



IEC-GIF and JASANZ International Conference Discussion Paper

Potential innovative industry-led
projects for e-waste in the Asia Pacific



Contents

Summary	3
Introduction	5
The IEC Global Impact Fund	5
Geographic and economic context of the opportunities in the Asia Pacific region for preventing 'e-waste' generation and reducing its impact	7
Customers are willing to pay a premium for electronic products that minimise their environmental impact from design through to re-use, recycling and disposal	7
The rise of online retailing provides opportunities for greater prominence of credible claims	8
Geographic inequalities are compounded by substandard electronic design and unethical disposal	9
AS/NZS 5377 is nearing the end of its use in accredited certification	12
Smart design and manufacturing provide an ultimate upstream control over the impact of goods.....	13
In the absence of compelling carrots, authorities are reaching for 'The Stick' for "green claims"	14
The global electronics industry and standards infrastructure risks being left out of the public debate.....	20
E-Waste is an environmental, human health, information security, equality, and trade concern	21
Request for your ideas and presence at an international workshop to develop innovative project proposals for e-waste in the Asia Pacific region, and <u>Agenda</u>	25

Summary

Electrical and electronic waste ('e-waste') has emerged as a growing environmental, economic, and information security challenge, despite many decades of efforts by nation states. This discussion paper examines the problem of e-waste in the Asia Pacific region, as both a business opportunity (*from consumer preferences*) and a legal risk (*increasing regulation for product lifecycle responsibilities and use of 'green claims'*). On the latter, specific actions by consumer rights authorities, such as the Australian Competition and Consumer Commission (ACCC) on 'greenwashing' are outlined, as are particular obligations for supporting 'green claims' with conformity assessment evidence in the EU "Green Claims" Directive (Procedure 2023/0085/COD). The existence of ecodesign certification under the IECQ, and standards and use cases maintained by the IEC Systems Committee for Smart Manufacturing (IEC SyC SM) are acknowledged as providing 'upstream' controls to avoid e-waste generation, and are suggested to be standards and conformance mechanisms that can assist manufacturer's to use 'green claims' in a legally compliant manner. The paper concludes that, absent a perceived substantive increased effort by industry, the foreseeable trend is increasing government regulation and compliance activity over sustainability and environmental claims for electronics. It is suggested that industry has much to lose if it does not actively rise to meet this challenge.

At the consumer-demand side, the paper outlines the means by which buyers can identify 'sustainable' electronic products, and notes this spans the entirety of the product lifecycle from eco-design through to reusability, recyclability, and disposability. The rise (and rise) of online retailing and possibility of digital conformity assessment data is acknowledged as providing ideal conditions to truly inform buyer's behaviour, yet most mainstream online retailers do not incorporate these data into product search fields. The particular challenges faced in regional and remote areas (*including nation states of the Pacific Island region*) for both engaging in the circular economy and being more susceptible to 'e-waste dumping' are discussed, and it is suggested that such areas warrant additional assistance from both socioeconomic equality (employment opportunities, high-skilled jobs) and environmental justice perspectives. At the other end of the product lifecycle, credible certification schemes for e-waste facilities are noted, and in particular that of the ISO/IEC and industry standards based 'R2 Scheme', operated by the Sustainable Electronics Recycling International, in conjunction with accredited certification by International Accreditation Forum Member Accreditation Bodies. The Australian and New Zealand Government recognised 'E-Waste Scheme' for AS/NZS 5377:2013 certification is outlined and explained to have an uncertain future, unless updated.

The International Electrotechnical Commission (IEC) is a global, not-for-profit membership organization that brings together 173 countries and coordinates the work of 20 000 experts globally. The IEC created the Global Impact Fund (GIF) in recognition of the role international standards and conformity assessment can play in addressing global environmental and societal challenges.

IEC-GIF projects are market-based solutions where state-of-the-art technical know-how, international standards and conformity assessment (CA) Systems are implemented by small and medium enterprises (SMEs) alongside other partners. Through IEC National Committees (NCs), the projects garner broad support among national and local stakeholders. Differ Community Power (DCP) is the first recipient of the GIF Project funding partnership with the Korean Agency for Technology and Standards ([KATS](#)), and will determine the feasibility of using second life lithium batteries to rehabilitate solar PV installations at schools, hospitals and other critical locations in Kenya.

This paper seeks stakeholder IEC-GIF project proposals for other innovative e-waste management solutions using international standards and conformity assessment systems. More specifically, it asks: ***What industry led projects could be initiated to improve the circular economy for electronics and electrical goods in the Asia Pacific Region?***

Pre-conference survey form: www.surveymonkey.com/r/ZTJQBVN

In addition, we encourage you to send suggestions of project proposals to tsb@jasanz.org, cc Matt Doherty at the IEC Global Impact Fund (matthew.doherty@iec.ch).

Responses will be used to inform activity-oriented discussions at the IECQ International Conference 'Potential innovative industry-led projects for e-waste in the Asia Pacific: Supporting a Circular Economy', on **Thursday 18 April 2024** in Brisbane, Australia. 9:30 am to 5:00 pm, AEST (***agenda on page 26***).

[Rydges South Bank](#), 9 Glenelg Street, South Brisbane, QLD, Australia

We hope you enjoy reading our discussion paper. We look forward to hearing your ideas for innovative industry-led projects for e-waste in the Asia Pacific, and seeing you in person in Brisbane ([Rydges South Bank](#)) or online on **18 April 2024**.

Online attendance link (9:30 am to 5:00 pm, AEST):

<https://us06web.zoom.us/j/84041967788>



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Introduction

The Asia Pacific region is experiencing rapid economic growth, bringing increased consumption of electronic devices and consequently, a surge in electronic waste (e-waste). The avoidance and management of e-waste has emerged as a growing environmental and economic challenge. This discussion paper, developed in partnership with the International Electrotechnical Commission (IEC) Global Impact Fund (GIF), seeks stakeholder suggestions for innovative e-waste management solutions.

The desired solutions are innovative concept proposals from industry and government stakeholders for e-waste testing and certification schemes compliant with international standards that contribute to sustainable economic growth in the Asia Pacific region.

Responses to this paper will be used to inform more specific, activity-oriented discussions at the IECQ International Conference *'Potential innovative industry-led projects for e-waste in the Asia Pacific: Supporting a Circular Economy'*, on **Thursday 18 April 2024 in Brisbane, Australia**, during the week of the [IECQ Annual General Meeting](#).

The Conference is an IEC sponsored event with free admission for registered participants. It will provide a unique opportunity for attendees to get better acquainted with the latest international standards and practices including Internationally harmonized certification and approval systems that are being used to ensure confidence in environmental claims.

The IEC Global Impact Fund

Recognising the huge role that international standards and conformity assessment can play in addressing many of today's social, economic and environmental challenges, IEC created the Global Impact Fund.

