



ENGINEERS
AUSTRALIA

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Climate Change and Energy
Environment, Planning and Sustainable Development Directorate
ACT Government
GPO Box 158
Canberra ACT 2601

Subject: Engineers Australia Consultation Response on the ACT Integrated Energy Plan Position Paper

Dear Ms Evans,

I am writing on behalf of Engineers Australia to provide feedback and recommendations on the ACT Integrated Energy Plan Position Paper. We commend the ACT Government's dedication to fostering a sustainable energy future and appreciate the opportunity to contribute to the development of this pivotal Plan. In particular, we are very grateful for your engagement and briefing of our members to inform this response. We applaud this transparent and inclusive process, which allows for meaningful input from our members, helping to ensure that the resulting policies and projects are not only well-informed but also aligned with the needs and aspirations of the engineering profession and the broader community. Engineers Australia looks forward to continued collaboration and partnership with the ACT Government to drive innovation and sustainable solutions for the region's infrastructure and energy challenges.

Engineers Australia is a professional organisation representing engineers and the engineering profession in Australia. We are one of the country's largest and most respected professional associations, serving as a unifying body for engineers across various disciplines. We play a vital role in setting standards, promoting ethical conduct, and supporting the growth and development of engineers throughout Australia, and our mission is to 'Advance society through great engineering'. While our values align to the ACT Government's commitment to the energy transition, our feedback aims to further refine the Plan's efficacy while aligning with essential engineering principles and addressing crucial concerns.

Feedback on key aspects of the ACT Integrated Energy Plan Position Paper:

1. Guiding Principles for Energy Efficiency:

We strongly advocate for the inclusion of a clear guiding principle for energy efficiency within the ACT Integrated Energy Plan. These principles should encompass specific targets and strategies designed to promote energy-efficient technologies and practices across all sectors. Prioritising energy efficiency will significantly contribute to achieving long-term sustainability goals, and will work to not undermine some of the fundamental goals of the transition – to reduce emissions.

2. Equity and Access:

We urge the Plan to improve clarity on how it intends to address equity and access, particularly in the context of the 'consumer-led' approach and the associated constrained timeline. It is imperative to acknowledge that this approach may inadvertently pressure individuals with fewer resources to transition prematurely. To mitigate such disparities, strategies that ensure accessibility and affordability for all communities should be explicitly integrated into the Plan, where possible.

3. Inclusion of Electrical and Mechanical Engineering:

We firmly recommend recognising electrical and mechanical engineering as essential skillsets required for a successful energy transition. These disciplines are instrumental in the design, implementation, and

maintenance of sustainable energy systems. Electrical engineering is essential for the generation, transmission, and distribution of electricity, particularly from renewable sources such as wind, solar, and hydropower. Engineers in this field design efficient electrical grids, develop energy storage solutions, and improve the performance of renewable energy technologies. On the other hand, mechanical engineering is crucial for designing and optimising energy-efficient equipment and systems, including energy-efficient buildings, heating, ventilation, and air conditioning (HVAC) systems, and advanced transportation technologies. These engineers work on innovations like electric vehicles, efficient industrial processes, and the development of clean energy technologies such as wind turbines and solar panels. Together, electrical and mechanical engineers ensure that an energy transition plan is not only feasible but also sustainable, cost-effective, and environmentally friendly, driving the shift towards a cleaner and more resilient energy future. Acknowledging their significance will not only bolster the technical foundations of the Plan, but also aid to addressing skills shortages in these professions in Canberra which could impact the success of the transition.

4. Alignment with ACT Chief Engineer's Engineering Workforce Plan:

To effectively address workforce challenges related to the energy transition, the ACT Integrated Energy Plan should better incorporate and reference the ACT Chief Engineer's Engineering Workforce Plan¹. This alignment will ensure a coordinated and strategic approach to developing the necessary skills for a sustainable future. Further, coordination between the Plans will provide clarity to industry and the community on the skills requirements for the transition, and reinforce the importance of engineering skillsets to deliver this important Plan.

