

# Productivity Commission – Opportunities in the Circular Economy

**Sircel Limited – ABN: 59 009 815 605**

**Date: 8 November 2024**

**CEO – Anthony Karam**

**Taking “waste” out of “e-waste”, how the Government can enable companies to unlock valuable commodities trapped in end-of-life electronics and foster a truly circular economy.**

## 1 BACKGROUND

Sircel is an Australian owned and operated green technology company dedicated to the eradication of e-waste from landfill.

We have six sites across Australia and are the largest processor of e-waste in the country. Our technology and processing methods can divert up to 100% of e-waste from landfill and we are – each and every day – redirecting those commodities back into the circular economy.

We have extensive first-hand experience of the barriers and opportunities to circular economy development as it relates to e-waste and green commodities.

Attached to this submission is the following:

- A case study of the e-waste circular economy in action with Endeavour Energy (published)
- A case study of the e-waste circular economy in action with Optus (pending publication 15/11)
- Plugging Australia’s e-waste Gap Report – inaugural research report commissioned by Sircel to understand a) the attitudes towards, and understanding of the e-waste crisis from 1,000 Australians and b) analysis of the latest sustainability reports of the ASX200 and their progress – or lack thereof – towards effective management of e-waste

The following sections of this paper are taken from Sircel’s recent submission to the Senate Enquiry into waste management.

All of the issues raised in that submission are relevant to the Terms of Reference for this submission and in particular, highlight the crucial role of the Federal Government to create legislative frameworks that accelerate the development of the circular economy – particular as it relates to e-waste.

## 2 Putting the issue into context

*E-waste is the fastest growing waste problem on the planet, and in Australia we are generating more e-waste per capita than any other developed nation. At 22kgs per person per annum and growing, and by 2030 Australia is expected to generate more than 657,000 tonnes of e-waste. A year.*

*Sircel was created to solve that challenge launching our first world-leading processing plant in March 2023. Since then, in a relatively short period we now have expanded our footprint across seven operating sites around the country.*

*We are the largest processor by a considerable margin (operating two primary sites at circa 20 tonnes per day), and at full operational capacity (assuming we were operating 4 primary sites at 20 tonnes per day) we'd be able to process 80,000 tonnes a year – that's less than 15% of that projected volume.*

*The rest? Being sent overseas, ending up in landfill and a very small proportion is being stripped of some valuable commodities before experiencing the same fate. The result? E-waste is responsible for 80% of the toxic substances that end in our landfills.*

*If companies choose to manage their e-waste effectively, it is cost efficient (compared to landfill) and it delivers outstanding ESG and Scope 3 emissions benefits.*

*A functioning circular economy for an extremely damaging waste stream, already in operation, one the Government could accelerate with the right economic and environmental settings.*

## 3 INTRODUCTION – FROM SENATE ENQUIRY SUBMISSION

Sircel is a green tech company dedicated to taking “waste” out of e-waste.

The problem with “waste” is that it infers the end of useful life. Thrown ‘away’, useless, and more often than not, buried in the ground. The way we are defining, generating, and dealing with e-waste needs a sustainable, fundamental shift in thinking. The challenge and opportunity is to deliver a shift from a waste management perspective, to one that is driven by the objective of sustainable resource regeneration.

Sircel is calling on the Australian Government to consider three fundamental principles in this Senate Enquiry:

1. Electronic waste (e-waste) should be treated as its own discreet category – no longer rolled up in a broader “waste” discussion. End of life electronics may have no perceived value as a scrap mobile phone or decommissioned telecommunications exchange, but these devices hold valuable metals and materials that can AND should be returned to the circular economy.
2. The Australian Government (and State Governments) need to urgently establish a single, nationally consistent, legislative and policy framework for the treatment of e-waste. Policies developed from the top down will help drive change not only in the business to business sector, but also through local governments and ultimately within the community. The lack of consistent regulatory frameworks, changes in licencing standards from state to state and inconsistent

application of Government grants and programs do not provide a long term, risk-managed environment to provide certainty for the massive investment in plant and technology needed to solve this crisis.

3. The Government, industry and other stakeholders must take a holistic, whole-of-sector approach to this challenge – from e-waste’s perspective this includes product stewardship, responsibility for end of life considerations at the product design phase, efficacy of government schemes and a legislative framework to prevent unintended consequences and rorting by unethical operators. The framework should ensure accreditation (and auditing) of standards to ensure that feasible alternatives exist, we are dealing with our waste stream within Australia, and parties are not finding loop holes to ship the problem overseas. The framework needs to support the sustainable and circular economy options to manage waste, not leave open the cheapest and most environmentally damaging options, such as landfill or the wallets of under-developed nations in the region.

Sircel has actively sought to be part of, and contribute to the development of the circular economy here in Australia. We are a member of Circular Australia and support that initiative. In our view and experience, we cannot hope to achieve circular economy outcomes unless the strategy and implementation actively involves participants around the entire circle. This means more effective alignment between the public and private sector, and discussions that delve deeper than concept and drill into the practical elements that will drive the actual delivery of desired outcomes.

