


 ATSE

Senate Standing Committees on Environment and Communications  
 PO Box 6100  
 Parliament House  
 Canberra ACT 2600

15 April 2024

Dear Senate Environment and Communications References Committee,

The Australian Academy of Technological Sciences and Engineering (ATSE) is a Learned Academy of independent, non-political experts helping Australians understand and use technology to solve complex problems. Bringing together 900 of Australia's leading thinkers in applied science, technology and engineering, ATSE provides impartial, practical and evidence-based advice on achieving sustainable solutions and advancing prosperity.

ATSE thanks the Senate Environment and Communications References Committee for the opportunity to respond to the inquiry on waste reduction and recycling policies. The Recycling and Waste Reduction Act 2020 (the Act) represents a significant step towards a more sustainable waste management system. The Act has brought Australia into compliance with its international obligations regarding waste management and incentivises investment in domestic reprocessing facilities, creating jobs and a more robust circular economy. However, despite the efforts made, the latest data shows it is unlikely that recycling and waste reduction targets such as the 2025 National Packaging Targets (included in the 2021 National Plastics Plan) will be met<sup>1</sup>.

We recommend that the committee leverages the valuable insights and recommendations outlined in ATSE's report, [Towards a Waste-Free Future<sup>2</sup>](#). This report explores Australia's potential to transition towards a circular economy, a system designed to eliminate waste and promote the continuous reuse of resources. It identifies key interventions across policy, workforce development, regulations, and infrastructure, to achieve this ambitious goal. The report, attached to the letter, identified the following technology-supported solutions to positively disrupt the waste and resource recovery sector in Australia, and support the transition toward a circular economy:

- The role of design in creating products for the circular economy
- Improved product stewardship requirements
- Using advanced technologies to improve the efficiency of resource recovery and recycling of products

In formulating this work, ATSE conducted significant research and widespread consultations with stakeholders across Australia's waste and resource recovery sector. The report was guided by an expert working group of esteemed ATSE Fellows and industry and research experts, who worked through the consultations to rate technology readiness for each of the above areas. Based on our findings, ATSE had the following key recommendations for focused, immediate, agenda-setting actions for government, industry and the research sector to employ technology to create a thriving and sustainable Australian circular economy:

- **Recommendation 1:** A paradigm shift in design principles to avoid waste altogether – designing a product to be reusable, to facilitate repair, upgrade, parts replacement, and trade-in for remanufacture.
- **Recommendation 2:** A systems approach that acknowledges all stakeholders in a product lifecycle have a role to play, facilitating greater resource productivity and creating demand for recovered materials.
- **Recommendation 3:** Government and industry to leverage technology to improve information quality, quantity, timeliness and transparency. Big data and analytics inform decision-making by policymakers, businesses and consumers
- **Recommendation 4:** A long-term policy and regulatory framework and targeted government investment that will provide clear signals and create investment certainty.

Continued efforts to utilise existing and emerging technological solutions will be essential in establishing a robust waste reduction and recycling ecosystem in Australia, and building on the progress made under the Recycling and Waste Reduction Act (2020). The government has taken steps to boost recycling, such as the Recycling Modernisation Fund, which provides research investment for innovative solutions, and national guidelines on the use of recycled materials in construction. However, targeted action is needed, for example expanding product stewardship schemes (which is already underway with the national framework for recycled content traceability), promoting responsible consumer behaviour, and improving national waste data collection and analysis for informed policy decisions. By prioritising these areas, the government can enhance sustainability in waste management, contributing to environmental preservation and resource conservation.

We encourage the committee to carefully consider the above recommendations from our report. ATSE is committed to engaging with the committee and actively contributing to solutions that would help achieve Australia's waste reduction and recycling goals.

For further information, please contact [academypolicyteam@atse.org.au](mailto:academypolicyteam@atse.org.au).

Yours Sincerely,

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Dr. Katherine Woodthorpe FTSE  
President, Australian Academy of Technological  
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#### References:

- 1 APCO. Australia's 2025 National Packaging Targets. <https://apco.org.au/national-packaging-targets> (accessed 5 Apr2024).
- 2 ATSE. Towards a Waste-Free Future. 2020<https://www.atse.org.au/research-and-policy/policy-priorities/helping-australia-get-technology-ready/waste-and-resource-recovery-report/#:~:text=In%202020%2C%20the%20Australian%20Academy,the%20continual%20use%20of%20resources>. (accessed 21 Oct2022).