Electrical, electronic and information technologies, which are core to IEC work, have the potential to positively impact environmental, societal and governance (ESG) challenges. When countries adopt IEC work in standardization and conformity assessment, they are better able to build up national quality infrastructure, achieving greater efficiencies while improving the safety of products, workers, people, and the environment.

IEC-GIF projects are implemented in countries where effective, safe, and efficient solutions based on state-of-the-art technical know-how, international standards and conformity assessment (CA) Systems can be implemented by small and medium enterprises (SMEs) alongside other partners. Through the IEC National Committees (NCs), the projects garner broad support among national and local stakeholders. While projects generally target one specific country, they are designed so that they can be replicated in other countries or scaled up regionally to maximize impact.

Given concerns around the environmental impact of e-waste, such as mineral extraction and improper disposal, the IEC-GIF has focused its initial projects on tackling challenges in this area.

This will enable a standardised approach which will allow the technology to be replicated and promote battery circularity across the world.

Differ Community Power (DCP), an international provider of solar energy services to communities, has been selected to determine the feasibility of using second life lithium batteries to rehabilitate solar PV installations at critical locations such as schools, health centres and hospitals in Kenya.

With support from IEC-GIF, DCP will test the application of second-life for the rehabilitation of five inoperable solar PV installations, with three other facilities to act as a control study.

If the approach is proven viable, it could economically and sustainably extend the expected other existing solar PV installations across sub-Saharan Africa, thus improving access to critical healthcare and education services for many.

The project will also be used as an opportunity to train local subcontractors on wiring regulations and commissioning procedures aligned to international standards. Real time remote monitoring of performance and environmental factors will inform the technical and economic feasibility analyses.

The IEC is a global, not-for-profit membership organization that brings together 173 countries and coordinates the work of 20 000 experts globally. IEC International Standards and IEC conformity assessment work underpins international trade in electrical and electronic goods. It facilitates electricity access and verifies the safety, performance and interoperability of electric and electronic devices and systems, including for example, consumer devices such as mobile phones or refrigerators, office and medical equipment, information technology, electricity generation, and much more.

Conformity assessment refers to any activity that determines whether a product, system, service and sometimes people fulfil the requirements and characteristics described in a standard or specification. Such requirements can include performance, safety, efficiency, effectiveness, reliability, durability, or environmental impacts such as pollution or noise. Verification is generally done through testing and/or inspection, and increasingly through the dedicated international standard for validation and verification of claims, ISO/IEC 17029.¹

The IEC-GIF advances the IEC vision for a safer and more efficient world by supporting projects that address many of today's social, economic and environmental challenges, including through the use of IEC international standards and conformity assessment systems.

Through its partnership model, the Fund helps drive a coordinated, consensus-driven approach to the electrification of the global economy, while avoiding the fragmentation that perpetuates barriers to the green energy transition.

¹ Also see technical specification ISO/TS 17033 'Ethical claims and supporting information', discussed elsewhere in this discussion paper.

Geographic and economic context of the opportunities in the Asia Pacific region for preventing ‘e-waste’ generation and reducing its impact

Customers are willing to pay a premium for electronic products that minimise their environmental impact from design through to re-use, recycling and disposal

Market research and consumer behaviour over many years has demonstrated that consumers are willing to pay ‘extra’ for lower environmental impact, ethically sound goods and services (*within the broader domains of ESG-based purchasing*). However the quantum of ‘extra’ and what is significant for ‘lower’ impact is highly contextual, and there have been demonstrated bounds over which price increases can be tolerated for given classes of goods and services (see e.g., Shao et al, 2021²). There has also been an increase in consumer cynicism towards ‘eco-labels’ and ‘greenwashing’, which has diminished consumer trust and reluctance towards paying ‘green premiums’.

The post-pandemic environment, alongside geopolitical tensions, has created a global inflation ‘cost-of-living’ crisis. In New Zealand, approximately 30% of the population reported in a financial institution’s survey they were not ‘living within their means’.³ In Australia, a bank survey in Jan 2024 reported that ‘consumer [financial] stress’ rose for the fifth consecutive quarter, with over 1 in 3 Australian consumers reporting “very high” cost of living stress.⁴

Regional, rural and remote populations have generally seen further deterioration in socioeconomic wellbeing relative to urban and metropolitan counterparts, contributing to increased societal inequalities and tensions within countries. The OECD Regional Outlook 2023 concluded that: ‘*Persistent differences between metropolitan and non-metropolitan regions have been driving regional income inequalities in most OECD countries*’.⁵

The past four years of reviews into e-waste in Australia and New Zealand have confirmed that despite technological innovation, the main longstanding problems in pricing and incentivising full electronic product reuse, repurpose, recycling, recovery and disposal remain. These pose formidable challenges to the Asia Pacific region in meeting specific targets under the UN Sustainable Development Goals (SDGs), and sustainable development more broadly.

² Shao J, Li W, Aneye C, Fang W (2021). Facilitating mechanism of green products purchasing with a premium price—Moderating by sustainability-related information. *Facilitating mechanism of green products purchasing with a premium price—Moderating by sustainability-related information. Corporate Social Responsibility and Environmental Management*, 29(3), 686–700.

³ [Canstar ‘Consumer Pulse 2024’](https://www.canstar.co.nz/consumer-pulse-2024). March. Canstar.co.nz

⁴ [NAB Consumer Sentiment Survey](https://www.nab.com.au/consumer-sentiment-survey). Q4-2023. January 2024. National Australia Bank.

⁵ OECD Regional Outlook 2023: The Longstanding Geography of Inequalities. Organisation for Economic Co-operation and Development. [Chapter 2. Twenty years of regional inequalities.](#)

This time period has coincided with the collapse of seemingly sound businesses for voluntary processing of waste, most notably ‘REDcycle’ (soft plastics) in Australia, and a general consensus in public discourse that genuinely effective recycling initiatives are difficult to access (for soft plastics⁶ and electronics⁷).

The situation is little better in New Zealand, with a 2021 report⁸ stating: *‘Recycling of WEEE [waste electrical and electronic equipment] is currently limited in New Zealand. A lot of activities under the banner of recycling actually involve remanufacturing WEEE into its constituent parts, which are then sent for further processing and materials recovery in New Zealand or overseas. All remanufacturing operations in New Zealand are manual, and therefore labour intensive. This means disassembly activities are economically marginal and are affected by the costs of labour, landfilling and the price available for dismantled materials.’*

Further up the supply chain, the Australia and New Zealand electronics retailer Dick Smith entered administration and closed all its stores in 2016, almost 50 years after its founding. The branding and trademarks of the store have since been purchased by a major international online retailer. This was an example of a trend away from in-store to online purchasing of electronics, that was catalysed several years later by the COVID-19 pandemic.