Moving from linear to circular is a significant shift that will require thought leadership and actions that are outside, and over and above what we have been used to for centuries.

## 3.1 About Sircel

[Sircel](#) is an Australian-owned and operated green tech company solving the rapidly escalating global e-waste crisis. We have pioneered a world-leading, end-to-end process, which enables us to divert up to 100% of end-of-life electronics – from consumer items to civic infrastructure – away from landfill extracting the source materials including valuable metals for reuse in the circular economy.

Sircel has invested a decade and tens of millions of dollars in a unique process that is ethical and sustainable, delivering better outcomes for business, the community and the planet.

And it's scalable, we can stand up Sircel processing infrastructure in appropriately permitted sites within nine to 12 months meaning that a genuine solution, at scale, is possible in just a year or two.

We already have plant and equipment in five sites across NSW (Sydney x 3 and Parkes), QLD and VIC with further discussions for acquisition and expansion taking place right now.

We are fortunate to have had founders and cornerstone investors who understand the scope of this challenge, and the risks associated with doing something that hasn't been done before. Other players attempting to operate in this space haven't been that fortunate.

The ongoing investment in plant, technology, logistics, and clean energy solutions are enormous, it requires a nationally consistent legislative environment that will give our investors, and others, the confidence to back new ideas and research, to successfully challenge the long-established status quo and remain commercially viable.

## 3.2 Our People

Sircel's founders and cornerstone investors are all Australian citizens with a deep passion for, and care of the planet we live on.

Our CEO Anthony Karam spent more than 20 years as a commercial lawyer, in-house counsel, corporate consultant and an executive-level manager of businesses in the mining and technology sectors. He started on a different journey after seeing, firsthand, the enormous e-waste landfill dumps in West Africa back in 2017. At the same time, he was exposed to emerging, but mostly untested, new technologies aimed at solving complex challenges. These experiences ignited a passion and kickstarted an investigation into what was really happening with the world's stockpile of e-waste.

Anthony and the highly skilled and motivated team at Sircel have dedicated the last six years to solving the e-waste problem by asking, what if we could do better? What would it take? And what would it look like? After years of investment of both time and money Sircel has achieved what many along the journey thought impossible - creating an end-to-end solution that recycles up to 100% of e-waste at scale. We now have more than 18 months experience operating large, world class plant and equipment, and Anthony and the team have taken the solution from an idea and testing ground, to reality. The solution is real, it exists, its operating and its here in Australia. it needs to be super-charged and utilised so all participants in the circular economy both private and public can get the benefit of the solution.

Anthony continues to lead, build and empower the growing and exceptionally talented Sircel team with the catch cry "making better possible" as the company expands its operational footprint to eradicate electronic waste from landfill, globally.

## 4 Reframing E-Waste as E-Resources – Take “Waste” out of E-Waste

**Wastes are unwanted or unusable material. Waste is any substance discarded after primary use, or is worthless, defective and of no use.**

The above definition of waste is the complete antithesis of e-waste. Locked inside most unwanted devices are valuable commodities that can be unlocked with the right processing, due diligence and commitment.

Talking about these materials as part of the broader conversation of waste, is overlooking and undervaluing a substantial driver of the circular economy.

Up until Sircel commissioned its first major plant at the start of 2023, e-waste recycling was an opaque sector, where the vast majority of materials – up to 80% in Australia – were sent to landfill.

The latest [UNITAR](#) report titled “Global e-waste monitor 2024: electronic waste rising five times faster than documented e-waste recycling” has four startling summary points:

- A record 62 million tonnes (Mt) of e-waste was produced in 2022, Up 82% from 2010
- On track to rise another 32%, to 82 million tonnes in 2030
- Billions of dollars' worth of strategically valuable resources squandered and dumped
- Just 1% of rare earth element demand is met by e-waste recycling

In Australia, the findings are just as bleak. The DCCEEW most recent data (from 2019) states:

- In 2019 Australia generated 511,000 tonnes of e-waste. That means the average Australian produced 20 kg of e-waste, compared with the global average of 7 kg. By 2030 the national total is projected to rise by nearly 30%, to 657,000 tonnes.
- We only recover a third of the total value of the materials in the e-waste we generate. This means in 2019 alone, Australians sent \$430 million worth of materials to landfill along with their e-waste.

We also have a situation in Australia where some organisations –such as local councils and other e-waste “collectors” are choosing the cheapest financial “market solution” as a priority, which unknowingly to them has the most harmful impact on our environment but is seen as a proper recycling solution. There needs to be unwavering support for the circular economy centric ‘market solution’ to ensure we transition economies.

These statistics are dire, on any measure. They are especially unacceptable when the proven technology and capability to do something different exists. The action to be taken is available today, by creating the right conditions to enable new circular economy solutions to flourish.

