government's contribution to the Clean Energy Finance Corporation's Household Energy Upgrades Fund, with members considering how they might deploy capital alongside the CEFC.

Similar Government expenditure in the US – US$20bn invested into the Greenhouse Gas Reduction Fund (GHGRF) – is aiming to leverage an additional US$250 billion in combined public financing and private co-investment.8 The finance will mobilise hundreds of billions in investment toward net-zero emissions by 2050 as well as advancing environmental justice, a key pillar of the GHGRF.

Through a focus on assisting disadvantaged homes in electrifying (rather than allowing folk in Sydney's east to upgrade their Range Rovers to Teslas), the GHGRF is able to deliver transformational impact to disadvantaged communities, whilst also contributing ~16% of the US's emissions reductions needed over the next ten years on the pathway to their 2050 emissions goals.

Additional Government funding to electrify Australian homes can unlock institutional capital, capable of realising the DER solutions articulated earlier in this submission.

Conclusion

In addition to creating long term social good, jobs, and health benefits for Australian families, residential electrification can unlock DER opportunities capable of providing energy market stability, accelerating Australia's transition to net zero emissions.

Unlocking institutional capital to partner Government funding can accelerate the transition to electric homes, powered by a renewable energy grid delivering a net zero economy.

Resources

1. IGCC Capacity Investment Scheme consultation submission: https://igcc.org.au/wp-content/uploads/2023/08/FINAL-IGCC-CIS-submission.pdf
2. Energy Efficiency Council *"Clean Energy, Clean Demand"* report: https://www.eec.org.au/policy-advocacy/publications/Clean-Energy-Clean-Demand-April-2023
3. Ausgrid *"Project Edith"* report: https://cdn.ausgrid.com.au/-/media/Documents/Reports-and-Research/Project-Edith/Project-Edith-2022.pdf?rev=eecbc81dcb9d4bc39d79362f8365de42
4. Energy Efficiency Council *"Energy Governance and Market Reform"* report: https://www.eec.org.au/policy-advocacy/partnerships/Energy-Governance-and-Market-Reform
5. Brattle *"Real Reliability: The Value of Virtual Power"*: https://www.brattle.com/real-reliability/#:~:text=A%20VPP%20that%20leverages%20residential,adequacy%20at%20a%20similar%20scale.
6. Rewiring Australia *"Castles & Cars: Savings in the suburbs through electrifying everything technical study":* https://global-uploads.webflow.com/612b0b172765f9c62c1c20c9/615a1e5c7bec5c70d6d3f346_Castles%20and%20Cars%20Rewiring%20Australia%20Technical%20Study.pdf
7. McKinsey Sustainability *"Delivering Impact from US Green Bank Financing"*: https://www.mckinsey.com/capabilities/sustainability/our-insights/delivering-impact-from-us-green-bank-financing