Opportunities in the circular economy

Call for Submissions

Australian Government Productivity Commission

Submission on behalf of Sustainable Electronics Recycling International (SERI)

1 November 2024

Introduction to SERI

SERI is the only multi-stakeholder, collaborative nonprofit organisation in the world focused exclusively on minimising the environmental and health risks posed by used and end-of-life electronics, while also maximising the social and economic value presented by this equipment.

To get to zero e-waste and electronics sustainability, the focus needs to be on preventing waste in the first place. This requires thinking about all the decisions of design, manufacturing, use, repair, reuse, and recycling to eradicate e-waste throughout the entirety of the lifecycle. Achieving a circular approach involves moving away from e-waste management to addressing the upstream options to reduce environmental impacts and deliver economic and social benefits. Access to affordable electronics provides a critical role to raise the standard of living in developing nations and economically challenged communities.

Recognising the above the R2 Standard was written by SERI to support the achievement of these environmental, social, and economic outcomes. The R2 standard has a circular economy approach built into it, requiring reuse options to be pursued before disposal to market.

SERI manages the ongoing development and deployment of the R2 standard in support of this. R2 is the most widely adopted e-product processing standard being used in 43 countries and 1231 sites (31 in Australia) around the world.

This submission primarily focuses on the circularity of electronic products yet many of the examples and suggestions made are equally applicable to other products and material types.

Information Request 1 – Circular economy success stories and measures of success

In Australia the National Television and Computer Recycling Scheme is a success story that demonstrates the benefits of legislated product stewardship to drive circular outcomes.

Since the program commenced in 2011 over 600,000t of e-waste has been recycled with a recycling rate of over 90%. The program collection target has been met consistently (whilst increasing each year) and currently stands at 76%. Hundreds of free and convenient collection points have been established Australia-wide and hundreds of people have been employed in the transport and recycling sector. The proper recycling of this equipment has also prevented toxic materials from being disposed to landfill or dumped in the environment and has had a greenhouse benefit close to cumulative savings of 1Mt of CO_2e.

Whilst the NTCRS has been successful it has not been without its faults. Legislated requirements on liable parties have minimised the advent of 'free riders' yet an inconsistent application of compliance standards has created an uneven playing field in a highly competitive environment. The program has also failed to address the opportunity for reuse, a process already pursued by a well-establish ITAD industry.

IT Asset Disposal (ITAD) is an established industry world-wide that seeks to maximise economic value from used electronics. When businesses refresh their IT equipment, or retailers collect returns of new products, or consumers trade in their mobile device, this equipment is not end-of-life. It is the primary source of reusable electronics that should not be recycled yet. ITAD providers that operate to the highest standards have processes to test, remove user data, repair, and refurbish IT assets so they can be beneficially reused, rather than just focusing on the extraction of any value in the quickest and simplest way possible.

As electronics continue to exponentially proliferate into all types of devices, from doorbells to automobiles, the impact from making more electronics and quickly replacing them is substantial on climate change since most of the carbon is created in manufacturing, not in use. Repair and reuse strategies are imperative to product longevity to reduce climate impact from electronics.

Some ITAD companies, equipment suppliers and social enterprises have also chosen to take action to ensure that social good is delivered by donating items, or profits from their sale to those in need.

One good example of this in Australia is Pony Up for Good, a social enterprise that collects IT equipment from businesses, assesses what can be remarketed and then ensures the remainder is responsibly recycled. They then donate 50% of profits they

make to a food rescue charity, Second Bite. Since formation they have collected over 576t of equipment, reused 31% and supported the creation of over 936,000 meals. Other examples (noting there are many more) include:

- Computerbank (NFP) - 10,000 refurbished computers sold at discounted prices to concession card holders and disadvantaged individuals over the last 25 years.
- Glee Givers (NFP) – Collect and refurbish computers and provide them to support charities.
- The Reconnect Project (NFP) – Provide an ITAD service that donates items to care agencies yet also offer repairs and training to individuals. Over 2700 items donated to date.