The rise of online retailing (and more advanced forms of electronic access to conformance data, including through distributed ledgers and other forms of supply chain tracking) for electronics provides opportunities for greater prominence of credible environmental performance claims

As of 2024, approximately one third⁹ of electronics purchases are made online globally (with similar figures estimated for Australia and New Zealand), from a proliferating number of major and micro-online retailers and resellers.

There are opportunities, similar to the categorisation in online retailers such as ‘clean’ and ‘sustainable’ branding in personal care products, for the standards and conformance infrastructure to demonstrate to eBay, Alibaba, Amazon, Kogan, Google Shopping, and other large online retailers that they could use credible testing and certification schemes for (e.g.) ‘lower environmental impact’ (or ‘higher recyclability’, etc) electronic goods as fields (or categorisation for filters) in their product search and browsing inventory lists.

It is notable – *and perhaps a sign for caution on the actual environmental commitment of consumers* – that at the time of this discussion paper none of the above online retailers had search fields in their electronics products for environmental impact, lifespan or recyclability.

An additional opportunity is greater use and recognition of environmental performance of products in the existing ‘stand-alone’ certified product search services, such as that operated by the International

⁶ [REDcycle’s collapse is more proof that plastic recycling is a broken system \(theconversation.com\)](https://www.theconversation.com/redcycle-collapse-is-more-proof-that-plastic-recycling-is-a-broken-system)

⁷ [Electronic waste has grown to record levels. Here’s why that’s a huge problem | CNN](https://www.cnn.com/2021/01/26/electronic-waste/index.html)

⁸ MfE (2021) [‘Waste electrical and electronic equipment: Guidance for collection, reuse and recycling’](https://www.mfe.govt.nz/waste/waste-electrical-and-electronic-equipment-guidance-for-collection-reuse-and-recycling/). Ministry for the Environment.

⁹ [Nearly a Third of Consumer Electronics Bought Online \(pymnts.com\)](https://www.pymnts.com/nearly-a-third-of-consumer-electronics-bought-online/)

Accreditation Forum (IAF Cert Search¹⁰) and in Australia and New Zealand, Quality Trade ('Empowering certified supply chains'¹¹). Other examples are digitised conformance information across supply chains in retail associations, such as the GS1 Traceability standard¹² While the use of such sites by direct customers or procurement officers is lower than that of the 'mainstream' sites above, with time and greater emphasis, such dedicated 'walled' or 'quarantined' listing services could have an outsized impact on raising the awareness of, and ability to purchase, electronic goods with lower environmental impacts over their entire lifecycle.

The impact of such 'positive listings' services (list of objects with a given positive characteristic, as opposed to those without) on driving purchasing behaviour can be increased exponentially when combined with government financial subsidy programs and/or procurement guidelines published by government or corporate consortia. An example in the Australian Capital Territory is the ACT Sustainable Household Scheme¹³, in which grants of up to \$15,000 (AUD) per household are given for several categories of goods including photovoltaics and electric cars, with a condition that all goods be purchased from vendors that have been 'accredited' by the 'Brighte Marketplace'¹⁴.

It is anticipated that greater use of such interdependent purchasing and business-to-business trading obligations will be used by governments worldwide to overcome cost and practicality barriers for consumers to switch to more environmentally friendly goods and services.

With the multidisciplinary and all-encompassing testing and certification schemes operated by the IEC CA Systems, JASANZ, and SERI, together with an appetite for start-up and catalytic funding of innovative business led solutions by the IEC Global Impact Fund, there is an opportunity at the IECQ 2024 International Conference to identify and discuss specific projects to meaningfully address the problem of e-waste in the Asia Pacific Region.

Geographic inequalities are compounded by the problem of substandard electronic design and unethical disposal practices

The Asia Pacific Regions includes countries facing the highest immediate threats and impacts from global warming, and yet their populations have contributed among the least carbon emissions causing this problem, whether on a per-capita or absolute basis. Compounding this environmental injustice, many of these countries and regions are willing recipients of, or inadvertent (due to ocean currents) dumping grounds for, e-waste. A United Nations study¹⁵ reported (bolding emphasis added): *'Although a significant fraction of e-waste originates from the domestic usage of electronic equipment, a large volume of e-waste is also imported illegally into developing countries in the name of second-hand electrical and electronic equipment. **75-80% of e-waste generated around the whole world was exported to developing countries, especially the countries in Africa and Asia***'. Another example of plastic per se (including plastic from e-waste) was a 2017¹⁶ sampling collection of plastic waste in remote

¹⁰ [IAF Certification Validation - IAF CertSearch](#)

¹¹ [Empowering certified supply chains \(qualitytrade.com\)](#)

¹² <https://www.gs1au.org/what-we-do/standards/traceability>

¹³ [Sustainable Household Scheme - Climate Choices \(act.gov.au\)](#)

¹⁴ [Finance solar system & energy-efficient home products with Brighte](#)

¹⁵ UN Economic and Social Commission for Asia and the Pacific (2021) *'Toward Sustainable E-waste Management in Asia and the Pacific'*. www.unescap.org/kp/2021/toward-sustainable-e-waste-management-asia-and-pacific

¹⁶ Lavers & Bond (2017). Full citation over page

uninhabited islands and atolls in the Pacific, which reported: *'We provide a comprehensive analysis of the quantity and source of beach-washed plastic debris on one of the world's remotest islands. The density of debris was the highest recorded anywhere in the world, suggesting that remote islands close to oceanic plastic accumulation zones act as important sinks for some of the waste accumulated in these areas...'. 'The most common countries of origin of identifiable items were China (18.2%), Japan (18.1%), and Chile (12.5%)'*, however plastics from as far away as Scotland were recorded.

While businesses may be established with legitimate aims of handling e-waste, the logistical challenges of operating waste processing facilities in geographically remote areas are considerable. This means that well-intentioned recycling enterprises can inadvertently become indoor (or outdoor) 'landfills' for electronics, including goods that could have been reused and repurposed.

The Secretariat of the Pacific Regional Environment Programs (SPREP) maintains a standalone page for e-waste¹⁷, and undertakes regular surveys, and other initiatives including those under the EU funded 'PacWaste' project¹⁸. A recent update from SPREP advised: *'E-waste stockpiles in a number of Pacific Island countries. Efforts to manage E-waste effectively in the region are varied and pose economical, logistical and technical challenges due to limited access to disposal points, recycling markets and the high costs in transporting E-waste out of the region.'*

Once again, the problem of e-waste creates an opportunity; With the potential (assisted by design and transparent, ethical supply chains) for operating effective electronic re-use, repurpose, recovery and e-waste processing facilities, and associated business activities including brokerage, data sanitisation and hazardous substance collection services, the 'problem' of e-waste can be rethought of as yet another means to provide higher skilled, higher paying jobs for people in remote and very remote areas of the Asia Pacific. Such businesses could be further assisted by direct and indirect support from the Australian Department of Foreign Affairs and Trade, and the New Zealand Ministry of Foreign Affairs and Trade, as part of the wider diplomatic efforts of Australia and New Zealand towards the Asia Pacific region and as active members of the Pacific Island Forum¹⁹.

