

Best practice in the emerging advanced recycling sector



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Advanced recycling enables a **continuously circular economy** for soft plastic



All plastic produced from advanced recycling is **chemically identical to virgin plastic** from fossil resources





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Australia cannot get to zero carbon without a circular economy¹

A circular economy for plastic is a key piece of the puzzle

- Advanced recycling is the only pathway to food-grade, Ο recycled plastic packaging
- A 2023 LCA by the EU's JRC confirmed importance of advanced Ο recycling within Waste Hierarchy²
 - 1. All recycling is preferable to energy recovery
 - 2. Hydrothermal liquefaction (HTL) has a global warming potential that is ~50% lower than pyrolysis
 - 3. HTL complements mechanical recycling by processing residual plastic waste streams



1. Ellen Macarthur Foundation, 2019, Completing the picture - How the circular economy tackles climate change.

2. JRC REPORT (2023). Environmental and economic assessment of plastic waste recycling.



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The technology

How hydrothermal liquefaction works



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The mass balance approach

- Enables circular based feedstocks and fossil material to be physically or chemically mixed and still be certified under the International Sustainability and Carbon Certification (ISCC+) Scheme
- Recycled content is considered "ISCC Compliant" when entire upstream supply chain is ISCC appropriately audited and certified
- European Commission currently developing Directive (EU) 2019/904 for the calculation of recycled content that will underpin the future of chemical recycling in Europe but impact circularity rules other markets as well





The role of best practice to achieve plastic circularity

Linear economy is still more profitable.

Lack of clarity to underpin investment confidence.

Availability of feedstock at scale - at price that doesn't destroy emerging value chain.

Without a systems approach, we continue to create blocks and not achieve circularity.

Transparency, policy & standards underpin building a new plastic value chain

Investment & Economics

- Standards underpin investment confidence.
- Mass participation across the value chain boosts pool of potential investors.

Robust policy framework

- Policy drives investment
- Government need to provide clarity on packaging regulation
- Mandate recycled content (no technical limit)
- Long-term assurance

Build feedstock assurance, alongside community trust

- Communicate the benefits
- Regain community trust
- Collection needs to scale alongside re-processing

Advanced recycling builds resilience into plastics recycling value chain

- Eco-modulated and mandatory EPR scheme
- A system transformation built on value chain collaboration







Building a local circular economy for waste plastic is possible but requires a systems-wide change.

This will only be achieved by if a new 'circular' value chain rebuilds community's faith in recycling.