*"CIRCULAR ECONOMY DEFINITION The circular economy is an economic model that is regenerative by design. The goal is to retain the value of the circulating resources, products, parts and materials by creating a system with innovative business models that allow for renewability, long life, optimal (re)use, refurbishment, remanufacturing, recycling and biodegradation. By applying these principles, organizations can collaborate to design out waste, increase resource productivity and maintain resource use within planetary boundaries."*

Circular Transition Indicators V4.0 Metrics for business, by business

## 5 Consistent, National Legislation and Operating Environment for Circular Economy Success

Complex problems often require complex solutions with a test and learn approach. In the case of e-waste, the hierarchical assessment starts with an assessment of whether there is any scope for re-use? in the event the device is truly 'end-of-life', then the complexity comes in the form of existing and bespoke mechanical processing and metallurgical approaches to liberate commodities from devices and process them in a way that makes them fit for resale. All while minimising environmental footprint, ensuring data security, eliminating sovereign risk, generating revenue and building an organisation in a truly new sector.

We're creating a wholly new enterprise, in a new sector that is disrupting a traditional, and lucrative industry – waste.

That's hard. It's expensive, it can be frustrating and has had almost as many failed experiments as it has had game changers.

Many competitors just try and solve part of the e-waste problem. Extracting one or two commodities, receiving the NTCRS rebate, and either burying the rest or shipping it overseas. Others, make money from selling devices and componentry to foreign jurisdictions, where it often ends up in waste dumps, poisoning soils and leeching toxic waste into waterways.

This has to stop.

Australia has the chance for global leadership in a rapidly growing crisis. We need:

- Nationally consistent legislation for e-waste management
- Consistent environmental protection laws across all states and territories to create one acceptable standard
- A nationally constituted statutory authority to provide consistent operating frameworks, accreditation and advocacy to ensure a minimum objective standard of e-waste treatment, diversion from landfill, and/or resource recovery
- Consistent market signals that underpin long-term investment, across state borders, in infrastructure needed to support the e-waste circular economy.
- A framework where legitimate operators in the sector are supported by the public sector because they are part of the infrastructure fabric of the economy and the nation.

## 6 A holistic approach

There is no doubt that dealing with e-waste has become a wicked problem.

Wicked problems are defined as being “difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognise. Moreover, because of complex interdependencies, the effort to solve one aspect of a wicked problem may reveal or create other problems.

This wicked e-waste problem cannot be solved in a piecemeal way.

We cannot offer grants to support innovation without the legislative framework to ensure that innovation can be commercialised.

We cannot create product stewardship schemes – like the NTCRS scheme – without ensuring that scheme is free from rorting, or thinking a self-audited scheme will achieve the outcomes it desires. Such schemes must evolve to meet the technical standards of today, as such enhanced by appropriately trained experts.

*“ the NTCRS has become an inefficient system with a two-tiered marketplace: the five co-regulators compete to offer the lowest fees to brand owners, forcing prices down to unsustainable levels, while recyclers are reduced to price-takers. The NTCRS has become a ‘race to the bottom’ for some brand owners at the expense of best-practice recycling and environmental outcomes.”*

*”[Recyclers in Product Stewardship](#) Challenges, priorities, and recommendations from the recycling sector – An Issues Paper prepared by the Australian Council of Recycling 2024*

We cannot call for Circular Economy Solutions without accepting that those solutions require a combination of supportive legislation, schemes, and investment to establish and drive the behaviour change required.

We call for a national statutory authority to be established that has jurisdiction over e-waste across Australia. The first task would be an *E-waste to E-Resources* strategic pathway that considers the whole problem and looks to identify the barriers, and action plans to address them, to enable a truly circular economy for the previous resources locked up in e-waste to be liberated and directed back into manufacturing.

There should also be consideration to more public-private enterprise in this sector given the upside in terms of resource regeneration, data security and inherently better environmental outcomes that could (and should) be achieved in this country, today.

## 7 Conclusion

End of life electronics – from consumer goods to telecommunications infrastructure – are not waste.

They are a source of valuable commodities that can, and should, be used in manufacturing negating the need for mining of virgin materials.

The technological know-how exists, pioneered in Australia, and this is exactly the type of industry the Federal Government is alluding to in the proposed new policy that promises “a future made in Australia”.

Australia can be at the forefront of solving the e-waste challenge, ultimately becoming an exporter of this expertise. To enable this to happen however there needs to be:

- A specific, nationally recognised definition and product category for e-waste, treated in a discreet way
- A single, nationally consistent, legislative and policy framework for the treatment of e-waste
- A holistic approach to understanding and managing e-waste from manufacturing, product stewardship life-cycle usage, collection and recycling

Sircel appreciated the opportunity to prepare this submission for the enquiry and is readily available to provide greater insights and expertise to Government and other stakeholders.