¹⁷ [E-waste | Pacific Environment \(sprep.org\)](https://www.sprep.org/e-waste)

¹⁸ PacWaste. [E-Waste in the Pacific Fact Sheet](#).

¹⁹ [Home page | Pacific Islands Forum](#)

Table 1: Number (n) and frequency of occurrence (FO) by country of origin of items washed up on Ducie Atoll in 1991 and Henderson Island in 2015

Country	Ducie Atoll*		Henderson Island	
	n	FO	n	FO
Japan	41	0.315	16	0.181
China	0		16	0.182
Scotland	11	0.085	2	0.022
United Kingdom	9	0.069	1	0.011
United States of America	8	0.061	3	0.034
Chile	0		11	0.125
Peru	0		8	0.091
Ecuador	0		5	0.057
Spain	1	0.008	4	0.045
New Zealand	3	0.023	3	0.034
Germany	3	0.023	1	0.011
France	2	0.015	2	0.022
Russia	2	0.015	2	0.022
Panama	0		3	0.034
The Netherlands	2	0.015	0	
Singapore	0		2	0.022
Total items recorded	130		88	
Total countries represented	15		24	

Only countries from which two or more items were collected are shown.

Source: Reproduced from Table S5, in Lavers JL & Bond AL (2017) 'Exceptional and rapid accumulation of anthropogenic debris on one of the world's most remote and pristine islands.' *Proceedings of the National Academy of Sciences of the United States of America* (PNAS). 114 (23) 6052-6055.

www.pnas.org/doi/10.1073/pnas.1619818114

Note: This study documented the 'rate of accumulation [of plastics] on [Ducie Atoll and] Henderson Island, remote, uninhabited island[s] in the South Pacific'

AS/NZS 5377 is nearing the end of its use in accredited certification

Major Australia and New Zealand businesses, including supermarkets and retail stores are engaged in the use of standards and 2nd-party schemes for sustainable procurement and disposal practices.

Notably, AS 5377:2022 was developed from AS/NZS 5377:2013, and its primary use was advised to be for business-to-business contracts and other second party procurement obligations²⁰. In addition, there was insufficient industry demand in New Zealand to warrant the coadoption of 5377:2022 as an AS/NZS standard, making the obsolete standard AS/NZS 5377:2013 the only national standard for recycling facilities in New Zealand. Notably, AS 5377:2022 incorporated further requirements for information security and data protection in electronic media.

The existing E-Waste Scheme for the certification of recycling facilities, published by the Joint Accreditation System of Australia and New Zealand (JASANZ)²¹ and developed for the Australian Department of Environment (currently as DCCEEW) and the New Zealand Ministry for Environment, has not been updated to incorporate the new standard AS 5377:2022, and is nearing the end of its 'scheme lifecycle'.

AS/NZS 5377 is still invoked in the Recycling and Waste Reduction (Product Stewardship—Televisions and Computers) Rules 2021²² (the current in-force version of a legislative instrument that has long invoked this standard), with the requirement that co-regulatory arrangements for the subsidisation of television and computer recycling must ensure that these must be recycled: *'[Rule] 7 (i) by a person certified to AS/NZS 5377 (as existing at the start of the financial year in which the product is recycled) at a facility covered by that certification; and (ii) in accordance with that standard'*. The Rules (and *Recycling and Waste Reduction Act 2020* which gives it legal effect) do not specify that the certification must be issued on an accredited basis, but as of 2023, the Department's policy from an administrative perspective was that this remains a mandatory expectation²³.

In the absence of new interest in the E-Waste Scheme for AS/NZS 5377 (or AS 5377), the future of the scheme is uncertain. As of March 2024, there are 47 facilities certified to the E-Waste Scheme²⁴, and two accredited Certification Bodies²⁵.

²⁰ Private conversation between JASANZ, and Standards Australia Committee EV-019 (E-Waste).

²¹ [JASANZ Register: E-Waste Scheme](https://register.jasanz.org) . Also see: <https://register.jasanz.org/endorsed-schemes/>

²² [Federal Register of Legislation - Recycling and Waste Reduction \(Product Stewardship—Televisions and Computers\) Rules 2021](#)

²³ Private conversation between JASANZ and the DCCEEW, 2023.

²⁴ [JASANZ Register \(jas-anz.org\)](https://register.jasanz.org) – Certificate Register

²⁵ [JASANZ Register \(jas-anz.org\)](https://register.jasanz.org) – Accredited Bodies Register

In addition to AS/NZS 5377, various other standards and arrangements have been developed by recycling service providers. Businesses serving within these second party and general customer servicing schemes with industry or company-to-company standards and contracts include the following:

New Zealand

- [TechCollect NZ](#)
- [E-Cycle Ltd](#)
- [Veolia](#)
- [Mint](#)

Australia

- [TechCollect](#)
- [E-Cycle Solutions](#)
- [MobileMuster](#)
- [Planet Ark – RecyclingNearYou](#)
- [Charitable Recycling Australia](#)

Note: Several of these Australian companies are now government ‘accredited’ under the ‘Product Stewardship Scheme’. See latter sections of this discussion paper for further information.

For some categories of electrical goods, the value of the products at the end of intended life are of sufficient value to incentivise Original Equipment Manufacturers (OEMs) and their vendors to regain possession and initiate recycling and responsible disposal of residual unusable materials. A prominent example of this is in electric car batteries, with, for example, Tesla Motors’ submission to the 2022 Australian Government ‘Wired for Change’ Review that: *‘[Electric Vehicle] Battery materials are refined and put into a cell and will remain in the cell at the end of their life when they can be recycled to recover valuable materials for reuse, repeatedly. This is why none of Tesla’s recovered lithium-ion batteries go to landfills and 100% are either utilized in the remanufacturing process or recycled.’*

Therefore, with the exception of instances of manufacturer insolvency, electric car batteries, and large capacity household and commercial batteries are unlikely to require financial incentives from government to promote reuse and recycling; The intrinsic value of the materials within them (and the reputational harm from substantial dumping of these in landfill) provide sufficient market incentives.

