Initial submission: Opportunities in the circular economy

To:	➢	Australian Government Productivity Commission
From:	➢	Logan City Council
Date	➢	1 November 2024
Subject:	➢	**AUSTRALIA'S TRANSITION TO A CIRCULAR ECONOMY**

Background

The City of Logan aims to transition towards a zero-waste circular economy, where waste is avoided, reused, and recycled to the greatest extent possible. This is reflected in our *Waste Management and Resource Recovery Strategy 2022 – 2032*[1], and the *Economic Development Strategy 2022-2027*[2], which both identify opportunities for circular economy development. The steps we have taken so far, include support for local businesses, development of the innovative gasification facility, the first of its kind in Australia, and identification of potential opportunities for use of recycled water from wastewater treatment plants. This initial submission captures our efforts so far and the barriers and opportunities we have identified within the circular economy.

Our efforts so far

Support for local business: To support the emerging circular economy industry, Council maintains a register of businesses in Logan that offer sustainable solutions for waste, for example textile recycling, battery recycling, solar panel recycling and tyre recycling. Other existing resources for businesses include the ecoBiz program, offered free to Queensland businesses by the Business Chamber Queensland. This program allows businesses to access an advisor who can analyse their waste, energy, and water consumption, and identify efficiencies or cost-savings.

Additionally, in 2020, Council invested in the ASPIRE platform (the platform) to encourage local businesses to adopt circular economy and low-carbon practices. The platform required an investment of $10,000 per year and allowed Logan businesses to buy, sell and trade any waste or unwanted items at no cost. Over the last two years, Council invested more than $18,000 in extra resource to promote the platform locally and generate more trades. However, it did not perform as anticipated, with business uptake significantly lower than expected. Unfortunately, Council could no longer justify the budget required to maintain this additional resource and consequently funding has ceased.

The Logan Office of Economic Development (LOED), in partnership with the Department of Regional Development and the Department of State Development, have offered many local sustainability themed workshops, with limited uptake. Despite the availability of numerous resources to support businesses, they remain under-utilised – this lack of engagement with available resources is thought to be an issue of constrained capacity.

[1] https://www.logan.qld.gov.au/waste-reduction-and-recycling-plan-2017-2021
[2] https://www.logan.qld.gov.au/economic-development-strategy-3

Energy from waste: Council's biosolids gasification facility[3] is the first of its kind in Australia. It supports the circular economy by transforming biosolids from the Loganholme wastewater treatment plant into an environmentally friendly product called biochar[4], and by recycling renewable heat energy through biogas production.

Biosolids are a by-product of the wastewater treatment process. They are dewatered by centrifuges and then transferred to thermal belt driers where they are dried to 90% dryness. The dried biosolids are then gasified at a high temperature, producing biochar and biogas. Biochar has a wide range of potential uses, including use as a soil conditioner, and in construction applications. However, the End of Waste Code for Biochar is currently under development, and until this has been finalised, stringent regulations will continue to limit market opportunities. Logan City Council are currently increasing the processing capacity of the gasification facility through an additional centrifuge and dryer. While the full extent of benefits of this project are yet to be realised, the project has demonstrated the following benefits:

- Resource efficiency, through the reduced cost in disposal of biosolids, saving approximately $5,000,000 in annual haulage costs for Council
- Reduced environmental impact, through the reduction in contaminants of concern, such as PFAS, and micro-plastics
- Reduced carbon footprint, with a reduction in carbon emissions by approximately 4,800 tonnes of CO_2 annually
- Energy efficiency, through a heat energy neutral design
- Repurposing biosolids into a beneficial product, through the generation of biochar

Recycled water: Council has identified opportunities for recycled water use. Recycled water has several potential uses, including industrial applications, landscape irrigation, environmental restoration, as well as agricultural and residential use.

Recycled water could account for 50-70% of residential water use in the future. However, several barriers need to be addressed to make this a reality. Firstly, the cost of treating and delivering recycled water to customers is much higher than the current water supply arrangements, partly due to the high energy costs associated with pumping and treating this water. This may require a reusable power supply to offset these costs. In addition, customers are currently unwilling to use recycled water unless it is much cheaper than the current water supply costs. Public health considerations also mean that regulator impose high standards on the use of recycled water.