5. Clarity on Data Sources and Modelling:

In order to improve the credibility of the ACT Integrated Energy Plan, it is imperative to demonstrate transparency regarding the sources of data and the methodologies employed in the modelling processes. The success of any energy plan hinges on the accuracy of its projections, which, in turn, rely on the quality and integrity of the data underpinning them. Without clear visibility into data sources, there exists a significant risk of misinterpretation or scepticism regarding the reliability of the plan. It is not merely a matter of providing data, but also ensuring that stakeholders and the public can easily access and comprehend the context and validity of the data used in the plan's formulation. This transparency not only fosters trust among citizens and decision-makers but also facilitates constructive engagement and scrutiny, ultimately leading to a more informed and effective energy transition that can genuinely meet the needs of the ACT community.

6. Success Measures:

Incorporating estimated milestone charts against specified goals within the ACT Integrated Energy Plan would be valuable. This would offer a structured and transparent roadmap for monitoring progress and realising the Plan's objectives. Milestones would serve as critical benchmarks, enabling stakeholders and the public to gauge the effectiveness and efficiency of the Plan's implementation. Moreover, the inclusion of these measures would facilitate accountability and transparency, demonstrating the government's commitment to achieving its sustainability and energy transition goals. By providing a clear and tangible way to track success, the milestone charts would bolster confidence in the Plan's effectiveness and ensure that it remains on course to meet its ambitious targets.

7. End of Life Recycling & Circular Economy:

Incorporating circular economy principles into the Plan for Canberra represents a forward-thinking and sustainable approach to modernising the city's energy infrastructure. The Plan should reference and address the ACT Government's Circular Economy Strategy and Action Plan², given the scale of change and materials affected. By integrating circularity into the electrification process, Canberra can not only

¹ Australian Capital Territory Government, "ACT Government Engineering Workforce Plan," https://www.act.gov.au/data/assets/pdf_file/0018/1624140/ACT-Government-Engineering-Workforce-Plan.pdf (accessed September 2023)

² Climate Change and Sustainability, Australian Capital Territory Government, "ACT Circular Economy Strategy," <https://www.climatechoices.act.gov.au/policy-programs/act-circular-economy-strategy> (accessed September 2023)

transition to cleaner and more efficient electric power sources but also optimise resource use and minimise waste. This program could involve the development of circular supply chains for renewable energy technologies, ensuring that materials used in solar panels, wind turbines, and energy storage systems are recycled and reused whenever possible.

Additionally, it may include incentives for consumers to adopt energy-efficient practices and technologies, thus reducing overall energy consumption. By prioritising circular economy principles in its electrification efforts, Canberra can simultaneously enhance its environmental stewardship, reduce energy costs, and create a more resilient and sustainable energy future for its residents and the broader community.

To inspire and guide similar initiatives within the ACT, we recommend incorporating real-world examples showcasing the efficient and successful delivery of adaptive reuse projects for complex buildings. These case studies can serve as invaluable templates for sustainable redevelopment. We encourage the analysis of international technology and case studies, drawing inspiration from successful energy efficiency retrofitting practices abroad, such as Switzerland's building code standards and the subsequent recommendations such as the focusing on incentivisation of deep retrofits³. These standards have demonstrated their effectiveness in enhancing the energy efficiency of homes and urban environments. Australia can also provide illustrative examples, including the Quay Quarter Tower⁴ in Sydney and Substation No. 164⁵, to highlight local efforts in this regard. By drawing insights from global best practices and showcasing these domestic success stories, we can foster a comprehensive approach to energy-efficient retrofitting that is both informed by international experiences and tailored to Australia's unique needs and challenges.

8. Retention of Existing Gas Infrastructure:

Explore more extensive investigation into retaining existing gas infrastructure to manage future renewable options, such as biomass, while transitioning away from gas entirely. As we navigate the transition towards cleaner and more renewable energy sources, it's essential to consider the versatility of existing gas infrastructure. Rather than hastily dismantling it, we can explore more extensive investigations into repurposing this infrastructure to facilitate the integration of emerging renewable options like biomass. By adapting gas infrastructure to accommodate cleaner fuels and technologies, we can maintain energy reliability while gradually phasing out fossil fuels. This approach not only ensures a smoother transition but also maximises the utility of our existing investments, reducing environmental impact and contributing to a more resilient and diversified energy landscape. Retaining and repurposing gas infrastructure serves as a valuable bridge towards a sustainable energy future, allowing us to harness the benefits of renewables without compromising energy security.