Smart design and manufacturing provide an ultimate upstream point of control over the durability, functionality, recyclability and environmental impact of goods

Further up the supply chain, to the point of manufacture, the IEC Systems Committee, Smart Manufacturing (‘IEC SyC SM’), has been created: *‘To provide coordination and advice in the domain of Smart Manufacturing to harmonize and advance Smart Manufacturing activities in the IEC, other Standards Development Organisations and industry consortia’*²⁶. Australia, via the IEC Australian National Committee (Standards Australia), is an active member of the ‘IEC SyC SM’, with the mirror committee ME-095 being comprised of internationally renowned experts in advanced manufacturing methodologies, including reference architectures, within the broader field of enterprise modelling and the discipline of Enterprise Engineering. Reference Architectures provide for the integration of enterprise operations and collation of knowledge needed for organisations to evolve and adapt to changes in their internal and external operating environment, including advances in technological standards and new imposed requirements from legislation. These can and have been applied for tangible product lifecycles.

²⁶ [IEC - SyC SM: Smart Manufacturing > Scope](#)

Reference Architectures are themselves codified by requirements in ISO 15704 and associated guidance in ISO 19439. IEC standards relevant for Smart Manufacturing also exist, and have an overlap with those standards and specifications used under the IECQ Conformity Assessment System. As explained in ISO 15704, enterprise-referencing architecture and enterprise modelling ‘...include capabilities that:

- capture concerns of mission fulfilment stakeholders (manufacturing, transport, service delivery, etc.) and of business stakeholders;
- describe suitable solutions to identified problems within the enterprise;
- model the whole life history of an enterprise integration project from its initial concept through development, operation and finally decommissioning or obsolescence; and
- encompass the people, processes, resources and organizations involved in performing, managing, and controlling the enterprise mission.’

Such reference architectures can contribute to sound product stewardship and responsible production of highly reusable, recyclable electronics products with lengthened lifecycles.

While broad in scope, such standards and the discipline of ‘Smart Manufacturing’ have obvious links to the IECQ objectives for eco-design and the broader goals of beginning to end consideration of a product’s environmental impact and overall societal value (or ‘cost-benefit’).

In the absence of compelling carrots, authorities are reaching for ‘The Stick’ for “green claims” associated with goods and services, including for electronics

‘Greenwashing’ is an activity that can deceive customers, investors, partners, and other stakeholders about the environmental performance of goods and services. The Australian Competition and Consumer Commission (ACCC) has publicly warned companies that it will prosecute those engaging in ‘greenwashing’, which it defines as the ‘term used to describe false or misleading environmental claims. Greenwashing makes business appear more environmentally beneficial than they really are’²⁷. It states: ‘A growing number of businesses are making environmental claims about their products, services, and operations. Many consumers consider environmental claims to be a major factor when choosing what to buy’, and outlines ‘Principles for trustworthy environmental claims’, that include: ‘Have evidence to back up your claims’. The ACCC’s 2024-25 enforcement and compliance priorities lists at the very top: ‘Consumer, product safety, fair trading and competition concerns in relation to environmental claims and sustainability.’²⁸ In terms of product safety, the ACCC has also prioritized in 2024-25 ‘Sustainability and maintaining product safety: supporting Australia’s transition to a sustainable economy including through education and awareness raising’, for ‘supporting consumer confidence in the safety of products needed to underpin Australia’s transition to a net zero and circular economy’.²⁹ These priorities are because: ‘Consumers can find it difficult to tell whether an environmental claim is true. Some claims don’t reflect the true environmental impact of a business, or the products or services it supplies.’ In its 2023

²⁷ [Environmental and sustainability claims | ACCC](#)

²⁸ <https://www.accc.gov.au/about-us/accc-priorities/compliance-and-enforcement-priorities>

²⁹ [Product safety priorities | ACCC](#)

publication, 'Making environmental claims: A guide for business'³⁰, the ACCC further explains its eight principles, and notes on page 13 under 'Have evidence to back up your claims' that (bolding emphasis added):

- *'There may be industry schemes or standards which relate to your products or claims. These can assist in ensuring that you have a reasonable basis for your claims or can help guide industry best practice, but compliance with an industry scheme or standard does not automatically mean compliance with your [Australian Consumer Law] ACL obligations and it's the overall impression in the mind of the ordinary and reasonable consumer that is key. For example, a claim may create a false or misleading impression in contravention of the ACL if it is based on an industry standard that adopts a technical definition of a term which is different to the meaning an ordinary and reasonable consumer would give to the term, or if it is based on a scheme which is conditional and limited but the claim is likely to be interpreted more broadly. You should always consider the overall impression your claim is likely to create from an ACL perspective.'*
- *'Industry or technical standards can be useful resources for businesses to understand what information and systems are necessary to support environmental claims. However, compliance with a standard does not necessarily equate to complying with the ACL. To comply with the ACL, businesses need to ensure they do not create a false or misleading impression in the mind of the ordinary and reasonable consumer.'*

On page 14 of the Guide, a heading is titled: 'Using third party certification as evidence', and is excerpted in full in the box below:

'Using third-party certifications as evidence

Businesses do not need to hold a third-party certification in order to make an environmental claim, however businesses may choose to use third-party certifications to provide credibility to their claims. There are many different types of certifications available to businesses.

*These can include certifications for a specific product or service, for an input to the business, for your entire business, or for a specific claim. Importantly, if you rely on a third-party certification to make a claim, **you should ensure that you are not creating a false or misleading impression about what the certification means or does.** Particular care should be taken when relying on a certification scheme for offsets and emissions, remember it is the overall impression on the ordinary and reasonable consumer that is key. When selecting a third-party certification scheme, it is good practice to take the following steps:*

- *choose a certification scheme that is independent, transparent, reputable, and robust*
- *check that the certification is suitable for your needs, and that it adequately reflects the characteristics of your product, service, inputs or business*

³⁰ ACCC (2023). [Making environmental claims: A guide for business | ACCC](#).

- offer consumers details of further information on the scheme or direct them to where they can access this information.

If your claims go beyond what you have been certified for, or you use the certification to imply a greater benefit than there really is, you risk misleading consumers.

When using a third-party certification to back up your claims, you should ensure that:

- your product or service does what you claim it does, even where you have complied with the third-party certification
- your claims clearly and accurately reflect what you have been certified for, and the scope of certification (this can be particularly important for certification schemes relating to inputs)
- you have not mischaracterised the nature of the certification scheme
- you ensure continuous and ongoing compliance with the rules of the certification scheme, it's not simply a one-off achievement
- the certification scheme is independent and there is no conflict of interest between your business and the scheme
- any promotion of the fact that a particular product or service you provide meets the requirements of a certification scheme is not disproportionately emphasised in the context of your product or service offering as a whole.'