Businesses who donate to such organisations build brand value for delivering social and environmental benefit from their ITAD – this is seen as more valuable than the financial returns that could be achieved via other disposal methods.

These organisations usually have social missions that employ disadvantaged people with disabilities or build job skills for the unemployed. Many also utilise community volunteers. These social impact organisations provide value beyond recovering critical materials in the supply chain.

The ITAD space has proven to be a good opportunity for partnerships between the corporate and community sectors where both can derive benefit from the relationship. This is very much supported by the value of IT product and their need in the community to address the digital divide. For other items that have a lower intrinsic value this partnership model may not prove as effective.

The R2 standard developed by SERI supports best practice ITAD operations to ensure that equipment is processed at the highest level of the waste hierarchy to achieve economic and social outcomes, and that where items are recycled they are processed in a manner to minimise environmental impacts. As the R2 standard comprehensively covers the process of reuse (whilst the Australian standard AS5377 does not) it is ideally suited to be used as the framework to further develop this industry in Australia.

In Australia only a small proportion of e-waste is reused or recycled in a manner that extracts the maximum value from the materials within. There is significant opportunity and potential to deliver economic, environmental and social benefits from the expansion of the existing NTCRS product stewardship program to cover all e-waste categories. Research undertaken for the Federal government (DCCEEW) in support of the *Wired for Change* consultation quantified these benefits and found that we only recover 1/3 of the total value of materials in e-waste, meaning we dispose to landfill $430 million worth of materials each year. This will only increase as the generation of e-waste is also expected to increase by 30% from 2019 to 2030.

It should be noted that e-waste is only one waste stream in Australia that could deliver such significant benefits through a more circular approach.

Information Request 2 – Priority opportunities to progress the circular economy

Circular economy priorities can be identified in terms of material types and also policies and programs.

<u>Materials</u>

In regard to materials, the Federal Environment Minister's product stewardship priority list provides a good base from which to work but is by no means comprehensive enough nor supporting action quickly enough to drive circularity as fast as required.

The *Wired for Change* consultation process is a prime example of this lack of progress. Whilst the consultation process commenced in early 2023 there has been no material outcome to address the growing issue of e-waste. The government attention has now been diverted to address batteries and solar systems (important items in their own right) yet this has diverted attention from addressing small household e-waste which was clearly identified as a priority waste stream.

The existing NTCRS is ideally placed to be expanded to include small household items as a first step, and to then expand to cover all e-waste. Australia is one of the few countries with a legislated e-waste product stewardship program that does not cover the full scope of e-waste – missing out on the significant benefits of scale and efficiency that come from a comprehensive approach.

It should be noted that refrigeration devices are a category within e-waste that have also not received their due attention. Whilst recovery of refrigerant gases within compressors are covered by the *Refrigerant Reclaim* program there has been no attention to the significant quantity of refrigerant gases that are contained within the insulation foam in refrigerators. It has been shown in Europe that these gases are of an equivalent quantity to the gas in the compressor and are released to the atmosphere when equipment is shredded in conventional metal recycling facilities. These gases have a high greenhouse gas warming potential and in Australia it is estimated that this could amount to 200-400,000t of CO_2e equivalent greenhouse gas emissions each year of easily avoided emissions.

Rapid digitalisation and electrification is creating a growing demand for transition metals (such as rare earths), many of which are in short supply or controlled by a few nations, creating economic and sovereign risk. E-waste contains significant quantities of these metals and currently this is not being recovered in Australia. Maximising recovery of these metals from e-waste in Australia should be a priority area of focus to ensure these valuable materials are not wasted.