9. Stakeholder Engagement and Governance:

The emphasis on stakeholder engagement and governance within the ACT Integrated Energy Plan is pivotal in transforming the region's energy landscape successfully. Involving key stakeholders such as TCCS, Icon Water, and relevant energy authorities is essential in ensuring that the Plan aligns with the broader objectives and can be effectively implemented. Collaboration between these entities is particularly promising, as it not only fosters inter-agency cooperation but also leverages their respective expertise. For instance, the collaboration with Icon Water, which has plans to upgrade biosolid facilities for electricity generation⁶, holds great potential for resource optimisation and the integration of renewable energy sources. By uniting various agencies and stakeholders in a coordinated effort, the Plan

³ Dianne Hondeborg, Benedict Probst, Ivalin Petkov, Christof Knoeri, The effectiveness of building retrofits under a subsidy scheme: Empirical evidence from Switzerland, Energy Policy, Volume 180, 2023, 113680, ISSN 0301-4215, <https://doi.org/10.1016/j.enpol.2023.113680>. (<https://www.sciencedirect.com/science/article/pii/S0301421523002653>)

⁴ Green Building Council Australia, "Quay Quarter Tower," <https://new.gbca.org.au/case-studies/building/quay-quarter-tower> (accessed September 2023)

⁵ Green Building Council Australia, "Substation No. 164," <https://new.gbca.org.au/case-studies/building/substation-no-164> (accessed September 2023)

⁶ Icon Water, "Our Wastewater Treatment Process," <https://www.iconwater.com.au/Water-education/Our-projects/our-wastewater-treatment-process.aspx> (accessed September 2023)

can harness diverse perspectives and resources, ultimately driving the region closer to its sustainable energy goals while bolstering governance structures to facilitate its realisation.

10. Government's Role as a Leader and Role Model:

We endorse the concept of the ACT Government taking a leadership role and setting an example in the ongoing energy transition. The ACT Government should align its actions with the principles advocated by ASBEC in their response to the ACT Integrated Energy Plan Position Paper. By accelerating its commitments to a sustainable energy future with a focus on achieving key targets by an earlier 2030 deadline, the government can “walk the talk” by demonstrating a resolute dedication to achieving net zero emissions. The commitment to decarbonise government assets and services would set a commendable standard for others to emulate. This proactive approach not only reduces the government's carbon footprint but also paves the way for industry, communities, and individuals to follow suit, collectively advancing the goals of sustainability and electrification. In leading by example, the ACT Government showcases the transformative power of determined climate action and inspires others to join in the effort towards a greener, more sustainable future.

11. Leveraging Opportunities for National Leadership:

It is imperative for the ACT Government to seize the opportunity and emerge as a national leader in the realm of sustainable energy. Collaboration with the likes of some of Canberra's esteemed educational institutions like ANU, UC, and CIT, offers a unique avenue to cultivate educational programs and establish a centre of excellence. Such an initiative has the potential to position Canberra as a pivotal hub for innovation and knowledge exchange in the sustainable energy sector. Notable local examples of innovation in the renewable energy space include the ANU Battery Storage Grid Integration Program⁷ and Uniflow Power's innovative generator, 'The Cobber'⁸. By fostering partnerships between government agencies, industry and academic institutions, the ACT can drive research, development, and practical implementation of cutting-edge sustainable energy technologies, effectively spearheading national progress towards a more sustainable and resilient energy future. This not only benefits the local community but also bolsters the nation's capabilities and leadership in the global transition to clean and renewable energy sources.

Engineers Australia is committed to collaborating closely with the ACT Government to ensure a sustainable and resilient energy future for the region. By addressing these feedback points and recommendations, the ACT Integrated Energy Plan can become a model for other regions in Australia and a beacon of progress in the global fight against climate change.

Thank you for considering our input. We eagerly anticipate continued collaboration and constructive dialogue on this vital initiative.

Sincerely,



Caitlin Buttress

General Manager, ACT
Engineers Australia

⁷ Australian National University, "Battery Storage and Grid Integration Program," <https://eng.anu.edu.au/research/groups/battery-storage-grid-integration-program> (accessed September 2023)

⁸ UniFlow Power, "Official Website," <https://www.uniflowpower.com/> (accessed September 2023)