Page 28 of the Guide further explains under a section 'Trust Marks' that (bolding emphasis added): *'If the environmental benefit that you are representing through a third party's symbol **has not been certified or verified by that third-party**, you **should not use** the symbol, otherwise, you are likely to mislead consumers. **You should also carefully consider** the use of any images that may convey the impression they **are a symbol of independent certification or verification for that characteristic, when this is not the case.**'*

A further explanation on the use of third-party certification schemes is provided in the guide, and excerpted in the box over page (bolding emphasis added):

Third-party labels and certifications

Having your environmental benefits **verified or certified by an independent, robust third-party scheme can build consumer trust in your brand**. However, consumers may also be unfamiliar with local or international environmental certification schemes. When using a logo from such a scheme, consider the overall impression created and whether any further information or explanation is required to ensure consumers are not misled.

For example, **you should not use a certification logo in a way that implies:**

- that you have been certified for an aspect of your product, service, or business which you have not. For example, if only your products have been certified, you should not imply that your entire business has been certified;
- that your product has been independently certified if this is not the case. For example, if your certification is self-assessed, or you have a material connection to the certifying body;
- that the certification scheme means certain environmental benefits have been certified as having been achieved when it does not. Businesses that are no longer certified, or fail to meet the criteria for certification, and represent that they are certified risk misleading consumers. You should be mindful of how you describe certification schemes, and where you place certification logos in your advertising materials, to ensure the overall impression created is not misleading. It is also good practice to offer consumers details of further information on the scheme. Some certification logos may also convey a misleading impression in themselves. For example, where the logo does not accurately represent what the scheme is designed to certify. Use of these types of certification schemes risk misleading consumers.

The combined guidance from the ACCC in Australia now demonstrates that any manufacturer or company that self-certifies with 'green claims' (or similar), or uses disreputable third-party conformity assessment schemes that are not transparent, are not operated by experts, and that do not have effective governance systems including complaints handling procedures, are at serious risk of being found to be in breach of the Australian Consumer Law.

In 2023, the ACCC 'conducted an internet sweep to identify misleading environmental and sustainability marketing claims in October/November 2022. The findings of the sweep were released in March 2023', and found 'widespread concerning claims'.³¹ Specifically: 'Of the 247 businesses reviewed during the sweep, 57 per cent were identified as having made concerning claims about their environmental credentials.... Sweepers reviewed 247 company websites across a range of targeted sectors including **energy, vehicles, household products and appliances, food and drink packaging, cosmetics, clothing and footwear**.' The ACCC then reminded stakeholders that it has enforcement powers under the *Competition and Consumer Act 2010*, including obtaining information, documents and evidence in relation to matters which may constitute a contravention of the Act.

³¹ [ACCC 'greenwashing' internet sweep unearths widespread concerning claims | ACCC](#)

As standards and conformance entities ultimately recognised under the World Trade Organisation (WTO) for assisting with detecting and eliminating arbitrary technical barriers to trade, the IEC CA Systems and ISO/IEC based certification schemes offer manufacturers strong protection when seeking to make and substantiate ‘green claims’, including for electronic waste and the circular economy.

The Commerce Commission New Zealand produced its Environmental Claims Guidelines in 2020³², which includes sections on ‘Lifecycle’ claims (from composition, production to disposal). Page 4 of this publication includes the statement that: *‘If you represent a product as biodegradable and reference a biodegradable standard, that standard should be relevant and directly applicable to the biodegradable claim. Otherwise, the biodegradability claim could mislead consumers’*. Page 5, under the section ‘substantiate your claims’, advises that in determining compliance, the Court may consider: ‘whether any relevant standards, codes or practices have been complied with’. Under a section, ‘Certification Stamps’, the Commission states (bolding emphasis added): *‘Certification stamps are commonly used to show that environmental qualities of a good or service have been verified. **Businesses should be careful of creating their own environmental logos because they may give consumers the idea that the product has been independently certified when it has not. Using rigorous independent certification schemes can give consumers confidence in the environmental qualities of your goods or services, but using similar-looking images to genuine certification marks may destroy consumer confidence and you risk breaching the law.’***

Therefore, both the ACCC and CCNZ have recently encouraged the use by companies of credible standards and third-party certification schemes, in general.

Nonetheless, despite the best efforts of standards experts, **to date neither has not formally recognised specific ISO, IEC or Australia/New Zealand Standards (AS/NZS) and associated schemes for ethical claims and labelling**. Most notably, in addition to those under the IEC CA Systems, and the SERI R2 Scheme in the case of an industry application of ISO/IEC norms, these include ISO/IEC 17029, the CASCO standard for validation and verification attestations of claims; the guidance ISO/IEC 17033 ‘Ethical claims and supporting information Principles and requirements’, and the ISO 14020 series (‘Environmental labels and declarations’) produced under the ISO Subcommittee ISO/TC 207/SC 3 (‘Environmental labelling’).

The ISO and IEC based conformity assessment infrastructure must work harder to demonstrate its standards, specifications and associated schemes are credible means for demonstrating compliance with government consumer law enforcement authorities.

Similarly, the EU “Green Claims” Directive (Procedure 2023/0085/COD), includes amongst other requirements Article 8 (‘Requirements for environmental labelling schemes’) and Article 11 (1), that: *‘The verifier [of these labelling schemes] shall be a third-party conformity assessment body accredited in accordance with Regulation (EC) No 765/2008’*.

³² CCNZ (2020) [Environmental Claims Guidelines a guide for traders. July. Commerce Commission New Zealand.](#)

The full text of Article 8 is provided in the box below:

Article 8:

'Requirements for environmental labelling schemes

- 1. Environmental labelling scheme means a certification scheme which certifies that a product, a process or a trader complies with the requirements for an environmental label.*
- 2. The environmental labelling schemes shall comply with the following requirements:*
 - a. information about the ownership and the decision-making bodies of the environmental labelling scheme is transparent, accessible free of charge, easy to understand and sufficiently detailed;*
 - b. information about the objectives of the environmental labelling scheme and the requirements and procedures to monitor compliance of the environmental labelling scheme are transparent, accessible free of charge, easy to understand and sufficiently detailed;*
 - c. the conditions for joining the environmental labelling schemes are proportionate to the size and turnover of the companies in order not to exclude small and medium enterprises;*
 - d. the requirements for the environmental labelling scheme have been developed by experts that can ensure their scientific robustness and have been submitted for consultation to a heterogeneous group of stakeholders that has reviewed them and ensured their relevance from a societal perspective;*
 - e. the environmental labelling scheme has a complaint and dispute resolution mechanism in place;*
 - f. the environmental labelling scheme sets out procedures for dealing with non-compliance and foresees the withdrawal or suspension of the environmental label in case of persistent and flagrant non-compliance with the requirements of the scheme.'*

For those consumers and countries within the European Union, the Green Claims Directive provides clarity about compliance expectations for making 'green claims' on electronics products and components. However, for those outside the EU, the Directive potentially raises risks of being perceived to breach (or demonstrated as breaching) the directives for supplying electronics and components with environmental claims on labels and advertising.