Policies and Programs

In regard to policies and programs, there are many opportunities that can be pursued. These opportunities require the support of government, industry and the community. Key opportunities include:

Design - The most significant economic, environment and social benefits come from extending the life of items – achieving greater material efficiency as the economic output per unit of material is greater. There has been a significant push from the Australian community to provide mechanisms to improve the design of products – be it through labelling, standards or incentives. Leading companies design and sell higher quality items that are durable and can be repaired yet this comes at a cost and they typically only represent a small proportion of the market. With the current cost of living pressures faced by many in Australia the $7 toaster may be all that can afforded in the short term – even though the $50 toaster may well last 10 times as long and could be repaired if required. The opportunity for government intervention in this area is discussed below.

Reuse and Repair – Reuse and repair is a missed opportunity that is costing the Australian economy millions of dollars every year. Fortunately there is a growing corporate and community interest which is driving progress, albeit slowly. Options for reuse and repair of e-waste were raised under the *Wired for Change* consultation process to identify how they could be incorporated into a product stewardship approach. At the simplest level, recognition of reuse as part of the NTCRS recycling target is an important first step to remove the perverse incentive to recycle items that have an obvious reuse or repair pathway. This approach was also supported by the *Productivity Commission Right to Repair* report published in December 2021.

At a more advanced level, the concept of eco-modulation of targets for scheme participants has been raised yet this needs to be approached with caution as experience overseas has been that the administrative burden can easily outweigh the benefit that may be achieved. Notwithstanding this other information and incentive programs that promote more sustainable products should be pursued.

In January 2021 France implemented a mandatory repairability index for smartphones, laptops, televisions, washing machines and lawnmowers and in 2022 extended this to top-load washing machines, dishwashers, pressure washers and vacuum cleaners. The index assessed documentation, disassembly, availability of spare parts, price of spare parts and product-specific aspects and produced a score from zero to 10. Whilst the manufacturers themselves determine the rating there are a number of independent bodies who review and comment on this. A survey of consumers has found 75% found the information useful for making their purchase decision. Whilst the program is still in its infancy it appears to be showing benefit and brands are providing more information and options to support consumers to repair their products. The *Productivity Commission Right to Repair* report as noted above also recommended that a similar system is developed and trialled in Australia.

The environmental benefits of reuse are substantial and quantifiable. Dell publish the lifecycle carbon impacts of all of their products which shows for example that for a

laptop 89% of the impact is from manufacture and only 11% from use. If such an item can have an extended life this will help to avoid the environmental impact of new products being manufactured and transported.

Where reuse and repair does occur it is vital to ensure that this work is undertaken by competent and compliant organisations. In the IT space this is particularly important to ensure that any data left on devices is appropriately removed. The R2 Standard from SERI provides the framework and independent audit process to ensure that best practice procedures are followed.

Education – Nationally consistent education is important to ensure that all stakeholders understand their role in the circular economy and can access the information they require when needed. The plethora of different recycling, repair, reuse, and product stewardship programs as well as different environmental claims and ratings for products creates mass confusion for consumers even when they are trying to make informed decisions.

For the e-product sector this will best be addressed by having a single, national, comprehensive and consistent e-waste product stewardship program that covers all forms of e-waste (as per the European WEEE Directive). This program should also include opportunities for reuse and repair as well as recycling. The *Wired for Change* consultation process began to explore this concept yet the Federal government has now diverted it's attention and resources to focus primarily on solar panels and batteries. This will continue to support an uncoordinated, fragmented and under-resourced approach that will not support the community education and engagement that is required.

Government Programs – Government has an important role to play to address structural and market barriers and also develop programs to support a circular economy. Key opportunities include:

1. Government procurement – As the single largest procurer of goods and services the government has the ability to drive the circular economy through its procurement decisions. The recently announced *Environmentally Sustainable Procurement Policy and Reporting Framework* is a good step yet needs to be comprehensively expanded to cover a wide range of goods and services and also be applied at a much smaller scale.
2. Tax incentives/subsidies for circular products - New circular products are often more expensive than the alternatives due to scale and processes and need ongoing support to grow and become competitive. Capital grants are good (and there are many available) yet they don't support the ongoing operation of new business in their early years of establishment. There are a range of mechanisms, such as tax rebates and subsidies (which are applied to support many other important industries) that could be established.
3. Product Stewardship – mandatory product stewardship programs (not voluntary) with defined targets and penalties for non-compliance will drive outcomes, and if structured well will still allow companies to compete fairly in the market.