If these barriers are addressed—such as through investment in more efficient water treatment technologies, scaling up recycled water projects to lower per-unit costs, and increasing public acceptance—recycled water could become a viable solution in the future. Council is particularly focused on developing options for agricultural recycled water use and is a member of a South Each Queensland (SEQ) stakeholder advisory group. This group focuses on evaluating SEQ water management and resources with an emphasis on agricultural needs. The group has identified two options for recycled water use, namely:

- Supplemented recycled water supply for agriculture via the Western Corridor

[3] https://arena.gov.au/projects/logan-city-biosolids-gasification-project/
[4] https://www.landcaretas.org.au/what_is_biochar

- Increasing decentralised recycled water usage throughout SEQ

However, as for residential water usage, these are high-cost options, and require high water quality for use on watered crops and livestock. Furthermore, feasibility of using recycled water for agricultural purposes is contingent on the level of rainfall and the ability to finalise contracts with local farms, given the uncertainty in the demand and water classification. Any recycled water project will involve intricate planning and design, technical assessments, and stakeholder engagement.

Identified Barriers

Lack of clear policy: Waste, recycling and resource recovery policies are determined by respective State and Territory jurisdictions. Consequently, there is no consistent approach to landfill bans, plastics, recovered asbestos, recycled product quality, and other areas of the circular economy making compliance challenging for businesses. The current emphasis is on 'end of the supply chain' (collection, sorting and processing) with insufficient policy or regulatory action addressing the initial design, manufacturing, and consumption of products. A more holistic, end-to-end analysis is needed to develop meaningful and effective changes guided by a nationwide policy framework.

Lack of business capability: Local businesses are facing significant resource challenges and are unable to find the staff required to maintain operations. As a result, their focus is on core business activities, with less attention given to longer term initiatives. Consequently, the adopting of circular economy approaches has been limited. The introduction of mandatory climate reporting for large and medium sized business will come into effect in January 2025, through the *Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Act 2024*. This may prompt a shift in priorities. Council continues to recognise the importance of supporting businesses on their low-carbon and sustainability journey through our own programs and policy settings.

Lack of procurement mechanisms: Currently, there is no government procurement mechanism to create demand for low-carbon or sustainable products and services. In future, businesses will need to demonstrate their low-carbon strategies and achievements when bidding for government and major contracts.

Identified Opportunities

Redefined framework and metrics: The waste and resource recovery sectors are complex and interconnected. Improving materials productivity requires an integrated economic and environmental framework to ensure consistency across the entire supply chain. This includes producers, generators, and industries supporting both linear and circular economy activities and investments. Current policies focus on 'waste' and pollution, rather than establishing clear regulatory and policy regimes for material management that emphasise extending lifecycles.

Metrics to measure whether lifecycle have been extended could include:

- Waste to landfill: A reduction in waste sent to landfill suggests that products are being used longer, or repurposed.
- Rates of recycling: An increase in recycling rates could indicate that products have been designed for easier recycling and materials are being recovered more effectively.

The following products are recommended as priority for investigating extending their lifecycles:

- Batteries: These are a fire hazard, and also contain heavy metals which can cause contamination and health risks.
- Mattresses: These are bulky and difficult to handle. They do not compact well and take up a lot of space and can damage machinery.
- Appliances and e-waste: Much of this becomes obsolete quickly, which leads to a high turn-over rate. They are difficult to repair, and difficult to dismantle and recycle.
- Food and garden organics: These make up 50% of landfill content and contribute to greenhouse gas emissions.

Policy and legislation need an emphasis on **product design** that aims to minimise materials and maximise reusability, repairability, recyclability and recycling. All future policies must also align with the incoming *Treasury Laws Amendment (Financial Market Infrastructure and Other Measures) Act 2024* to ensure businesses are able to comply.

A national framework for circularity should also be established, utilising data to prioritise areas of intervention, identify supply chain linkages including with carbon policy and emphasise product design. For this to be effective, it must be supported by national regulatory alignment on how resource recovery is managed, including:

(1) a requirement for producers to design out hazardous substances
(2) increased emphasis on recycled materials and products across the entire economy with investment in innovation to extend life
(3) meaningful reuse and repair options

Comparative policy success: The Commission should consider the European Union's *'Waste Framework Directive'*[5] as a guiding principle for Australia's national framework required to achieve policy rationalisation for the circular economy. This policy instrument must direct all states and territories through a consistent, end to end approach. This would set parameters for how products are placed on the market and how they are managed for the entire lifecycle, including collection and management at end of life. The instrument must place clear obligations on producers to equitably share the responsibility and costs associated with managing the product for its lifecycle and mitigating environmental impacts.

Investment in building business capacity: The Commission should consider allocation-based funding initiatives specifically designed to build business capacity to adopt low carbon/sustainable approaches driving the circular economy. These initiatives could be deployed through state, territory, and local governments' to equitably share suitable resources and associated costs. Industry and departmental stakeholders should be consulted in the design and implementation of proposed initiatives to ensure they are realistic and fit for purpose.

[5] https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive_en