The IEC and ISO/IEC recognised standards and conformance bodies have credible grounds for meeting Article 8 [2] for certification (including presumably validation and verification attestation) schemes under the EU Directive.

The global electronics industry and wider standards and conformance infrastructure risks being left out of the public debate over the environmental impact of electronics and ‘e-waste’.

As discussed elsewhere in this paper, there is an increasing impatience by Australian and other governments towards the rate of voluntary initiatives by consumers and industry to address the increasing problem of e-waste. This impatience is resulting in increasing use of mandatory powers for compliance activities, including through regulation.

As per other areas of economic activity, the electronics and electrical product industry can reduce the risk of being left out of decisions that may adversely impact upon it by taking greater voluntary actions to address the environmental impacts of its goods.

The 2017 UN Environment Management Group report *‘United Nations System-wide Response to Tackling E-waste’* included a recommendation to (bolding emphasis added): *‘increase the inclusivity of UN e-waste initiatives, interalia, **by formulating more collaboration with the private sector** and considering e-waste arisings in developed countries as well as developing and transition economies.’*

One such example of a successful industry led initiative for e-waste is SERI³³, the Sustainable Electronics Recycling Initiative, and its R2 standard and associated certification scheme for waste processing and brokering facilities. The R2 standard, now in Version 3, incorporates requirements for waste facilities to effectively oversee a genuine ‘chain of custody’ arrangements for electronics and electrical goods whereby once received by an R2 facility, these will be tracked all the way through until reused, repaired/refurbished, repurposed, recovered (of valuable materials), and disposed in a manner that is legally compliant and minimises risks to human health and the environment, and potential breach of company and individual’s information. Facilities handling certain forms of data, or who are otherwise obligated to under contracts, are required to use US National Institute of Standards and Technology (NIST) standards and practices for data sanitisation, including logical sanitisation, if possible, to preserve the integrity of electrical equipment and allow for re-use if possible. Facilities are obligated to hold accredited ISO 14001 and ISO 45001 certifications, to appraise and comply with their relevant legal obligations (*jurisdictions often contain prescriptive requirements for transporting e-waste and operating facilities, and in addition most jurisdictions are bound by legal requirements for these in the Basel Convention and Stockholm Conventions*) and operate under a general continuous improvement paradigm for their performance. The standard incorporates requirements for hazardous material disposal, information security, insurances, and brokering under modular appendices

The latter parameters demonstrate the multifaceted challenges presented by electronics and electrical products that are nearing or have reached the end of their intended initial lifecycle.

Over 30 SERI R2 certified facilities exist in New Zealand and Australia, as at the time of this discussion paper.³⁴

³³ <https://sustainableelectronics.org/>

³⁴ [Home - SERI \(sustainableelectronics.org\)](#)

In discussions undertaken by JASANZ in the past few years, many R2 certified facilities in New Zealand and Australia hold certification due to contractual obligations with North American companies that are seeking to protect and correctly dispose of their data on electronics equipment.

E-Waste is an environmental, human health, information security / information privacy, economic equality, and trade concern

Within this picture of the Asia-Pacific region is a 'gap', or an 'opportunity', depending on your perspective; Not all end of Original Equipment Manufactured (OEM) intended lifespan electronic products (e-waste) are able to be reused and/or recycled. Much of it (>50 to 80%³⁵) ends in landfill or exported to other countries with themselves limited capacity to process the material in an environmentally sound manner (*i.e.*, consistent with the waste management hierarchy of prioritising reuse and repurposing at the outset). Estimates by the Australian Government are that by 2030, each Australian would generate (be responsible for) 22 kg of e-waste per annum³⁶. Extrapolating this to New Zealand and combining the estimated populations of both by 2030³⁷, gives a total e-waste generation for the 2030 calendar year of ~763,400,000 kg (~763,400 tonnes).

This is just for two small, albeit high-consuming, countries.

This level of consumption is typical of high per capita income countries. But with commensurate increases in developing countries of the Pacific Islands, and being prone to receiving e-waste (whether voluntarily through vendors or involuntarily from undeclared/unapproved dumping as discussed above), the 'growing' nature of e-waste is a concern across the Asia Pacific Region.

The Australian Parliamentary Library 2020-21 Budget Review³⁸ section on 'Waste Management' summarised the situation in Australia as follows: *'It is generally recognised that Australia has a recycling and waste management problem.' ... 'Up until recently, Australia sent much of its waste overseas as a cheaper alternative to local recycling...'*

Reliable figures on current global levels of e-waste generation are published by the United Nations Institute for Training and Research, 'Global e-Waste Monitor', with the 2024 edition reporting that: 'Electronic Waste Rising Five Times Faster than Documented E-waste Recycling', and 'A record 62 million tonnes (Mt) of e-waste was produced in 2022, up 82% from 2010'.³⁹

³⁵ [E-waste surges in 2021 as world sends goldmine to landfill - ABC News](#)

³⁶ Page iv, DCCEEW (2023) 'Wired for Change: Regulation for small electrical products and solar photovoltaic systems waste'. Department of Climate Change, Energy, the Environment and Water, Canberra, June. CC BY 4.0.

³⁷ NZ: ~5,400,000. Stats NZ. [National population projections: 2020\(base\)–2073](#). AU: ~29,300,000. Source: Australian Bureau of Statistics (2022-base---2071), [Population Projections, Australia](#), ABS Website, accessed 21 March 2024.

³⁸ [Waste management and recycling – Parliament of Australia \(aph.gov.au\)](#)

³⁹ <https://unitar.org/about/news-stories/press/global-e-waste-monitor-2024-electronic-waste-rising-five-times-faster-documented-e-waste-recycling>

Government initiatives for sustainable procurement/purchasing, reuse, recycling and disposal

In 2018, the Council of Australian Governments developed a 'National Waste Policy', and associated National Waste Policy Action Plan 2019⁴⁰ agreed to by all state/territory and Australian Government Environment Ministers, which included targets by 2030 of: 'Reducing the total waste generated in Australia by 10% per person'; 'Achieving an 80% average recovery rate from all waste streams' (Target 3); And 'significantly increasing the use of recycled content by governments and industry' ('Target 4'). Under Target 3, action item 3.02 included the specific item: '*Establish a Product Stewardship Investment Fund to accelerate work on new industry-led recycling schemes, including for batteries, electrical and electronic products, photovoltaic systems and plastic oil containers.*' Under Target 4, action item 4.07 stated: '*Investigate ways to support and promote businesses using circular economy practices, such as awards or recognition schemes*', with the 'partner' column listing 'business sector'.

The Action Plan was reviewed and updated in 2022⁴¹. Action item 3.02 was recorded as 'delivered', while action item 4.07 was noted to be ongoing.