4. Design Standards – Design standards can be established to ensure product longevity, reduce environmental impacts, and allow for cost-effective repair. The application of energy efficiency standards on appliances has been successfully implemented for many years in Australia and has shown an approach that could be potentially applied to drive greater circularity outcomes.

Information Request 3 – Hurdles and barriers to a circular economy

At a broad level the main hurdle/barrier to a circular economy is that environment and social impacts and benefits are often externalities to the cost of the item and the purchase decision process of consumers. There is no perfect market and thus consumers are not able to make fully informed decisions.

A perfect market is a utopian situation yet key aspects that prevent this can be addressed. These include:

Information – Community and business awareness even of the concept of the circular economy is very low and needs to be addressed as a fundamental first step. Once a greater awareness is established then consumers and business need access to reliable information to help inform their purchasing, use and disposal habits. It will be important to ensure that potential greenwashing from industry players is identified and brought to the attention of the ACCC to ensure that this growing awareness is not highjacked by misinformation.

From an e-waste perspective there are numerous competing providers (both collection sites and recyclers) with different messaging and providing different services. Claims made by these providers are not verified (see greenwashing above) and can thus be misleading if not clearly fraudulent.

As business has a key role to play in the ITAD space there is a need to educate on best management practices for IT equipment in all businesses IT hardware functions, as well as sustainable purchasing, retail returns channels, and mobile trade-in programs. Information is required on the business benefits of longer use of IT assets, repair instead of replacing, and reuse potential. Also need to educate businesses on the need to recycle to recover critical materials even if it costs money to do so. Businesses can drive change at scale more than individual consumers.

Compliance standards and supporting enforcement – Compliance standards can remove the lowest performers in respect to circularity if they are also effectively enforced. To ensure they are embraced by all stakeholders a collaborative development process is required. The R2 standard from SERI is a good example of a standard that has been collaboratively developed and adopted by a diverse group of stakeholders, including stakeholders from Australia. The certification process for the standard is also comprehensive and transparent, endorsed by JAS/ANZ and offered by local Certification Bodies in Australia.

The existing Australian e-waste collection, storage and recycling standard (AS5377) does not provide a robust enough framework and the certification process lacks the

rigour to ensure that the standard is being met in practice. Whilst the NTCRS requires AS5377 certification of recyclers the scheme regulator does not have the ability to ensure that the requirements of the standard are being met. Additionally, the scope of AS5377 does not provide incentives for the proper repair and reuse of electronics necessary for a circular economy.

Structural barriers – Support of the existing linear economy approach via established subsidies, tax arrangements and regulations disadvantages more circular approaches. Such structural inequalities need to be identified and addressed at all levels of government – and in fact skewed in favour of more circular approaches to drive the required change.

A prime example of this is the current market restrictions and inertia in regard to the use of recycled materials. For a circular economy to work the materials recovered at end of life must have a potential reuse path or they are destined for landfill. Plastic represents about 25% of the weight of e-waste yet there are limited opportunities to use the material in the current Australian market.

Information Request 4 – Government's role in the circular economy

A number of potential government interventions have been outlined in the previous sections of this paper. In summary these include:

- Government procurement standards that drive industry to deliver products and services with improved circular outcomes.
- Mandatory product stewardship across a wide range of products that supports reuse and repair prior to recycling
- Robust standards supported by enforcement. The adoption of the R2 Standard by the NTCRS will significantly improve the performance of the program.
- Economic incentives support a circular approach and penalise the linear approach
- Public/private partnerships to collaborate and drive adoption of complimentary standards and awareness of circular practices to drive change.

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