As part of the National Waste Policy Action Plan, the Australian Government developed the 'Product Stewardship Scheme'.

The Australian Government published the Recycling and Waste Reduction (Product Stewardship—Accreditation of Voluntary Arrangements) Rules 2020⁴², a legislative instrument under the *Recycling and Waste Reduction Act 2020*. This instrument provides the legal basis for the Australian Government 'Product Stewardship Scheme', administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) in which: '*The administrator of a voluntary arrangement may apply to the Minister for accreditation of the arrangement in relation to a product'...[and] by achieving measurable outcomes relating to the product...allow certain persons to use a product stewardship logo in connection with the product.*' As explained by DCCEEW: '*Our Australian Government product stewardship logo tells consumers that your product has the Government's stamp of approval and contributes to a circular economy. The logo signals to the public that an arrangement: ✓ Is Australian Government accredited; ✓ Achieves sustainable outcomes; ✓ Aligns with circular economy principles; ✓ Has high industry support*'.⁴³

Guidelines for applying for Voluntary Product Stewardship accreditation was published by the Department in 2021⁴⁴.

In addition, under the *Recycling and Waste Reduction Act 2020*, the Department maintains a 'Minister's product stewardship priority list', which '*identifies the Minister's current priorities for product stewardship action*'⁴⁵. The Department explains (bolding emphasis added): '*Industry is expected to take action for the products on the list. The Minister reviews the list annually to see if the recommended*

⁴⁰ [National Waste Policy Action Plan 2019 \(dcceew.gov.au\)](https://www.dcceew.gov.au/national-waste-policy-action-plan-2019)

⁴¹ [National Waste Policy Action Plan – Annexure. 2022.](#)

⁴² <https://www.legislation.gov.au/F2020L01628/latest/text>

⁴³ [Product stewardship accreditation - DCCEEW](#)

⁴⁴ [Voluntary product stewardship accreditation guide \(dcceew.gov.au\)](#)

⁴⁵ [Minister's product stewardship priority list - DCCEEW](#)

actions have been taken. **If action is not taken, the Minister may consider regulating the products which can be more onerous for industry.**

A section titled: 'What products are being regulated by government', includes an example of such action taken in the past year, as follows: 'A number of products that were on the 2022-23 list, are not on the 2023-24 list because the government is progressing regulation for these categories. This is because industry has made insufficient progress to better manage the environmental impacts of these products since they were first listed.' The first of three items in this regulated list is as follows (bolding emphasis added):

'Photovoltaic Systems, electrical and electronic products

Formerly listed on the Minister's priority list

From 2016-17 to 2022-23

Reasons for regulation

Electrical and electronic waste (e-waste) is increasing. Programs such as the National Television and Computer Recycling Scheme and MobileMuster are recovering materials and diverting e-waste from landfill. However more needs to be done to manage the growing number of e-waste products entering the waste stream.

Photovoltaic (PV) systems comprise Australia's fastest growing electronic waste stream. From 2019 to 2030 PV and battery storage system waste was estimated to increase 18-fold from around 3,500 tonnes to around 62,000 tonnes.

Industry has made insufficient progress to better manage the environmental impacts of these products since they were first listed.

Government action

- The **Australian Government has committed to develop a mandatory product stewardship scheme to reduce waste from small electrical products and PV systems.**
- A discussion paper, *Wired for Change*, was released by the department in June 2023. Details are available on our *Wired for Change* page.'

The Department advises that the Product Stewardship Centre of Excellence⁴⁶ provides further guidance on applying for the Product Stewardship Scheme (bolding emphasis added): '*The Product Stewardship Centre of Excellence supports businesses reduce waste generation through better design and manufacture of products. The centre will: provide mentoring and best practice guidance; give technical, environmental, commercial, and legal advice; **help you build networks to support national industry-led schemes.***' The Australian Industry Group (AIG) has representatives on the Board of the Product Stewardship Centre of Excellence.

⁴⁶ [Centre of Excellence - Product Stewardship \(stewardshipexcellence.com.au\)](https://www.stewardshipexcellence.com.au)

Request for your ideas and presence at an international workshop to develop innovative project proposals for e-waste in the Asia Pacific region, and Conference Agenda

The existing services of IECQ, together with the SERI R2 standard, cover the entirety of a product lifecycle and provide unique opportunities for industry led e-waste initiatives.

The IEC Global Impact Fund (IEC-GIF) advances the vision of “a safer and more efficient world” and demonstrates the catalytic impact of international standards and conformity assessment systems in addressing many of today’s social, economic and environmental challenges and in ensuring that technology and quality infrastructure have a positive impact on society. Harnessing such technical solutions and best practices can help address some of the most urgent, global issues such as climate change, energy access and waste management.

As part of its project portfolio expansion into the Asia-Pacific region, IEC would like to [solicit feedback on the following question](#): ‘What industry led projects could Australia and New Zealand initiate to improve the circular economy for electronics and electrical goods in the Asia Pacific Region?’

Pre-conference survey form: www.surveymonkey.com/r/ZTJQBVN

In addition, we encourage you to send suggestions of project proposals to tsb@jasanz.org, cc Matt Doherty at the IEC Global Impact Fund (matthew.doherty@iec.ch).

We hope you enjoyed reading our discussion paper. We look forward to hearing your ideas for innovative industry-led projects for e-waste in the Asia Pacific, and seeing you in person in Brisbane ([Rydges South Bank, 9 Glenelg Street, South Brisbane, Queensland, Australia](#)) or online on **Thursday 18 April 2024**.

The IEC-GIF and JASANZ International Conference agenda is [over page](#). An online meeting link is below.

Online attendance link (18 April 2024):
<https://us06web.zoom.us/j/84041967788>

IEC-GIF and JASANZ International Conference Agenda (18 April 2024)

'Potential innovative industry-led projects for e-waste in the Asia Pacific: Supporting a circular economy'

Rydges South Bank, 9 Glenelg Street, South Brisbane, QLD, Australia. All times are in AEST.

09:30 – 10:00	Registration
10:00 – 10:10	Welcome and Introduction
10:10 – 10:45	IECQ Plenary on the New Approach
10:45 – 11:15	Introduction to the IEC Global Impact Fund
11:15 – 11:45	Coffee/Tea break
11:45 – 12:15	IEC Global Impact Fund initiatives in the Asia Pacific
12:15 – 12:30	Open Discussion
12:30 – 13:30	Lunch
13:30 – 14:15	SERI R2 Scheme launch in Australia and New Zealand
14:15 – 15:00	Ecodesign and Carbon Footprint verification
15:00 – 15:30	Coffee/Tea break
15:30 – 16:15	Opportunities for projects and collaboration
16:15 – 17:00	Open Forum
17:00 – 18:00	Cocktail Reception

